AVERTING EXTINCTIONS

The case for strengthening Australia's threat abatement system

THREATS TO NATURE PROJECT

invasive species council

BUSH HERITAGE AUSTRALIA

birdlife AUSTRALIA

alca Australian Land Conservation Alliance

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About us

The **Invasive Species Council** was formed in 2002 to advocate for stronger laws, policies and programs to keep Australian biodiversity safe from weeds, feral animals, exotic pathogens and other invasive species. We initiated the **Threats to Nature project** to reform Australia's national threat abatement system. Abating major threats is essential to stop extinctions, recover threatened species and ecological communities, prevent the decline of more biodiversity, and return ecosystems to health and resilience.

Bush Heritage Australia is a national not-for-profit organisation, protecting over 11.3 million hectares of ecologically important land for the benefit of nature and all Australians. Operating nationally, Bush Heritage owns and manages over 1.2 million hectares, partners with Aboriginal people to help protect a further 10 million hectares and works with other landholders including farmers to protect biodiversity and ensure our productive landscapes benefit from thriving native species. Within these areas we are focused on restoring natural ecosystem health and the viability of native species both on our reserves and across the broader landscape through effective threat management. We work where we are needed most and our reserves and partnerships protect threatened ecosystems and over 6,700 species of plants and animals, including at least 226 threatened species.

BirdLife Australia is an independent non-partisan grassroots charity with more than 200,000 supporters. Our mission is put birds and nature on the path to recovery within a decade by leading and facilitating action that halts biodiversity loss and restores ecosystems. BirdLife Australia takes a science and evidence-based approach to bird conservation. Where strong conservation plans are in place and well-resourced the evidence tells us that threatened species can be brought back from the brink of extinction. BirdLife Australia is the Australian member of the BirdLife International partnership, the world's largest partnership for conservation. With a 100-plus year history and Australia's strongest and longest-biological database, BirdLife Australia brings a wealth of knowledge to the protection of native birds.

The **Australian Land Conservation Alliance** represents its members and supporters to grow the impact, capacity and influence of private land conservation to achieve a healthy and resilient Australia. ALCA and its members support the diverse people, places and practices that contribute to the conservation and health of privately owned and managed land. Together, ALCA and its members work to address some of the most pressing conservation issues across the country – including tackling invasive species and managing national environmental biosecurity threats, restoring endangered ecosystems, protecting threatened species and using natural solutions to tackle climate change.

Acknowledgements

We acknowledge and pay our respects to the First Australians and their elders past and present. Effective threat abatement will need to harness the deep knowledge and land and sea management skills of Indigenous Australians, and facilitate their meaningful involvement in decision-making.

Many policy and ecological experts have contributed to the proposals in this report – in particular, participants in a 2019 threat abatement workshop and a working group consisting of representatives from Bush Heritage Australia, BirdLife Australia, Humane Society International, WWF-Australia, Ecological Society of Australia and TierraMar.

Inquiries

- Email: TTN@invasives.org.au
- Web: threatstonature.org.au
- ABN: 27 101 522 829

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The overwhelming importance of abating Australia's threats to nature

Imagine if… you walked out at night and it was alive with wildlife scurrying and scrapping, digging and dashing. If you couldn't go far without tripping over a burrow, and the beam of your torchlight sparkled with reflected eye shine.

Australian nights are too quiet now. When the likes of bilbies, boodies, bandicoots and quolls were common, the nights were full of bustle. The only places we see this now are in fenced reserves and on some islands where wildlife is safe from cats and foxes. These introduced predators have completely eliminated 24 unique Australian mammals and left dozens of other species in grave peril or as refugees on islands.[1]

> *We see now only a faint shadow of the richness and abundance of the Australian mammal fauna that existed at the time of European settlement.*
>
> – Action Plan for Australia's Mammals 2012[2]

A wildlife revival need not be an impossible dream. It is within Australia's capacity to eliminate or greatly reduce major threats to nature and to restore habitats to allow rare and threatened to thrive once again.

From eliminating a prickly pear scourge over 20 million hectares in the 1930s to stopping the death of thousands of albatrosses on longline fishing hooks in the 2000s, Australians have shown that with national leadership, scientific expertise and a joint sense of mission, we can overcome major threats to nature.

The importance of focusing on threats

A few major threatening processes – particularly invasive species, habitat destruction and adverse fire regimes – have caused the majority of extinctions and declines in Australia (Box 1)[1,3,4] Unless we abate these mega-threats, many more unique species and ecological communities will be doomed to perpetual rarity or extinction. With almost 2,000 listed as nationally threatened, it is not feasible to save them all – species-by-species, community-by-community – while the major threats remain potent.

It was for this reason that, some 30 years ago, Australia formally adopted a 2-pronged approach to threatened species conservation – one prong focused on species-specific recovery and the other on broad-scale threat abatement. Both approaches are essential – but both are failing. Since Australia started officially listing threatened species, only a handful are known to have recovered. Recovery has often been stymied by a lack of effective methods for abating threats and deficient implementation of threat abatement and recovery plans.

A concerted focus on threat abatement is needed to enable recovery not only of listed species, but also of the many unlisted species in decline – some on the edge of extinction. It is also essential for fostering resilience, to optimise species' capacity to adapt under climate change – another rapidly emerging driver of extinctions. The development of enduring abatement solutions will also be far less expensive over the long term than ongoing recovery efforts in the face of unrelenting threats.

Australia's threat abatement system

Australia appears to be the only country with a threat abatement system enshrined in national law. Under the *Environment Protection and Biodiversity Conservation Act 1999* (the EPBC Act), the Australian Government can list 'key threatening processes' (KTPs) and prepare 'threat abatement plans'. A threat can be listed as a KTP if it 'threatens or may threaten the survival, abundance or evolutionary development of a native species or ecological community'.

It makes a lot of sense for the Australian Government to list major threats and coordinate national planning and threat abatement programs. Federal leadership and resources, collaboration across state and territory boundaries and a national research focus are essential for solving major problems – as is the case for health, education, biosecurity and other government functions. An effective threat abatement 'system' must be broader than the planning elements stipulated under the EPBC Act.

As demonstrated by a few successes – for example, the reduction of seabird bycatch and the eradication of invasive rodents from many islands (Box 2) – the national threat abatement system can work well. It should be a core focus for conservation in Australia – operating in tandem with recovery programs for threatened species and ecological communities. A more-effective abatement system will also benefit industries impacted by the same threats, particularly agriculture and tourism, and generate other economic benefits through the creation of jobs and services, particularly in regional and rural areas.

Since the first threats were listed more than a quarter of a century ago, in 1994 under the forerunner to the EPBC Act, there have been several extinctions and the national threatened species list has grown by 70%. Currently (February 2022), 1,839 taxa (477 animals and 1,362 plants) and 95 ecological communities are listed as threatened.

Australia already has one of the worst conservation records in modern times,[1,5] and most threats are worsening. About 100 taxa have recently been assessed as facing a 'high' or greater-than-50% risk of extinction within the next 10 years (for plants) or 20 years (for animals) – 55 plants, 20 freshwater fishes, 9 birds, 8 frogs, 6 reptiles, 1 mammal and 1 butterfly.[6-10]

Clearly, our national threat abatement system is failing to avert Australia's extinction crisis. This is not because the system is fundamentally flawed. The elements are mostly sound. But they need to be applied systematically, strengthened with more flexible response options, underpinned by intergovernmental commitments and cross-sectoral collaborations, and adequately funded. Most of all, Australia needs to become much more ambitious about overcoming major threats.

Three major reform tasks

In this document, we identify the problems with Australia's threat abatement system and recommend reforms. These need to be coupled with reforms to improve recovery planning and implementation, but they are not the focus in this report. Our proposed threat abatement reforms have been developed in collaboration with ecologists, policy experts and environmental NGOs, and incorporate planning recommendations from the independent review of the EPBC Act in 2020. We assume some knowledge in our readers of how Australia's national environmental law, the EPBC Act, operates.

We present the proposed reforms as 3 major tasks:

Task 1: Strengthen the threat abatement system – focused on improving the statutory processes to list threats and apply effective threat abatement responses.

Task 2: Secure adequate funding for threat abatement – focused on defining the level of funding needed for effective threat abatement, the economic benefits of abatement and the potential sources of funding.

Task 3: Inspire a strong national commitment to threat abatement – focused on intergovernmental commitments, nationally coordinated and collaborative threat abatement, community participation and independent oversight of progress.

BOX 1

Major threats to Australian wildlife

The environment which moulded the most remarkable fauna in the world is beset on all sides by influences which are reducing it to a medley of semi-artificial environments, in which the original plan is lost and the final outcome of which no man may predict.

Hedley Finlayson (1936)[11]

For the past 230 years, Australia's wildlife has been besieged – by voracious new predators, large-scale destruction of habitat, dramatically intensified or suppressed patterns of fire, dominating new herbivores and aggressive weeds, intensive exploitation of rivers, forests and oceans and, more recently, a rapidly changing climate.

The consequences have been dire – more than 4 documented extinctions each decade, Australia has lost more than 100 unique species, and thousands more are much diminished and declining.[1]

The most severe threats are invasive species, habitat destruction, adverse fire regimes and climate change (Figure 1). Most threatened species are threatened in multiple ways – typically by one or more invasive species (invasive animals, plants or pathogens), some form of habitat alteration (destruction, degradation or fragmentation) and ecosystem modification (changes to fire or flow regimes), often by some form of exploitation (eg logging or fishing) and increasingly by climate change. Threatened animals listed under the EPBC Act are each impacted (to varying degrees) by a median 6 threats.[12]

NORTHERN CORROBOROREE FROG

CRITICALLY ENDANGERED: Threatened by chytrid fungus, adverse fire regimes, climate change, habitat loss and feral horses.

GRANITE BORONIA

ENDANGERED: Threatened by adverse fire regimes and feral goats. Photo: Marc Newman

NUMBAT

ENDANGERED: Threatened by feral cats and foxes, adverse fire regimes and habitat loss. Photo: Bruce Thomson

AUSTRALIAN SEA LION

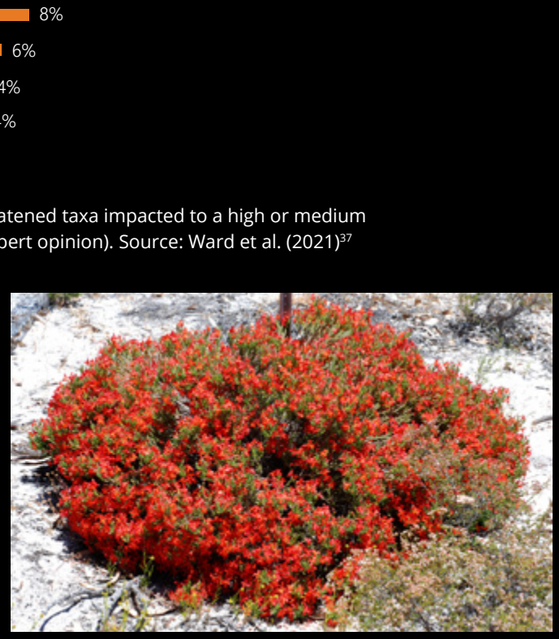
ENDANGERED: Threatened by fishing, pollution, disease and entanglement. Photo: Wikimedia Commons | Kasia-aus | CC BY-SA 4.0

BLUE MOUNTAINS WATER SKINK

ENDANGERED: Threatened by climate change, adverse fire regimes, weed invasion and pollution. Photo: Scott Eipper | CC BY-NC 2.0

SPOTTED HANDFISH

CRITICALLY ENDANGERED: Threatened by an invasive sea star, habitat degradation, pollution and climate change. Photo: John Turnbull



SCARLET LECHENAULTIA

ENDANGERED: Threatened by adverse fire regimes, weed invasion and habitat loss. Photo: Fred & Jean Hort

CARNABY'S BLACK COCKATOO

ENDANGERED: Threatened by habitat loss, adverse fire regimes, vehicle strikes, persecution and galahs. Photo: Fred & Jean Hort

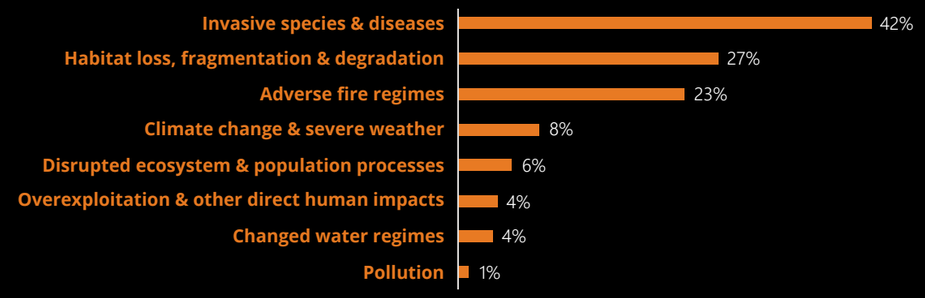


FIGURE 1. The percentage of nationally listed threatened taxa impacted to a high or medium degree by Australia's major threats (based on expert opinion). Source: Ward et al. (2021)[37]

Threat abatement successes

Australia has demonstrated a capacity to overcome major threats to nature. The first and second of the following examples are relevant to threat abatement under the EPBC Act.

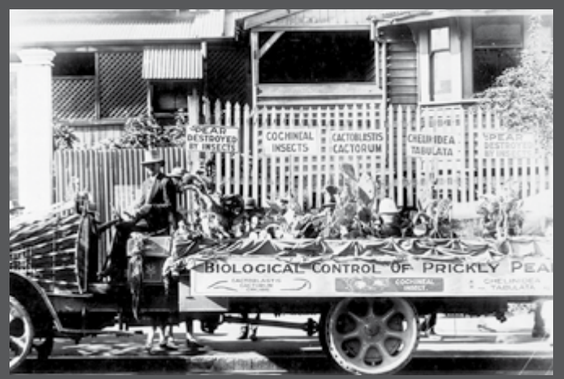
Saving seabirds from longline fishing bycatch: In the late 1980s it became clear that longline fishing was killing thousands of threatened seabirds each year in Australian waters. An albatross would fly thousands of kilometres over the ocean only to have their life cut short – snagged on a fishing hook and drowned. In 1995 the Australian Government listed the bycatch of seabirds by longline fishing as a key threatening process. Under successive threat abatement plans, the latest in 2018, and the guidance of a multi-stakeholder team, the fishing industry has greatly improved practices and technologies. A combination of national leadership, industry engagement and conservation advocacy has achieved a major reduction in the numbers of seabirds killed as bycatch. This is a standout exemplar of how Australia's national threat abatement system can work.

Eradicating invasive animals from islands: Australia's islands are biodiversity treasures – centres of endemism and havens for species threatened on the mainland. But many have been degraded by rabbits, goats and other feral plant-eaters and their wildlife decimated by cats, rats and other invasive predators. Two threat abatement plans – for exotic rodents on islands and feral cats – have each accorded high priority to island eradications. By 2018, Australia had achieved 243 successful eradications of 18 introduced species on islands – mainly black rats, goats, rabbits, cats, foxes and pigs. Eradicating such invaders has been one of the greatest conservation achievements in Australia in recent times. The largest Australian islands subject to eradications have been subantarctic Macquarie Island and Western Australia's Dirk Hartog Island. Both are World Heritage sites with outstanding conservation values.

Transitioning out of logging native forests: Conflicts over native forest logging have raged for more than 4 decades in Australia, and pressures on forests have grown despite 20-year regional forest agreements intended to achieve sustainable timber harvesting. The 1999 South East Queensland Forests Agreement – a pact forged between the timber industry and conservation groups, and supported by the Queensland Government – helped transition the industry to hardwood plantations and transfer most state forests to national parks. This collaborative, stakeholder-driven approach has achieved a more sustainable future for both the timber industry and native forests.

Taming a cactus: Prickly pear used to be one of Australia's worst invaders. By the mid-1920s, it had blanketed more than 20 million hectares of Queensland and northern New South Wales in a horror of spines and was advancing more than a thousand hectares a day. Farming was abandoned over 10 million hectares and the land was poisoned with more than 3 million kilograms of arsenic and sulfuric acid. But a decade later, the prickly pear problem was overcome, thanks to a 20-year nationally coordinated, well-funded program of research and management – with the aid of a tiny South American moth and bug that destroyed the plants. This program was one of the world's most successful biological control programs.

See Threats to Nature 'Case Studies in Success' (invasives.org.au/resources/case-studies/) for details, including on the critical success factors.



A fleet of 7 trucks and 100 men delivered 3 billion cactoblastis larvae eggs. Photo: Queensland Government Department of Agriculture and Fisheries

Task 1. Strengthen the threat abatement system

Australia appears to be the only country in the world with a formal national threat abatement system. This could be a powerful tool for saving threatened species, preventing the decline of more species and returning ecosystems to health and resilience. But the system is being applied very poorly and is hamstrung by limited threat response options. Strengthening this system should be among the highest national priorities for reform.

Why the threat abatement system needs an overhaul

> *The EPBC Act is limited in its ability to manage key threats or quickly respond to acute threats such as bushfires, biosecurity incursions or other natural disasters.*
>
> – Independent review of the EPBC Act (2020)[13]

There are 2 major mechanisms under the EPBC Act for saving Australia's threatened biodiversity: one focused on recovery (listing threatened species and ecological communities and preparing recovery plans) and the other focused on threats (listing key threatening processes and preparing threat abatement plans). This complementary, 2-pronged approach allows for both 'a broad, coordinated approach' to tackling threats and a focus on 'restricted range or species-specific threats'.[14]

Both systems are essential and both are failing to prevent biodiversity losses and extinctions, for overlapping reasons – an unsystematic listing process, limited planning, poor implementation of plans, and a failure to apply fit-for-purpose responses.

Listing of key threatening processes: The listing process is ad hoc, time-consuming and vulnerable to political interference. Several major threats are not listed.

As threats are nominated (mostly by the public) rather than systematically identified, the list of key threatening processes is not at all comprehensive – even major threats such as adverse fire regimes and altered hydrological regimes are not listed (see Box 3). It has generally taken 3 to 4 years to assess and list each threat.

Under the EPBC Act, the Environment Minister has discretion about whether to accept the advice of the Threatened Species Scientific Committee to assess or list a threat (the same discretion applies to listing threatened species and ecological communities). No new threat nominations have been accepted for assessment for about a decade and more than a dozen nominations have been rejected for assessment in that period.[15]

Preparation of threat abatement plans: The only option under the EPBC Act to respond to a listed threat is a threat abatement plan.

> *Once a threatening process is listed under the EPBC Act a threat abatement plan can be put into place if it is shown to be 'a feasible, effective and efficient way' to abate the threatening process.*
>
> *– Department of Environment*[16]

A threat abatement plan outlines the research, management and other actions needed to reduce the impacts of a key threatening process. It can work well for some threats, particularly those requiring on-ground responses. The abatement plan for feral cats, for example, is driving the development of more effective control techniques, research on interactions with fire and grazing, and improved management. A few other threats are the focus of threat abatement advices (government guidance about abatement measures) and action plans (focused on both environmental and non-environmental impacts), neither of which have a statutory basis.

But other threats need different remedies: land clearing, for example, requires policy and regulatory responses and restoration programs, and climate change requires adaptation strategies and protection of refugia (in addition to mitigation measures, which are managed outside the threat abatement system). A lack of flexible response options means that such listings never progress to a commitment to action.

Implementation of threat abatement plans: There are no obligations to implement abatement plans, apart from in Commonwealth areas, and they have not succeeded in reducing most threats.

Australia needs more ambitious and systematic threat abatement.

A deadly introduced disease, chytridiomycosis, has already caused 6 frog extinctions in Australia (2 presumed).[17] Another 7 species are at high risk of extinction and 22 others are threatened.[10] The disease was nominated as a key threatening process in 2000 and an abatement plan was published in 2006. The plan was reviewed in 2012 and a new plan was published in 2016. The review found that only 8 of 68 actions in the 2006 plan had been completed and 39 had been partially completed. The plan's 2 goals had 'largely not been achieved'.[18] This exemplifies the slow response to most threats over the past 20 years and the lack of concerted national action to abate many of Australia's deadliest threats.

> *The next few years provide the last chance to save the most endangered frogs in Australia from extinction caused by chytridiomycosis.*
>
> – Skerratt et al (2016)[10]

Threat listings mostly come obligation free. Even if a threat abatement plan is prepared, only the Australian Government is obliged to implement it and only in Commonwealth areas (1% of Australia's land area). Most threat abatement plans lack an essential element: a taskforce to drive implementation (and funding).

Reviews of threat abatement plans have shown mostly inadequate implementation. They indicate that fewer than 40% of threat listings have resulted in moderate to good abatement progress. Tellingly, no threats have been delisted since listings started 27 years ago. Nonetheless, the few examples of good abatement progress demonstrate that major threats are surmountable (Box 2).

Monitoring, reporting and reviewing: The threat abatement system lacks systematic monitoring of, regular reporting on or independent reviewing of key threats and abatement progress.

> *Outcomes-focused law requires the capacity to effectively monitor and report on these outcomes, and to understand the difference made by management interventions.*
>
> – Independent review of the EPBC Act (2020)[13]

Up-to-date information about the status and trends of threats and impacted biodiversity is lacking for most listed threats. This is consistent with a lack of monitoring for most threatened species (eg 21–46% of threatened vertebrates are not monitored).[19] The only specified review requirement is a 5-yearly review of each threat abatement plan. This often doesn't occur and most reviews are not independent.

Myrtle rust is major new threat to Australia's Myrtaceae family. Photo: Tim Low

BOX 3

The current state of the threat abatement system

Key threatening processes

Listed: 21 KTPs are listed. Some are high-level threats (eg climate change) while others are specific (eg yellow crazy ants on Christmas Island); 14 are invasive species.

Not listed: Some of Australia's worst threats are not listed, eg adverse fire regimes, changed hydrological regimes and livestock grazing.

Threat abatement plans

Threats with a plan: 12 KTPs have a threat abatement plan* and 2 invasive ant KTPs are covered under an action plan. Several plans out-of-date, 5 by a decade or more.

Threats without a plan: All high-level KTPs lack a plan: land clearance, climate change, novel biota.

KTP type	Listed KTPs
Invasive species & diseases	Novel biota, rabbits*, feral goats*, feral cats*, red foxes*, cane toads*, 5 invasive pasture grasses*, Phytophthora dieback*, chytrid fungus*, red fire ants, yellow crazy ants (Christmas Island), feral pigs*, exotic rats (offshore islands)*, escaped garden plants, beak & feather disease
Habitat loss, fragmentation & degradation	Land clearance
Pollution	Marine debris*
Climate change	Climate change
Over-exploitation & direct human impacts	Longline fishing seabird bycatch*, trawling turtle bycatch
Disrupted ecosystem & population processes	Noisy miners

BOX 4

Independent review of the EPBC Act (2020)

> *Provision in the EPBC Act for managing threats – such as the listing of key threatening processes (KTPs) and the development and implementation of threat abatement plans – were designed to support a coordinated and strategic approach to dealing with threats that cause the majority of extinctions and declines in Australia. However, these mechanisms are not achieving their intent and many threats in Australia are worsening.*[13]

The recent 10-year review of the EPBC Act by Professor Graeme Samuel highlighted major shortcomings of the threat abatement system as a key priority for reform.[13] Overall, he found that the Act 'results in piecemeal decisions', 'is a barrier to holistic environmental management' and 'requires fundamental reform'. He recommends 'a fundamental shift, from a transaction-based approach to one centred on effective and adaptive planning'.

Relevant to major threats, the review noted the following deficiencies:

- Plans to address key threats are not required and few plans are up to date.
- Cumulative impacts on the environment are not systematically considered.
- Clear mechanisms to quickly respond to acute threats such as major bushfires are lacking.
- Opportunities for coordinated national actions to address key environmental challenges – such as feral animals, habitat restoration and adapting to climate change – are ad hoc, rather than a key national priority.

The review recommended amending the EPBC Act 'to support more effective planning that accounts for cumulative impacts and past and future key threats and build environmental resilience in a changing climate.'

Recommendations to strengthen the threat abatement system

#1. Comprehensively identify and list threats to nature through an independent scientific process and regularly review the list to ensure it remains up to date.

Australia needs a comprehensive, authoritative list of key threats to nature. Decisions about which threats meet the criteria under the EPBC Act are scientific in nature and should be made by scientific experts. Removing ministerial discretion will make the listing process more credible, consistent and efficient. The appropriate body for determining listings is the Threatened Species Scientific Committee or an equivalent expert body. The option for public nomination of threats should be retained to ensure that emerging or poorly known threats are also assessed.

#2. List threats in a hierarchical scheme of key threatening processes and environmental threats of national significance.

The threats schema in Figure 3 (page 16), proposed by the Threatened Species Scientific Committee, is a rational way of categorising threats. Under this schema, 'key threatening processes' are overarching threat categories such as invasive species and habitat destruction, and 'environmental threats of national significance' are more-specific threats, such as land clearing and feral cats. The definition of threats should be expanded to include impacts on other matters of national environmental significance such as Ramsar wetlands, World Heritage properties and National Heritage places.

#3. Establish an additional threat category – emerging threatening processes (ETPs).

> *The Act does not, nor should it, carry the entire burden of responsibility for responding to emerging environmental issues. However, the Act must be equipped with tools to address emerging threats to remain effective in national environment protection.*
>
> – Independent review of the EPBC Act (2009)[20]

An ETP category of threat will facilitate precautionary or urgent interventions to prevent emerging threats becoming established threats. Early action on threats is far more effective and cost-effective than responding once a threat is entrenched. The process for listing ETPs should be rapid and have a lower burden of proof than for other threat listings, for evidence may be scarce and time may be short to intervene. Regular horizon scanning should be conducted to identify potential ETPs.

#4. Design a fit-for-purpose national abatement response for all listed threats, including national and regional plans, and policy and regulatory responses.

If a threat is serious enough to be listed under the EPBC Act, it warrants a national abatement response. The response options should be flexible, encompassing planning and policy, to enable abatement of different types of threats (see Box 5 and Figure 2).

Stage 1: For all key threatening processes (high-level threats) and environmental threats of national significance (specific threats), develop a threat response statement. This should be an independent, science-based statement of what actions (management, research) and instruments (plans, policies, regulations) are needed to abate the threat, specifying the urgency, benefits and likely costs of abatement.

Stage 2: For key threatening processes (high-level threats), develop strategic national plans specifying the intended abatement responses by federal, state and territory governments (Box 6). Certain aspects of key threatening processes may warrant standalone national plans, such as a national restoration plan (for habitat destruction) and a plan for protecting climate refugia (for climate change).

For priority environmental threats of national significance, develop threat abatement plans or action plans, unless abatement can best be achieved in other ways such as regulation or policy changes. Planning should be flexible, able to address partial aspects of a threat and encompass actions to address non-environmental impacts.

Stage 3: Implement strategic national plans and threat abatement plans, including by:

- strengthening relevant laws and policies (federal, state or territory)
- undertaking research, as specified in abatement or action plans or as prioritised in a national research plan
- managing threats, including through regional plans (Box 6).

#5. List key threatening processes as matters of national environmental significance

This will facilitate federal regulation of activities that significantly exacerbate threats to nature and intervention when threats are intensifying and need urgent action. Achieving abatement will require the federal government to exercise its constitutional powers when there are regulatory failures by some states and territories, as exemplified by land clearing and the high-risk use of invasive species.

#6. Establish an implementation taskforce for each threat response

A taskforce with expertise and stakeholder representation (government and non-government) is essential to drive implementation of threat abatement plans. This has been a consistent feature of effective plans.

#7. Systematically monitor and report on threat abatement progress

A national biodiversity monitoring and reporting framework and standards should include a focus on the status of each major threat, whether or not it is subject to a threat abatement plan, and the status of biodiversity impacted by each threat. Reporting requirements should be harmonised across projects and programs to enable tracking of national progress.

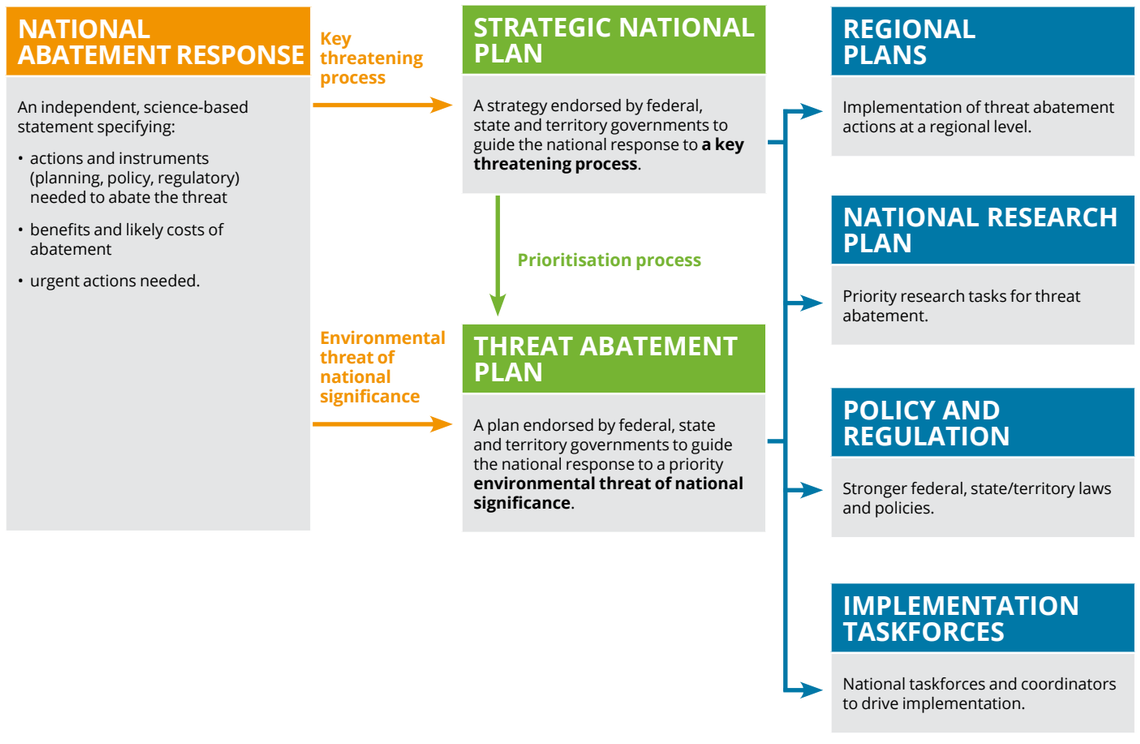


FIGURE 2. Proposed threat abatement responses.

BOX 5

More flexible threat-specific abatement responses

The national threat abatement system is mostly not working well for major threats due to:

- threats not being comprehensively listed (eg adverse fire regimes)
- insufficient threat abatement planning (eg invasive species)
- a lack of appropriate response options (eg climate change and land clearing)
- poor implementation of threat abatement plans.

The drivers for each major threat are different, requiring bespoke policy and planning responses. Much of this is achievable under current mechanisms. For example, the *Guidelines for assessing key threatening process nominations* note potential threat abatement roles for the Australian Government as driving the harmonisation of legislation and 'political will' and taking the lead to resolve intractable conflicts.

But to enable more flexible national regulatory and policy responses, KTPs should be listed as matters of national environmental significance under the EPBC Act.

The planning and policy options suggested here for each major threat are not comprehensive nor necessarily the most feasible and effective response, but they exemplify the variety of responses needed.

Invasive species

KTP status: 14 invasive species or species groups are listed as KTPs.

Threat status: The major cause of animal extinctions in Australia.[1] Impacts >80% of nationally listed threatened terrestrial and freshwater species.[4]

Effectiveness of national threat abatement: The existing threat abatement system is particularly important for tackling invasive threats, which need a strong research focus and national collaboration. The system is working well for a few threats, particularly in driving action on feral cats and the eradication of invasive species from islands, but others are neglected. In 2013, 'novel biota and its impact on biodiversity' was listed as an all-encompassing KTP. But it has been a 'ghost' listing, resulting in no action and stymying the listing of specific threats: 7 nominations, including for myrtle rust, feral deer and invasive fish, were rejected on the basis that they are part of the novel biota KTP.

Planning options to strengthen threat abatement: Systematically prioritise invasive species threats and apply the most appropriate planning options – strategic national plans (for major invasive categories), threat abatement or action plans (to guide research and management of the highest priority invasive threats), and regional plans (to facilitate on-ground management and manage cumulative impacts).

Policy options to strengthen threat abatement: Use the EPBC Act to regulate actions that exacerbate invasive species risks and threats.

Habitat destruction

KTP status: Land clearance was listed as a KTP in 2001.

Threat status: The major cause of plant extinctions in Australia.[1] Impacts >80% of nationally listed threatened terrestrial and freshwater species.[4]

Effectiveness of the threat abatement system: No action has resulted from the KTP listing – an abatement plan was not considered a feasible, effective and efficient way to abate the threat.

Planning options to strengthen threat abatement: Develop a national habitat restoration plan and program. Apply regional plans to protect and restore important habitats.

Policy options to strengthen threat abatement: Apply national powers (or reach a national agreement) to prevent further large-scale habitat destruction and strictly protect habitats for threatened biodiversity.

Adverse fire regimes

KTP status: Under assessment since 2008. Likely to be listed in 2021–22.

Threat status: Impacts 66% of nationally listed threatened terrestrial and freshwater species.[4]

Planning options to strengthen threat abatement: National planning is needed to fill gaps, add value to and protect the national interest in state and territory fire programs. Apply the most appropriate planning option – eg a strategic national plan or threat abatement plan to specify national abatement objectives and priority research and actions – and regional and site-specific plans (eg for World Heritage sites) to help drive implementation and manage cumulative impacts.

Policy options to strengthen threat abatement: Incorporate threat abatement and biodiversity recovery priorities into disaster management arrangements.

Climate change

KTP status: Listed in 2001.

Threat status: Impacts 35% of nationally listed threatened terrestrial and freshwater species.[4]

Effectiveness of the threat abatement system: No action has resulted from the KTP listing: an abatement plan was not considered a feasible, effective and efficient way to abate the threat.

Planning options to strengthen threat abatement: Develop a national climate adaptation strategy and specific plans for elements of adaptation such as protection of climate refugia. Regional planning can help drive implementation and management of cumulative impacts.

Policy options to strengthen threat abatement: Strengthen mitigation by the protection (and enhancement) of natural carbon sinks. Develop a national policy on translocations of native species.

Invasive species & diseases

Examples: feral cats, rabbits, Phytophthora dieback, gamba grass, lantana, chytrid fungus, yellow crazy ants, northern Pacific seastars

Climate change & severe weather

Examples: temperature extremes, increased frequency/severity of droughts, sea-level rise, storms & flooding

Habitat loss, fragmentation & degradation

Examples: energy production & mining, urban & commercial development, agriculture & aquaculture, forestry

Over-exploitation & other direct harm from human activities

Examples: fishing bycatch, direct harvest, persecution, unintentional poisoning, human intrusion, collision

Adverse fire regimes

Examples: increase in fire frequency/intensity, suppression of fire frequency/intensity

Pollution

Examples: effluent & waste water, herbicides and pesticides, oil spills, light pollution, marine debris, nutrient loads

Changed surface water & groundwater regimes

Examples: dams & altered flow regimes, alteration to groundwater levels, alteration to surface water flows and infiltration

Disrupted ecosystem & population processes

Examples: problematic native species (e.g. long-spined sea urchins, noisy miner aggression), hybridisation

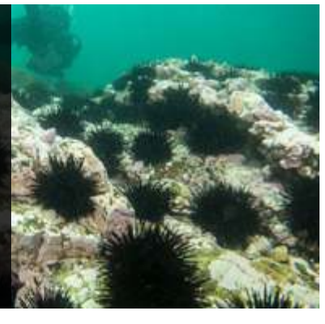


FIGURE 3. A proposed schema for categorising major threats to nature – key threatening processes and examples of environmental threats of national significance

Note: The KTP categories have come from Ward et al. (2021),[37] and are mostly consistent with proposals from expert workshops held by the Australian Academy of Science and the Threatened Species Scientific Committee.

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BOX 6

Planning options for threat abatement

For the purpose of the EPBC Act to be achieved, cumulative impacts on the environment need to be addressed, threats to the environment properly managed, and the legacy of past degradation rectified by pursuing environmental restoration at scale.

– Independent review of the EPBC Act (2020)[13]

Strategic national plan: This new type of plan was proposed in the 2020 review of the EPBC Act to apply to 'big ticket', nationally pervasive issues such as climate change adaptation and feral animal management, which correspond to threats classified here as 'key threatening processes'. The review says these plans should 'enable action and investment by all parties to be effectively targeted to where it delivers the greatest benefit'.

Threat abatement plan: This existing statutory planning option under the EPBC Act provides for the research, management and any other actions necessary to reduce the impact of a listed threat. It works well for specific threats corresponding to the threats classified here as 'environmental threats of national significance'. Effective plans require a national taskforce to drive implementation and adequate funding.

National action plan: This existing non-statutory planning option has been used for threats such as invasive ants to enable a broader focus beyond the environmental impacts of a listed threat. This can facilitate the engagement of other sectors in planning and threat abatement across multiple tenures.

Regional recovery plan: This new type of Commonwealth-led plan was proposed in the 2020 review of the EPBC Act to drive landscape-scale abatement of multiple threats and the recovery of multiple species and ecological communities. One benefit will be to facilitate management of cumulative impacts.

Task 2. Secure adequate funding for threat abatement

Securing adequate funding for abating the major threats to nature and recovering threatened species and ecological communities must be one of conservation's highest priorities. That the system is threadbare is evident in the scarcity of threat abatement plans, the 4 or so years it takes to develop a plan, and the poor implementation of most plans. It has manifested in a worsening of many threats and a rapidly growing national list of threatened biodiversity.

Estimated funding needed

> *Significant investment to improve the environment is required to reverse the current unsustainable trend and to enable future development to be sustainable.*
>
> – Independent review of the EPBC Act (2020)[13]

The major impediment to effective threat abatement in Australia is a lack of funding. There have been no published estimates of how much it will cost to abate Australia's major threats to nature and recover threatened species and ecological communities, but an estimate can be made by extrapolating from 3 regional studies and recovery costs in the United States.

Threat abatement costs

CSIRO-led studies of the costs of priority threat management in 3 regions (Kimberley, Pilbara, Brigalow Belt) provide probably the best assessments in Australia of what can be achieved with specified levels of funding for threat management (Box 7).[21–23] Extrapolating from average yearly per-hectare costs (ranging from $1.10 in the Pilbara to $1.80 in the Brigalow Belt) and assuming comparable costs across mainland Australia, about $1.1 billion a year would be needed to manage high-priority terrestrial threats in Australia. Additional funding would be needed for abating threats in marine habitats and on islands, as well as for species-specific recovery actions. Threat abatement also requires a strong focus on research— developing more-effective methods such as new baits or biological control agents for invasive species and habitat restoration techniques. Investing in the development of more-effective and less-costly abatement techniques should be a high priority for additional funding.

Threatened species recovery costs

The United States has a much better record of species recovery than Australia. For example, 85% of birds listed as threatened in the US have stabilised or recovered.[24] The main reason for this success is that funding for actions specified in recovery plans is mandated under the *US Endangered Species Act 1973*. From 2011 to 2016, the US Government spent an average AU$1.2 million a year on recovery actions for each of its approximately 1,700 listed threatened species (about the same number as Australia). Based on US spending (extrapolated for each taxonomic group for those species independently assessed as having adequate funding), Australia would need to spend $1.8 billion a year to achieve recovery of our approximately 1,800 listed threatened species, an average of about $1 million a year per listed species.

In the absence of more-specific costings, we conclude that effective threat abatement and species recovery will likely require targeted funding of at least $1.5–2 billion a year.

The level of funding needed would decrease over time as species recover and major threats are abated. The estimate should be regarded as conservative, not just because threats in Australia such as invasive species will be costly to abate but because the abatement of some threats will require changes in industry and societal practices likely to have economic consequences. The estimate also comes with the caveat that climate change is likely to escalate the costs of threat abatement.

Estimated funding allocated

In 2018–19, the Australian Government allocated about $50 million directly for improving outcomes for threatened species (including abating threats) and the state and territory governments about $70 million.[24] These figures do not including funding for government operating costs. Averaging just $70,000 per nationally listed species, this is less than a tenth of the per-species spending by the US Government. Other types of government funding also contribute to threatened species recovery – for example, about $340 million (20%) of the $1.67 billion federal environment budget in 2018-19 may have indirectly benefited threatened species.[24] In addition, some funding from agricultural departments – for example, to manage invasive species – would benefit threatened species. The federal environmental allocations targeting threatened species recovery came from 5 main programs: the Landcare Environmental Stewardship Program ($10.0 million), Reef 2050 Plan ($5.3 million), Commonwealth marine reserves ($3.5 million), Commonwealth national parks ($7.9 million) and the National Environmental Science Program ($8.4 million). These constituted just 0.01% of the total federal budget, an average of less than $2 per Australian resident.[25,26]

Based on estimated funding needs of $1.5–2 billion and direct allocations of $120 million, we conclude that Australian federal, state and territory targeted funding for threat abatement and threatened species recovery needs to increase by an order of magnitude.

Exacerbating the funding deficiencies, Australian governments lack systems for transparently determining conservation funding priorities. The available funding is often not applied to the most pressing conservation needs or to programs that can deliver the best biodiversity outcomes.

Threat abatement needs to be better funded.

Potential sources of additional funding

The estimated funding needed represents just 0.3–0.4% of the 2019–20 budget, about $90–120 per taxpaying entity, so it is eminently affordable. Although scaling up threat abatement funding from both public and private sources is essential, the majority of funding will need to continue to come from governments for the foreseeable future.[27]

Levies are a common way for governments to raise funds for environmental purposes or to modify behaviours. Environmental examples include levies by local governments to fund bushland purchases, environmental grants and invasive animal control, and levies by state governments for waste disposal and water management. South Australia, for example, levies landowners and commercial water users to pay for landscape management, including threat abatement, and the Northern Territory levies mining companies to fund rehabilitation of legacy mines. Given the wide range of economic activities that harm nature, there are likely to be a wide range of justifiable targets for levies.

National lotteries can generate substantial revenue. The Heritage Lottery Fund, for example, is probably the most significant non-government funding source for conservation in the United Kingdom. A 2015 proposal by the Turnbull Government to investigate the feasibility of a national lottery to raise funds for protecting heritage sites was scrapped because of opposition from state governments.

Recommendations to fund threat abatement

Conservation commitments are meaningless unless there is funding to implement them. For this reason, it has been recommended that each party to the Convention on Biological Diversity develop a national biodiversity funding plan that addresses 'opportunities to mobilise resources at all levels – local, national, and global – as well as from all sources – public, private, and philanthropic' and that each party mobilises 100% of the resources needed to fully implement their national biodiversity strategies and plans.[28]

#8. Investigate the economics of threat abatement – the annual costs of effective abatement and the economic consequences of abatement failures and successes.

Australia needs accurate costings for threat abatement and threatened biodiversity recovery, likely to be at least $1.5–2 billion a year. To help justify the funding in the face of competing demands, we also need to understand the economic benefits of abatement and the consequences of inadequate abatement. Threats to nature are often also threats to industries and human wellbeing, and conservation programs often yield great economic and social benefits. These collateral costs and benefits need to be clearly defined and quantified to demonstrate a solid economic and social, as well as conservation, return on investment in threat abatement.

#9. Substantially increase public spending on threat abatement and threatened species recovery, including through biodiversity levies and allocate funds based on a transparent prioritisation process.

The level of funding needed for effective threat abatement and threatened species recovery is at least 10 times typical budget allocations. This is affordable with current taxation revenue, but to achieve and sustain the level of funding needed, we recommend that the Australian Government impose biodiversity levies, particularly on activities that exacerbate threats to nature. Australia's federal, state and territory governments should develop a biodiversity funding plan that includes a revolving biodiversity trust fund funded by (a) agreed allocations from each government (involving a substantial increase in current budgets for biodiversity), (b) new sources of funding, including biodiversity levies and perhaps a national lottery, and (c) private and philanthropic contributions.

Australia also needs a transparent method for allocating funds to biodiversity conservation, based on systematically determined priorities using the most effective instruments – whether threat abatement plans, recovery plans or other means.

A volunteer student from James Cook University helps monitor for signs of yellow crazy ants in Queensland. Photo: Janet Cross

BOX 7

The costs of threat abatement priorities in 3 regions

For Queensland's Brigalow Belt, CSIRO's 2016 assessment found that 21 plant and animal species were likely to be functionally lost (their populations too low 'to maintain their ecological function') from the region within 50 years unless threats were effectively managed. An estimated annual investment of $64 million (2020 dollars) over 50 years would likely avert the loss of 12 of these species, while the 9 other species would likely also require species-specific management.[23]

For the Pilbara, CSIRO's 2014 assessment found that 53 conservation-significant species could probably be secured with an investment of about $20 million a year over 20 years.[22]

For the Kimberley, CSIRO's 2011 assessment found that 45 species at risk of functional extinction within 20 years could probably be secured with an initial investment of about $100 million and an ongoing $38 million a year over 20 years.[21]

Task 3. Inspire a strong national commitment to threat abatement

Australians have inherited an astonishing natural legacy. Hosting some 8% of the planet's species, we are one of 17 'megadiverse' countries.[29,30] Around 90% of Australian mammals, frogs, reptiles and plants are found nowhere else and our animals are the most evolutionarily distinctive in the world.[30,31] While most Australians want to save threatened species, the public focus has mainly been on protecting our iconic species rather than abating the major threats they have in common. Australians need to be inspired by what can be achieved with threat abatement, with arrangements designed to engender collaboration across governments and sectors.

Missing in action – why the threat abatement system suffers from a lack of commitment

Under the Convention on Biological Diversity, Australia has international obligations to identify and 'regulate or manage' threats to biodiversity, as well as more specific abatement obligations such as to restore degraded ecosystems, and prevent, control and eradicate invasive species. But the instruments and arrangements to achieve these obligations in Australia are deficient. Examples of effective threat abatement show the importance of governments working together, and meaningful community engagement and a vision to inspire commitment.

Engendering a whole-of-country commitment: The challenges of federalism are stymying effective action – Australia lacks an effective intergovernmental agreement to achieve collaborative threat abatement. Collaboration with Traditional Owners, the community and across sectors is also limited.

> *A weak and ill-defined cooperative federalism has allowed Australia's environment to degrade with no level of government holding responsibility to halt the decline. As threats emerge, no one is responsible for designing and delivering a comprehensive response.*
>
> – Chifley Research Centre (2018)[32]

Australia lacks what is fundamental to effective national action: an agreement committing federal, state and territory governments to collaborate on abating the major threats to nature. Schedule 6 (Biological Diversity) of the 1992 Intergovernmental Agreement on the Environment is vague, lacks conservation commitments, and does not even mention threat abatement. Likewise, the 1997 Heads of Agreement on Commonwealth and State Roles and Responsibilities for the Environment lacks commitments to jointly abate threats to nature, noting only the 'responsibility' and 'interest' of the Australian Government:

> *in relation to meeting the obligations of the Convention on Biological Diversity … to promote the recovery of species and ecological communities that are endangered or vulnerable, and prevent other species and ecological communities from becoming endangered.*

The intergovernmental focus has been more on delimiting responsibilities than engendering national collaborations. In practice, it means that the implementation of threat abatement plans and the development of policies necessary to abate major threats such as land clearing rely on the individual fluctuating inclinations of each state and territory government. Although the EPBC Act enables the identification of threats and the development of threat abatement plans, it only obliges their implementation in Commonwealth areas, and the Australian Government must 'seek' the cooperation of other governments threat-by-threat, plan-by-plan. The recent 10-year review of the EPBC Act spelled out the consequences of that lack of collaboration:[13]

> *[The] Commonwealth and the States and Territories do not manage their environmental and heritage responsibilities in concert. The overall result for the nation is net environmental decline, rather than protection and conservation.*

Often also missing in current arrangements are clear mechanisms and imperatives for meaningfully engaging the community and non-environmental sectors in the development and implementation of abatement responses.

Photo: Jeremy Buckingham (CC BY 2.0)

Threat abatement needs to be nationally coordinated.

Building accountability: There is little public review or independent scrutiny of the effectiveness of threat abatement or consequences for failing to apply the abatement system.

> *Effective monitoring, evaluation and reporting of the EPBC Act, and of the broader national environmental system, is essential to achieve improved environmental outcomes. It is also central to improving and maintaining public trust in the environmental management systems.*
>
> – Independent review of the EPBC Act (2020)[13]

One of the principles specified in the 1997 Heads of Agreement on the environment is about transparency and accountability: that 'decision-making processes, accountability for decisions and delivery of policy and program outcomes should be clear and public'. These are mostly missing in the current threat abatement system.

There are no requirements for achieving any particular abatement targets, and no consequences for decision-makers who fail to apply the available tools to abate threats. The only public reporting on threat abatement, apart from 5-yearly reviews of abatement plans (often delayed or not done), are 5-yearly state of the environment reports. The most recent of these, in 2016, found that 9 'pressures' had increased over the previous 5 years, 4 had remained stable, and none had been reduced. It noted that information on trends was 'very limited' and there was no up-to-date synthesis of the distribution of threats.[33]

Inspiring a collective vision: Australia lacks an overall vision and sense of mission about abating major threats to nature.

Lots of Australians are contributing to threat abatement – restoring bushland, weeding and managing feral animals and fire. And innovative threat abatement practices are being applied in many parts of Australia – Traditional Owner ranger groups marrying new technologies with

millennia-old cultural practices, the creation of havens on islands and in fenced reserves for threatened wildlife, ambitious eradication programs such as that for red fire ants in Queensland, large-scale restoration projects such as Gondwana Link in south-western Australia, widespread suppression of invasive predators under the Western Shield program, NGOs and private landholders creating privately managed conservation reserves, and landholders cooperating across multiple tenures to manage invasive species for mutual benefit.

But without nationally led coordination, these admirable efforts are inevitably only piecemeal. There is no national vision about what Australia could achieve by undertaking a systematic abatement of threats. A succession of national biodiversity strategies has failed to inspire Australians or alter the downward trajectory of biodiversity.

Recommendations to engender commitment, collaboration and vision

#10. Develop an intergovernmental agreement that commits the Australian, state and territory governments to collaboratively abate major threats to nature.

> *The issues facing our community and economy are complex and constantly evolving. They require our ministers to come to the table in the spirit of cooperative and responsible federalism – engaging in discussion informed by a diversity of jurisdictional perspectives but ultimately in pursuit of our collective national interest.*
>
> – Review of COAG Councils and Ministerial Forums (2020)[34]

Australia needs an intergovernmental agreement – as is the case for other sectors such as biosecurity, health and education – that commits each government to collaboratively and systematically abate major threats to nature and recover threatened biodiversity. One possibility is to refresh the climate change or biodiversity schedules of the 30-year-old Intergovernmental Agreement on the Environment. Effective government partnerships will need to be underpinned by a funding agreement. Only by contributing substantial funding is the Australian Government likely to motivate and enable state and territory governments to undertake comprehensive abatement programs. This is consistent with funding arrangements for other sectors.

#11. Facilitate national collaborations by governments, Traditional Owners and community and cross-sectoral stakeholders on abating threats to nature.

Meaningful involvement of community stakeholders, including Traditional Owners, is widely recognised as essential for effective conservation programs. Many threats to biodiversity are also threats to industries such as agriculture and tourism and to human amenity or health. Partnerships with non-environmental beneficiaries of threat abatement will increase resources and public support for threat abatement.

#12. Introduce independent oversight of the national threat abatement system

An independent statutory office is needed to regularly review the performance of federal, state and territory governments in meeting Australia's international and national responsibilities for biodiversity conservation, including the identification and abatement of major threats. The position could be a parliamentary commissioner (as in New Zealand) or an inspector-general (as for federal biosecurity in Australia).

#13. Set ambitious and inspiring goals for abating Australia's major threats to nature.

Threat abatement should be regarded as an important collaborative mission of Australian governments and communities. To inspire Australians, we need an ambitious vision of what can be achieved by systematic threat abatement, with a message that there is a role for everyone. An example of this is New Zealand's Predator Free 2050 program, which has strong community and government backing to eradicate invasive predators by mid-century (Box 8). The social sciences will be essential to designing effective abatement programs.

The black rat, a major threat to rare birds, is one of the invasive predators that New Zealand intends to eradicate. Photo: © Nga Manu Images

BOX 8

An inspiring international example of threat abatement

New Zealand's Predator Free 2050 is an ambitious goal to eliminate, by 2050, the country's most harmful introduced predators – rats, stoats and possums – to benefit the environment, the economy and agriculture.[35] It is founded on New Zealand's success in eradicating invasive predators from more than 110 islands and brings together the central and local governments, iwi, philanthropists, NGOs, businesses, research organisations, communities, landowners and other individuals, taking the effort 'from piecemeal control to co-ordinated, progressive nationwide eradication'. In 2018, $81 million was invested over 4 years and 5,000 groups registered to control predators in their communities. A series of milestone goals, supported by new tactics and inventive technologies, lay out what is to be achieved.[36]

The 2025 goals include:

- eradicate predators from blocks of at least 20,000 hectares (without the use of fences)
- suppress introduced predators on a further 1 million hectares
- eradicate all predators from offshore island nature reserves
- achieve the capability to eradicate at least one introduced predator.

Charting a new course

Australia was an innovator when we first created a national threat abatement system 30 years ago (under the *Endangered Species Protection Act 1992*). We have also been innovative in abating particular threats – a world leader, for example, in eradicating invasive species from islands and, for a time, in biological control, and in reducing turtle and seabird bycatch in trawl and longline fisheries. With most threats to nature worsening, we need that ambition and spirit of innovation now more than ever.

It is not only scientific and technological innovation that we need. The threat abatement system has stagnated with policy stasis, intergovernmental inertia and funding poverty. The system needs overhauling to facilitate the development of effective policy solutions, functional and dynamic intergovernmental and community partnerships and sustainable funding. The reforms proposed in this document (summarised in Figure 3) will better enable the harnessing of Australians' proven capacity to solve big problems.

Our First Australians have been the ultimate innovators in this country, continuously adapting and solving problems to endure and flourish, often in very harsh conditions, over more than 2,000 human generations. In particular, they have demonstrated the importance of cultural innovation, placing country at the centre of their lives and shaping their values and practices to fit country and keep it healthy. Here for less than 10 generations, the new Australians have much yet to learn.

Summary of recommendations to strengthen Australia's threat abatement system

The following proposals will help Australia avert extinctions, recover threatened species and ecological communities, restore ecological health and resilience, and benefit industries impacted by the same threats.

More ambitious and systematic

#1 Comprehensively identify and list threats to nature through an independent scientific process and regularly review the list to ensure it remains up to date.

#2 List threats in a hierarchical scheme of key threatening processes and environmental threats of national significance.

#3 Establish an additional threat category – emerging threatening processes.

#4 Design fit-for-purpose national abatement responses for all listed threats, including national and regional plans, and policy and regulatory responses.

#5 List key threatening processes as matters of national environmental significance.

#6 Establish an implementation taskforce for each threat abatement plan.

#7 Systematically monitor and report on threat abatement progress.

Photo: I. Noyan Yilmaz/Shutterstock.com

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Australia's threat abatement system needs to be more ambitious and systematic, better funded and nationally coordinated.

Better funded

#8 Investigate the economics of threat abatement – the annual costs of effective abatement and the economic consequences of abatement failures and successes.

#9 Substantially increase public spending on threat abatement and threatened species recovery, including through biodiversity levies, and allocate funds based on a transparent prioritisation process.

Nationally coordinated

#10 Develop an intergovernmental agreement that commits the Australian, state and territory governments to collaboratively abate major threats to nature.

#11 Facilitate national collaborations by governments, Traditional Owners and community and cross-sectoral stakeholders on abating threats to nature.

#12 Introduce independent oversight of the national threat abatement system.

#13 Set ambitious and inspiring goals for abating Australia's major threats to nature.

National taskforces

- Establish a taskforce for each threat abatement plan
- Foster collaborative cross-sectoral implementation

Abatement planning

- Collaboratively prepare national & regional abatement plans for major threats

Threat responses

- Develop fit-for-purpose planning & policy responses for each major threat

Threat status

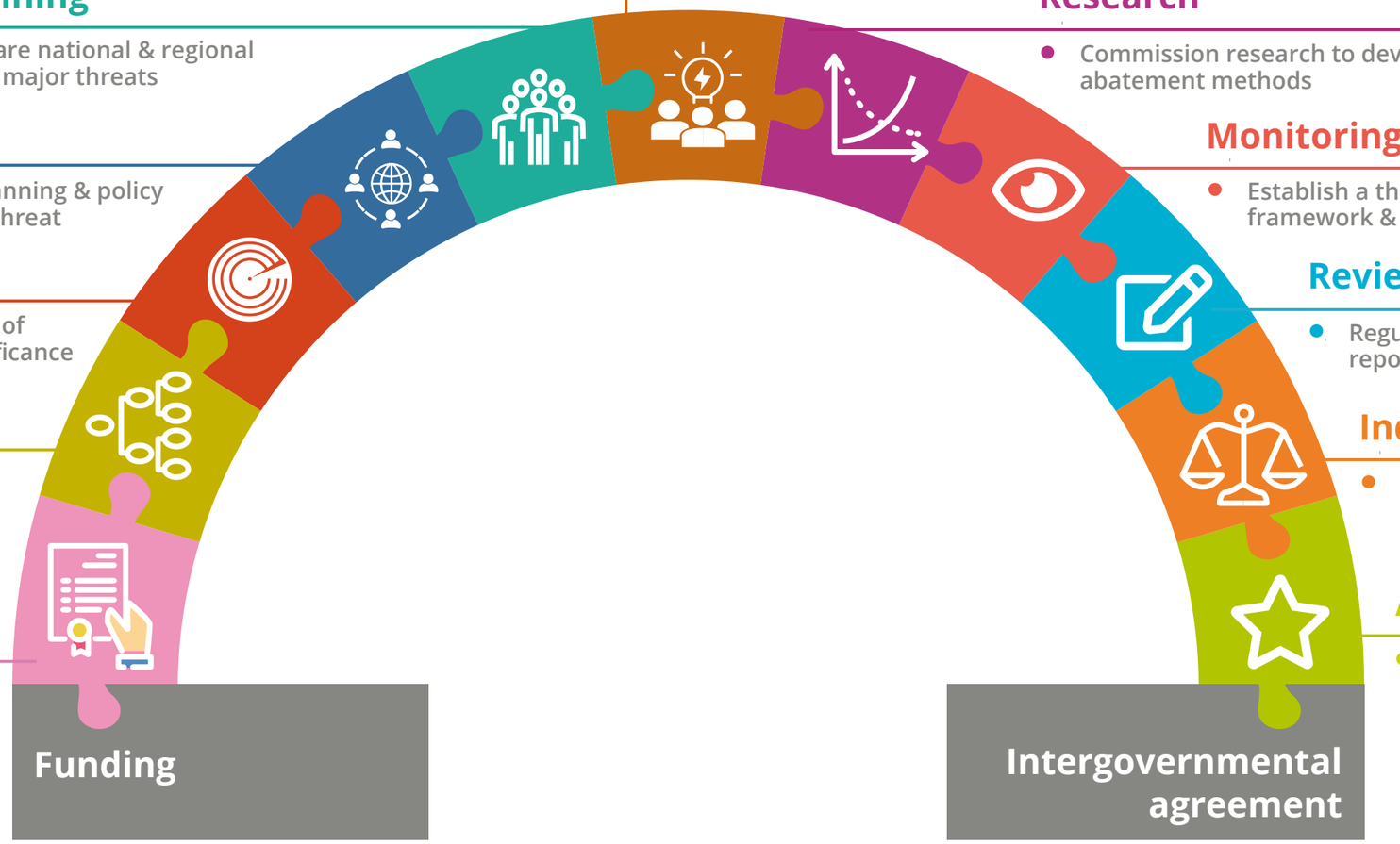
- List major threats as matters of national environmental significance

Threat listing

- List all threats in a hierarchical schema
- Include a category for emerging threats

Threat assessment

- Comprehensively & scientifically assess threats



Funding

- Substantially increase public spending on threat abatement.

Research

- Commission research to develop effective abatement methods

Monitoring

- Establish a threats monitoring framework & standards

Reviewing & reporting

- Regularly review & publicly report on abatement progress

Independent oversight

- Establish an independent oversight body to audit progress

Ambition & inspiration

- Set ambitious, inspiring national goals for abating major threats to nature

Intergovernmental agreement

- Federal & state/territory governments commit to cooperatively abate major threats.

FIGURE 4. Elements of an effective threat abatement system.

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THREATS TO NATURE PROJECT

invasive species council

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