



**Threatened
Species
Recovery
Hub**

National Environmental Science Programme



Healing Country for significant species

A synthesis of supporting materials relevant to partnerships that empower Indigenous leadership and management of significant plants and animals

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Cover image: Seasonal planning calendar to guide joint management of significant species – the Byron Bay orchid (*Diuris byronensis*) and dwarf graminoid clay heath. Arakwal National Park, Australia. Source: Bundjalung of Byron Bay Aboriginal Corporation (Arakwal), NSW National Parks and Wildlife Service & CSIRO. 2019. Full version of the calendar can be found here - <https://www.nespthreatenedspecies.edu.au/publications-and-tools/arakwal-seasonal-planning-calendar>

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Project Background

This project is being run by the National Environmental Research Program Threatened Species Recovery Hub.

We aim to carry out collaborative research that works toward creating an understanding of how Indigenous Australians contribute to and are included in projects that involve research, management, and monitoring of significant species, using threatened species as an initial focus. We use the term significant species to acknowledge that the way in which these plants, animals and ecosystems are identified, classified and attributed significance varies among Indigenous and non-Indigenous experts and conservation practitioners.

In this report, we provide supporting material for improving current models of cross-cultural collaboration, to help guide non-Indigenous researchers and managers to facilitate Indigenous leadership and work effectively [and appropriately with Indigenous people and communities on significant species projects.

This study has been approved by CSIRO and CDU's Social Science Human Research Ethics Committee in accordance with the National Statement on Ethical Conduct in Human Research (2007). Any concerns or complaints about the conduct of this study can be raised with the Manager of Social Responsibility and Ethics on (07) 3833 5693 or by email at csshrec@csiro.au

Acknowledgements

We would like to acknowledge Indigenous people around Australia who are looking after places, plants and animals that are under pressure and are important to local Indigenous people. We also thank NESP TSRH Indigenous, NGO and government collaborators who have worked on research focused on threatened and culturally significant species and who provided insightful feedback on this work and report.



Image: The care of significant species, such as the Byron Bay orchid on Arakwal country, needs to recognise that all species are connected to the bio-cultural landscape in which they live. Image: Cathy Robinson

Executive Summary

This report synthesises a body of scientific work, collaborative action and knowledge on current and potential future involvement and leadership by Indigenous people in species management, monitoring and research.

This work collectively aims to: (i) shed new light on the current and potential contributions of Indigenous involvement in species management across Australia; (ii) support further cross-cultural, collaborative approaches with Indigenous land and sea managers to protecting and recovering significant species, and (iii) provide support for Indigenous defined process of empowerment beyond current models to gain leadership and recognition in managing species in culturally appropriate ways.

First, we report on broad-scale scientific analyses to understand current and potential Indigenous involvement in managing species that are significant for conservation across Australia. These threatened species are managed under explicit responsibilities set out under government legislation, including those listed under Section 178 of the Environment Protection and Biodiversity Conservation (EPBC) Act 1999 <http://www.environment.gov.au/biodiversity/threatened/species>. These analyses summarise the vast overlap between potential threatened species management and Indigenous land, much of which is currently untapped. They also indicate that governance arrangements which include Indigenous people in decision making processes create more powerful collaborations that involve a higher level of engagement in species management.

Second, we sought to capture Indigenous-led co-research approaches and Indigenous perspectives, by focusing on three case studies of collaborative threatened species projects in the NESP Threatened Species Recovery Hub (NESP TSHR) and survey to capture key insights from external projects. Case studies included working with communities in northern (Tiwi Island, NT), western (Martu Determination Area, WA) and southern (Arakwal National Park, NSW) Australia who are involved in the protection of threatened species on Indigenous lands.

This work highlighted examples of collaboration for species that had shared or complementary values of Indigenous cultural and conservation interest such as the Byron Bay Orchid (*Diuris byronensis*) and its clay heath habitat, and the bilby. The research also identifies the challenges for cross-cultural partnerships where the values of local Indigenous communities about the species do not always align with those values identified as a priority for conservation – such as the water buffalo *Bubalus bubalis* on the Tiwi Islands which is valued for bush tucker but can also damage important wetland habitats.

These projects show that Indigenous people involved in threatened species management also value broader parts of their landscapes, and other species which are not considered threatened. There is crucial impetus for expanding the recognition of cultural species and their appropriate management, including of the values in the country that are home for those species. Indigenous people seek greater recognition to determine the importance of country and species that should be valued by society, beyond threatened species.

In summary, the vast potential for Indigenous people to lead and share in species management efforts in Australia, is not yet realised legislatively, or in practice. However, Indigenous people are leading efforts to redress this. For example, the work synthesised in this report co-evolved with, and supported the development of, the NESP TSHR Indigenous Reference Group-led “Protocols and pathways to empower Indigenous community participation in culturally significant species management” (hereafter referred to as “IRG protocols and pathways”). There is more to be done in this space. Below we translate the learnings from this material to suggest four ways that Indigenous leaders and practitioners can be supported to empower their rights and responsibilities to heal country for significant species.

Support recognition of Indigenous rights, activities and interests in species management

The Australian Government’s Threatened Species Strategy emphasises the increasing potential for Indigenous people to be formally involved in the management of threatened species. Yet there has been no national understanding of the extent of this current contribution of Indigenous people to conservation efforts on Indigenous-owned or -managed lands. Research supported by the NESP TSR Hub has shown that many significant species in Australia exist in areas where Indigenous people have traditional rights and interests and often other legal rights. This includes land and access rights and the right as defined in legislation to undertake customary and ceremonial activities. In some cases, the impetus to conserve or recover these species comes from the community. In other cases, partnerships are established by conservation agencies and/or researchers. There is also a need for non-Indigenous partners wishing to conserve or recover species to commit early and appropriate engagement and operational relationships with Traditional Owners so that threatened species research and conservation activities can empower local Indigenous groups to participate in recovery planning, conservation programs and research activities.

Recognise and empower Indigenous knowledge to guide actions for species management

Effective and appropriate threatened species conservation needs to be based on high-quality information. Non-Indigenous partners can facilitate collaborative knowledge-sharing with local communities that recognise the value of Indigenous knowledge and the practices that sustains this knowledge. This includes conservation decision and evaluation approaches that value and respect Indigenous knowledge and recognise the bio-cultural features of Australia's landscapes. Knowledge sensitivity and privacy practices should be maintained as part of this effort.

Balance benefits that arise from species management projects

Threatened species research, monitoring and management programs can and should deliver environmental, social, cultural and economic benefits for Indigenous people. Research supported by the NESP TSR Hub shows how and why it is important to recognise, support and record the multiple environmental, economic and other benefits from threatened species management activities and partnerships, but also noted these benefits are often hard to balance, achieve and quantify. It is important that local Indigenous people themselves determine the benefits that are appropriate in each project and place.

Ethically collaborate in species management projects

Differences in views about the significance of a species, its threats and the actions needed to reduce threats are challenging to negotiate in cross-cultural settings. Non-Indigenous researchers and on-ground managers need to be mindful of ethical issues when navigating how to heal country, so these species survive and thrive. Time needs to be taken with Indigenous communities to negotiate the new knowledge needed and practices deemed to be helpful or harmful for these species. Co-developing threatened species research, planning and practice programs with Indigenous groups on whose lands these species lie has been key to Indigenous-led projects supported by the NESP TSRH. Co-evaluating the success of these programs with local Indigenous groups is critical. Communicating when and why research and on-ground threatened species conservation programs are starting and have ended is vital. In the short and long term threatened species recovery and management will often rely on the efforts of local Indigenous groups who will continue to work, live, care and heal their country while different non-Indigenous partners come and go.

Context and background

This section provides definitions and background information to contextualise the knowledge we bring together in this report.

Indigenous peoples and significant species

Working definitions have been used in this report, although we note these have limitations. The usage of Indigenous peoples and local communities broadly follow definitions used in the Convention on Biological Diversity (CBD) as those who have long term traditional ties to land and sea, although this does not imply that this definition has complete acceptance (see also discussion in Garnett 2018a). In the context of this report the development of the Conservation Initiative on Human Rights (CIHR), an alliance of global conservation organisations which seeks to improve inclusion of human rights in conservation policy is also key (Springer & Campese, 2011). Along with Aichi Targets 11 and 18 in the Convention on Biological Diversity Strategic Plan for Biodiversity 2011-2020 (Convention on Biological Diversity, 2010) such policies commit to increasing equity in the management of areas that have important conservation values and integrating the knowledge and management practices of Indigenous Peoples in biodiversity maintenance objectives.

How we determine and respond to the significance of plants, animals and ecosystems offers a unique opportunity to build collaborative alliances between Indigenous land and sea managers, scientists and conservation agencies who are responsible for the sustainable management of Australia. Yet how and why plants and animals are deemed worthy of attention, judged as important and provided with resources for their care implies a value judgement, evidence-base and reasoning that may or may not be shared.

In this report we initially focus on threatened species as this was the scope of NESP TSR Hub Project 6.2. However, throughout this project it became increasingly clear that we needed to focus on species of significance to Indigenous people as well. Significant species to Indigenous people are those that have a unique and important place in culture and country, as determined by Indigenous people.

This definition of significance acknowledges that the way in which these plants, animals and ecosystems are identified, classified and attributed significance varies between Indigenous and non-Indigenous experts and conservation practitioners.

Scientists use species classification systems developed by 18th century naturalists and refined as new science refines or redefines identification and classification categories.¹ Under this framework significance is often used to identify predictive traits of species vulnerable to extinction risk; uniqueness; the importance a species plays in the environment, other species and/or the function and health of an ecosystem; and its (economic, cultural, identity) value to people.

Conservation groups often attribute significance to charismatic flagship species that capture the imagination of the public and encourage support for conservation action and resources.²

Indigenous peoples may attribute significance to species that they have important relationships with through the interconnectedness of Country, resource use, culture and Law. As such, where species are Endangered or declining, it is of great concern to Indigenous communities that the Indigenous knowledge, culture and language associated with these species may also be under threat.

The **Australian Government's National Threatened Species Strategy** defines the significance of species largely based on a logic defined by western science and conservation status as prescribed under the *Environment Protection and Biodiversity Conservation Act*. Even so the opportunities and potential challenges of enabling Indigenous people's knowledge, values and reasoning to contribute to the national Threatened Species Strategy are acknowledged and include:

- A recognition that some plants and animals deemed nationally significant and a priority for conservation are also culturally significant to Indigenous peoples
- The role Indigenous land management systems have played to shape the landscape and to protect and conserve the plants and animals found in Australia
- The need to recognise and incorporate Indigenous Australians' unique knowledge of the environment, gained and passed down over countless generations, into the growing scientific base
- More than \$400 million over five years that has been committed through government funded Indigenous ranger and land and sea management programmes to support Indigenous management and protection of threatened plants, animals and places and deliver enduring environmental, cultural, social and economic outcomes
<http://www.environment.gov.au/biodiversity/threatened/publications/threatened-species-strategy>

Under this strategy there are some important opportunities for partnerships for some significant species that have been identified as national priorities and that can be co-managed with Indigenous groups.

How do significant species fit within Indigenous land and sea management?

Indigenous land and sea management (ILSM) has emerged as a contemporary expression of the relationships between Indigenous Australians and their traditional estates. This includes a wide range of knowledge-sharing, on-ground and partnership-building activities undertaken by individuals, groups and organisations to manage and protect threatened plants, animals and places for customary, community, conservation and economic reasons.³ Contemporary ILSM has many manifestations as Indigenous groups find innovative ways to manage their traditional estates on different tenures, with a range of different partners and for a mosaic of non-commercial, commercial and semi-commercial purposes.

ILSM systems are based on and negotiated through Indigenous knowledge and governance systems. Indigenous knowledge of plants, animals, places and natural resources is based on governance systems that are determined by Indigenous-kin-place relationships. Indigenous knowledge is also shared, managed, used and disseminated depending on social and cultural context, personal authority, gender, and the integrity and autonomy of local groups which influences how knowledge is managed, used and disseminated.⁴

There is growing evidence and political recognition that the knowledge held by Indigenous peoples and local communities is vital to sustaining biodiversity and that Indigenous lands are critical for the conservation of threatened species and global biodiversity.⁵ In countries like Australia, where increasing proportions of land are being returned to the control of Indigenous communities, there is recognition that effective environmental management of these areas needs to be inclusive of Indigenous peoples' values and priorities (Duncan et al. 2018). To that end, collaborative partnerships between Indigenous peoples and conservation agencies have shifted conservation paradigms and practices to include Indigenous rights and cultural dimensions to conservation scholarship and practice (Austin et al. 2018; Robinson et al. 2017).

Although there is a range of international and national policy instruments, standards and targets that acknowledge Indigenous people's knowledge as a key platform for managing biodiversity and ecosystems, translation of these commitments into negotiation of conservation priorities that appropriately empower local communities remains inconsistent.⁶ In this context **healing Country** is a unique aspect of ILSM because it focuses on the evidence, action and partnerships needed to achieve the long-term goal of reversing significant species decline and supporting species recovery. The National Threatened Species Strategy recognises the importance of Indigenous people, knowledge, and lands to reverse species decline and support species recovery. Together partners need to find ways to share and use the knowledge that is available to prioritise and resource on-ground actions.

Repeatedly and consistently ILSM groups ask that non-Indigenous people – including researchers and environmental managers – respect and acknowledge the right of Indigenous people to control and manage traditional knowledge (intellectual property) of significant plants, animals and ecosystems and the land, with its resources, that these significant species and communities occur on. Indigenous leaders have highlighted that the value of engaging with Indigenous Australians lies in their detailed knowledge of whole systems for extensive time periods, the methods that Indigenous Australians use to facilitate knowledge sharing from generation to generation, and an ethic that includes human beings within ecological systems. As such there is a critical need to develop co-management partnerships that enable Indigenous-led and holistic approaches to conservation activities that empower Indigenous values and rights, and the knowledge and practices that sustain them.

After a brief overview of methods, this report presents the results of our broad-scale analyses that show the importance of Indigenous lands for threatened species conservation in Australia, the involvement of formal engagement of Indigenous groups in threatened species management across the nation, and the influence different environmental governance regimes have on the scope and focus of local Indigenous community engagement in threatened species management. We then draw on co-research from case-studies to offer some draft principles to guide the efforts of non-Indigenous partners to support Indigenous community participation in threatened and other significant plant and animal species management.

A national overview of Indigenous people's involvement in species conservation

We used broad scale scientific analysis to provide an overview of how Indigenous people in Australia are currently contributing to threatened species conservation, and the potential for expanding this in appropriate ways.

The importance of Indigenous land

We assessed the importance of Indigenous lands for biodiversity and threatened species conservation

Global analysis of the importance of Indigenous lands for biodiversity conservation relied on the analysis of the overlap of Indigenous lands with areas that have high biodiversity values across the world (Garnett et al. 2018a). Globally, Indigenous Peoples manage or have tenure rights over at least ~38 million km² in 87 countries or politically distinct areas on all inhabited continents. This represents over a quarter of the world's land surface and intersects about 40% of all terrestrial protected areas and ecologically intact landscapes (Figure 3, Garnett et al. 2018a).

In Australia, our research focused on the identification of Australian bioregions with high potential for Indigenous engagement in threatened species management, based on the overlap between Indigenous land tenure and occurrence of threatened species (Renwick et al. 2017; Jacobsen et al. 2020).⁵ Of Australia's 272 terrestrial or freshwater vertebrate species listed as threatened under national legislation, three quarters have projected ranges that overlap Indigenous lands (Figure 4). The overlap is particularly high for mammals and birds listed in the Threatened Species Strategy (Renwick et al. 2017).

¹ Verissimo D, Pongiluppi T, Santos MCM, Develey PF, Fraser I, Smith RJ, et al. Using a systematic approach to select flagship species for bird conservation. *Conservation Biology* 2013; 28: 269–277

² Garnett, S.T., Ainsworth, G.B. and Zander, K.K., 2018. Are we choosing the right flagships? The bird species and traits Australians find most attractive. *PLoS one*, 13(6), p.e0199253.

³ Austin, B., Robinson, C.J., Fitzsimons, J., Sanford, M., Ens, E., MacDonald, J., Hockings, M., Corrigan, C., Kennett, R., Hunter-Xenie, S. T. Garnett. 2018. Integrated Measures of Indigenous Land and Sea Management Effectiveness: Challenges and Opportunities for Improved Conservation Partnerships in Australia. *Conservation and Society* 16(3):372-384; Leiper, I., Zander, K., Robinson, C.J., Carwardine, J and S. Garnett. 2018. Current formal contributions of Australian Indigenous peoples to threatened species management and opportunities for the future. *Conservation Biology* 1-10.

⁴ For example see Robinson C.J., N. Munungguritj. 2001. Sustainable balance: A Yolngu framework for cross-cultural collaborative management, in R Baker, J Davies, E Young (eds), Working on Country: Indigenous Environmental Management in Australia, Oxford University Press, Melbourne, 92-107.

⁵ Renwick AR, Robinson CJ, Garnett ST, Leiper I, Possingham HP, Carwardine J.2017. Mapping Indigenous land management for threatened species conservation: An Australian case-study. *PLoS ONE* 12(3): e0173876; Garnett, ST., Burgess, ND., Fa, J.E., Fernandez-Llamazares, A, Molnar, Z, Robinson, C.J., Watson, JEM., Zander, KK., Austin, B, Brondizio, ES., Collier, NF, Duncan, T, Ellis, E, Geyle, H, Jackson, MV., Jonas, H, Malmer, P, McGowan, B, Sivongxay, A, I. Leiper, 2018. A spatial overview of the global importance of Indigenous lands for conservation, *Nature Sustainability* 1(7), 369-374.

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⁶ For example see Duncan, T, Villarreal-Rosas, J., Carwardine, J., Garnett, S.T., C.J. Robinson. 2018. Influence of environmental governance regimes on the capacity of Indigenous Peoples to participate in conservation management. *Parks Journal*

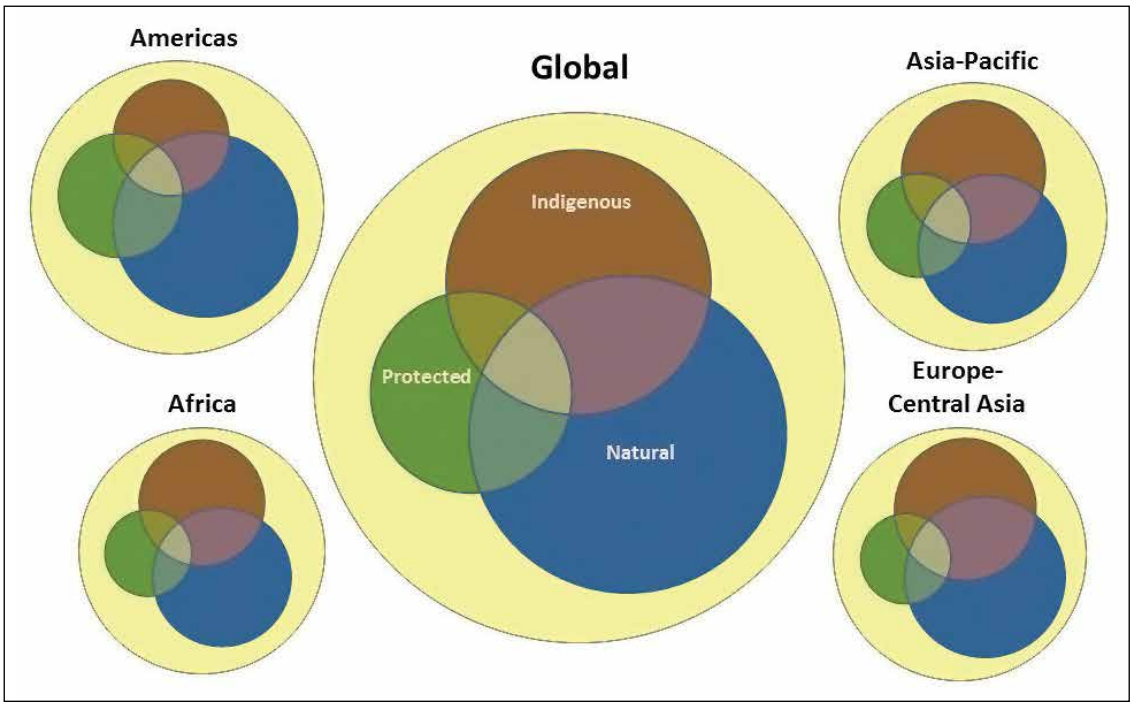


Figure 1 Globally Indigenous lands are highly significant, overlapping substantial proportions of land that is legally protected or is little developed. Source Garnett et al. 2018a.

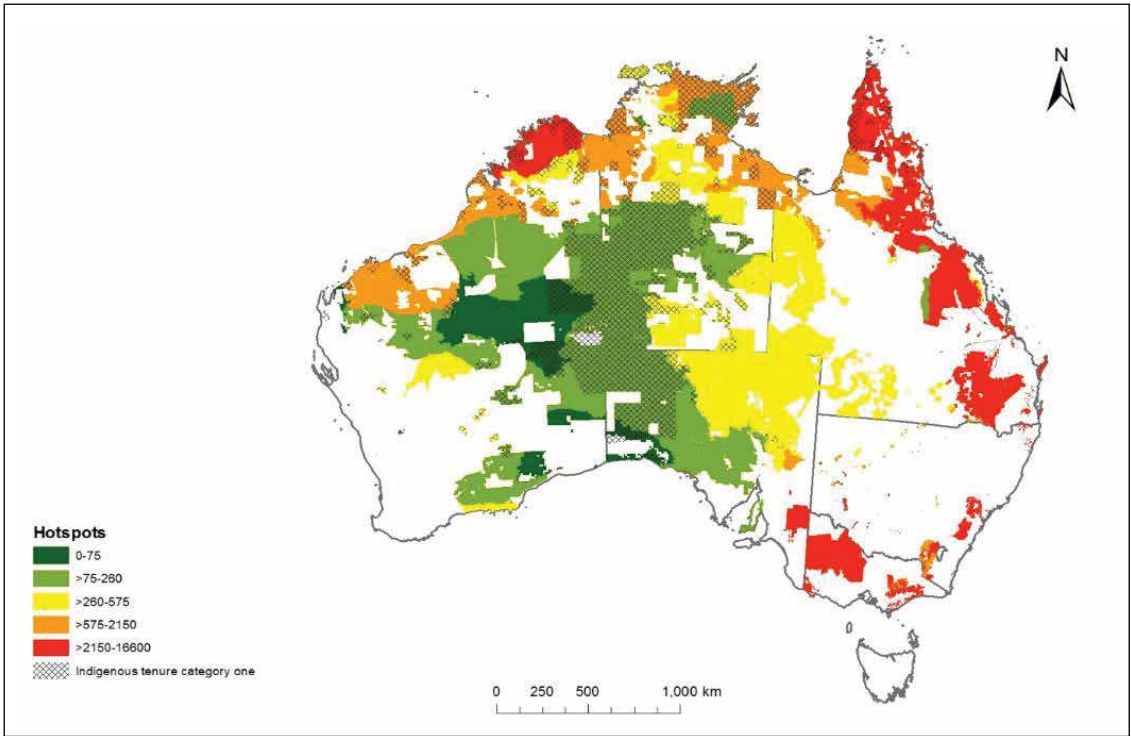


Figure 2 Many threatened species exist on Indigenous lands – scale shows threatened species hotspots of cumulative density and richness of the likely presence of threatened species across grid cells within a bioregion. Note this map is now outdated. Recent native title and Indigenous land use agreements significantly adds to Australia’s Indigenous Land Estate. Source: Renwick et al. 2017.

Current Indigenous participation in species conservation

We quantified Indigenous involvement in threatened species management projects at a national scale

We collated and analysed data on Indigenous involvement in Australian threatened species management projects across Australia (Leiper et al. in press). This investigation built on our previous research (Renwick et al. 2017) which identified Australian bioregions with high potential for Indigenous engagement in threatened species management. Data was obtained from government (Australian Government Department of the Environment and Energy Monitoring, Evaluation, Reporting and Improvement Tool; Department of Prime Minister and Cabinet Indigenous Protected Area program) and non-government (BirdLife Australia, the Australian Wildlife Conservancy, Bush Heritage Australia, and The Nature Conservancy) sources. Each project was allocated to one or more Interim Biological Regionalisation Areas (IBRA; Department of the Environment and Energy 2012) that have been developed to characterise 89 geographically distinct Australian landscapes based on commonalities in climate, geology, landform, native vegetation and biodiversity.

Actions undertaken by Indigenous peoples on threatened species were also identified in descriptions of the projects. These were first reviewed to derive categories for characterisation. Each project was then ascribed to one or more of the following nine categories:

- Monitoring and survey. Included a wide range of activities related to recording trends in the number of threatened animals or plants or the condition of habitat as well as involvement in surveys to get baseline information or to locate previously unknown populations.
- Weed control. Included both physical and chemical control of invasive plant species where these were being controlled to improve the outlook for threatened species or communities.
- Fire management. Included both prescribed burning and cultural burning.
- Feral animal control. Covered removal of all forms of feral animal that might be affecting threatened species or communities including both feral predators having a direct effect on threatened animals and herbivores that ate threatened plants, degraded threatened ecological communities or compromised the habitat of threatened animals.
- Habitat protection and restoration. This included fencing of habitat remnants, development of nurseries of native plants that have then been used to restore degraded habitats and protection of waterways and rock holes.
- Coastal management. Encompassed the removal of ghost nets and other debris from beaches and patrolling to ensure coastal species are not unduly disturbed by beach use.
- Cultural mapping and site management. Included the mapping and documentation of culturally important sites or the protection of such sites from other threats. Such activities were listed by Indigenous peoples as having benefits for threatened species and communities on the basis that the strength of a cultural connection to Country has benefits for all species inhabiting that Country.
- Education. Included both active extension to visitors and nearby schools as well as raising awareness of Indigenous values for threatened species through signage and publications. Education of young Indigenous people as part of the activities is a part of nearly all projects but was not included here as it is not a service being provided directly to help conserve threatened species or ecological communities, although the long-term benefits are acknowledged.

Indigenous groups are actively engaged in threatened species projects across Australia

We also showed that in 2015 and 2016, Indigenous peoples were formally involved in at least 153 projects on threatened species or communities around Australia that receive funding from government agencies or large non-government conservation organisations (Leiper et al. 2018; Figure 5). Of these, 123 were primarily concerned with management of threatened species, 13 involved threatened ecological communities and 17 involved both.

Projects are occurring throughout the nation particularly in the more remote parts of western and northern Australia. Almost a quarter of all animal species, but only 2% of plant species, listed as threatened under Australian environmental legislation are the subject of some formal conservation action by Indigenous people. We intersected these projects with occurrence records for 1574 threatened species, identifying that 823 (89.2%) of the 923 taxa. Indigenous Australians are recorded in formal programs or databases the results do show the scale of Indigenous people's contributions to threatened species conservation across the nation.

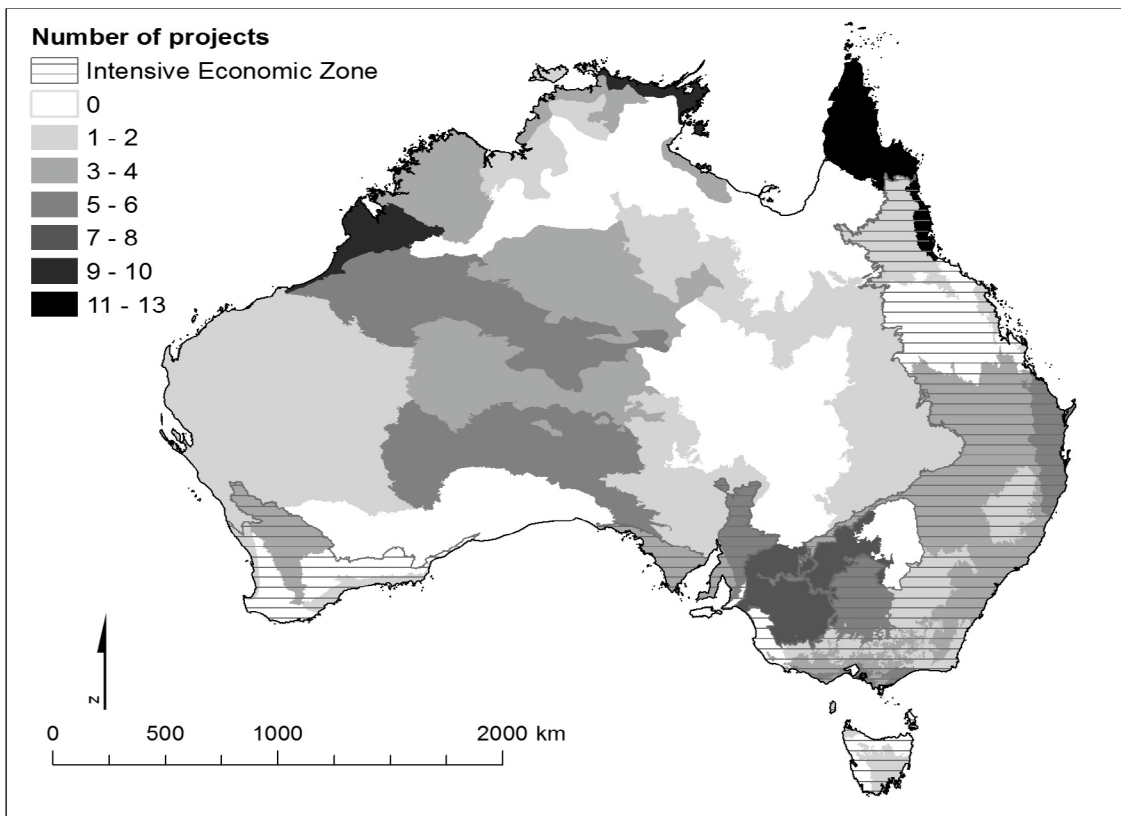


Figure 3 Current formal contributions of Australian Indigenous peoples to threatened species management and opportunities for the future. Source: Leiper et al 2018.

The impact of governance regimes

We assessed the impact of governance regimes on Indigenous peoples' involvement in threatened species planning and management in selected bioregions across Australia.

Members of the team also compared the influence different environmental governance regimes have had on the scope and focus of local Indigenous community engagement across Australia (Duncan et al. 2018). We did this by using a sample of Australian conservation planning documents to:

1. compare levels of Indigenous engagement in conservation management under different governance regimes;
2. examine agency expectations of Indigenous roles in collaborative management;
3. compare stated management priorities for species that are considered important (e.g. threatened species, culturally important species) under different governance regimes.

We categorised publicly available conservation management plans according to publication date and governance regimes. We used the typology of Hill et al. (2012) as the basis for our governance categorisation because it classifies Indigenous engagement into four categories defined by the relative degree of power-sharing between Indigenous and government agency partners, and although based on Australian contexts, is also applicable to international collaborations.

- Indigenous governed collaborations (Indigenous collaborations) that are initiated by Indigenous actors, and decision-making and planning is shared between an alliance of Indigenous organisations.
- Indigenous-driven co-governance regimes (Indigenous co-governance) that are often created within government legislative structures, retaining high levels of Indigenous control over decision-making and planning within those structures.
- Agency-driven co-governance models (agency co-governance) that are created within existing planning regimes. These governance arrangements recognise Indigenous rights but decisions are framed on agency definitions of those rights.
- Agency governance regimes (agency governance) engage with Indigenous groups as stakeholders rather than a group with a distinct political status or right to planning and decision-making.

A summary review of plans across governance regimes identified three general categories in which management was focussed, present in most plans as a specific section: significant species, fire and cultural heritage. These categories were chosen to compare levels of engagement because both agencies and local Indigenous communities commonly describe them as a management focus, but with different conservation objectives. Text searches were undertaken in each plan using a list of search terms to identify (a) whether plans committed to management of significant species, fire and cultural heritage, and (b) if so, whether plans included evidence of Indigenous engagement in each management theme.

We categorised levels of engagement into three classes to differentiate between intended and actual engagement: 'absent', if there was evidence for management for that theme being undertaken, but no mention of engagement with local Indigenous communities; 'aspirational', where a commitment or intention to engage with Indigenous groups was stated but there was no evidence that active participation was occurring; and 'active', where there was evidence that Indigenous groups were actively involved in management of that category of investment in Australian Indigenous land & sea management. Interviewees represented a broad cross-section of investor interests, including government (7), ENGOs (9) and industry (1). Results are presented in Figure 4.

The way governance structures are designed influences if and how Indigenous people are included in projects and threatened species management decisions

Our research shows that agencies and local Indigenous communities differ in their perceptions of conservation values and their respective roles in managing those values (Duncan et al. 2018). Agencies perceive clearly defined boundaries between cultural heritage, significant species and fire management. Engagement rates of local Indigenous communities in the latter two categories in agency-governed programs are currently very low. This implies that many agencies perceive cultural heritage to be the only legitimate focus of Indigenous participation and a failure to recognise continuing cultural connections, knowledge and authority for bio conservation. In contrast, plans led by Indigenous communities highlight that these communities perceive their role in conservation management as much more than protection of particular cultural heritage sites, with maintenance of cultural heritage values encompassing the wider cultural landscape and associated indicators of cultural health, such as language or the intergenerational transmission of knowledge.

The review of plans also revealed that threatened species are generally not the highest or only management priorities in plans led by Indigenous communities. Species management priorities in Indigenous-driven co-governance regime plans centre on culturally significant species rather than threatened species. This suggests that the current potential for local Indigenous communities to participate in conservation management on equitable terms depends upon the establishment of Indigenous-driven co-governance regimes. Meanwhile improving levels of engagement of Indigenous Peoples in agency governance regimes requires these agencies to recognise Indigenous worldviews in planning conservation approaches and the continuing dynamic cultural connections to and responsibilities of Indigenous Peoples for Country.

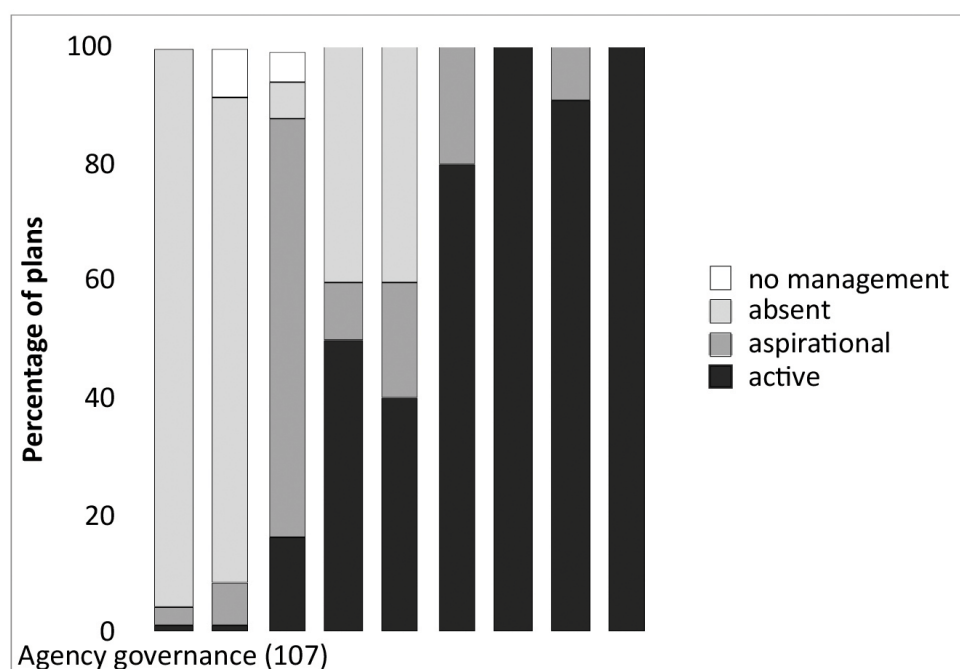


Figure 4 Commitment to Indigenous engagement in significant species, fire and cultural heritage management in conservation plans prepared for conservation areas under three types of governance regime in Australian regions with high potential for Indigenous involvement (bracketed figures are the number of plans analysed). Source: Duncan et al. 2018.

Indigenous-led research and perspectives

Case study 1: Indigenous cross-cultural planning for the Byron Bay Orchid

Members of the research team engaged in community-level projects in Arakwal National Park (NSW), on the Tiwi Islands (NT) and Martu Country (WA).

Indigenous-led joint management of the Byron Bay orchid (*Diuris byronensis*) and clay heath habitat in Arakwal National Park

At Arakwal National Park, scientists, Traditional Owners and National Park staff have been working together to enable and evaluate successful joint management of the Byron Bay Orchid (*Diuris byronensis*) and its clay heath habitat in Arakwal National Park. Similar to other Parks around Australia, Arakwal joint managers face multiple challenges to ensure conservation priorities aligning with Indigenous needs and aspirations. Arakwal joint managers and scientists have used the IUCN Green List to develop a cross-cultural approach to prioritise and evaluate on-ground actions to care for this significant species and its habitat (IUCN 2019). Knowledge-sharing protocols and successful joint management measures have been developed as part of this effort to enable Arakwal joint managers to report on if and how the objectives of their cross-cultural threatened species plan has been achieved. The result has been the support for Arakwal families to be on Country, cultural burning activities to re-nourish the orchid's clay heath habitat. This project co-created a seasonal planning calendar (Bundjalung of Byron Bay et al. 2019) and best practice guidelines for joint management of this significant species and its habitat (CSIRO et al. 2019), which are being developed to guide and evaluate joint management efforts for the Byron Bay Orchid at Arakwal National Park.



Figure 5 The team has worked with local Arakwal joint managers to adapt the International Union of Conservation of Nature (IUCN) Green List sustainability standard to evaluate and encourage successful joint management of the Byron Bay orchid (*Diuris byronensis*) and its clay heath habitat. This is the Arakwal rangers celebrating our recent CSIRO medal and award that acknowledged the success of our efforts.

⁸ For reporting convenience, the ecological community valued in each survey is part of the eight species set (seven species + one ecological community).

Case study 2: Caring for Significant Species on Tiwi Islands

As part of his PhD Tom Duncan has also been working with Traditional Owners and Rangers on the Tiwi Islands to compare their perspectives on conservation values and priorities for their traditional estates with western conservation perspectives focused on threatened species. Important species for Traditional Owners include marine turtles, buffalo, carpet snakes, possums, cycads and yams. Most species that Traditional Owners think are important are not considered important in legislation or by western conservation managers (i.e. threatened species). Many threatened species, especially small mammals and rainforest plants, do not have specific Tiwi names or uses. However, the Tiwi Land Rangers, who carry out land management activities under the direction of Traditional Owners also work with western conservation managers, undertaking monitoring and surveys for some of these species, and say it is important to look after them because they are unique to the Tiwi Islands.

Traditional Owners have a range of concerns about issues on their Country. These concerns are very diverse, partly because some of them are specific to the countries of particular land-owner groups. The concerns most commonly mentioned are:

- knowledge about plants and animals continuing to be passed on to younger generations
- the impact of sea-level rise, coastal changes and global warming
- the importance of spending time and respecting cultural protocols on Country
- keeping language and culture healthy
- the importance of continuing to gather bush foods and hunting
- managing animals like cats, pigs, crocodiles and dingoes

Even though the conservation values of Traditional Owners and western conservation managers are different, the two groups often identify similar threats to conservation values. For example, many Traditional Owners think cats are an issue that need to be managed because they eat animals that are important for hunting. Pigs and buffalo can be a problem because they foul freshwater areas and destroy bush tucker plants. However, pigs and buffalo are also important cultural animals for some Traditional Owners, and management options such as eradication or reduction in numbers would impact their cultural values. This suggests that identification and management of processes that act as threats to the values of both Traditional Owners and western conservation managers is a potentially useful starting point when planning threatened species management, while recognising the complex trade-offs inherent in cross-cultural conservation management, and the need to respect Traditional Owners' rights in the planning process.

Case study 3: Co-design of a best practice mankarr (bilby) monitoring program with Martu rangers

In the Martu Determination in WA, Kanyirninpa Jukurrpa (a Martu organisation), Elders, researchers and partners (The University of Melbourne, The Nature Conservancy, BHP) have been working together to help Kanyirninpa Jukurrpa (KJ) ranger teams update their mankarr monitoring program. The project aimed to provide Martu with a better idea of the status and trends of mankarr populations on their Country to guide management and outcomes for this threatened species.

The project was initiated in response to ranger teams identifying that the previous monitoring program wasn't delivering information of interest to the community. The co-design process was guided by Martu and carried out through multiple workshops at four communities, including field trials and consultations with Martu Elders and rangers. During the project, we recorded open knowledge of mankarr to assist with intergenerational knowledge transfer.⁸ This record demonstrates the holistic knowledge that Martu people have about the mankarr, shows the significance of the mankarr to Martu people and describes how to care for this species.

The result of the co-design process is a modified survey methodology, paired with tailored field resources, which more closely aligns with how Martu interpret and describe their Country. This Martu-mankarr-search-method both values Martu knowledge and makes use of it. Importantly, the method encourages an organic process of planning and thinking about fire, the landscape and mankarr needs.

The overall monitoring program is supported by an assessment of how likely the program will detect changes in populations over time, a database and plan for monitoring. It has been adopted by three communities, with a fourth to follow.



Figure 6 Jigalong ranger team along with Anja Skroblin (TSR) trialling mankarr search methods.

Survey of Indigenous perspectives on their experiences in species conservation

We sought insights from further case studies through surveying Indigenous and non-Indigenous partners involved with threatened species projects with the aim of collecting more detailed information about their experiences. Our survey included 17 questions to help us understand how Indigenous collaborations are working in projects that involve research, management and monitoring of threatened species, and how these collaborations can be improved upon. Six project team members sought responses from projects across Australia, by emailing and phoning potential participants using the Commonwealth Monitoring and Evaluation Reporting and Information Tool (MERIT) database as a guide.

While there was some enthusiasm from participants, we found that obtaining completed surveys from people involved in these projects was more challenging than expected. We recorded 10 responses, from people working in the following roles: Traditional Owner, ranger, ranger/project co-ordinator, natural resource manager, cultural heritage manager, and national threatened species officer. The projects reported upon generally all covered monitoring, management and research components.

These responses covered six different projects/regions across Australia:

- Warru Kanyintjaku - black footed rock wallaby recovery project *3 (APY lands, SA))
- Mapoon Land & Sea Threatened species recovery program (QLD)
- Bunya Mountains Murri Rangers (QLD)
- Minyumai IPA Flora and Fauna project (NSW)
- Flinders Fauna re-introduction – Bounceback Program (SA)
- Budj Bim rangers and IPAs (VIC)

While there were insufficient survey responses at this stage to make any generalisations, we have integrated some common themes and insights gained by the survey into the section on 'Collective learnings' in this report.

Collective learnings from case studies and survey

Indigenous Traditional Owners care about more than threatened species alone – care is about other significant plants, animals and places that live on Country

In all case studies and survey respondents, Indigenous people were concerned about species or places that are not on the national threatened species list, and in many cases these features of concern were not receiving adequate attention. According to respondents, a successful threatened species project will integrate broader objectives than threatened species, including cultural values, and will personally benefit the people and community involved.

For example, at Arakwal the team has worked with Rangers and Traditional owners to plan and evaluate efforts to do their first cultural burning on clay heath habitat for over 30 years. The Arakwal community were keen to manage fire as part of re-invigorating their responsibilities to their Country. NESP TSR Hub support to enable Arakwal to share fire management experiences with other Indigenous and non-Indigenous fire experts from southern regions of Australia was also appreciated (Figure 6). As a result, there is evidence that the orchid's habitat is improving, and a stronger sense of place and a range of other cultural benefits are also being realised by the community.



Figure 7 Learning about fire to care for Arakwal Country at the National Indigenous Fire Workshop, Nowra

People involved with collaborative threatened species projects across Australia listed the following kinds of cultural benefits through our survey: strong foundation of life and society, knowledge revival, sharing and recording (including about the use of fire), financial and logistical support for ceremonies, employment, training, role models for younger generations, being able to heal the land, awareness of collaborations between western science and Indigenous knowledge and improved hunting resources. Indigenous participants recorded a range of personal benefits that they receive from threatened species projects across Australia, including a sense of purpose, work, feeling alive and strong, feeling healthy, learning about Country and animals, learning new technical skills and training, teaching the younger generation, the opportunity to spend time on Country. At the same time, the ecological benefits of these projects are diverse, including: successful re-introductions and increases in population and health of the species of concern, decrease in threats such as feral predators and weeds, more awareness of species and environmental issues in the area, fire management, improvement of ecosystem health, better knowledge of species. It is important that these kinds of broader benefits to culture and ecosystems are specifically integrated into collaborative threatened species projects.

Collaborators need to understand and integrate diverse Indigenous held motivations and engagement models for environmental management partnerships

Our survey, along with work by Garnett et al (2018a), Austin et al. (2019) and Robinson et al (2016), show that people who wish to collaborate with Indigenous managers in threatened species projects should understand and integrate appropriate engagement models, motivations and perspectives held by Indigenous people. Indigenous people wish to be involved with effective two-way communication from the project outset, and be included in the design of the project, not just in implementing some aspects of the project. In many cases there is room for improvement in communication, relationship-building, and governance models in existing collaborative projects.

Garnett et al (2018) argue that conservation needs a social license to operate because there are winners and losers from conservation interventions with political trade-offs for those authorising the activity, whether that be the state or the community. As they argue, this trade-off is complex – on the one hand there is growing international recognition that safe, clean, healthy and sustainable environment is integral to the full enjoyment of a wide range of human rights. On the other hand, there is growing concern that Indigenous and minority groups are paying the highest cost for maintaining our planet's high conservation areas and species. Social license is not necessarily agreement only with the communities in places where conservation actions are being undertaken but also the broader group of societal players with an interest in the process, even if not directly affected.

Austin et al (2019) highlight that, in the context of developing conservation alliances with Indigenous communities, gaining a social license to operate can work for pragmatic opportunities, but can also lead to shallow and short-term engagement with local communities. Those agencies and conservation organisations who have moved beyond a conservation-driven agenda to enable Indigenous agendas and aspirations for their Country to guide partnerships and programs have empowered Indigenous communities to direct conservation priorities and activities as part of a negotiated alliance.

Australian legislation does not currently reflect the perspectives of Indigenous people in species priorities and care

The Australian Government's Threatened Species Strategy emphasises the increasing potential for Indigenous people to be formally involved in threatened species management (Department of Environment 2015). This includes reference to the value of Indigenous knowledge and fire management practices to help nourish threatened species habitat back to life. This report highlights many examples of Indigenous conservation alliances across Australia and shows some important principles and pathways for non-Indigenous partners in their efforts to support more holistic Indigenous community participation in threatened species management.

Like many Indigenous people in Australia, the case-study research with the Arakwal and Tiwi communities have highlighted that efforts to care for or recover significant species adds a challenging dimension to Indigenous rights and responsibilities for their traditional estates. As Arakwal rangers have reflected at various workshops focused on cross-cultural planning, management and evaluation of their clay heath habitat management efforts, caring for the Byron Bay orchid habitat is a process of healing as much as caring for Country. Healing Country requires significant work to recover knowledge that has been lost, bring in new knowledge needed to undertake restoration and protection and undertake on-ground and cultural activities to enable these habitats to flourish.

Some of the species that are significant to Indigenous communities are also significant to conservation partners - and some are not. On the Tiwi Islands for example introduced buffalo are pests in some areas that have important natural and cultural values but they are also valuable as a source of meat. Feral animal management for threatened species in cross-cultural contexts needs recognise some feral animals may also be significant for the community. In other contexts, species conservation and Indigenous rights and cultural practices can be at odds, for example when species that are listed as threatened are harvested under customary or cultural protocols by local Indigenous peoples.

Details on methods and results of research underpinning these case studies can be found in publications that have been produced from this work and cited in relevant sections of this report. These include the following:

- Austin, B.J., C.J. Robinson, D. Mathews, C. Oades, A. Wiggin, R.J. Dobbs, G. Lincoln & S.T. Garnett, 2019. An Indigenous-led approach for regional knowledge partnerships in the Kimberley region of Australia, *Human Ecology* 47, 577-588. DOI: 10.1007/s10745-019-00085-9.
- Bundjalung of Byron Bay Aboriginal Corporation (Arakwal), NSW National Parks and Wildlife Service & CSIRO. 2019. *Seasonal planning calendar to guide joint management of significant species- the Byron Bay Orchid (*Diuris byronensis*) and Dwarf Graminoid Clay Heath*. Arakwal National Park, Australia. <https://www.nespthreatenedspecies.edu.au/publications-and-tools/arakwal-seasonal-planning-calendar>

- CSIRO, Bundjalung of Byron Bay Aboriginal Corporation (Arakwal) and NSW National Parks and Wildlife Service. 2019. Effective cross-cultural conservation planning for significant species: best practice guidelines developed to care for the Byron Bay Orchid habitat at Arakwal National Park, Australia. https://www.nespthreatenedspecies.edu.au/media/ffrjxa2a/tsr-hub-effective-cross-cultural-conservation-report_v7.pdf
- Duncan, T., J. Villarreal-Rosas, J. Carwardine, S.T. Garnett, C.J. Robinson (2018). Influence of environmental governance regimes on the capacity of Indigenous Peoples to participate in conservation management. *Parks* 24(2): 87–102. DOI: 10.2305/IUCN.CH.2018.PARKS-24-2en.
- Garnett, S.T., N.D. Burgess, J.E. Fa, A. Fernández-Llamazares, Z. Molnár, C.J. Robinson, J.E.M. Watson, K.K. Zander, B. Austin, E.S. Brondizio, N. French Collier, T. Duncan, E. Ellis, H. Geyle, M.V. Jackson, H. Jonas, P. Malmer, B. McGowan, A. Sivongxay, I. Leiper (2018a). A spatial overview of the global importance of Indigenous lands for conservation. *Nature Sustainability* 1(7): 369–374. DOI: 10.1038/s41893-018-0100-6
- Garnett, S.T., K.K. Zander, C.J. Robinson (2018). Social license as an emergent property of political interactions. Response to 'The role of social license in Conservation. *Conservation Biology* 32(3): 734–736. DOI: 10.1111/cobi.13113
- IUCN 2019. IUCN planning and evaluation frameworks guide significant species conservation on Australian Indigenous lands. <https://www.iucn.org/news/protected-areas/201910/iucn-planning-and-evaluation-frameworks-guide-significant-species-conservation-australian-indigenous-lands>
- Leiper, I., K.K. Zander, C.J. Robinson, J. Carwardine, B.J. Moggridge, S.T. Garnett (2018). Quantifying current and potential contributions of Australian indigenous peoples to threatened species management. *Conservation Biology* 32(5): 1038–1047. DOI: 10.1111/cobi.13178
- Renwick, A.R., C.J. Robinson, S.T. Garnett, I. Leiper, H.P. Possingham, J. Carwardine, J. 2017. Mapping Indigenous land management for threatened species conservation. An Australian case-study. *PloS One* 12(3): e0173876. DOI: 10.1371/journal.pone.0173876
- Skroblin, A., Carboon, T. and Martu (2017). Martu knowledge of mankarr (greater bilby): distribution, habitat, management. Report to Kanyirninpa Jukurrpa. http://www.nespthreatenedspecies.edu.au/_images/News/Martu%20knowledge%20Report_F_Digital.pdf
- Robinson CJ, James G, and Whitehead PJ. 2016. Negotiating Indigenous benefits from payment from ecosystem (PES) schemes. *Global Environmental Change* 28, 21-29.

Ways forward to support Indigenous-led species management

The insights gained in this report identifies a mismatch between current participation of Indigenous communities in species management, and the vast potential for Indigenous people to lead in decision-making and management for significant species.

There are many ways in which Indigenous people are already working to gain improved leadership and recognition in determining the significance of species, and how, where and why species management actions should be implemented.

For example, the work synthesised in this report co-evolved with and supported the development of the NESP TSR Hub Indigenous Reference Group-led "Protocols and pathways to empower Indigenous community participation in culturally significant species management" (hereafter referred to as "IRG protocols and pathways"). This report is also informed by the case for culturally significant species that was led by the Indigenous Reference Group of the NESP TSR Hub as a submission to the 2020 independent review of the Environment Protection and Biodiversity Conservation Act 1999 [ANON-QJCP-UGT1-F-Indigenous Working Group-Threatened Species Recovery Hub.pdf](#) (environment.gov.au)

Below we suggest four general ways that non-Indigenous partners can help redress this mismatch and help to empower indigenous people to determine priorities and management for significant Australian species.

Support recognition of Indigenous rights, activities and interests in species management

The Australian Government's Threatened Species Strategy emphasises the increasing potential for Indigenous people to be formally involved in the management of threatened species. Yet there has been no national understanding of the extent of this current contribution of Indigenous people to conservation efforts on Indigenous-owned or managed lands. Research supported by the NESP TSR Hub has shown that many threatened species in Australia exist in areas where Indigenous people have traditional rights and interests and often other legal rights. In some cases, the impetus to conserve or recover these species comes from the community. In other cases, partnerships are established by conservation agencies and/or researchers. The IRG protocols and pathways emphasise the need for non-Indigenous partners wishing to conserve or recover species to commit to early and appropriate engagement and operational relationships with customary land owners so that threatened species research and conservation activities can empower local Indigenous groups to participate in threatened species recovery plans, conservation programs and research activities.

Recognise and empower Indigenous knowledge to guide actions for species management

Effective and appropriate threatened species conservation needs to be based on high-quality information. Non-Indigenous partners can facilitate collaborative knowledge-sharing with local communities that recognise the value of Indigenous knowledge and the practices that sustains this knowledge. This includes conservation decision and evaluation approaches that value Indigenous knowledge and recognise the bio-cultural features of Australia's landscapes. Knowledge sensitivity and privacy practices should be maintained.

Balancing benefits that arise from species management projects

Threatened species research, monitoring and management programs can and should deliver environmental, social, cultural and economic benefits for Indigenous people. Research supported by the NESP TSR Hub shows how and why it is important to recognise, support and record the multiple environmental, economic and other benefits from threatened species management activities and partnerships, but also notes these benefits are often hard to balance, achieve and quantify. It is important that local Indigenous people themselves determine the benefits that are appropriate in a given project and place.

Ethical collaboration in species management projects

Differences in views about the significance of a species, its threats and the actions needed to reduce threats are challenging to negotiate in cross-cultural settings. Non-Indigenous researchers and on-ground managers need to be mindful of ethical issues when navigating how to heal Country, so these species survive and thrive. Time needs to be taken with Indigenous communities to negotiate the new knowledge needed and practices deemed to be helpful or harmful for these species. Co-developing threatened species research and practice programs with Indigenous groups on whose lands these species lie has been key to Indigenous-led projects supported by the NESP TSR Hub. Co-evaluating the success of these programs with local Indigenous groups is critical. Communicating when and why research and on-ground threatened species conservation programs are starting and have ended is vital. In the short and long term threatened species recovery and management will often rely on the efforts of local Indigenous groups who will continue to work, live, care and heal their Country while different non-Indigenous partners come and go.



Further information:

<http://www.nespthreatenedspecies.edu.au>

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