



Heritage

Australia 
State of the Environment 2021

**Kaneepoorreewooka-wanoong meerreeng –
peeneeyt meerreeng, peeneeyt maar**

We honour Country – strong Country strong people

The language used in the title of this Report is from the Keerray
Wooroong language of the Gunditjmarra Nation language family



Heritage

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The authors acknowledge the Traditional Owners of Country throughout Australia and their continuing connection to land, sea and community. We pay our respects to them and their cultures, and to their Elders both past and present.

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Key findings

Australia's rich heritage tells the story of our nation and people

Much of Australia's natural and cultural heritage is globally significant. The breadth and antiquity of much of our heritage make Australia unique on the world stage. Australia's Indigenous heritage is living and is the foundation of the oldest living cultures in the world. Indigenous heritage consists of the whole body of cultural practices, resources and knowledge systems developed, nurtured and refined by Indigenous peoples. Our heritage will be a richer one when we learn new ways of telling all our stories, and the complexity they hold, together.

Our heritage is not adequately protected

There are gaps in the protection of Australia's heritage. To ensure that Australian heritage is fully protected, resources to identify and research all types of heritage, encompassing all parts of our history, are needed. We also need resources to allow their timely listing and protection. Improved statutory recognition of the broad scope of heritage (i.e. intangible heritage, cultural landscapes and other landscapes, serial sites and objects) would provide more comprehensive heritage protection.

Review of the national framework for heritage and associated structural reform is required for better heritage protection. Australia has a complex arrangement for heritage protection involving all 3 levels of government, 33 pieces of heritage legislation and 12 pieces of protected area legislation, as well as a raft of international obligations. This heritage framework has developed organically, leading to gaps and overlaps in responsibility, and gaps in leadership and effective partnerships. There is minimal provision (except at the national level) for performance evaluation to support positive adaptive management of organisations

and processes. The framework does, however, have the capacity to allow for some checks and balances to support monitoring and evaluation.

Development is a key threat to heritage. It continues to have significant, negative impacts on both natural and cultural heritage. Stronger legislative heritage protection provisions, greater industry regulation in relation to heritage (proven to be effective where applied), and stronger and more robust feasibility, assessment and approvals processes are all needed to resolve these negative effects. Coordinated, collaborative and strategic approaches can engender genuinely sustainable approaches.

Australia's natural heritage includes habitats and ecosystems, and endangered and iconic species, largely protected by their inclusion in protected areas. Climate change is significantly impacting this heritage, and urgent local and global action is required to address this. There is also a need for active management of the other key identified pressures – invasive species; land clearance and modification due to farming, extractive industries and other land-use changes; and increased recreational use in protected areas.

Australia's diverse and widespread historic heritage is at a high level of risk from development, particularly from urban renewal and urban expansion. The ongoing failure of the statutory planning system to adequately protect heritage, especially historic heritage, and weakening of existing protections in some jurisdictions are impacting heritage conservation.

Indigenous heritage and geoheritage need particular attention

Destruction of Indigenous heritage is occurring at an unacceptable rate and the reported experience of Indigenous Australians is that they are denied their right to speak for, make decisions about, protect, access and manage their heritage. There is a pressing need for a rights-based approach to Indigenous heritage management, something that is currently lacking at all levels of government across Australia. Uniform and high-standard heritage legislation is urgently needed to protect Indigenous heritage. Together with a primary role in decision-making, Indigenous Australians must have expanded access to Country so that they may continue to interact with and care for heritage sites in line with their customary obligations.

As one of Earth's most stable land masses, Australia has a rich geoheritage with many sites and types of heritage found nowhere else. There is a lack of statutory protection for geoheritage at all levels of government, except through the Environment Protection and Biodiversity Conservation Act 1999, which provides protection for geoheritage as part of natural heritage. A nationally cohesive legislative framework for geoheritage protection, based on geoconservation principles, is required.

Adaptive planning and management can help to manage pressures on heritage

The current level of resourcing for heritage in Australia is not allowing standard heritage protection requirements to be met effectively at any level of government. Current funding does not allow the urgent and necessary management actions and approaches required to address the various pressures on heritage. Significantly greater financial resourcing is needed to identify and assess heritage, manage statutory obligations, monitor heritage condition and management effectiveness, ensure strategic planning and adaptation management, conduct heritage conservation and restoration works, and assist private owners in heritage conservation.

Climate change is causing new, more severe, more widespread, long-term and cumulative impacts on a wide range of natural and cultural heritage. These impacts are both direct and indirect. There is an urgent need for heritage risk assessments, risk preparedness and adaptation management plans, and national strategic mitigation and management approaches to mitigate existing and likely future impacts. More broadly, widespread general action to ameliorate climate change is needed to help protect our heritage.



Outlook and impacts

Outlook

Heritage is those aspects of the natural and cultural environment that we wish to look after and pass on to future generations. Australian heritage tells the story of the evolution and special nature of Australia’s environment and culture. It includes aspects of the natural and cultural environments, and these elements are often interlinked. Australia’s heritage includes:

- Indigenous heritage, which is central to all aspects of living Indigenous cultures
- geological and geomorphological features and landscapes that reflect the extremely ancient age of this continent, as well as its extremely long coastline and large arid interior
- an endemic and rich flora and fauna, many of which are highly iconic
- Indigenous and non-Indigenous archaeological heritage – from deep time to recent – that contributes uniquely to our understanding of Australia’s human history
- items, structures and places that tell the story of our more recent history.

Much of Australia’s natural and cultural heritage is globally significant. Indigenous cultures are the world’s oldest living cultures. This is of the utmost significance and comes with a responsibility for the Traditional Custodians of this heritage and to all Australians. Although the conceptualisation and management of heritage in Australia are usually divided into discrete categories, there is no heritage in Australia that does not, in some way, connect to Indigenous heritage. Every place in Australia, whether urban or remote, has a Traditional Owner group or

groups that have a deep historical, cultural and spiritual belonging to place. Our heritage will be a richer one when we learn new ways of telling all our stories, and the complexity they hold, together.

Today, Australia’s recognised and protected heritage includes approximately 148 million hectares (ha) of terrestrial protected area (19% of Australia’s land mass) and approximately 335 million ha of marine protected area (37% of Australian waters). It also includes around:

- 232,000 known and listed Indigenous sites
- 15,000 historic heritage places listed at the state level, and many more listed at the local level
- 8,800 listed underwater cultural heritage sites or objects
- 389 Commonwealth Heritage places
- 119 National Heritage places
- 20 World Heritage properties, regarded by the United Nations Educational, Scientific and Cultural Organization (UNESCO) as being of Outstanding Universal Value.

The quantity of recognised and protected heritage is growing gradually, but there are still large gaps in our knowledge of Australia’s heritage. There is still much heritage that needs protection through recognition and listing.

Major achievements in heritage protection since June 2016 include:

- the inscription of the Budj Bim Cultural Landscape on the World Heritage List in 2019; this is the first Australian World Heritage property to be listed for its Indigenous values alone, and the first to

be wholly nominated by an Indigenous community (Gunditjmarra)

- inclusion of the Murujuga Cultural Landscape (also Indigenous heritage) and the Flinders Ranges on Australia's World Heritage Tentative List
- the new *Underwater Cultural Heritage Act 2018* (Cth), which replaced the *Historic Shipwrecks Act 1976* and improves protections for underwater cultural heritage in Australian waters
- the development of *Dhawura Ngilan: a vision for Aboriginal and Torres Strait Islander heritage in Australia*, adopted by the Heritage Chairs of Australia and New Zealand in 2020. This represents an important step in developing best-practice standards for the protection of Indigenous cultural heritage.

However, these gains need to be balanced against the significant breakdowns of the past 5 years:

- the destruction by mining of the irreplaceable 46,000-year-old Juukan Gorge rockshelters in the Pilbara, Western Australia, against the wishes of Traditional Custodians, the Puutu Kuntj Kurrama and Pinikura. This act brought into sharp focus the extensive damage that is occurring to Indigenous heritage across Australia
- the performance of the *Environment Protection and Biodiversity Conservation Act 1999*, as indicated by the review of the Act (Samuel 2020), which was highly critical of numerous aspects of the Act and its operation, with fundamental reform of the Act being recommended
- the increasing extent of damage to Australian heritage due to climate change, particularly
 - the large extent of bushfires in 2019–20
 - the outlook for 5 of Australia's World Heritage properties being downgraded

by the International Union for Conservation of Nature (IUCN) in 2020

- the World Heritage Committee's draft decision in June 2021 to include the Great Barrier Reef on the List of World Heritage in Danger based on its now critical condition, due primarily to climate change (now deferred until 2022).

There are significant issues for heritage in Australia, including population- and industry-driven pressures such as invasive species, mining, pollution, forestry, agriculture, tourism, land clearance, fire, and urban and peri-urban development. Although Australians are increasingly appreciating the natural and cultural environment, increased tourism and recreation are putting additional pressure on heritage without adequate management protection.

The outlook for Indigenous heritage is poor, given the ongoing and unmanaged pressures that affect Indigenous heritage and cultural landscapes. These mainly come from extractive industries, inappropriate land management, and other development such as infrastructure development. To maintain Indigenous heritage values, major changes to Indigenous heritage legislation and governance are required. The most important changes required are around free, prior and informed consent, self-determination and access to Country.

The outlook for Australia's natural heritage is variable, but overall poor without significant measures being urgently put in place to address the key issues. In the past 30–40 years, there has been action to protect biodiversity and iconic species, including through increases in areas protected. However, unprotected natural heritage still remains, and the existing protected area estate is unlikely to be an adequate buffer against the widespread and potentially significantly impacts of climate change, introduced species and land

modification. Establishing a knowledge-based strategic approach to natural heritage protection and management, similar to *Australia's strategy for the National Reserve System 2009–30* (designed primarily around biodiversity protection), would improve the management of Australia's natural heritage.

The poor statutory recognition of Australia's geoheritage prevents an adequate level of conservation for this heritage nationally. The outlook for geoheritage is poor, and this area of heritage requires specific focus and resourcing. Australia's geoheritage is also subject to various pressures that are ongoing or escalating, and insufficient action occurs to address negative impacts.

The outlook for historic heritage is poor and is likely to continue to deteriorate unless action is taken to address the impacts of land development and climate change, and to improve the identification of historic heritage and its statutory protection. The outlook for underwater cultural heritage is slightly better, but is unlikely to improve without increased resourcing, including to improve identification of underwater cultural heritage, condition monitoring and compliance monitoring.

Despite the increased resources that have been put into World Heritage and some National Heritage, the outlook for both of these is also poor. The key reason for this is the evident and increasing impacts of climate change, and to a lesser extent invasive species and tourism. As yet unlisted places of National Heritage significance are at risk due to the limited identification of these places and a very slow listing process.

Governments are proving slow to respond to heritage challenges – in particular, in addressing Indigenous rights issues in relation to heritage and Country, and the need for improved risk avoidance and mitigation in relation to key pressures. Improvement

is also needed to fill gaps in heritage lists and registers, and in relation to condition and impact monitoring, strategic planning, statutory planning and the regulatory framework more generally for heritage. Although many of the tools to undertake the necessary management exist, inadequate resourcing and a lack of leadership are preventing an adequate management response.

Improved heritage protections are unlikely without funding, legislative and structural reform. A review of the *Australian Heritage Strategy 2015* is currently underway. This provides an opportunity for the Australian Government to use the findings of this report to help develop new objectives and actions in a strategy to ensure that Australia's heritage is well protected and managed for current and future generations.

Impacts

We will experience a significant loss of heritage and heritage values unless the issues underlying the poor outlook for heritage are addressed. Without improved management of heritage to provide for a diverse, shared, respected and protected heritage, community and individual wellbeing will continue to be diminished.

Key expected impacts will be:

- ongoing destruction and loss of Indigenous heritage from a range of pressures, including lack of self-determination, poor governance and inadequate protections for all aspects of Indigenous heritage and cultural landscapes, which are highly significant but currently unprotected
- continued grief, anger, trauma, harm, mistrust and frustration within the Indigenous community because of the ongoing lack of recognition and protection

for Indigenous heritage, combined with continued difficulties in accessing Country and denial of a rights-based approach to Indigenous heritage

- an increasing, significant and irreversible loss of natural heritage, mainly through climate change and inadequate resourcing for management
- ongoing degradation of natural heritage values through other pressures, including land clearance, invasive species and industry (especially extractive industries)
- ongoing irreversible loss of geoheritage and geoheritage values, due to a combination of lack of recognition and protection at most levels of government, and ongoing industry and climate change pressures
- continued degradation of historic heritage values and irreversible loss of historic heritage because of inadequate recognition and protections, in combination with ongoing economic, industry and climate change pressures.



Assessment Heritage community outcomes and wellbeing

2021



Somewhat adequate confidence

The ongoing loss of, and damage to, heritage in Australia due to current poor protections and poor heritage in the face of ongoing and increasing pressures are generally reducing heritage-related wellbeing in Australia. Where the community must actively work to protect heritage from damage or destruction, there is further loss of wellbeing, particularly where there is a failure to protect heritage.

Related to United Nations Sustainable Development Goal targets 11.4, 14.5, 15.1

✓ **Assessment** Community outcomes and wellbeing related to Indigenous heritage

2021



Limited confidence

Indigenous people experience significant loss of wellbeing due to destruction and loss of heritage. Indigenous people also experience significant distress in not being able to manage heritage and perform custodial obligations.

✓ **Assessment** Community outcomes and wellbeing related to natural heritage

2021



Limited confidence

The relative abundance of protected natural heritage and its overall adequate management, as well as the health-giving activities that can be undertaken in natural heritage environments, contribute significantly to community wellbeing. Ongoing loss of, and damage to, natural heritage, however, are leading to a decrease in wellbeing.

✓ **Assessment** Community outcomes and wellbeing related to geoheritage

2021



Limited confidence

A relatively low level of community wellbeing is being achieved in relation to geoheritage, because of the poor recognition, protection and overall management of geoheritage.

✓ **Assessment** Community outcomes and wellbeing related to historic heritage

2021



Somewhat adequate confidence

Historic heritage contributes strongly to community wellbeing, given its contribution to desired local character and overall management. However, increasing loss of, and damage to, historic heritage, particularly in urban and urban edge areas, are leading to diminished wellbeing.

✓ **Assessment** Community outcomes and wellbeing related to World Heritage

2021



Somewhat adequate confidence

The existence and relatively good management of, and access to, World Heritage contributes to community wellbeing. This is diminishing as pressures – in particular, climate change, tourism and biosecurity issues – increase, and there is a poor management response.

✓ **Assessment** Community outcomes and wellbeing related to National Heritage

2021







Somewhat adequate confidence

The existence and relatively good management of, and access to, National Heritage contributes to community wellbeing. This is diminishing as pressures – in particular, climate change, tourism and biosecurity issues – increase, and there is a poor management response.

Assessment ratings

For assessments in the 'Outlook and impacts' section

-  **Very good:** The environment is in very good condition, resulting in enhanced environmental values.
-  **Good:** The environment is in good condition, resulting in stable environmental values.
-  **Poor:** The environment is in poor condition, and environmental values are somewhat or slowly declining.
-  **Very poor:** The environment is in very poor condition, and environmental values are substantially and/or rapidly declining.

Trend

-  **Improving:** The situation has improved since the previous assessment (2016 state of the environment report).
-  **Stable:** The situation has been stable since the previous assessment.
-  **Deteriorating:** The situation has deteriorated since the previous assessment.
-  **Unclear:** It is unclear how the situation has changed since the previous assessment.



Environment

Indigenous heritage

Indigenous heritage is fundamental to all aspects of Indigenous cultures. It has spiritual, historical and social value by connecting Indigenous people to their Country, and thereby also to particular social relationships and custodial obligations. Indigenous heritage also has wide-ranging scientific and environmental value, especially through informing environmental management and protection.

Indigenous heritage is critical in creating and maintaining connection to Country and kin:

Australia's rich and diverse Indigenous heritage is the result of over 65,000 years of Aboriginal and Torres Strait Islander peoples living in close connection with the land, seas and all things within it. We are custodians of Country, with deep responsibilities to actively care for and manage all aspects of our culture and lands. While we as Aboriginal and Torres Strait Islander peoples are extremely diverse, with more than 300 language groups across Australia, there are many shared foundational aspects to our cultures. Dr Terri Janke, Wuthathi-Meriam woman

There is growing recognition in Australia of the importance of protecting and progressing Indigenous rights, including in relation to heritage. Protecting Indigenous heritage, and enabling Indigenous Australians to access and to speak for Country and to carry out traditional practices is imperative for Indigenous people's wellbeing. Key actions that are still needed include more inclusion and empowerment of Indigenous people in heritage decision-making and management,

and legislative reform to ensure that these obligations are met (see [Indigenous heritage legislation](#)) (HCOANZ 2020):

Aboriginal and Torres Strait Islander people are the Custodians of the oldest continuous culture on Earth. The significance of this heritage transcends Australia's national boundaries and tells a story which is relevant to all of humanity. Aboriginal and Torres Strait Islander heritage tells a story of a deeply spiritual people connected through their culture to their environment. The age and resilience of Aboriginal and Torres Strait Islander culture alone demonstrates that all people everywhere can benefit from an understanding of their culture. Aboriginal and Torres Strait Islander heritage shows the story of human ingenuity and a deep and spiritual relationship with nature, a relationship that through the manipulation of ecological processes has led to the Australia we know today.

Definition and types of Indigenous heritage

Indigenous cultures, and the heritage that underpins them, are *living*. The heritage does not reside only in the past; it is a vital aspect of the lives and cultures of Australia's Indigenous people today. Heritage is not only integral to the health and wellbeing of communities today, it is the foundation of spiritual and cultural connection and vitality for future generations of Indigenous people:

Non-Indigenous systems and structures most often compartmentalise and separate knowledge into distinct groups, but these separations are counter to Indigenous knowledge systems that, simplistically

speaking, are built upon more holistic and complex interrelationships. For example, heritage in Australia is most often broken into categories such as ‘historic’, ‘natural’, or ‘geoh heritage’, but it must be recognised that Indigenous communities, whose complex knowledge, land management practices and cultural obligations have facilitated the highly successful and sustainable management of Country and ‘heritage’ places for the longest time imaginable – more than 65,000 years – did not and do not use these siloed constructs.

If this report, or any report, were written purely from an Indigenous perspective, these categories would not be viable, and it is important to reflect on and to recognise that the structures we work within across all fora in Australia are still deeply colonial, always silencing Indigenous perspectives.

Within heritage contexts, categorisations most often negate complexity and privilege non-Indigenous ways of seeing, knowing and doing. One such separation that also must be addressed are the ideas that rely on notions of ‘urban’ and ‘remote’. Within the world view of many diverse Indigenous peoples, there is no place in Australia, whether urban or remote, that does not have belonging to Indigenous communities and Traditional Owner groups. Many places that hold deep heritage significance for Indigenous communities occur in urban areas, both in ‘natural’ landscapes (such as wetlands) and in built form. Colonisation has resulted in many people being forcibly moved off their traditional homelands, and new connections to Country and to heritage have been formed as a result of these disruptions. Zena Cumpston, Barkandji woman

The holistic Indigenous conception of heritage does not separate, but rather entwines, tangible and intangible heritage – they are symbiotic and inseparable. Tangible Indigenous heritage comprises significant

sites, site complexes, serial sites, features, resources and objects. Intangible Indigenous heritage comprises inherited traditions or living expressions such as oral traditions, performing arts, social practices, rituals, festive events, knowledge and practices concerning nature or traditional arts and crafts.

Cultural heritage practice in Australia most often views cultural heritage as being either tangible or intangible. Forcing Indigenous heritage into one or other category risks misunderstanding this core component of Indigenous heritage and how to care for it.

The 2011 and 2016 state of the environment reports highlighted the importance of intangible heritage in all aspects of Indigenous heritage and identified the urgent need to recognise intangible aspects of Indigenous heritage as a critical component of its resilience (Schnierer et al. 2011, Mackay 2016c). In recent years, there has been some shift in acknowledging that physical Indigenous heritage sites include intangible cultural values that are inseparable from those considered tangible (see case study: Budj Bim Cultural Landscape inscribed on the UNESCO World Heritage List in 2019). Indeed, non-Indigenous people do not often mentally separate tangible and intangible heritage (McDonald 2011).

Cultural landscapes are increasingly being recognised in Indigenous heritage and systems of management. ‘Cultural landscape’ refers to the dynamic interactions between people and Country, and includes the natural environment, the spiritual and traditional knowledge of that environment, and the cultural practices and activities applied there:

Cultural landscapes are holistic and reflect the management and modification of Country over many thousands of generations for the benefit of all. They are the ‘planning units’ of choice for

Traditional Owners. Cultural landscapes can be both material and symbolic and include Traditional Owner societies' unique worldview, sense of being, history, institutions, practices and the networks of relationships between human, animals, plants, ancestors, songlines, physical structures, trade routes and other significant cultural connections to Country. (Victorian Traditional Owners 2021)

The United Nations Educational, Scientific and Cultural Organization (UNESCO) Convention for the Safeguarding of the Intangible Cultural Heritage (2003) defines 'intangible cultural heritage' as:

... the practices, representations, expressions, knowledge, skills – as well as the instruments, objects, artefacts and cultural spaces associated with them – that communities, groups and individuals recognize as part of their cultural heritage.

This intangible cultural heritage, transmitted from generation to generation, is constantly re-created by communities and groups in response to their environment, and their interaction with nature and their history. It provides them with a sense of identity and continuity, thus promoting respect for cultural diversity and human creativity.

Despite more than 180 other nations having ratified the 2003 UNESCO Convention for the Safeguarding of the Intangible Cultural Heritage, Australia has not ratified this key international convention. This is a significant omission, as the convention aims to raise awareness of, and protect, the uses, expressions, knowledge and techniques that people recognise as an integral part of their cultural heritage. Intangible heritage – such as oral traditions, performing arts, social practices, rituals, festive events, and traditional craft knowledge and techniques – are part of the value of many Indigenous and historic places, and need to be considered

as part of traditional conservation and management of natural and cultural heritage.

Victoria introduced the first intangible cultural heritage law in Australia in 2016 as an amendment to the *Aboriginal Heritage Act 2006*. As of June 2021, Victoria remains the only state with any provision to specifically protect intangible cultural heritage through legislation (VAHC 2021a):

... while these laws are a welcome and positive change, signifying a move away from highly prevalent and outdated interest in the protection of relics, more needs to be done to ensure appropriate control of cultural heritage by Victorian Aboriginal peoples into the future.

Country

There are marked differences in conceptions of 'the environment' between Indigenous and non-Indigenous people in Australia. For many diverse Indigenous people and communities, the 'environment' is perhaps best understood as Country. This includes land and sea Country (see the Indigenous and Marine chapters). Country is the foundation and the core of all Indigenous cultures, and is integral to all aspects of the lives of Indigenous people.

Indigenous people have a deep and grounded connection to their ancestral landscapes and the law, stories, histories, knowledge and ancestors embedded within the landscapes. The meaning of Country is much more than just custodianship or connection to land, as explained by Yawuru man Professor Mick Dodson (Reconciliation Australia n.d.):

When we talk about traditional 'Country'... we mean something beyond the dictionary definition of the word. For Aboriginal Australians, we might mean homeland, or tribal or clan area and we might mean more than just a place on the map. For us, Country is a word for all the values, places, resources, stories and cultural

obligations associated with that area and its features. It describes the entirety of our ancestral domains. While they may all no longer necessarily be the title-holders to land, Aboriginal and Torres Strait Islander Australians are still connected to the Country of their ancestors and most consider themselves the custodians or caretakers of their land.

An overarching aspect of Indigenous cultures is the role that Indigenous communities must actively play as custodians of Country. Many diverse Indigenous communities view Country in the same way that western culture may view a living relative – as a reciprocal relationship that involves nurturing and caring.

Kado Muir, Deputy Chair of the National Native Title Council, elucidates the deep respect that guides interactions with Country, and the care shown by Indigenous people and communities when sourcing and using resources from Country (K Muir, pers. comm., 9 August 2021):

The Aboriginal ochre mine Wilgie Mia in Murchison is one of the oldest continuing operating mines in the world. The philosophy behind our traditional mining practices, our ochre mines and quarry pits is one of deep respect for the spirit of the resources and the land. Through ceremony and ritual, Aboriginal people gave back to the spirits of those raw materials through a philosophy of reverence.

Damage done to Country significantly affects the wellbeing of Indigenous communities. The deep distress caused by damage to Country impacts Indigenous communities significantly. People are devastated by damage to Country, for their ancestors who reside within, for the negation of their custodial responsibilities to keep culture strong for the cohesion of their communities today, and for the cultural inheritance of future generations. An online survey conducted for this report invited Indigenous stakeholders to express

their views on the state of the environment. Overwhelmingly, respondents identified the correlation between the negative impacts on the health of Country and on their own health (also see Approach).

Songlines

Songlines are paths that track across Country and skies, representing many millennia of Indigenous knowledge that has been collected, protected and transmitted. While highly complex, location specific and therefore difficult to adequately explain, songlines may be seen as law and maps for living (Neale & Kelly 2020:43). They exist as a fundamental tool to maintain Country, and contain vital knowledge of heritage and Country. Moreover, they are living tools that embed and mediate history, ecological knowledge, relationships, ancestral beings and cultural belonging on Country.

Songlines rely on the continued health of Country, and people's continued access and connection to it. When Country is damaged or altered, so too are songlines and the knowledge they embody and enact. This jeopardises the health and wellbeing of Country, and of the communities who rely on the continued transmission of this knowledge for cultural continuity and to enable custodial responsibilities to be performed (K Adams, Wiradjuri peoples, pers. comm., 30 September 2021):

Ceremonies, rituals and stories create experiences and memories that impact on mental health and wellbeing in positive ways. They do this by generating connections which allow people to know who they are, where they belong and how to confidently act in the world.

Songlines, also known as song spirals, are recorded and passed on through traditional story, song, dance and ceremony. They incorporate Indigenous Dreaming and

spirituality, as well as knowledge about the environment, landscape and sites through which the songline travels. This includes detailed understandings of endemic natural phenomena, natural landmarks and culturally significant heritage sites.

As explained by Gay'wu Group of Women (2019):

Songspirals have been here a long time. Forever. They are Yolŋu Law. They bring us into being and they link us with the land, to Country. They come from the land and they create it too. It is not just that song spirals created our land a long time ago, but they keep on creating it, and us, and everything in our Country.

Languages and place naming

Indigenous languages are part of the Indigenous heritage that defines Country. Australia is home to more than 300 distinct traditional languages and around 800 dialects (AIATSIS). Recognition of the power of language in the maintenance of culture and heritage has grown in recent years. The United Nations declared 2019 the International Year of Indigenous Languages, and the Australian Government supported Indigenous languages through the Indigenous Languages and Arts program (Office of the Arts). Furthermore, in 2020, the decade 2022–32 was declared the International Decade of Indigenous Languages (UNESCO 2020).

Although Indigenous languages are considered critically endangered in Australia (DITRDC et al. 2020), many languages are in a state of revitalisation. Indigenous organisations and knowledge holders are working to revive or strengthen language in their communities (AIATSIS) (see the Indigenous chapter).

More and more traditional place names are being restored, which acknowledges and shows respect to Indigenous people as

Traditional Custodians of Country, and their deep relationship with the land, sea and waters. There have been changes to the names of well-known places that are important natural heritage and cultural sites, such as Uluru-Kata Tjuta National Park (1993), Budj Bim Cultural Landscape (2017), Kati Thanda–Lake Eyre (2012) and K'gari/Fraser Island (2021).

Collections and records

Since the beginning of colonisation, government agencies, cultural institutions (such as museums and galleries) and individuals (including pastoralists, researchers, ethnographers, linguists and filmmakers) have all collected and stored Indigenous heritage. Indigenous heritage held in collections outside Indigenous communities includes:

- items of movable cultural property, including examples of weapons, technologies and crafts
- cultural environment resources, including minerals, flora and fauna
- Indigenous ancestral remains, including burial artefacts
- Indigenous human genetic material, including DNA and tissues
- literary, performing and artistic works, including music, dance, song, ceremonies, symbols and designs, narratives, poetry and languages
- scientific, agricultural, technical and ecological knowledge, including medicines and sustainable use of flora and fauna
- documentation of Indigenous people's heritage and genealogies in all forms of media, including scientific and ethnographic research reports, papers and books, films and sound recordings.

Most museums and galleries in Australia and around the world hold vast collections of Indigenous heritage whose provenance does not reflect informed consent. Many objects

were taken under inequitable power relations or duress, or worse (Burden 2018).

Indigenous knowledge

Over time, researchers have recorded much Indigenous knowledge. Indigenous oral traditions are important heritage, as the primary means through which knowledge is shared in Indigenous cultures (Gwatkin-Higson 2019). There are many detailed cultural stories that have been orally transmitted in communities for tens of thousands of years and correspond with events now 'discovered' in western science (Nunn & Reid 2016). Many diverse Indigenous communities across Australia still practise oral traditions, storing and transmitting knowledge in their communities.

Concerns arise regarding heritage recorded and archived without protections and protocols that were designed in cooperation with communities. Often, Indigenous heritage has been collected without free, prior and informed consent, and without cultural grounding and protocols being understood. The heritage collected includes books, sound recordings, films, photographs, databases and information drawing on Indigenous knowledge. Secret and sacred knowledge has also been collected, posing danger for Indigenous communities and for those who handle and view it, including items that should never be seen by those outside the cultural context within which they were made. The appropriation of Indigenous heritage causes hurt, distress and great harm to Indigenous communities (Gibson 2019).

Written and recorded Indigenous heritage also contains information that can be used to strengthen, maintain, protect and illuminate Indigenous heritage. Indigenous communities are increasingly asserting their rights to access these collections, and there have been strong calls for repatriations of cultural items,

recordings, ethnographies and records (Croft et al. 2019).

The knowledge collected in heritage surveys, and clarification around who can access and use it, are becoming increasingly important questions (Janke 2009). There remains an urgent need for collecting institutions, Elders, communities and researchers to work together to strengthen this heritage and its capacity for intergenerational transmission (Mackay 2016a). The *Dhawura Ngilan* vision outlines best-practice standards for collection and return of Indigenous heritage (see [Dhawura Ngilan: a vision for Aboriginal and Torres Strait Islander heritage in Australia](#)).

Collections of ancestral remains

Since colonisation began, Indigenous ancestral remains were collected in their thousands across Australia, purportedly for 'scientific study', despite almost no scientific activity eventuating (Faulkhead & Berg J 2010, VAHC 2020a). Overseas and Australian institutions still hold many of the ancestors that were collected. There is a custodial obligation, as well as staunch community obligation and aspiration, to repatriate ancestral remains. It is known within the diverse cultures of Australia's Indigenous people that ancestors cannot rest when they are far from their Country. Many diverse Traditional Owner groups continue to highlight the need to return ancestors to Country (Faulkhead & Berg J 2010), but very few of the ancestors or objects have been returned and repatriated (Russell Cook & Russel 2016).

The return of ancestral remains is a highly important, sensitive and ongoing issue for many Indigenous communities. This is exemplified in a recent documentary co-production from the Victorian Aboriginal Heritage Council, Monash University and Museums Victoria titled *Returning our ancestors* (VAHC).

Reflecting on the history of the past 40 years in relation to the return of ancestral remains, Emeritus Professor Paul Turnbull, a leading expert in this field noted (Turnbull 2020):

If there is to be a resting place, then the challenge will be to design it so as to encourage reflection on the complexities of repatriation. It should also be an institution that recognizes and assists those communities who have the possibility of reburying their ancestors, but can only do so with resources and support to resolve complications in repatriation arising from both continuities with the ancestral past and the legacies of change wrought by diverse experiences of settler colonialism.

Turnbull states that a resting place should also encourage our reflection on the past entanglement of western science in the colonial subjugation of Australia's Indigenous peoples, and the implications this has today for medical and scientific research involving Indigenous people (P Turnbull, School of Historical and Philosophical Inquiry, Faculty of Humanities and Social Sciences, University of Queensland, pers. comm., 30 September 2021).

Recognition and protection of Indigenous heritage

Indigenous Australians have limited control and decision-making power over the management of Indigenous heritage sites across Australia (McGrath 2016). This is despite their inherent living connection to, and understanding of, heritage sites and their surrounding environments from traditional knowledge systems, cultural practices and ecological management.

It's just disappearing in front of our eyes. It's soul-destroying and we have no actual input to any of those processes. This government is a law to itself when it comes to the

management. When I say management, I really mean destruction. SoE Indigenous workshop participant (Murawin 2021c)

The lack of an Indigenous rights-based approach to heritage management demonstrates a disregard for Indigenous people's right to self-determination, and the right to have control over their cultural heritage and traditional practices, as outlined in the *United Nations Declaration on the Rights of Indigenous Peoples 2007* (UNDRIP) (United Nations 2007).

Indigenous involvement and advisory support within heritage management does not adequately allow Indigenous decision-making and self-determination. Although Indigenous advisory councils are often included within frameworks for heritage management, they are often overlooked in the ultimate decision-making. Indigenous advisory councils are often only 'consulted' and are not meaningfully incorporated from the start, so they are unable to embed their aspirations in projects through co-design (Murawin 2021c).

The Traditional Owners work very hard to provide input but are typically excluded from key decision making. This top-down, hierarchical, growth-focused way of being is really panning out and allowing and causing the destruction we see today. SoE Indigenous workshop participant (Murawin 2021a)

Planning authorities are seen as contributing to a major imbalance in decision-making and lack of respect (Murawin 2021b). It is no longer reasonable to suggest that limited understanding of Indigenous peoples, communities and culture, or a lack of resources, are sufficient reasons for inadequate attention to Indigenous heritage values:

Planning authorities and proponents tend to see Indigenous heritage issues as a 'tick

the box’ or something to ‘get around’ rather than part of meaningful engagement and consultation.

SoE Indigenous workshop participant (Murawin 2021b)

Existing legislative and administrative structures limit direct Indigenous involvement in heritage management and provide very little power to influence the management of Indigenous heritage. For example, the Australian World Heritage Indigenous Network (AWHIN), a former parallel advisory body to the Australian World Heritage Advisory Committee (AWHAC), is no longer active despite Indigenous community and AWHAC interest in reviving AWHIN.

Indigenous peoples are not just stakeholders; they should have a guaranteed seat at the table for determining what happens in local places and local country and their traditional lands. They should be decision-makers about the whole structure of grants and funding; they should not be competing with big industry groups in terms of who has a say over a place. The whole system needs to be changed. SoE Indigenous workshop participant (Murawin 2021a)

There is a growing recognition in Australia of the importance of progressing Indigenous control over Indigenous matters. In 2017, Statement from the Heart spoke of the need for, among other things, ‘constitutional reforms to empower our people and take a rightful place in our own country’ (The Uluru Statement 2017). The UNDRIP articulates minimum standards for the survival, dignity, security and wellbeing of Indigenous peoples worldwide, and several of the UNDRIP provisions speak directly to the enjoyment, management and protections of Indigenous heritage (see International laws and agreements in the Indigenous chapter). The seminars undertaken for this report found that

the lack of self-determination for Indigenous communities to manage their heritage results in perpetuation of disadvantage, loss of heritage, loss of connection to land and culture, negative impacts on wellbeing and physical health, and intergenerational trauma (Murawin 2021c).

A major positive change in relation to the recognition and protection of Indigenous heritage is the Uluru climb closure; Uluru is sacred to Anangu people, and a place of deep cultural and spiritual significance to their Tjukurpa (law) (Parks Australia). Anangu people had continuously voiced their concern and wish to stop people climbing Uluru, including when it was formally handed back to the Traditional Owners in 1985. In October 2019, the climb was closed, signalling a broader acceptance of Indigenous heritage and cultural values.

The online survey found that most respondents (72.7%) believed Australians see Indigenous heritage as either very important or important, and a further 18.2% believed Australians see it as somewhat important. Only 10.2% said Indigenous heritage was not important to all Australians. However, the overwhelming majority of respondents (95.5%) believed that non-Indigenous people have no understanding of Indigenous heritage or do not understand it very well (Murawin 2021c, Murawin 2021a).

Dhawura Ngilan: a vision for Aboriginal and Torres Strait Islander heritage in Australia

Following extensive consultation with Indigenous stakeholders and relevant peak bodies, the chairs of Australia’s national, state and territory Indigenous heritage bodies presented *Dhawura Ngilan: a vision for Aboriginal and Torres Strait Islander Heritage in Australia*, accompanied by *Best practice standards in Indigenous cultural heritage*

management and legislation. On 16 September 2020, the Heritage Chairs of Australia and New Zealand (HCOANZ) welcomed and supported the 2 documents.

In September 2020, the HCOANZ meeting agreed that there was a need to modernise Indigenous heritage protection laws in Australia and committed to take the *Dhawura Ngilan* standards back to each of their governments for active consideration and response (DAWE 2020b).

Dhawura Ngilan was designed and produced to inform policy-makers, provide a foundation for legislative change and bring action in matters of Indigenous heritage. It represents a significant step forward for Indigenous heritage, bringing together the consensus views of many Indigenous experts. It highlights areas that need urgent attention, and provides best-practice recommendations.

The *Dhawura Ngilan* vision addresses inconsistencies in Indigenous heritage legislation across Australia and identifies areas that are lacking or outdated. It calls for heritage legislation in Australia to embody the perspectives of Australia's Indigenous people, and to empower and respect them through informed consent and decision-making powers.

The *Dhawura Ngilan* vision recommends consistent and high standards of best practice in Indigenous cultural heritage management, and meaningful Indigenous inclusion across all areas, with an emphasis on free, prior and informed consent as foundational. The vision also calls for:

- action in transmitting invaluable knowledge in communities
- expanding dual and sole naming that illuminates Indigenous knowledge and relationships through language
- expanding education about Indigenous heritage in the wider community

- returning ancestors
- caring for Country by recognising culturally significant species
- championing World Heritage listings.

National and state heritage framework

The current framework for protection of heritage in Australia attempts to support Indigenous management of sites and cultural landscapes. However, it does not adequately recognise Indigenous perspectives and rights. A key limitation is the failure to recognise Indigenous intangible knowledge. Legal frameworks generally tend towards preservationist ideas, rather than acknowledging and supporting living culture and people. Our current legal frameworks are constructed without any meaningful input from Indigenous people, limiting their effectiveness in providing protections or fulfilling Indigenous aspirations.

The interface between heritage law and development approval laws often poses challenges for protecting Indigenous heritage. Although attempts have been made to integrate the operation of the two, there remains a tension between protecting Indigenous heritage and development.

We need to look at how we manage our resources and frame it in a way going forward for the greater good of the people and not the good of multinational companies and corporations. SoE Indigenous workshop participant (Murawin 2021a)

There are many inconsistencies between national, state and territory legislation for protecting heritage.

The *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act) addresses tangible cultural heritage, because it is recognised as part of the environment. This definition excludes non-place-based or

‘movable’ tangible cultural heritage, which is dealt with separately under the *Protection of Movable Cultural Heritage Act 1986* (Cth). This Act was amended in 2018 to better reflect human rights standards of Indigenous self-determination for permits relating to the import and export of Indigenous cultural property.

Legislative change to better protect Indigenous heritage has been slow, with only Victoria making recent effective changes. In 2016, Victoria amended its *Aboriginal Heritage Act 2006* to include provisions to register and protect Aboriginal intangible heritage. Only one application to have intangible heritage placed on the intangible register has been made and registered in 5 years of operation, highlighting that the operation of the register needs review and possibly more effective co-design.

In 2020, the Australian Government flagged its intention to address Indigenous heritage protection reform opportunities as part of its response to the review of the EPBC Act. However, at the time of this report, no changes have been introduced (DAWE 2020b).

Indigenous heritage lists and registers

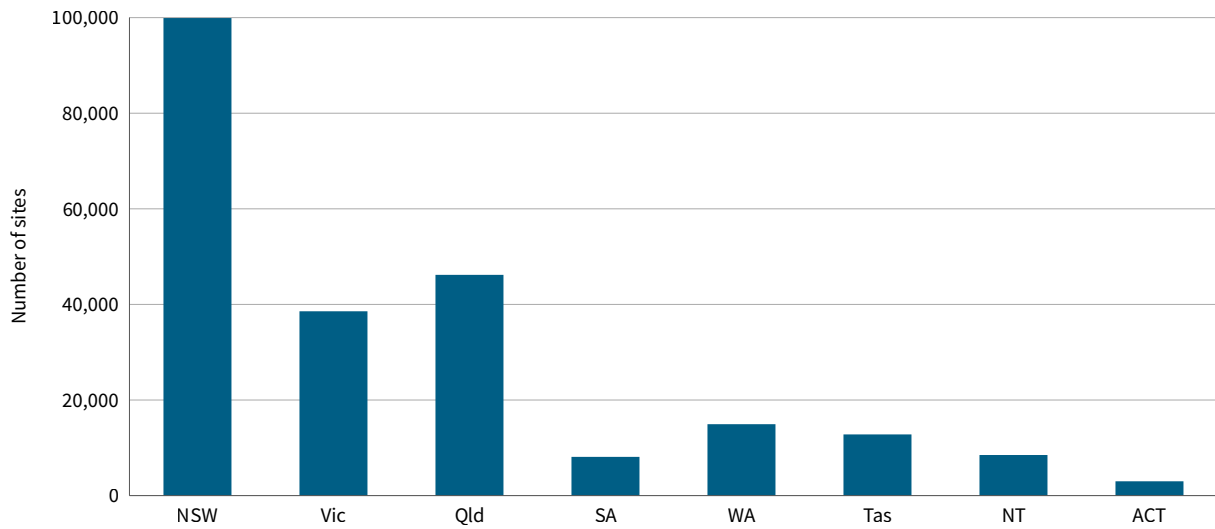
Heritage lists and registers are incomplete, with under-representation of places recognised for their Indigenous heritage value (HCOANZ 2020). Indigenous heritage is represented to some extent in World Heritage, National Heritage and Commonwealth Heritage lists (see [Heritage recognised under the EPBC Act](#)). For example, the Budj Bim Cultural Landscape – on the National Heritage List since 2004 – attained World Heritage listing in 2019 as the first place in Australia recognised solely for its Indigenous cultural values (see [case study: Budj Bim Cultural Landscape inscribed on the UNESCO World Heritage List in 2019](#)). In addition, 4 of Australia’s 19 World Heritage properties

are recognised as having mixed natural and Indigenous cultural significance: Kakadu National Park, Uluru–Kata Tjuta National Park, the Willandra Lakes Region and the Tasmanian Wilderness.

Adding new sites to the National and Commonwealth heritage lists is widely considered to be a bureaucratic and cumbersome process, which frustrates many under-resourced Indigenous communities (Wagner 2019, McConnell 2021d).

National Heritage listings recognise Country through the listing of cultural landscapes, as opposed to individual sites, such as the Sydney Cultural Crescent Rock Art (New South Wales) nomination. This area includes a significant body of rock art across 2 million hectares. Traditional Owners liken the area to history books and libraries that provide a tangible record of Indigenous traditions, belonging, presence, cultural practices and knowledge systems.

Although places can be listed on the National Heritage list for their Indigenous heritage values, there is no separate national Indigenous heritage register. However, all states maintain an Indigenous cultural heritage register or inventory, and both territories have heritage registers that include all heritage domains, as well as Indigenous cultural heritage databases. These inventories list primarily archaeological sites and objects, but only include places that have been identified through a heritage listing process. Thus, these registers represent only a very small proportion of Indigenous heritage places that actually exist. The number and rate of listings vary between states and territories (Figures 1 and 2).



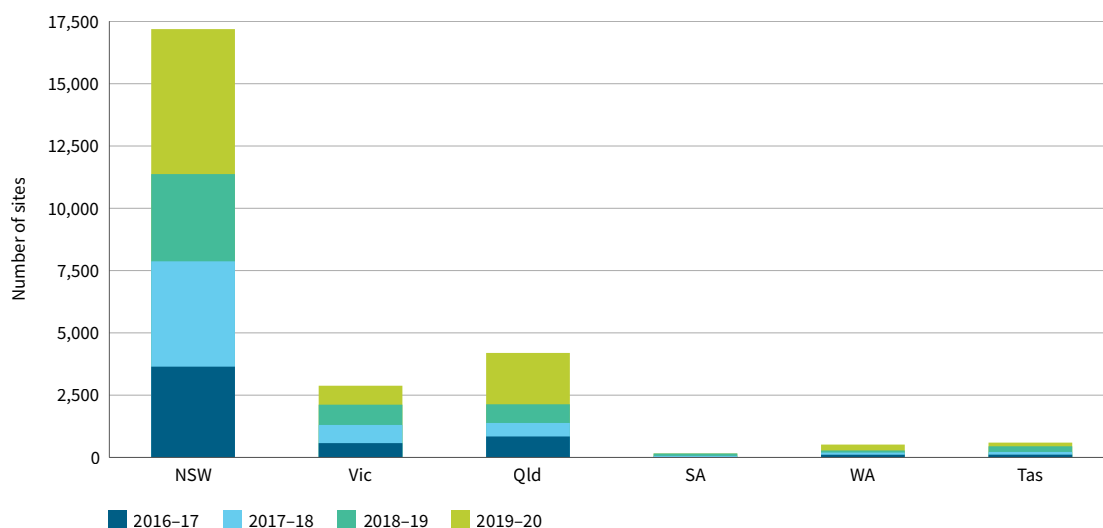
ACT = Australian Capital Territory; NSW = New South Wales; NT = Northern Territory; Qld = Queensland; SA = South Australia; Tas = Tasmania; Vic = Victoria; WA = Western Australia

Notes:

1. Figures for NSW are from the Aboriginal Heritage Information Management System, for Qld from the Aboriginal and Torres Strait Islander Cultural Heritage Database, for the NT from the Archaeological Sites Database, and for the ACT from the Indigenous sites database.
2. The NT figures include 143 sites classified as Macassan (but the number of Macassan sites is likely to be higher).
3. A small number of Indigenous heritage places are also listed on national lists, and on some state and territory heritage registers established under general or historic heritage legislation, but these places have not been included here due to their generally small number and overlaps in some cases.

Source: McConnell (2021c)

Figure 1 Total number of Indigenous heritage listed sites on state and territory statutory registers, 30 June 2020



NSW = New South Wales; Qld = Queensland; SA = South Australia; Tas = Tasmania; Vic = Victoria; WA = Western Australia
 Notes:

1. Figures for NSW are from the Aboriginal Heritage Information Management System (no data were supplied for 2015–16), and for Qld from the Aboriginal and Torres Strait Islander Cultural Heritage Database.
2. No data were supplied for the Australian Capital Territory or the Northern Territory.
3. No places were removed from lists except in Western Australia, where 20 places were removed between June 2016 and June 2020 (no data were supplied for NSW).

Source: McConnell (2021c)

Figure 2 Number of Indigenous heritage sites added each year to state and territory statutory registers, June 2016 to June 2020, aggregated



Case study Budj Bim Cultural Landscape inscribed on the UNESCO World Heritage List in 2019

The Budj Bim Cultural Landscape, located on the traditional Country of the Gunditjmara people in south-western Victoria, contains one of the world’s oldest and most extensive aquaculture systems. Created by the Gunditjmara at least 6,600 years ago, it is a rare intact example of a cultural landscape formed by innovation (Lin et al. 2021b, Parks Victoria n.d.). The Budj Bim Cultural Landscape shows the strong relationship between the Gunditjmara people and Country, and demonstrates how Australian Indigenous heritage is part of a continuous, living culture (UNESCO WHC 2019, Lin et al. 2021b).

The Gunditjmara created the aquaculture system by manipulating the Budj Bim lava flow to form a complex network of channels, weirs and dams. The sustainably engineered wetlands allow the Gunditjmara to trap, store and harvest kooyang/ short-finned eel (*Anguilla australis*), which migrate seasonally through the system (Lin et al. 2021b). The creation process of the Budj Bim Cultural Landscape is narrated by the Gunditjmara as a deep time story, which, from an archaeological perspective, represents a period of at least 32,000 years (UNESCO WHC 2019):

In the Dreaming, the ancestral creators gave the Gunditjmara people the resources to live a settled lifestyle. They diverted the waterways and gave us the stone and rocks to help us build the aquaculture systems. They gave us the wetlands where the reeds grew so that we could make the eel baskets, and they gave us the food-enriched landscape for us to survive. Aunty Eileen Alberts, Gunditjmara Elder (Wettenhall & Gunditj Mirring Traditional Owners Aboriginal Corporation 2010)

The Budj Bim Cultural Landscape demonstrates Outstanding Universal Value through the relationship the Gunditjmara maintain with Country through traditional practices, which include:

- kooyang (eel) management, storage and harvest, and related environmental modifications
- water flows and undisturbed hydrology, including wetlands, swamps and sinkholes, that provide a habitat for kooyang and other fish and aquatic plants
- Gunditjmara aquaculture knowledge and practices, including sourcing and weaving grass for gnarraban (kooyang baskets and traps) and adapting traditional catching techniques (Lin et al. 2021b).

The World Heritage listing of Budj Bim, powerfully led by the Gunditjmara community, highlights the symbiotic relationship between the physical (tangible) and cultural (intangible) aspects of the Gunditjmara people and Country. Complex knowledge, song, dance, storytelling, art, design and sculpture are directly related to the channels, houses and hydrology that have been innovated and refined by the Gunditjmara over 6 millennia (Wettenhall & Gunditj Mirring Traditional Owners Aboriginal Corporation 2010). The Gunditjmara continue to maintain and strengthen their cultural practices, which maintains their connection to Country and community (Lin et al. 2021b).

The Budj Bim Cultural Landscape also provides a habitat for the nationally endangered southern bent-wing bat (*Miniopterus orianae bassanii*) and threatened bird species, including pied cormorant (*Phalacrocorax varius*), whiskered tern (*Chlidonias hybrida*), great egret (*Egretta alba*) and grey goshawk (*Accipiter novaehollandiae*) (Lin et al. 2021b).

Identification of sites

The 2015 Australian Heritage Strategy proposes a consistent approach to the recognition, protection and management of Indigenous heritage sites. However, no mechanism has been established to develop a national approach and standards to assess and protect Indigenous heritage.

Indigenous heritage is inadequately documented and protected. Many Indigenous communities distrust existing registers, and hesitate to disclose sites and knowledge of significance. This distrust is not misplaced and comes from a long and difficult history of Indigenous knowledge being co-opted, appropriated, misconstrued and misused by non-Indigenous people, often to the great detriment of Indigenous knowledge holders and communities.

I think government needs to work more in re-establishing, if there ever was, trust, rapport and relationships with mob. Particularly because of the impact of their decision-making with heritage. SoE Indigenous workshop participant (Murawin 2021a)

In addition, Indigenous people are historically sceptical of using heritage registers for fear of the risk of discovery and subsequent destruction of sacred or culturally significant sites. In the past, Indigenous people have decided to reveal intangible heritage to government only as a last resort to protect sacred places from harm. Distrust of mainstream systems means that Indigenous heritage sites can be overlooked and therefore destroyed. There is a call for balance between upholding and preserving sacred knowledge and the capacity to engage all the legislative protections.

This concern is sometimes recognised in legislation. The *National Parks and Wildlife Act 1974* (NSW) includes opportunity for Aboriginal

owners to withhold and keep confidential information about Indigenous sites and culture in the public interest. The Director-General can determine that specified information relating to the cultural values can be withheld in the public interest (s. 161, *National Parks and Wildlife Act 1974*).

Indigenous heritage is often only identified reactively as part of environmental impact assessment processes, rather than proactively. If a thing or place is identified and subsequently declared as an Indigenous object or place under the *National Parks and Wildlife Act 1974* (NSW), it is considered an offence to damage or obstruct the protected items. However, it should be noted that a system of permits may arise, wherein the focus may shift from preventing use or obstruction in the first place to managing destruction.

Yet there's permit after permit after permit going out under that process in this government, to the point where we can't count how many sites every week this government is wiping out from this landscape that are physical connections for us as Aboriginal peoples to the way our old people lived, our connection to our Ancestors. SoE Indigenous workshop participant (Murawin 2021a)

It is evident that all cultural heritage could be better supported by planning and assessment systems that seek to identify sites before they are negatively impacted.

Another challenge around registers and identification of sites is establishing who can speak to the knowledge. Generally, Indigenous heritage workers, Traditional Owner groups, surveyors and Land Councils identify the sites. Some Indigenous groups keep their own registers. For example, in 2020, there were 2,985 registered Indigenous sites located within the Darkinjung Local Aboriginal Land Council boundaries alone (DALC).

Recent Indigenous heritage protection issues

It is widely recognised that current Indigenous heritage legislation and statutory planning do not provide sufficient protection for Indigenous cultural values in relation to development. This is reflected in the ways in which many development and mining proposals can meet the requirements of the law, while enabling the ongoing destruction of heritage sites.

The independent Samuel review of the EPBC Act (2020) found deficits in the protection and recognition of Indigenous heritage within the Act. These included failure to fully support the rights of Indigenous Australians in decision-making, to meaningfully incorporate Indigenous knowledge and viewpoints in decision-making, or to meet the aspirations of Traditional Owners in managing their lands.

Several high-profile cases have highlighted issues in heritage protection.

Juukan Gorge

In 2020, mining company Rio Tinto destroyed a sacred site to expand an iron ore mine on

the land of the Puutu Kunti Kurrama and Pinikura peoples in the Pilbara region of Western Australia (see case study: [Juukan Gorge rockshelters – highlighting the poor protections for Indigenous heritage under current Australian Indigenous heritage legislation](#)). Rio Tinto's action was legal under the *Aboriginal Heritage Act 1972* (WA). An inquiry was conducted to examine the heritage law framework, with the report, *Never again*, attributing the destruction in part to a failure of the Western Australian Act, and highlighting the shortcomings of the EPBC Act and *Aboriginal and Torres Strait Islander Heritage Protection Act 1984* (Cth). In September 2020, the Minister for the Environment and the Minister for Indigenous Australians co-convened a ministerial roundtable with state and territory ministers responsible for cultural heritage, which agreed to lift the standard of Indigenous heritage protections in partnership with Indigenous Australians (DAWE 2020b).

The Indigenous chapter has more information on mining and its effects on Indigenous communities and Country.



Case study Juukan Gorge rockshelters – highlighting the poor protections for Indigenous heritage under current Australian Indigenous heritage legislation

In May 2020, mining company Rio Tinto destroyed a sacred site on the land of the Puutu Kunti Kurrama and Pinikura (PKKP) peoples in the Pilbara region of Western Australia (WA) to expand an iron ore mine. The rockshelter site had been shown, through archaeological investigation, to contain cultural remains dating back at least 46,000 years directly linked to the PKKP (Joint Standing Committee on Northern Australia 2020).

There was a widespread negative reaction to the destruction of the ancient rockshelters in Australia. For the Traditional Owners of this Country, the grief experienced was marked and sustained, and will continue to cause irreparable harm into the future. PKKP Traditional Owner Burchell Hayes shared this statement (Puutu Kunti Kurrama and Pinikura people 2020):

Myself, my family, our elders and our ancestors are in mourning at the desecration of our sacred site. This is part of our land that we are deeply connected to and which was an important feature of our future. Healing is slow and painful and will not come easily. Our trust in the system and our partners has been broken completely. I hope that some good can come out of our pain as we all work to build a new future for ourselves and future generations.

Legality

Rio Tinto's action was technically legal, the company having obtained a permit under the *Aboriginal Heritage Act 1972* (WA). The permit was given before the long history of occupation of the rockshelters was understood, and there was no option to review the permit based on the new findings or for the PKKP to appeal the permit. The PKKP raised their concerns with Rio Tinto immediately before the destruction.

An inquiry into the destruction of the Juukan rockshelters Joint Standing Committee on Northern Australia (2020) attributed the destruction to failures on the part of Rio Tinto, the Western Australian Government, the Australian Government, native title law and legal advice they were given. The final report found that state and Commonwealth legislative frameworks enabled Rio Tinto to exercise excessive power over the PKKP in negotiation, but it was Rio Tinto's internal processes that made the destruction of the Juukan Gorge heritage sites almost inevitable. It also noted that there is evidence flagging the need for legislative reform more broadly at the state and national levels. The Joint Standing Committee on Northern Australia (2020):

Western Australian law played a critical role in the destruction of the shelters. The Aboriginal Heritage Act 1972 has failed to protect Aboriginal heritage, making the destruction of Indigenous heritage not only legal but almost inevitable. It is inconceivable that such a valuable heritage site could be destroyed in complete accordance with the law and without any means for Traditional Owners or their representatives to effectively intervene – yet it happened. The Western Australian legislation that enabled the destruction of Juukan Gorge is woefully out of date and poorly administered ... The need for new laws is widely recognised. In the meantime, without government and industry action, Indigenous heritage will continue to be at risk.

Ongoing threats

The destruction of the Juukan Gorge rockshelters highlights the large-scale impact mining can have on Indigenous heritage. In Western Australia, from mid-2010 to March 2020, 463 permit applications from mining companies to disturb or destroy sites were considered, and all were approved (Allam & Wahlquist 2020b). The Juukan Gorge experience did not stop this, with permits issued to BHP Billiton enabling the destruction of at least 40 – possibly as many as 86 – sites only days after the Juukan rockshelters were destroyed. This is despite knowing that Traditional Owners opposed the permits (Allam & Wahlquist 2020b).

The destruction of Indigenous sites by development is not new. In 2011, an investigation by the Western Australian Auditor-General concluded that the Western Australian Government was not adequately protecting Indigenous heritage sites. Between 2008 and 2015, more than 3,200 sites in Western Australia were removed from the statutory register without informing Traditional Owners.

In the Pilbara alone, the threats to Indigenous heritage from mining are substantial (Allam & Wahlquist 2020a). For example, the Eastern Guruma people have 6 Rio Tinto mines, a Fortescue mine and 3 railway lines on their lands. They estimate that 434 of their heritage sites have been destroyed, and a further 285 are very close to current mining areas.

In Western Australia, there is no avenue for Traditional Owners to appeal such acts or the issuing of permits, although landowners and companies with mining or resource extraction rights do have appeal rights.

In addition, Traditional Owners attempting to negotiate land-use agreements with mining companies do so ‘in the context of an imbalance of power’ and having ‘no real choice but to take the deals that were offered or take nothing’. This results in the ‘cumulative destruction of our country, (which) is something (that) sits uneasily with our people’ (senior Martidja Banyjima elder, Maitland Parker in Allam & Wahlquist 2020a). For example, the agreements between Rio Tinto and the PKKP peoples required the PKKP ‘to cede their rights and prevented them from contesting company decisions, raising concerns, or having recourse to law to protect heritage sites’ (Joint Standing Committee on Northern Australia 2020:5).

The PKKP peoples have emphasised the need to understand that this destruction affects all people, not just Traditional Owner groups and that ‘this is a national disaster with international implications’ and that ‘our common heritage is at risk’ (Joint Standing Committee on Northern Australia 2020:7).

But there have also been some encouraging recent changes. For example, in March 2021, the Minerals Council of Australia adopted new guidelines that involve stricter rules around project impacts on Indigenous communities and the environment (Cross 2021a). This involves the adoption of the Towards Sustainable Mining initiative, which requires companies to regularly assess their relationships with Traditional Owners, ecological impacts and labour practices.

Liverpool plains

In 2020, Gomeroi Traditional Owners were unsuccessful in their bid to protect cultural sites from being destroyed for the Shenhua Watermark coalmine in northern New South Wales. The Australian Government minister denied an application by the Gomeroi Traditional Custodians, seeking a declaration under the *Aboriginal and Torres Strait Islander Heritage Protection Act 1984* to protect significant areas of Aboriginal cultural sites on the Liverpool Plains of New South Wales. The sites include grinding groove sites, scarred trees and significant gendered ceremonial corridors.

The minister considered that the expected social and economic benefits of the Shenhua Watermark coalmine to the local community outweighed the impacts on the applicants as a result of the likely destruction of parts of their heritage (Federal Court of Australia 2020).

This case highlights the powerlessness of Traditional Owner groups where concerns for known Indigenous heritage can be overridden if there is ‘potential’ economic and social benefit. Although the New South Wales Government has stated that Indigenous heritage in the area will now be protected, the Gomeroi people continue to have no enforceable rights to ensure protections (Federal Court of Australia 2020).

Lake Torrens

In South Australia, under the *Aboriginal Heritage Act 1988* (SA), the premier authorised a minerals exploration company Kelaray (Argonaut Resources) to drill Lake Torrens in central South Australia, targeting iron oxide, copper and gold. Lake Torrens is the second largest salt lake in Australia and is acknowledged as an Indigenous site of significance, recorded on the South Australian Government’s central archives. However,

s. 23 of the Act allows the minister to approve actions that may ‘damage, disturb or interfere’ with Indigenous sites (Government of South Australia 1988). This is similar to much state-level Indigenous heritage legislation.

On 6 July 2021, the Kokatha Aboriginal Corporation made applications to the Australian Minister for the Environment to protect Lake Torrens from exploratory drilling by Kelaray under ss. 9 and 10 of the *Aboriginal and Torres Strait Islander Heritage Protection Act 1984* (Cth).

Wahluu/Mount Panorama

Wiradjuri peoples have identified Wahluu/Mount Panorama as a sacred site with great importance to songlines and other aspects of Wiradjuri culture. Despite this, a go-kart track was planned for the site (Gorman 2021). Construction was halted at the last minute when the Australian Minister for the Environment signed a temporary declaration of protection under the *Aboriginal and Torres Strait Islander Heritage Protection Act 1984* (Cth) (Gorman 2021). In April 2021, the Australian Minister for the Environment made a declaration to protect the site for 10 years. The declaration of the Wahluu/Mount Panorama site as protected under the *Aboriginal and Torres Strait Islander Heritage Protection Act 1984* (Cth) was made in May 2021. Despite the increase in protection applications, the average time for making declarations once notice of an application has been made appears to be approximately 2 years.

Western Tasmania

In 2014–16, the Tasmanian Aboriginal Centre took legal action against the Tasmanian Government to prevent the reopening 4WD tracks in the Western Tasmania Aboriginal Cultural Landscape within Takayna/Tarkine (EDO 2018). The tracks were originally closed in 2012 due to negative impacts on Aboriginal

cultural heritage. In 2017, the Tasmanian Government proposed to lay rubber matting over middens and other Indigenous heritage sites along the Tarkine coast to allow 4WD access. However, a cultural assessment of the plan (required under the EPBC Act) found that the mitigations proposed would not be effective in mitigating damage to Indigenous heritage values. In 2021, the Tasmanian Government announced that it was no longer seeking to reopen the tracks (Petrusma 2021).

Awabakal Butterfly Cave

The Awabakal Butterfly Cave, West Wallsend (near Newcastle, New South Wales), is a sacred Awabakal women's site that has a long history of use for cultural, spiritual and educational activities that continue today. In 2013, the cave and a boundary of 20 metres around its centre was declared an Aboriginal Place under the *National Parks and Wildlife Act 1974* (NSW), but, in 2017, the site came under threat from a proposed nearby housing development by the Roche Group (Crivellaro 2020).

The Awabakal community applied for the protection of the site under the *Aboriginal and Torres Strait Islander Heritage Protection Act 1984* (Cth), which led to the cultural significance of the cave being recognised with a Declaration under the *Act* in 2019. The cave was declared a significant Aboriginal area that is to be preserved and protected from injury and desecration (Australian Government 2019a). (Australian Government 2019a) In 2020, a group of Aboriginal women appealed to the Australian Minister for the Environment to enforce the legal protection, because plans lodged with Lake Macquarie City Council included provision for roads to be built immediately adjacent to the declared area. According to the women, this would restrict access to the site and make the site more visible, which would impact cultural use (EDO 2020).

The issue is not resolved, with lack of agreement on the broader cultural landscape and the area subject to the declaration significantly reduced. The development has been amended so its boundaries now lie just outside the declared area, which excludes the traditional journey path. Breach of the declaration would result in fines of up to \$111,000 for the developer, but the Awabakal women have expressed concern that such penalties would be insignificant as a deterrent (Joint Standing Committee on Northern Australia 2021:153).

Natural heritage

Natural heritage comprises the components of the natural environment that have aesthetic, historic, scientific or social significance or other special value for future generations, as well as for the present community, and includes:

- the biological environment (flora, fauna, habitats and ecosystems)
- the geological and geomorphological environments (rocks, rock features, landforms, landscapes and geosystems).

Natural heritage is a core part of the Australian environment and helps define Australia, and us as Australians, through iconic species and distinctive natural landscapes. Australia's natural heritage ranges from vast areas to small, localised sites of high natural conservation value. Many people believe that nature has an intrinsic value in its own right (Australian Government 2019b), and that natural heritage should be protected not only for the benefits it provides to humanity (economic, emotional and spiritual wellbeing) but also for its 'existence value' (i.e. an inherent right to exist, and to co-exist with humans) (AHC 2002b).

Natural heritage provides wellbeing and economic benefits from ecosystem services, recreation, tourism and educational opportunities. Natural heritage is also an integral component of Indigenous heritage, and there are very few places in Australia that do not belong to one or several Traditional Custodian groups. The exceptions are a small number of islands now considered part of Australia and Australia's external territories, which include parts of Antarctica.

Significant actions have been taken in the past 30–40 years to protect our natural environment, including large areas of land being added to the National Reserve System (see [Protected areas](#), and areas of particular significance being included on the World Heritage and National Heritage lists (see [Heritage recognised under the EPBC Act](#)). Impacts from various pressures that are occurring across Australia (i.e. climate change, land-use modification and introduced species) are significantly affecting natural heritage, and urgent action is needed to increase its protection.

The condition, pressures and management of the broader natural environment, including specific parts of Australia's natural heritage, are the focus of other chapters (see the Biodiversity, Climate, Coasts, Inland water, Land and Marine chapters). The discussion in this chapter focuses on protected areas.

Types and condition of natural heritage

Natural heritage includes significant landforms and features, and significant plant and animal populations and habitats, or whole landscapes or seascapes with complex values. Small areas and sites may be landscape features such as a cave, glacial moraine, lake or a rock outcrop; or localised areas of rare plant or animal habitat; or good-quality

examples of botanical communities or animal populations. Natural heritage may also include iconic, rare or vulnerable species, the remains of extinct species or relict species, specialised communities such as those with high endemism or high species richness, and aesthetically exceptional landscapes.

Australia's terrestrial natural heritage is present throughout the country. It largely occurs on public land and outside highly developed areas and areas of intensive cultivation, but there are pockets of natural heritage in urban areas and on agricultural land.

In Australia today, the concept of natural heritage recognises the role Indigenous Australians have played in managing and shaping the Australian landscape for 65,000 years, and possibly much longer.

The integrity of natural areas contributes importantly to natural heritage significance. Maintenance of 'wilderness quality' is an important means of maintaining natural integrity. However, notions of 'wilderness' and 'reserves' used in natural environmental management can be deeply problematic for Indigenous people because they can work against the recognition and empowerment of Indigenous perspectives and aspirations (Levitus 2016). Such concepts may be seen to actively lock Traditional Custodians out of their homelands, both physically and in having a voice in management and protection. There is no place that is or was 'untouched' or 'pristine' – most of the Australian environment is the result of active land management by Indigenous peoples over time (Bridgewater 2021).

Despite sustained critique by Indigenous peoples, Indigenous scholars, and various others in the academe and civil society, the continued use of the wilderness moniker in conservation practice serves only to disempower Indigenous and local peoples

and to deceive non-Indigenous people into the false belief of a transcendent 'nature' free from the influence and active intervention of humans. It is past the time to abandon the wilderness trope, to deprioritize disembodied notions of objectivity and universality, and to embrace situated Indigenous and local knowledge systems in scaled and relational approaches to eco- system and landscape management. (Fletcher et al. 2021)

This issue is being increasingly recognised, and the general practice now is to talk about 'wilderness quality' (remote and with no active recent use and disturbance) rather than 'wilderness' (Langton 1998, Hausheer 2016, Crabtree et al. 2019). However, this does not resolve the issue for Indigenous people, and further discussion is required to find an acceptable way forward.

The condition of natural heritage in protected areas is not well understood because it is inadequately monitored and evaluated. Geoheritage is poorly understood in general (see [Geoheritage](#)). This is an ongoing issue noted in all previous state of the environment reports. The key exceptions are Australia's World Heritage properties, which are subject to periodic reporting (such as the 5-yearly Great Barrier Reef outlook reports) and the properties that have regular high-level assessment as part of International Union for Conservation of Nature (IUCN) World Heritage Outlook reporting, although few of these properties have routine values monitoring (see [Heritage recognised under the EPBC Act](#)). The Australian Institute of Marine Science's Long-Term Monitoring Program has routinely monitored the condition of reefs of the Great Barrier Reef since 1983 (AIMS 2021).



Case study The koala – protecting an iconic species as part of natural heritage management

Dr Sarah Munks and Dr Daniel Lunney

The koala (*Phascolarctos cinereus*) is an iconic tree-dwelling marsupial of cultural significance to all Australians (DAWE 2021d). It is endemic to Australia and has a wide but patchy distribution across eastern and southern Australia (Martin & Handasyde 1999). Its natural range includes:

- the coastal and inland areas of north-eastern Queensland
- westwards into the inland, hotter and drier semi-arid climates of central Queensland and New South Wales
- south into Victoria and South Australia.

The koala is closely associated with the distribution of trees of the genera *Eucalyptus*, *Corymbia* and *Angophora* on which it feeds (Moore & Foley 2000, Au et al. 2019, Marsh et al. 2021).

The size of koala populations varies greatly, with marked fluctuations since European colonisation. Large increases in population in some locations in the southern part of the koala's range have led to overbrowsing. In the northern parts

of the range, extinction has been an issue. Population decreases have resulted from the fur trade in the late 19th and early 20th centuries, habitat loss and fragmentation, drought, wildfire, disease, dog attack and vehicle strikes (Melzer et al. 2000, McAlpine et al. 2015).

In 2012, the koala was listed as Vulnerable in Queensland, New South Wales and the Australian Capital Territory (but not Victoria or South Australia) under the *Environment Protection and Biodiversity Conservation Act 1999* (Cth). In late 2021, the koala came under Commonwealth consideration for uplisting to Endangered (DAWE 2021d), largely in response to the impacts of the 2019–20 bushfires (Legge et al. 2021).

Increasing threats to koala populations include climate change–related impacts. For example, a reduction in climatically suitable habitat has been predicted, which would significantly contract the koala’s range further to the east and the south in Queensland, New South Wales and Victoria (Adams-Hosking et al. 2011). Fires have a direct impact, with at least 5,000, and potentially many more, koalas dying in the 2019–20 fires in New South Wales alone (NSW Parliament Legislative Council 2020). These fires highlighted the considerable knowledge gaps on how populations change, how that differs across the range of the koala and what management actions are needed. Threats in combination, such as drought followed by fire, compounding the loss of habitat and fragmentation of the habitat that remains, will have the most significant impact (Lunney et al. 2012).

Long-term studies are lacking, although there has been valuable use of modelling and expert opinion, and research continues on many aspects of koala biology. An emerging finding from these studies is the relative importance of local-level threats and the need to prepare management plans tailored for local conditions. Overabundant populations also need to be managed (Menkhorst 2008).

Researchers have called for prioritisation of koala research and a proactive approach to conservation planning to protect the koala and other species that depend on eucalypt forests (Lunney et al. 2012). Recent conservation actions include:

- formal reservation of habitat under the NSW Koala Strategy (DPIE 2020)
- a draft national koala recovery plan, released for discussion in 2021 (DAWE 2021f)
- surveys and field studies of koala populations

amendments to conservation planning frameworks to increase habitat protection in Queensland and New South Wales.



Photo: Geoff Williamson

Figure 3 A koala (*Phascolarctos cinereus*) – one of Australia’s iconic species

Recognition and protection of natural heritage

Protecting Australia’s natural heritage is generally achieved by:

- listing it as World Heritage, National Heritage or Commonwealth Heritage (see [Heritage recognised under the EPBC Act](#))
- reservation of marine and terrestrial protected areas.

Natural heritage protection can be provided at the state and territory level in the Australian Capital Territory, the Northern Territory and South Australia by including natural heritage in the state or territory heritage register. However, this mechanism is rarely used except

in the Australian Capital Territory. Natural heritage protection at the local government level varies markedly among places, but is generally considered inadequate.

The types of conservation status for reserves, generally reflected by reserve type, is established by protected area legislation, which differs between each state and territory as well as the Commonwealth (McConnell & Janke 2021). The most common state and territory legislated terrestrial reserve types recognised in Australia are national parks, regional parks or reserves, nature reserves, conservation areas or parks, nature recreation areas or reserves, and game reserves. The Australian Capital Territory and Victoria also specifically provide for the conservation of

‘wilderness’ areas and parks (noting that notions of ‘wilderness’ areas can be deeply problematic for Indigenous people because they can work against the recognition and empowerment of Indigenous perspectives and aspirations). Marine protected areas are largely marine parks. Natural heritage may also be recognised and protected at the local government level by including it in local statutory plans (see [Statutory planning](#)), but these usually focus on conserving historic heritage and culturally significant aspects of the natural environment (e.g. scenic corridors).

Protected areas

Australia has a proud early beginning in relation to natural values conservation. Starting in 1879 (Boer & Gruber 2010), a diverse reserve system of protected areas has developed across Australia and its territorial maritime waters, supported by a raft of statutory protections (McConnell & Janke 2021). The full suite of terrestrial protected areas and other reserves across Australia, including private land and Indigenous Protected Areas, is known as the National Reserve System (see the Land chapter).

The total reserve system in Australia, including marine areas, is approximately 483 million hectares (ha). Of this, 380.15 million ha are managed by government, with the balance being primarily Indigenous Protected Areas (see the Indigenous chapter) and private conservation reserves. Terrestrial protected areas comprise approximately 148 million ha (19% of Australia’s land mass); 54 million ha of this are categories I and II under the IUCN classification for protected areas, the management priority for which is the preservation of conservation values, including heritage (Dudley 2013). Marine reserves comprise approximately 335 million ha (37% of Australian waters), with

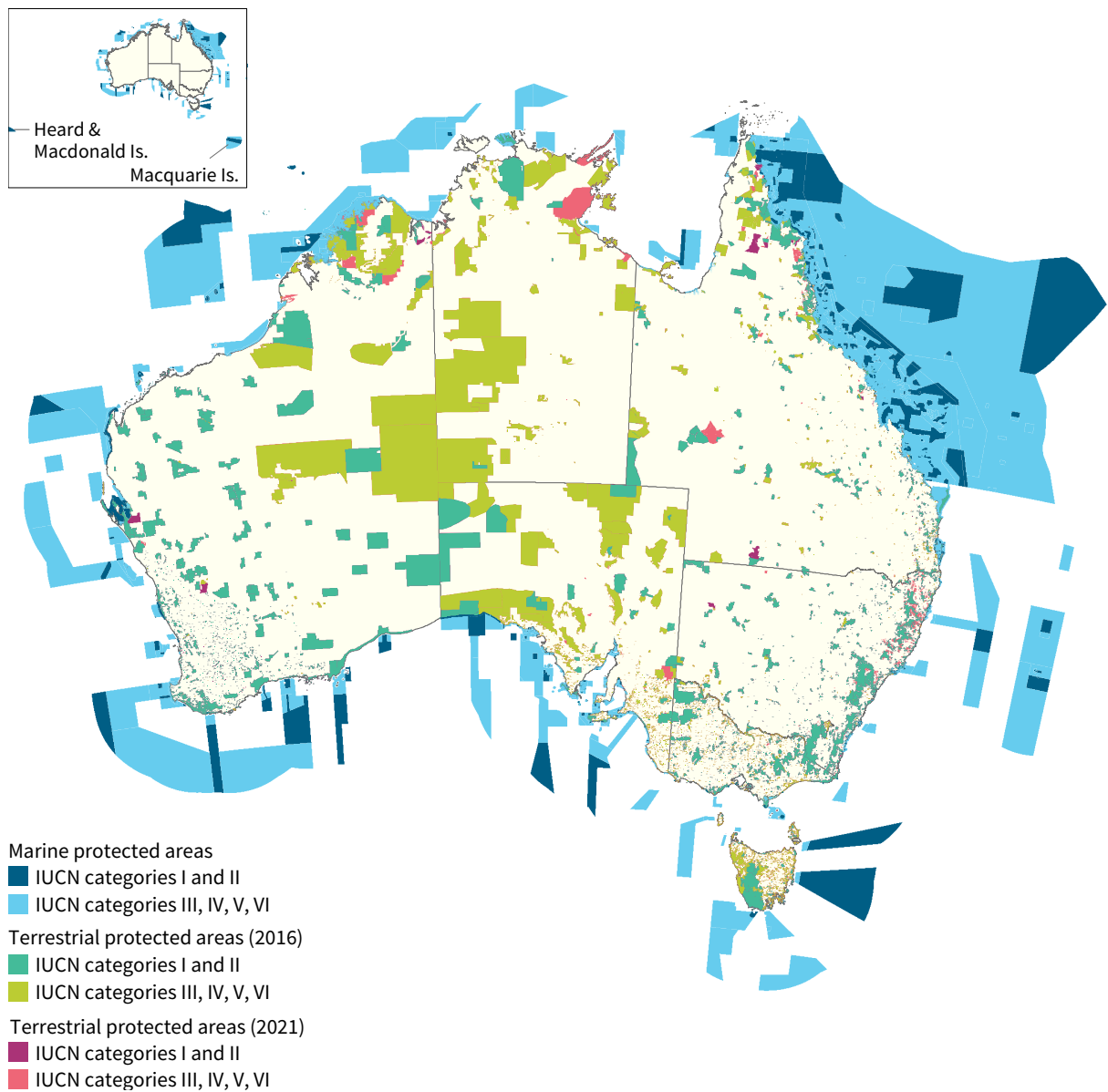
84.5 million ha being IUCN categories I and II (Figure 4).

Approximately 1.7 million ha of terrestrial protected area has been added to the system in the past 5 years, equating to an additional 1.5% of terrestrial protected area (Figure 5). Approximately 2.3 million ha of marine protected area has been added in the past 5 years, equating to an additional 0.7% of marine protected area. However, these changes include a loss of 3.4 million ha of IUCN category I and II terrestrial reserves and 40.1 million ha of IUCN category I and II marine reserves (DAWE 2020a).

This is a considerable slowing in reservation compared with the level of reservation reported in the 2016 state of the environment report (Mackay 2016c). Terrestrial protected areas increased from 98.5 million ha (13.4% of Australia’s land mass) in 2008 to 137.5 million ha (17.9% of Australia’s land mass) in 2014 (i.e. 5.7 million ha per year compared with 0.34 million ha per year in 2015–20). For marine protected areas, the reported increase was from 89.6 million ha in 2009 to 323 million ha in 2014 (i.e. 38.9 million ha per year compared with 0.46 million ha per year in 2015–20).

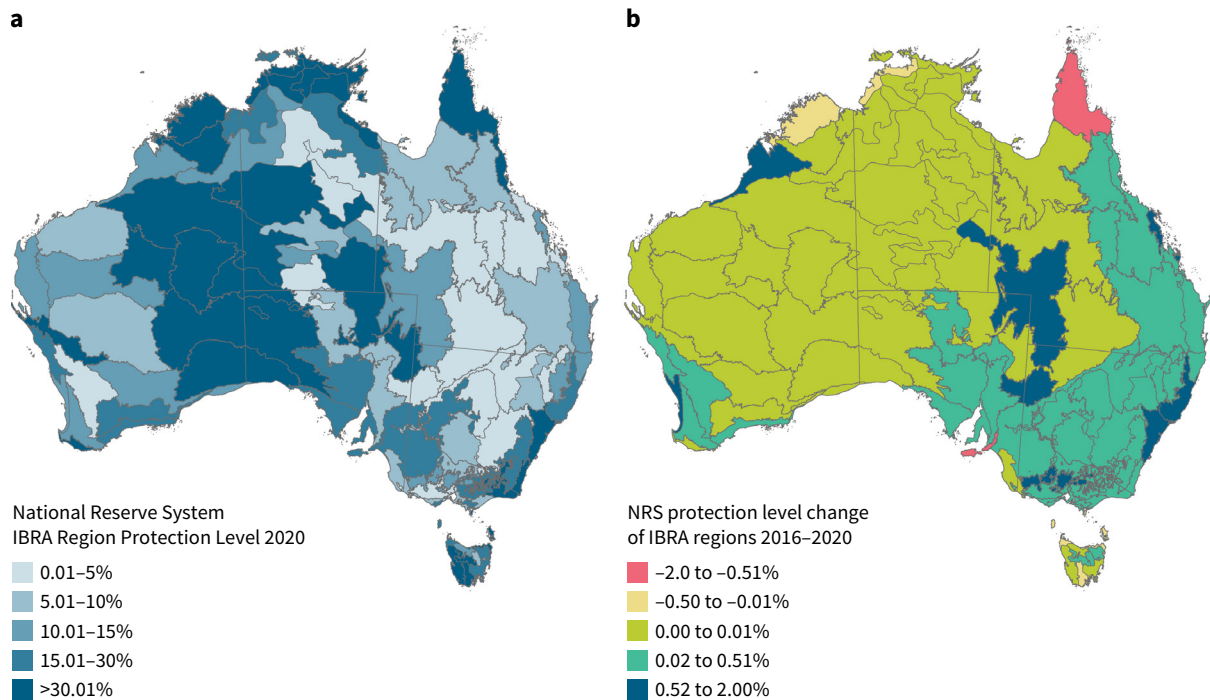
Gaps in natural heritage protection

Establishing and managing the Australian reserve system is directed by an explicit, science-based goal: the comprehensive, adequate and representative reservation of ecosystems and species. However, the National Reserve System lacks an explicit goal to address gaps in the reservation of natural heritage, and protective lists that include natural heritage are not comprehensive. Gaps occur in relation to both significant places and areas, and the comprehensive, adequate and representative protection of natural heritage systems, landscapes and seascapes.



Note: Data correct as at December 2020.
Source: DAWE (2020a)

Figure 4 Australia's terrestrial and marine protected areas, including Indigenous Protected Areas, highlighting new places since end of 2015



Note: Data correct as at December 2020.
Source: DAWE (2020a)

Figure 5 Australia’s National Reserve System, showing the protection level of Interim Biogeographic Regionalisation for Australia regions, 2020 (left); and change in protection level of regions, 2016–20 (right)

Mackay (2016c) noted that, as at 2016, there were ‘vast “unlisted” natural heritage resources that have not yet been formally assessed, but may be of sufficient heritage value to justify inclusion on the National Heritage List or reservation within national parks’. The limited increase in natural listed places and protected areas over the past 5 years means that this is still the case. The Australian Government and state and territory governments were unable to provide data on the actual extent and nature of this gap (McConnell 2021c).

For terrestrial protected areas, the gaps are largely because the National Reserve System was established ‘in a relatively uncoordinated and haphazard manner over the course of the 20th century’ (Boer & Gruber 2010:11). Australia’s marine protected areas are more

comprehensive, adequate and representative because they are more recent and are largely an outcome from the 1998 Australia’s Oceans Policy, which set out a framework for integrated ecosystem-based planning and management for all of Australia’s marine jurisdictions (Boer & Gruber 2010).

Significant recognition and protection of natural heritage can be achieved through the *Strategy for Australia’s National Reserve System 2009–30* and its marine equivalent the *National Representative System of Marine Protected Areas*, which provide direction on building a more comprehensive national terrestrial and marine reserve system. However, to achieve this, these strategies need to be amended to also specifically recognise natural heritage, or to develop a parallel strategy for a natural heritage, as both these reserve systems focus

on ecosystems and biodiversity. There is also a lack of clarity around what exactly natural heritage reservation needs are, as opposed to biodiversity conservation reservation needs.

Pressures on, and management of, natural heritage

Increasing pressures and existing management deficits continue to threaten Australia's natural heritage.

Pressures on natural heritage

Natural heritage, both identified and unidentified, across Australia and in its oceans, is at risk from a variety of pressures, particularly:

- development pressures, primarily land clearance and other substantive land modification
- climate change impacts
- extreme bushfires and other burning
- invasive species
- inadequate management and protections.

These pressures have been increasing over the past 20 years, and are forecast to further increase (see [Pressures](#)).

There is a lack of data to evaluate the present level of impacts of stresses and pressures on Australia's natural heritage as a whole, and separate from biodiversity, at the national and regional scales. However, expert opinion (McConnell 2021b) identifies climate change as the greatest pressure on natural heritage (see [Climate change](#)). More specifically, rising temperatures are regarded as the most concerning climate change pressure; extreme weather events and altered fire regimes are also significant (Figure 6).

In the past 5 years, climate change and climate change-related impacts have been the most

evident impacts on natural heritage. Sea temperature warming and marine heatwaves have resulted in:

- extensive coral bleaching on the Great Barrier Reef
- major loss of significant seagrass beds, with associated loss of significant species, on the Western Australian coast (see [case study: Climate change and the Shark Bay World Heritage Area](#))
- ongoing decline in the extent of southern kelp forests
- a general shift in location of species as habitats change
- an expansion in the range of marine pests.

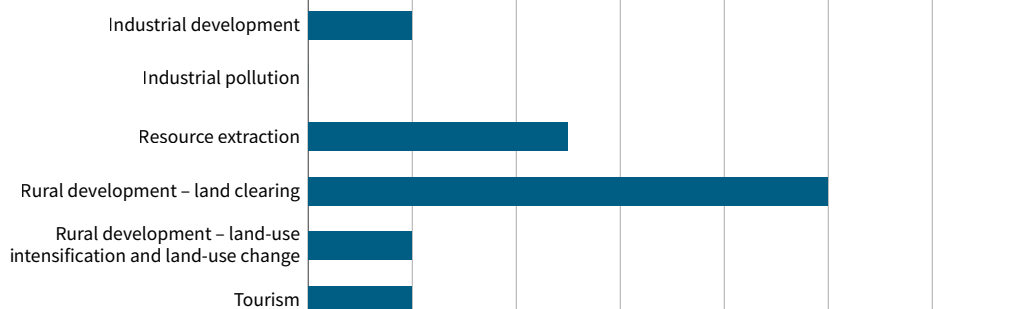
Extreme weather conditions have resulted in major bushfires across large parts of Australia that have burned large areas of protected area, with significant impacts. For instance, the 2019–20 bushfires had significant impacts on many National Heritage places: the Australian Alps National Parks and Reserves, the Stirling Range National Park and the West Kimberley. These all have significant natural heritage values.

After climate change, the next greatest pressure is regarded as inadequate resourcing for natural heritage protection and management. Invasive species (see [Invasive species and disease](#)) and rural development, including land clearance, are also seen as highly significant pressures on natural heritage. Invasive species are the most commonly listed pressure on species listed as threatened under the *Environment Protection and Biodiversity Conservation Act 1999* (Cth), affecting 82% of threatened taxa in Australia in 2018, and identified as a primary cause of extinction. Disease is also having a significant impact on natural heritage (see [Population](#)). Land clearing is implicated in the listing of 60% of Australia's threatened species.

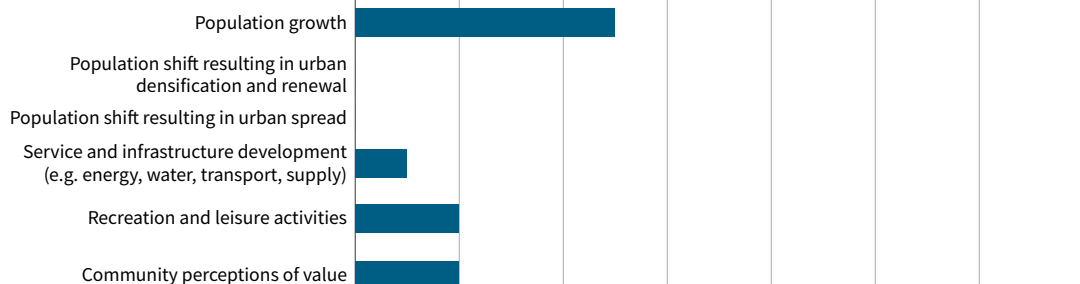
Climate change



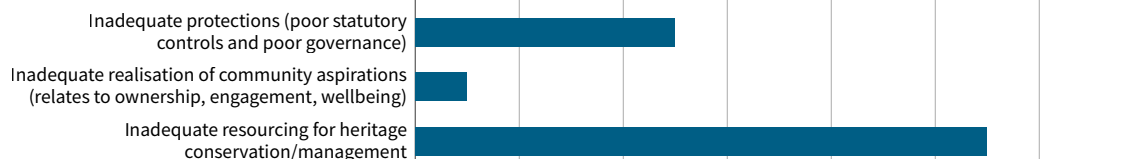
Industry



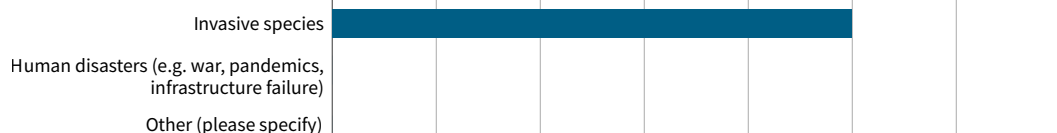
Population



Governance



Other



0 2 4 6 8 10 12 14
Number of experts who selected this topic

Note: Ranking is based on aggregating the survey respondents' 5 pressures identified as having the greatest impact on natural heritage. A value of '1' was allocated to each selected pressure.
Source: McConnell (2021b)

Figure 6 Pressures that are considered to have the greatest impact on natural heritage, in terms of survival, condition and integrity, 2021



Case study Lord Howe Island Rodent Eradication Project

Lord Howe Island is home to many unique and endemic species, including:

- 241 species of indigenous plants, almost 50% of which are found nowhere else in the world
- 207 species of birds, including the endangered Lord Howe Island woodhen
- 1,600 terrestrial insect species, including the world's rarest insect, the Lord Howe Island phasmid (a stick insect).

Because of its outstanding natural values, the Lord Howe Island Group – which includes Lord Howe Island and several other islands and marine environments – is on the National Heritage List and the World Heritage List.

Exotic rodents on islands are one of the greatest causes of species extinction in the world. Rats have already been implicated in the extinction of 5 endemic bird species, at least 13 endemic invertebrate species and 2 plant species on Lord Howe Island. Rodents are also a recognised threat to at least 13 other bird species, 2 reptile species, 51 plant species, 12 vegetation communities and 7 species of threatened invertebrates on Lord Howe Island. Of these species, 7 are listed as Critically Endangered under New South Wales and Commonwealth legislation (LHI REP 2017).

Since 2017, a major rodent eradication project has been conducted on Lord Howe Island. The issue was identified in 2001; planning and logistics took place in 2017–19, and baiting happened in 2019–20. Poison was placed inside 22,000 lockable traps around the island, and pellets were distributed via helicopter in inaccessible areas.

By February 2021, this \$15 million eradication project program had shown remarkable success, with no rodents being sighted on the island in 15 months. Two rats thought to have come from mainland Australia were caught in April 2021 (Kurmelovs 2021). The population of the endangered flightless Lord Howe Island woodhen has more than doubled since the start of the program (Martin & Rubbo 2021).

This island-wide holistic ecological restoration program also included the eradication of cats and pigs in the 1980s, feral goats in 1999, and myrtle rust in 2018 (a world first) (LHI REP 2017).

The ecological restoration program is underpinned by the Lord Howe Island Biodiversity Management Plan and managed by the Lord Howe Island Board. The rodent eradication project is funded by the Australian Government, the Lord Howe Island Board and the NSW Environmental Trust.

Natural heritage management

It is difficult to assess the management of natural heritage across Australia because management is not routinely audited and data are not routinely collected. The key current management priorities for natural heritage that have been identified by expert opinion for this report are improved governance (resourcing, government leadership, improved protections) and improved management in relation to threats (Figure 7) (McConnell 2021b). Specific key natural heritage management issues that have been identified are (Samuel 2020, McConnell 2021b, McConnell 2021d):

- inadequate statutory protections at all levels of government
- complex shared management approaches that result in gaps and overlaps, and are of questionable effectiveness
- inadequate broadscale strategic planning and management
- lack of active management of pressures, particularly in relation to condition monitoring and adaptation, and risk management planning
- poor processes for development impact assessment and approvals
- management plans that are not comprehensive or are not being renewed
- inadequate participation of Indigenous people in protected area management, and inadequate access to land and waters
- inadequate numbers of natural values expert staff to undertake research and guide management.

The 2016 state of the environment report noted that Australia's natural heritage would benefit from a whole-of-landscape or seascape approach that addresses management regimes across land tenure, and considers individual places, different land holdings and subregions as part of a broadly interconnected

ecosystem, and from collection of baseline data on natural heritage values within regions (Mackay 2016c:55). No substantive action has been undertaken in these areas since 2016.

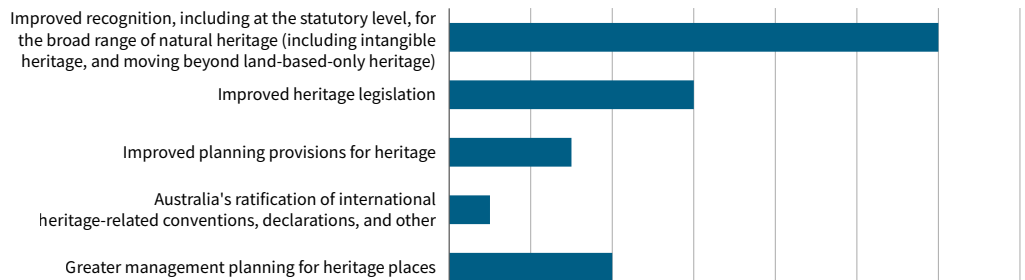
These management failures are occurring in spite of clear guidance on best-practice natural heritage management being available, including the *Australian Natural Heritage Charter: for the conservation of places of natural heritage significance* (AHC 2002b) and various Australian and international IUCN documents. The Australian Heritage Strategy (Australian Government 2015) provides another important framework and contains many valuable actions, but these are not underpinned by clear, knowledge-based goals for natural heritage conservation.

Managing pressures on natural heritage

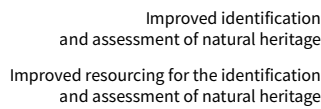
With the increasing pressures on natural heritage, particularly climate change-related pressures and increased use, more active ongoing management of these pressures is needed. It is difficult to determine the costs for managing pressures in protected areas (McConnell 2021c), but the annual cost of invasive plant control in national parks alone was estimated to be \$29.11 million in 2018 (McLeod 2018).

Data and opinions provided for this report (McConnell 2021b, McConnell 2021d) indicate that there is very little active management of pressures, except in a small number of locations (e.g. the Great Barrier Reef). Natural heritage experts are very concerned about this, as indicated by the high priority given to greater monitoring of the condition of natural heritage, and improved risk assessment and risk mitigation planning for new threats (Figure 7).

Protection



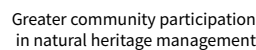
Identification



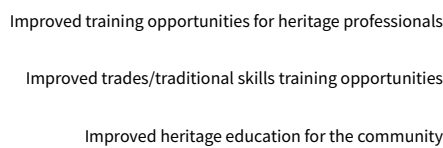
Management



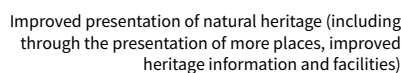
Governance



Education



Presentation/celebration



Other

Other (please specify)

0 2 4 6 8 10 12 14
Number of experts who selected this topic

Note: Ranking is based on aggregating the survey respondents' 5 highest priority actions to improve the management of natural heritage. A value of '1' was allocated to each action.
Source: McConnell (2021b)

Figure 7 Expert opinion on priority management actions for improving protection of Australia's natural heritage

Areas that have been identified as needing greater action to manage pressures on natural heritage are:

- researching the nature and progression of key pressures and their potential impacts
- researching the effectiveness and impacts of responses to pressures, especially bushfires and fire management (e.g. fuel reduction burning, ecological burning, cultural burning)
- removing and controlling invasive species, including at their source points
- restoring ecosystems, habitats and communities
- compensating for population and community shifts due to climate change through altered reservation strategies (e.g. larger reserve areas, a greater number of representative reserves)
- ensuring reserve connectivity and use of buffer zones
- improving response planning, including disaster preparedness plans
- developing criteria for natural heritage sustainability for different uses
- better incorporating Indigenous perspectives and aspirations in relation to natural heritage.

Governance and management issues are currently contributing to a poor outcome for natural heritage, but they could assist in managing the pressures on natural heritage if they were addressed.

Indigenous involvement in natural heritage management

Other than for Indigenous Protected Areas, Australian Government-managed terrestrial protected areas have the highest level of shared management. Of the 6 national parks managed by Parks Australia, Indigenous people own 3 (Uluru-Kata Tjuta, Kakadu and

Booderee national parks). They are leased to the Australian Director of National Parks, based on legal and procedural cooperative joint management arrangements (see the Indigenous chapter). Another example of joint management between the government and Traditional Owners is the Wet Tropics of Queensland World Heritage area. Here, the government can enter into or facilitate cooperative management agreements (including joint management agreements) with Indigenous people under Schedule 1 of the *Wet Tropics World Heritage Protection and Management Act 1993* (Qld) (Boer & Gruber 2010).

Other co-management and participatory arrangements that go beyond consultation are being developed for protected areas. This is a strong trend for natural and mixed World Heritage and National Heritage places, with various arrangements being put in place, including Indigenous advisory groups and co-designed Indigenous management strategies. The Budj Bim Cultural Landscape, which includes the Budj Bim National Park, was the first Australian World Heritage property to be inscribed solely for its Aboriginal heritage values and is managed by Traditional Owners (see the Indigenous chapter).

Resourcing

Although natural environmental management attracts a significant amount of government funding, much of this is directed towards biodiversity conservation, rather than natural heritage protection and management. The notable exception is the Great Barrier Reef.

Protection and management of natural heritage across Australia are struggling to meet basic requirements for heritage protection and management, even where substantial volunteer support exists. This includes meeting emerging issues, especially addressing climate change impacts. Calls for

increased government resourcing to improve all areas of natural heritage management, particularly identifying and managing key pressures, have been ongoing for many years.

Geoheritage

Australia's geoheritage is a core and integral part of Australia's natural heritage, which sustains and influences the nature and occurrence of important flora and fauna (e.g. Crofts et al. 2015). Geoheritage provides a long-term record of the evolution of Earth and its landscapes, as well as geological and Earth surface processes. Geoheritage comprises significant geological, geomorphological, pedogenic (soil-related), palaeontological and hydrological features, including objects (e.g. mineral or rock specimens), features, sites, landforms, serial sites, landscapes and systems.

Australia's geoheritage is considered separately from natural heritage in this report because it has specific values that need to be recognised and protected, and often requires different management approaches to flora and fauna conservation.

The study of recent landforms and associated deposits can provide important knowledge to assist with predicting future climate and climate change impact (cited in Worboys 2012:3):

The only record of the history of our planet lies in the rocks beneath our feet: rocks and the landscape are the memory of the Earth. Here, and only here, is it possible to trace the processes, changes and upheavals which have formed our planet over thousands of millions of years: the more recent part of this record, of course, includes the evolution of life, including man. The record preserved in the rocks and landscape

is unique, and much of it is surprisingly fragile.

Geoheritage helps define Australia, regions and local areas through its iconic landscapes, landforms and particular landscape features, which can be valued for their aesthetic quality. Australia's geoheritage also has significance in its own right (i.e. existence value). Geoheritage can be of economic importance, especially through tourism.

Geoheritage also has cultural value where it provides an important sense of place and connection. The Australian landscape and many of its individual features are of great significance to Indigenous Australians, as part of creation stories and integral to interactions with Country. Songlines, aquifers, groundwater and several other systems that enact and retain multi-layered Indigenous scientific and cultural knowledge of Country, passed from ancestors to future generations, rely largely on the integrity of geoheritage features in the cultural landscape. These features act as markers and embodiments of dreamings and creator beings, and as physical embodiments of cultural knowledge, resources custodianship and law (see case study: 'Marnpi story', creation story of the bronzewing pigeon – an example of co-existing Indigenous-geoheritage values).

Unfortunately, the overall outlook for geoheritage is poor, and the current lack of protection for geoheritage nationally is unlikely to improve without a specific focus on, and resourcing for, this area of heritage.

There has also been insufficient investigation of the Indigenous perspectives of geoheritage to date. There are exceptions, including nationally recognised sites and landscapes of known geoheritage and Indigenous significance, such as Uluru, Chambers Pillar, Bungle Bungle Range and Wilpena Pound. The inclusion of Indigenous perspectives in

geoheritage needs development because of the importance of geoheritage to Indigenous communities and their heritage. There is also significant potential to increase Indigenous participation in strengthening and supporting

the management of geoheritage through respect and recognition of deep-time knowledge of Country held in Indigenous communities.



Case study ‘Marnpi story’ (creation story) of the bronzewing pigeon – an example of co-existing Indigenous–geoheritage values

Barkandji Elder Uncle Badger Bates

Marnpi dreaming, bronzewing pigeon, 1994, a linocut artwork by Uncle Badger Bates, depicts the creation story (‘Marnpi story’) of the bronzewing pigeon (*Phaps chalcoptera*). The artwork shows the 3 hills known as the Pinnacles on Barkandji (Wilyakali dialect) Country near Broken Hill, New South Wales, where the pigeon is said to have landed (Figure 8). This is a major story that travels across Country, incorporating many different language groups to link them all together.

A flock of bronzewing pigeons flew across Adnyamathanha Country from Murnpeowie (pigeon water) to Barrata, in the Flinders Ranges. A man attempted to catch the pigeons with a net, but one escaped. He threw a boomerang at the pigeon and wounded it, but it flew towards Broken Hill. As it circled around, its blood, kuna (excrement) and feathers fell to the ground and formed the rocks and minerals; the blood formed the Broken Hill gossan or weathered ore body, the kuna formed the quartz outcrops, and the feathers the other rocks that correspond with the colours found in the feather of the bronzewing pigeon.

Finally, the pigeon flew north from Broken Hill and died at a place known today as Mount Brown near Milparinka, where gold was ‘discovered’ in the 1880s. Its spirit went on and up into Mount Isa, Queensland, also known for its minerals.

It is understood by Barkandji peoples that the wounded pigeon formed the distinctive rocks and minerals as it travelled. The ancient story of the bronzewing pigeon and its flight across the Country is mirrored in the western discovery of rich silver, lead, zinc and gold deposits. The Marnpi story attests Indigenous knowledge of Country and of these rocks and mineral deposits long before western science ‘discovered’ them and began mining.



Source: Uncle Roger Bates, Barkandji Elder

Figure 8 Marnpi dreaming, bronzewing pigeon, 1994

Types and condition of geoheritage

Well-known examples of Australia's geoheritage are:

- the distinctive and unique landforms at Uluru–Kata Tjuta
- K'gari/Fraser Island, which is the world's largest sand island
- the globally important mammal fossil sites in Riversleigh and Naracoorte Caves National Park, both on the World Heritage List
- Jenolan Caves in the Blue Mountains.

These are well known because they are distinctive landscapes, but other equally significant geoheritage includes:

- meteor impact sites such as Kandimalal/ Wolfe Creek crater in Western Australia

- volcanic features such as the Glasshouse Mountains, Queensland, and the Tasmanian Seamounts
- coastal and marine landforms and sediments such as the Shark Bay stromatolites and the 26-million-year-old Cape Range fossil coral reefs, part of the Ningaloo Coast World Heritage Area.

As an extremely old, relatively stable land mass, Australia has a wealth of very old geological and geomorphological features rarely preserved elsewhere. These include (Grey et al. 2010, Worboys 2012, AHC 2017):

- the 4.4-billion-year-old Jack Hills (Erawondoo Hill) zircon deposit in Western Australia, included on the National Heritage List

- Earth’s earliest visible traces of life in the form of 3.5-billion-year-old fossils in the Pilbara
- the rare Devonian reef sequences of the west Kimberley region, recognised through National Heritage listing
- the extensive, well-preserved pre-last glacial maximum glacial deposits in Tasmania
- the World Heritage-listed Willandra Lakes paleo-lake system in New South Wales.

Geoheritage can reflect Australia’s particular geological nature, evolution and environment. For example:

- Tasmania’s dolerite is a legacy of its former connection to Antarctica as part of Gondwana
- Australia’s Permian glacial sediments provide evidence of continental drift
- warm environment marine fossils in the Vestfold Hills, Antarctica, and rare polar

dinosaur fossils in the Otway Ranges, Victoria, are evidence of past environmental change.

Geoheritage also occurs at local and smaller scales. It can include representative examples of local rock, landform or soil types; structural or compositional features; or specific Earth science processes. Geoheritage may also occur in the form of specimens held in private collections, public collecting institutions such as museums, or research institutions such as universities or government geoscience departments. These small-scale features and objects may be significant because they are rare or exemplary, or have historical importance.

Except for a small number of specific sites, the condition of Australia’s geoheritage is poorly known because condition monitoring or other evaluation is undertaken at very few places. Where evaluation does occur, it is not widely reported.



Case study A-tents in Kosciuszko National Park – small-scale, rare and highly vulnerable geoheritage

Sources: Spate et al. (2018) and J Brush, pers. comm., 23 April 2021.

Coleman Plain, Kosciuszko National Park (an important component of the Australian Alps National Parks and Reserves National Heritage place), has an extensive suite of small-scale karst landform features known as A-tents (Figure 9), which are regarded as significant national heritage.

A-tents are a relatively rare form of surface rock exfoliation feature that results from compression stress release when the compressing force is removed relatively quickly (in geological terms). For many overseas examples, the compression stress release is normally in the form of removing overlying rocks or ice.

Australian A-tents occur in slightly to relatively heavily metamorphosed – hence, coarse-grained – limestone, which is different to the normal context overseas. They have not formed due to deglaciation, but are thought to form once the limestones are exposed, allowing unloading to happen, possibly triggered by the sun’s heat. There are only 3 known localities of A-tents in Australia:

- Cooleman Plain, with more than 30 identified features
- Chillagoe, Queensland, with 3 A-tents
- Wombeyan, New South Wales, with 1 A-tent.

At Cooleman Plain, 102 ‘pop-up’-type structures have been recorded, of which 33 are classic A-tent features, with the rest being blisters, raised arches, separated caps or slabs. The Cooleman Plain A-tents and blisters are small, varying in scale from tens of centimetres to about 2 metres. These karst microstructures are fragile and are at risk from natural weathering and impacts from humans and animals.

In recent years, feral horses have been damaging the A-tents at Cooleman Plain (Spate et al. 2018). There are an estimated 14,380 feral horses in Kosciuszko National Park, with few management controls in place. Kosciuszko National Park was created largely to prevent damage to the alpine environment from introduced animal grazing, and sheep and cattle have been removed from the park because of the damage they cause to the natural environment. The A-tents continue to be at risk, as are many other aspects of the karst such as the spring-fed bogs.



Photo: Regina Roach

Figure 9 A-tents, Cooleman Plain, Kosciuszko National Park

Recognition and protection of geoheritage

While most types of heritage are specifically protected by various legislation, policy and strategies, geoheritage is afforded very limited protection (Dixon 1996, Brocx & Semeniuk 2007, Worboys 2012, Cresswell 2018).

Geoheritage conservation in Australia can be considered to be still in its development stage, with the statutory processes that incorporate the conservation of sites of geoheritage significance still in their infancy (Brocx & Semeniuk 2007:54).

The desirability of, and need for, protection of significant geological and geomorphological features and landscape-scale systems have been recognised since the 1970s (Cresswell 2018). Part of the issue appears to be that geoheritage has tended to be viewed as simply an integral part of the natural landscape and ecosystems. Although many of Australia's iconic geoheritage places are recognised through their inclusion on the World Heritage or National Heritage lists (Brocx & Semeniuk 2007, AHC 2017), most geoheritage features and broader landscapes are unrecognised and unprotected.

Addressing this requires that geodiversity and geoheritage are 'accorded a level of importance equivalent to biodiversity as part of an ecosystem approach that recognises the value and integrity of both abiotic and biotic processes in nature conservation' (Crofts et al. 2015:3). Developing an effective framework for geoheritage protection will require new protective legislation, developing a classification scheme for the comprehensive recognition of geoheritage, and inventorying Australia's geoheritage.

As of 2021, 15 of Australia's 20 World Heritage sites include identified geoheritage values. There are 16 National Heritage places (14% of places) listed primarily for their geoheritage

values. Several National Heritage places with geoheritage values are also protected areas, including the Tasmanian Seamounts, 2 reefs in the Timor Sea, and various islands. The Commonwealth Heritage List includes 33 places with identified natural heritage values, many of which are geoheritage sites or have geoheritage values.

Identification and classification of geoheritage

No consistent geoheritage statutory inventory or lists are maintained in any jurisdiction (Worboys 2012, Cresswell 2018, Brocx & Semeniuk 2019b, Brocx & Semeniuk 2019a). Significant work has been done in the past 30 years to provide a robust foundation on which to develop an effective geoheritage identification system leading to systematic geoheritage conservation in Australia. Further effort is required to gain consensus on classificatory systems to guide the identification of places and areas of geoheritage for listing on registers or inclusion in protected areas (e.g. Sharples 1993, Joyce 1995, Kiernan 1996, Dixon et al. 1997, Kiernan 1997, Sharples 2002, Brocx & Semeniuk 2009). Guidance could also be drawn from relevant international studies – (e.g. Dingwall et al. (2005).

Whatever classification approach is used, it needs to be clear, logical, objective and systematic (Crofts et al. 2015), and apply nationally at all levels (i.e. from international assessments to local inventories). This is essential to ensure that geoheritage is identified, protected and assessed comprehensively (Sharples 2002, Crofts et al. 2015).

Overall, and compared with other countries, Australia has done a significant amount of

nationwide geoheritage inventoring (Dixon 1996, Crofts et al. 2015), such as:

- Geological Society of Australia state-based geological monument identification programs in the Australian Capital Territory, the Northern Territory, New South Wales, Queensland, South Australia, Tasmania and Victoria (de Jersey et al. 1976, McBriar & Mooney 1977, Eastoe 1979, Joyce & King 1980, Schon 1984, Percival 1985, Owen 1987, Fortowski et al. 1988, Scrymgour & Risely 1991).
- specialist geoheritage studies of national and international significance (Cochrane & Joyce 1986, Yeates 2001), and of the Australian alpine zone (Rosengren & Peterson 1989) and the Australian arid zone (Wakelin-King & White 2011)
- karst and pseudokarst studies of northern Australia (Grimes et al. 2009) and Tasmania (Kiernan 1995), and of the Nullarbor in relation to World Heritage values (Davey 1992)
- other Tasmanian studies, including inland aeolian features (Dixon 1997), state forest (Sharples 1994, Sharples 1995, Sharples 1997), and a preliminary geoheritage inventory for the whole of Tasmania by the Parks and Wildlife Service (Bradbury 1993, Bradbury 1995).

In some cases, state-based geoheritage inventories have been developed from this and other geoheritage data.

However, the data are not based on systematic surveying and inventoring, so there are geographic and thematic gaps (Dixon 1996, Brocx & Semeniuk 2007, Cresswell 2018). The work has also been strongly biased towards geological sites; few geomorphological or pedogenic sites are included (Dixon 1996). Marine geoheritage is also a key gap.

In addition, many assessments are volunteer generated (e.g. by members of the Geological Society of Australia and, to a lesser extent, the Australasian Cave and Karst Management Association and state-based groups such as the Tasmanian Geoconservation Database Reference Group). Private landowners have also played a role – for example, in the establishment of the geological province reserve in the Mount Painter area, Arkaroola region, South Australia (Brocx & Semeniuk 2007). This means that identification and assessment may not be consistent across areas or in methodology.

Geoheritage protection

There is no specific legislative protection for geoheritage at any level of government in Australia. Statutory protection for geoheritage is currently provided through recognition and protection within protected areas at the national and state and territory levels. Where geoheritage is afforded protection as part of a protected area, it may be the primary value – as is the case with Undara Volcanic National Park, Queensland, and Hallett Cove, South Australia (Brocx & Semeniuk 2007) – or may be a small or non-key aspect of the protected area.

Some protections are offered through statutory lists and local government planning schemes, although this is rare apart from the World Heritage, National Heritage or Commonwealth Heritage lists (where geoscience is considered as part of natural heritage). Geoheritage can be included on the Australian Capital Territory, South Australian and New South Wales state heritage registers, also largely as natural heritage. In the Australian Capital Territory, geoheritage can only be recognised as ‘natural heritage’. In New South Wales, geoheritage

can only be included where it is at risk and other protective mechanisms have failed (Dixon 1996). Other state heritage registers focus on historic heritage; geoheritage is not a priority for inclusion and has not been systematically identified. Some states have a separate geoheritage database, but these do not provide statutory protection (e.g. the Geological Survey of Western Australia's geological heritage database and the Tasmanian Geoconservation Database managed by the Department of Primary Industries, Parks, Water and the Environment).

Tasmania is regarded as leading the way in geoheritage conservation in Australia (Brocx & Semeniuk 2007, Worboys 2012, Cresswell 2018). Although it does not have direct, explicit, general legislative protections for geoheritage, the *Natural Heritage Strategy for Tasmania (2013–2030)* explicitly recognises the need to integrate geoheritage values into resource management and planning systems. Tasmania is also the only jurisdiction in Australia with a conservation agency with a dedicated Earth science section concerned with geoheritage conservation, and it maintains a statewide geoconservation database, which provides some protective status in relation to planning and development (McConnell, A, pers obsv, and Sharples et al. (2018) cited by Cresswell 2018). Furthermore, the forest industry in Tasmania has included geoheritage protection in industry standards and other statutory guidance since the late 1980s. The industry has supported research to systematically identify and assess geoheritage in wood production forests, including assessing impacts from forest harvesting.

Geoheritage can also be recognised by its designation as a United Nations Educational, Scientific and Cultural Organization (UNESCO)

Global Geopark. These are geographical areas that have international geoheritage significance. However, geoheritage protection is only one of the management objectives, and Global Geopark status alone does not provide statutory protection. Australia currently has no Global Geoparks (UNESCO 2021) (see case study: Geoparks).

Raising awareness of geoheritage

Raising awareness and involvement of geoheritage and geoconservation through geoheritage promotion, education and interpretation is a key part of geoconservation (Crofts et al. 2015, Brocx & Semeniuk 2019b). Creating a wider appreciation of geoheritage and geoconservation is particularly important given the lack of understanding of geoheritage compared with natural heritage and biodiversity conservation.

Interest in geodiversity and geo-based tourism is not new, as is evident in the longstanding tourism interest in caves, mountains and spectacular landscape features. What appears to be needed is a more educational approach that conveys the stories and values of geoheritage sites or areas.

The Brachina Gorge Geological Trail – promoted as a ‘corridor through time’ – in the Flinders Ranges, South Australia, is a good example of an educational approach to communication (developed by the South Australian Department of Mines and Energy, and the National Parks and Wildlife Service). Another good example is the series of regional geological publications by the Geological Society of Australia's Queensland branch.



Case study Geoparks

As well as site-based interpretation and appreciation of geoheritage, larger, landscape-scale opportunities exist. One globally recognised mechanism for this is the United Nations Educational, Scientific and Cultural Organization (UNESCO) Global Geoparks. These are single geographical areas (usually small regions) with international geological significance, which are managed holistically for geoheritage protection, education and sustainable development. They may be based on community-led, voluntary initiatives or on top-down designation (Crofts et al. 2015, UNESCO 2021).

Crofts et al. (2015) regarded geoparks as providing ‘an international framework to conserve and enhance the value of the Earth’s heritage, its landscapes and geological formation’, but noted that they have limitations for geoconservation in that are not systematically identified and classified as a comprehensive global network.

There are 161 geoparks in 4 countries around the world, but there are currently none in Australia (UNESCO 2021). Australia’s previous geopark – Kanawinka Geopark, South Australia and Western Victoria – was deregistered in 2012 (Joyce 2010).

There has, however, been recent interest in proposing the Murchison region in Western Australia (Hayes 2018) and the economic mineral zone of western Tasmania as geoparks (A. McConnell, pers obsv).

Pressures on, and management of, geoheritage

Geoheritage experiences many of the same pressures as natural heritage, but the lack of specific protection for geoheritage in Australian legislation compounds the effects of these pressures.

Pressures on geoheritage

The main threats to geoheritage are resource extraction, land and infrastructure development, unsustainable land management, climate change impacts including bushfires, and inadequate

management and protections. Pressures and threats to geoheritage also occur in the marine environment. These include bottom fishing, aggregate extraction, oil and gas installations, renewable energy installations, cables and pipelines, navigational dredging, waste disposal and military activity (Crofts et al. 2015). The inadequate recognition of geoheritage as valuable heritage is an additional significant pressure.

The increasing intensity and frequency of specific and cumulative pressures will increase the risk to geoheritage. Little is being done to assess these impacts, or mitigate them, including through risk preparedness.

This is particularly problematic given that geoheritage is nonrenewable and much is unique. In general, impacts cannot be repaired or remediated, although there are exceptions, such as small-scale active process features (e.g. river gravel bars Crofts et al. 2015) and some drowned or buried geoheritage (e.g. see case study: Lake Pedder – opportunities for restoration).

Significant damage to, and losses of, key sites have occurred in the past and are ongoing (Gray 2013, cited in Crofts et al. 2015). Relict landscapes are generally the most vulnerable. Karst (soluble rock such as limestone) landscapes are also highly vulnerable (Gillieson 2021). Larger-scale geoheritage features are generally less vulnerable to a particular threat than smaller-scale geoheritage (Crofts et al. 2015).

The main impacts on geoheritage observed in the past 5 years include (see also [Pressures](#)):

- climate change
 - changed cave hydrodynamics due to changed rainfall in the Margaret River area in Western Australia (A Spate, pers. comm., 14 September 2020)
 - increased frequency and intensity of bushfire, which in 2019–20 in the Blue Mountains burned the Jenolan Caves area, a highly significant karst area (Yencken 2019), resulting in changed karst system conditions (see [case study: Managing extreme event impacts on the Jenolan Caves](#))
 - sea temperature warming and marine heatwaves – for example, the massive coral bleaching and reef decay of the Great Barrier Reef, and stromatolite damage at Shark Bay, both World Heritage properties
- collecting
 - zircon collecting at National Heritage-listed Erawandoo Hill in Jack Hills
 - souveniring and sampling at the Ediacaran Golden Spike site, part of the Brachina Gorge Geological Trail in South Australia’s Flinders Ranges (Lewis 2020), which was included on the World Heritage Tentative List in 2021
- invasive species
 - destruction of karst surface features at Coolemon Plain, Kosciuszko National Park, by feral horses (see [case study: A-tents in Kosciuszko National Park – small-scale, rare and highly vulnerable geoheritage](#)).

Because impacts on geoheritage are rarely monitored or assessed, it is difficult to assess the extent to which various pressures are currently affecting geoheritage. Expert opinion (McConnell 2021b) suggests that the key pressures are governance related – in particular, a lack of statutory protection and resources for protection and management – and multiple industry pressures (Figure 10).

Climate change

Rising temperatures

Changing rainfall

Rising sea level

Altered fire regimes

Extreme weather events

Industry

Industrial development

Industrial pollution

Resource extraction

Rural development – land clearing

Rural development – land-use intensification and land-use change

Tourism

Population

Population growth

Population shift resulting in urban densification and renewal

Population shift resulting in urban spread

Service and infrastructure development (e.g. energy, water, transport, supply)

Recreation and leisure activities

Community perceptions of value

Governance

Inadequate protections (poor statutory controls and poor governance)

Inadequate realisation of community aspirations (relates to ownership, engagement, wellbeing)

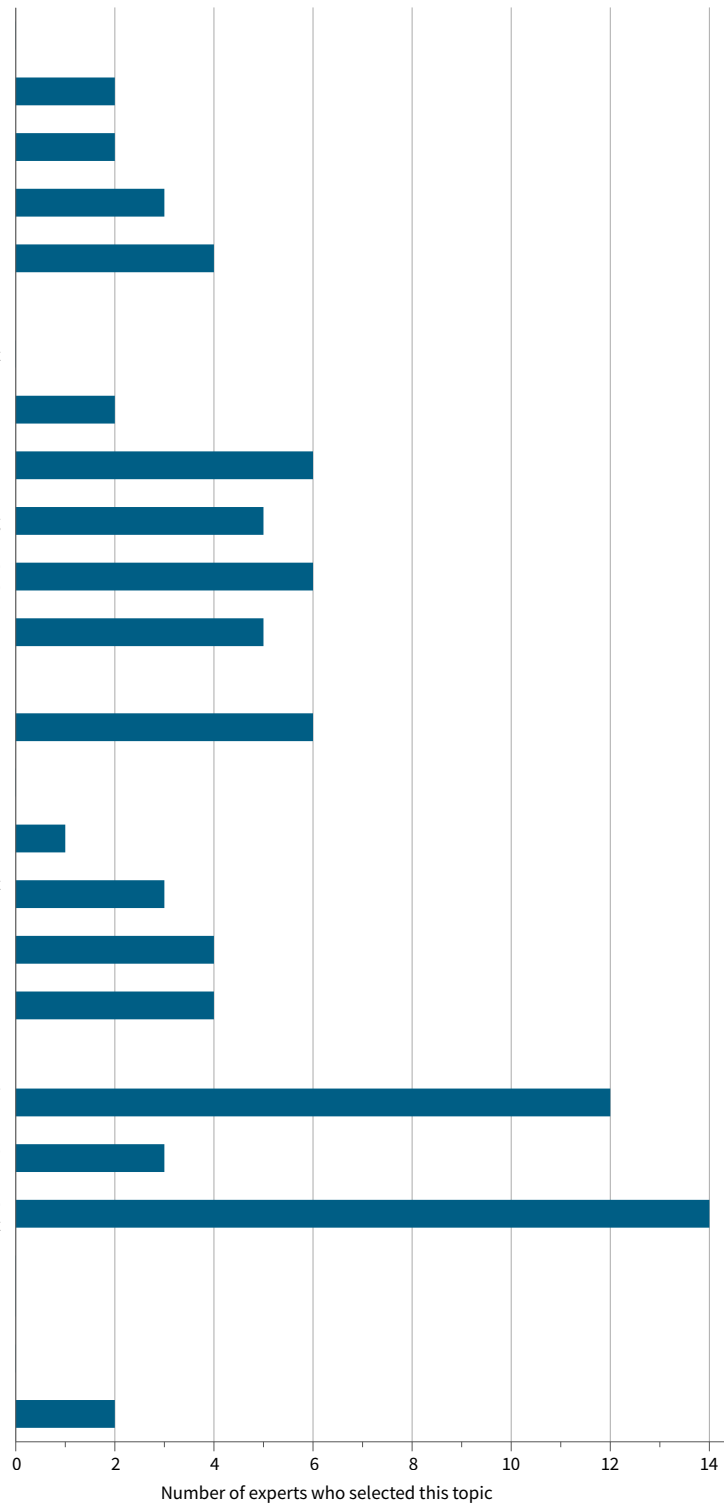
Inadequate resourcing for heritage conservation/management

Other

Invasive species

Human disasters (e.g. war, pandemics, infrastructure failure)

Other (please specify)



Note: Ranking is based on aggregating the survey respondents' 5 pressures identified as having the greatest impact on geoheritage. A value of '1' was allocated to each pressure.

Source: McConnell (2021b)

Figure 10 Pressures that are considered to have the greatest impact on geoheritage



Case study Managing extreme event impacts on the Jenolan Caves

Based on information provided by Dr Kevin Kiernan, formerly University of Tasmania

The Jenolan Caves are part of the Jenolan Karst Conservation Reserve, which comprises more than 40 kilometres of surveyed underground passages. The Jenolan Caves have been developed into one of Australia's most celebrated tourism attractions. The reserve also protects important biological, Indigenous and historic heritage; and research, educational, recreational and water catchment values. First reserved in 1866, pre-dating the declaration of the world's first national park at Yellowstone in 1872, Jenolan is now on the National Heritage List and the New South Wales State Heritage Register. It is one of 8 areas included in the Greater Blue Mountains Area World Heritage Site. The caves hold significant meaning for the Gundungurra people, who call them *binooomea*, meaning 'dark places'.

Managing karst areas can pose particular challenges. The dissolution of limestone that produces karst caves, and re-deposition of the carbonate within them to form stalactites and other speleothems, depend heavily on natural geochemical processes within the overlying soil. Safeguarding soils from degradation is therefore of particular concern when managing karst areas. This is especially true given that only small volumes of eroded sediment may be enough to block underground drainage channels. This can degrade caves, as well as displace water onto the surface above the caves and cause further erosion.

Potential large and intense fires and erosion were identified as significant risks in the late 1980s. This led to recommendations for careful, localised hazard reduction burning of key areas (Dunkley et al. 1988, Kiernan 1989, Stanton et al. 1992). Fire hazard mapping in 1989 estimated that 70% of the reserve had a high fire hazard, but a fire management plan was not developed until 2009.

In 2009, new research (ANU 2009) highlighted the potential for more variable and extreme rainfall events and wildfire due to climate change to cause significant detriment to the karst and caves. This required reconsideration of fire management planning for the reserve. Although general guidelines for managing fire on karst were developed in 2012 (OEH 2012), it was not until 2019 that a new management plan for the Jenolan Karst Conservation Reserve accorded high priority to updating and implementing the reserve fire management strategy (OEH 2019).

However, no risk management plan has been developed for the area, meaning that firefighters had no advice on key issues and protective approaches when south-eastern Australia experienced major bushfires in January 2020. These fires razed most of the Jenolan Karst Conservation Reserve, although the historic Caves House was saved. This event was followed almost immediately by torrential rain in February 2020 (see Figure 11), which triggered massive flooding, soil erosion

landslips and sedimentation that closed the access roads to the reserve and caused sedimentation in the cave system. The implications of this sedimentation, together with the ongoing instability set in train by the extreme events of 2020, are yet to be assessed.

This highlights the importance of reserve risk management planning where there are significant identified risks to the natural environment. Without such planning, the environmental and heritage costs that can accrue cannot be overestimated.



Photo: Ian Brown, New South Wales

Figure 11 Jenolan Karst Conservation Reserve after the extreme events of 2020

Management of geoheritage

It is difficult to assess the adequacy of management of geoheritage in Australia because of the variable way it is recognised, protected and managed. Expert opinion has identified the limited recognition of, and protection for, geoheritage at all levels as the key management issue (see [Geoheritage protection](#)). Inadequate geoheritage identification, inadequate resourcing and leadership, and inadequate promotion of geoheritage (education and presentation) have been identified as other key geoheritage issues (Figure 12).

In Australia, heritage management plans for geoheritage places are limited and – although most protected areas have management plans – geoheritage values are often not well understood or clearly identified, except where geoheritage is the core value. Crofts et al. (2015) noted that ‘for local planning purposes, including management of large protected areas such as national parks, recognition of geoheritage values will be important even if they do not appear on national lists or meet normal criteria as standalone protected areas’.

A strategic approach to geoheritage management has also been advocated. Worboys (2012) argued for a National Geoheritage Conservation Strategy to be developed as a parallel to the National Biodiversity Strategy 2010–2030 to ‘provide guidance for priority geoheritage management and for funding investments’, and also to inform Australia’s Strategy for the National Reserve System. Cresswell (2018) and Crofts et al. (2015) also promoted the need for integrated, strategic approaches to geoheritage protection.

A key element of any heritage management is monitoring and evaluation. ‘The national geoheritage list should include an assessment of the condition of the geoheritage at the

time of listing; it should have the capacity to assess any trend in condition from time to time and should account for its vulnerability to disturbance’ (Worboys 2012:6). However, there appears to be very little monitoring and evaluation of geoheritage being undertaken at present (or historically), possibly except for karst sites.

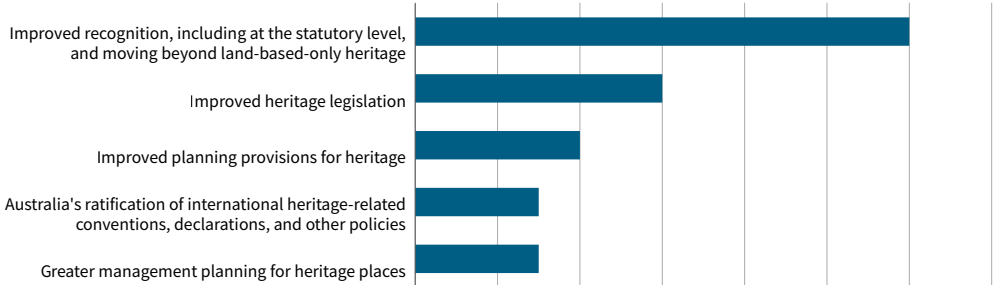
Resourcing

Resourcing for heritage, including geoheritage, is regarded as inadequate for routine heritage management. Geoheritage requires additional resourcing to provide an equivalent level of management to other types of heritage.

Other resourcing issues identified for geoheritage are:

- The slowness in translating important existing geoheritage research data and recommendations into geoheritage protection by listing or including sites in protected areas of appropriate status – for example, assessment of the World Heritage significance of geoheritage of the Nullarbor (Davey 1992) and the Australian arid zone geoheritage review (Wakelin-King & White 2011). This may be a national heritage management resourcing issue, rather than a specific issue for geoheritage.
- A lack of expert staff to undertake geoheritage management and protection. Few experts are employed in geoconservation, except in Tasmania, where the government employs a small number of geoscientists in conservation and forestry. Although site managers are employed at geoheritage cave sites, they are generally not geoscientists (Worboys 2012). It is important to use specialist expertise for geoheritage management, particularly in the identification and assessment of geoheritage (Crofts et al. 2015), but opportunities for acquiring this expertise in Australia are limited to a single

Protection



Identification



Management



Governance



Education



Presentation/celebration



Other



0 2 4 6 8 10 12 14
Number of experts who selected this topic

Note: Ranking is based on aggregating the survey respondent's 5 highest priority actions to improve the management of geoheritage. A value of '1' was allocated to each action.
Source: McConnell (2021b)

Figure 12 Priority management actions identified to improve the protection of Australia's geoheritage

unit of conservation geomorphology at the University of Tasmania.

Historic heritage

As currently recognised and protected in Australia, historic heritage is the tangible evidence and places associated with Australia's inhabitants and visitors since the arrival of the first European migrants, including evidence and places related to explorers and other visitors from 1606. It includes underwater cultural heritage, and can include heritage that has shared history or meanings between Indigenous and non-Indigenous people. Historic heritage significance is generally considered to have historical, scientific, aesthetic, social and spiritual value (Australia ICOMOS 2013).

Australia's historic heritage is important, as the physical evidence of Australia's more recent human history often provides otherwise unobtainable information about the past. It includes iconic features, places and landscapes that help define Australia, and it provides an important sense of place and connection. Historic heritage can also have aesthetic value. By contributing to social values and the character of area in which we live, work and recreate, historic heritage can contribute to individual and community wellbeing. Historic heritage can also generate economic benefits through tourism and re-use, although such use requires a well-managed and sustainable approach.

Types and condition of historic heritage

Tangible historic heritage comprises objects and collections of objects, features, sites, site complexes, serial sites (sites that are historically connected, but distant from each other), routes, areas and landscapes including

cultural landscapes, which are landscapes that contain interrelated natural and cultural elements. Tangible historic heritage comes in many forms, such as historic buildings, dams, railways, mines, building foundations, archaeological deposits and shipwrecks. Some heritage is movable heritage (i.e. designed to be moved from place to place).

Much of Australia's historic heritage relates to the development of settlements and urban areas. Much also relates to aspects of Australia's economic development, such as mining, agriculture and forestry. Other important heritage themes for which there are lesser amounts of historic heritage include exploration, the establishment of transport and communications infrastructure, defence of Australia, education, provision of health services, scientific endeavour, immigration, and the cultural life of Australians. Many aspects of historic heritage are Indigenous heritage sites; Indigenous sites of resistance, dispossession and massacres; pastoral stations; missions; churches; government educational and training facilities; and facilities and records related to the Stolen Generations (First Peoples Relations 2021).

Australia's tangible historic heritage includes:

- iconic places such as the Sydney Opera House, New South Wales, and the Mawson's Huts Historic Site, Antarctica
- classic examples of buildings and objects such as bush huts, art deco suburban homes and the Australian windmill
- landscape-scale heritage, which is important for conserving significant heritage settings and for allowing historical relationships between cultural heritage items, and these and the land, to be understood
- smaller, partial and more 'ordinary' remains, which can help us understand the past and may be the only historical record.

Intangible heritage is also a part of historic heritage. Included in this are significant inherited traditions or living expressions, such as (UNESCO n.d.).

- oral traditions
- performing arts
- social practices and rituals
- festive events
- knowledge and practices concerning nature and the universe
- knowledge and skills to produce traditional crafts.

Intangible heritage is not generally protected under heritage legislation in Australia. However, intangible values that are attached to heritage places can be protected, generally by recognising them as social or spiritual values, or as an important traditional use of a place

The condition of Australia's historic heritage is poorly known because very few places undertake condition monitoring or other condition evaluation (McConnell 2021c, McConnell 2021a). Where condition monitoring does occur (e.g. for government assets and some specific places of major importance and use), it is not well reported. The general lack of resources for the on-ground management of historic heritage and the very high proportion of works applications for listed places, along with anecdotal information, suggest that the condition of historic heritage is variable and, at best, moderate and declining.

Recognition and protection of historic heritage

Recognition and protection of historic heritage vary for terrestrial and underwater heritage.

Historic heritage on land is primarily recognised and protected through inclusion on heritage lists. At the national level, the

Environment Protection and Biodiversity Conservation Act 1999 (Cth) provides for significant historic heritage to be listed on World Heritage, National Heritage or Commonwealth Heritage lists (see [Heritage recognised under the EPBC Act](#)).

At the state and territory level, historic heritage is protected by inclusion on state or territory heritage registers. At the local level, protection is generally provided by inclusion in local statutory planning instruments (e.g. planning schemes) and heritage-specific provisions (e.g. codes, overlays).

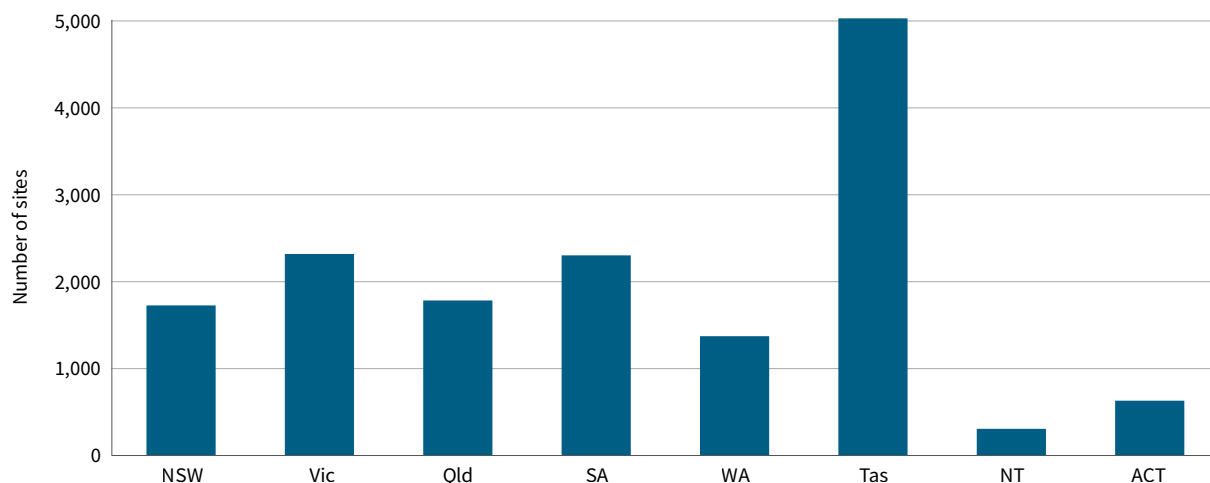
Underwater cultural heritage is managed separately from terrestrial cultural heritage. The *Underwater Cultural Heritage Act 2018* (Cth) (replacing the *Historic Shipwrecks Act 1976*) provides protection in Commonwealth waters, and various state and territory legislation protects underwater cultural heritage in other Australian waters and inland waters. There is some overlap of Australian Government and state and territory responsibilities.

Because heritage must be identified and assessed to be included on a statutory heritage list (except for some underwater cultural heritage), many places and objects of historic heritage significance remain unlisted.

Historic heritage on land

More than 400 terrestrial places are listed on Commonwealth Heritage lists (see [Heritage recognised under the EPBC Act](#)) for their historic heritage significance. There are also around 15,400 historic heritage places listed on state and territory heritage registers (Figure 13). No information is provided for local government listings, as these data are difficult to source.

The overall rate of listing of historic heritage at the state and territory level is relatively uniform, with only a small number of places continuing to be added to what are quite large



ACT = Australian Capital Territory; NSW = New South Wales; NT = Northern Territory; Qld = Queensland; SA = South Australia; Tas = Tasmania; Vic = Victoria; WA = Western Australia

Notes:

1. Figures for the ACT and the NT include a small number of Indigenous and natural places.
2. The Tasmanian Heritage Register is significantly larger than other state heritage registers because it includes many local places as a result of the mass listing that occurred when the register was created.

Source: McConnell (2021c)

Figure 13 Total number of historic heritage listed sites on state and territory statutory registers, end June 2020

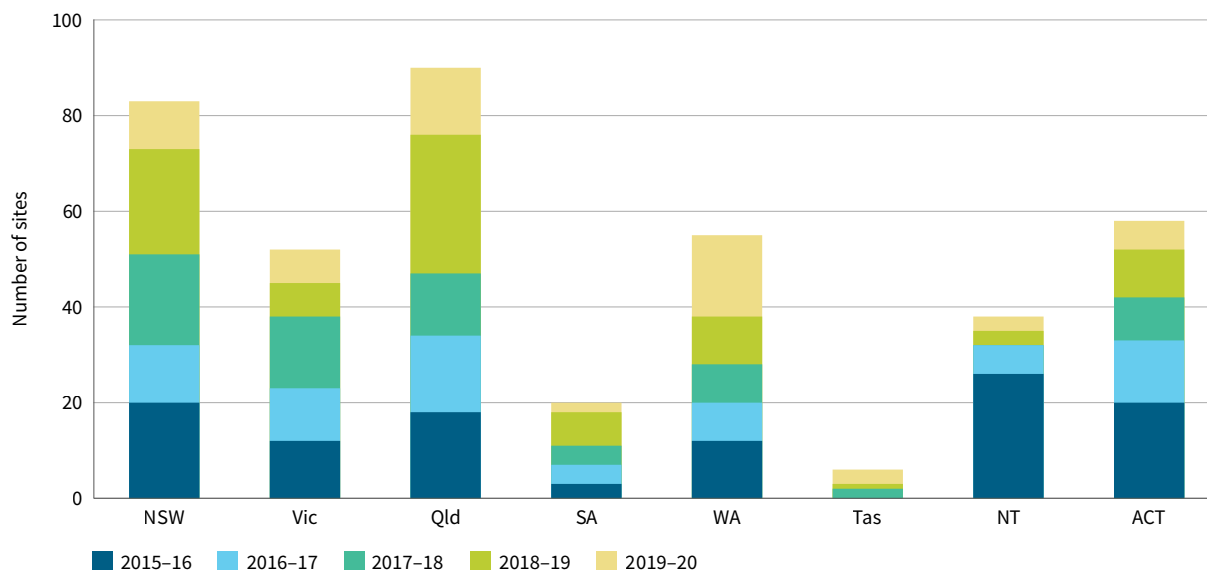
registers in most cases (Figure 14). This has not changed appreciably for most jurisdictions since the 2016 state of the environment report (Mackay 2016c); however, South Australia and Tasmania had noticeably low rates of listing in 2016–21.

Underwater historic heritage

The *Underwater Cultural Heritage Act 2018* (Cth), which replaced the *Historic Shipwrecks Act 1976* (Cth), protects shipwrecks, submerged aircraft and other underwater cultural heritage from the low water mark out to the extent of the exclusive economic zone (EEZ) from unpermitted actions by Australians. The new legislation is seen as ‘a major achievement for Australian underwater cultural heritage. It provides improved protections, including the broadening of protection to sunken aircraft and other types of underwater cultural heritage (including Indigenous underwater

cultural heritage) in Commonwealth waters’ (DAWE 2018).

The Underwater Cultural Heritage Act aligns with the 1982 United Nations Convention on the Law of the Sea, to which Australia is a signatory. However, Australia is not a signatory to the 2001 Convention on the Protection of the Underwater Cultural Heritage (United Nations Educational, Scientific and Cultural Organization), which provides the basis for protecting underwater cultural heritage from unauthorised actions by foreign persons or foreign vessels. Ratification of the 2001 convention is an important step in fully protecting Australian underwater cultural heritage, and in participating in the global community’s response to the looting and destruction of underwater cultural heritage. Ratification will extend Australia’s powers to better protect underwater cultural heritage in the EEZ and contiguous zone, and from



ACT = Australian Capital Territory; NSW = New South Wales; NT = Northern Territory; Qld = Queensland; SA = South Australia; Tas = Tasmania; Vic = Victoria; WA = Western Australia
 Note: The figures for the ACT and the NT include a small number of Indigenous and natural places.
 Source: McConnell (2021c)

Figure 14 Number of historic heritage places added annually to state and territory statutory registers, June 2016 to June 2020

actions by foreigners and foreign-flagged vessels. Currently, the Underwater Cultural Heritage Act does not protect heritage beyond 12 nautical miles off the Australian coast.

Under the Underwater Cultural Heritage Act, remains of vessels (shipwrecks and aircraft) and certain associated objects that have been in Australian and Commonwealth waters for at least 75 years are automatically protected. Other underwater cultural heritage with cultural heritage significance in Australian (and Commonwealth) waters, and in some cases beyond Australian waters, is protected. Some articles can be protected even if removed from these waters. Underwater cultural heritage can also be protected within declared protected zones (DAWE 2018).

Underwater cultural heritage within state and territorial coastal waters is jointly protected under the relevant state and territory legislation, and Commonwealth

legislation. Shipwrecks are protected by the Commonwealth’s Underwater Cultural Heritage Act to the lowest astronomical tide mark along the coast, whereas submerged Indigenous sites and submerged aircraft are protected by state and territory legislation out to 3 nautical miles (McConnell & Janke 2021).

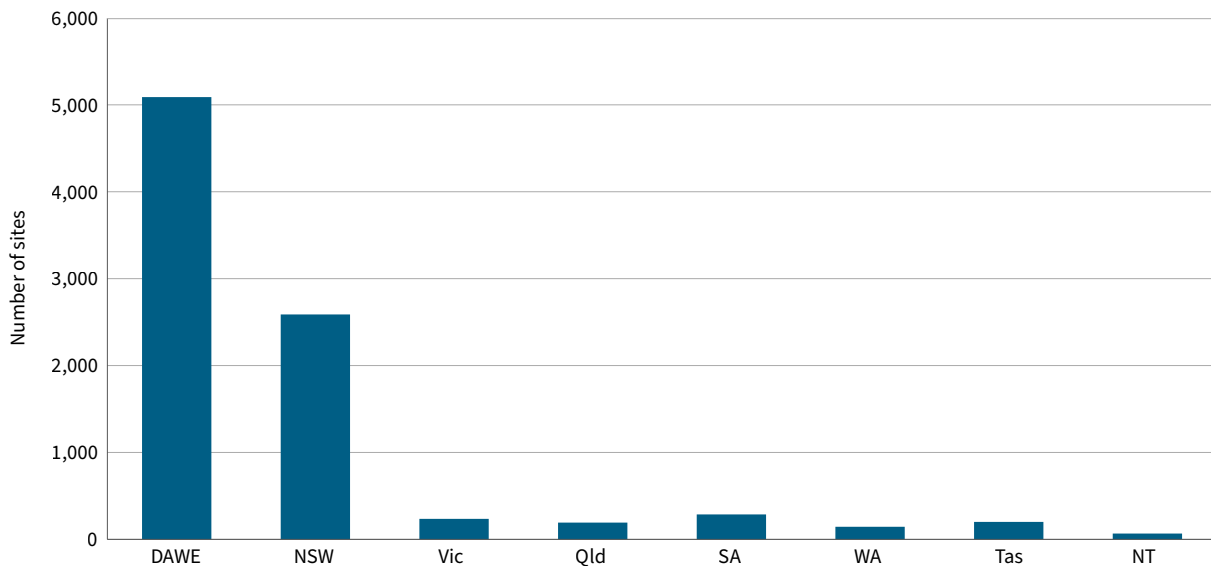
As there is considerable intersection between Australian Government and state and territory responsibilities, underwater cultural heritage is managed through a collaborative arrangement coordinated through the Australian Underwater Cultural Heritage Program. The Australian Government maintains the Australasian Underwater Cultural Heritage Database and oversees the operation of professional officers. National and state and territory responsibilities are clarified in the *Australian Underwater Cultural Heritage Intergovernmental Agreement* (2010).

There are some 8,800 identified and protected historic shipwrecks, sunken aircraft and other underwater cultural heritage sites in Australian and territorial waters (Figure 15). The actual number of underwater cultural heritage sites is likely to be greater. Of these identified sites, only a relatively small number have been physically located.

New South Wales had a relatively high rate of newly discovered vessels added to the Australasian Underwater Cultural Heritage Database from 2015 to 2020 (Figure 16); however, this is probably largely due to the

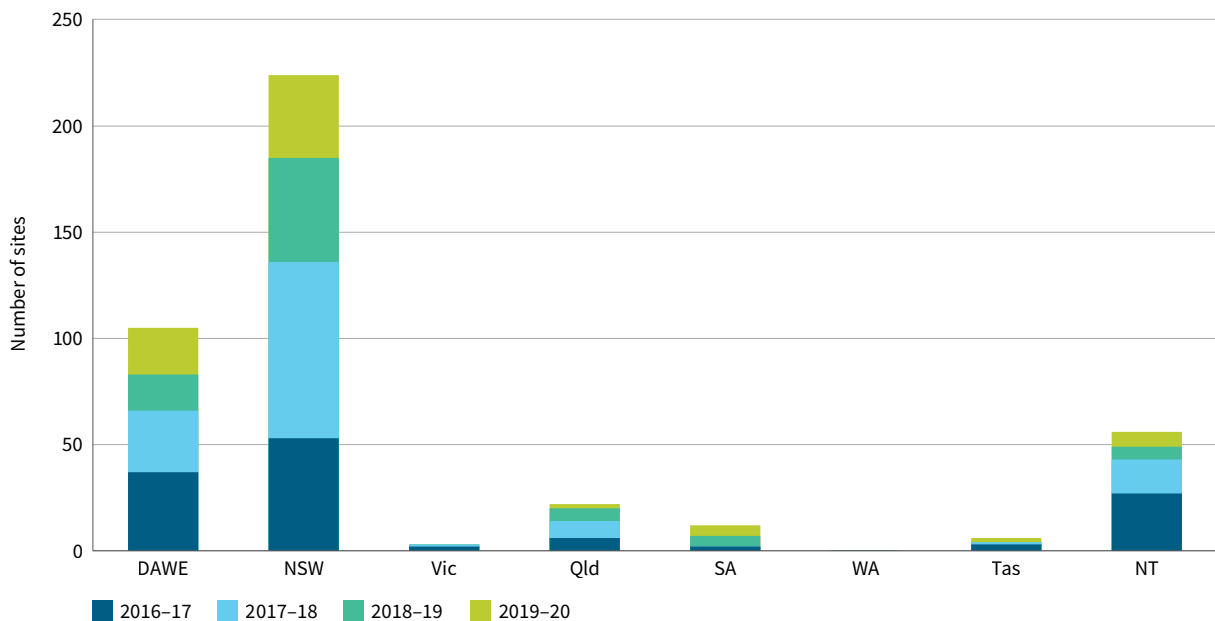
NSW Rivers Project (see case study: [The NSW Rivers Project – recording underwater cultural heritage in inland rivers](#)). Many of the sites listed by the Australian Government between 2016 and 2020 were vessels and aircraft sunk in World War 2.

Underwater cultural heritage also includes Indigenous heritage. The Deep History of Sea Country project resulted in the first confirmed ancient underwater archaeological sites from the continental shelf, located off the Murujuga coastline in north-western Australia.



DAWE = Australian Government Department of Agriculture, Water and the Environment; NSW = New South Wales; NT = Northern Territory; Qld = Queensland; SA = South Australia; Tas = Tasmania; Vic = Victoria; WA = Western Australia
 Note: These figures are approximate, as they are taken from the Australasian Underwater Cultural Heritage Database, and from state and territory heritage agencies with responsibility for underwater cultural heritage, and there may be overlaps and omissions. They do not necessarily reflect the number of sites on individual UCH databases, which may include many more sites. The NSW figure is extremely high because it includes coastal waters that overlap with Commonwealth waters.
 Source: McConnell (2021c)

Figure 15 Number of underwater cultural heritage sites protected under Commonwealth legislation and state and Northern Territory legislation, 30 June 2020



DAWE = Australian Government Department of Agriculture, Water and the Environment; NSW = New South Wales; NT = Northern Territory; Qld = Queensland; SA = South Australia; Tas = Tasmania; Vic = Victoria; WA = Western Australia
 Note: These figures are approximate, as they are taken from the Australasian Underwater Cultural Heritage Database, and from state and territory heritage agencies with responsibility for underwater cultural heritage, and there may be overlaps and omissions.

Source: McConnell (2021c)

Figure 16 Number of underwater cultural heritage sites added each year to state and territory statutory databases and registers, June 2016 to June 2020



Case study The NSW Rivers Project – recording underwater cultural heritage in inland rivers

Based on information provided by Dr Brad Duncan, Senior Maritime Archaeologist, Heritage NSW

Rivers have been central to the lives of many diverse Indigenous communities over countless generations, central to subsistence, transport and all aspects of their living cultures. In colonial Australia, before the introduction of road and rail networks across Australia, rivers acted as highways to the interior, linking agricultural land and other natural resource industries with local national and international markets. Rivers also facilitated social contacts between townships and across borders. With more than 50 river systems in New South Wales alone, documenting the archaeological remains and heritage sites (both above and below water) of riverine cultural landscapes provides a view of the diverse ways of life in Australia’s interior and coastal waterways.

After the discovery of several wrecks in the Murray and Kalang rivers, Heritage NSW began to investigate wrecks and other types of archaeological sites in and around New South Wales waterways. This has evolved into a collaborative project with the Department of Archaeology, University of New England. The project has a major ‘citizen science’ component, with more than 60 volunteers who live in New South Wales inland and coastal river communities assisting with wreck site reporting, documentation and specific field surveys. Community groups and historical societies are also contributing by recording oral histories and identifying previously undocumented sites.

The project, which has been operating since 2010, has contributed significantly to the identification of underwater and terrestrial cultural heritage in the inland rivers of New South Wales, with more than 700 new sites in 30 different waterways being identified.

Projects such as these, which systematically identify and record archaeological information on a statewide basis, are extremely important in improving the recognition and protection of cultural heritage. This project is also contributing to filling a major gap in underwater cultural heritage knowledge and a historic heritage thematic gap more generally.



Photo: Dr Brad Duncan, Senior Maritime Archaeologist, Heritage NSW

Figure 17 The wreck of the PS *Rodney*

Gaps in heritage registers

Listed places represent a diversity of types of places and geographic coverage of Australia, but not all of Australia's significant historic heritage places are listed. Some indication of what remains unlisted can be gained from reviewing existing historic heritage lists and registers. Agency data provided to this review indicate that there are significant imbalances and regional or thematic gaps in what historic heritage is listed, with different jurisdictions having different types of gaps (McConnell 2021c).

Thematic gaps in land-based historic heritage identified by agencies at the state and territory level include cultural landscapes, rural heritage, 20th century development and architectural heritage, Indigenous heritage, migrant heritage, LGBTQIA+ heritage, women's heritage, group settlement and soldier settlement. Tasmania noted that all themes except urban built heritage and rural estates are under-represented. Early colonial heritage and science heritage are 2 other areas considered under-represented in listings (McConnell & Knaggs 2018, McConnell 2020b).

Nationally, although some work has been undertaken to address some historic heritage thematic gaps (Crocker & Davies 2005, Pearson & Lennon 2010, AHC 2016) and a key regional gap (Macfarlane & McConnell 2017), very few of the identified places have been listed (see [National Heritage](#)). Identified studies undertaken at the state and territory level to address thematic gaps in the past 5 years are:

- a thematic review of institutions attended by Aboriginal people in Western Australia (2016)
- an assessment of agricultural and other dams in Western Australia's wheatbelt and goldfields regions (2020)

- 4 regional studies of bridges in Western Australia (2016–19)
- a thematic study of post-World War 2 churches in South Australia (2020)
- the architecture of Harry Seidler in Victoria (2017)
- a thematic study of LGBTQIA+ heritage in Victoria (McConnell 2021c, Willett et al. 2021).

Australia has a considerable amount of heritage that has a shared Indigenous and non-Indigenous history, such as Indigenous missions; pastoral stations; frontier war sites; and sites associated with significant Indigenous rights actions, recent achievements and significant people. Very little of this heritage, except for missions, is included on historic heritage registers or lists.

The lack of recognition for these sites of shared history speaks to wider deficits in truth telling that must be core to finding ways to tell our stories in a more complete and inclusive way. It has been noted that (HCOANZ 2020), 'telling the truth about Indigenous history is the foundation for an understanding on the basis of which all Australians can come together in acknowledgement of a shared past and a shared future'. Many places of significance to the shared history of Australia are extremely sensitive to Indigenous communities, containing difficult stories often centred on racism, discrimination, loss and horrific violence (Ryan et al. n.d.). Given the huge potential to cause further harm if these narratives are mishandled, these types of heritage must be understood and managed entirely within an imperative that Indigenous communities are enabled to exercise free, prior and informed consent (HCOANZ 2020).

Cultural landscapes, including historic cultural landscapes, continue to be under-represented on national and state and territory lists and registers (e.g. Lennon 2016) (see also McConnell 2021c). This gap means there are significant cultural landscapes that are at risk, and in some cases in the process of being lost (e.g. in the Cumberland Plain and Camden area west of Sydney; also see case study: Lake Burley Griffin and lakeshore landscape) (Morris & Britton 2001, Lennon 2016, Morris & Britton 2018, Ramsay 2020).

For underwater heritage, different jurisdictions have identified thematic gaps as aircraft heritage, submerged Indigenous heritage, submerged cultural landscapes and, in the Northern Territory, pre-colonial underwater heritage (e.g. Chinese, Dutch, Macassan). One state indicated that only shipwrecks and submerged aircraft were well represented.

Most jurisdictions have also identified regional gaps in systematic surveys of underwater cultural heritage:

- In Tasmania, only the waters of the Tasman Peninsula and Sarah Island have been comprehensively surveyed.
- In the Northern Territory, 50% of the coastline is yet to be surveyed.
- In Victoria, the east Gippsland coast is yet to be surveyed.
- In Western Australia, the regional gaps are in the north-west (Exmouth Gulf, and the Onslow and Port Hedland areas) (McConnell 2021c).

Targeted regional and thematic surveys and assessments are needed to eliminate major thematic and regional gaps, and to develop more comprehensive registers for terrestrial and underwater historic heritage.

Objects and collections

Historic heritage objects are generally managed by galleries, libraries and museums, which operate through their own legislative frameworks, and have separate policies and guidelines (e.g. Russell & Winkworth 2009). The *Protection of Movable Cultural Heritage Act 1986* (Cth) prevents significant cultural heritage objects from being removed from Australia.

Historic heritage legislation applies generally to places rather than objects – except in relation to the *Underwater Cultural Heritage Act 2018* (Cth) – providing protection for objects that are on-site and part of a listed place. Thus, ex situ objects, collections and archaeological materials from nonlisted heritage places, or items of movable cultural heritage, have limited statutory protection. Objects and object collections not in collecting institutions are consequently often poorly protected and curated, except where there is a clear legislative or regulatory mandate to do so. An example is the *Heritage Act 2017* (Vic) in relation to excavated artefacts from listed places and movable heritage, and the *Underwater Cultural Heritage Act 2018* (Cth). The Underwater Cultural Heritage Act has greater provision for objects and collections; it can protect associated artefacts of shipwrecks and submerged aircraft, regulate the trade and sale of notified protected artefacts, and manage artefacts in community possession. More than 500,000 artefacts are managed through the Underwater Cultural Heritage Act.



Case study Objects as cultural heritage: The Australian Antarctic Division's heritage collection

Sources: McConnell et al. (2015) and Wishart (2020)

Australian Antarctic heritage material usually occurs in situ in Antarctica and on the subantarctic islands in the Australian territories at historic and active bases and other sites. However, a large amount of material is also held in collections in a range of locations in Australia and internationally, including in universities, archives, specialised collecting institutions and museums, and by the Australian Antarctic Division (AAD). This material is primarily movable cultural heritage such as tools and equipment, but also includes other objects such as archaeological and structural remains, and documentary material such as government records and diaries. This material is highly diverse, including items such as seal brands, sleds, early oversnow vehicles, huts, taxidermied former sled dogs, scientific instruments, medals, flags, midwinter dinner menus, foodstuffs, expeditioner clothing, and other items that form part of the support systems and the lifestyle that underlie Antarctic science and enable it to happen.

This material plays an important role in documenting Australia's historic connection to Antarctica and the subantarctic, especially Australia's scientific role, and the development of these territories since the 1800s. The remoteness and extreme environments of Antarctica and the subantarctic mean that much of the material culture was specialised (and hence rare), and tells the story of Australia's innovative ability and participation in the international scientific arena. Much of this material has social significance because it is highly valued by former expeditioners.

The value of Australian Antarctic and subantarctic collections is not well realised. The material occurs as a large number of dispersed collections, with some material not on public display (e.g. a substantial part of the AAD library's highly significant special collection of more than 1,000 objects). Also, much of it is not held under archival storage conditions. This situation has the potential to worsen, because the AAD has determined that maintaining a heritage collection is not part of its core business and is therefore looking to dispose of its collection. If done on an object-by-object basis, rather than a collection basis, this is likely to result in a significant loss of heritage value. This would be best resolved by keeping the collection intact and transferring it to another collecting institution, preferably one that already has a significant Australian Antarctic heritage collection and is in a location that has a recognised Australian Antarctic association.

It is also important that the AAD, like other managers of heritage, has a future collection policy and strategy in place to ensure that there is a long-term, ongoing material record of Australia's engagement in the Antarctic.



Photo: Anne McConnell

Figure 18 Part of the Australian Antarctic Division heritage collection, Kingston, Tasmania

Pressures on, and management of, historic heritage

Data and views provided to this report (McConnell 2021b, McConnell 2021d) indicate that Australian historic heritage is at risk from a range of pressures, including rural and urban land development, resource extraction, poorly managed tourism (see [Tourism and recreation](#)), and inadequate management and protections. Climate change impacts are also being increasingly felt, along with natural weathering and erosion processes.

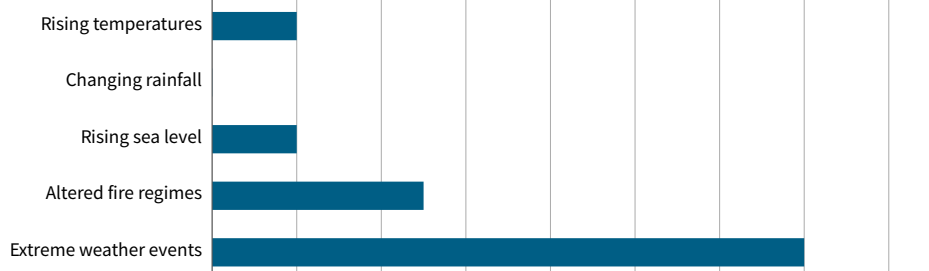
Considerable amounts of historic heritage, listed and unlisted, are being destroyed or significantly affected by economic and infrastructure development, particularly through urban renewal and peri-urban development. This is likely to significantly reduce Australia's historic heritage stock,

which will have negative impacts on community wellbeing, unless prevention or management measures are put in place.

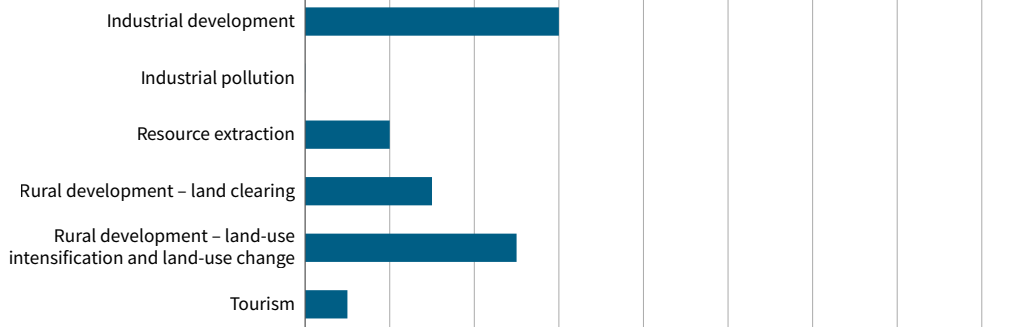
Many of the same pressures that affect historic heritage can also affect underwater cultural heritage, but often to a lower degree because it is less accessible, and the environments in which it is located are subject to less development pressure overall. Other significant pressures for underwater cultural heritage sites and objects are dredging and looting.

Expert opinion ranks inadequate government resourcing for conservation and management as the most significant pressure on historic heritage. Climate change-driven extreme weather events, and urban densification, renewal and spread are also key pressures (Figure 19).

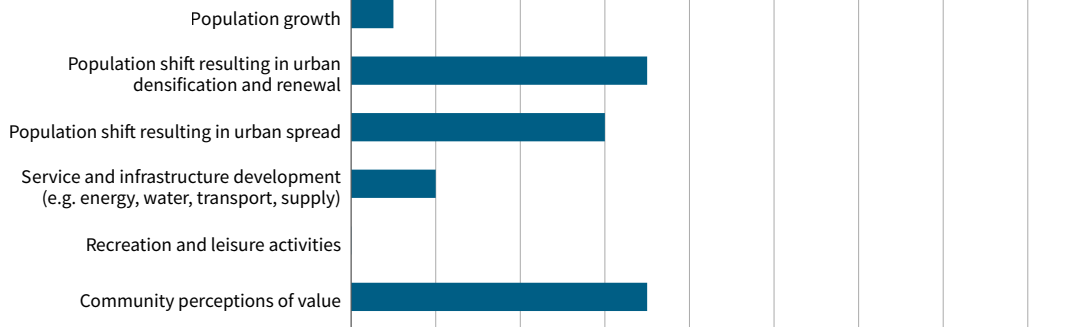
Climate change



Industry



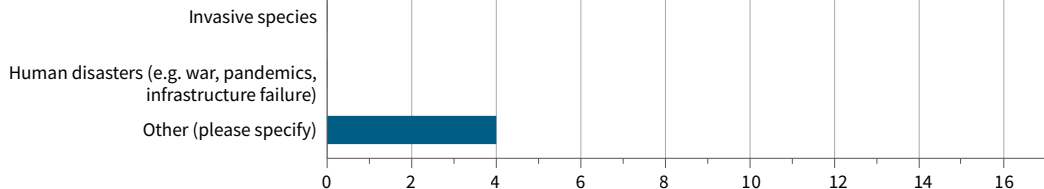
Population



Governance



Other



Number of experts who selected this topic

Note: Ranking is based on aggregating the survey respondents' 5 pressures identified as having the greatest impact on historic heritage. A value of '1' is allocated to each identification.

Source: McConnell (2021b)

Figure 19 Pressures that are identified as having the greatest impact on historic heritage (including survival, condition and integrity)

Climate and natural processes

Most types of Australian historic heritage are at risk from natural processes, including climatic factors, that contribute directly to the gradual decay of heritage sites and places. For example, rain, combined with warm temperatures or a generally damp environment, can promote rot, corrosion and other disintegration, and prolonged exposure to wind can cause abrasion. Natural processes can also act to break, erode or bury heritage.

Climate change will accelerate and increase the impacts of these natural processes, and introduce climate-related events such as cyclones, floods and fires into areas where they have not occurred previously, resulting in new impacts (ICOMOS Climate Change and Cultural Heritage Working Group 2019). Extreme events that have happened in the past 10 years can provide insight into the types of climate change impacts that can be expected in the future, such as (ICOMOS Climate Change and Cultural Heritage Working Group 2019):

- the flooding of the Port Arthur Historic Site Penitentiary due to a storm surge
- ongoing coastal erosion at the Coal Mines Historic Site
- destruction of heritage by bushfires
- damage to coastal shipwrecks
- tree damage in botanical gardens.

Climate change in Antarctica is resulting in shorter-term snow cover and warmer conditions at Commonwealth Bay. This is moderating the previously excellent preservation conditions at the Mawson's Huts Historic Site, and is likely to accelerate deterioration of the various structures.

Urgent action to mitigate and manage these impacts is required (see [Strategic planning and adaptive management](#)). Little substantive action has been taken in Australia in this area

to date. However, recent high-level reviews provide guidance on how to approach historic heritage protection in relation to climate change – for example, ICOMOS Climate Change and Cultural Heritage Working Group (2019) and HCV (2021). Greater emphasis is being placed on the need for risk management planning (C Forbes, pers. comm., 2020), and a small number of regional heritage risk assessments have been undertaken or are in progress (e.g. Victoria is undertaking a statewide study of the climate change risk to its cultural heritage; see HCV 2021). From 2021, several state governments (e.g. New South Wales, South Australia, Western Australia) are funding programs for climate change action, including risk assessment and mitigation measures, for owners of listed heritage places.

Sustainability and embodied energy

Our built environment is currently the world's single largest contributor to greenhouse gas emissions. It consumes around 33% of our water and generates 40% of our waste (see the Urban chapter). As much as 25% of Australia's carbon emissions come from buildings (Faddy 2018). Retrofitting existing buildings to be more efficient is estimated to potentially provide 100 megatonnes of carbon savings by 2050 (Faddy 2018). But current requirements in Australia to improve energy efficiency and sustainability focus on the operational efficiencies of buildings and do not consider the embodied energy of buildings (i.e. the energy used to produce the building, including all materials) or other sustainable values of existing buildings.

Consequently, there is significant risk that historic buildings with heritage value will be demolished in favour of new energy-efficient and sustainably built alternatives, or will have traditional elements and materials that contribute to the heritage value of the place replaced with unsympathetic materials

deemed to be more sustainable or energy efficient (Mackay 2016c, Redden & Crawford 2021).

Historic buildings have significant embodied energy. The energy embodied in existing buildings in Australia was calculated in 2008 to be equivalent to 10 years of the total energy consumption of the entire nation (CSIRO 2008, cited in Mackay 2016c). Replacing these buildings therefore has a high energy cost. Furthermore, historic buildings are, in general, high environmental performers (Redden & Crawford 2021), and have other natural and cultural inheritance values that contribute to broader sustainability (Mackay 2016c).

These considerations are not being included in environmental assessments. The tools to do this, including defining best-practice environmental sustainability and establishing the environmental value of historic buildings, need to be developed (Arreza 2020). Particularly critical considerations are inclusion of lifecycle costing, whole-life carbon modelling and post-occupancy evaluation, including built environment rating systems in local government planning requirements, and the option of upgrading existing buildings for extended use, where possible (AAD n.d.).

Current design requirements and statutory-based codes and regulations are the major impediments in Australia to enabling the values of historic built heritage to be taken into account to achieve heritage-sympathetic adaptive re-use and to avoid the demolition of heritage buildings (Conejos et al. 2016). Although some actions are helping to lessen the negative impact of regulation on heritage buildings (e.g. the Heritage Victoria program to develop new Heritage Technical Codes), these are few. Moves to broaden the assessment approaches advocated by Mackay (2016c) have not eventuated, and few of the potential measures advocated by Faddy (2018) have

been developed. The need to address this issue is increasingly urgent.

Urban and peri-urban development

The pressures considered to have the most impact on historic heritage are urban redevelopment, new peri-urban development and agricultural land redevelopment, including associated infrastructure development (see the Urban chapter). This development can demolish individual heritage buildings, remake areas, significantly negatively impact archaeological values, or change heritage places to the extent that the historic heritage values are largely destroyed. Development can also cause smaller-scale modifications to heritage places that result in minor loss of heritage values but, cumulatively, can result in a significant loss of heritage values. This type of development is occurring in most Australian cities, with recent examples including Parramatta, New South Wales (H Lardner, pers. comm., 2020) and the development of the West Basin of Lake Burley Griffin, Canberra (Ramsay 2020) (see [case study: Lake Burley Griffin and lakeshore landscape](#)).

Peri-urban development, which most commonly occurs on former agricultural land, may not destroy the same number of heritage places compared with urban development, but it is generally destructive over a larger area. Recent examples are parts of the Bagdad Valley north of Hobart (McConnell 2020a), and Cumberland Plain and Camden on the western edge of Sydney (Morris & Britton 2018), which were rare, well-preserved, rural colonial heritage examples of high significance. This loss reflects that these and other cultural landscapes are not adequately recognised and protected by statutory planning protection mechanisms or on state heritage registers. Urban and coastal peri-urban development, particularly infrastructure development, can

also impact nearshore, coastal and coastal waterway underwater cultural heritage.

Also important is the need to have a reliable understanding of the cost–benefit ratio of new development versus heritage conservation (e.g. Licciardi & Amirtahmasebi 2012). Historic urban areas are generally considered in Australia to have relatively low occupation

densities and economic benefit. However, the City of Sydney review (McNicoll 2016) found that the Sydney heritage conservation areas performed well and, in some cases, better against population density and employment than non-heritage urban areas in Australia, and even when compared with major city environments overseas (e.g. Paris, Singapore).



Case study Lake Burley Griffin and lakeshore landscape

Source: Ramsay (2020)

In the 21st century, urban renewal and intensification have increased, placing environmental and heritage values under threat. Lake Burley Griffin and its lakeshore landscape is an example of how urban intensification can lead to undesirable changes in an historic designed cultural landscape of national heritage significance.

Canberra, Australia's capital, is a planned city in the Australian Capital Territory (ACT). The substantial lake system of Lake Burley Griffin was designed as its central feature and focus. It was largely designed by Walter and Marion Burley Griffin, but was later amended by the National Capital Development Commission (NCDC) for practical and aesthetic reasons. The initial development of lake and surrounding parkland included around 40.5 hectares of landscape planting of about 55,000 trees. The completed lake and landscape are regarded as a masterwork of design and engineering that successfully kept the spirit of the Griffins' plan while achieving a functional and modern attractive expression.

The national significance of Lake Burley Griffin and its lakeshore landscape was recognised through its inclusion in the NCDC National Capital Open Space System, a status that protected its values for 25 years. However, in the mid-2000s, the National Capital Plan was changed to allow residential development in this designated open space that was not present in the Griffin or the NCDC schemes. Included in this was the development of a multistorey apartment enclave in the West Basin area, lining the western side of Commonwealth Avenue, the iconic route to Australia's Parliament House. This development required infilling of the lake up to 80 metres from the existing shoreline. The changes were of sufficient concern that the Australian Government Joint Parliamentary Standing Committee on the National Capital and External Territories recommended against the amendments.

Following the establishment of the ACT Government in 1988, a complex dual planning system was established, with planning responsibilities divided between the ACT Government and the Australian Government's National Capital Planning Authority. Today, only parts of the Lake Burley Griffin landscape are listed on the ACT Heritage Register and Commonwealth Heritage list. Despite various nominations to the National Heritage List since 2011 to compensate for the fragmented and partial listings (with the cultural landscape considered to meet 7 of the National Heritage criteria), no all-encompassing heritage listing or conservation management plan for Lake Burley Griffin and its lakeshore landscape has been accepted. The 2017 International ICOMOS (International Council on Monuments and Sites) General Assembly passed a Heritage Alert resolution requesting the Australian and ACT governments to halt the West Basin development and to prepare an overarching conservation management plan for Lake Burley Griffin and its lakeshore landscape before any further development. Neither of these have happened.

Although increased urban density in Canberra and other Australian cities may be desirable (see the Urban chapter), care is needed to ensure no loss of significant heritage values.



Photo: George Rooks, Lake Burley Griffin Guardians

Figure 20 Lake Burley Griffin's West Basin, showing the start of infill and redevelopment, February 2021

Mining legacy issues

The rehabilitation of mines that are no longer operating is legally required in many parts of Australia to restore ecological systems and combat legacy issues, primarily soil and water contamination, and acid mine drainage. This environmentally essential work is largely undertaken with no consideration of historic heritage values (Australia ICOMOS, cited in Senate Environment and Communications References Committee 2019). This is a significant issue for historic mining heritage, because such actions generally involve substantial earthworks, land resurfacing and revegetation. Thus, rehabilitating sites can have significant adverse heritage impacts. Although there are some examples of heritage being considered as part of such rehabilitation works, this is far from common, and there is no consistent approach applied in Australia at a jurisdictional level.

It is estimated that there are some 50,000 abandoned mine sites in Australia (Roche & Judd 2016), although most of these will not be mining heritage sites. Heritage mining legacy issues apply to most historic mining areas and all types of mines, from small workings to large, long-term mines.

The mining sector has developed a small number of guidelines or codes of conduct that encourage consideration of historic heritage values, but these are not uniformly applied or provide minimum standards on how to protect the heritage. Development of adequate protections will require greater engagement between mining regulators, environmental protection authorities and the heritage sector (Australia ICOMOS, cited in Senate Environment and Communications References Committee 2019). A nationally consistent mechanism to ensure that significant historic mining values are protected in the process

of addressing mine legacy issues is needed. Increased consultation with heritage experts to better incorporate heritage advice into site environmental management planning would also be beneficial.

Statutory planning and historic heritage protection

Strong protections at the local level are essential to protect historic heritage from the widespread redevelopment that is occurring in urban, rural and regional areas of Australia.

A key issue is that the general approach of local government planning schemes is development control aimed at allowing development and new use, rather than environmental and heritage conservation control. An associated issue is that regulatory requirements for improved environmental management (see [Sustainability and embodied energy](#)), safety and access – all of which are important to consider – frequently do not provide sufficient flexibility to enable historic heritage protection.

Necessary reform will require strengthening of heritage protection provisions in statutory planning instruments, and greater flexibility for historic heritage places for meeting requirements in relation to various use and sustainability requirements. It will also be important for statutory planning approaches to be used in parallel with strategic heritage conservation approaches that also have statutory status. An example of where this is occurring effectively is the Historic Urban Landscape approach developed by WHITRAP et al. (2016), which is being used globally to integrate historic heritage conservation planning into the broader urban planning framework. In Australia, this approach is being successfully used by the City of Ballarat, Victoria (Vines 2020).

Resourcing

Most key tasks required to protect historic heritage are insufficiently resourced to be adequately performed, and experts have identified resourcing to be the highest priority for management (Figure 21). Key tasks include:

- identifying and assessing historic heritage
- assessing the condition of historic heritage
- undertaking active conservation works
- understanding and responding to existing pressures and new threats
- ensuring compliance with legislation and regulations
- administering heritage legislation and allied protective schemes such as through local government planning or protected area management.

Some states and territories are funding some priority areas – for example, the Heritage Victoria statewide assessment of the risk from climate change to places on the state heritage register, commissioned in 2020, and Hobart City Council’s risk assessment for cultural heritage in the Hobart coastal zone (McConnell & Evans 2017). However, there are large numbers of unprocessed heritage register nominations to lists and registers, and inspection and assessment of heritage condition are rare. Anecdotally, heritage officers in many local government areas are struggling to meet core tasks such as reviewing development application assessment requirements and undertaking compliance checks.

There are also other important historic heritage resourcing needs that require greater government support, including:

- research to develop improved approaches to, and techniques for, historic heritage conservation, as well as to develop better understanding of Australia’s historic heritage and its vulnerabilities. Heritage

funding is directed primarily at individual sites, and this type of research is largely peripheral to Australian Research Council funding

- training in historic trades skills. Many of these skills are essential for the long-term conservation of historic heritage, but they have largely been lost
- developing a national quality assurance framework for historic heritage conservation
- assisting private owners of historic heritage to help preserve heritage values. A significant proportion of historic heritage, particularly at the local level, is in private ownership. Under legislation, this ownership conveys various obligations for conservation, which may cost owners financially (e.g. for conservation works) or impose constraints (e.g. inability to change a home as desired). Although this contribution to public good by private owners is recognised through government assistance, this assistance is limited and highly competitive

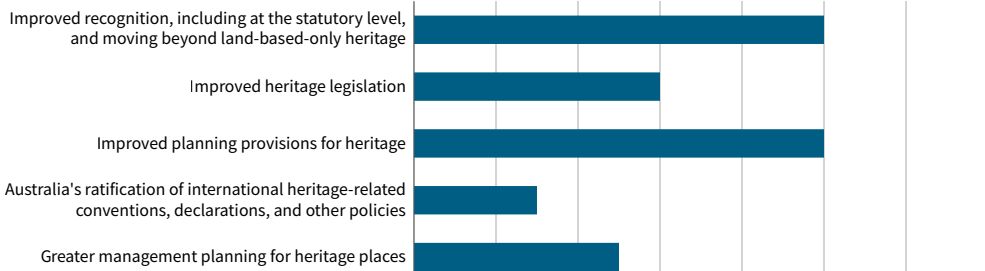
Heritage recognised under the EPBC Act

The *Environment Protection and Biodiversity Conservation Act 1999 (Cth)* (EPBC Act) provides for:

- places of outstanding universal value to be proposed by the Australian Government for inscription on the World Heritage List
- places of outstanding value to the nation to be placed on the National Heritage List
- significant heritage under the jurisdiction of the Australian Government to be placed on the Commonwealth Heritage List.

The Australian Government administers these listed places, although management of

Protection



Identification



Management



Governance



Education



Presentation/celebration



Other



0 2 4 6 8 10 12 14
Number of experts who selected this topic

Note: Ranking is based on aggregating the survey respondents' 5 identified highest priority actions to improve the management of historic heritage. A value of '1' is allocated to each action.
Source: McConnell (2021b)

Figure 21 Priority management actions identified to improve the protection of Australia's historic heritage

National Heritage– and World Heritage–listed places is undertaken by the relevant state or territory government. For Commonwealth Heritage, the responsible Australian Government agency manages the sites.

World Heritage

The World Heritage List recognises natural and cultural heritage places that are of significance at the global level. These places have Outstanding Universal Value. Because of their importance, these properties are accorded a high level of protection. However, climate change, invasive species and tourism pressures, combined with insufficient resources to manage these properties to address these issues, continue to put Australia’s World Heritage at risk.

Australia has 20 World Heritage properties (Figure 22): 12 are natural properties, 4 are cultural properties, and 4 are mixed natural and cultural properties (all having natural and Indigenous-related Outstanding Universal Values). As the first Australian property to be included on the World Heritage List for Indigenous cultural heritage values only, the 2019 Budj Bim Cultural Landscape listing is a significant milestone (see [case study: Budj Bim Cultural Landscape inscribed on the UNESCO World Heritage List in 2019](#)).

Given the size and complexity of Australia and its more than 60,000 years of continuing connection to Country, many Indigenous communities and others consider 20 World Heritage listings to be nowhere near enough (Larsen 2018). However, Australia has a relatively high number of World Heritage properties compared with other countries: of the 167 signatory countries, only 13 countries have more World Heritage properties than Australia; 94 countries have fewer than 5 properties, and 27 countries have none.

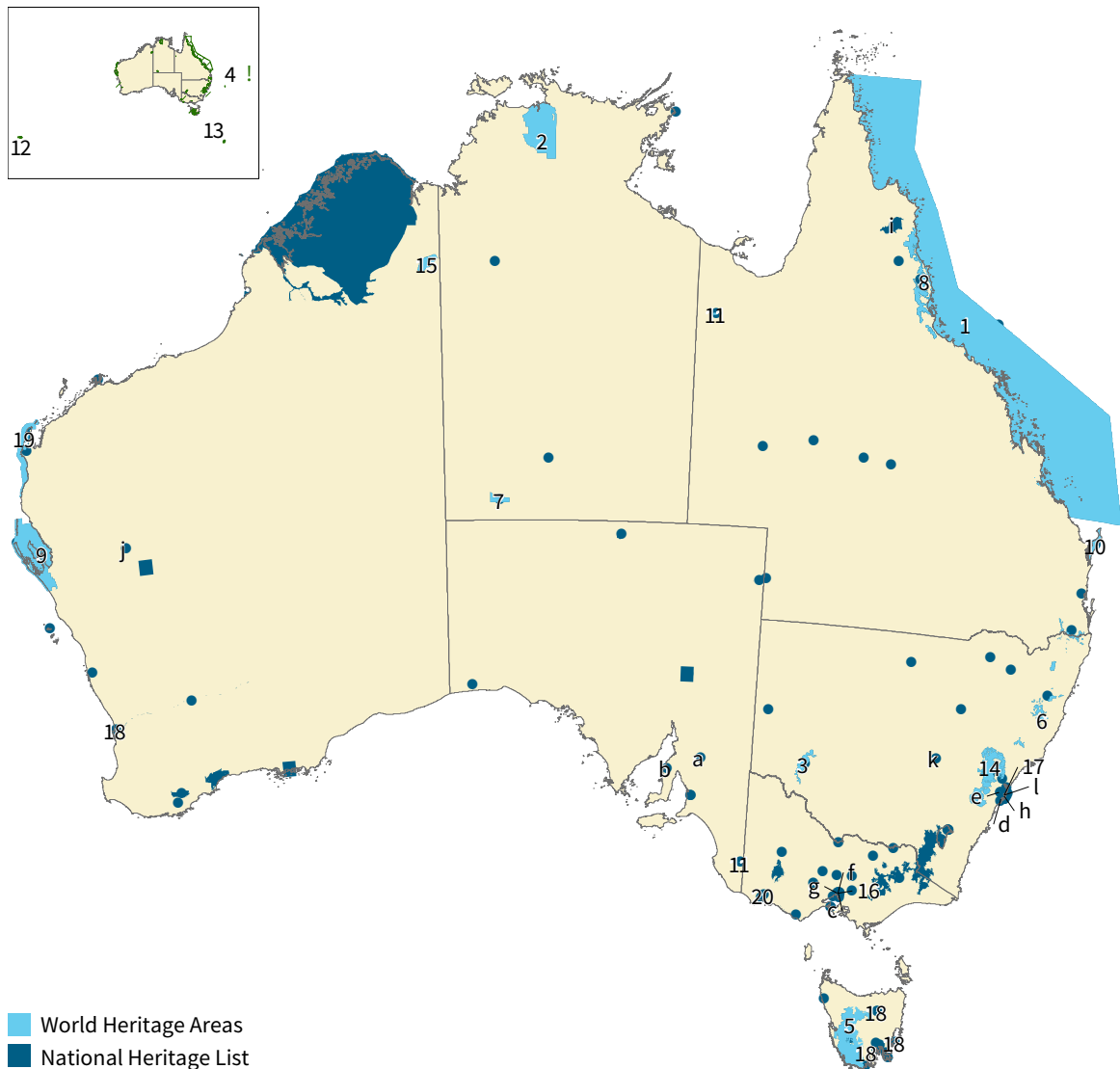
Recognition of World Heritage

The rate of inscription of Australian World Heritage properties has fallen significantly in the past 10 years, with only 1 new property listed since 2011 – the Budj Bim Cultural Landscape in 2019. The slow rate of inscription was noted in 2013, with Mosley (2013) commenting that the Australian World Heritage nomination process was ‘at close to a standstill’.

The reasons for this are unclear, but are likely to be due to the consolidation, extension and review of some existing World Heritage properties in this period, as well as insufficient resourcing and, possibly, poor forward planning.

A commitment to updating Australia’s World Heritage tentative list in the 2015 Australian Heritage Strategy (Australian Government 2015: outcome 1) has resulted in some new actions:

- In 2015, the meeting of environment ministers
 - agreed to retain the proposed extensions to the Gondwana Rainforests of Australia and K’gari/Fraser Island (Great Sandy Region) World Heritage areas on the Tentative List (on the list since 2010)
 - agreed to explore potential nominations for Cape York
 - noted the Northern Territory’s intention to pursue a nomination for Tjoritja/West MacDonnell National Park.
- Murujuga Cultural Landscape, on the Dampier Archipelago and surrounds, part of Ngurra-ra Ngarli land and containing the world’s largest, densest and most diverse concentrations of rock art carvings in the world, was added to Australia’s World Heritage Tentative List in January 2020.



Notes:

1. Australian World Heritage Properties (in order of listing): 1 – Great Barrier Reef; 2 – Kakadu National Park; 3 – Willandra Lakes Region; 4 – Lord Howe Island Group; 5 – Tasmanian Wilderness; 6 – Gondwana Rainforests of Australia; 7 – Uluru–Kata Tjuta National Park; 8 – Wet Tropics of Queensland; 9 – Shark Bay, Western Australia; 10 – Fraser Island; 11 – Australian Fossil Mammal Sites (Riversleigh / Naracoorte); 12 – Heard Island and McDonald Islands; 13 – Macquarie Island; 14 – Greater Blue Mountains Area; 15 – Purnululu National Park; 16 – Royal Exhibition Building and Carlton Gardens; 17 – Sydney Opera House; 18 – Australian Convict Sites; 19 – The Ningaloo Coast; 20 – Budj Bim Cultural Landscape
2. National Heritage places listed since June 2016: a – Australian Cornish Mining Sites: Burra (2017); b – Australian Cornish Mining Sites: Moonta (2017); c – Abbotsford Convent (2017); d – Kamay Botany Bay: botanical collection sites (2017); e – Parramatta Female Factory and Institutions Precinct (2017); f – Melbourne’s Domain Parkland and Memorial Precinct (2018); g – Queen Victoria Market (2018); h – Centennial Park (2018); i – Quinkan Country (2018); j – Erawondoo Hill (2020); k – Parkes Observatory (2020); l – Governors’ Domain and Civic Precinct (2021)

Source: DAWE (2020a)

Figure 22 Australia’s World Heritage properties and National Heritage places, as of 30 June 2020

- Part of the Flinders Ranges, part of Adnyamathanha land, was added to the Tentative List in April 2021 in recognition of the rare Ediacaran fossils that represent this major stage in Earth's history.

Listing Murujuga Cultural Landscape would help to improve representation of Australian Indigenous cultural properties, and listing the Flinders Ranges will be significant global recognition of geoh heritage. However, more work needs to be done to ensure recognition of cultural sites in Australia of potential World Heritage significance, and to increase the currently low international recognition of Australian places of Indigenous heritage value. A review of the thematic gaps, particularly in relation to potential cultural properties, is also considered useful given the limited historical global themes represented by Australian World Heritage listings.

Condition of World Heritage

The most recent International Union for Conservation of Nature (IUCN) World Heritage outlook report (Osipova et al. 2020) concluded that, of the natural properties that were assessed by the IUCN in 2017, no properties in Oceania have improved their conservation outlook since 2017, and 5 properties, all Australian, have deteriorated:

- Great Barrier Reef: 2017 – significant concern; 2020 – critical
- Gondwana Rainforests of Australia: 2017 – good with some concerns; 2020 – significant concern
- Greater Blue Mountains Area: 2017 – good with some concerns; 2020 – significant concern
- Ningaloo Coast: 2017 – good; 2020 – good with some concerns

- Shark Bay, Western Australia: 2017 – good; 2020 – good with some concerns.

In addition, Kakadu National Park and the Wet Tropics of Queensland are rated as being of significant concern, and Macquarie Island and the Tasmanian Wilderness rated as good with some concerns.

These conclusions are particularly worrying, since the 2013 IUCN evaluation of the World Heritage List (Abdulla et al. 2013 and Bertzky et al. 2013 – cited in Mackay 2016c) identified the following natural and mixed Australian World Heritage properties as irreplaceable:

- Wet Tropics of Queensland (one of the 10 most irreplaceable protected areas in the world for all species, including threatened species)
- Kakadu, Shark Bay and the Wet Tropics of Queensland (among the 78 most irreplaceable protected areas for the conservation of the world's amphibian, bird and mammal species)
- Macquarie Island, Purnululu National Park, Uluru–Kata Tjuta National Park and the Willandra Lakes Region (among the 61 irreplaceable non-biodiversity natural and mixed sites).

Australia has no World Heritage properties included on the List of World Heritage in Danger. However, based on advice from the World Heritage Centre and the IUCN, the World Heritage Committee in June 2021 released a draft decision to inscribe the Great Barrier Reef on the List of World Heritage in Danger because of the ascertained danger it is facing, primarily due to climate change. This is despite many positive achievements in managing the reef and reducing its vulnerability. However, at its July 2021 meeting, the World Heritage Committee deferred the decision to 2022 (UNESCO WHC 2021b).

Pressures on, and management of, World Heritage

Climate change is seen as one of the most significant threats to the Outstanding Universal Value of World Heritage properties globally (UNESCO WHC 2021c) (see [case study: Climate change and the Shark Bay World Heritage Area](#)). Climate change and management of climate change pressures affecting Australian World Heritage properties have been of major concern for several years. Potential impacts on Australian World Heritage were assessed in 2009 as substantial and diverse, and likely to affect both natural and cultural attributes (ANU 2009).

Identified climate change-related impacts to Australian World heritage properties in the past 5 years include:

- bushfires, causing loss of vegetation and other landscape impacts in the
 - Greater Blue Mountains Area (2019–20, with 71% of the property burned)
 - Gondwana Rainforests of Australia (2019–20)
 - K’gari/Fraser Island (2019–20 and 2020–21, with more than 50% of the island burned)
 - Tasmanian Wilderness World Heritage Area (2018–19)
 - Uluru–Kata Tjuṯa National Park (2017, 2018 and 2019)
- mass coral bleaching events in the
 - Great Barrier Reef (2016, 2017 and 2020) (see [case study: Australia’s changing reefs in the Marine chapter](#))
 - Lord Howe Island Group (2019)
- significant seagrass dieback and marine ecosystem changes at Ningaloo Coast and Shark Bay (see [case study: Climate change and the Shark Bay World Heritage Area](#))
- increased drying in the
 - Greater Blue Mountains Area (increased rainforest and swamp drying, and drying leading to large tree dieback)
 - Lord Howe Island Group (extreme dryness in 2018–19, leading to dieback of large trees and consequent fern dieback)
- vegetation community decline on Macquarie Island
 - collapse of the endemic keystone cushion species (*Azorella macquariensis*) and associated bryophytes due to changes to rainfall and wind speed, and the emergence of a plant pathogen
 - expansion of upland grass (*Agrostis magellanica*) into feldmark, probably in response to increased air temperatures
- increased habitat reduction of the mountain frogs (*Philoria* spp.), which are restricted to separated mountain-top refuge areas in the Gondwana Rainforests of Australia
- changes to saltwater and freshwater wetlands, and continued displacement of saltwater-sensitive plant species and existing freshwater-dependent wildlife in Kakadu National Park
- increased wetness, resulting in unprecedented flooding of floodplain fringing rock art in 2016 at Kakadu National Park
- more waterway sedimentation due to intense wet events after drought in the Greater Blue Mountains.

The development of comprehensive vulnerability assessments and adaptation management plans for all 20 World Heritage properties in Australia is underway. A collaboration between the Australian Government Department of Agriculture, Water and the Environment and CSIRO commenced

in 2020 to update vulnerability assessments for all 20 World Heritage properties and develop practical guidance for World Heritage property managers on vulnerability assessment through to adaptation planning. Some properties, such as the Great Barrier Reef and the Wet Tropics of Queensland, are already well advanced in their planning for climate adaptation (Wet Tropics Management Authority 2019). In addition, a Climate Vulnerability Index (CVI) to rapidly assess climate impacts on World Heritage properties, which builds on the vulnerability framework described by the Intergovernmental Panel on Climate Change, is being developed in Australia. The CVI methodology was trialled at Shark Bay (Heron et al. 2020). However, for some properties, collection of impact and condition data is also still regarded as inadequate (McConnell 2021d), and better capacity to adapt is needed.

Managing tourism has also been a major issue of concern for some World Heritage properties. Tourism- or recreational-related issues in the past 5 years include (McConnell 2021d):

- overfishing of vulnerable species at Shark Bay
- development of a culturally inappropriate walkway at Kakadu
- reduced tourism site incomes due to the COVID-19 pandemic at the Australian Convict Sites, Royal Exhibition Building and Carlton Gardens, and the Great Barrier Reef.

Also, following concerns about increasing tourism development in the Tasmanian Wilderness World Heritage Area, the World Heritage Committee recommended in 2016 that a Tourism Master Plan be developed for the property. In 2021, the World Heritage Committee requested the World Heritage Centre and advisory bodies (IUCN and ICOMOS) to review the now finalised Tourism Master Plan. While referring to the implementation of the comprehensive cultural assessment of the property, the committee

also urged the avoidance of any development at the property that may affect the property's Outstanding Universal Value (UNESCO WHC 2021d).

In relation to development:

- the Ranger Uranium Mine has posed ongoing risks to Kakadu National Park and, now at the end of its life, requires rehabilitation (see [Extractive industries](#))
- the recently approved Carmichael coalmine is seen as creating indirect potential impacts on the Great Barrier Reef
- the proposed raising of the Warragamba Dam wall on the edge of the Greater Blue Mountains is considered to have the potential to irreversibly impact the natural values of the property, as well as Indigenous heritage values.

The Great Barrier Reef Marine Park Authority outlook report (Leverington et al. 2019) identifies the main threat to the Great Barrier Reef as climate change, and other major threats as being coastal development, land-based run-off and direct human use (e.g. illegal fishing).

The IUCN World Heritage outlook 3 report (Osipova et al. 2020) concludes that, for Oceania generally, the natural and mixed World Heritage properties have 'mostly effective' (64%) to 'highly effective' (32%) protection and management. There are no equivalent data that allow the management effectiveness of Australia's cultural properties to be understood.

Some targeted responses to specific pressures are occurring, such as the Australian World Heritage climate change impacts and vulnerability report, which will also provide a toolkit to help managers undertake adaptation planning.

There has also been significant action and some success in relation to the control of invasive species, including control of rats and rabbits on Macquarie Island, the near elimination of mice and rats on Lord Howe Island (see [case study: Lord Howe Island Rodent Eradication Project](#)), and the current program to control yellow crazy ants in the Wet Tropics of Queensland.

However, much more needs to be done to protect Australia's World Heritage properties and manage them for future generations.

Important actions include:

- pursuing climate change reduction goals and developing climate change adaptation plans for all properties
- improving the monitoring and evaluation of condition and impacts, preferably with greater national standardisation
- developing values-based sustainable management criteria and guidelines for tourism, and stronger regulation for industrial development and use that may affect World Heritage and other significant natural and cultural values
- reviewing existing natural World Heritage places to identify whether they have cultural values of Outstanding Universal Value. Although the Australian Heritage Strategy commits to this (Australian Government 2015:outcome 1), very little action has occurred to address this matter since 2012
- regular review of World Heritage property management plans in accordance with the *Operational guidelines for the operation of the World Heritage Convention*, and the EPBC Act and Regulations
- developing stronger Australian Government management, especially in relation to the identification and listing process
- creating long-term partnerships with the Traditional Owners of each World Heritage

property that reflect the management capability relevant to the specific landscape

- enhancing the capacity for Indigenous voices in the management of all World Heritage properties, as well as on the Australian World Heritage Advisory Committee (AWHAC).

Although improvements in recognising the rights and interests of Indigenous people in the care and management of World Heritage with Indigenous values have continued to occur, they have been slow (see [Indigenous involvement in natural heritage management](#)). The AWHAC has only 2 Indigenous members. The loss of the Australian World Heritage Indigenous Network due to a lack of funding is seen as a major step backwards, and calls have been made for its reinstatement (McConnell 2021d).

National Heritage

National Heritage is those aspects of the natural and cultural environment that are of 'outstanding heritage value to the nation' (AHC 2009). The National Heritage List has 119 places throughout Australia (DAWE 2021c); 34 of the individual places listed on the National Heritage List are also Australian World Heritage properties or part of a World Heritage property (see [World Heritage](#)). Of the 119 places on the National Heritage list:

- 24 have recognised natural (biological) National Heritage values
- 29 have natural (geoheritage) National Heritage values (but are not all specifically listed for these values)
- 38 have Indigenous National Heritage values
- 73 have historic National Heritage values.

Although natural National Heritage places are less numerous than cultural heritage places, particularly historic heritage places, they are

generally very large areas compared with cultural heritage places.

National Heritage places are highly diverse in their nature, size and location. Examples are:

- the West Kimberley region
- the Greater Blue Mountains
- the Lord Howe Island Group
- Lesueur National Park
- the Ediacara Fossil Site
- Witjira–Dalhousie Springs
- Quinkan Country
- the Wave Hill Walk-Off Route
- Coranderrk
- the Snowy Mountains Scheme
- Bondi Beach
- the Tree of Knowledge
- the Australian Academy of Science Building
- HMS *Sirius*
- the Mawson’s Huts Historic Site.

Between July 2016 and March 2021, 12 new places were added to the National Heritage List (Figure 22).

Recognition of National Heritage

There is considerable variation in the extent to which different national heritage values and important national themes are covered in the National Heritage List. This has been an issue over the life of the list, mainly because nominations are submitted in an ad hoc manner or to support World Heritage listing.

The Australian Heritage Council, recognising thematic biases in the National Heritage List, has undertaken 8 national thematic and regional studies over the past 15 years, with 5 of these completed since 2015–16. These studies explored national Indigenous rock art heritage, benevolent institutions and defence

fortification themes; and the geoheritage and cultural heritage of the Australian arid zone.

An example of the deficiency of the National Heritage List in relation to its geographic and thematic coverage is the findings of Macfarlane & McConnell (2017) that, of the 15 National Heritage places occurring in the Australian arid zone in 2017, only 4 were Indigenous heritage places and 4 were historic heritage places. In contrast, they found 61 cultural places of potential National Heritage significance related to water alone.

The listing of cultural heritage, particularly Indigenous heritage, is difficult because the tools used to assess places cannot recognise and list intangible heritage alone.

The restriction of listed place types to single geographic entities also creates difficulties in recognising long linear places and serial or multiple place listings, leading to an imbalanced National Heritage List. For example, the Australian Convict Site World Heritage area, which comprises 11 sites, is represented by 13 National Heritage places, resulting in around half of the Tasmanian National Heritage places representing a single theme. It can also lead to the listing of a single site, potentially compromising the listing of the larger, more significant place. The recent Mithaka Cultural Landscape nomination, which potentially prejudices listing of the full Lake Eyre trade route recommended by Macfarlane & McConnell (2017), is an example.

The change in relative proportions of natural, Indigenous and historic places on the priority lists in the past 5 years reflects a desire to provide a more balanced National Heritage List. However, it is unlikely that the biases and gaps in the National Heritage List can be addressed, even in the long term, given the issues and the current rate of listing. There is currently extremely limited capacity to

assess nominations in a timely manner; the rate of listing over the past 10 years averaged 2.4 sites per year, and only 12 places have been included in the priority assessment list from 2016 to 2021.

As at July 2020, 16 places (6 natural, 9 Indigenous and 1 historic) were on the priority assessment list, to be assessed between 2015 and 2025. This is less than in July 2016, when 26 places (4 natural, 5 Indigenous and 17 historic) were listed for assessment. At the current rate of listing, it is not possible to assess all these places until 2027.

Review of the National Heritage List shows that many sites have had lengthy wait times to have their assessment completed. For example, Tjoritja/West MacDonnell National Park, nominated in 2007, is still on the list, with an assessment date of 2016, as are the Christmas Island natural areas (request to consider 2009, assessment date 2016) and the Greater Blue Mountains area, which has been waiting for assessment of additional (cultural heritage) values since 2005 (assessment date 2015) (DAWE 2021g).

The current assessment process does not appear to be able to efficiently manage overlapping or multiple nominations for the same or similar place made at different times (e.g. as for the Lake Burley Griffin cultural landscape nominations).

Recent changes in the requirements for World Heritage listing (for which National Heritage listing is generally a first step) mean that many of the older National Heritage nominations were submitted without the free, prior and informed consent of the relevant Indigenous communities. Consent is required for a successful listing and, unless it is provided at the time of the submission, additional investment would be required to

properly consult and engage with the relevant Indigenous custodians.

The National Heritage listing process is constrained by both resourcing and the prescribed processes. The large-area nominations that have been considered in recent years have been particularly resource consumptive. Mackay (2016c) pointed to the complexity of the priority assessment list process, commenting that, ‘even allowing for more complex and resource consuming recent assessments, the resources available for documentation and assessment, and the rate at which places are being added to the National Heritage List do not yet reflect the importance of the National Heritage List’ as being places of outstanding significance to the nation. The policy framework to guide the future direction of the National Heritage List proposed 5 years ago by the then Australian Government Department of the Environment and Energy (Mackay 2016c), which would assist greatly, does not seem to have eventuated.

There are useful tools available for National Heritage listing, such as the (e.g. Australian Natural Heritage Assessment Tool, National Historic Thematic Framework in AHC 2001), and the various thematic and regional studies. However, they are not yet being used effectively. Most nominations are generated outside the government, and the tools do not apply to, or work well for, Indigenous heritage and geoheritage, or need updating (e.g. the National Historic Thematic Framework).

Condition of National Heritage

Under the EPBC Act, the state of National Heritage is required to be reviewed and reported on at least once every 5 years after the National Heritage List was established. The last national review of National Heritage places was a voluntary survey of National Heritage

place managers conducted in early 2016. Place managers self-reported the current condition and trends since that place's National Heritage listing. Only 52 (50%) of the then 104 listed National Heritage places were reported on (Wildlife Heritage & Marine Division 2017).

The 2016 survey found that the condition of most of these places was considered to have remained stable, or to have improved somewhat or significantly, and that National Heritage listing had made some difference to the condition and management of the place.

Although no more recent data are available, expert opinion provided to the present review (McConnell 2021b, McConnell 2021d) and the reported high pressures on National Heritage places (Wildlife Heritage & Marine Division 2017) suggest that the condition of National Heritage places is likely to have deteriorated in the past 5 years.

Pressures on, and management of, National Heritage

As with World Heritage, climate change, invasive species and industry pressures - including tourism - are regarded as continuing to put Australia's National Heritage at risk, and there are similar management issues and inadequate resourcing of management.

The 2016 national review of National Heritage places (Wildlife Heritage & Marine Division 2017) found that 92% of National Heritage places were considered to have experienced high to very high pressures on values:

- 81% experienced 'elemental or external' pressures (e.g. unplanned fire, pest species and pathogens)
- 75% experienced resourcing pressures
- 67% experienced climate change pressures

- 65% experienced visitation and use pressures.

At 37% of places, development pressures were considered to pose a high to very risk to values, while 67% of places noted pressures on place authenticity and 60% noted pressures on place integrity.

As with World Heritage:

- understanding and managing pressures are key needs for National Heritage places
- all National Heritage places would benefit from the development of values-based sustainable management criteria and guidelines for tourism
- several National Heritage places have management plans that are due for review or are of questionable efficacy in relation to protection of values.

Addressing the above needs will require significant additional resourcing.

Strengthening the oversight role of the Australian Heritage Council should also be considered.

Commonwealth Heritage

Places on the Commonwealth Heritage List are those places owned or controlled by the Commonwealth considered to have heritage significance.

The Commonwealth Heritage List contained 389 places at June 2020. These places occur across Australia and its external territories. The distribution is uneven, but reflects the locations of Commonwealth interests, with 83 Commonwealth Heritage places occurring in the Australian Capital Territory and 43 in Australia's external territories, including the Australian Antarctic Territory, Christmas

Island, Cocos (Keeling) Islands, Norfolk Island and the Timor Sea.

Historic places comprise 93% of the places on the Commonwealth Heritage List. These places relate primarily to Australia since federation in 1901, particularly the defence and post-federation expansion of Australia, the evolution of Australia's democracy, and the evolution of national communications and other services, including maritime safety, survey and research. Only 3 places are listed for their Indigenous values (with another 2 places having listed Indigenous values). Only 33 places have identified natural heritage values, although these are quite diverse and include several geoheritage places, such as the Tasmanian Seamounts, which are otherwise unlisted.

Recognition of Commonwealth Heritage

Since 2015, 11 new Commonwealth Heritage places have been listed. However, in the past 5 years, 12 places have been removed from the list. These removals are likely to reflect divestment of property by the Commonwealth (in which case provisions are usually made to continue protecting heritage values after removal from the list).

A review of the Commonwealth Heritage List indicates that listing is 'incomplete', with some highly evident gaps, such as in the Australian Antarctic Territory (Atlas Cove Station on Heard Island, Casey and Wilkes stations, sealing sites on Heard Island, the Australian Antarctic Division headquarters in Kingston) and the Woomera Test Facility (including Maralinga). The nature of the Commonwealth list is strongly influenced by the initial listing, which involved the wholesale transfer of Commonwealth-owned places from the

Register of the National Estate. The relative distributions of Commonwealth Heritage places and listing timings also indicate that some agencies (e.g. Australia Post) have been much more active in identifying and nominating places for Commonwealth Heritage listing than others.

A review of public notices related to Commonwealth Heritage nomination and assessments shows that most listings occurred in 2004, shortly after the Commonwealth Heritage List was created. But, apart from a large number of listings of post offices in 2011, nominations appear to have been relatively few and irregular in number and type, averaging just under 3 per year (DAWE n.d.-a).

Assessments have been mostly keeping up with the nominations since 2014. Although only 11 places were listed on the Commonwealth Heritage List in the past 5 years, as at February 2021, there are only 7 nominated places awaiting assessment. This contrasts significantly with the timeframes for the National Heritage List, for which the listing process is similar.

Condition of Commonwealth Heritage

No data are available to review the physical condition of Commonwealth Heritage places.

Pressures on, and management of, Commonwealth Heritage

There are no available data on the pressures on Commonwealth Heritage and the impacts of these, except where these places are also World Heritage sites (e.g. Great Barrier Reef, Ningaloo Coast, Heard and Macdonald Islands, Mawson's Huts Historic Site). It is likely that Commonwealth Heritage places will be experiencing similar pressures and impacts to other heritage places.

Places on the Commonwealth Heritage List are predominantly buildings in urban settings, or in Commonwealth ownership or control, with essential active uses. Therefore, it is likely that Commonwealth Heritage overall is less subject to the key population and industry pressures for heritage in Australia (i.e. extractive industry, tourism, introduced species, urban development and other population-related pressures). Governance is likely to be a pressure, with heritage unlikely to be seen as core business for several Australian Government agencies, resulting in inadequate policy, expertise and funding for heritage management.

Significant management issues for Commonwealth Heritage include:

- the need for better management of climate change at vulnerable places
- improved management planning
- more collaboration between agencies with responsibility for Commonwealth Heritage places and the Australian Government Department of Agriculture, Water and Environment.

Once listed, Australian Government agencies have a responsibility to identify, protect and conserve the heritage values of all properties they own or lease. The 2 key mechanisms to protect Commonwealth Heritage places are individual place management plans and agency heritage strategies. The strategies aim to integrate heritage within the agency's overall property planning and management framework. Each Australian Government agency that owns or controls 1 or more places with Commonwealth Heritage values must prepare a heritage strategy, and these must be reviewed every 3 years and a written report provided to the minister.

Of the 28 agencies with responsibility for Commonwealth Heritage places, 20 have heritage strategies in place. Agencies are doing less well in relation to place management plans, with only 205 places (53% of listed places) having a heritage management plan in place; 86 of these are due for 5-year review and 13 of these are more than 10 years old.

This, and the apparent lack of Commonwealth Heritage data regarding place condition, pressures, monitoring and evaluation, suggest that oversight of Commonwealth Heritage place management by the Department of Agriculture, Water and the Environment is limited, but could be usefully expanded. The department has taken some recent action to improve management by updating a guide to managing Commonwealth Heritage (Australian Government 2019c).



Assessment Recognition and condition of Australian heritage

2021



Limited confidence

Where recognition, protection and management are high, as with World Heritage and National Heritage, the condition is generally good. Indigenous heritage, historic heritage and geoheritage are not as well recognised or protected, and are subsequently under threat. Development and climate change are key threats to all forms of heritage.

Related to United Nations Sustainable Development Goal targets 11.4, 14.5, 15.1



Assessment Recognition of Indigenous heritage

2021



2016



2011



Very limited confidence

Indigenous rights to heritage are not well recognised. Public awareness and perception are poor. Indigenous people strive to maintain their cultural heritage and deep connection to Country through cultural practice.

✔ **Assessment** Condition and integrity of Indigenous heritage



Very limited confidence

Indigenous cultural landscapes are being destroyed and degraded. Indigenous languages are endangered, although there is Indigenous community-led language revitalisation. When Indigenous communities are empowered to protect their heritage, the condition of Indigenous heritage improves.

✔ **Assessment** Recognition of natural heritage



Limited confidence

Natural heritage is well recognised across Australia, with generally adequate protections through the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) and within protected areas. The total reserve system is 483 million hectares (ha), of which 84.5 million ha are International Union for Conservation of Nature categories I or II.

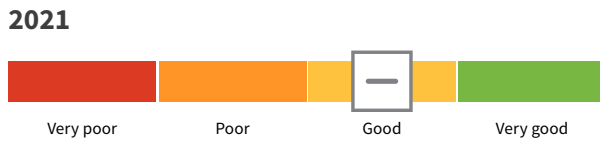
✓ **Assessment** Condition and integrity of natural heritage



Limited confidence

Natural heritage continues to be adversely affected by a range of pressures, with climate change having had a significant and increasing impact in the past 5 years.

✓ **Assessment** Recognition of geoheritage



Limited confidence

Geoheritage values are relatively well understood, and considerable geoheritage inventorying has been undertaken across Australia. However, there are limited protections, no statutory lists and significant gaps in the identification of geoheritage.

✓ **Assessment** Condition and integrity of geoheritage

2021



Limited confidence

Geoheritage continues to be adversely affected by a range of pressures, with extractive industries continuing to have the greatest impact. The lack of adequate protections for geoheritage hinders impact mitigation. Relic landscapes and landforms, karst systems and coastal geoheritage are highly vulnerable.

✓ **Assessment** Recognition of historic heritage

2021



Somewhat adequate confidence

Historic heritage, including underwater cultural heritage, is well recognised across Australia, with statutory protection available at all levels of government (except for underwater cultural heritage). There is still a significant amount of unrecognised and unprotected historic heritage, but little has been done in the past 5 years to improve recognition. Historic heritage includes Indigenous heritage such as missions and sites of resistance, but these are poorly recognised.

2016



2011



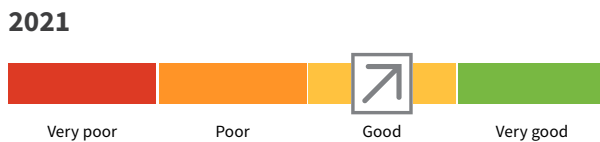
✓ **Assessment** Condition and integrity of historic heritage



Limited confidence

Historic heritage continues to be adversely affected by a range of pressures, with urban redevelopment and rural development continuing to have the greatest impact. Climate change-related adverse impacts are also increasing, mainly through bushfire, and energy and sustainability measures that do not adequately consider heritage value. Re-use and redevelopment continue to degrade integrity, particularly of local heritage.

✓ **Assessment** Recognition of World Heritage



Limited confidence

Australian World Heritage is generally well recognised, and there are strong statutory provisions for its protection. However, there are still significant gaps in the understanding of Australia's outstanding universal values.

✔ **Assessment** Condition and integrity of World Heritage

2021



Limited confidence

Australia's 20 World Heritage properties have the highest level of protection and management given their significance, but their condition is deteriorating due to the ongoing and increasing pressures on World Heritage. Significant pressures for World Heritage include climate change, invasive species, tourism and recreation, and inadequate actions to mitigate impacts.

✔ **Assessment** Recognition of National Heritage

2021



Limited confidence

National Heritage is generally well recognised, and there are relatively strong statutory provisions for its protection. However, there are still significant gaps in the understanding of Australia's national heritage and its protection.

✓ **Assessment** Condition and integrity of National Heritage

2021



Limited confidence

Australia’s 119 National Heritage places have a high level of protection and management. However, the condition is deteriorating due to ongoing and increasing pressures, particularly climate change, invasive species, tourism and recreation; and inadequate actions to mitigate impacts.

Assessment ratings

For assessments in the ‘Environment’ section

- **Very good:** The environment is in very good condition, resulting in enhanced environmental values.
- **Good:** The environment is in good condition, resulting in stable environmental values.
- **Poor:** The environment is in poor condition, and environmental values are somewhat or slowly declining.
- **Very poor:** The environment is in very poor condition, and environmental values are substantially and/or rapidly declining.

Trend

- Improving:** The situation has improved since the previous assessment (2016 state of the environment report).
- Stable:** The situation has been stable since the previous assessment.
- Deteriorating:** The situation has deteriorated since the previous assessment.
- Unclear:** It is unclear how the situation has changed since the previous assessment.



Pressures

Climate change

Climate change is affecting and threatening Australia's heritage. Climate change effects already being seen include (also see the Climate and Extreme events chapters):

- increased temperatures
- more frequent, intense and extensive bushfires
- increased drought conditions
- inundation from rising sea levels
- more localised, but still damaging, impacts such as coastal erosion from rising sea levels and extreme weather events.

These effects are having diverse impacts across Australia and in its oceans (see the Biodiversity, Coasts, Inland water, Land and Marine chapters). Climate change effects have been noted as a potential pressure on heritage since 2009–11 (ANU 2009, SoE 2011 Committee 2011).

The International Union for Conservation of Nature (IUCN) considers that, in Oceania, climate change is one of the 2 most prevalent current threats to natural World Heritage properties (the other is invasive species). The IUCN considers that these 2 threats affect a disproportionately large number of natural World Heritage properties (Osipova et al. 2020). Expert assessment considered the threat to natural heritage of the different

climate change pressures to be greatest from (McConnell 2021b):

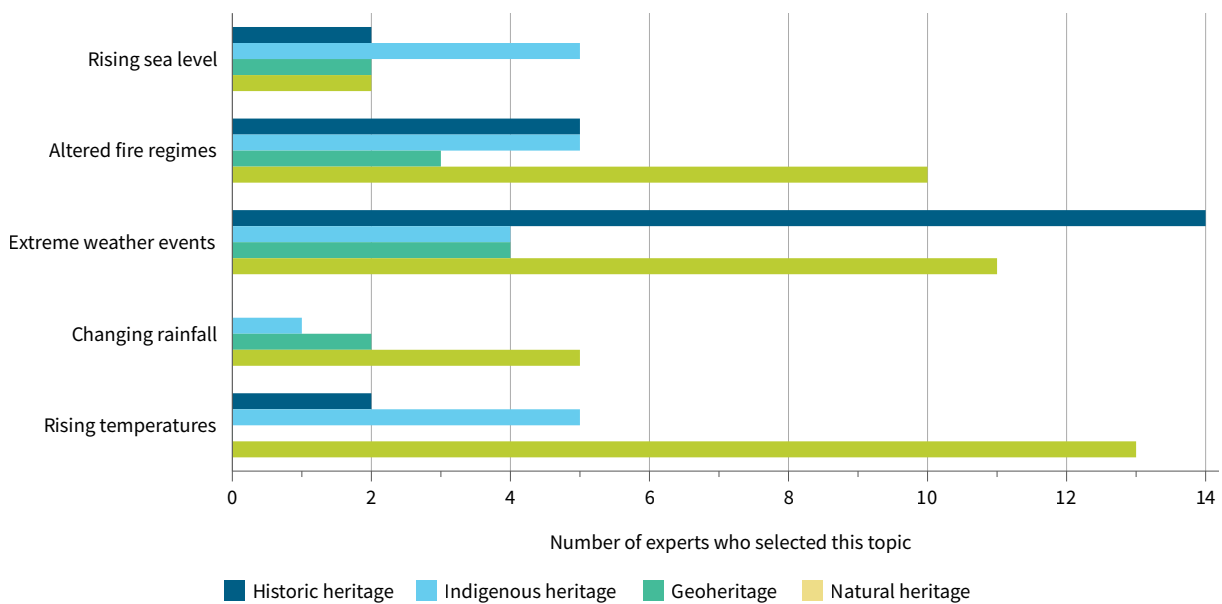
- rising temperatures (major threat)
- extreme events (major threat)
- fire (major threat)
- sea level rise (major threat)
- increased rainfall (moderate threat).

For geoheritage, climate change was seen as a low to moderate threat, with extreme events having the greatest impact and increased rainfall a minimal impact (McConnell 2021b) (Figures 23 and 24).

The potential impacts of climate change on cultural heritage are complex (see tables 4–5 in ICOMOS Climate Change and Cultural Heritage Working Group 2019). Very little information is available on existing impacts to cultural heritage. Expert assessment ranks climate change as the second most significant threat to Australia's historic heritage overall, although, for Indigenous heritage, climate change is generally viewed as a moderate threat (McConnell 2021b). For historic heritage, climate change threats are seen as relatively low, except for extreme weather events (considered to be a major threat) (Figures 23 and 24) (McConnell 2021b). This view, however, does not fully reflect the situation for underwater cultural heritage, which is more threatened by rising sea levels, changes in coastal geomorphology and extreme weather events.

Although perceived as a moderate threat, climate change has caused destruction of Indigenous heritage, with lasting impacts on native species and Indigenous sites, stories, totems and traditional resources, requiring changes in cultural practices (Sheldon 2019). Some of these impacts are due to ecological shifts and seasonal changes associated with gradual climate change. The occurrence of widespread and devastating bushfires due

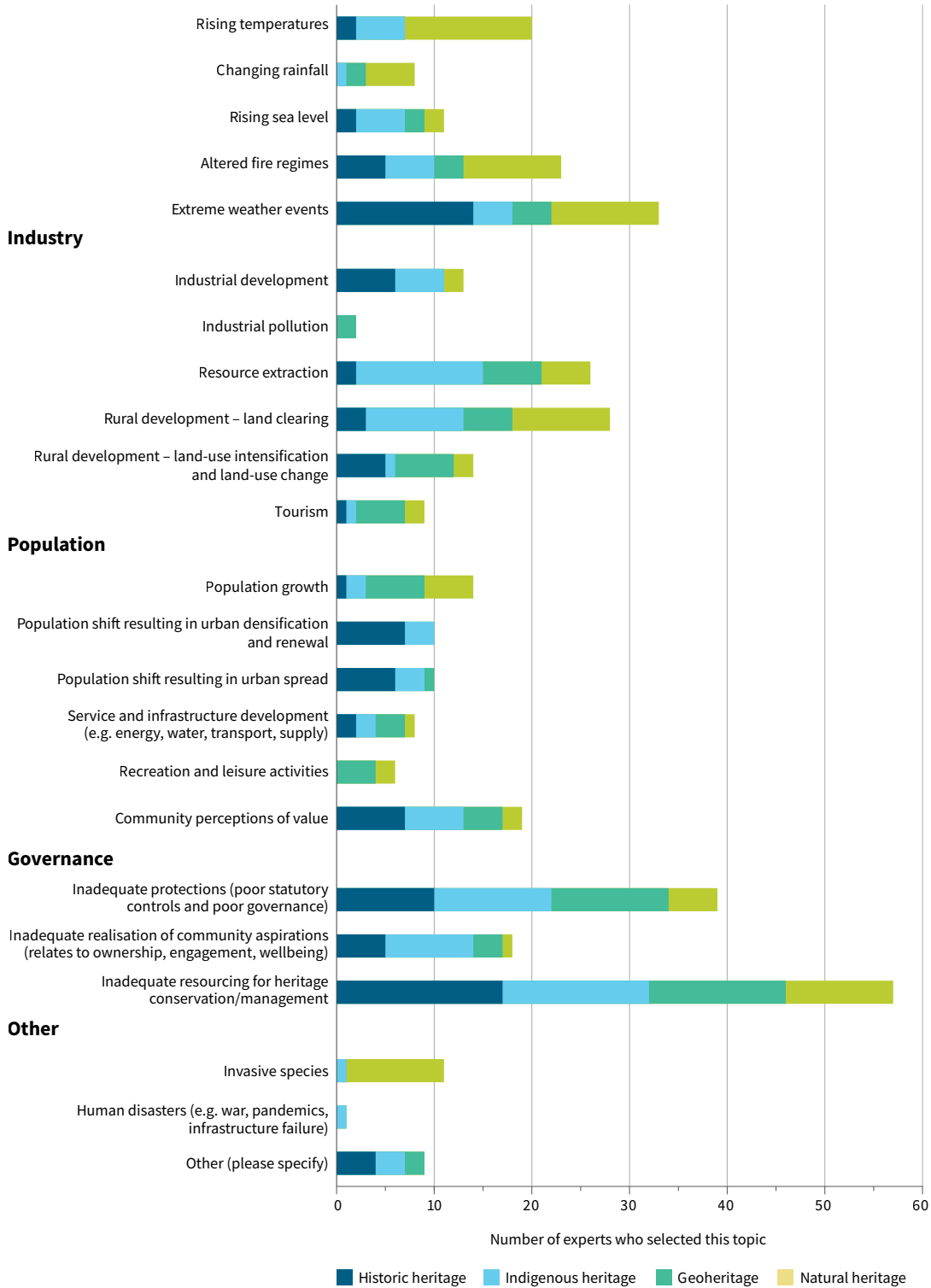
to climate change (Fletcher et al. 2021) has a significant detrimental impact on Indigenous sites, rockshelters and rock art sites. Rock art is also damaged by emissions and pollution (Bennett 2017), and inundation has affected access to sites. Species, totems and dreaming stories are also disrupted when salt water enters freshwater habitats (see the Coasts chapter).



Note: Figures are based on aggregating the survey respondents' top 5 pressures identified as having the greatest impact for each heritage type. A value of '1' was allocated to each pressure.
Source: McConnell (2021b)

Figure 23 Climate change pressures considered to have the highest impact on Australia's heritage, 2020


Climate change

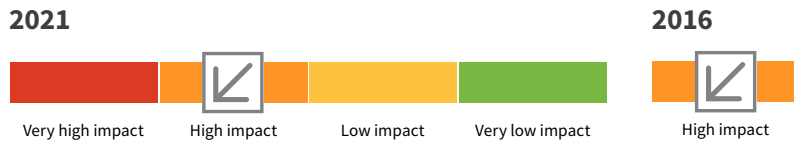


Note: Figures are based on aggregating the survey respondents' 5 identified pressures identified as having the greatest impact for each heritage type. A value of '1' was allocated to each pressure.

Source: McConnell (2021b)

Figure 24 Pressures considered to have the greatest impact on Australian heritage, 2020

 **Assessment** Climate change– driven pressures on heritage



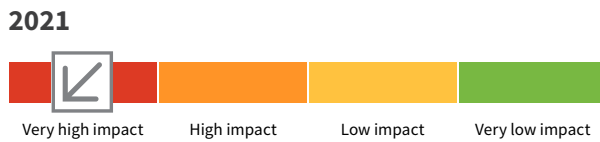
Somewhat adequate confidence

Climate change–driven pressures have the second greatest impact on heritage overall. Impacts are likely to worsen with increasing climate change, and because there is little effective mitigation and risk preparedness or adaptation management.

Climate change is the greatest pressure on natural heritage and the second most significant threat to Australia’s historic heritage; it is a less significant pressure on geoheritage. It is having a particularly evident and serious impact on Australia’s World Heritage.

Related to United Nations Sustainable Development Goal targets 11.4, 13.1, 13.2

 **Assessment** Climate change impacts on Indigenous heritage

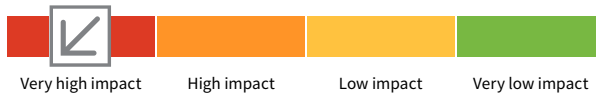


Somewhat adequate confidence

Indigenous people’s heritage sites and practices are impacted by many factors, including seasonal changes, rising sea levels, drought, bushfire and invasive species.

✓ **Assessment** Climate change impacts on natural heritage

2021

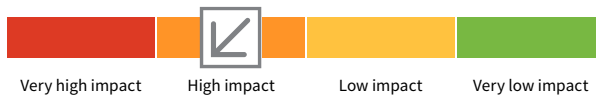


Somewhat adequate confidence

Increasing temperatures, marine heatwaves and other extreme events, and more intense and widespread bushfires have significantly adversely affected Australia’s natural heritage.

✓ **Assessment** Climate change impacts on geoheritage

2021



Limited confidence

Impacts on geoheritage from climate change pressures are being increasingly noticed. Documented impacts are mainly from rainfall changes and the increased incidence of bushfires. Impacts from extreme weather events and sea level rise are also of concern. Impacts on limestone and karst geoheritage are the most noticeable.

✓ **Assessment** Climate change impacts on historic heritage

2021

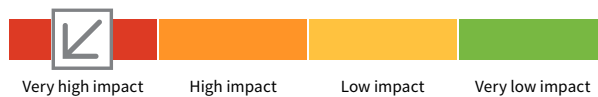


Somewhat adequate confidence

Extreme events and bushfires, which are increasing in severity and extent, are damaging and destroying historic heritage sites and landscape. Storm surges are also damaging coastal historic heritage. Gradual-onset changes will have a significant impact in the long term.

✓ **Assessment** Climate change impacts on World Heritage

2021

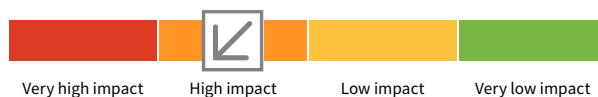


Somewhat adequate confidence

Australian World Heritage has been significantly impacted by climate change. Impacts include extensive bushfire damage, extensive seagrass loss and marine species drift, and significant coral bleaching of the Great Barrier Reef.

✓ **Assessment** Climate change impacts on National Heritage

2021



Somewhat adequate confidence

Climate change impacts on Australia's National Heritage are similar to those experienced by Australia's World Heritage.

For assessments in the 'Pressures' section

- **Very low impact:** Pressures do not degrade or only negligibly degrade the state of the environment.
- **Low impact:** Pressures minimally degrade the state of the environment over a small extent and/or with low severity.
- **High impact:** Pressures moderately degrade the state of the environment over a moderate extent and/or with moderate severity.
- **Very high impact:** Pressures strongly degrade the state of the environment over a large extent and with a high degree of severity.

Trend

- ↗ **Improving:** The situation has improved since the previous assessment (2016 state of the environment report).
- **Stable:** The situation has been stable since the previous assessment.
- ↘ **Deteriorating:** The situation has deteriorated since the previous assessment.
- ? **Unclear:** It is unclear how the situation has changed since the previous assessment.

Extreme events

Changing fire regimes

Fire is becoming increasingly common and widespread in Australia due to climate change (Climate Council 2019). Climate-induced fire regime changes include increasing fire intensity and frequency, and changed seasonality.

Bushfires can have an adverse impact on Australia's natural terrestrial heritage. They can impact large areas of significant plant communities and fauna habitat, and significantly reduce and displace local fauna populations. Burnt areas will recover in most areas of Australia, but some species, habitats and communities that are fire sensitive (e.g. the Gondwanan rainforests, snow gums, Tasmania's ancient pencil pines) may never fully recover (see the Extreme events and Land chapters).

Geoheritage is less vulnerable to bushfires than are the living aspects of natural heritage. Certain types of geoheritage features may be damaged by fires, but this is usually localised, small-scale damage (e.g. spalling of exposed rock surfaces, cracking of rocks). The more significant impacts on geoheritage are likely to be from indirect effects of the fire, such as erosion resulting from vegetation loss or burial of significant landscape features. Karst (soluble rock such as limestone) landscapes are particularly sensitive to this type of impact.

Bushfires have high potential to adversely affect cultural heritage. Bushfires can damage structures, archaeological sites, landscapes, landscape features and traditional resources. Built heritage and cultural landscapes will be the most vulnerable to bushfires, as they are susceptible to intense fire if not defended. The scale and intensity of present-day bushfires

mean that it will be impossible to protect against the loss of any but the most highly significant timber heritage buildings. Other timber features such as fences will be at most risk, as will fire-sensitive elements of heritage landscapes and settings.

Bushfires can also damage archaeological sites and culturally significant landscape features. Fire damage to archaeological sites will largely be superficial (e.g. accelerated decay, spalling and cracking of stone), as such sites rarely contain significant amounts of combustible material. Rock art sites are likely to be more vulnerable, as fire can spall peckings or engravings and burn pigments, and cause general damage to the rocks on which the art occurs. Archaeological heritage may be further degraded by accelerated erosion after bushfires.

Proactive fire control activities (e.g. fuel reduction burning), although designed to protect values, can have similar, albeit more localised, impacts on heritage if carried out in areas of heritage (e.g. Binskin et al. 2020). In areas subject to frequent controlled burning, the cumulative effects may be more severe.

Indigenous communities have been demonstrated to have been disproportionately affected by extreme fire events. Bhiemie Eckford-Williamson, an Euahlayi man and academic from the Australian National University, told the 2020 Royal Commission into National Natural Disaster Arrangements that 96,000 Indigenous people, including 35,000 children, were affected by the fires that burned in Queensland, New South Wales, the Australian Capital Territory and South Australia in the 2019–20 summer (Weir et al. 2020).

Historically, Indigenous people have been largely ignored in subsequent fact-finding and policy-making forums (Williamson et al. 2020).

However, the effect of the 2019–20 bushfires on cultural heritage was acknowledged with some funding and support. For example, in October 2020, the Victorian Government announced that more than \$4 million in grants tailored to support Indigenous cultures and healing would become available.

Other extreme events

Other extreme events such as major storms, strong winds, cyclones and floods can damage both natural and cultural heritage. However, they tend to be short-term events that cause localised damage. For natural heritage, extreme events generally have less impact overall than gradual climatic changes. However, these extreme events can still have significant impacts on heritage – for example, they can remove or damage areas of significant flora, damage small areas of habitat for important species, and damage geoheritage features though direct impacts, such as flood scour and other erosion, landslips or rockfalls. These events are likely to have limited impact in the marine environment, except in coastal areas and from marine heatwaves.

Storm-related extreme events are more likely to damage or destroy built heritage, plantings, traditional resources and some cultural landscapes, particularly where these are already in poor condition. This can be by direct impact (e.g. rain, storm damage) or indirect impacts (e.g. tree fall, accelerated erosion). Heavy rainfall promotes flooding, and accelerated soil and sediment erosion will affect a range of cultural heritage. Lightning damage is possible, but unlikely to affect a significant amount of cultural heritage.

Cyclone and tsunami events will affect marine and coastal underwater cultural heritage. These potentially cause damage through

coastal erosion, ocean floor scouring, and vibration or shifting.

Sea level rise and associated marine changes

Coastal change effects will primarily be increased coastal erosion and inundation, and these will be most severe where high sea levels and storm surges occur in tandem.

Inundation due to sea level rise will be a major impact in low-lying areas – for example, the Torres Strait Islands – and will potentially affect both tangible and intangible heritage (e.g. the traditional use of coastal resources by Indigenous communities). This damage is likely to be permanent and irreversible for geoheritage values, and may be permanent or difficult to reverse for biological values (see the Marine chapter). Inundation is likely to have a higher impact on coastal built heritage than erosion, as repeated or permanent inundation can cause building flooding, fabric decay through rising damp and salting, and loss of significant gardens and plantings. Most of these impacts do not require actual inundation but may occur through higher watertables and groundwater salination.

Coastal erosion will also impact Indigenous and historic heritage, given the focus of human occupation on the Australian coast historically. It will also impact coastal maritime heritage located in areas of erosion. It is likely that these impacts will be less severe in urban areas where the coastlines have been hardened, even though there may be more historic heritage in these areas (e.g. McConnell & Evans 2017).

Long-term gradual-onset effects

Australia's natural heritage, particularly its biological values, appears to be most

vulnerable to long-term, more gradual climate changes. In Australia, these are primarily increased temperatures on land and in the ocean, ocean acidification and increased drying in some areas (see the Climate chapter). It is these changes that are causing massive coral reef bleaching, ecosystem collapse, major habitat change leading to biodiversity loss, shifts in geographical location and reductions in area of significant flora and fauna communities, and increases in invasive species and diseases.

The impact on geoheritage is likely to be significantly less than for biological values and slower to occur. However, geosystems can change over a prolonged period, resulting in widespread landscape process changes (Crofts et al. 2015). Indirect impacts are also likely (e.g. increased erosion of significant aeolian dunes and dune fields, with increased drying leading to loss of stabilising vegetation). Karst terrain is likely to be more vulnerable to climate changes and in a shorter timeframe, since small changes in temperature and moisture conditions can significantly alter karst processes.

For cultural heritage, impacts on archaeological heritage are likely to be limited, essentially to minor increased fabric deterioration. Built heritage and underwater cultural heritage are likely to be more affected, because of fabric deterioration caused by increased biodeterioration and corrosion. Some structural damage of built heritage due to changed foundation conditions can also be expected. At the landscape level, the living elements and landforms of cultural landscapes will be impacted similarly to natural heritage, while inland underwater cultural heritage can also be impacted by exposure and drying due to diminished water levels.



Case study Climate change and the Shark Bay World Heritage Area

Sources: Professor Di Walker and Cheryl Cowell, Western Australia

Shark Bay, on the coast of Western Australia, is a 2.2 million hectare marine and terrestrial biodiverse region of ecological, geological and hydrological significance, as well as a region of exceptional beauty. Shark Bay is a World Heritage Area, with its exceptional marine environment featuring more than 120 islands.

The Outstanding Universal Values that make this a World Heritage Area include:

- extensive seagrass beds, which are the largest (4,800 square kilometres (km²)) and the most diverse in the world
- hypersaline environments and extreme salinity gradients
- stromatolites, which are microbial colonies that occur as intertidal dome-shaped or mat-like deposits and are among the oldest life forms on earth; the Hamelin Pool stromatolites are the most diverse in the world
- one of the world's most significant and secure strongholds for the protection of dugong and many other species assemblages, including some that are found nowhere else in the wild.

However, these values are highly vulnerable to climate change, and the Shark Bay World Heritage Area has been assessed as having a low system capacity to adapt to climate change. Climate impacts are expected to threaten the resilience of areas in Shark Bay and to increasingly affect the attributes that collectively contribute to the Outstanding Universal Values. The key climate stressors identified for Shark Bay are air temperature change, storm intensity and frequency, and extreme marine heat events.

The impact of climate change is already being experienced at Shark Bay. Tropical marine life is starting to move south due to increased sea temperatures, and tiger sharks are more likely to hunt in the area. A marine heatwave in 2011 is now known to have caused a 25% loss of seagrass habitat, equivalent to a loss of 1,000 km² of meadow. As a result, dolphin birth rates decreased, and crab, prawn and scallop populations declined. Mobile species moved into deeper water outside the protected area and were fished.

In addition, Shark Bay was subject to cyclone *Seroja* in 2021, which caused a storm surge in the Hamelin Pool area. This resulted in widespread flooding, which introduced terrestrial sediments. These affected the Holocene carbonate environments, which are the basis for some of the area's Outstanding Universal Values. The cyclone also destroyed infrastructure in the area, including the viewing boardwalk located over the fragile 1,300-year-old stromatolites, with debris being spread across the stromatolites and adjacent algal mats.

These types of impact have been predicted by modelling as part of the Climate Change Vulnerability Index processes for Shark Bay. This example demonstrates the complex and cascading effects of climate change, including in tandem with existing climate-related events (e.g. cyclones). The identified and experienced high levels of vulnerability emphasise the importance of developing effective strategies for climate change adaptation at Shark Bay. This includes developing adaptation measures (which need to be based on good condition data and monitoring), underpinned by strategic adaptation and management planning.

Strategic planning is also required to balance the use of the area and protect its values. This is illustrated by the recent history of recreational fishing at Shark Bay, when areas were closed off to fishing to ameliorate pressures after the 2011 heatwave declines in some populations. These areas were recently reopened because fish populations had recovered well but, because of unusually high fish catch levels due to large domestic visitor numbers following COVID-19 pandemic lockdowns, catch limits needed to be changed to allow more recovery.



Photo: Western Australian Department of Biodiversity, Conservation and Attractions

Figure 25 Stromatolites, Hamelin Pool, Shark Bay

Population

Australia’s population is 27.7 million (ABS 2020) and is likely to continue to grow slowly and steadily (see the Urban chapter). Where Australians choose to live and how they choose to live, as well as the increasing population, create various pressures on Australia’s natural and cultural heritage.

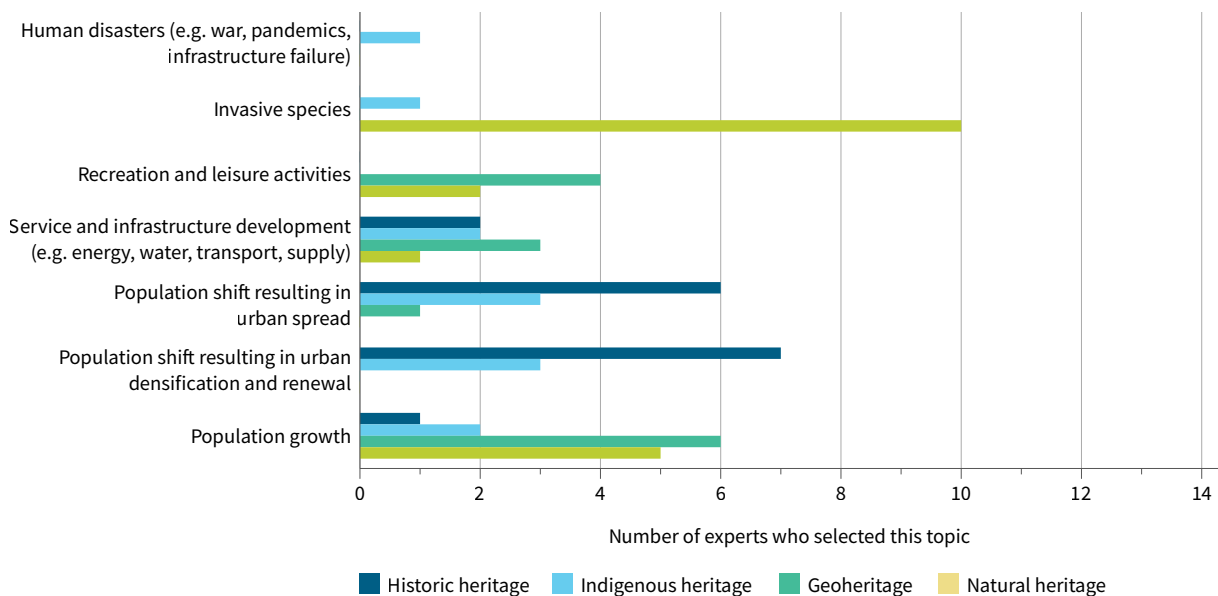
The key population-related pressures on heritage in Australia are:

- urban development and providing supporting services
- leisure activities, which are increasingly travel oriented and nature based
- diseases and invasive species, due to both a mobile population and industry movement.

It is difficult to quantify the current impacts of population on Australia’s heritage, as this is not specifically measured for heritage (although some data are available for the

natural environment; see the Biodiversity, Land and Marine chapters). Expert assessment undertaken for this report ranks population pressures as a low to medium threat to natural heritage overall (Figure 26). Invasive species, seen as a major threat to natural heritage, are the exception. Population growth and recreation are seen as moderate threats to geoheritage, with other pressures being considered as low to minimal.

Population pressures are also ranked by expert assessment (McConnell 2021b) as a low to medium threat to cultural heritage overall compared with other pressures (Figure 26; see also Figure 24). Population pressures generally were ranked as moderate to minimal threats to Indigenous heritage. In relation to historic heritage, the various population threats are seen as low to minimal, except for urban renewal and peri-urban development, which are seen as moderate to major threats.



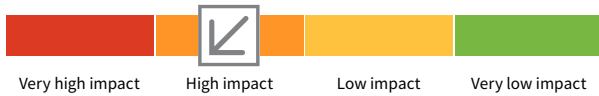
Note: Figures are based on aggregating the survey respondents’ 5 pressures identified as having the greatest impact for each heritage type. A value of ‘1’ was allocated to each pressure.
Source: McConnell (2021b)

Figure 26 Population pressures considered to have the highest impact on Australian heritage, 2020



Assessment Population-driven pressures on heritage

2021



2016



Somewhat adequate confidence

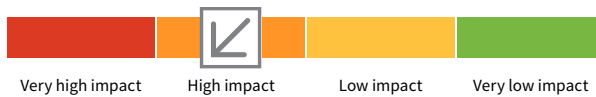
Population pressures on heritage come mainly from land-use changes arising from population growth and movement, including the densification and expansion of urban areas, broadscale land clearance, the development of services, greater biosecurity issues, and increased recreational activity. All these pressures are increasing, which will lead to increased heritage loss and damage unless protections are improved. The ongoing lack of public understanding of heritage and heritage conservation can also be viewed as a population-related pressure. However, population-driven pressures overall are seen as having less of an impact on heritage than climate- or industry-driven pressures.

Related to United Nations Sustainable Development Goal targets 8.9, 11.3, 11.4, 11.6



Assessment Population pressures on Indigenous heritage

2021



Somewhat adequate confidence

The ongoing circumstance of colonisation and the resulting impacts on the environment and environmental management have high impacts on Indigenous heritage. New development and recreation also impact Indigenous sites.

✓ **Assessment** Population pressures on natural heritage

2021

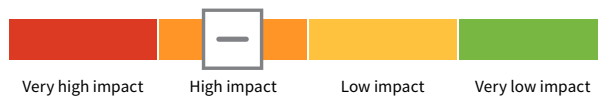


Limited confidence

Invasive flora and fauna species are having a significant widespread impact on species, habitats and ecosystems. Land development and use generally, including for leisure, but primarily through vegetation clearance, are also impacting natural heritage in a variety of ways. This is expected to worsen with increased population and movement.

✓ **Assessment** Population pressures on geoheritage

2021



Limited confidence

Population growth has driven land-use change and development, which is impacting geoheritage in a variety of ways. New development is the most significant population pressure. Recreation and leisure activities are having increasing direct and indirect impacts, as these activities have significantly increased.

✓ **Assessment** Population pressures on historic heritage

2021



Somewhat adequate confidence

Significant cultural landscapes and large numbers of historic heritage places are being destroyed or damaged by large-scale urban redevelopment and peri-urban development, and the provision of services. Increased impacts are forecast, given the ongoing erosion of protections for historic heritage. Increased recreational activities have increased direct impacts on underwater cultural heritage.

✓ **Assessment** Population pressures on World Heritage

2021

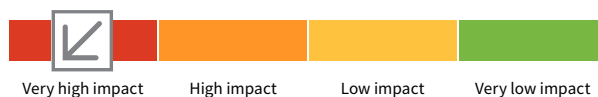


Somewhat adequate confidence

Invasive species and an increased focus on visitor access and amenities are adversely impacting several Australian World Heritage properties.

✓ **Assessment** Population pressures on National Heritage

2021



Somewhat adequate confidence

Invasive species and an increased focus on visitor access and amenities are adversely impacting several National Heritage properties.

Urban development

The growth of urban areas, primarily Australia's cities and larger regional centres, is the most evident area of population-related change (see the Urban chapter). Although these changes can potentially adversely impact heritage of all types, they are likely to mostly affect the historic heritage of these areas. Cultural landscapes, especially historical urban landscapes, are also at risk from development (see [Pressures on, and management of, historic heritage](#)). Urban development was noted as a pressure on heritage in the first state of the environment report in 1996 (Purdie et al. 1996) and in subsequent reports.

The impact of urban development and redevelopment on geoheritage and natural heritage at present is significantly less than previously, since these values will already have been substantially impacted by earlier development. There may be remnant or isolated preserved geoheritage and remnant surviving significant flora and fauna in areas such as cemeteries or parkland, and these continue to be adversely affected.

The impacts from urban redevelopment and peri-urban development impact many aspects of Indigenous heritage, most especially because they continue to degrade Country. Likely impacts on Indigenous heritage include:

- destruction of, or damage to, Indigenous archaeological sites and sites of Indigenous significance (e.g. government homes, sites of significant protest movements)
- decreased access to places of traditional and historical importance
- changes at and near places of importance that adversely affect Indigenous social values.

Such impacts harm Indigenous communities through diminished wellbeing, threats to

cultural continuity and inability to fulfil custodial responsibilities.

Services

Increasing population in any area requires increased services such as transport, freshwater and energy supply, and sewerage and waste removal. In urban areas, archaeological heritage is likely to be most threatened by new services. Except in greenfield developments, the ability to use or expand existing services may reduce the impacts.

Outside urban areas, the situation is likely to be different, particularly in high-quality natural areas where services such as water supply or energy-generating infrastructure are located. This is particularly the case for freshwater supply, which requires inundation of large areas or river diversion to acquire water. New dams may have a significant impact on geoheritage and natural heritage. There is also potential for such development to adversely affect Indigenous heritage, since areas to be dammed will be more likely to have undisturbed archaeological sites (including rock art sites), and better preserved traditional resources and cultural landscape values. An example is the raising of the Warragamba Dam wall on the edge of the Greater Blue Mountains. Impacts on historic heritage are likely to be less than on natural and Indigenous cultural heritage; nonetheless, historic heritage in the areas to be inundated for water storage will be lost (most typically historical water supply, mining and rural heritage). For energy generation, wind farms have major potential to adversely impact significant avifauna.

Services include major connection corridors for transport, and power and water supply. New roads, road upgrades, creation and maintenance of electricity transmission lines,

water supply pipelines and gas pipelines can affect heritage of all types. Corridors through high-quality natural areas will have high levels of impact. Transport and supply routes can also contribute to reduced habitat connectivity, and can be a major vector for the introduction and spread of pests and diseases (e.g. Tasmanian devil facial tumour disease). Other services that support or protect population areas can have heritage impacts. For example, hazard mitigation, including fire mitigation, has the potential to affect natural and cultural heritage. Where ground disturbance is likely to occur, these activities can damage or destroy Indigenous and historic heritage sites and places.

Invasive species and disease

Invasive species and diseases primarily affect the natural environment, and can have a significant adverse impact on biological heritage values. Impacts include reductions in, and potentially loss of, particular species, or degradation of plant communities and animal habitats (see the Biodiversity, Land and Marine chapters). Direct impacts on geoheritage and cultural heritage occur (e.g. damage to rock art or buildings from feral animals), but are extremely limited compared with impacts on natural heritage.

Invasive species that are adversely impacting natural heritage include feral cats, pigs, goats, deer, rats (see [case study: Lord Howe Island Rodent Eradication Project](#)) and yellow crazy ants. For the marine environment, the Pacific oyster and the northern Pacific seastar are impacting natural heritage (see the Biodiversity and Coast chapters). There are also invasive plant species (e.g. buffel grass) that adversely impact native ecosystems. Invasive grasses can result in more intense bushfires.

Disease is also having a significant impact on natural heritage. For example, chlamydia is one of the main factors threatening the long-term survival of the koala (see [case study: The koala – protecting an iconic species as part of natural heritage management](#)), amphibian chytridiomycosis (chytrid fungus) affects frogs, and *Austropuccinia psidii* (myrtle rust) and *Phytophthora cinnamomi* impact native plant species (see the Biodiversity chapter).

Human disease is unlikely to have a direct negative impact on Australian heritage values. However, as can be shown by the COVID-19 pandemic, major disease outbreaks can create indirect economic pressures on cultural heritage sites and potentially protected areas through reduced site and government income.

Governance

Poor governance can be seen as a significant pressure on heritage (see [Management](#)) and can include:

- prioritisation of economic benefit over heritage protection
- lack of recognition of Indigenous approaches to Indigenous heritage management
- inflexible approaches to heritage management, leading to restrictive definitions of heritage in the protective context (e.g. reluctance in most jurisdictions to provide for intangible heritage protection)
- poor operationalisation of legislation
- poor decision-making about heritage due to inadequate expertise
- resistance to evidence-based adaptive management
- limited resourcing for heritage conservation and management in all jurisdictions

- a lack of leadership in resolving heritage conservation and management in Australia (see [Leadership and partnerships](#)).

Poor governance at the government level leads to poor outcomes for heritage. This is occurring largely as a gradual degradation of heritage across Australia, which is largely unmeasured and thus invisible. It is, however, occasionally evident in:

- highly publicised protection failures such as the destruction of the Juukan Gorge rockshelters
- rare performance audits (e.g. the review of Commonwealth National Park Management, see [The Auditor-General 2019](#))

- rare published accounts, such as that for Mount Field National Park, Tasmania (Kiernan 2018).

Lack of public understanding of heritage and heritage conservation can also be viewed as a pressure. Where people are unaware of what heritage is or its value to current and future communities, or are unaware of the vulnerability of heritage to various pressures, this can cause heritage to be invisible in management. Poor protection from inappropriate and damaging actions, including overuse, can lead to degradation of heritage values.



Assessment Governance pressures on heritage

2021



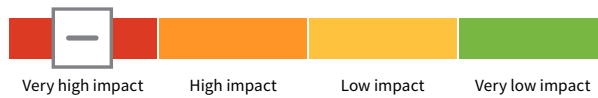
Somewhat adequate confidence

The lack of a cohesive and effective framework for heritage protection and management across all heritage types is contributing to the loss and damage of heritage across Australia. An apparent unwillingness to address many of the contributory issues, and a lack of leadership and resources to improve this are putting Australia’s heritage at further significant risk. Driving some aspects of poor governance is an ongoing interest in the perceived greater benefits of development compared with conservation, and an increased government interest in the utilitarian uses and concomitant economic benefits of heritage. The situation is not helped by the minimal obligation for independent agency performance auditing. Indigenous heritage continues to be highly impacted by management practices that impede self-determination. Indigenous involvement in decision-making is growing, but the standard of free, prior and informed consent is lacking.

Related to United Nations Sustainable Development Goal target 11.4

✓ **Assessment** Indigenous heritage

2021



Somewhat adequate confidence

Indigenous heritage continues to be highly impacted by management practices that impede self-determination. Since 2016, there is more evidence that Indigenous communities are beginning to be better included in established heritage organisations, and separate Indigenous organisations are emerging. However, Indigenous heritage continues to be catastrophically damaged, access to Country is often limited, and legal frameworks do not adequately protect Indigenous rights to heritage.

✓ **Assessment** Natural heritage

2021

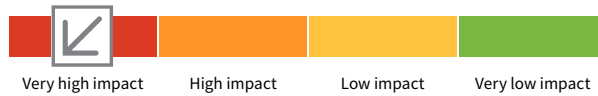


Somewhat adequate confidence

Limitations of the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act), including poor operationalisation, and slowness in implementing strategic and site adaption planning for key pressures are contributing to the loss of natural heritage values. Government has continued to actively seek to remove barriers and facilitate new uses and development that are damaging to natural heritage.

✓ **Assessment** Geoheritage

2021

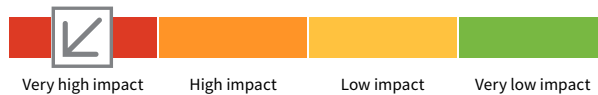


Somewhat adequate confidence

Inaction on developing and implementing a national protection framework for geoheritage is the key governance pressure for geoheritage. In addition, government has continued to actively seek to remove barriers and facilitate new uses that are damaging to geoheritage.

✓ **Assessment** Historic heritage

2021

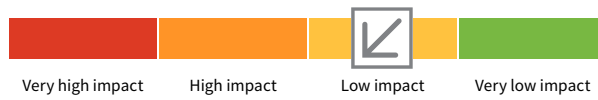


Limited confidence

Government continues to actively seek to remove barriers and facilitate new uses and development that are damaging to historic heritage, including by eroding statutory protections and promoting visitor use. Inadequate inclusion in broader environmental assessment and accounting is also contributing to historic heritage loss and damage.

✓ **Assessment** World Heritage

2021

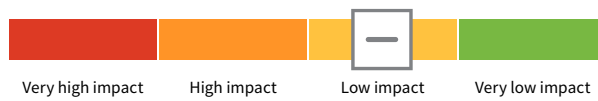


Limited confidence

Limitations of the EBPC Act, including poor operationalisation and reliance on states and territories to undertake the bulk of the management obligations unassisted, are putting World Heritage at risk. If ongoing, this risks cumulative impacts.

✓ **Assessment** National Heritage

2021



Limited confidence

Limitations of the EBPC Act, including poor operationalisation and reliance on states and territories to undertake the bulk of the management obligations unassisted, are putting National Heritage at risk. If ongoing, this risks cumulative impacts.

Industry

The environmental impacts of industry include:

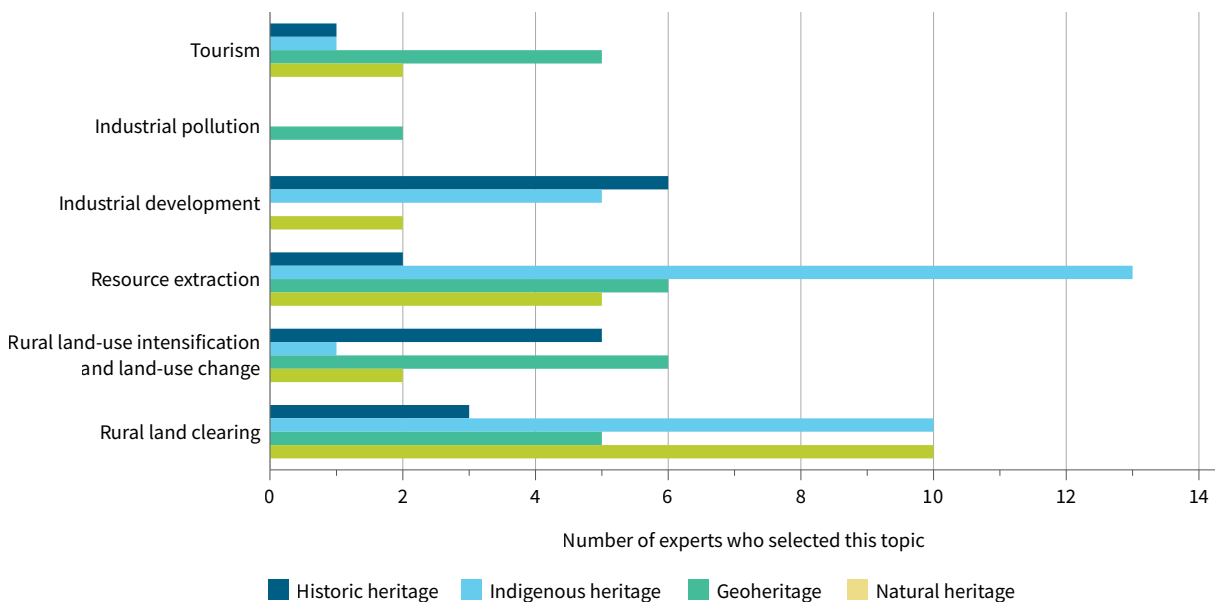
- landscape and landform modification
- native vegetation clearing
- natural resource depletion
- modification of river flows and groundwater levels
- pollution of oceans, inland waters, the ground and the atmosphere.

Industry can also contribute to the introduction of pests and diseases (see the Biodiversity chapter).

It is difficult to quantify the current impacts of industry, or specific types of industry, on Australia’s heritage, as this is not specifically measured or monitored. The exception is rare

single case studies undertaken to demonstrate adverse impacts on heritage.

Expert assessment undertaken for this report ranks industry pressures on heritage as lower overall than climate change, but similar to population pressures overall (Figure 27; see also Figure 24). Industry pressures are seen as the most significant set of pressures on both geoheritage and Indigenous heritage, mostly in relation to resource extraction and rural land clearing. Industry pressures are ranked as the least significant set of pressures overall for historic heritage. For natural heritage, the level of threat is seen as variable, with rural land clearance rated as a greater threat than resource extraction, and with the other industry pressures considered to be low to minimal threats.



Note: Figures are based on aggregating the survey respondents’ 5 pressures identified as having the greatest impact on each heritage type. A value of ‘1’ was allocated to each pressure.
Source: McConnell (2021b)

Figure 27 Industry pressures considered to have the highest impact on Australian heritage, 2020



Assessment Industry pressures on heritage

2021



2016



Somewhat adequate confidence

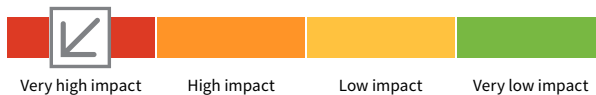
Industry-related pressures affect all types and forms of heritage, but in different ways. Broadscale industries (e.g. agriculture, mining, forestry, commercial fishing) have the greatest impact on heritage overall. Tourism, where not adequately controlled and regulated, can have a significant localised impact on heritage values, particularly cultural heritage values, and can also have impacts at the landscape scale, including on cultural landscape values and local social values. Poor industry regulation, poor protections, inadequate development assessment and approval processes, and a development consent process that frequently characterises heritage as a barrier are all ongoing issues. For Indigenous heritage, industry often overlooks Indigenous cultural values.

Related to United Nations Sustainable Development Goal targets 11.4, 12.4



Assessment Industry pressures on Indigenous heritage

2021

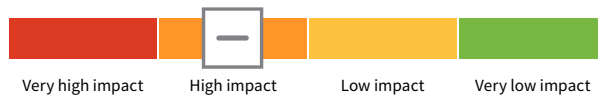


Somewhat adequate confidence

Mining and agriculture are key pressures on Indigenous heritage, as observed through the destruction of Juukan Gorge and damage to water systems. Pressures relating to tourism and recreational activities are also increasing.

✓ **Assessment** Industry pressures on natural heritage

2021

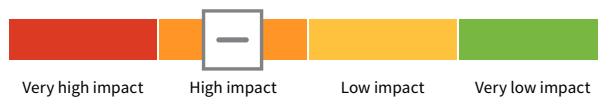


Limited confidence

Rural land clearance is the most significant industrial pressure on natural heritage, resulting in ecosystem damage, and extensive loss of important communities and habitat. It is also increasing the vulnerability of rare and threatened species. Natural heritage is also being adversely impacted by resource extraction, secondary industries and tourism, but to a lesser extent.

✓ **Assessment** Industry pressures on geoheritage

2021

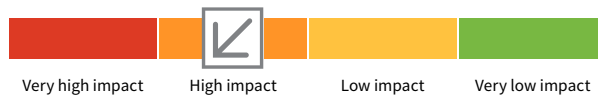


Limited confidence

Ongoing extractive industries and agricultural intensification, including land clearance, are continuing to cause significant loss of, and damage to, geoheritage. Tourism and industrial pollution are causing less, but ongoing, damage to geoheritage.

✓ **Assessment** Industry pressures on historic heritage

2021



Somewhat adequate confidence

Of the industry-driven pressures, land-use intensification (and land clearance) and secondary industries are causing the most significant loss of, and damage to, historic heritage. Resource extraction and tourism are also causing damage or loss of historic heritage, but these pressures are more spatially restricted.

✓ **Assessment** Industry pressures on World Heritage

2021

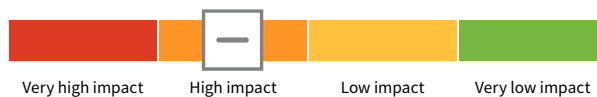


Somewhat adequate confidence

An increasing focus on visitor access and amenities for World Heritage places is increasingly adversely impacting several Australian World Heritage properties. Although generally outside World Heritage properties, other forms of industry contribute to impacts, particularly where buffer zones are inadequate.

✓ Assessment Industry pressures on National Heritage

2021



Somewhat adequate confidence

A focus on visitor access and amenities for National Heritage places is having an ongoing adverse impact on the heritage values of these places. Although generally outside National Heritage properties, other forms of industry contribute to impacts, particularly where buffer zones are inadequate.

Extractive industries

Extractive industries such as mining, forestry and fishing have the potential to adversely affect heritage because they create high levels of disturbance. This can affect all types of heritage, particularly natural heritage, given that these industries occur primarily in essentially natural environments. Impacts can occur at both the site and landscape level.

Localised impacts from extractive industries can occur from direct impacts such as ground disturbance and indirect impacts such as pollution. Localised impacts include loss of habitats and species, and damage to, or destruction of, geoheritage and cultural heritage sites. Extractive industries can cause landscape-scale heritage impacts through a loss of key elements or landscape integrity, system degradation, introduction of exotic species and disease, or loss of other conservation values. Significant landscape modification can also adversely impact the social values of a place, especially those that relate to sense of place and aesthetic value. Emotional distress caused by environment change, known as 'solastalgia', is a documented impact from the large-scale

mining in the Hunter Valley, New South Wales (Roche & Judd 2016). (Also see Wellbeing and amenity.)

The potential heritage impacts from mining depend on the type of mining, the size of the mining operation and its location. For example, in general, small mines, quarries and shaft mines will have less impact than open-cut mining. Some mining-associated activities can also affect heritage. These include mining exploration, which can result in more extensive disturbance than the actual mining, and development of mining infrastructure. Mining also has the potential for significant indirect risks, particularly from mine tailings wash and acid water run-off (see [Pressures on, and management of, historic heritage](#)).

Natural heritage is most affected by mining, and mining in protected areas (where allowed) will have significant potential impacts on heritage values. Some forms of geoheritage are particularly at risk from mining, since mine exploration and mining can occur at rare or otherwise significant geoheritage sites. Indigenous heritage has been shown to be particularly at risk from mining-related activities (see [Recent Indigenous heritage](#)

protection issues). The cumulative impacts on Indigenous heritage in Western Australia from the rapid rate of development activity in the state, particularly in the Pilbara where mining and infrastructure development takes precedence over heritage preservation, have been of ongoing concern for many years (SoE 2011 Committee 2011).

Similar to mining, forestry can have significant impacts on natural heritage. This is especially the case where clear-fell regimes (involving full vegetation removal, windrowing and burning) are used. Establishing plantations creates a similar level of disturbance. All harvesting, but particularly native forest harvesting, can damage or destroy geoheritage sites and landscapes, Indigenous heritage sites and landscape values, and historic heritage sites and cultural landscapes. Activities that support forest harvesting, primarily road building, will also potentially affect heritage. Regeneration burns can further impact heritage, particularly where they escape into otherwise undisturbed areas (e.g. Kiernan 2018).

Forestry can also have significant specific geoheritage impacts, depending on its location. An example is the potential impacts on karst landscapes. These are highly sensitive to clearance, which promotes increased soil erosion and ground collapse, and increased limestone solution, particularly where groundwater is concentrated, such as in road edge drains. Logging and associated activities such as road construction and use can lead to increased sedimentation of karst features, and damage to fragile surface and near-surface heritage features such as springs, sinkholes, cave speleothems and specialised cave fauna. Additional damage to caves can occur through increased recreational caving due to improved access. Caves, cave fauna and groundwater can be affected by fuel and chemical spillages (e.g. Kiernan 2001, Kiernan 2002).

Forestry also has the potential to damage historic timber industry heritage because significant areas of present-day timber harvesting are occurring in previously harvested areas. These contain remnant sawpits, cut stumps, snig tracks, timber tramways, log haulers and associated artefacts (e.g. Kostoglou 1993).

Commercial fishing can affect marine natural heritage (see the Coasts and Marine chapters). The key potential impact of fishing on heritage is overexploitation, leading to severely depleted fish stocks, which may lead to the extinction of target or dependent species and consequent degradation of significant marine ecosystems. Fishing may also affect Indigenous heritage where it significantly reduces or eliminates wild populations of traditionally used or totem species.

Farming

Farming, including agriculture, horticulture and pastoralism, is the predominant land use in Australia and occurs across large areas of the country (see the Land chapter).

Much of the land that is used for farming has been cleared and developed historically. This has adversely affected natural and Indigenous heritage in most areas, but has also created a body of historic rural heritage, including features, plantings, sites, site complexes and cultural landscapes (e.g. McConnell & Knaggs 2004, Lennon 2014). Despite the scale of historical land change, natural and cultural heritage values can persist in long-term farmed areas, most commonly in less used areas (e.g. travelling stock routes).

Heritage values are affected by ongoing land clearing, agricultural intensification, land-use

changes and changes in farming practices. Impacts will be variable, and include:

- loss of rare species or damage to geoheritage, archaeological sites and broader Indigenous values, particularly with the disturbance of remnant native vegetation
- loss of biodiversity, especially linking vegetation, due to intensification of agriculture
- high levels of disturbance of Indigenous archaeological sites and geoheritage landforms through repeated ploughing
- destruction of geoheritage, and cultural heritage features and sites through new works, such as road and dam construction.

Many changes in general farm practices – for example, transitioning to larger fields and introducing pivot irrigation – affect rural cultural landscapes by changing field patterns, and removing significant historic elements such as tree rows and hedges. For areas of natural heritage, the most significant farming-related impact will be clearing of high-value remnant native vegetation.

The devastation of the Murray–Darling system is an example of the impact on heritage caused, in part, by agriculture. For many Indigenous nations, significant cultural heritage is tied to this waterway. These nations include the Barkandji people, whose name comes from this waterway (Baaka/Barka – Darling River) (Norman & Janson-Moore 2019) and the Ngarrindjeri nation, who are downstream of the Murray–Darling system where the Murray meets the ocean (Ngarrindjeri Regional Authority 2018). Relevant Indigenous cultural heritage includes creation stories, cultural practice, language, song and custodial obligations. Without the Baaka/Barka, the foundation to all aspects of Indigenous culture and heritage is lost. Agricultural water use is

catastrophically affecting the Baaka/Barka in many ways, and some totemic species have been entirely lost. The South Australian Royal Commission (DEW 2019) into the Murray–Darling identified the need for water buybacks due to the overallocation of water for agricultural pursuits. (For more information about the effects of agriculture on Indigenous communities see the Inland water and Indigenous chapters.)

Farming can also have indirect impacts on heritage. This is most commonly through introduced species (e.g. cane toads and buffel grass), increased downstream sedimentation from ploughing and erosion, and chemical pollution from fertilisers and pesticides (see the Land and Coasts chapters).

Marine and coastal aquaculture can also cause adverse effects on natural heritage, and through this on Indigenous heritage. Marine and coastal aquaculture, mainly fish and shellfish farms, has been increasing in Australia in the past 2 decades. Between 2016 and 2018, the size of the aquaculture industry in Australia grew by 5%, with major increases in Tasmania, South Australia and Queensland (DAWE & ABARES 2020) (see the Coasts chapter).

Production and manufacturing

Production and manufacturing generally have significantly less impact on heritage than extractive industries and farming because of their location and size of operation. Damage to, or loss of, heritage places in this context generally occurs from constructing industrial facilities, and ancillary infrastructure such as water and energy supply, roads, railways and ports, particularly where these are in previously undeveloped areas.

Operating impacts are mainly related to atmospheric, ground or water pollution. Although pollution can impact all types of heritage, biological values are likely to be most affected. Impacts of operation on geoheritage and historic heritage are likely to be relatively minor or superficial. They include coating or impregnation of surfaces with pollutants, and potentially increased corrosion or other fabric decay.

Landscape-scale and other major impacts are likely to be rare, unless there are industrial accidents that cause significant pollution.

Production and manufacturing also impact waterways, which can adversely affect Indigenous cultural heritage. Waterways are the lifeblood of many Indigenous communities across Australia. When waterways are compromised – often as a byproduct of manufacturing and production – the foundation of all aspects of the culture of Indigenous people is threatened. Waterways provide many important food resources associated with traditional cultural practices, and shelter and habitat for many totemic species. When any aspect of Country is damaged or polluted, it has direct negative impacts on Indigenous people, who are the Traditional Custodians of Country (Hemming et al. 2020, O'Donnell et al. 2021).

Tourism and recreation

Human recreational activities, including tourism, can have a significant adverse impact on heritage. This can occur from direct use impacts and development of supporting infrastructure, or indirectly, such as through the introduction of invasive species. Although tourism can have positive impacts such as increased awareness of values and the need to protect these, and broader benefits such as improved community wellbeing, much of

Australia's heritage has the potential to be adversely impacted by tourism.

The nature of the impact depends on where it occurs and the level of interest. Small visitor numbers can potentially have a major impact in sensitive areas such as cultural heritage sites, high-quality conservation areas and areas of high 'wilderness quality' (noting that notions of 'wilderness' can be deeply problematic for Indigenous people; see Types and condition of natural heritage). Large visitor numbers can have significant effects in any areas, especially when this level is not planned for.

Tourism, from both Australian and overseas visitors, is often focused on Australia's heritage places, especially iconic heritage places, scenic natural areas and special historical sites. Many of these places are protected areas or places, and many are Australian World Heritage properties (e.g. Uluru, the Sydney Opera House, the Port Arthur Historic Site, Naracoorte, Ningaloo, the Blue Mountains, the Great Barrier Reef).

In 2018, nature-based tourism comprised 19% of Australian tourist activities, with an annual growth of 9%, and heritage tourism comprised 5% of Australian tourist activities, with an annual growth of 11.2% (NTA 2018). The increasing interest in nature-based recreation and leisure in Australia means that the most significant impacts are likely to occur in protected areas.

Tourism and recreation can have significant adverse impacts on all heritage if not well managed. Impacts will occur largely from the construction or upgrading of tourism facilities and infrastructure (e.g. recreational tracks, picnic facilities, boat ramps, visitor centres, visitor accommodation), which can overprint, damage or destroy existing heritage values. Specific impacts can include damage to heritage sites or site elements,

damage to areas of significant or vulnerable natural values and habitat, loss of wilderness values, and significant visual impacts (noting that notions of ‘wilderness’ can be deeply problematic for Indigenous people because they can work against the recognition and empowerment of Indigenous perspectives and aspirations). ‘Upgrading’ of heritage places and historic infrastructure to accommodate tourists and meet requirements such as disability access can also impact heritage values. Visitor use, if not accompanied by site hardening or other protections, will potentially degrade heritage fabric, and may degrade significant plant communities or fauna habitat. There are also specific leisure activities (e.g. fishing, recreational 4WD use, caving, diving) that can damage sensitive heritage environments and places if not regulated or controlled. Underwater cultural heritage is particularly at risk from water-based recreation (e.g. boating, fishing, diving). Collecting from heritage areas and places can impact all types of heritage. Indirect potential visitor impacts include increased damage to values through vandalism and souveniring, introduction of diseases and exotic plants and animals, and increased risk of bushfire.

Some impacts relate to changes in tourism patterns. Overcrowding can lead to sites being ‘loved to death’, causing impacts on tourist sites from the additional wear and support infrastructure that is required for greater numbers of people, and a reduced experience of the site due to issues such as crowding and queuing (McKinsey & Company 2017). Privatisation of public spaces in protected areas, development in inappropriate areas and developments that are unsympathetic to their setting can occur where there is a focus on catering for the upper end of the market.

Some recreation can affect social values; for example, the use of drones can impact people’s traditional appreciation of natural

values. Specific uses of places can be disrespectful of particular values, as in the case of previous climbing on Uluru, which has deep cultural significance to the Anangu people. There are also particular issues for regional Indigenous communities where, in addition to potential physical damage to sites, tourism may put places of cultural importance at risk, affect the day-to-day lives and other economic areas of community, and be an unwelcome intrusion (e.g. Neijie 1984).

Other pressures on Indigenous heritage

Indigenous heritage is at risk from the same pressures as other heritage, including:

- resource extraction
- land development
- poorly managed tourism
- inadequate management and protection
- natural weathering and erosion
- climate change impacts
- bushfires and other uncontrolled burning.

Indigenous heritage remains at risk from a multitude of pressures that relate primarily to the lack of control by Indigenous Australians over the management of Indigenous heritage sites across Australia.

Effects of colonisation

Indigenous heritage is threatened through the many ongoing effects of colonisation that continue to deny the rights of Indigenous Australians, and impact Indigenous communities and their ability to engage with and protect their heritage. Important sites have been damaged and destroyed through the ongoing repetitive process of decisions made by non-Indigenous peoples, which are mostly irreversible in relation to physical

sites, and cause devastation and deep loss to Traditional Custodians.

When things are blown up you're losing history, it's losing sixty thousand years of ceremony in certain areas ... It creates huge sense of loss and it's loss that can then generate further trauma, particularly if there is that close spiritual connection to the place. SoE Indigenous workshop participant (Murawin 2021a)

Some aspects of Indigenous heritage are more resilient because they revolve around cultural knowledge that is held within communities. This resilience is demonstrated by the rich wealth of traditional cultural knowledge still held and passed down after more than 200 years of colonial interference, land dispossession and attempted cultural dispossession.

Our communities have not lost all of the traditional knowledge like some like to believe to justify not taking Traditional Aboriginal cultural knowledge seriously. Our knowledge is science – it's been tried, tested and proven for thousands of generations and also recorded through practice and cultural learning. SoE Indigenous workshop participant (Murawin 2021b)

First Nations people in Australia have survived and thrived despite invasion, land dispossession, introduced diseases and the removal of children. This is at the heart of First Nations identities – continuity against all odds. And what has empowered First Nations peoples to endure? Connection. Connection to Country, connection to mob and connection to ancestors. This continuing connection to land, family and heritage has great influence over First Nations health, happiness and empowerment. (Pol 2021)

Since the beginning of colonisation, the continuation of Indigenous cultural practices and responsibilities as custodians of Country

has been extremely challenged. Dispossession of land, policies of assimilation, European land management and development practices (e.g. agriculture, mining), and lack of recognition for Indigenous rights to water are some of the factors that have placed significant pressures on all aspects of Indigenous heritage. A continued lack of access to Country and sites also has devastating impacts on continued cultural practice and knowledge. Knowledge transmission often relies on access to Country and the ability to undertake intergenerational learning, especially through traditional cultural activities. The ongoing circumstance of colonisation effects the continued and devastating absence of free, prior and informed consent for Indigenous communities in managing all aspects of their heritage (HCOANZ 2020).

Ongoing pressures on Indigenous heritage

An online survey of Indigenous stakeholders conducted for this report (Murawin 2021b) found that the most significant pressures for Indigenous heritage were:

- protecting cultural sites – 72%
- Indigenous knowledge not being protected – 68.54%
- inadequate heritage laws – 59.55%
- urban development – 52.81%
- governance/lack of decision-making – 52.81%
- industry/commercialisation (including tourism) – 46.07%
- climate change – 42.7%.

However, it must be understood that, despite significant challenges and impediments over time, Indigenous cultures remain strong. The ability of Australia's Indigenous peoples to adapt to change has been core to their survival

over many millennia and continues to produce powerful outcomes today. Communities work tirelessly to keep their heritage and culture strong, despite the ongoing challenges faced (Woodward et al. 2020).

Many aspects of Indigenous heritage that have been threatened have high potential for recovery, but reinvigoration requires the recognition of the rights of Indigenous communities to speak for, and make decisions about, Country, and to access lands and seas to perform traditional practices and pass knowledge on within their communities. Indigenous heritage is resilient when Indigenous people and communities are empowered to manage and protect it. The diverse Indigenous peoples of Australia have continuously adapted over time – a living culture that is constantly evolving and not finite, meaning that Indigenous heritage is also living and not fixed or merely stuck in the past.

To teach our young ones about their cultural responsibilities; it's very difficult to show someone how to do a painting if you don't have a canvas ... for me Country is that canvas. SoE Indigenous workshop participant (Murawin 2021a)

Disempowerment

Systems and structures around Indigenous heritage are not currently amenable to self-determination in either principle or practice. An overwhelming majority (92%) of respondents to an online survey of Indigenous stakeholders conducted for this report did not believe that Indigenous heritage is adequately protected by Australian laws, with around 60% believing that inadequate heritage laws are the most significant pressure on Indigenous heritage (Murawin 2021b). (Murawin 2021b) More respondents considered that more Indigenous people do not have a say in heritage issues than do (36.8% versus

24.14%), and more than half (53%) did not believe that they are empowered to manage their Indigenous heritage. Experiences with planning authorities were negative, and described as slow, disingenuous and disempowering.

Concerns were expressed with various aspects of disempowerment, including:

- limited understanding of Indigenous cultures and communities on the part of authorities
- lack of respect for Indigenous people and knowledge
- disorganisation or lack of resources within authorities
- tokenistic involvement, including no involvement of Indigenous people except at decision-making stages
- lack of influence on outcomes, including consultation undertaken but Indigenous heritage issues and concerns being dismissed.

The United Nations Declaration on the Rights of Indigenous Peoples says that 'caring for heritage, places, sites – both sacred and significant, is a fundamental right of Indigenous peoples' (United Nations 2007).

Cultural heritage is the legacy we inherited from our ancestors. And it includes responsibilities to protect both the physical aspects – land, water, flora, fauna and today, archaeology; and the intangible aspects – our story, language, mythology and lore. Our ancestors understood that caring for Country allowed Country to care for them. Dan Turnbull, Bunurong man, Traditional Owner and member of the Victorian Aboriginal Heritage Council (VAHC 2020a)

Some jurisdictions are improving Indigenous management of heritage through changes to legislation (e.g. Northern Territory, South

Australia, Victoria), which was reflected in the survey as a positive experience:

I am working in Victoria where legislation is enlightened about the importance of Traditional Owners managing cultural heritage. Government departments have been consistently respectful and inclusive of Indigenous perspectives around urban development and protection of found or potential Aboriginal Cultural Heritage. SoE Indigenous workshop participant (Murawin 2021b)

There is a growing need for non-Indigenous people to understand Indigenous cultural values when dealing with heritage sites. The guide *Engage early: guidance for proponents on best-practice Indigenous engagement for environmental assessments under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)* (DOE 2016) provides advice urging proponents to be more proactive in dealing with Indigenous heritage.

Disconnection from Country

Many Indigenous people and communities have experienced an increasing disconnection from Country for a multitude of reasons, largely because of dispossession. Impediments such as national park legislation restrictions, restrictive land tenure, private ownership and disruptions to the return of Country to Indigenous people limit access to Country, heritage places and traditional resources (Murawin 2021a).

The lack of recognition of heritage rights and lack of self-determination also seriously impact the connection Indigenous people have with their Country. A lack of rights to Country and the management of Country has significantly impacted cultural identity and preservation of knowledge (Woodward et al. 2020). For example, walking Country has been integral to Indigenous communities' ability

to engage with Country, hold connection to Country, practise and protect culture, and promote intergenerational learning. Access to Country is access to knowledge and culture, and many Indigenous communities across Australia, largely through limited opportunities for self-determination, do not have adequate access to Country (see the Indigenous chapter).

Ranger programs are starting to support people to get back on Country, but much more needs to be done. Where this hasn't been possible, there is a level of guilt and confusion around not being able to be on Country, maintain the environment and practice culture. SoE Indigenous workshop participant (Murawin 2021a)

Some groups, especially across south-eastern Australia, have benefited greatly in recent years from being able to reconnect with Country through the many reinvigorations of cultural fire practice, which is being powerfully led by many and varied Indigenous groups and organisations (Cultural Burning Knowledge Hub 2021) (see the Indigenous and Extreme events chapters).



Management

National and international frameworks

The long-term protection of Australian heritage is designed to be achieved primarily through protective legislation at the national and state and territory levels. Most of this legislation is dedicated heritage or protected area legislation (McConnell & Janke 2021), but protection in some areas is also achieved through statutory planning, national guidelines, high-level policy and multilateral government agreements. The various mechanisms offer different types and levels of heritage protection.

The key national guidelines cover:

- natural heritage (the *Australian Natural Heritage Charter: for the conservation of places of natural heritage significance*)
- cultural heritage generally (the Australia ICOMOS Charter for the Conservation of Places of Cultural Significance, known as the Burra Charter)
- Indigenous heritage (*Ask first: a guide to respecting Indigenous heritage places and values* (AHC 2002a); *Engage early: guidance for proponents on best-practice Indigenous engagement for environmental assessments under the Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) (DOE 2016); and *Dhawura Ngilan: A vision for Aboriginal and Torres Strait Islander heritage in Australia and the Best*

Practice Standards in Indigenous cultural heritage management and legislation (HCOANZ 2020)).

The legislation and guidelines take a ‘values-based management’ approach, which advocates for heritage protection through the retention of heritage significance (see [Respecting and protecting heritage values](#)).


Australia also has heritage protection obligations that derive from international legal instruments and policies it has signed (conventions, declarations, charters and protocols) (McConnell & Janke 2021). In many cases, these are mirrored in national and other levels of legislation – for example, as with the United Nations Educational, Scientific and Cultural Organization (UNESCO) Convention Concerning the Protection of the World Cultural and Natural Heritage (UNESCO 1972).

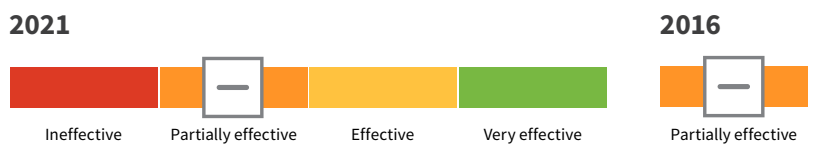
In the past 5 years, there have been some recent improvements to legislation and policy that have made a significant positive contribution to heritage protection and management in Australia – for example:

- recognising intangible values in the amended *Aboriginal Heritage Act 2006* (Vic)
- developing *Dhawura Ngilan: a vision for Aboriginal and Torres Strait Islander heritage in Australia* (2020) and its recent endorsement by the Heritage Chairs and Officials of Australia and New Zealand (HCOANZ)
- enacting the *Underwater Cultural Heritage Act 2018* (Cth).

However, the complex framework is failing to adequately protect heritage – not all heritage is protected, heritage that is protected is not always adequately managed, and much of the legislation is outdated. Overall, the framework is too complex and is poorly connected, leading to gaps in protections, and confusion about responsibilities and

obligations, especially between levels of government (Mackay 2016c, du Cros 2019, The Auditor-General 2019, Samuel 2020, McConnell 2021b, McConnell 2021d). A particular issue is the lack of publicly available data on threats and impacts to heritage, which would provide an early warning and allow more effective risk management and avoidance.

 **Assessment** Level and degree of heritage protection

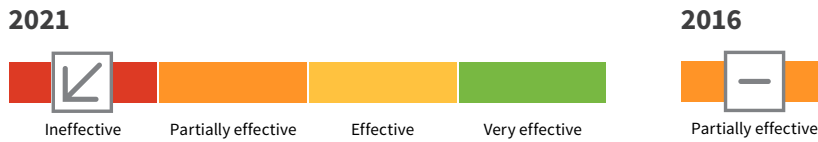


Limited confidence

Statutory protection, which is the main form of protection for heritage, is variable across heritage types. It ranges from no specific legislation for geoheritage (and limited protection through other statutory mechanisms), to existing, but highly inadequate, statutory protection for Indigenous heritage, to generally good statutory protection for the other types of heritage. However, there are inadequacies in many cases in how these are operationalised, and in the aspects of heritage included. Only historic heritage is systematically provided with protections at the local (statutory planning) level, although in some jurisdictions these have been reduced. In some jurisdictions, existing protections can be overridden by major project legislation. Regulation of development is generally poor, contributing to poor outcomes for heritage in this context.

Related to United Nations Sustainable Development Goal targets 11.4, 14.5, 15.1

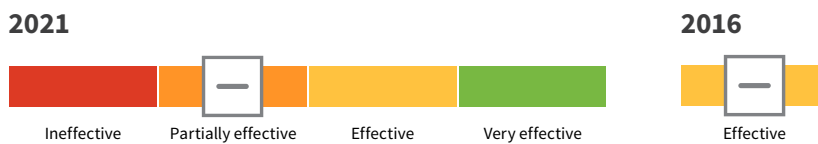
✓ **Assessment** Level and degree of heritage protection for Indigenous heritage



Limited confidence

The legal protection framework for Indigenous heritage is significantly lacking and does not protect Indigenous heritage from destruction. Indigenous people are calling for more control of their heritage. There is evidence of greater Indigenous involvement in heritage management through strategic partnerships, and Indigenous-led engagement and management.

✓ **Assessment** Level and degree of heritage protection for natural heritage



Limited confidence

Natural heritage has generally good statutory protections, but the operationalisation of these is less adequate. Local-level protection (statutory planning) for natural heritage is poor.

✓ **Assessment** Level and degree of heritage protection for geoheritage

2021



Limited confidence

Although geoheritage can be protected as part of natural heritage at the national level, and in a small number of cases at the state and territory level, there is no legislation to specifically protect geoheritage. Local-level protection (statutory planning) for geoheritage is poor.

✓ **Assessment** Level and degree of heritage protection for historic heritage

2021



Somewhat adequate confidence

There are generally good statutory protections for historic heritage, although aspects such as cultural landscapes, objects and intangible heritage are mostly poorly provided for. However, the operationalisation of some statutory mechanisms is inadequate, and the historic heritage provisions of some statutory mechanisms, largely local government related, are being reduced.

2016



✓ **Assessment** Level and degree of heritage protection for World Heritage

2021



Somewhat adequate confidence

World Heritage has generally good statutory protections, but the operationalisation of these (i.e. how the protections are used and the places managed) is less adequate.

✓ **Assessment** Level and degree of heritage protection for National Heritage

2021



Somewhat adequate confidence

National Heritage has generally good statutory protections, but the operationalisation of these (i.e. how the protections are used and the places managed) is less adequate.

Assessment ratings

For assessments in the 'Management' section

- **Very effective:** Management measures maintain or improve the state of environment and secure it against known pressures.
- **Effective:** Management measures maintain or improve the state of the environment, but pressures remain as significant factors that degrade environment values.
- **Partially effective:** Management measures have limited impact on maintaining or improving the state of the environment.
- **Ineffective:** Management measures are failing to stop substantial declines in the state of the environment.

Trend

- ↗ **Improving:** The situation has improved since the previous assessment (2016 state of the environment report).
- ▬ **Stable:** The situation has been stable since the previous assessment.
- ↘ **Deteriorating:** The situation has deteriorated since the previous assessment.
- ? **Unclear:** It is unclear how the situation has changed since the previous assessment.

National legislative framework

The Council of Australian Governments, through the Intergovernmental Agreement on the Environment (Australian Government 1992), has agreed that heritage protection should be undertaken by the level of government best placed to deliver agreed outcomes. Consequently, legislative heritage protection is in place at the national, state and territory, and local levels for the different types of heritage. The concept is a hierarchy of heritage protection, where Commonwealth legislation covers nationally relevant places and places of international significance, cascading down to 'lower' levels of heritage, covered by state- and territory-level and local systems for protecting sites of heritage significance.

At the federal level, the main piece of heritage legislation covering all types of heritage is the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act). There are additional, separate pieces of legislation for Indigenous heritage, underwater cultural heritage and movable cultural heritage. Also, the *Great Barrier Reef Marine Park Act 1975* (Cth) protects 99% of the Great Barrier Reef World Heritage Area. At the state and territory level, most states and territories have separate, standalone Indigenous and historic heritage legislation that provides protection through listing (McConnell & Janke 2021).

At the local level, heritage protection occurs primarily through statutory planning, including heritage codes or schedules, overlays and zoning as reserves in municipal planning schemes or local environmental

plans (see [Statutory planning](#)). The approach is very variable from state to state. In most parts of Australia, historic heritage has the most protection at the local level.

Legislative protection for all types of heritage in Australia is inadequate, although the deficiencies are different depending on the type of heritage. Specifically, there is inadequate legislation for geoheritage; Indigenous heritage legislation is not fit for purpose (HCOANZ 2020, Joint Standing Committee on Northern Australia 2021); significant amendments to the EPBC Act have been recommended (Samuel 2020); and state and territory planning legislation requires strengthening. Concerted legislative reform is therefore critically needed.

General matters for consideration as part of legislative reform include:

- better meshing of the 2 current approaches to heritage protection (i.e. listing and protected area reservation)
- providing for connectivity in natural (biological) heritage conservation (see [Boer & Gruber 2010:58](#))
- considering cumulative impacts (to individual places and to the heritage resource more generally)
- assessing the suitability of offsetting as a mechanism for heritage protection
- updating heritage terminology, including 'historic' heritage and developing a term for biological values to complement the term 'geoheritage'
- ensuring checks and balances (e.g. regular independent performance review).

EPBC Act

The EPBC Act Review (Samuel 2020) was highly critical of the Act's operation and

recommended fundamental reform of the Act, including in areas relevant to heritage:

- greater use of Indigenous knowledge in environmental management
- a fundamental shift, from a transaction-based, process-driven approach focused on individual projects to one centred on effective and adaptive planning
- legally enforceable national environmental standards (a mechanism to describe the desired environmental outcomes and seen as the centrepiece of the legislation)
- an independent oversight and audit capacity, using an adaptive approach (including better planning and evaluation of management effectiveness)
- mechanisms for cumulative impacts (on individual places and the heritage resource generally) to be considered in heritage protection
- active environmental restoration.

The shortcomings identified in the Samuel Review suggest that there is a need for legislative reform. The Australian Government is yet to fully respond to the recommendations of the Samuel Review.

Geoheritage legislation

The protective framework for geoheritage in Australia is currently inadequate, and a national geoheritage protection framework is needed to sit alongside the management of other types of heritage. The foundation for a geoheritage protective framework is the work of the past 30 years in Australia to develop classification systems, framework approaches and methodologies for geoheritage conservation. There are also methodologies developed and used overseas, particularly in Britain and the United States, which may provide useful insights for a national framework for geoheritage protection in Australia.

In developing a national framework for geoh heritage protection, it will be important that the full suite of geotypes (i.e. geological, geomorphological, pedological and hydrological) is protected, through either listings or protected areas:

- Listings have been the approach to date in Australia, and are the approach advocated by some practitioners (e.g. Worboys 2012, Brocx & Semeniuk 2019b). The success of this approach depends on the ability to have landscape-scale geoh heritage protection, and on the implementation of a sound classification framework to ensure comprehensive, adequate and representative listings.
- Protected areas are advocated by other practitioners on the basis that it is vital that geodiversity and geoh heritage are ‘accorded a level of importance equivalent to biodiversity as part of an ecosystem approach that recognises the value and integrity of both abiotic and biotic processes in nature conservation’ (Crofts et al. 2015:3). This approach also requires a comprehensive geoh heritage inventory, and a clear, logical, objective methodological framework that includes a systematic classification framework (Crofts et al. 2015).

Indigenous heritage legislation

Indigenous heritage is covered by state, territory and Commonwealth legislation (Samuel 2020):

The current laws that protect Indigenous cultural heritage are well behind community expectations. They do not deliver the level of protections that Indigenous Australians deserve and the community expects. These laws should be immediately reviewed, and reform should be delivered in line with best-practice requirements for Indigenous heritage legislation.

Significant reform of Indigenous heritage protection is required to address current inadequacies, as has been recognised by HCOANZ (2020). The destruction of the Juukan Gorge rockshelters (see case study: [Juukan Gorge rockshelters – highlighting the poor protections for Indigenous heritage under current Australian Indigenous heritage legislation](#)) highlighted that the range of legislation that relates to Indigenous heritage is either:

- not working effectively – for example, the *Aboriginal and Torres Strait Islander Heritage Protection Act 1984* (Cth), and the EPBC Act in relation to emergency powers
- not working effectively together – for example, the *Native Title Act 1993* (Cth) and state-level Indigenous heritage legislation.

Free, prior and informed consent of Indigenous people is the best-practice standard for involvement and management of Indigenous heritage. However, little Australian heritage legislation currently includes this standard, and there is a restrictive approach to Indigenous cultural heritage rights in Australia. Although models are moving towards engagement of, and consultation with, Indigenous people, this is often not the case when development takes place (see [Recognition and protection of Indigenous heritage](#)).

Review is required at all levels. There is a need to review the national-level legislation that provides protections for Indigenous heritage, including the Native Title Act, to update and improve these, and ensure that they work together effectively. There is also a need to update the existing state-level Indigenous heritage legislation, half of which was developed more than 30 years ago. Consideration also needs to be given to how Indigenous heritage is protected at the statutory planning level (see [Statutory planning](#)).

New and revised legislation needs to recognise Indigenous rights and perspectives (HCOANZ 2020) (also see the Indigenous chapter/Indigenous rights). This includes Indigenous people having a key decision-making and advisory role in the operation of the legislation in decisions about their heritage, and for custodial rights and obligations to be recognised.

The Indigenous heritage legislation that currently best addresses Indigenous heritage protection and community expectations is the *Aboriginal Heritage Act 2006* (Vic), which includes clear heritage protections through cultural heritage management plans, and effective Traditional Custodian participation through the recognition and rights of representative Indigenous parties. It is the only legislation in Australia that provides protection (albeit limited) for intangible heritage in its own right. The extensive, targeted Indigenous consultation being undertaken in Victoria in the current review of the Act, led by the Victorian Aboriginal Heritage Council (VAHC 2020a, VAHC 2020b), is regarded as an improved approach to Indigenous consultation in relation to heritage legislation review.

Statutory planning

In Australia, statutory planning is essentially a development control mechanism designed to allow development and established land use while also providing for social and environmental needs. It does not employ a values-based approach to identifying and protecting heritage (see [Respecting and protecting heritage values](#)).

Improved statutory planning is required to improve heritage protection at the local level. In theory, there are mechanisms in place to protect heritage in this context (i.e. state heritage legislation and local-level planning schemes, such as the local environment plans in New South Wales). In practice,

these mechanisms are failing to protect heritage values because they are inadequate or not operating effectively, or statutory protections are being eroded, including by being overridden by other legislation. An example of this erosion is seen in Tasmania, where the new *Tasmanian Planning Scheme* will significantly reduce protections. Similarly, cultural heritage in New South Wales is seen at being at serious risk from the state significant developments provisions, which can override provisions of the *Heritage Act 1977* (NSW). Cuttagee Bridge is an example of this (National Trust NSW 2021).

Statutory planning reform is needed to improve heritage protection, both in relation to the scope of heritage protected and to the actual protections offered. Key issues in relation to statutory planning in Australia and heritage protection that need to be considered include the following:

- Planning schemes (and equivalent approaches) have traditionally provided for historic heritage, primarily built heritage, and continue to do so, but few provide protections for Indigenous heritage, natural heritage or cultural landscapes (McConnell 2021a).
- Existing planning protections are inadequate – planning control mechanisms take a narrow focus to evaluating development impacts. Improved statutory planning is needed, particularly for historic heritage in relation to urban development and redevelopment (see [Historic heritage](#)).
- Protection via statutory planning relies heavily on heritage being identified and listed. A lack of requirement to populate lists (or equivalent) means that there are significant gaps in heritage identification at the local level that are not being addressed. Contributing to this issue is that planning schemes are infrequently amended, which

prevents heritage lists from being regularly updated.

- Heritage protections are being reduced, often as part of planning reform, through more restrictive definitions, greater exemptions and more lenient performance criteria.
- Planning legislation is changing to allow local government provisions to be overridden in the face of ‘major developments’, with many Australian states now having this type of legislation.
- Checks and balances are being eroded through the limiting of appeal rights, including the loss of third-party appeal rights in several Australian states, and increasingly high costs to appeal and if appeals are lost.
- The lack of heritage expertise within local government limits the expert evaluation of heritage impacts in relation to works applications, and provision of strategic-level advice on how heritage listing and the consideration of heritage at the broader planning level can be improved (see [Human resources](#)).

National heritage management framework

The consensus among heritage professionals in Australia is that there is a need to strengthen heritage protections, improve the capacities of the different levels of government to manage heritage, and improve the operation of existing legislation (Figure 28). The Australian Committee for the International Union for Conservation of Nature (ACIUCN) concluded in relation to nature conservation that ‘policy innovation and political commitment ... have diminished or disappeared in recent years (and) landmark approaches have been abandoned’ (Zischka et al. 2017:2).

Increasing pressures, including climate change, are demanding an improved management response, evident in the *Royal Commission into National Natural Disaster Arrangements report* (Binskin et al. 2020:94) finding that ‘there is a need to better integrate environment and heritage needs into emergency planning and response (including) working with relevant non-government organisations to establish best practice arrangements and responses relevant to emergency wildlife response and recovery’ and that ‘greater consistency and collaboration is also required in the collation, storage, access and provision of data for Australian flora and fauna’. The Royal Commission also noted that ‘better national coordination is required to enable significant reduction in disaster risks and impacts in the future’.

Limited communication and engagement across different levels of government, and across the different heritage types, with widely varying approaches and standards, is a major contributor to poor decision-making and inaction in various areas. This is resulting in lost efficiencies, and lost opportunities for information sharing and addressing major issues (Samuel 2020).

Limited use of heritage experts, and limited scope and decision-making powers of consultative and advisory heritage mechanisms, including statutory councils in some cases, are impacting the efficacy of heritage management (McConnell 2021b). A pressing issue in this respect is the limited powers of Indigenous people to influence the management of Indigenous heritage (see [Recognising Indigenous rights](#)), including the lack of a national level body.

Australia lacks a framework that delivers holistic environmental management, which, ‘given the nature of Australia’s federation, is essential for success’ (Samuel 2020:iii), as well as ‘a more closely integrated legislative and institutional national, state and territory regime’ (Boer & Gruber 2010:58). ACIUCN (Zischka et al. 2017:3) calls for all sectors to ‘break down jurisdictional silos and boundaries and create new models and partnerships for innovative conservation management and financing’.

Key to achieving an effective, national, integrated management framework is:

- recognising the capacities of the different levels of government to manage, and development of effective mechanisms to achieve good management. This includes broadening and strengthening the role of national councils and committees
- improving the standardisation of approaches to heritage management. Areas that would benefit from standardisation and are important to heritage protection include national environmental standards; environmental impact assessments; risk management, particularly in response to climate change; and data capture and management (see [Strategic planning and adaptive management](#)) (Samuel 2020)
- improving standardisation and coordination of heritage data nationally (e.g. du Cros 2019)
- providing for all key stakeholder groups to be engaged in an active and balanced way that is respectful and promotes heritage protection
- ensuring that Indigenous rights can be respected by including Indigenous people in decision-making roles.

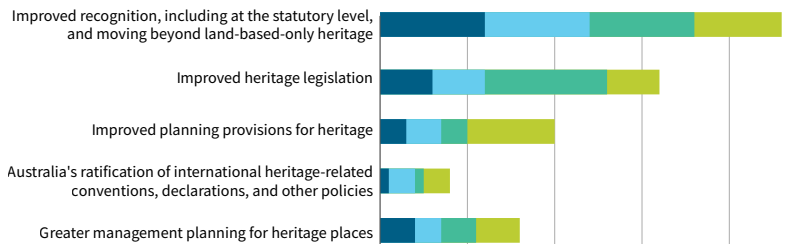
Heritage management in Australia could also benefit by exploring the nature–culture, or culture–nature, approach advocated by the International Council on Monuments and Sites (ICOMOS) and the IUCN. This approach is based on the understanding that natural and cultural heritage are closely interconnected at a landscape and seascape level, and that effective and lasting conservation of such places depends on better integration of philosophies and procedures regarding their identification and management (ICOMOS Emerging Professionals Working Group 2020). The approach recognises that intangible heritage and diverse perspectives are integral to successful conservation strategies.

Australian Heritage Strategy

The Australian Government is to be commended for its vision and leadership in developing and introducing the Australian Heritage Strategy in 2015 (Australian Government 2015), but implementation has been slow. Given the complexity of heritage protections and approaches to management in Australia, a national strategy is of critical importance in providing a single, unified, agreed pathway for heritage protection across Australia, and for highlighting priority needs to address identified issues.

Overall, it is not clear how well the Australian Heritage Strategy has been able to do this. The scheduled 5-year review due in 2020 was delayed by the COVID-19 pandemic and is still being undertaken by the Australian Government.

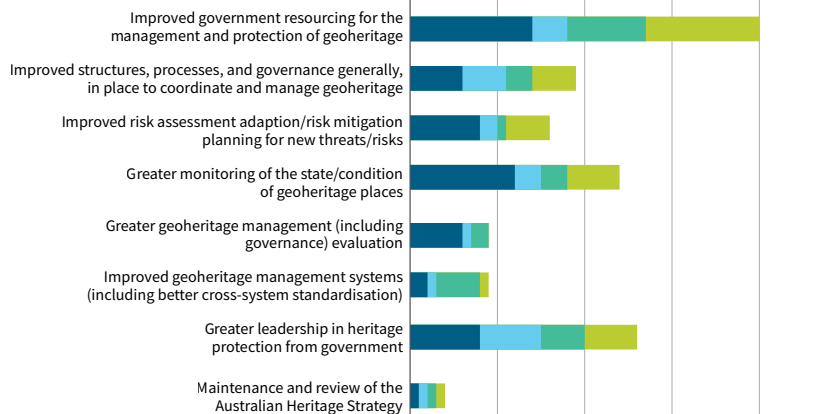
Protection



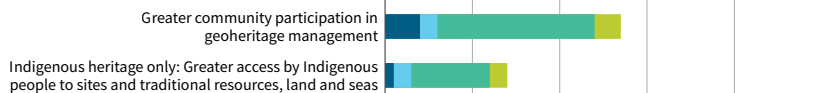
Identification



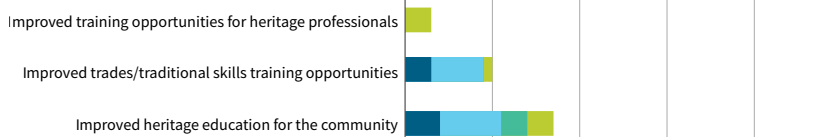
Management



Governance



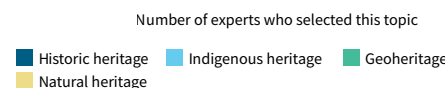
Education



Presentation/celebration



Other



Note: Figures are based on aggregating the survey respondents' 5 pressures identified as having the greatest impact for each heritage type. A value of '1' was allocated to each pressure.

Source: McConnell (2021a)

Figure 28 Priority management actions identified for improving the protection of Australia's heritage

Anecdotally, there is reasonable satisfaction with the Australian Heritage Strategy and its objectives and action, but there is concern over the low level of implementation in the first 5 years. This is regarded as largely due to a lack of leadership by the Australian Government (McConnell 2021b). There are several likely reasons the strategy's implementation may be hampered:

- It is focused on a single process (i.e. a shared partnership approach to heritage management).
- The strategy is not framed broadly enough to deal with the specific issues currently facing heritage.
- The highly generalised actions are difficult to implement and measure (e.g. the actions for objective 1 in the strategy).

The Australian Heritage Strategy would therefore benefit from having an overarching focus on addressing national issues for heritage protection and a multilevel, more holistic approach. Adopting measures to address key strategic-level management issues would provide clear guidance for action going forward. Key measures include:

- improving the statutory planning framework in relation to heritage protection
- improving heritage risk evaluation and management nationally
- establishing greater national standardisation in heritage data management and heritage evaluation.

Including objectives and actions with specific and measurable outcomes, and identifying who is responsible for taking the lead on these, would strengthen implementation.

International heritage obligations and responsibilities

The various international conventions, declarations, protocols and other international guidance that exist for heritage protection (McConnell & Janke 2021) make an important contribution to natural and cultural heritage protection in Australia. They also provide important international protections of relevance (e.g. in relation to Antarctica and other external territories).

Australia is, in general, seen as successfully implementing its international responsibilities and, in particular, in playing a significant leadership role with respect to the Madrid Protocol, the World Heritage Convention and the Ramsar Convention. Australia has also implemented the UNESCO *Recommendation on the Historic Urban Landscape 2011* (UNESCO WHC 2011) by participating in a pilot project (Vines 2020).

Australia has not yet formally recognised or signed several international instruments that would benefit important areas of heritage, including the *Convention on the Protection of Underwater Cultural Heritage 2001* (UNESCO 2001) and the *Convention for the Safeguarding of the Intangible Cultural Heritage 2003* (UNESCO 2003).

Furthermore, greater integration of the principles of the United Nations Declaration on the Rights of Indigenous Peoples 2007 (UNDRIP) into cultural heritage legislation at all levels of government is warranted, given Australia's Indigenous history and the issues that affect Indigenous Australians as a result of colonial invasion and administration. This would also promote wider recognition of the rights enshrined in it.

For cultural heritage, various other international declarations, charters and policy documents related to heritage provide important guidance for cultural heritage practice whose status in Australia is unclear – for example, the *Sendai Framework for Disaster Risk Reduction 2015–2030* (UNDRR 2015), the *Recommendation on the Historic Urban Landscape 2011*, the *Nara Document on Authenticity 1994* (ICOMOS 1994), and the *Xi'an Declaration on the Conservation of the Setting of Heritage Structures, Sites and Areas 2005* (ICOMOS 2011). Their formal endorsement by the Australian and state and territory governments would be a useful action towards establishing national standards for cultural heritage practice in Australia.

Leadership and partnerships

Leadership is critical to effective heritage protection and management. Given the complexity of the Australian heritage protection framework, leadership is required at different levels. Collaborative partnerships are also important because of the complex national framework for heritage, and the diverse stakeholders in heritage. The Australian Heritage Strategy recognises this, as it has 2 of its 3 high-level outcomes relating to national leadership and strong partnerships (see [Australian Heritage Strategy](#)).

Leadership

Internationally, the Australian Government is a recognised leader in the protection of Antarctica, where it has actively pursued and encouraged important conservation objectives. Australia has also been an active voice for World Heritage conservation during its terms as a member of the World Heritage Committee (2007–11 and 2017–21), during which Australia led the development of the World Heritage Convention's Strategic Action Plan (DAWE).

Australia's 2 key nongovernment heritage organisations – ACIUCN and Australia ICOMOS – are active at the international level. ACIUCN plays a major role in relation to the World Commission on Protected Areas, and Australian members play a significant role in the development of protected area management guidance. Australia ICOMOS supports the work of ICOMOS by having members on the bureau and by having members actively participating on most International Scientific Committees of ICOMOS. In 2023, Australia will host the triennial General Assembly and Scientific Symposium of ICOMOS.

In relation to other heritage areas, leadership by Australia is less evident – for example, the lack of commitment to UNDRIP (Oscar 2021), the Convention for the Safeguarding of the Intangible Cultural Heritage (UNESCO 2003) and the Convention on the Protection of the Underwater Cultural Heritage (UNESCO 2001, Shearing 2012). A need for greater leadership by the Australian Government has been identified in relation to heritage generally for the past decade, particularly regarding the role of the Australian Heritage Council, national coordination for Indigenous heritage and resourcing for heritage management (SoE 2011 Committee 2011, Mackay 2016c).

At the national level, leadership is generally considered lacking in heritage protection and management (Zischka et al. 2017, du Cros 2019, McConnell 2021b, McConnell 2021a). Strategic planning and adaptation management planning in relation to managing climate change impacts and other environmental risks, and in relation to the effectiveness and operation of heritage legislation, are key areas seen as requiring greater leadership.

A coordinated approach by Australian governments

The responsibilities of the different levels of government are established by the *Intergovernmental Agreement on the Environment* (Australian Government 1992), and mechanisms have been established to facilitate management and promote coordination across different levels of government. In relation to cultural heritage, the primary mechanism is HCOANZ, which includes national, state and territory Indigenous and historic heritage council chairs and agency officials. The Heads of Parks Agencies Forum is a less formal body that provides coordination in relation to protected areas.

HCOANZ promotes a nationally collaborative approach and, occasionally, takes a nationwide coordinating role in relation to cultural heritage, as is evident in the development of *Dhawura Ngilan: a vision for Aboriginal and Torres Strait Islander heritage in Australia* (HCOANZ 2020). However, less has been achieved in other key areas such as standardising data nationally, quality standards, and risk evaluation and management. Tying the work of HCOANZ (and possibly the Heads of Parks Agencies Forum) more closely to the Australian Heritage Strategy could help to address this.

Few other formalised heritage partnerships exist. However, informal discussion and liaison between government and key national peak heritage bodies – in particular, ACIUCN, Australia ICOMOS and the National Trusts of Australia – are important. Enhanced partnership arrangements between the Australian Government and such organisations could also help improve heritage management nationally, including through identifying key heritage issues and improving implementation of the Australian Heritage Strategy.

Marine environment protection and fishing, and the Tasmanian timber industry in the late 1980s to 1990s are industry examples of where significantly better heritage sustainability outcomes have been achieved through a strong, formal, shared or partnership approach. These outcomes are not achievable solely through industry self-regulation. Tourism and mining are key industry areas that require improved heritage management, and formal national partnership approaches focused on achieving genuinely sustainable heritage outcomes in these industry areas may significantly assist in achieving such outcomes.

For Indigenous heritage, less formal partnerships are helping to proactively manage and protect sites. For example, alliances between Indigenous corporations and national parks, and environmental organisations such as the Environmental Defenders Office and Bush Heritage Australia, have established new business- and community-based ways of continued Indigenous connection to Country (see the Indigenous chapter).



Case study Gariwerd/Grampians National Park

Co-authored by Reconciliation Action Plan manager Darren Griffin and the Barengi Gadjin Aboriginal Corporation

The Grampians National Park lies within the Greater Gariwerd Landscape (GGL), a term adopted by Victorian Government land management agencies and accepted by the 3 Traditional Owner organisations currently making joint decisions for this area. It encompasses the Grampians National Park and surrounding parcels of Crown land reserves, including Bepja/Mount Bepcha, Burrunj/western Black Range, Mount Talbot Scenic Reserve, Lil Lil/Red Rock Bushland Reserve and Grim Gundidj/Dundas Range. Connected to this cultural landscape is Dyurrite/Mount Arapiles, situated 60 kilometres west in Jadawadjali Country.

Since 2013, 40 rock art sites have been rediscovered in the GGL, and more sites are being rediscovered every year. This landscape contains about 140 registered art sites, approximately 90% of all known rock art sites in Victoria. Indigenous occupation of the GGL dates back at least 22,000 years. The oldest rock art sites are 3,500 years old, and some may be older (Parks Victoria 2020b).

In 2020, an Interim Protection Declaration was issued for a significant Indigenous heritage rock art site recorded as 'Dyurrite 1' within Mount Arapiles–Tooen State Park (VDPC 2020). Recognition of the significance of rock art in the area and its unique heritage value has been welcomed by the Traditional Owners of the area, represented by the Barengi Gadjin Land Council Aboriginal Corporation (BGLC), which holds native title rights and state Aboriginal Heritage Act Representative Body status on behalf of the Wotjobaluk, Jaadwa, Jadawadjali, Wergaia and Jupagulk peoples. BGLC jointly manage the state park with Parks Victoria, and this declaration was the first step in the active management of the park in accordance with traditional cultural obligations.

Recreational activities such as rock climbing are proven to significantly endanger heritage sites. Parks Victoria is partnering with the Traditional Owners and widely consulting with a range of park users, including rock climbers, in preparing a new management plan for the GGL to ensure that significant heritage, environmental and cultural values, as well as tourism opportunities, are protected for future generations (BGLC 2020a).

Wotjobaluk Traditional Owner and BGLC Manager of On-Country Operations, Stuart Harradine, emphasises the importance of protections for empowering Indigenous aspirations and perspectives (BGLC 2020b):

The Wotjobaluk Traditional Owners have deep physical, spiritual and cultural connections to Dyurrite (Mt Arapiles) extending back tens of thousands of years. It is also the site of one of the last organised strongholds for the Indigenous resistance during the European invasion period. The importance of this place to Wotjobaluk

Traditional Owners is not always fully appreciated by non-Indigenous people and is often overlooked in favour of recreational and other values. It is important that this perception changes, and that management of Indigenous cultural landscapes such as Dyurrite changes to reflect this.

The recent advances at Gariwerd and Dyurrite are excellent examples of Traditional Owner groups working together with state government land management departments to holistically manage the cultural landscape within iconic national and state parks (Figure 29). Managing these places according to their cultural obligations and traditions, which stretch back tens of thousands of years, and may have been greatly compromised as a result of colonisation but were never lost, benefits all Australians. The magnificent values of these landscapes are protected, and their deep, layered Indigenous heritage is illuminated so that it may be better understood, respected, appreciated and enjoyed by future generations (Parks Victoria 2020a).



Photo: Barengi Gadjin Land Council Aboriginal Corporation

Figure 29 Staff from Barengi Gadjin Land Council Aboriginal Corporation and Parks Victoria participating in the Dyurrite cultural and environmental heritage assessment survey, November 2020

Management approaches

Management approaches in Australia aim to respect and protect heritage values, but also balance this with the needs of the broader community and Indigenous communities.



Assessment Heritage identification and listing

2021



Somewhat adequate confidence

More work remains to be done in relation to the identification and listing or reservation of heritage at all levels of government and across Australia. Biological values are relatively well provided for, although this has occurred mainly within the context of biodiversity conservation. All other types of heritage have regional and thematic gaps in identification and listing, and significant imbalances in the forms of heritage listed. There is undue reliance at the state and territory level on heritage impact assessments to identify heritage, which creates further biases. A greater focus is required on addressing existing gaps through systematic identification programs, on translating this information into listings, and on reducing nomination backlogs where they occur.

Related to United Nations Sustainable Development Goal target 11.4



Assessment Heritage identification and listing for Indigenous heritage

2021



Limited confidence

Indigenous heritage is inadequately identified, documented and protected. There is a distrust within many Indigenous communities of registers, and hesitation in disclosing sites and knowledge of significance. Indigenous people experience a lack of free, prior and informed consent within the mechanisms in which heritage is identified and assessed.

2011

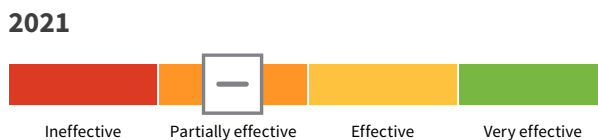


✓ **Assessment** Heritage identification and listing for natural heritage



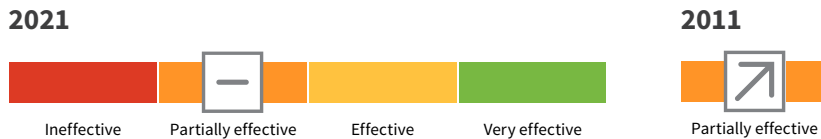
Natural heritage has been relatively well identified and reserved within protected areas, as part of developing the National Reserve System (NRS). Greater consideration of heritage as opposed to biodiversity conservation is desirable in expanding the NRS.

✓ **Assessment** Heritage identification and listing for geoheritage



Although considerable geoheritage has been identified, this has not translated into listings, except in relation to National Heritage and World Heritage, and even at this level listings have been limited. There is also a need for greater systematic identification of geoheritage across Australia, including in protected areas.

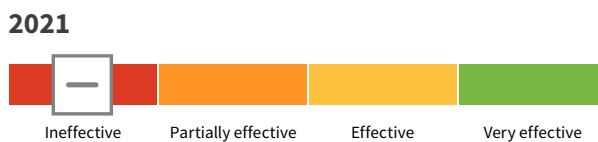
✓ **Assessment** Heritage identification and listing for historic heritage



Somewhat adequate confidence

A large amount of historic heritage has been identified throughout Australia, but there are significant thematic and regional gaps that are not being addressed, and archaeological heritage and cultural landscapes are significantly under-represented in listings at all levels. Jurisdictions at all levels have significant numbers of unprocessed nominations.

✓ **Assessment** Heritage identification and listing for World Heritage



Somewhat adequate confidence

Limited effort is being made by government to identify World Heritage and to develop the Australian Tentative List. Systematic identification is required to replace the current ad hoc approach.

✓ **Assessment** Heritage identification and listing for National Heritage

2021



Somewhat adequate confidence

Although some thematic assessments have been undertaken for National Heritage, there are numerous gaps in the National Heritage List that are not being addressed; the results of studies are not translating into assessments and listings; and there are a quantity of unassessed nominations. The recent focus on Indigenous heritage is starting to address what was a significant imbalance.

✓ **Assessment** Heritage planning and conservation

2021



2016

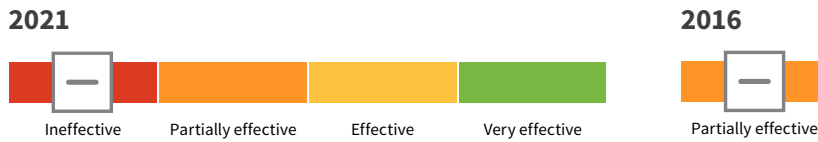


Somewhat adequate confidence

Although most protected areas have management plans in place, these are being poorly operationalised, particularly in relation to values monitoring, conservation and risk management. New approaches, particularly risk management planning and strategic planning, needed to deal with climate change-related pressures and, to a lesser extent, other pressures, are slow to happen. The situation is similar in relation to Indigenous and historic heritage, but with heritage management planning also limited. Efforts to conserve, rehabilitate and restore heritage are limited, and much more is required. Inadequate resourcing is a key constraining factor.

Related to United Nations Sustainable Development Goals target 11.4

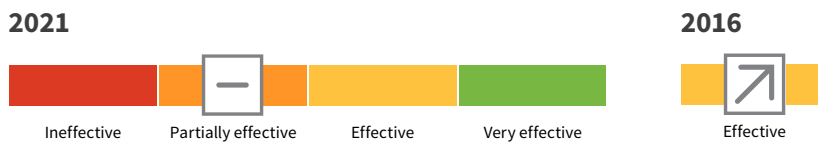
✓ **Assessment** Heritage planning and conservation for Indigenous heritage



Limited confidence

Indigenous voices are beginning to be better included in established heritage organisations, and separate organisations are emerging. Co-design and a voice in decision-making are still lacking.

✓ **Assessment** Heritage planning and conservation for natural heritage



Limited confidence

Good planning is generally in place for natural heritage through protected area management plans, which also establish good management processes. However, strategic planning, values monitoring and evaluation, and risk management planning are not keeping up with what is required to successfully manage new and increasing pressures on these properties. Management planning is falling behind, with significant numbers of protected area management plans in need of review.

✓ **Assessment** Heritage planning and conservation for geoheritage

2021



Limited confidence

For geoheritage within protected areas, good planning is generally in place through management plans, which also establish good management processes. However, strategic planning, values monitoring and evaluation, and risk management planning are not keeping up with what is required to successfully manage new and increasing pressures on these properties. Management planning is falling behind, with significant numbers of protected area management plans in need of review.

Unprotected geoheritage is not being managed.

✓ **Assessment** Heritage planning and conservation for historic heritage

2021



Somewhat adequate confidence

Although recommended for historic heritage places, only a small percentage of historic heritage places, including listed heritage places, have prepared conservation management plans, and these are often outdated. Many fewer places have formal monitoring or risk management planning, and strategic management planning is rare. Very little historic heritage is receiving the conservation work required to maintain places in stable or good condition.

2016



✓ **Assessment** Heritage planning and conservation for World Heritage

2021



Somewhat adequate confidence

Good planning and management processes are in place for World Heritage. However, strategic planning, values monitoring and evaluation, and adaptation planning are not keeping up with what is required to successfully manage new and increasing pressures on these properties. Although all properties have management plans, 50% require review.

✓ **Assessment** Heritage planning and conservation for National Heritage

2021



Somewhat adequate confidence

Generally, good planning and management processes are in place for National Heritage. However, strategic planning, values monitoring and evaluation, and adaptation planning are not keeping up with what is required to successfully manage new and increasing pressures on these properties.



Assessment Heritage governance

2021



Limited confidence

A more cohesive Australia-wide approach to heritage management is needed to achieve better shared, strategic, efficient and effective heritage conservation. The Australian Heritage Strategy can play an important role in this, but is lacking leadership in implementation, and could be strengthened by clearer objectives and actions. Leadership by government is generally inadequate. Although Australia is generally meeting its international obligations well, there are some areas where greater effort is considered necessary, particularly the United Nations Declaration on the Rights of Indigenous Peoples. Greater community participation in decision-making, particularly by Indigenous people in relation to Indigenous heritage, is needed. More could be done to present and celebrate Australia’s heritage.

Related to United Nations Sustainable Development Goal target 11.4



Assessment Heritage governance for Indigenous heritage

2021



2016



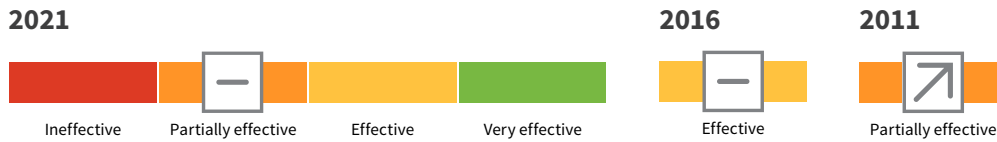
2011



Limited confidence

Indigenous organisations and alliances have enabled Indigenous people to be empowered in heritage management. However, there is limited resourcing, and there are barriers for Indigenous people to influence mainstream systems of governance.

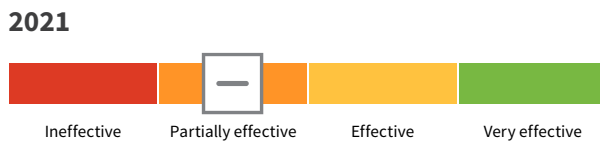
✓ **Assessment** Heritage governance for natural heritage



Limited confidence

Despite the National Reserve System framework and strategy for its development, natural heritage management is continuing to suffer from a lack of cohesive management between the various levels of government and lacks holistic Australia-wide oversight. Leadership at all levels is inadequate. Limited action to address climate change is a key issue for natural heritage conservation.

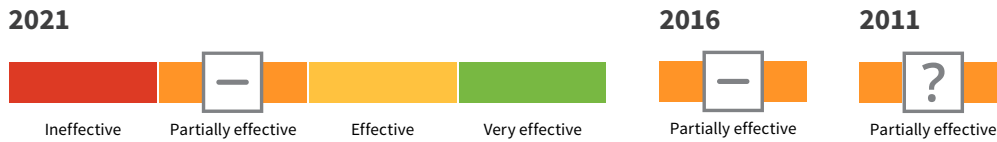
✓ **Assessment** Heritage governance for geoheritage



Limited confidence

Geoheritage conservation lacks a cohesive national framework for management, as well as having inadequate statutory protection. There is a lack of leadership in relation to this, particularly at the national level where it is most needed.

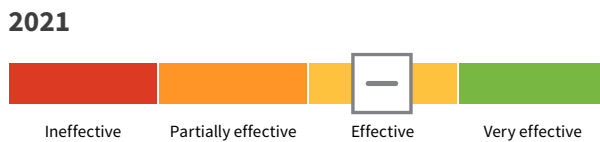
✓ **Assessment** Heritage governance for historic heritage



Somewhat adequate confidence

Historic heritage management is continuing to suffer from a lack of cohesive management between the various levels of government and lacks holistic Australia-wide oversight. However, the Heritage Chairs and Officials of Australia and New Zealand has helped in this area to some extent. Leadership to improve historic heritage conservation at all levels is inadequate, and there is failure in many contexts to adequately defend historic heritage.

✓ **Assessment** Heritage governance for World Heritage



Limited confidence

Government leadership is regarded as good at the international level, but poor at the national level, particularly in relation to managing major emerging pressures. The lack of a formal Indigenous advisory capacity is a particular issue. Australia is meeting international obligations well, but with some exceptions. Limited action to address climate change has emerged as a key issue for the conservation of natural World Heritage.

✓ Assessment Heritage governance for National Heritage

2021



Very limited confidence

Government leadership in this area, although relatively good, could be improved. Management suffers from inadequate cohesion between the 2 levels of government. The Australian Heritage Council has performed well, but its work is significantly constrained by inadequate resourcing.

Respecting and protecting heritage values

Values-based management, a keystone for effective heritage conservation in Australia, promotes respect for heritage as a complex set of values, not as an object (e.g. Avrami et al. 2019). A values-based approach is important for understanding why heritage items and areas are being protected and how to manage them.

The values-based approach was developed in Australia, and is now appreciated and adopted widely overseas (Avrami et al. 2019). The approach is most developed in the Australia ICOMOS (2013) Burra Charter, which defines the significance of heritage with reference to a recognised set of values and establishes a process of management to protect these values. It is also the approach of the *Australian Natural Heritage Charter: for the conservation of places of natural heritage significance* (AHC 2002b).

Although the approach has widespread application in Australia, 3 areas of concern in relation to its application and use have been identified.

First, heritage values are not all being recognised and respected equally. Protected areas tend to prioritise the significance of natural values over cultural values, and the significance of biological values over geoheritage values. For example, the already listed Blue Mountains are awaiting renomination to the National Heritage List to allow cultural heritage values to be recognised. Also, the Indigenous cultural landscape values of the Tasmanian Wilderness have not yet been formally assessed, although the current management plan outlines key desired outcomes for managing Aboriginal cultural values and increasing the involvement of Aboriginal people in connecting with these values, and managing and interpreting them (DNRE 2016). At the state and territory level, it appears that there is more confidence in using the more 'traditionally' used values such as representativeness, rarity and historical importance, whereas social value and aesthetic value are not as well used.

Second, the social and economic benefits of a place are often conflated with the heritage values of the place. Although heritage can be of economic importance through tourism

and other recreational use, this benefit is not a heritage value. The confusion of benefit and value puts real heritage values at risk, as the economic benefit can be used to drive overexploitation. Such confusion is becoming noticeable in statements of value in protected area planning documents and strategic documents, particularly where there is tourism and recreational use of protected areas and other heritage.

Lastly, values-based principles are often poorly applied in planning and management. For example, protected area management zoning is commonly related to use (e.g. visitor services zone recreational zone, remote use zone, no-take area), rather than values. Unless the use-based zones have been based on good values data, this approach puts heritage at risk. The values approach is routinely used at a small scale in heritage place conservation management plans and at a large scale for marine parks, and has been applied in industry. However, the approach does not appear to have translated widely into demonstrable values-based management zoning (McConnell 2012).

Heritage identification

In using a values-based approach, it is important to acknowledge the scope of heritage with considerable variation across Australia in what aspects of heritage are recognised in legislation and statutory instruments. Developing a more heritage-inclusive approach will be important in ensuring that all heritage is appropriately protected.

Intangible heritage, heritage landscapes and objects are 3 areas identified as requiring improved recognition and identification.

Although conceptually recognised in Australia, intangible heritage is very poorly recognised in the Australian heritage protection and

management framework. Currently, it is recognised in only a single piece of heritage legislation, the *Aboriginal Heritage Act 2006* (Vic) (see [Indigenous heritage legislation](#)) It is, however, a core part of cultural heritage, providing for culturally significant knowledge and practices to be recognised and preserved. Its recognition is extremely important to Australian Indigenous people who have maintained their connection to Country, and many associated practices and knowledge that form their living, continued heritage.

Much of the significance of cultural heritage exists at the landscape scale, and many heritage values are best recognised at this level – for example, the Indigenous relationship to Country, the dynamic interplay between human activity and the natural environment. Such an approach provides benefits for cultural heritage conservation that far outweigh, and cannot be reproduced by, the benefits of conserving individual heritage items, even collectively (Brown & Vileikis 2020, McConnell & Brown 2020, Vines 2020). Statutory protection for heritage has traditionally focused on smaller, tangible place-based heritage places, with frequent provision for small heritage areas, generally as precincts for historic heritage. Other than at the national level, few jurisdictions recognise cultural landscapes. The concept of cultural landscape also needs to be expanded to include waterscapes, seascapes and skyscapes, all of which are important to fully recognise Indigenous heritage.

Objects and collections are viewed as heritage, but their treatment varies enormously across Australia. Object collections are generally the responsibility of collecting institutions such as museums, libraries or herbariums, and are largely managed under separate, arts-based legislation. Although on-site objects are generally protected as part of a place, and there is Commonwealth legislation to prevent

movable cultural heritage from being exported overseas, there is poor recognition of, and protection for, the many heritage objects and collections that have been removed from their heritage sites.

All types of heritage have unidentified, and hence unprotected, heritage (see [Environment](#)), although the full extent of unidentified heritage is unknown.

The understanding of Indigenous heritage that can be protected under legislation is patchy to poor in all jurisdictions, as a result of the limited systematic regional or thematic assessment that has been undertaken, and the lack of systematic identification of other types of Indigenous heritage, given their minimal statutory protection. Historic heritage across Australia has numerous regional and thematic gaps, which vary across jurisdictions. The situation is similar for underwater cultural heritage, although the thematic gaps are less diverse (see McConnell 2021c). Although there are major regional and thematic gaps in the identification of geoheritage, given the limited systematic survey or ability to protect geoheritage through listing, a large number and range of geoheritage places have been identified, primarily through the work of the Geological Society of Australia. Karst geoheritage values, in particular, have been relatively well identified across Australia, due to the high level of interest in karst landscapes and their management (see [Geoheritage](#)). Natural heritage is considered to be the best identified and protected type of heritage, given the extensive national protected area system.

There are very few systematic programs to identify heritage. Community nominations and development-related environmental impact assessments are heavily relied on to identify new heritage. Neither of these approaches, which generally generate limited identifications and ad hoc nominations to

registers, can replace systematic heritage identification projects undertaken by heritage experts. This issue was raised in both the 2011 and 2016 state of the environment reports, which concluded that ‘inadequacies in understanding the heritage resource extend across the full spectrum of places, at all levels of jurisdiction and government in relation to heritage’ (SoE 2011 Committee 2011, Mackay 2016c). No progress on this issue can be reported in 2021 (McConnell 2021c).

As the Register of the National Estate contains a large number of places that were identified as heritage, but not transferred to other heritage lists when the register ceased to operate, reviewing these non-transferred places for potential inclusion on other heritage registers would make a significant, achievable contribution to addressing these deficiencies in identification and listing. Mackay (2016c:79) noted that there had not been a comprehensive analysis of statutory listings in Australia, including the Register of the National Estate, and noted that it would be a timely and valuable exercise. Such an analysis has still not occurred.

Management planning

Good planning is essential to generating good heritage outcomes. The role of plans is to provide clear, evidence-based management direction for heritage protection. Good heritage planning is based on policy derived from a good understanding of the heritage, the obligations for management and other factors affecting heritage (AHC 2002b, Australia ICOMOS 2013).

In Australia, heritage place-based planning is achieved through protected area management plans and cultural heritage conservation management plans, or equivalent. Management plans are a statutory requirement for protected areas at the national, and state and territory levels, and

for heritage places at the national level. Standard practice is for individual protected areas or places to have their own management plan. Management plans generally contain a statement of the values, and a brief list of the objectives and actions for the conservation of these values.

Management plans in some jurisdictions have known deficiencies. Some plans lack a comprehensive understanding and articulation of the heritage values of protected areas, with limited consideration of risk and risk management, and emerging major issues. Instead, they focus on core concerns such as protection from disasters or specific uses such as tourism and recreation, and only provide limited guidance on proactive values conservation (McConnell 2021b, McConnell 2021d).

In national park management plans, actions are not linked to specific timelines for implementation, performance measures, targets or benchmarks. Although all parks currently have a management plan in place, most have had a period of 2–6 years without a management plan while the next 10-year management plan is prepared (The Auditor-General 2019).

Concerningly, not all cultural heritage places have management plans, particularly at the state and territory and local levels, and their preparation is often only triggered by new development or conservation proposals. Where reserve management plans and other statutorily required management plans exist, around 60% nationally are at least 10 years old (McConnell 2021c).

Strategic planning and adaptive management

Strategic planning and adaptive management are important to effectively protect heritage and manage risk (Worboys et al. 2015).

The data and opinion provided for this chapter (McConnell 2021c, McConnell 2021b, McConnell 2021d) suggest that strategic planning is lacking at a range of levels, including limited forward planning, and understanding of broadscale impacts and risks. This is primarily an issue for protected area management. Of particular concern is the limited strategic planning in relation to meeting climate change risk and managing tourism in protected areas.

The Samuel Review noted that (Samuel 2020:2):

The EPBC Act lacks comprehensive plans to manage cumulative impacts, key threats and to set priorities ... Ultimately, governments should shift their focus from individual project approvals to a focus on clear outcomes, integrated into national and regional plans for protecting and restoring the environment and plans for sustainable development ... The EPBC Act needs to enable more effective planning and governments must commit to and resource the development and implementation of plans.

Coupled with the need for strategic planning is the need for adaptive management to provide a flexible, systematic approach to improving management by learning from experience and modifying subsequent behaviour.

Adaptation planning, or risk management planning, is a key tool for managing pressures. Where there are specific major pressures, such as climate change, that put the protected environment at identifiable risk, the appropriate management response is generally set out in risk management (or adaptation) plans. This planning requires reliable information on pressures, vulnerability, risks, baseline condition of the environment and responses to pressures. This information is used to refine or develop new management approaches. Adaptation

plans may be site-specific for certain types of heritage, or strategic broader-scale plans.

Currently, the level of information being collected is insufficient for effective adaptive management (McConnell 2021c, McConnell 2021b, McConnell 2021d). Minimal reliable information is available on rates of damage and destruction of heritage, and the causes for any type of heritage. This makes it impossible to identify trends and early warning signs, and allows heritage destruction to go largely unnoticed. Having publicly accessible listings of threatened and damaged heritage could lead to greater direct heritage protection. Improved national standardisation in what data are collected and how they are reported will better support comparative analysis and strategic approaches (Binskin et al. 2020).

Independent review and evaluation of organisational performance is also an important aspect of adaptive management. It assists in identifying deficiencies in management to enable improvements, and promotes management effectiveness, accountability, openness and transparency.

Review in relation to heritage and protected area management is extremely limited at all levels, with few existing formal requirements for performance review or audit (as opposed to routine reporting, such as standard annual reports) (McConnell 2021c). Few examples exist across all jurisdictions. The exceptions are the requirement for the Australian Government to undertake an independent 5-yearly national state of the environment report under the *Environment Protection and Biodiversity Conservation Act 1999* (Cth), and the requirement of the Victorian National Parks Advisory Council (as an independent body) to annually review the management of terrestrial protected areas in Victoria as part of its annual reporting. The Auditor-General (2019) found that the management of national parks in relation to the audit criteria was

inadequate, which highlights that regular performance review is required to improve management and governance.

Maintenance, restoration and repair

An important aspect of protecting heritage values is the maintenance, restoration or repair of natural and cultural heritage. It is important that such activities are conducted on an ongoing basis and when needed, as deterioration becomes worse and less reversible over time, and financially more costly to repair.

The maintenance, restoration and repair of Indigenous heritage is challenged by (HCOANZ 2020):

- restricted access to Country, which makes it difficult for Indigenous communities to monitor their heritage
- insufficient resourcing
- deficits in identification processes
- a lack of uniform approach across jurisdictions.

Inadequate resourcing remains an issue in relation to Indigenous languages. The Australian Government allocated \$22.8 million in 2021 (DITRDC 2021) to the preservation of Indigenous languages. However, this is insufficient to cover more than 150 languages desperately in need of support and maintenance, after languages were included in the Closing the Gap objectives.

In relation to Australia's natural heritage maintenance, significant work on invasive species control and environmental rehabilitation (e.g. animal recovery projects, revegetation projects) are being undertaken in protected areas, particularly in World Heritage properties and National Heritage places. In many cases, these projects use considerable volunteer time (McConnell 2021c).

Although there are no easily accessible data on maintenance of historic heritage, general consensus among heritage professionals is that such work is falling well short of what is required, and existing grants and incentives fall short of meeting the need (McConnell 2021a, McConnell 2021b).

Australia also has legacy restoration matters, for both natural and cultural heritage, that require attention. Examples include:

- the preservation or restoration of cultural heritage sites of major significance that have naturally degraded, but are at a point where deterioration is beginning to accelerate and the heritage will be rapidly lost without some conservation action
- the preservation or restoration of natural environment significantly affected by industry, such as mining legacy deforestation, waterway disruption, pollution and acid mine drainage
- significant heritage species, sites and landscapes that have been impacted by various uses or developments but are recoverable (e.g. case study: Lake Pedder – opportunities for restoration).

Providing for community needs and expectations

Globally, natural and cultural heritage is regarded as an inheritance to be appreciated and shared. Fundamental to heritage protection is a sharing and accommodation of knowledge, perspectives, values, respect and responsibilities, to accommodate the multiple actors and the co-existence of multiple values (Mackay 2016c, Brown & Vileikis 2020).

Recognising Indigenous rights

The most pressing community need in relation to heritage is meeting the rights and interests of Indigenous people. These

rights and interests relate to decision-making powers for heritage, and access to Country and heritage places to enable the observation of customary practices. There is an increasing call by Australian Indigenous people for reform to empower them ‘to take a rightful place’ in their own country (The Uluru Statement 2017, Samuel 2020) (see [Indigenous heritage](#)).

In relation to Indigenous heritage needs, acknowledgement and reparation for past injustices are critical. Improved repatriation of objects and human remains (including from overseas) to Country, and a rebalancing of the telling of Australia’s history to accurately reflect the history of Indigenous Australians are occurring slowly, but need much more work.

Contributing to heritage protection

Community interest in better environmental management, including for heritage, can be seen in the scale of volunteer work contributed to protected area and heritage place management (McConnell 2021c). It can also be seen in the high level of advocacy across Australia for improved environmental and heritage outcomes, the many environmental nongovernment organisations, and the many challenges to approved developments, and perceived poor planning and strategic proposals, as submissions, as letters to the media and on social media.

Given the community interest in environmental and heritage protection, a more inclusive, shared approach to heritage management is warranted. Such an approach should include greater genuine participation of the community in decisions about heritage, and greater access to more equitable and non-adversarial processes in relation to development assessment and approval. Failing to support community interests can reduce the community’s interest in contributing to environmental and heritage protection.

Wellbeing and amenity

The importance of heritage to human wellbeing was recognised in 1972 in the United Nations Educational, Scientific and Cultural Organization (UNESCO) Convention Concerning the Protection of the World Cultural and Natural Heritage, which states:

... in a society where living conditions are changing at an accelerated pace, it is essential for man's equilibrium and development to preserve for him a fitting setting in which to live, where he will remain

in contact with nature and the evidences of civilization bequeathed by past generations.

Heritage helps to create a special sense of place, which can lead to attachment to place. Both tangible and intangible heritage are integral parts of engendering a sense of place identity, and of belonging and cohesion (UNESCO WHC 2016). Heritage is essential for contemporary and future wellbeing; if we do not better care for heritage, human health will be negatively impacted (Taçon & Baker 2019).



Case study Lake Pedder – opportunities for restoration

Based on information provided by Dr Kevin Kiernan, Tasmania

Sources: Lake Pedder Committee of Enquiry & Burton (1975), DASETT (1989), Timms (1992), Australian Government (1995), Tyler et al. (1996), Sharples (2001), Angus (2008), Cica (2011), Sims (2012) and Kiernan (2019)

The natural Lake Pedder in south-western Tasmania was a highly scenic and globally geomorphologically unique glacial lake with rare biological values. It was the focal point of the Lake Pedder National Park declared in 1955 (Australian Government 1995, Tyler et al. 1996, Kiernan 2019). The lake – particularly famed for its beach, the most extensive freshwater beach system in Australia (Timms 1992) – was much visited by bushwalkers and others who arrived by plane. It became the subject of highly celebrated artworks by landscape painters, as well as stimulating development of a distinctive genre of Australian wilderness photography (Angus 2008, Cica 2011).

Lake Pedder was flooded in 1972 as part of the Gordon River hydro-electricity scheme, causing the greatest loss of wilderness (see [Types and condition of natural heritage](#)) of any single Tasmanian project to date. The history of the flooding of Lake Pedder reveals deficiencies in the then conservation legislation and its implementation. The lower house of the Tasmanian Parliament approved the proposal in 1967 but, after growing protests, was challenged in 1972 on the basis that the approval contravened the *National Parks and Wildlife Act 1970* (Tas). Controversial retrospective legislation (the Gordon River Doubts Removal Bill) was passed to enable the flooding of the national park. This occurred despite an Australian Government open offer of funding for an alternative to flooding Lake Pedder based on the report of the Australian Government 1973 Committee of

Inquiry into the flooding of Lake Pedder (Lake Pedder Committee of Enquiry & Burton 1975, Sims 2012).

Both the proposal and the process generated an unprecedented level of environmental controversy and stimulated the formation of the first 'green' political party established anywhere in the world. The Pedder controversy was also foundational to increased Australian Government involvement in environmental matters, including enactment of new legislative initiatives such as establishment of the National Estate system, Australia becoming a party to the World Heritage system, and Australian Government funding of heritage conservation initiatives.

Today, the Lake Pedder area lies at the heart of the Tasmanian Wilderness World Heritage Area, one of the key attributes of which is the Outstanding Universal Value of its glacial geoheritage (DASETT 1989, Hannan et al. 1993). The IUCN Advisory Group in their evaluation in 1989 foreshadowed the eventual restoration of Lake Pedder, consequently recommending that Lake Pedder be retained within the TWWHA (Thorsell cited in Australian Government 1995, para 2.14), the recommendation being adopted by the World Heritage Committee (UNESCO 1989). The restoration of Lake Pedder was also supported by the International Union for Conservation of Nature meeting in Buenos Aires in 1994. Further scientific studies in the early to mid-1990s confirmed that the landforms remain intact beneath the reservoir, allowing restoration of the original lake (Sharples 2002), and an Australian parliamentary inquiry in 1995 concluded that restoration of the original lake was indeed technically feasible (Australian Government 1995).

The removal of dams for environmental rehabilitation is becoming relatively commonplace globally. This, and the current United Nations Decade on Ecosystem Restoration 2021–2030, provide an opportunity to closely examine restoration of Lake Pedder, an action that would restore a key geomorphic attribute of Outstanding Universal Value and restore wilderness value, an attribute that underpins the maintenance of the integrity of the values of the Tasmanian

Wilderness World Heritage Area. Such an action would clearly demonstrate Australia’s commitment to heritage restoration.



The importance of heritage in contributing to attachment and wellbeing is generally not well recognised or understood in Australia (Taçon & Baker 2019). Where it is recognised, it is primarily in relation to Indigenous heritage and protected areas.

Indigenous people’s wellbeing is tied to the wellbeing of Country. With all aspects of Indigenous heritage and cultures embedded in Country, it is widely understood that, if Country is sick, people are sick (see the Indigenous chapter.)

In relation to protected areas, the positive impacts that connecting with nature have on our health and wellbeing, particularly for children, are relatively well recognised (Camp et al. 2020). For example, the Healthy Parks Healthy People approach used in some park and protected area management has as a key

principle that the wellbeing of all societies depends on healthy ecosystems, and that contact with nature is essential for improving emotional, physical and spiritual health and wellbeing (Parks Victoria 2014). The Canberra Nature Park explicitly recognises the role that the natural environment has in contributing to wellbeing, including Indigenous wellbeing (EPSDD 2021). In natural areas, where recreation can improve wellbeing, the impact on the natural values from unmanaged use can, however, undo many of the benefits of these areas (Hennings & Soll 2017).

However, general community valuing of place, based on heritage, is less well understood in Australia, and is rarely assessed. Some jurisdictions that recognise local character have explicitly recognised the contribution of heritage to local character – for example, the New South Wales Department of Planning and

Environment guidelines for assessing local character (DPE 2019).

As well as heritage and access to heritage promoting wellbeing, human wellbeing is harmed when heritage is damaged or destroyed (Taçon & Baker 2019). Significant damage to heritage can lead to solastalgia (i.e. feelings of individual or community grief, loss and anger caused by negatively perceived environmental change).

Australia's Indigenous people and communities experience significant solastalgia due to the continued losses caused by the ongoing circumstance of colonisation, and because of their deeply embedded, symbiotic relationship to Country.

Historically, Indigenous peoples are likely to experience both nostalgia and solastalgia as they live through the destruction of their cultural traditions and their lands. Where a collective memory of an ancient culture such as that of Indigenous Australians still exists, there is no idealisation of a golden past ... but a genuine grieving for the ongoing loss of 'country' and all that entails. The strength of attachment to country is difficult for people in European cultures to fathom. (Albrecht et al. 2007)

Although the human costs of environmental change and impacts to heritage are rarely captured in environmental or social impact assessment (Roche & Judd 2016), they are evident. To improve wellbeing, assessing these costs and developing a greater understanding of how and where they occur will be required, to enhance the ability of heritage to foster and sustain attachment to place and provide local amenity.

Presenting and celebrating heritage

Some level of visitor interpretation occurs at most protected areas and heritage places in Australia. Presentation and interpretation

range from static information boards or web-accessible information to guided tours or cultural demonstrations. Interpretation at heritage places should enhance understanding of heritage and be culturally appropriate. The co-existence of different cultural values needs to be recognised and respected, with stories told truthfully. A good example can be found at the Kamay Botany Bay botanical collection sites, which is a site listed for its National Heritage significance.

Where heritage places are used for education, presentation and celebration, the way in which they are used needs to be compatible with the heritage values of the place. The importance of this is demonstrated in the closure of the visitor climb on Uluru in 2019 to respect Anangu Tjukurpa (Anangu law and culture) and in the outcry in 2018 when the projection of a horse-racing advertisement on the sails of the Sydney Opera House was authorised by the New South Wales Government (McGowan 2018).

In recent years, there have been advances in including Indigenous content in school curriculums across Australia. However, there is still much work to be done to combat misinformation and the lack of truth telling that has dominated education about Indigenous history (Harrison 2013, AEUVB 2021).

It is important that Indigenous heritage is not understood and presented as residing in the past. This fails to recognise that heritage is integral to all aspects of living Indigenous cultures, and that heritage for Indigenous communities intertwines the past, the present and the future (see [Indigenous heritage](#)). Heritage is maintained and practised by Indigenous communities to honour ancestors and creator beings who also reside in the present, to strengthen and maintain contemporary Indigenous values,

and to ensure that cultural heritage can be transmitted into the future (Keeler & Couzens 2010).

Celebrating heritage is an important way to connect with heritage. Although culture is generally well celebrated, and natural and cultural heritage may be used as a context for celebrations, heritage itself is not broadly celebrated. The celebration and promotion of heritage usually rely on the community, heritage professionals and nongovernment organisations who run small, occasional, mainly local events. The 2 most successful national celebrations are the Australian Heritage Festival, coordinated by the National Trusts of Australia, which occurs annually in Heritage Week, during which other, generally cultural heritage celebratory events are often held, and NAIDOC (National Aborigines and Islanders Day Observance Committee) Week (see the Indigenous chapter).

Despite efforts to present and celebrate Australia's heritage and educate the community about heritage, there is continuing lack of awareness of heritage in many parts of the community. The strongly regulatory approach of Australia's heritage legislation discourages a more positive, educational and shared experiential approach to heritage. Broadening heritage management in Australia to promote greater understanding and celebration of heritage to increase awareness is therefore desirable. Collaboration and partnership approaches to foster resource and information sharing, and to support volunteer effort and knowledge transfer can make important contributions (Wain 2020).

Indigenous management approaches

The involvement of Indigenous people in sustainable land and sea decision-making and management is paramount to the protection

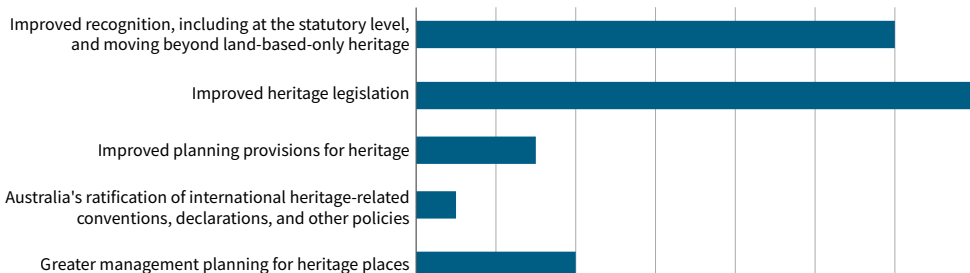
of Indigenous heritage, as are ongoing improvements in knowledge and practices that support Indigenous cultural traditions and connections to Country (see the Indigenous chapter). Indigenous management is not just about protecting Indigenous heritage sites. Involvement of Indigenous people in broader natural and geoheritage protection and management is critical to sound environmental practices and the way forward for Australian heritage. The holistic practice of caring for Country is about Indigenous people making decisions about their heritage for their cultural, social and economic benefit.

Most respondents to the expert survey undertaken for this report found that the highest priority for management of Indigenous heritage was increased Indigenous participation in governance, closely followed by improved heritage legislation to better protect Indigenous heritage (Figure 31).

Indigenous engagement and management

The main ways Indigenous people become involved in the formal management of their heritage is through employment, consultation and Indigenous advisory committees. Indigenous people are involved in agreement-making through processes of the heritage and native title legislative framework, as well as the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) and planning laws. Recognised Indigenous representative bodies are empowered under these frameworks to represent Traditional Owners, and to make decisions and agreements about their heritage. These are the Registered Aboriginal Parties in Victoria and Queensland, the Aboriginal Areas Protection Authority and land councils in the Northern Territory, and Aboriginal owners in New South Wales. Indigenous people and organisations provide cultural heritage management plans and

Protection



Identification



Management



Governance



Education



Presentation/celebration



Other



0 2 4 6 8 10 12 14
Number of experts who selected this topic

Note: Ranking is based on aggregating the survey respondents' 5 highest priority actions identified to improve the management of Indigenous heritage. A value of '1' was allocated to each action.
Source: McConnell (2021b)

Figure 31 Priority management actions identified for improving the protection of Australia's Indigenous heritage

surveys in response to applications from project developers.

However, these processes are reactive, and there are limitations in that the decision rests with a minister. Indigenous people are calling for free, prior and informed consent and control over their cultural heritage, including:

- management of cultural landscapes
- rights to hunting, genetic resources and associated traditional knowledge
- water and land management practices in relation to harvesting and agriculture.

Greater and more culturally appropriate engagement of Indigenous people in the management of Indigenous heritage has been identified as a management issue in state of the environment reports since 1996.

Some state and territories have an established statutory structure for Indigenous involvement. This includes the Aboriginal Areas Protection Authority established under the *Northern Territory Aboriginal Sacred Sites Act 1989*, the Victorian Aboriginal Heritage Council, and the South Australian process (DPC 1988), where heritage processes include a formal consultation process with Indigenous people. Recent reports and inquiries such as the Samuel Review and the Joint Standing Committee on Northern Australia in the Australian Senate into the operation of, and approvals granted under, the *Aboriginal Heritage Act 1972 (WA)* have foreshadowed the need for change to state and territory legislation to recognise the right of free, prior and informed consent, as per the United Nations Declaration on the Rights of Indigenous Peoples.

State and territory heritage departments are developing programs, and engagement and consultation policies to engage with Indigenous people. For local government, some councils are engaging Indigenous people, developing Reconciliation Action

Plans, employing Indigenous engagement officers and bringing together advisory groups. However, a key concern for Indigenous people is that these are not rights-based approaches that enable them to make decisions about their heritage.

Indigenous engagement is critical for the management of significant places. Indigenous people are involved in developing management plans for many places with Indigenous heritage significance on the National and Commonwealth lists. Some national parks are co-managed by Indigenous people, including Uluru–Kata Tjuta National Park, Kakadu National Park and Booderee National Park (see the Indigenous chapter). The Budj Bim cultural landscape is managed by the Gunditj Mirring Traditional Owners Aboriginal Corporation. Recent long-term funding has been provided for ranger programs at the Budj Bim Cultural Landscape (see [case study: Budj Bim Cultural Landscape inscribed on the UNESCO World Heritage List in 2019](#)).

Indigenous heritage is holistic, and cultural practice is being revitalised in Indigenous communities. There are growing numbers of Indigenous people working in management of Indigenous heritage, fire management, cultural tourism, carbon abatement and other areas of natural resource management. For example, in Victoria, Indigenous corporations are undertaking heritage work, and ranger programs allow access to Country and opportunities for Indigenous people to manage their own sites. However, these programs are limited and often involve only short-term funding (see the Indigenous chapter).

New business- and community-based ways of continued Indigenous connection to heritage and Country are being developed. Ecotourism is an area of growth that provides for Indigenous connection to Country. For

example, Gooniyandi people run cultural tours in the Mimbi Caves of the Kimberley region in Western Australia. The tours offer a cultural experience based on visiting the caves, which are rich in Indigenous rock art. Other experiences include sharing of Dreamtime stories and knowledge of local bush medicines, sampling bush tucker (including damper made with native seed) and a visit (for women only) to the highly significant birthing cave site (Aboriginal Carbon Foundation et al. 2020:69).

There are growing alliances between Indigenous corporations and national parks, and environmental organisations such as Bush Heritage Australia. Partnerships such as this can allow the proactive management and adequate protection of sites, including through enforcement of legal rights.

Indigenous agency

Indigenous agency refers to Indigenous-led organisations with growing capacity to identify, promote, resource and deliver Indigenous priorities, goals and aspirations. These organisations include peak national Indigenous organisations; regional and state community-controlled organisations such as land councils, and land and sea management agencies; Indigenous Protected Areas; and housing, health and community organisations. These organisations make up a strong and dynamic network of Indigenous agencies at the national, state, regional and local levels. Examples include organisations representing specific areas, such as Indigenous Desert Alliance, Murray Lower Darling Rivers Indigenous Nations and Northern Basin Aboriginal Nations. Other examples include land councils, registered Aboriginal parties recognised under the *Aboriginal Heritage Act 2006* (Vic), Prescribed Bodies Corporate (PBCs)

and the First Nations Heritage Protection Alliance.

In some states and territories, land councils have statutory roles to manage heritage. For instance, in the Northern Territory, land councils play a statutory role in assisting with the protection of sacred sites, cultural landscapes and cultural heritage sites – for example, by employing land and sea rangers. The *Aboriginal Land Rights (Northern Territory) Act 1976* (Cth) provides that it is an offence to enter on a sacred site in the Northern Territory without appropriate permission.

In Victoria, the *Aboriginal Heritage Act 2006* recognises Registered Aboriginal Parties as the primary guardians, keepers and knowledge holders of Aboriginal cultural heritage.

With native title claims and determinations under native title, the role of PBCs is growing, and PBCs can play a major role in heritage management. More than 70% of PBCs nominated their main successes as fulfilling native title obligations, looking after and strengthening Country, and improving governance (see the Indigenous chapter).

The First Nations Heritage Protection Alliance (the Alliance) was established in 2020 by Aboriginal leaders following a national crisis meeting in response to Rio Tinto's destruction of the 46,000+ year-old sacred heritage site at Juukan Gorge. The Alliance has representatives from every major Aboriginal land council and native title body in Australia, other key Indigenous land and heritage organisations such as PBCs, and Indigenous advocates for Indigenous heritage protection. The establishment of this new Indigenous entity presents a united force in Indigenous heritage concerns, in what has historically been a fractured landscape in terms of the many and varied legislative structures across the country. The Alliance acts as an advocacy network allowing Traditional Owners to alert

one another when their sacred heritage is under threat, and to unite in taking national action (NNTC 2021). The Alliance has vowed to pursue national reform to prevent the further destruction of cultural heritage.

In recent decades, there has been an increase in engagement of Indigenous communities in environmental management, in part due to the return of land to Traditional Custodians from the late 1970s onwards. The establishment of self-determined land and sea management agencies and ranger groups has been a significant development (see the Indigenous chapter). Indigenous ranger initiatives have contributed towards a steady increase in capacity building among rangers. These organisations are focusing on building sustainable business models and strengthening governance. There are also programs that develop professional skills for heritage management, such as the Certificate IV in Aboriginal Cultural Heritage Management in Victoria (DPC 2019).

Many Indigenous individuals, communities and alliances are increasingly mobilising to directly voice opposition and concerns with existing management. Recent examples can be seen in the activism by Barkandji peoples in relation to the devastation of their Baaka/Barka – Darling River, as well as Indigenous water alliances such as the Murray Lower Darling Rivers Indigenous Nations and the Martuwarra Fitzroy River Council. The Seed Indigenous Youth Climate Network is building a movement led by young Indigenous people to address all aspects of climate change. The First Nations Bush Foods & Botanical Alliance Australia, established in 2019, represents Indigenous communities and works to effect changes in law, respect and recognition of intellectual property, and the development of protocols, education and awareness.

Indigenous data management and keeping places

A growing area of Indigenous heritage management is the establishment of Indigenous-managed databases or keeping places for collection of heritage materials and Indigenous knowledge. This includes Indigenous knowledge of landscapes and seascapes, maps, languages, arts, photographs, films and cultural practices.

The use of databases has increased since 2016, with databases such as Ara Iritja, ESS Solutions, The Keeping Place, Mukurtu, Miromaa, HealthyCountry AI and Keeping Culture. The Indigenous Data Network focuses on the protection of Indigenous data, much of which is focused on heritage. Data-sharing agreements are being developed to govern the use of knowledge, and the importance of Indigenous data governance is becoming recognised (see the Indigenous chapter).

Recent research has highlighted the need to have an up-to-date national map of sites of significance to Indigenous people, which is integral to preserving and celebrating this aspect of Indigenous heritage (Wagner 2019):

Sharing Indigenous cultural heritage with the wider community has become more difficult because there is less information to help explain the stories and significance of Indigenous places, which is what builds connections in our society. The lack of a comprehensive national register backed by an adequate database also places us in a difficult position with the international community. For example, we are currently unable to measure our national management practices against international benchmarks or the effects of climate change on our Indigenous heritage places. We urgently need a national database of places of Indigenous and historical and cultural significance to address these issues.

Protection and repatriation of objects, ancestors and knowledge are also key to strengthening culture and Indigenous heritage. ‘Keeping places’ provide a community-focused and controlled approach to safeguarding heritage to allow continued cultural practice and transmission. Examples of such initiatives include the Mulka Project, which was set up to sustain and protect Yolŋu cultural knowledge in north-east Arnhem Land under the leadership of community Elders (Buku-Larrnggay Mulka Centre 2017). The Mulka production house’s recording studio, digital learning centre and cultural archive are managed by Yolŋu law and governance, and are a prime example of self-determined Indigenous heritage management.

Local keeping places are needed. The Aboriginal Culture Heritage & Arts Association Inc is working with Museums & Galleries of NSW to provide Indigenous keeping places and museums to hold knowledge and objects. The role of the Australian Institute of Aboriginal and Torres Strait Islander Studies in enabling the repatriation of cultural knowledge and keeping places continues to be important for language and other heritage. The Australian Government Department of Communications and the Arts, and the Australia Council for the Arts have also assisted in building keeping places, promoting cultural protocols and supporting cultural activities, including arts practice, festivals and events.

Managing specific pressures

A range of pressures affect heritage (see [Pressures](#)). Effective management of pressures requires that pressures are understood, the impacts are assessed and minimised through reducing or controlling the pressures and, where pressures are not directly controllable,

impacts are minimised through adaptation and risk management. It is important to recognise that pressures do not always act in isolation but may be interrelated and act in tandem or sequentially. It is therefore critical to also consider the potential cumulative impact of pressures.

Climate change

The current significant, and clearly worsening, impacts of climate change on heritage indicate that management of this pressure on heritage in Australia has been highly ineffective to date (see [Climate change](#)).

Management is lacking or deficient in several areas, including in limiting and reducing climate change. National and global actions are required to mitigate the substantial current and forecast impacts of climate change on heritage and other aspects of the environment (see the Climate chapter). Heritage plays a role in this, as protected areas can make a significant contribution to carbon fixing and maintaining ecosystem resilience, and the embodied energy of buildings and whole-of-life costs and benefits are a factor in energy accounting (see [Sustainability and embodied energy](#)).

Management is also failing to understand the impacts and risks to heritage, and translate this knowledge into effective management. Data and expert opinion (McConnell 2021c, McConnell 2021a, McConnell 2021b, McConnell 2021d) show that almost nothing has been done to either assess the risks from climate change or to measure current impacts. There are a few exceptions, such as the assessment of vulnerability of Australia’s World Heritage properties (Lin et al. 2021a), the assessment of all Victoria Heritage Register places (in preparation), and an assessment of risk from sea level change to Indigenous and historic sites in the Hobart coastal zone

(McConnell & Evans 2017). What is required are comprehensive regional assessments of risk and vulnerability to climate change for all types and levels of heritage, and routine monitoring of condition and impacts for all potentially vulnerable heritage places and protected areas.

Because climate change is an extensive, complex and rapidly developing issue, action in this area should be multidisciplinary and multistakeholder, and take a cooperative, open and shared approach. Managing climate change impacts also requires a high level of adaptive management (see [Strategic planning and adaptive management](#)).

Heritage, other than as part of biodiversity, has been largely absent from the dialogue and research of broader climate change initiatives. Scientists, heritage professionals and affected site managers appear to be interested in changing this, but inadequate resourcing for new initiatives and a lack of leadership appear to be the key factors in preventing action in this area.

Climate change management needs to consider that some loss will be inevitable. Therefore, the impacts of loss on the community, which have been found to affect people's sense of place and connection to place, and to increase general anxiety about climate change, also need to be managed (e.g. Seekamp & Jo 2020).

There are some additional issues for heritage protection in relation to bushfires. While the protection of people, property and the environment, in that order, is the generally accepted priority (Binskin et al. 2020), protecting irreplaceable ecological communities of high conservation value requires higher prioritisation. This includes consideration of the relative priority of rare or threatened vegetation communities protected under international conventions versus

infrastructure assets (Cronstedt et al. 2019), and research to improve the understanding of the efficacy of fuel management, particularly prescribed burning (Binskin et al. 2020).

Extractive industries

Extractive industries, namely mining and timber production, are a key pressure for heritage, and management of this pressure is regarded as poor (McConnell 2021b).

The destruction of the Juukan Gorge rockshelters in May 2020 (see [case study: Juukan Gorge rockshelters – highlighting the poor protections for Indigenous heritage under current Australian Indigenous heritage legislation](#)) and consequent investigations, including the Joint Standing Committee on Northern Australia inquiry, have revealed the large-scale impact of mining on Indigenous heritage (see the Indigenous chapter) (Allam & Wahlquist 2020a).

Juukan Gorge indicates that these impacts are happening because there is insufficient regulation, and the administration of heritage protection legislation appears to favour economic development over heritage protection. This is indicated in the high level of routine approval of permits. For example, mining companies in Western Australia applied for permission to destroy or disturb 463 cultural sites since 2010, and none of the applications were refused (Smith 2020).

The destruction of Juukan Gorge shows that emergency or alternative protective provisions, such as those contained in legislation such as the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act) and the *Aboriginal and Torres Strait Islander Heritage Protection Act 1984* (Cth) are not working effectively. It also revealed that mining companies have used agreements made with Traditional Custodians under the *Native Title Act 1993* (Cth) to prevent

complaints from being made (Allam & Wahlquist 2020b, Allam & Wahlquist 2020a, Joint Standing Committee on Northern Australia 2020). Expert opinion and responses to the Juukan Gorge inquiry (e.g. Joint Standing Committee on Northern Australia 2020) suggest that what has been unveiled by the Juukan Gorge incident is a widespread, long-term practice.

Protection for heritage in relation to mining is not guaranteed by reservation, as mining is able to occur in some protected area types, although not generally in national parks or World Heritage areas. The World Heritage operational guidelines (UNESCO WHC 2017) list mining and forestry as 2 potential causes for regarding a natural World Heritage property as being in danger.

Few data are available on how mining is affecting heritage values generally and how well this is being managed. It is generally understood that, although the direct impacts on historic and natural heritage are not as great or widespread (because there is less historic heritage in areas of mining potential), regulation and statutory planning are deficient. Direct impacts on geoheritage from mining and quarrying are poorly known, but it is likely that impacts are widespread, given that there is no statutory protection for geoheritage (except under the EPBC Act or where geoheritage occurs in certain protected areas).

Natural and historic heritage can be adversely affected by indirect impacts of mining – for example, downstream mining impacts, and dealing with legacy issues such re-landscaping, revegetation and treatment of toxic wastes (Mineral Policy Institute 2021). The cessation of uranium mining at Kakadu in 2021 after 4 decades of operation has created a significant challenge to rehabilitate to an acceptable level without further impacts in Kakadu National Park (DAWE 2021e).

Many of the same statutory protection issues that apply to the mining industry also apply to the timber industry. Improved protection of heritage across these 2 industries is required. Key reforms would include introducing:

- stronger heritage protection standards
- guidelines and processes tailored to the industry
- increased ability to explore and use feasible alternatives to achieve heritage protection
- impact evaluations that consider the whole-of-life operation and post-operation legacies of extractive industries to avoid downstream and indirect heritage issues.

Tourism and recreation

Tourism is a key pressure on heritage, although much of the impact is focused in key accessible areas and at significant heritage places (see [Tourism and recreation](#)). Better management of this industry is needed to achieve a genuinely sustainable approach for heritage. Although visitor impacts at Australian heritage sites have been recognised and discussed since the 1970s (e.g. Flood 1979, Sullivan 1983), the regulatory framework for managing tourism at heritage places appears still to be weak. In particular, there appear to be no effective mechanisms to deliver or measure heritage sustainability, which is regarded as a key principle for heritage tourism (Crofts et al. 2015, Leung et al. 2018).

Difficulty in achieving sustainable heritage tourism is compounded by the considerable economic benefit that tourism brings (Worboys et al. 2015). Although there has been considerable growth, with a widespread focus on benefits, the costs of this to heritage generally receive limited consideration.

In some jurisdictions, government has facilitated increased tourism by decreasing regulation and promoting specific tourism

opportunities. This is not particularly evident at cultural heritage places but is evident in protected areas; for example, management plans for protected areas are being increasingly refocused to manage recreation and tourism, rather than the values the areas were reserved to protect. It is also evident in new developments, such as the hut-based multiday walks in protected areas being proposed, encouraged and developed in some states.

The current trend of tourism promotion and facilitation in protected areas is exemplified by the Tasmanian Government's 'expression of interest' process, established in 2014 to develop 'sensitive and appropriate tourism experiences and associated infrastructure in Tasmania's national parks, reserves and Crown land', which lacks effective heritage sustainability criteria. Furthermore, changes to the 2016 Tasmanian Wilderness World Heritage Area Management Plan include some revisions to allow a greater range of uses without adequate consideration of the impact on the heritage values (Gogarty & McCormack 2018). These changes led the World Heritage Committee to request that a Tourism Management Plan be developed for the Tasmanian Wilderness World Heritage Area (UNESCO WHC 2018).

Because of the strong economic focus driving current approaches to tourism, establishing a nationally agreed framework to sustainably manage tourism in Australian protected areas, World Heritage properties and other significant heritage places would benefit heritage management. Essential to such a framework is the principle that (Leung et al. 2018:2):

For tourism ... to be sustainable, it must, first and foremost, contribute to the conservation of nature (heritage values) over the long term, not just briefly or sporadically, and ensure that conservation

is not compromised by inappropriate or poorly managed visitor use.

The development of a tourism management framework requires heritage values-based sustainability criteria, evidence-based decision-making and approvals processes, and the capacity for independent arbitration and review. It could facilitate the better use of existing guidance on heritage tourism, including principles for sustainable tourism (e.g. Leung et al. 2018), charters (e.g. ICOMOS 1999 International Cultural Tourism Charter) and expert reviews (e.g. Borges et al. 2011).

Urban development

Urban development places pressure on heritage, and management effectiveness is generally poor and declining (see [Urban development](#)).

Without more comprehensive data, it is difficult to identify the exact cause of this impact, but anecdotal information indicates that various factors are involved, including inadequate understanding of the heritage values of areas being affected, and inadequate protections for heritage (see [Respecting and protecting heritage values](#)). This situation is exacerbated in some states and territories by 'major development' legislation that overrides the standard statutory planning. These deficiencies stem mainly from statutory planning inadequacies (see [Statutory planning](#)) and inadequacies in state and territory heritage legislation. Also, there appears to be a tendency for economic development to dominate over heritage conservation and the protection of social values (also noted in the 2011 and 2016 state of the environment reports) (SoE 2011 Committee 2011, Mackay 2016c).

Achieving better heritage outcomes in relation to urban development requires comprehensive assessments of heritage values and greater

heritage listing or inclusion in overlays. These can be accomplished through cost-benefit assessments and improved heritage protections, particularly within the statutory planning framework and in local planning instruments.

A related issue for built historic heritage generally – but particularly in urban areas where this heritage is most abundant – is the inadequate consideration given to the heritage benefits and conservation needs in relation to the built environment and energy evaluations,

to sustainability more generally, and to safety and access requirements.

Resources

Access to adequate resources – including funding, data and human resources – is required for effective heritage protection and management.



Assessment Heritage resourcing

2021

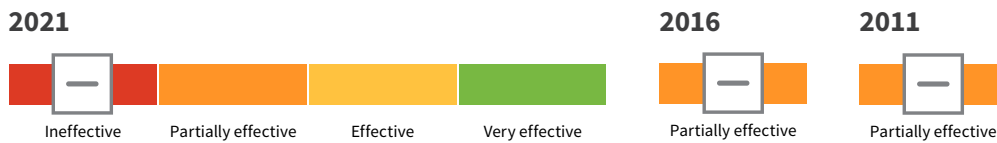


Somewhat adequate confidence

Resourcing (funding and the skills base) has been identified as inadequate in all state of the environment report chapters on heritage since 1996. Agencies with heritage management responsibilities are understaffed and lack adequate resources to meet these responsibilities adequately. Resourcing constraints prevent Australian protected area agencies from addressing major conservation priorities. Funding programs for public and private conservation are inadequate and too narrowly focused in heritage conservation scope, and incentives and conservation assistance for private heritage owners are inadequate. There are inadequate heritage expert staff employed in all heritage areas. Relevant skills are underappreciated in some areas, and in other areas increased training is required.

Related to United Nations Sustainable Development Goals target 11.4

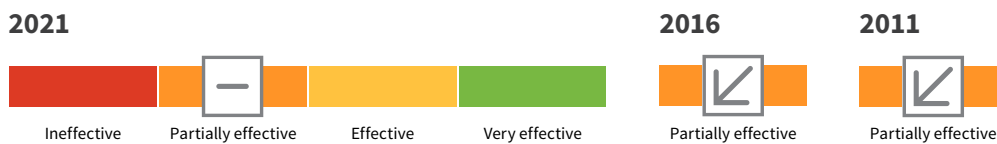
✓ **Assessment** Heritage resourcing for Indigenous heritage



Somewhat adequate confidence

Indigenous heritage programs and arts funding support community-level programs. However, the level of funding is often considered insufficient to cover the diversity of Indigenous communities. In 2021, the Australian Government announced that \$102 million will be available annually through to 2028 for Indigenous ranger activities, specifically to develop longer-term programs that create innovative ways to protect environmental and cultural heritage assets.

✓ **Assessment** Heritage resourcing for natural heritage



Limited confidence

The level of resourcing for protected areas is being maintained, but is inadequate to meet the ongoing and increasing challenges of managing these areas. Funding for labour-intensive conservation has been insufficient for some time, resulting in a heavy dependence on volunteers to undertake such work. Natural values expert staffing is generally inadequate at all levels of government.

✓ **Assessment** Heritage resourcing for geoheritage

2021



Limited confidence

Similar to natural heritage, but with funding and expert staffing less adequate. There is inadequate geoheritage expertise to service expert staffing needs. Additional resources are needed to establish a protective framework for geoheritage and to ensure that geoheritage lists are efficiently populated.

✓ **Assessment** Heritage resourcing for historic heritage

2021



Somewhat adequate confidence

Although the level of resourcing of agencies managing historic heritage has generally been maintained over the past 5 years, it remains inadequate for the routine work required, to improve identification of the historic heritage, to assess it, and to address changing circumstances and new issues. Heritage expert staffing levels are also inadequate, especially for underwater cultural heritage. Limited availability of traditionally trained craftspeople is continuing to hamper heritage conservation.

2016



2011



✓ **Assessment** Heritage resourcing for World Heritage

2021

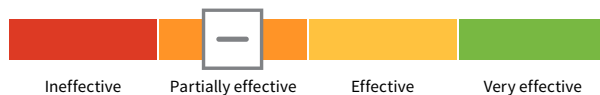


Somewhat adequate confidence

Resourcing remains inadequate for improving the identification of World Heritage and the detailed assessment and nomination process, and is not keeping up with increasing needs. Heritage expert staffing levels are also inadequate to support World Heritage work, including more collaborative management with state and territory managers.

✓ **Assessment** Heritage resourcing for National Heritage

2021



Somewhat adequate confidence

Resourcing remains inadequate for improving the identification of National Heritage and the detailed assessment and nomination process, and is not keeping up with increasing needs. Heritage expert staffing levels are also inadequate to support National Heritage work, including more collaborative management with state and territory managers.

Funding

Without adequate funding and support from government, it is challenging to implement heritage protection measures that are likely to produce sustainable and long-term results.

Heritage funding is primarily a government responsibility, given that heritage protection is a public benefit and much heritage, particularly within protected areas, is also largely government owned and managed. Although there is room for industry funding

for heritage, to avoid potential conflicts of interest, this needs to be limited to appropriate activities such as improved conservation on industry-owned or managed land, or the repair of adverse legacies of industry. Private funding is not a realistic option; to date, there has been little appetite in the philanthropic arena to contribute to heritage, except by purchasing land for nature conservation.

Resourcing for heritage (both funding and the skills base) has been identified as inadequate in all state of the environment reports

from 1996. In 1996, national-level heritage management was seen to be adequately resourced, but local government was noted as lacking adequate skills and resources. By 2001, however, a decline in public sector budgets and the lack of long-term funding programs for Indigenous and historic heritage were raised as heritage management issues. In 2006, decline in the operational budgets for protected areas nationally and inadequate funding for cultural heritage were identified as funding issues (Purdie et al. 1996, Lennon et al. 2001, Lennon 2006), with funding for historic heritage described as ‘grossly insufficient for demand’ (Lennon 2006:31).

Funding for heritage between 2006 and 2011 was reported as declining in relation to dollar value and an increasing heritage estate. Although not meeting demand, funding suffered a cut of 22% at the national level between 2010–11 and 2011–12. There has been no restoration of this funding. Since 2011, public sector funding for heritage in most areas has remained much the same, but effectively is continuing to decline in relation to the size of the heritage estate to be managed. Funding is inadequate for general management and dealing with increased pressures on heritage, particularly climate- and industry-related pressures (SoE 2011 Committee 2011, Mackay 2016c).

The existing largely competitive, short-term, specific program-based approach to funding and the limited grant funding is an inadequate model for meeting all heritage needs. Much of the funding is directed at listed places or high-status protected areas (e.g. World Heritage properties) and does not meet the level of need. The determination of priorities means that it is difficult for urgent new priorities to get funded, and it is difficult to establish long-term heritage conservation programs.

In addition, the traditional focus of heritage grant funding on repair and conservation works for heritage properties, and restoration of natural heritage, although important, leaves core areas such as heritage research largely unfunded. Areas that are inadequately funded are heritage identification, conservation management planning for privately owned cultural heritage, heritage condition assessment, and research and development in heritage conservation and practice.

Significant additional resources are required to arrest the decline in the condition of Australia’s heritage and provide an adequate level of management. Two types of funding are needed: increased recurrent funding to agencies for adequate levels of skilled staff and core tasks (including heritage identification and listing, monitoring, strategic and management planning, and restoration); and special project funding for research and conservation works, based on identified needs. Priorities for funding are:

- substantially boosting the capacity of those parts of the Australian Government Department of Agriculture, Water and the Environment that have responsibilities in relation to the heritage provisions of the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act), particularly the Heritage Branch
- an Australia-wide program for systematic cultural heritage identification and documentation, aimed at achieving comprehensive geographic coverage and heritage listings, including at the local government level
- support for the necessary research, evaluation and strategic planning needed to meet the challenges from climate change for heritage

- assistance for heritage owners through grant funding, and other in-kind support and incentives for heritage conservation and management, and by making heritage advice more widely available at the local level.

Current government funding

Heritage continues to be underfunded at all levels of government. Funding has been identified by experts as a major issue in this review (McConnell 2021b, McConnell 2021d). Funding to heritage and protected area agencies in 2016–21 has remained relatively stable, although some jurisdictions experienced a slight loss of funding in 2019–20 due to reduced incomes because of the COVID-19 pandemic (Figures 32 and 33).

The long-term funding decline for heritage and protected area agencies, coinciding with increases in the scale of work, has resulted in staffing levels and expertise that are considered inadequate. Heritage and protected area agencies appear to be struggling to carry out routine operational work (e.g. processing register nominations, updating management plans, undertaking condition monitoring). Inadequate resourcing also means that agencies are unable to take on essential strategic-level work (see [Strategic planning and adaptive management](#)).

Under the current funding model, recurrent funding to agencies is augmented by government grant funding, largely for particular programs viewed by government as conservation priorities, and in several cases via a competitive process. In 2019–20, the Australian Government provided \$16.6 million in heritage grants, almost double the amount since 2015–16 (Table 1). Of this, \$5.3 million per year was for the Australian Government's competitive Australian Heritage Grants Program. Initiated in 2018–19, this program is to support a wide range of work related to

National Heritage places. In the past 3 years, around 40% of the Australian Heritage Grants Program-funded projects were World Heritage property related, although these properties are only 27% of the National Heritage-listed places. This grant program is only slightly greater than the combined Australian Heritage and Icons Grant Program and Protecting National Historic Sites Program that it replaced (collectively \$4.8 million in 2017–18), although this combined fund varied significantly over its life (e.g. around \$1.54 million in 2016–17 and \$9 million in 2014–15) (DAWE 2021a, McConnell 2021c).

The \$16.6 million is a relatively small amount when considered in the context of recent Australian Government funding for heritage-related initiatives outside the grants program, such as the almost \$50 million to commemorate the arrival of Captain Cook in Australia, \$100 million for a World War 1 memorial visitor centre in France and \$500 million to extend the Australian War Memorial (Daley 2018, Ireland 2018).

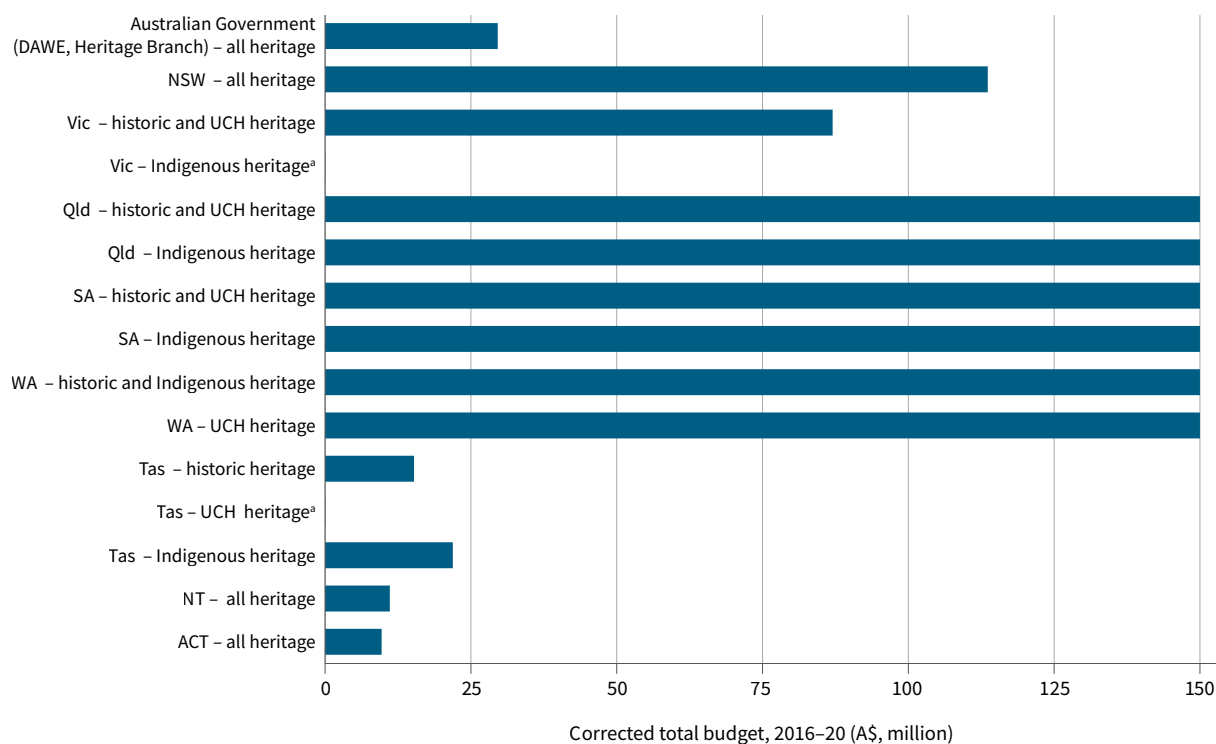
Most Australian Government funding for the environment does not specifically address heritage protection – for example, the National Environmental Science Program, for which \$145 million was committed between 2014–15 and 2020–21; and the Environment Restoration Fund, for which \$100 million is committed from 2019–20 to 2022–23. Although some of this funding is likely to contribute to natural heritage management broadly, in general, heritage is poorly funded and is not clearly differentiated from the wider pool of environmental funding. The only clearly identifiable funding for natural heritage is the Our Marine Parks Grants Program, which has had \$5 million spent in an initial round and a further \$6 million allocated in a second round (DAWE 2021b).

State and territory governments provide heritage grant funding primarily for places

listed on state heritage registers, and then mainly for conservation works. New South Wales and the Australian Capital Territory are the only jurisdictions where grant funding is available for nonlisted places, and these and South Australia were the only jurisdictions identified as providing grant funding for other than conservation works. Grant funding is mostly less than around \$400,000 in each jurisdiction (when the allocations for dedicated ongoing programs, primarily funding to government-owned heritage places, organisations or state heritage adviser programs, are considered. State and territory

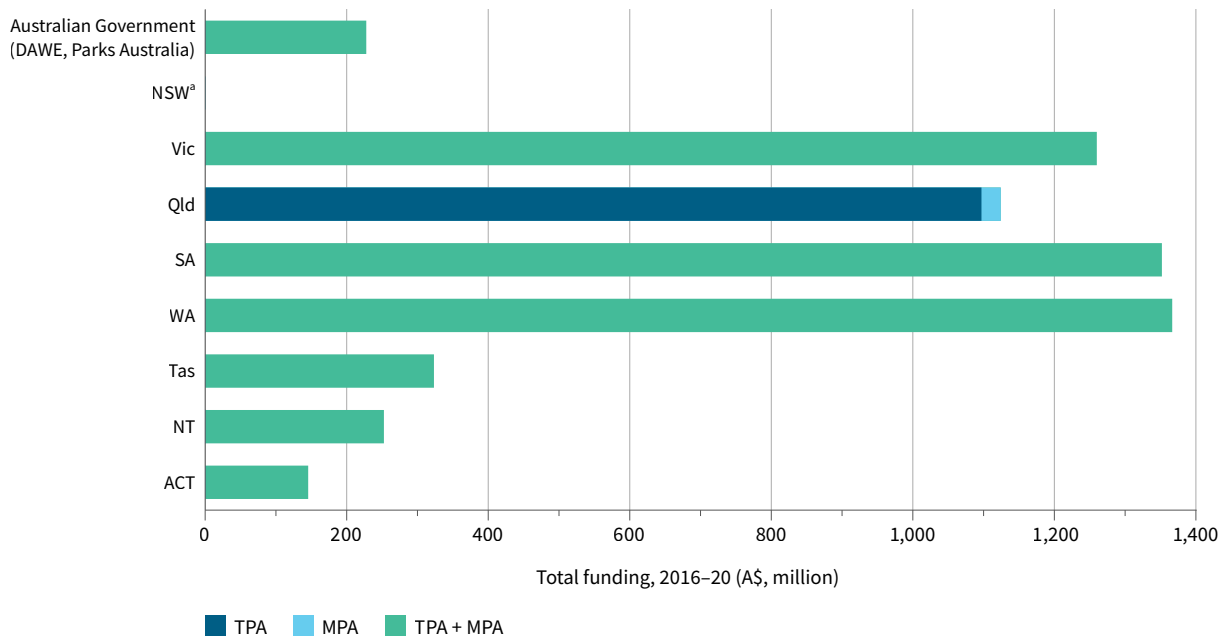
grant funding for Indigenous heritage and underwater cultural heritage is also limited.

The cessation of the National Estate Grants Program in the 1990s continues to be a particular issue for cultural heritage. Although new forms of funding were provided to natural heritage at this time, no new forms of funding were provided for cultural heritage, and no similar alternative funding opportunities exist. This has had a significant impact on cultural heritage management (du Cros 2019), particularly heritage identification and listing.



ACT = Australian Capital Territory; DAWE = Australian Government Department of Agriculture, Water and the Environment; NSW = New South Wales; NT = Northern Territory; Qld = Queensland; SA = South Australia; Tas = Tasmania; UCH = underwater cultural heritage; Vic = Victoria; WA = Western Australia
 Note: These figures are comparable to those presented in the state of the environment 2016 Heritage chapter; however, they are not highly comparable across jurisdiction given differences in the way the figures were provided. The figures for Qld, SA and WA are for the full department not just the heritage agency (in these cases, an artificial cap of \$150,000,000 was put on the amount for graphic purposes). The figures for Qld, Vic and WA had figures missing for some years and have been corrected by averaging the annual figure based on the data provided and giving a 5-year total of the annual average. No data were provided by Tas for underwater cultural heritage or by Vic for Indigenous heritage.
 a No data available.
 Source: McConnell (2021c)

Figure 32 Funding for Australian heritage agencies, 2016–20



ACT = Australian Capital Territory; DAWE = Australian Government Department of Agriculture, Water and the Environment; MPA = marine protected area; NSW = New South Wales; NT = Northern Territory; Qld = Queensland; SA = South Australia; Tas = Tasmania; TPA = terrestrial protected area; UCH = underwater cultural heritage; Vic = Victoria; WA = Western Australia
 Note: These figures are comparable to those presented in the state of the environment 2016 Heritage chapter; however, they are not highly comparable across jurisdiction given the differences in the way the figures were provided. The figure for SA is for the full department. No data were provided by NSW.
 a No data available.
 Source: McConnell (2021c)

Figure 33 Total funding for Australian protected area agencies, 2016–20

Table 1 Heritage grant funding, 2015–16 to 2019–20

Funding source	2015–16 (\$)	2016–17 (\$)	2017–18 (\$)	2018–19 (\$)	2019–20 (\$)
Australian Government (DAWE)	10,400,000	11,100,000	16,100,000	20,200,000	19,600,000
Australian Government (UCH under UCH Act 2018)	n.d.	n.d.	n.d.	n.d.	n.d.
ACT (HH + IH + NH)	363,000	351,978	345,000	355,000	355,000
Northern Territory (HH + IH + NH)	312,000	302,000	430,000	438,000	149,000
Northern Territory (UCH)	0	0	0	0	0
New South Wales (HH + IH+ UCH)	2,090,000	7,700,000	5,030,000	14,560,000	510,000
Queensland (HH)	n.d.	n.d.	n.d.	n.d.	n.d.
Queensland (IH)	n.d.	n.d.	n.d.	n.d.	n.d.
Queensland (UCH)	n.d.	n.d.	n.d.	n.d.	n.d.
South Australia (HH)	0	0	0	250,000	250,000
South Australia (IH)	0	0	0	0	0
South Australia (UCH)	n.d.	n.d.	n.d.	n.d.	n.d.
Tasmania (HH)	3,561,561	3,404,000	3,542,000	4,579,000	5,806,000
Tasmania (IH)	n.d.	n.d.	n.d.	n.d.	n.d.
Tasmania (UCH)	50,000	60,000	60,000	60,000	60,000
Victoria (HH)	n.d.	7,500,000	14,000,000	10,500,000	12,625,000
Victoria (IH)	n.d.	n.d.	n.d.	n.d.	n.d.
Victoria (UCH)	0	0	0	0	0
Western Australia (HH)	1,273,000	1,273,000	1,222,000	1,222,000	1,221,000
Western Australia (IH)	250,000	250,000	250,000	250,000	250,000
Western Australia (UCH)	n.d.	n.d.	n.d.	n.d.	n.d.

ACT = Australian Capital Territory; HH = historic heritage; IH = Indigenous heritage; n.d. = no data; NH = natural heritage (including geoheritage); UCH = underwater cultural heritage; UCH Act 2018 = *Underwater Cultural Heritage Act 2018*

Notes:

1. There may be anomalies in the figures for 2015–16 between this report and the state of the environment 2016 report due to the different way in which the figures were collected. The figures for Victoria are annual totals for the Living Heritage Grants Program recombined from subprogram figures, in many cases for more than 1 year (in this case, even annual funding has been assumed). The figures also may not include all heritage grant funding for the period considered, but are believed to include the main grant funding for heritage.
2. This table only includes grant funding for heritage conservation. Protected area grant funding is not included, as grant funding for protected area conservation is not comparable. Protected area grant funding and the National Environmental Science Program funding focuses on protected area management, biodiversity conservation and environmental management, but a portion of this funding goes to natural heritage conservation.
3. This grant funding can be for places in private ownership, government-owned places and/or nongovernment organisations (NGOs). In South Australia, the Northern Territory (NT) and Western Australia (WA), the historic heritage-focused grant funding goes to heritage places in private ownership, with funding to government-owned heritage and NGOs provided separately. In WA, funding also goes to the Roebourne Gaol and to Fremantle Prison (a World Heritage and National Heritage place). Tasmania's grant funding goes predominantly to Woolmers Estate, a World Heritage and National Heritage place, and additional funding is provided to the Royal Tasmanian Botanical Gardens, a government-owned heritage place, and to the National Trust (Tas). In 2019–20, the NT also provided \$435,000 for government-owned places and \$136,000 as an operational grant to the National Trust (NT).

Source: McConnell (2021c)

Government funding for Indigenous heritage

The 2016 state of the environment Heritage chapter stated that (Mackay 2016b):

Indigenous heritage has not been comprehensively surveyed and assessed across any Australian jurisdiction. Many of the assessments that have occurred were development driven and localised, or occasionally part of academic or community research projects. Knowledge of the nature and extent of Indigenous heritage resources is therefore incomplete, and decisions made based on this incomplete picture place pressure on an unknown but finite resource.

This situation has continued, and there remains a paucity of centralised data and assessments in relation to Indigenous heritage. This lack of understanding contributes to the relatively small amount of funding specifically allocated to Indigenous heritage. Given the importance of Indigenous heritage to Indigenous communities, especially in relation to wellbeing (VAHC 2021b), and its wider importance to Australian heritage as a whole, the relatively low portions of funding for specifically Indigenous heritage are concerning.

The 2020–21 Budget put forward by the Morrison Government included a \$61.7 million environment and heritage package, but only a small portion of this allocation was aimed specifically at benefiting Indigenous heritage (Slezak & Timms 2020). Some \$500,000 was allocated to improve Indigenous heritage protections and for Indigenous involvement in decision-making around the EPBC Act (Collard 2021, Cross 2021b).

There was also \$10.1 million committed over 4 years to the Australian Institute of Aboriginal and Torres Strait Islander Studies (AIATSIS) (Wyatt 2020). This funding is to allow AIATSIS to continue its highly successful Return of

Cultural Heritage initiative, which facilitates the return of objects of great significance to Traditional Owners. Another \$2.2 million has been allocated to expedite the assessment of applications and improve the administration of new applications under the *Aboriginal and Torres Strait Islander Heritage Protection Act 1984* (Cth).

Indigenous heritage programs and arts funding also support community-level programs. However, this is not always sufficient. For example, \$20 million from the Australia Council (Office for the Arts 2021) for language programs is seen by many as inadequate (Olawsky 2020), particularly when compared with the amounts allocated to sports, arts and foreign aid (see the Indigenous chapter).

Information and data

Information and data form the basis of protection, strategic planning and adaptive management (see [Strategic planning and adaptive management](#)). As noted by the recent EPBC Act Review (Samuel 2020:2), ‘better data and information are needed to set clear outcomes, effectively plan and invest in a way that delivers them, and to efficiently regulate development’. Funding for the coordination, sharing and management of data nationally is also noted as a priority by du Cros (2019).

The information being collected for heritage is insufficient for these key areas, including for monitoring and evaluation of heritage sites, and monitoring and evaluation of agencies and management (McConnell 2021c, McConnell 2021b). The most comprehensive, systematic and nationally standard data are for natural heritage and biodiversity values, and underwater cultural heritage, possibly reflecting that there are national frameworks for these. Historic and Indigenous heritage have significantly less data available.

Minimal routine condition monitoring is undertaken for Australian heritage sites, except where there are specific site-based issues (e.g. monitoring of climate change impacts on the Great Barrier Reef). This lack is concerning because of the increasing pressures on heritage places.

The lack of adequate or nationally comparable data has been raised as an issue for heritage in every state of the environment report, starting in 1996. As noted in 2016, the ‘general lack of condition audits and monitoring for listed heritage places presents a continuing challenge for conservation and management and places a growing number of heritage places at risk’ (Mackay 2016c:59). Condition monitoring is essential to trigger adaptive management, and its lack is seen as a major contributing factor in the decline in the state of Australia’s heritage.

Human resources

Human expertise and time are important to all areas of heritage management. The skills base needed for heritage conservation includes experts in specific areas of heritage and heritage management, and tradespeople and craftspeople with skills in heritage construction, repair and restoration methods. These can be contemporary or traditional skills and knowledge.

Many Indigenous people and communities hold and practise a wealth of knowledge and high-level skills that would greatly benefit many aspects of heritage practice in Australia, through expanded opportunities for both participation in, and being empowered across, all levels of heritage management. Embedded in Indigenous cultures is deep knowledge of how to care for, respect and protect Indigenous heritage in culturally appropriate ways. Failure to empower Indigenous people to be involved in decision-making in managing

their heritage and in exercising free, prior and informed consent is a lost opportunity, not only for Indigenous communities, who should be shown this respect for their knowledge, but for heritage concerns in Australia as a whole. Indigenous knowledge is increasingly being recognised in environmental management, but there is much more work to be done in empowerment (Woodward et al. 2020).

Heritage agencies

A serious resourcing issue for heritage is the low and arguably inadequate number of expert staff in many heritage and protected areas agencies at all levels of government (Table 2) (see also McConnell 2021c, McConnell 2021a). Particular issues are the lack of natural and cultural values scientists in protected areas, and heritage professionals in heritage agencies and working at the local government level. In addition, several statutory advisory bodies have questionably large numbers of non-expert members.

Although staffing levels are considered inadequate, where figures are provided, heritage agency staff numbers have increased slightly in the past 5 years or stayed approximately the same. Staff numbers are roughly proportional to the size of the state or territory, although the Northern Territory has a much lower staff level than other states with small populations (e.g. the Australian Capital Territory, Tasmania and South Australia). Heritage expert staffing of heritage agencies is around 80–100% of heritage agency staff, except for Tasmania, which is at 72%. Encouragingly, expert staff numbers have stayed approximately the same or increased in the past 5 years. In most cases, this is a proportionally greater increase than in heritage agency staff levels overall. In some states, the increase in expert staff has been significant. South Australia experienced a significant (175%) increase in historic heritage

expert staff numbers between 2016 and 2019, but experienced a similar magnitude loss of Indigenous heritage agency staff (proportional to the decrease in agency staff overall). Given their role, Indigenous staff levels in Indigenous heritage agencies across Australia can be considered low in comparison to both the overall agency staff numbers and expert staff numbers based on the data provided, except in New South Wales.

Many protected areas have insufficient on-ground staff to support routine heritage management tasks such as monitoring (e.g. Crossley 2009). The national and state and

territory protected area agencies operate with 50–60% of the total agency staff on-ground in terrestrial protected areas. The 2 exceptions are the Northern Territory, which has 77% agency staff on-ground, and Western Australia, which has 30% agency staff on-ground (McConnell 2021c). For jurisdictions that provided data, the on-ground staff levels for marine protected areas are significantly lower, with the Northern Territory, South Australia, Tasmania and Victoria having 4.5% or less on-ground staff compared with terrestrial agency on-ground staff (equating to 2% or less of total agency staff). No data were provided for New South Wales or Western Australia.

Table 2 Heritage and protected area agency staffing, 2016–20

Type	Agency	FTE agency staff		FTE heritage experts		FTE Indigenous staff	
		2016	2020	2016	2020	2016	2020
Heritage agencies	Australian Government (DAWE Heritage Branch)	36	42.9	n.d.	n.d.	n.d.	n.d.
	Australian Government (responsibility under UCH Act 2018)	(36)	(42.9)	2	1.5	–	–
	ACT (IH + HH + NH)	11.34	14	n.d.	14	1	1
	NT (IH + HH + NH)	6	6	5	5	1	0
	NT (UCH)	6	6	0.5	0.5	–	–
	NSW (IH + HH)	134.7	116.8	53	73	32	31
	NSW (UCH)	(134.7)	(116.8)	2	2	–	–
	Qld (IH)	12	12	n.d.	n.d.	2	2
	Qld (HH)	n.d. ^a	2,993 ^a	n.d.	31	n.d.	n.d.
	Qld (UCH)	(n.d.) ^a	(–2,993) ^a	1.5	2	–	–
	SA (IH)	47	28	14	7.6	8	7
	SA (HH)	1,610 ^a	1,477 ^a	9	16	n.d.	n.d.

continues

Table 2 continued

Type	Agency	FTE agency staff		FTE heritage experts		FTE Indigenous staff	
		2016	2020	2016	2020	2016	2020
Heritage agencies	SA (UCH)	(1,610) ^a	(1,477) ^a	2	1	–	–
	Tasmania (IH)	n.d.	n.d.	7	13	3	7
	Tasmania (HH)	13.57	14.61	9.77	10.81	0	0
	Tasmania (UCH)	297	370	0.25	0.25	–	–
	Victoria (IH)	n.d.	n.d.	21	26	n.d.	n.d.
	Victoria (HH)	36	40	30	33	n.d.	n.d.
	Victoria (UCH)	n.d.	46	2	2	–	–
	WA (HH + IH)	n/a	n.d.	n/a	40	n/a	25
	WA (UCH)	186.77	204.63	9.8	6.8	–	–
Protected area agencies	Australian Government (DAWE) (TPA)	317.8	321	63.7	70.6	43.5	58.6
	Australian Government (DAWE) (MPA)	(–317.8)	(–321)	0	0	(–43.5)	(–58.6)
	ACT (TPA)	177	202	6	8	n.d.	n.d.
	NT (TPA)	287.6	253	1	0	40.1	40.3
	NT (MPA)	(–287.6)	–253	0	0	1	2
	NSW (TPA)	1,616	1,675	17	17	182	194
	NSW (MPA)	n.d.	n.d.	n.d.	n.d.	0	4
	Qld (TPA)	1,054	1,431	2	2	30	34
	Qld (MPA)	(–1,054)	(–1,431)	n.d.	n.d.	6	13
	SA (TPA)	1,610 ^a	1,477 ^a	252.8 ^a	193.41 ^a	42 ^a	48 ^a
	SA (MPA)	(–1,610) ^a	(–1,477) ^a	6.6	3.8	0	0
	Tasmania (TPA)	297	370	2	1	20	36
	Tasmania (MPA)	(–297)	(–370)	4	5	0	0
	Victoria (TPA)	1,037	1,299	21.8	45.44	45.39	59.83
	Victoria (MPA)	(–1,037)	–1,299	2	2	0	0

continues

Table 2 continued

Type	Agency	FTE agency staff		FTE heritage experts		FTE Indigenous staff	
		2016	2020	2016	2020	2016	2020
Protected area agencies	WA (TPA)	1,412	1,466	86.42	104.81	44.55	59.89
	WA (MPA)	(-1,412)	(-1,466)	9	10	n.d.	n.d.

-- = not requested; ACT = Australian Capital Territory; DAWE = Australian Government Department of Agriculture, Water and the Environment; FTE = full-time equivalent; HH = HH = historic heritage; IH = Indigenous heritage; MPA = marine protected area; n/a = not available; n.d. = no data; NH = natural heritage (including geoheritage); NSW = New South Wales; NT = Northern Territory; Qld = Queensland; SA = South Australia; TPA = terrestrial protected area; UCH = underwater cultural heritage; UCH Act 2018 = *Underwater Cultural Heritage Act 2018*; WA = Western Australia

a Departmental staff numbers, not agency staff numbers.

Notes:

1. Figures are end of financial year figures.
2. Figures in brackets are agency or department figures already reported (in line above) and indicate that the heritage being reported is managed by the same agency or department.
3. FTE staff figures are for employees and in general exclude casuals, contractors, consultants and board members. No data were requested on Indigenous FTE staff in relation to UCH, so these categories have been omitted. As the WA Department of Planning, Lands and Heritage did not exist until 2017, it has not been possible to obtain figures for 2016. The NSW marine protected area data are draft data and may not be 100% accurate. For Qld, there is likely to be some overlap of staffing numbers in relation to protected area staff, given that joint arrangements are in place between the state and the Australian Government for management of the Great Barrier Reef Marine Park. The SA and WA protected area staff numbers have been rounded to whole numbers.
4. In relation to heritage in both the ACT and Qld, 1 Indigenous heritage staff position was vacant at the time the data were provided.
5. In relation to protected area management, the number of science/heritage expert staff provided does not necessarily reflect the science/heritage expert staff who work on, or are available to work on, protected area conservation. For NSW, scientific expertise sits within the broader department, and the figures provided are for the National Parks and Wildlife Service heritage expert staff only. For Tasmania, the Parks and Wildlife Service draws on the scientific expertise in the parent department, the Department of Primary Industries, Water and the Environment (which in 2016 had 120 FTE scientific staff (and 22 FTE Indigenous staff), and in 2020 had 100 FTE scientific staff (and 51 FTE Indigenous staff). For SA, all staffing figures provided are for the Department of Environment and Water, and not the SA National Parks and Wildlife Service. Parks Victoria provided the following science/heritage expert staff breakdown: 8 Aboriginal heritage FTEs, 1.8 historic heritage FTEs and 12 environmental scientist FTEs at June 2016, and 22.64 Aboriginal heritage FTEs, 2.8 historic heritage FTEs and 20 environmental scientist FTEs at June 2016. In relation to terrestrial protected areas, the WA FTE staff agency figures do not include the Botanic Gardens and Parks Authority, or the Rottneest Island Authority; and the SA staff agency 2020 figure does not include botanic gardens staff at 3 sites in SA (although these staff were included in the previous state of the environment report).

Source: McConnell (2021c)

Lack of relevant expertise and skills is a particular issue for small-to-medium local government bodies with limited resources. In some jurisdictions (e.g. New South Wales, Victoria), a Heritage Advisor system has been established to bring in expertise on an as-needed basis.

Advisory councils in general are undervalued and undersupported. For example, the Australian World Heritage Indigenous

Network has not met for several years, despite Indigenous and Australian World Heritage Advisory Committee support for it to be reinvigorated (Lin et al. 2021a, McConnell 2021d), during the last term of the Australian Heritage Council, the second historic heritage position remained vacant.

Conservation skills

There has been a growing need for a greater traditional skills base to support historic heritage conservation (Mackay 2016c). To meet this demand, there has been a slow growth in largely commercial, short, traditional trade courses in various parts of Australia (A McConnell, pers. obsv.). There are no data on how well these courses are meeting demand. Skills accreditation for historic heritage is an emerging issue – the complex mix of skills used in heritage conservation has discouraged the development of heritage accreditation. As a result, there is no existing formal industry accreditation process for heritage at either the professional or trade level. With an increasing interest in traditional skills training, informal accreditations are being developed. This is an area that requires review and, potentially, improved regulation and oversight.

Private owners and volunteers

Private owners and volunteers make an extremely large in-kind contribution to conserving Australia's heritage, although this is largely unmeasured. This provides much-needed capacity in various areas.

Private owners include those that own listed heritage places or significant object collections, or have entered into arrangements to protect areas of natural heritage that they own (see also the Land chapter). Private ownership generally provides significant benefits by conserving and maintaining heritage. Owners usually incur some costs in their ownership, including the original cost of the property, maintenance requirements and the cost of lost opportunities such as development.

In relation to listed or potentially listable heritage, private heritage owners receive limited assistance, although this varies between jurisdictions (McConnell 2021c, McConnell 2021a). Current funding continues to be focused on listed (primarily state heritage register) places, and on conservation works to these places, although there are some exceptions (see [Current government funding](#)). The funding that is available needs to be expanded to other important heritage conservation actions, and to be increased to meet the increasing needs.

Volunteers contribute in a wide range of ways, including through surveys and recording, archaeological excavation, invasive species control, land restoration, animal care and rehabilitation, presentations and guiding, or running promotional or celebration events. There is a high level of volunteering in the heritage area, and citizen science is an emerging area with strong uptake, primarily in natural values management in protected areas and underwater cultural heritage research (McConnell 2021c).

Volunteer capacity, however, is not unlimited, and therefore needs to be managed strategically. Also, volunteers cannot replace the need for heritage experts. Other important considerations in using volunteers for heritage management are ensuring adequate expert supervision and adequate volunteer training.

Authors and acknowledgements

Authors



Anne McConnell

Ms Anne McConnell is a heritage consultant with broad-based interests and expertise in Australian archaeology, cultural heritage management and Quaternary geoscience. Ms McConnell has more than 40 years of working experience in the government and private sectors. She works on both Indigenous and historical cultural heritage, covering diverse areas of heritage and diverse contexts, such as protected areas; production forestry; and urban, rural and remote areas, including Antarctica and the subantarctic. Ms McConnell's heritage work has included the development of statewide management systems for forest heritage, and collaborative regional heritage assessment projects, including the Indigenous history of use and evolution of freshwater lagoons in south-eastern Australia and the identification of places of National Heritage significance in Australia's arid zone. Ms McConnell also has a long-term interest in terrestrial protected area management, initially through membership of the Tasmanian Wilderness World Heritage Consultative Committee and the National Parks and Wildlife Advisory Council. Ms McConnell is a long-term member of Australia ICOMOS (International Council on Monuments and Sites) and is currently the Convenor of the Australian ICOMOS Indigenous Heritage Reference Group.



Terri Janke

Dr Terri Janke is a Meriam/Wuthathi woman and an international authority on Indigenous cultural and intellectual property (ICIP), known for creating innovative pathways between the non-Indigenous business sector and Indigenous people in business. As the owner of Terri Janke and Company, a unique legal and consulting firm, she manages her team to deliver excellent results to a diverse client base. Dr Janke advises on legal matters including intellectual property, business law and heritage. She developed the True Tracks® ICIP Protocols, a framework for Indigenous engagement, and has written leading ICIP protocols for various sectors, including the arts, museums, archives, film, research and environmental management.



Zena Cumpston

Ms Zena Cumpston is a Barkandji woman also of Afghan, Irish and English heritage, with family connections to Broken Hill and Menindee in western New South Wales. Zena brings a wealth of experience to the national State of the Environment Report, through her work as a writer, curator, consultant, academic, storyteller and educator. Most recently, as part of her role as a research fellow for the Clean Air Urban

Landscapes hub, Zena produced a free booklet exploring Indigenous plant use that has been used widely by schools and community groups. In 2021 she curated the show 'Emu Sky' for Science Gallery Melbourne, exploring Aboriginal knowledge and bringing together over 30 Aboriginal community members, sharing their stories, research, knowledge and art works. In 2021 her book 'Plants', written together with Wiradjuri academic Associate Professor Michael-Shawn Fletcher and Professor Lesley Head, will be published by Thames and Hudson as part of the 'First Knowledges' series.



Ian Cresswell

Dr Ian Cresswell has extensive experience working in environment and sustainable development in several

different areas, including biodiversity, reserve planning, fisheries, wildlife regulation and protected areas. He has a long history of success in managing large-scale, science-based government programs in natural resource management, with a strong focus on management to balance environmental, economic and social outcomes. He provides high-level advice to government and industry on environmental and sustainability issues. Dr Cresswell has led major research programs at CSIRO in both terrestrial and marine domains, as well as holding senior roles in marine planning, sustainable fisheries and wildlife management, including as the Director of the Australian Biological Resources Study.

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- former and current staff of Australia's many heritage and protected area agencies, and those local government staff who work in the heritage area, for their passion for, and commitment to, the protection and better management of Australia's heritage, which often takes them beyond the call of duty
- Australia's Indigenous peoples past and present, for maintaining – and reclaiming – connection to Country and cultural knowledge despite a 250-year history of dispossession, deliberate attempts to erase cultural knowledge and ongoing hardship, and for their ongoing care for and defence of Australia's Indigenous heritage
- the numerous members of the Australian community who, in a personal capacity, have worked largely unrewarded as heritage owners, volunteers and advocates for improved heritage reservation and protections.

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We also wish to acknowledge the recent passing of two giants of Australian heritage management – David Yencken (1931–2019) and Graham Worboys (1950–2020). Graham’s long-term engagement in protected area management at the national and international level, including as educator and advocate, led to many improvements in the management of Australia protected areas. And it is due to David’s visionary thinking and passion for heritage conservation that a national framework and various mechanisms to support that vision came into being, including the concept and reality of the National Estate, the Australian Heritage Commission, and several professional supporting bodies such as Australia ICOMOS.

We hope that the SoE 2021 Heritage report goes some way to assisting in the ongoing achievement of that which David and Graham both worked tirelessly towards – an understood, celebrated and well-managed Australian heritage.

Approach

The approach to preparing the state of the environment (SoE) 2021 heritage chapter has been similar to that of previous reports, but some adjustments have been made to reflect perspective and format changes since 2016. As with previous national SoE reports, the 2021 reporting uses the DPSIR (drivers–pressures–state–impacts–response) framework.

The general approach has been to:

- review available publications and reports relevant to the state of Australia’s heritage in the SoE period (2016–20), along with relevant earlier literature (including previous SoE heritage reports)
- collect data on the state of Australia’s heritage for the SoE period from heritage management agencies across Australia and different levels of government. Data are correct to 30 June 2020, unless otherwise specified
- seek expert opinion on the current state of heritage in Australia using surveys and meetings with peak organisations and selected recognised heritage experts (this includes Indigenous consultation)
- consult current and previous SoE heritage chapter authors.

The main differences between this approach and previous SoEs are:

- the inclusion of Indigenous co-authors for the chapter
- a modified focus and scope, including greater emphasis on evaluating management effectiveness
- a greater emphasis on collecting quantitative data, seeking more specialised information from experts, and gathering

more data at the state, territory and local government levels in relation to data.

Higher-level evaluation has been established for use across all SoE 2021 reporting to improve the quality of evaluation. It also allows Australia’s environmental management to be measured against the UNESCO Sustainable Development Goals (SDGs), which is another new focus of the SoE 2021.

The modifications to the approach are responses to changes to the scope of the SoE 2021 and heritage context. They also show an improved understanding of user needs and interests, particularly for:

- greater consistency between state/territory and Commonwealth reporting
- greater consistency and alignment in data collection (collaboration) and reporting between jurisdictions
- additional information on cross-jurisdictional issues
- more information about how the environment affects human wellbeing
- more future-focused information on what must be done (Oakton Digital 2016).

Scope of heritage

This chapter considers heritage to be the aspects of the environment that have natural and/or cultural significance at a level that makes them worthy of long-term protection through formal protective status (although this may yet not have occurred). The significance may be due to historical, social (including Indigenous), scientific, aesthetic, spiritual, and/or life-support or existence value. Or it

may be due to the heritage being a rare or representative element of the environment or past practices, or traditional practices, skills or knowledge.

This reflects the approach of the National Heritage guidelines, the Burra Charter (Australia ICOMOS 2013), the Australian Natural Heritage Charter (AHC 2002b) and the approach to assessing significance for National Heritage (AHC 2009) and state heritage register listing.

All levels of heritage (world, national, state and local) are considered, although local heritage is reviewed in less detail because it needs a level of research and consultation that is beyond the scope of the report. The chapter does not consider biodiversity, which is covered elsewhere (see the Biodiversity chapter), and it does not cover the broad scope of Indigenous connection to, and interaction with the environment (Country) (see the Indigenous chapter).

This general approach is consistent with previous SoE heritage reports.

By including intangible heritage, the scope for this chapter is broader than that generally used in Australian heritage legislation, in which the scope, with few exceptions, is restricted to tangible heritage (i.e. natural and cultural objects, sites, structures, areas, landscapes and regions). This broader scope is supported by earlier SoE heritage reports and reflects emerging global cultural heritage practice. It is also essential if Indigenous heritage is to be fully recognised.

Although the 2021 heritage chapter generally considers objects related to place or intangible heritage practice, it does not consider objects in museums or other collecting institutions because these are regarded as cultural, rather than environmental, property.

Heritage focus

This chapter uses the standard categories of heritage – as recognised in Australian heritage legislation – that were also used in previous SoE heritage reports: natural heritage, Indigenous heritage and historic heritage. These terms, particularly ‘historic heritage’, are not considered ideal, but are used here as they are the standard terms currently used in Australia.

However, it also includes a fourth category: geoheritage. Geoheritage is a topic that has historically had a relatively low profile. At the national level, it is regarded as part of ‘natural heritage’; elsewhere, geoheritage is recognised as a distinct type of heritage. It is included as a standalone category in this chapter to reflect this recognition, and because there are jurisdictions in Australia that separate geoheritage from other natural heritage. This was specifically recommended by Worboys (2012), who stated that for the next SoE report (that for 2016) ‘assessment of geoheritage as a category of heritage in its own right (like biodiversity)’ should be considered.

Indigenous focus

Because of increased awareness of Indigenous heritage matters and greater Indigenous participation in SoE 2021, the 2021 heritage chapter has a strong emphasis on the state of Indigenous heritage. This has been possible due to the engagement of Indigenous co-authors and peer reviewers, and the inclusion of the voices of many Indigenous community members and relevant stakeholders in the heritage landscape, who gave their time to get involved in the National Indigenous Seminars on the SoE outcomes report surveys. Throughout the ‘Indigenous’ section of the heritage chapter and across the entire chapter we have attempted, wherever possible, to

highlight Indigenous peoples, culture and knowledge systems, privileging Indigenous ways of knowing and of interacting with all aspects of Country.

Throughout this chapter, co-authors have, where possible, worked to include a multitude of Indigenous perspectives as well as recent examples from across Australia that work to illuminate both advancements and setbacks that have occurred in the past 5 years. It is hoped that modes of Indigenous involvement in SoE will be refined and improved on, based on the experience of the Indigenous authors who have worked across SoE 2021. Colonisation is an ongoing process, and we must continuously work to amplify Indigenous voices and aspirations, often within systems and structures that are averse to Indigenous ways of doing and seeing.

Information sources

The SoE 2021 heritage chapter is informed by existing reports and publications, data from questionnaire responses from heritage and protected area agencies, data from a local government survey, and from heritage expert (including Indigenous) consultation undertaken via workshops and surveys. This is similar to the SoE 2016 approach (Mackay 2016c), although a broader range of expertise has been targeted and a broader range of data sought.

A major challenge in compiling the heritage chapter is the lack of empirical or other easily accessible heritage data. For this reason, heavy reliance has been placed on expert opinion and data collected specifically from the agencies for the 2021 heritage chapter. The lack of published material on current heritage management matters, particularly management reviews, has meant that some use has needed to be made of publicly accessible unpublished reports and media

articles to provide otherwise inaccessible information.

The physical state (or condition) of heritage is one area where there is minimal routine monitoring and reporting. There are therefore no data to inform this chapter. This is in contrast to the SoE heritage reports in 2001, 2006 and 2011, for which an intensive program of inspections and condition assessments of select sites across Australia was carried out. For example, the 2011 report used data from the inspection and assessment of 1,092 historic heritage places (Pearson & Marshall 2011) and 75 natural heritage places (public and private formal reserves) across Australia (ERMA 2011).

The lack of actual information on the physical condition and integrity of heritage in Australia is seen as a major deficiency in the SoE 2021 heritage theme reporting. After 2011, funding constraints for the SoE reporting have meant that there are insufficient resources for such first-hand heritage evaluation. The 2016 and 2021 reports have attempted to compensate for this by using surrogate measures – such as the number of development approvals for heritage, expansion or loss of protected areas and funding for heritage conservation – and by asking for expert opinion on these. However, these are very general, hence poor, measures of condition and integrity.

Data collection and analysis

Because of the lack of systematic reporting and empirical data to support the SoE 2021 heritage chapter, the chapter has relied largely on surrogate and semiquantitative data. Where possible, these data have been derived from existing sources, such as the Collaborative Australian Protected Area Database and specialist reports. However, as relevant

data of this kind are extremely limited, this chapter has largely used purpose-specific data acquired from heritage agencies and through expert elicitation.

This closely parallels the approach taken for the SoE 2016 and is regarded as important for generating data suitable for longitudinal analysis.

The key data for the SoE 2021 heritage reporting have been:

- **Heritage management agency data.**

Questionnaires developed for the SoE 2021 heritage chapter were used to collect quantitative information on the state of heritage from all national, state and territory heritage management agencies. These included Indigenous and historic heritage agencies, and protected area management agencies. Completed questionnaires were provided by all agencies. This is a new approach compared with the SoE 2016 and provides a wide range of data (although the SoE 2016 heritage reporting was able to use a Commonwealth ‘national heritage places audit’). These data are current to 30 June 2020 unless otherwise specified, and are reported in detail in McConnell (2021c) (see Supplementary material). The data variability has, however, limited the direct use of this data set in the Heritage chapter.

- **Local government data.** An online survey of local government authorities, developed in conjunction with the Coast and Urban chapters, was distributed to all 537 councils across Australia in March 2021. This sought information on the identification and management of heritage at the local government level, as protection at this level complements that at the national, state and territory levels. The number of heritage questions was kept small. Only 45 (i.e. 8.4%) of local government authorities responded to the heritage component of the on-line

survey. The response rate was affected by survey technical problems. This was also new compared to the SoE 2016 heritage approach. These data are current to 30 June 2020 unless otherwise specified, and are reported in detail in McConnell (2021a) (see Supplementary material). As with the agency data, data variability has limited the use of this dataset in the Heritage chapter.

- **Heritage Expert Survey data.** An online survey of heritage practitioners with high-level expertise in heritage conservation and management was developed and run in early-mid 2021. Participation was invited from national peak heritage organisations and national, state and territory heritage advisory bodies, and a small number of independent experts (resulting in 82 responses spread relatively evenly across the 4 areas of heritage assessed). The survey asked for an evaluation on the current state of heritage, pressures and impacts on heritage, and effectiveness of heritage management, to contribute to information about the state of heritage, and the issues and trends. The approach paralleled that used for the SoE 2016 heritage report; however, a small number of questions were added and a wider range of higher-level experts was targeted for the 2021 report. These data are reported in detail in McConnell (2021b) (see Supplementary material).
- **Heritage Expert Workshop data.** Virtual workshop-style meetings were held in early 2021 with a small number of national heritage bodies – the Australian Heritage Council, the Australian World Heritage Advisory Committee and Australia ICOMOS. The Australian Committee for International Union for Conservation of Nature (IUCN) was approached, but a meeting could not be organised. These workshops were aimed at getting more detailed data, including on trends and issues, for specific areas of

heritage, and to identify case studies. The workshop questions paralleled those in the online survey but were more extensive. These data are reported in detail in McConnell (2021d) (see Supplementary material).

- **Indigenous consultation.** Indigenous consulting group Murawin was engaged to work with Indigenous peoples across Australia to gather and present data directly sourced from individuals and communities. Seminars were held in Melbourne, Geelong, Canberra, Dubbo, Darwin and Alice Springs as well as a climate change workshop held in Cairns as part of the First Peoples Climate Change Gathering in March with Damian Morgan-Bulled and Sonia Cooper. Participants included Indigenous organisations, native title prescribed bodies and Traditional Owner corporations, land councils, Indigenous organisations and individuals involved in environmental programs, Elders, individual community members and non-Indigenous organisations working to support Indigenous aspirations and programs.

As the type of data collected using each approach was different, they have been analysed and reported separately. Analyses have used simple comparative statistical treatments. The data collection and analysis methods and results are described in more detail in the SoE 2021 heritage supplementary reports (see Supplementary material).

Assessments

The data derived from the expert surveys and workshops have been used to generate topic assessments, which in turn have been used to generate SoE outcomes (see the Overview chapter). The SoE outcomes are designed to indicate how well Australia has met the United Nations Sustainable Development Goals

(SDGs) (United Nations 2015) in relation to environmental management.

In relation to heritage, SDG 11 and target 11.4 – ‘Strengthen efforts to protect and safeguard the world’s cultural and natural heritage’ are key. In relation to SoE 2021, although SDG 11 focuses on making ‘cities and human settlements inclusive, safe, resilient and sustainable’ (United Nations 2017), target 11.4 is taken to apply to heritage in all environments, not just cities and human settlements.

The assessments used in this chapter are broader than the economic United Nations indicator for target 11.4, which relates to the ‘Total per capita expenditure on the preservation, protection and conservation of all cultural and natural heritage, by source of funding (public, private), type of heritage (cultural, natural) and level of government (national, regional, and local/municipal)’ (United Nations 2017), in part because the data are not available to assess performance against indicator 11.4.1.

In relation to Indigenous heritage, several other SDGs that relate to wellbeing and cultural and economic health are also applicable. The assessments of these are provided in the Indigenous chapter.

Notes on the assessment method:

- This assessment is based on expert elicitation because of the lack of adequate quantitative data to inform the assessments. The grades and trends for heritage have been based on expert opinion, including an expert survey and workshops, and in the absence of this information (generally for trends) author opinion.
- For Indigenous, historic and natural heritage, and geoheritage, the grade figures are achieved by averaging the grades from the expert survey results (no weighting

was used). Trends are allocated by the authors based on general review. For World Heritage and National Heritage the grades and trends were collectively ascribed by workshop participants (i.e. Australian World Heritage Advisory Committee and Australian Heritage Council workshops, respectively).

- All grades have been converted from a 5-value scale to a 4-value scale (by multiplying each figure by 0.8). To reduce the bias in translating from a numeric grade to a value statement, the following scaling has been used – value 1 (e.g. very high) = 0.5–1.5; value 2 (e.g. high) = 1.5–2.5; value 3 (e.g. low) = 2.5–3.5; value 4 (e.g. very low) = 3.5–4.0.
- Grade and trend confidence is given as ‘limited’, given the source is opinion, except where there is good consensus (i.e. between workshops and the expert survey; or, in the case of the grades only, where the expert survey grading range (1–5) is 2 grades or less. Confidence is given as ‘very limited’

when ascribed by authors only. Grade and trend confidence perhaps could be ranked higher, as the opinion correlates strongly with what data are available.

- Comparability – given as ‘comparable’ when the same method and questions were used in 2016, and as ‘somewhat comparable’ where the assessed subject is similar, but not identical, to that in the 2016 report.
- Weighting was used only to combine meeting international obligations into the management ‘protections’ category for World Heritage and National Heritage, because international obligations are a small part of protection (weighting of international obligations was 0.5–1.0 for protection).

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