IUCN Conservation Outlook Assessment 2017 **(archived)**
Finalised on 10 November 2017

Please note: this is an archived Conservation Outlook Assessment for Tasmanian Wilderness. To access the most up-to-date Conservation Outlook Assessment for this site, please visit https://www.worldheritageoutlook.iucn.org.

Tasmanian Wilderness

SITE INFORMATION

Country:
Australia
Inscribed in: 1989
Criteria:
(iii) (iv) (vi) (vii) (viii) (ix) (x)

Site description:
In a region that has been subjected to severe glaciation, these parks and reserves, with their steep gorges, covering an area of over 1 million ha, constitute one of the last expanses of temperate rainforest in the world. Remains found in limestone caves attest to the human occupation of the area for more than 20,000 years. © UNESCO

SUMMARY

2017 Conservation Outlook

Good with some concerns

There have been competing land and resource interests at all times along the boundaries of the property since inscription. Such competing interests have accompanied the various extensions in 1989 and more recently in 2010, 2012 and 2013. However, it is important to recall that the World Heritage Committee approved all these extensions brought forward by the State Party. These additional areas have consolidated the Outstanding Universal Value of the property, whereas a proposal to remove areas of high conservation value was not approved by the World Heritage Committee (World Heritage Committee, 2014). For the time being, there seems to be no political intention to call the overall configuration of the property into question and the World Heritage Committee has clearly positioned itself in this regard. Even though the property is in a privileged position due to its vast scale, active management, very limited access and harsh environmental conditions, it is facing severe current and future threats. These include adequate and reliable resourcing, including for monitoring, commercial tourism interests and biosecurity risks and threats in the broadest sense. Climate change is an overarching concern and has plausibly been linked to already observable changes in fire frequency and intensity, changes that pose potentially catastrophic threats ancient life forms that are some of the key attributes of the property. The strong commitment expressed by the Australian and Tasmanian governments by explicitly supporting all 20 recommendations of the 2015 reactive monitoring mission (State Party of Australia, 2016) constitutes a promising and coherent new beginning. However, significant additional measures will required to address some of them. The efforts to better understand and do justice to the Aboriginal past and present of the property and its surroundings have been picking up momentum in the public arena over the last years. The foundation to respond to existing challenges and to understand and prepare for future challenges could thereby be considerably consolidated.

Current state and trend of VALUES

Low Concern
Trend: Deteriorating

Although the Tasmanian Wilderness is a vast and for the most part intact area which has conserved most of the specific conservation values for which it was inscribed on the World Heritage List, a number of threatening processes are causing the deterioration of some of its World Heritage values, including erosion of some geomorphological features and resultant downstream sedimentation, as well as the imminent extinction of the Orange-bellied Parrot despite intensive conservation measures. Other key species facing major challenges include the Tasmanian devil, alpine vegetation (including iconic conifers such as pencil pine and king billy pine), and riverine rainforest (including prodigiously long-lived Huon pine). Landscape-scale fires caused by climate change constitute a major threat to many of the property's ancient life forms. Some landscape and wilderness values, ecological processes, and geomorphological values have also declined in parts of the property since inscription.

Overall THREATS

High Threat

There are a number of current and potential threats in the Tasmanian Wilderness. The main concerns relate to the direct and indirect impacts of observable and anticipated climate change, including serious increases in fire frequency and intensity. If the current trend of landscape-scale fires of increasing frequency and intensity continues, catastrophic damage to some of the property's key attributes (ancient land forms, beautiful endemic species, alpine vegetation) is inevitable. Biosecurity risks are well-documented for the past and present - and expected in the future - in terms of invasive alien species of both flora and fauna and less conspicuous yet at least equally problematic fungi and other pathogens. Given the number of these pathogens, pests and feral species, the introduction of avoidable biological threats such as marine pollution in Macquarie Harbour should be absolutely avoided. Similarly, the threats from land-use changes outside the property are impacting on the property today and are expected to continue in the future. The loss of wilderness character due to the development of proposed tourism infrastructure in remote locations is a new threat which, if not managed carefully, may potentially affect some aesthetic

attributes of the property.

Overall PROTECTION and MANAGEMENT

Mostly Effective

The management of the Tasmanian Wilderness is sophisticated and mostly effective, certainly helped by a high degree of natural protection due to the scale, location, limited infrastructure and harsh environmental conditions. The series of extensions (formally Minor Boundary Modifications) have added a layer of protection to the property. The threats from the sometimes sharp borders with areas subject to intensive forestry practices etc. are understood and to the degree possible addressed. Provided the Australian and Tasmanian governments continue working towards fulfilling their recent commitment to the implementation of the 20 recommendations proposed by the most recent Reactive Monitoring mission, the overall management effort seems adequate. However, no progress has been made to bolster the property’s legislative protection by implementing the RMM’s Recommendation 11 to upgrade parts of the property to national-park status (Jaeger et al, 2016).

FULL ASSESSMENT

Description of values

Values

World Heritage values

► Undisturbed wilderness and spectacular landscapes

Criterion:(vii)

The property is mostly undisturbed wilderness with spectacular landscapes ranging from glaciated mountains and alpine meadows to buttongrass moorlands, towering forests, untamed rivers and wild coastal scenery, the longest undisturbed stretch of temperate embayed rocky and sandy coastline in the world. The glaciated mountains of the property are aesthetically distinct and outstanding, with red and gold to dark green tones in their blanket of vegetation, the dark tones of their glacial lakes (Jaeger et al., 2015; UNEP-WCMC, 2012; State Party of Australia, 2010).

► World’s tallest flowering trees forming awe-inspiring forests

Criterion:(vii)

Awe-inspiring, towering eucalyptus forests with the world’s tallest flowering trees and most of the last cool temperate rain forest remaining in Australia (Jaeger et al., 2015; State Party of Australia, 2010).

► Exceptional expression, diversity and scale of karst features going back up to 400 million years

Criterion:(viii)

The property contains an exceptional expression, extensive scale and very high diversity of ongoing and undisturbed karst processes, including palaeokarst development going back up to 400 million years, hydrothermal

karstification and glacio-karstic interactions (Jaeger et al., 2015; UNEP-WCMC, 2012; State Party of Australia, 2010).

► **Exceptionally broad range of geomorphological phenomena and processes**
Criterion:(viii)

The area contains rocks from almost every geological period and geomorphological features from past glacial events including one of the best available global records of temperate glacial processes during the Late Cainozoic Ice Age. This exceptionally broad range of ongoing geomorphological and soil processes continue to operate in a largely unmodified fashion (State Party of Australia, 2010). Exceptional range of glacial landforms with characteristics imparted by substrates otherwise absent from southern temperate latitudes provides a record of Quaternary glacial events that is uncluttered by the tectonic instability that occurs in New Zealand and Patagonian Andes and has allowed exceptionally old late Cainozoic glacial phenomena to survive.

► **Ongoing ecological processes with high degree of naturalness at a large-scale**
Criterion:(ix)

The wide variety of largely undisturbed ecosystems conserved in the property provides for the continuance of longstanding ecological processes. These processes have, in combination with the geographic isolation, resulted in an unusually high degree of floral and faunal endemism. The property is also
renowned internationally for the extreme longevity of some of its flora, the oldest of which has been dated as at least 43,000 years old (UNEP-WCMC, 2012; State Party of Australia, 2010).

► **Unique diversity of ancient taxa**
Criterion:(ix)

A unique diversity of ancient taxa, particularly relict groups with ancestry dating back to the super continent of Gondwana (State Party of Australia, 2010).

► High plant biodiversity with exceptional proportion of relict and endemic species

Criterion:(x)

Exceptional relict and endemic plant species include several endemic conifers, such as the King Billy Pine (Athrotaxis selaginoides), Huon Pine (Lagarostrobos franklinii) and Diselma, Microcachrys, Microstrobos spp.; members of the Cunoniaceae, Escalloniaceae and Winteraceae; Bellendena, Agastachys and Cenarrhenes spp. (all Proteaceae); and other plant genera with Gondwanan links (e.g. Eucryphia, Orites, Lomatia and Nothofagus). The King's Holly (Lomatia tasmanica) appears to have been in existence as a sterile triploid clone for at least 43,000 years, making it one of the oldest documented vascular plant clones in the world (Parks and Wildlife Service, 2004). The property also conserves many other threatened and endemic plant species as well as unique ecosystems, including the tall eucalypt forest and sphagnum bogs and fens. The largest extent of endemic Mt Mawson Pine has been included with 2013 extension to include Mt Field National Park (UNEP-WCMC, 2012; State Party of Australia, 2013, 2010 and 1982).

► Relict and endemic mammals

Criterion:(x)

Exceptional relict and endemic mammals including monotremes, such as the Tasmanian Platypus (Ornithorhynchus anatinus), Short-beaked Echidna (Tachyglossus aculeatus); carnivorous marsupials, such as the Tasmanian Devil (Sarcophilus harrisii); Spotted-tail Quoll (Dasyurus maculatus); Eastern Quoll (Dasyurus viverrinus); Swamp Antechinus (Antechinus minimus); and rodents, such as Broad-toothed Rat (Mastacomys fuscus) and Long-tailed Mouse (Pseudomys higginsi) (UNEP-WCMC, 2012; State Party of Australia, 2010 and 1982).

► Rare, relict and endemic birds

Criterion:(x)

11 of the 135 native bird species recorded in the property are endemic to Tasmania (Driessen and Mallick 2003). Relict and endemic birds include, for example, the critically endangered Orange-bellied Parrot (Neophema chrysogaster) and the Ground Parrot (Pezoporus wallicus leachii, LC). The

Tasmanian Wedge-tailed Eagle (Aquila audax fleayi -– Australia’s biggest bird of prey) is an endangered subspecies endemic to the island (UNEP-WCMC, 2012; State Party of Australia, 2010 and 1982).

► Relict and endemic frogs

Criterion:(x)

Of the seven native frog species known to occur in the property, three are endemic to Tasmania. The endemic Tasmanian froglet (Crinia tasmaniensis), moss froglet (Bryobatrachus nimbus), and Tasmanian tree frog (Litoria burrowsae) are believed to have Gondwanan origins (State Party of Australia, 2010 and 1982, UNEP-WCMC, 2012). The Moss Froglet (Bryobatrachus nimbus) is an endemic frog discovered after inscription in 1992 and restricted to the southern part of the property (Hero et al., 2004).

► Endemic and threatened skinks

Criterion:(x)

Of the 14 native reptiles species occurring in the property, seven are endemic skinks including the Mountain Skink (Niveoscincus orocryptus), Northern Snow Skink (Niveoscincus greeni), Southern Snow Skink (Niveoscincus microlepidotus) and the Pedra Branca Skink (Niveoscincus palfreymani, which is restricted to Pedra Branca Island which belongs to the property) (State Party of Australia, 2010 and 1982; Driessen and Mallick 2003). These species occur either entirely or primarily within the property.

► Endemic and threatened freshwater fish

Criterion:(x)

There are 16 recorded species of native freshwater fish within the property, including four endemic species. The Swamp Galaxias (Galaxias parvus), Pedder Galaxias (Galaxias pedderensis) and the Western Paragalaxias (Paragalaxias julianus) are restricted to the property and the distribution of the Clarence Galaxias (Galaxias johnstoni) is primarily restricted to the property. The Pedder Galaxias was translocated from Lake Pedder to Lake Oberon within the property and is no longer believed to survive in Lake Pedder (Driessen and Mallick 2003).

► Enormous diversity of relict and endemic groups of invertebrates

Criterion:(x)

Enormous diversity of relict and endemic invertebrates, including for example numerous velvet worms (Euperipatoides and Ooperipatellus spp.); the Tasmanian Cave Spider (Hickmania troglodytes); aquatic insect groups with close affinities to groups found in South America, New Zealand and Southern Africa (e.g. dragonflies, chironomid midges, stoneflies, mayflies and caddisflies); crustaceans (e.g. Anaspidacea, Parastacidae, Phreatoicidae); primitive taxa showing links to fauna more ancient than Gondwana (e.g. Anaspididae, Trogloneta (a mysmenid spider); species in the genus Sabatinca of the primitive lepidopteran sub-order Zeugloptera) (DPIPWE, 2016, State Party of Australia, 2010). Of the more diverse and better studies invertebrate groups, a number exhibit levels of Tasmanian endemicity in excess of 65%, many of which are entirely restricted to the property (Mallick and Driessen, 2005).

► Tracts of undisturbed peatlands and moorlands

Criterion:(ix)

The buttongrass moorlands of Tasmania are the best expression of a vegetation type with no close analogue outside Australia (Balmer et al, 2004). The accumulation of peatlands and development of blanket bogs is a complex interaction between climatic, geomorphic and floristic variables (Sharples, 2003). The process of vegetation succession and impacts of fire are exemplified in buttongrass moorlands which provide habitat for a unique array of bird and invertebrate fauna; they are an integral part to the unique beauty of the Tasmanian Wilderness (Balmer et al, 2004).

► Wild temperate coastline

Criterion:(vii)

The property contains the longest undisturbed stretch of temperate embayed rocky and sandy coastline in the world, with spectacular headlands, beaches, lagoons, islets and cliffs and a rugged windswept archipelago (State Party of Australia, 2010; Sharples, 2003).

Other important biodiversity values

► **Mixed property featuring high and interlinked cultural and natural values**

The Tasmanian Wilderness is a mixed property inscribed in recognition of its past and ongoing cultural wealth and spiritual importance which are intricately linked to the natural environment.

Assessment information

Threats

Current Threats

High Threat

There are a number of current high threats. Since 2000, ‘landscape-scale’ wildlfires have burnt over 10% of the property, causing catastrophic localised damage in some high-altitude locations. In addition, there is a wide range of other threats operating at either very localised levels or on very specific attributes (eg aquaculture pollution, Tasmanian devil facial-tumour disease, species-specific pathogens). The cumulative total of these separate influences is, however, significant, particularly during a period of globally ubiquitous climate change. The size and integrity of the property, as well as the remoteness of vast parts of it, may well be the strongest factor in terms of resilience. However, this remoteness may be affected if proposed tourism developments and infrastructure are not appropriately considered and assessed. Otherwise, it is encouraging that many such threats are well understood and there are coherent and strong management responses. As the consequences of many of the threats could be devastating, threat monitoring and preparedness for future scenarios are indispensable.

► Other Ecosystem Modifications

Very Low Threat
Inside site, extent of threat not known
Outside site

In 2009, Highland Sphagnum Bogs and Associated Fens were listed as an endangered ecological community including sphagnum peatland on state forest. All sphagnum harvesting in the wild in Tasmania is now prohibited (State Party of Australia,, 2012).

► Other

Low Threat
Inside site, throughout(>50%)
Outside site

The Chytrid fungus (Batrachochytrium dendrobatidis) has dramatically affected amphibians across the world. The property is still largely disease-free with no further spreading of the fungus having been detected since 2010. Spreading of Chytrid is known to be associated with human disturbance and the fungus is mainly moved by people (Allan et al., 2009; Parks and Wildlife Service, 2012). Management plans to stop the fungus from affecting frogs in the property are in place and appear to be effective.

► Other

High Threat
Inside site, extent of threat not known
Outside site

Besides many other factors, especially on the migration route and its wintering habitat on the Australian mainland, the Critically Endangered Orange-Bellied Parrot is threatened by the Psittacine circoviral disease. To date the disease has been detected in parrots in captivity only (Parks and Wildlife Service, 2004; HVEC 2009; State Party of Australia, 2008).

► Invasive Non-Native/ Alien Species

High Threat
Inside site, widespread(15-50%)
Outside site

Plant diseases and dieback, especially the root rot disease Phytophthora

cinnamomi pose major threats. Previously restricted to hiking trails, increasing road access due to logging and mining operations in the proximity to the property open up ever more pathways to this fungus and numerous other organisms into wilderness areas (Jaeger et al., 2015; HVEC 2007; 2009; SWST, 2008; Hitchcock, 2008; Law, 2009). In 2010 a significant new infestation was detected on the Loddon Plains and trial stream monitoring was conducted on the boundary for Phytophthora species. A Phytophthora cinnamomi management plan is in place to mitigate the risk of further spread and management of the pathogen, however, available resources might be insufficient (State Party of Australia, 2012).

► Invasive Non-Native/ Alien Species

Low Threat
Inside site, extent of threat not known
Outside site

Weed species such as Blackberry (Rubus fruticosus) are mostly a problem in areas of mechanical disturbance such as roadsides with minor instances of exotic species, generally confined to river bank and littoral sites, occurring in undisturbed ecosystems (Parks and Wildlife Service, 1999). Control of species threatening coastal processes including Marram Grass (Ammophila arenaria), Pampas Grass (Cortaderia spp.) and Sea Spurge (Euphorbia paralius) are underway (State Party of Australia, 2010, 2012). Other exotics reported as spreading include Gorse (Ulex europaeus), Ragwort (Senecio jacobaea), Broom (Cytisus scoparius), Canadian Pond Weed (Elodea canadensis) and Holly (Ilex spp.) Parks and Wildlife Service, 2004; Hitchcock, 2008).

► Fire/ Fire Suppression

High Threat
Inside site, widespread(15-50%)
Outside site

Wildfires, especially ‘landscape-scale fires’ (i.e. fires that are not stopped by normal fire boundaries such as wet forest or major rivers) and peat fires are a great threat. Recent reports show that fires from lightning strikes now dominate (over 99% of area burnt) as a source of ignition of major wildfires within the property and that, while fire is part of the natural ecology of the property, the more intense fires generated over summer as a result of lightning and climate change pose a severe threat to the property’s ancient

life forms (PWS, 2015). In response to the 2016 bushfires, the TWWHA Bushfire and Climate Change Research Project was launched. The project concluded that the property's values that are most threatened by an increase in fire frequency are fire-sensitive palaeoendemic species, alpine and rainforest ecosystems and organic soils and landforms (Press (Ed.), 2016).

▶ Invasive Non-Native/ Alien Species

High Threat
Inside site, throughout(>50%)
Outside site

Invasive alien animal species in many taxonomic groups are a significant and permanent threat to several conservation values of the property. The current management plan mentions 25 vertebrate and 45 invertebrate invasive alien species; however only 6 vertebrates and 4 invertebrates species have established a significant presence in the TWWHA: common starling, superb lyrebird (Menura novaehollandiae), European rabbit, feral cat, sugar glider, European wasp, honeybee and the large earth bumblebee. All these species exemplify the impacts of invasive alien species, such as competition for nesting sites, alteration of native vegetation and predation and even erosion. Removal is likely to be impossible in most cases so the existing management tends to focus on managing rather than eradicating populations with the exception of larger mammals like feral goats and European deer (Locke, 2007; Parks and Wildlife Service, 2004).

▶ Other

High Threat
Inside site, extent of threat not known
Outside site

The outbreak of the lethal Devil Facial Tumour Disease in Tasmanian Devils has resulted in a population decline of over 80% (IUCN Consultation, 2017). Despite a considerable management response (see projects section), the threat remains high.

▶ Tourism/ visitors/ recreation

Low Threat
Inside site, localised(<5%)

Tourism, recreation and visitor activities and associated infrastructure,

including increasing mechanised access to remote areas and built private commercial accommodation developments, increasing use of boats and aircraft flights to access remote areas; and cruise ships, boating and diving activities in the Port Davey–Bathurst Harbour region, have been noted as threats (Parks and Wildlife Service, 2004; Birdlife Tasmania et al, 2017). The Parks and Wildlife Service applies scrutiny to all proposals through multiple assessment tools, including the Reserve Activity Assessment (RAA). The RAA process is the equivalent of an environmental impact assessment and ensures that any threats to the values of the TWWHA are mitigated through RAA conditioning and if necessary, EPBC referral (IUCN Consultation, 2017). However, the dilemma remains that there are strongly differing views on the adequate type and intensity of tourism development (Jaeger et al., 2015).

► Tourism/ Recreation Areas

Low Threat
Inside site, localised(<5%)

Despite the physically very limited footprint of tourism infrastructure and recreation areas there is significant concern about increasing tourism infrastructure and associated intrusive mechanised access adversely affecting the wilderness character of the property (Birdlife Tasmania et al, 2017). However, as mentioned above, each proposal is scrutinised for its economic and environmental suitability before approval is granted to commence negotiation of a lease or license. All proposals are subject to a Reserve Activity Assessment process and other regulatory approvals as required (IUCN Consultation, 2017).

► Logging/ Wood Harvesting

Low Threat
Outside site

Through the adoption in 2016 of the statutory management plan for the property both levels of government have committed themselves to consider the entire property off limits to commercial logging. Therefore, there is no risk of commercial logging within the property and the main risks thus refer to the impacts of commercial forestry near the property.

► Erosion and Siltation/ Deposition

Low Threat

Inside site, scattered(5-15%)
Outside site

Extensive erosion on the Central Plateau in the north-east and coastal erosion threatens geoconservation values (PWS, 2004).

► Water Pollution

Low Threat
Inside site, localised(<5%)
Outside site

Fish farms (Atlantic salmon) in Macquarie Harbour have generated effluent that has entered the marine waters of the World Heritage Area and impacted marine life, potentially further threatening the endangered Maugean skate (ABC News, 2016). The Tasmanian Government has reported: ‘There is evidence of deterioration in the environmental condition in Macquarie Harbour broadly, and also within the TWWHA region’ and identified finfish aquaculture as one of the drivers of environmental decline (EPA, 2017). Steps have been taken to reduce the impact of aquaculture pollution on the property and monitoring and reporting continue.

Potential Threats

High Threat

Potential threats include the geomorphological and ecological consequences of anthropogenic climate change, uncontrolled wildfires at a landscape scale, new invasions of alien species and pathogens, and loss of wilderness character due to proposed tourism developments in remote locations. In essence, the potential threats boil down to a possible intensification of existing threats. Risk assessment plans are in place but the property remains highly threatened. The modelled impacts of climate change (more frequent and intense wild fires at the hottest time of the year) present a serious threat to many of the property’s most charismatic attributes, such as ancient pines, alpine vegetation, riverine rainforest, and extensive peatlands. The proposed spread of new infrastructure and mechanised access in highly scenic parts of the property may have serious impacts on the aesthetics of the property, particularly the sense of seclusion that visitors on foot can currently experience.

► Temperature extremes

Very High Threat
Inside site, throughout(>50%)
Outside site

Anthropogenic climate change may already be responsible for a broad range of changes and increasing vulnerability (PWS, 2016). Many view the major bushfires which raged through Tasmania in early 2016 as indicators of change and assume major shifts in the fire regimes. Fires lead to increased soil and regolith erosion, which in turn affects sediment transportation along watercourses. In addition to coastal erosion, climate change is likely to include temperature rise, sea level rise, extreme weather events and flash flooding which are anticipated to affect rates and magnitudes of further change, including fluvial systems, karst and in the extensive blanket bogs supporting buttongrass ecosystems. In montane and subalpine areas, a change in fire regimes may affect fire-sensitive conifer species - including Huon Pine, Pencil Pine and King Billy Pine - and is likely to cause a significant decline in the populations of fire-sensitive conifer species, including alpine species such as Pherosphaera hookeriana, Diselma archeri and deciduous beech, as well as rainforest vegetation. Changes in fire frequency and intensity have also resulted in landscape changes from extensive erosion, with a particular concern in the Central Plateau and parts of Southwestern Tasmania, for example in the Davey River area. Although evaporation rates will increase, streamflow response is likely to be unpredictable, and there will be a reduction in snow cover and a rise in the climatic treeline (Australian National University, 2009; Law, 2009). A Senate Inquiry into the impacts of the 2016 fires heard from numerous witnesses that climate change is exacerbating the impacts of such fires on vulnerable flora within the Tasmanian Wilderness (The Wilderness Society et al, 2016; Parliament of Australia, 2016). An active programme for monitoring the impacts of climate change on the property and incorporate this programme into a risk-reduction strategy and action plan has been implemented (State Party of Australia, 2010). The current management plan fully recognizes the challenge (DPIPWE, 2016).

► Invasive Non-Native/ Alien Species

Low Threat

Inside site, extent of threat not known
Outside site

The European or Red Fox (Vulpes vulpes) was introduced to Tasmania in 2001. Since then a targeted campaign to eradicate this potentially disastrous invasive predator from the island has been undertaken (Department of Primary Industries, Parks, Water and Environment, 2017). The campaign has been largely successful in preventing the species from spreading and there remains little evidence of the species existing in Tasmania (IUCN Consultation, 2017). However, the species continues to pose a potential risk (Jaeger, 2015).

► Invasive Non-Native/ Alien Species

Very Low Threat
Inside site, extent of threat not known
Outside site

Myrtle rust, an introduced disease affecting Myrtaceae (which includes Eucalyptus) was discovered on mainland Australia in 2010 and has since occurred in several outbreaks in Tasmania. While the property does not fall within the current modelled climatically suitable areas for its establishment in Tasmania, and steps to mitigate the risk of myrtle rust permanently establishing in Tasmania are being undertaken, the recent arrival of the disease in Australia and Tasmania is a reminder of the constant risk of new biosecurity threats (State Party of Australia, 2012).

Protection and management

Assessing Protection and Management

► Relationships with local people

Some Concern

There have been directly opposing and frequently polarized views about the property at all times (Jaeger et al., 2015). According to Mooney (2012) “sudden restrictions on timber harvesting, cattle grazing and mining extraction (…) caused much local community concern”. At the same time, the formal conservation status and subsequent World Heritage inscription are

celebrated conservation success stories well beyond Tasmania. The role of the Tasmanian Aboriginal Community adds further complexity. More recently, the commitment to the technical recommendations of a 2015 Reactive Monitoring mission on the part of both the Australian and the Tasmanian governments, including in terms of stronger involvement of local communities and the Tasmanian Aboriginal Community could mark a new beginning.

► Legal framework

Mostly Effective

The legal framework is complex due to the combination of federal and state mandates and diverse land tenure, some of which excludes the legal applicability of the Management Plan (Jaeger et al., 2015). The Management Plan does, however, apply to over 97% of the property (DPIPWE, 2016). At the federal level, the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act), which applies to all Australian World Heritage properties, deserves to be highlighted. This legislation enables the central government (ie the State Party) to prevent developments that would harm the property's OUV. Further applicable legislation includes the Nature Conservation Act 2002 and the National Parks and Reserves Management Act 2002 (both at the Tasmanian state level). The complexity frequently generates at times politicized debate about differing interpretations of the legal framework. In addition, Recommendation 11 by the 2015 Reactive Monitoring Mission (RMM) that some 35,000 ha of the property currently classed as Future Potential Production Forest Land be converted to national park (Jaeger et al, 2016) has not been acted upon yet.

► Enforcement

Mostly Effective

Vast areas are not easily accessible which limits their vulnerability to illegal activities.

► Integration into regional and national planning systems

Some Concern

The sheer size of the property makes it less vulnerable to disturbance and edge effects than smaller protected areas. The current Management Plan

acknowledges that there are sharp borders between the property and private land, the length of which has significantly increased due to the 2013 Minor Boundary Modification. According to the most recent Reactive Monitoring Mission report, related challenges include easy access, fire, biosecurity and crop damage from wildlife. The same source otherwise suggests the direct borders between the property and Permanent Timber Production Zone Land (PTPZL) are problematic due to the use of chemicals in managed forests and plantations, hybridization risks and colonization by non-native plantation species (Jaeger et al., 2015). However, in June 2015, the Australian Government provided AUD $680,000 to the Tasmanian Government to implement a project to address high risk biosecurity issues of immediate concern to landholders adjoining the 2013 extension, this includes implementation of the 2016 Good Neighbour Charter (Good Neughbour Charter, https://dpipwe.tas.gov.au/about-the-department/good-neighbour-charter). In 2015 some changes were introduced to Tasmanian planning laws and the associated planning scheme. PWS is presently reviewing its RAA process to ensure that adequate safeguards are in place to properly assess and mitigate impacts that may threaten the property's values, as well as to provide for appropriate levels of transparency given planning changes. This review is scheduled for completion in mid 2018 (IUCN Consultation, 2017).

► Management system

Mostly Effective

Statutory management plans provide the overarching guidance for the property even though the plans cannot legally be applied to the entire property. While the 1999 Management Plan was supposed to be revised in 2009, it was eventually updated in 2016. The 2016 Management Plan applies to 97% of the property. A Strategic Management Statement documents management arrangements for the remaining area (DPIPWE, 2016). Besides, there are non-statutory plans, for example applying to historic heritage and fire management; permit systems; annual work and business plans; codes of practice; Memoranda of Understanding; traditional use arrangements (IUCN, 2014).

► Management effectiveness

Mostly Effective

There is no indication of substantial deficits and management is - despite differing views on many specific aspects - widely considered to be effective overall. The Parks and Wildlife Service PWS has developed, and is progressively implementing, an innovative, evidence-based monitoring, evaluating and reporting system to support sound adaptive management. This includes periodic State of the TWWHA Reports and evaluated case study reports on the monitored effectiveness of significant and selected projects in the TWWHA. For examples of TWWHA evaluation reports and PWS's adaptive management approach (www.parks.tas.gov.au/monitoring).

► Implementation of Committee decisions and recommendations

Mostly Effective

The proposed minor modification of 2013 was a very comprehensive response to decisions by the Committee between 1995 and 2012 (CONF 201 VI.20, CONF 202 IV.7, CONF 201 V.B.37, 23BURIV.B.48, 30 COM 7B.32, 31 COM 7B.43, 32 COM 7B.41, 34COM7B.38, 36 COM 7B.36). Another demanding commitment to a World Heritage Committee decision was made in 2016, when both key governmental levels of the State Party committed themselves to 20 far-reaching recommendations articulated by the 2015 Reactive Monitoring mission, which were endorsed by the World Heritage Committee (World Heritage Committee, 2016).

► Boundaries

Mostly Effective

The boundaries of the mixed property were repeatedly expanded by a series of "Minor Boundary Modifications" (according to World Heritage terminology) in 1989, 2010, 2012 and 2013. The latter alone added 172,500 hectares to the property, thereby contributing to its integrity (IUCN, 2013).

► Sustainable finance

Some Concern

The World Heritage property benefits from federal and state funding. It is clear that reliable and adequate funding will be needed at all times to manage the vast property. The State Party of Australia (2016) informed the World Heritage Committee that "governments periodically review the

adequacy of funding available for the management of the property in light of identified threats to its Outstanding Universal Value". The Australian Government has provided baseline funding of AUD $3.4 million per annum since 2005 and this has been at least matched by the Tasmanian Government. From 2018 this amount will increase to AUD $5.1 million per annum. In 2015 the Australian Government provided an additional AUD $10.2 million to support the Tasmanian Government’s management of the property, recognising the additional responsibilities to manage the World Heritage values of the areas added to the property in 2013 (http://www.environment.gov.au/heritage/publications/state-party-report-tasmanian-wilderness-2016).

► Staff training and development

Some Concern

The current management plan and formal State Party reporting consistently acknowledges insufficient past consideration of the cultural dimension of the mixed property, reflected also in human resources development and training. While it is encouraging that the State Party has committed itself to reaching a better balance (State Party of Australia, 2016), a detailed assessment of the adequacy of staff training and development is beyond the scope of this assessment.

► Sustainable use

Mostly Effective

Consumptive use is severely restricted and there are no indications of noteworthy illegal natural resource use inside the property.

► Education and interpretation programs

Data Deficient

The current management plan states the commitment to "revitalising approaches to the interpretation and presentation of cultural heritage". A PWS evaluated case study report is currently in preparation which examines the effectiveness of the TWWHA plan initiative for ‘Taking the TWWHA to the world online’ which examines progress in website and digital resources development. Another evaluated case study report examined the effectiveness of a project to present Aboriginal cultural heritage through the

Needwonnee Aboriginal cultural heritage walk (PWS 2015).

▶ Tourism and visitation management

Some Concern

Tourism and interpretation are explicitly desired activities and indeed management objectives (DPIPWE, 2016). The challenge is that the various actors have differing view on the limits of acceptable change, for example as regards access and infrastructure (Jaeger et al., 2015). The debate is directly linked to the wilderness character of large parts of the property and how those should be managed. The management plan is an obvious instrument to strike a balance between differing interests; a Tourism Master Plan aimed at helping to strike this balance is underway and planned for completion in late 2019. At the time of the most recent Reactive Monitoring mission, major concerns centered around the allegedly less than clear relationship between ongoing consultations to inform the revised management plan and parallel tourism-related initiatives targeting the property.

▶ Monitoring

Mostly Effective

The new management plan articulates a very ambitious monitoring and evaluation framework to support adaptive management of the property. Monitoring, evaluation and reporting are recognised as being an integral and indispensable management component. The TWWHA Management Plan 2016 commits to producing regular State of the TWWHA Reports and ensuring appropriate allocation of resources for measuring evidence for the evaluation of management effectiveness.

▶ Research

Some Concern

A wealth of high-quality research across a wide range of fields has been conducted for decades, often adequately linked to the management of the property. The main concerns are related to the depth of research on culture, the format and nature of research on sensitive cultural heritage and the lack of integrating cultural and natural aspects in research (Jaeger et al., 2015). A detailed plan for the comprehensive cultural assessment of the property is being prepared and an archaeological survey of the 2013 extension is

underway. In June 2017 the Australian Government submitted a synthesis report and literature review on aboriginal heritage of the property.

Overall assessment of protection and management

Mostly Effective

The management of the Tasmanian Wilderness is sophisticated and mostly effective, certainly helped by a high degree of natural protection due to the scale, location, limited infrastructure and harsh environmental conditions. The series of extensions (formally Minor Boundary Modifications) have added a layer of protection to the property. The threats from the sometimes sharp borders with areas subject to intensive forestry practices etc. are understood and to the degree possible addressed. Provided the Australian and Tasmanian governments continue working towards fulfilling their recent commitment to the implementation of the 20 recommendations proposed by the most recent Reactive Monitoring mission, the overall management effort seems adequate. However, no progress has been made to bolster the property's legislative protection by implementing the RMM's Recommendation 11 to upgrade parts of the property to national-park status (Jaeger et al, 2016).

▶ Assessment of the effectiveness of protection and management in addressing threats outside the site

Some Concern

The long and sharp borders between the property and adjacent private land, plantations or areas otherwise subject to intensive commercial forestry are recognized as threats and partially addressed in management. Furthermore, very ambitious biosecurity plans are in place or have been proposed for and beyond the property (Allan et al., 2010).

▶ Best practice examples

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State and trend of values

Assessing the current state and trend of values

World Heritage values

▶ Undisturbed wilderness and spectacular landscapes

High Concern
Trend:Deteriorating

While the wilderness and landscape values of the property remain very high, a number of direct and indirect impacts, mostly from increased commercial tourism development are of considerable concern to many stakeholders (Jaeger et al., 2015). A large number of new commercial tourism developments are proposed for the property, many of them involving new infrastructure and/or mechanised access, comprising a potential threat to the property's wilderness values (Birdlife Tasmania et al, 2017).

▶ World's tallest flowering trees forming awe-inspiring forests

Low Concern
Trend:Stable

The Eucalypt forests within the property appear to be largely intact with observable changes being in line with natural dynamics and cycles. Since the original inscription, extensions have increased the area of protected tall Eucalypt forest, in particular the latest Minor Boundary Modification approved by the World Heritage Committee according to the corresponding independent technical advice (IUCN, 2013). The World Heritage Committee commended the State Party for its commitment to "explicitly rule out all forms of commercial logging in the whole of the property" (World Heritage Committee, 2016).

▶ Exceptional expression, diversity and scale of karst features going back up to 400 million years

Good
Trend:Stable

While no significant damage to the karst features inside the property have been reported since inscription, potential threats include erosion due to climate change. It deserves to be noted that several extensions over time

have added significant karst landforms to the property (see for example IUCN, 2013).

▶ Exceptionally broad range of geomorphological phenomena and processes

Low Concern
Trend:Data Deficient

Unlike outside of the property where forestry operations and vandalism have destroyed both sensitive karst features and archaeological cultural heritage, the property provides a high degree of protection to its living geomorphological heritage. There are, however, anthropogenic impacts from hydropower development modifying river flows of the Gordon River within the property and consequently a geomorphological process. While a detailed consideration is beyond the scope of this assessment, it deserves to be noted that from 2008-2010 “there has been some improvement in bank vegetation cover and little geomorphic change. However, an expected return to higher volume and more sustained discharge in 2011 is predicted to reverse those trends” (State Party of Australia, 2012).

▶ Ongoing ecological processes with high degree of naturalness at a large-scale

High Concern
Trend:Deteriorating

The property itself is not subject to changes directly impacting on ongoing natural processes with the exception of small areas subject to intense visitation. At the same time, the surroundings of the property have been continuously and considerably modified over many decades by land use changes, such as plantation forestry. Even the nearby natural forests have been subject to logging and thus to the associated direct and indirect impacts, such as the introduction of weeds, pathogens, feral animals and genetic contamination etc. (Jaeger et al., 2015); threats include also the spreading of forestry-related burns – or arson – to forests and adjacent alpine vegetation (Law, 2009). Since inscription new weed infestations and in 2010 a significant new infestation of Phytophthora was detected on the Loddon Plains (State Party of Australia, 2012). Despite considerable management efforts, such more or less subtle influences are indications of multiple impacts on natural ecological processes despite the effective management of

the property itself.

▶ Unique diversity of ancient taxa

Data Deficient
Trend:Data Deficient

No reports of ancient taxa being lost since inscription are known.

▶ High plant biodiversity with exceptional proportion of relict and endemic species

Data Deficient
Trend:Deteriorating

The property contains a number of relict and endemic plants, many of which are threatened and the property is their last stronghold. No specific reports on plant species becoming increasingly threatened are known. It can reasonably be argued that anticipated climate change will increase the vulnerability of highly specialized plants, especially in the alpine realm. Climate change is also expected to increase the frequency and intensity of fires, which is another serious threat (Parliament of Australia, 2016; The Wilderness Society et al, 2016).

▶ Relict and endemic mammals

High Concern
Trend:Stable

Most populations of relict and endemic mammals in the property appear to be stable.The best known and most drastic example of a species decline is the charismatic Tasmanian Devil, primarily due to an invariably fatal infectious cancer known as Devil Facial Tumour Disease (Hawkins et al., 2008).

▶ Rare, relict and endemic birds

High Concern
Trend:Deteriorating

Bird species of particular note cited at the time of inscription include the Orange-bellied Parrot (Neophema chrysogaster). Having undergone an extremely rapid decline, the species is listed Critically Endangered (Birdlife International, 2016). It faces an uncertain future, especially due to severe

threats during the migration and its wintering range on mainland Australia. The property is of critical importance as the only breeding site of the species. A National Recovery Plan for the species was revised in 2014 and there are captive breeding programs to provide regular augmentation of the wild population (State Party of Australia, 2015, p.26). An outbreak of beak-and-feather disease in the wild population (State Party of Australia, 2016, p. 23) recently further reduced numbers. The situation is less dramatic for other bird species occurring in the property, though some, such as the Tasmanian wedge-tailed eagle are listed as endangered due to its small extent of occurrence and threats outside of the property (Parks and Wildlife Service, Tasmania, 2017A).

► Relict and endemic frogs

High Concern
Trend:Stable

As elsewhere, amphibians are extremely vulnerable to globally observable decline, attributed to a range of interacting factors, including climate change and fungal disease. Invasive species, such as predatory fish, also might be a threat in the property. Investment in biosecurity measures remains a good investment for a range of reasons. A Tasmanian Chytrid Management plan was developed and implemented in 2010 with a primary focus on the property. A number of biosecurity measures have been implemented to minimise the spread of this and other diseases (Philips et al. 2010, DPIPWE, 2010).

► Endemic and threatened skinks

High Concern
Trend:Stable

While the various endemic skink species are not subject to any immediate known threats, they are potentially threatened by climate change, in particular in the vulnerable alpine communities. The locally endemic Pedra Branca Skink (Niveoscincus palfreymani), which is restricted to Pedra Branca Island is Vulnerable according to the IUCN Red List.

► Endemic and threatened freshwater fish

High Concern
Trend:Deteriorating

Freshwater fish in Tasmania have naturally very limited distributions and are strongly exposed to high risks due to competition with and predation by introduced species, as well as habitat loss and degradation (Hardie et al., 2006). The Lake Pedder Galaxias (Galaxias pedderensis), strictly endemic to just Lake Pedder, has gone extinct in its original habitat probably due to a combination of factors (Wager, 1996): habitat destruction by the flooding of Lake Pedder for a hydro-electric scheme; spreading of the native Climbing Galaxias, which did not previously occur in Lake Pedder, since the flooding; and the introduction of predatory alien trout. While small translocated populations elsewhere have prevented complete extinction in the wild, the species is critically endangered (Wager, 1996). The other native Galaxias species, as well as other native freshwater fish occurring in the property are similarly vulnerable. The Clarence Galaxias (Galaxias johnstoni), for example, is likewise listed as Critically Endangered. The fate of the Small Pedder or Swamp Galaxias (Galaxias parvus) is not well understood, "Data Deficient" in Red List terminology (http://www.iucnredlist.org/details/8807/0).

► Enormous diversity of relict and endemic groups of invertebrates

Data Deficient
Trend:Data Deficient

The trends in the highly diverse and in many cases endemic invertebrate populations within and around the property are beyond the scope of this assessment. While there are no obvious direct threats, the example of Dasyurotaenia robusta, a tapeworm exclusively hosted by the Tasmanian Devil , illustrates the ecological complexity. The species is listed as "Rare" under the Tasmanian Threatened Species Protection Act of 1995 (Threatened Species Section, 2017). Its fate depends on the uncertain future of the Tasmanian Devil.

► Tracts of undisturbed peatlands and moorlands

High Concern
Trend:Deteriorating

The significant increase in the area burnt by landscape-scale fires in the summer months is a serious threat, given documented impacts on organic soils of such fires (Parks and Wildlife Service, 2015).

► Wild temperate coastline

Data Deficient
Trend:Data Deficient

The impacts of sea-level rise due to climate change are yet to be fully evaluated or modelled, however there are several vulnerable types of features along the coast including lagoons, dunes and beaches.

Summary of the Values

► Assessment of the current state and trend of World Heritage values

Low Concern

Trend: Deteriorating

Although the Tasmanian Wilderness is a vast and for the most part intact area which has conserved most of the specific conservation values for which it was inscribed on the World Heritage List, a number of threatening processes are causing the deterioration of some of its World Heritage values, including erosion of some geomorphological features and resultant downstream sedimentation, as well as the imminent extinction of the Orange-bellied Parrot despite intensive conservation measures. Other key species facing major challenges include the Tasmanian devil, alpine vegetation (including iconic conifers such as pencil pine and king billy pine), and riverine rainforest (including prodigiously long-lived Huon pine). Landscape-scale fires caused by climate change constitute a major threat to many of the property's ancient life forms. Some landscape and wilderness values, ecological processes, and geomorphological values have also declined in parts of the property since inscription.

► Assessment of the current state and trend of other important biodiversity values

Data Deficient

Trend: Data Deficient

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Additional information

Benefits

Understanding Benefits

► Outdoor recreation and tourism, Natural beauty and scenery

The property is a well-established destination enabling a wide range of visitor experiences, including self-sufficient hiking in remote areas.

► Cultural identity and sense of belonging, History and tradition, Sacred natural sites or landscapes, Wilderness and iconic features

The property has strong meaning due to its aboriginal past and present. As one of the last great temperate wilderness areas left on the planet the property also serves as an inspiration for many. The strong protection status supports the conservation of sacred sites and other aboriginal sites. The property is also acclaimed as a resource to refresh the human spirit, either through direct visits, through landscape photography and publications, and through other works such as poetry and writing (Ashley, 2009; Brown b, 2017).

► Carbon sequestration, Soil stabilisation, Coastal protection, Flood prevention, Water provision (importance for water quantity and quality)

The vast property provides a wide range of services, including but not limited to carbon sequestration, water regulation and purification, soil stabilisation and coastal protection. The water regulation services are the basis for hydropower generation in some of the catchments, but also comprise completely wild, untrammelled river valleys elsewhere.

► Importance for research, Contribution to education

There is a wealth of research and education activities in the property, , including but not limited to botany, zoology, geology, geomorphology, archaeology, palynology, and dendrochronology.

► **Tourism-related income, Provision of jobs**

The iconic property generates important direct and indirect revenues and jobs. According to a 2009 report released by the State Party, the property creates over $700 million per annum in direct and indirect turnover, over $200 million per annum in annual income for the state of Tasmania, and over 5100 jobs (Gillespie Economics, 2009).

► **Fishing areas and conservation of fish stocks**

The marine areas contribute to the protection of fish stocks.

► **Access to drinking water**

The property protects important drinking water resources.

Summary of benefits

The vast property provides a wide array of benefits. In addition to the obvious benefits of conserving major and irreplaceable cultural and natural values, the property is an iconic symbol as one of the last remaining large tracts of wild temperate lands anywhere on the planet. What is today the property has major spiritual and cultural importance for both the Aboriginal community and the wider community. Otherwise, the property generates hundreds of millions of dollars in revenues and over 5000 jobs in management and tourism, and serves as a rare and diverse reference area for many fields of science. Among the many ecosystem services, carbon sequestration, soil protection and water regulation and provision stand out, the latter also supporting hydropower generation.

Projects

Compilation of active conservation projects

№	Organization / individuals	Project duration	Brief description of Active Projects
1	Australian and Tasmanian governments	From: 2017 To: 2017	The Save the Tasmanian Devil Program is a response to a rare infectious cancer named Devil Facial Tumour Disease (DFTD) which has been strongly affecting wild populations for several years of the endangered species.
2	Department of Primary Industries, Parks, Water and Environment, Parks & Wildlife Service Tasmania (Tasmanian Government), Wildcare and others	From: 2017 To: 2017	The critically endangered orange-bellied parrot (Neophema chrysogaster), one of the rarest birds in the world, migrates from mainland Australia to its only currently known breeding grounds in the Southwest National Park within the property every summer. The Tasmanian government and NGOs are engaged in major efforts to save the species from extinction.
3	Department of Primary Industries, Parks, Water and Environment, Parks & Wildlife Service Tasmania (Tasmanian Government), Director of National Parks	From: 2017 To: 2017	The Tasmanian Wilderness World Heritage Area Management Plan Project was a multi-year participatory process resulting in the 2016 management plan as detailed in the comprehensive set of information available via the below links.

№	Organization / individuals	Project duration	Brief description of Active Projects
4	Tasmanian Department of Primary Industries, Parks, Water and Environment	From: 2017 To: 2017	Elaboration of literature review and synthesis report about the Aboriginal Heritage of the property developed and overseen by the Aboriginal Heritage Council.
5	Charles Sturt University		Vaccination protocols for controlling psittacine beak and feather disease. Project locations – Victoria, Tasmania, NSW. The main aim of the project is to develop vaccination protocols to control psittacine beak and feather disease (PBFD) in critically endangered and threatened bird species. PBFD is a chronic and ultimately fatal disease in parrots. The species at most risk is the critically endangered orange-bellied parrot with an estimated current wild population of less than 50 birds. The last remaining populations of the orange-bellied parrots have been hampered by PBFD which is considered a key threatening process to at least 16 endangered and vulnerable bird species in Australia.
6	Tasmanian Government and Wildcare Inc		Saving the orange-bellied parrot—TAS This intervention aims to rebuild the numbers of the critically endangered orange-bellied parrot after beak and feather disease was discovered in its wild population . It will support the captive breeding and recovery programme for the rare migratory parrot at Melaleuca in the Tasmanian Wilderness World Heritage Area. This will keep its insurance population safe while looking after birds in the wild. The short-term goal will be to limit the spread of the disease, with the help of more science on its impacts, more monitoring and changed management practices. The longer-term goal will be to increase the parrot’s population so it is better able to withstand future threats. This means support for innovations such as customised nesting boxes that help limit disease transmission and ward off predators as well as competitor species.
7	Tasmanian Government		Addressing high risk biosecurity issues of immediate concern to landholders adjoining the 2013 extension.
8	Tasmanian Government		Completion of a study of the cultural heritage values of the Tasmanian Wilderness World Heritage Area.

№	Organization / individuals	Project duration	Brief description of Active Projects
9	Tasmanian Government		An annual payment of $1.5 million per year, indexed to inflation, to deliver on ground activities in the 2013 extension for the protection of the identified Outstanding Universal Value through land and fire management, presentation, research, stakeholder engagement, monitoring, rehabilitation and community capacity building, including with Aboriginal communities and the tourism industry.
10	TWWHA Bushfire Response		Bushfire planning and mitigation actions to improve knowledge and understanding or bushfire risks to the TWWHA.

Compilation of potential site needs

№	Site need title	Brief description of potential site needs	Support needed for following years
1	N.A.	Enhanced understanding of social values of the property to all stakeholders in protection of its natural character and sense of place.	From: 2017 To: 2017
2	N.A.	Improved site inventory and study of geoheritage values. Formally recognized under the World Heritage Convention under criterion (viii), these conservation values remain poorly understood.	From: 2017 To: 2017
3	Participatory elaboration of the retrospective Statement of Outstanding Universal Value	The State Party acknowledged that the retrospective Statement of Outstanding Universal Value is to be updated to more comprehensively address the cultural heritage values of the property (State Party of Australia, 2016). The recently published literature review and synthesis report about the Aboriginal heritage of the property and the new management plan provide a much enhanced foundation for the participatory elaboration of this important and sensitive statement.	From: 2017 To: 2017

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