



# **Incorporating global biodiversity targets into Australia's Strategy for Nature**

Submission by the  
Invasive Species Council

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## Document details

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## About the Invasive Species Council

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 invaders. It is a not-for-profit charitable organisation, funded predominantly by donations from supporters and philanthropic organisations.

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# 1. Introduction

The Invasive Species Council welcomes action to ensure that targets from the Kunming-Montreal Global Biodiversity Framework (GBF) are incorporated into Australia's national conservation agenda. As the overarching framework for nature conservation, *Australia's Strategy for Nature 2019–2030* (Nature Strategy) should comprehensively reflect Australia's commitment to achieve the GBF targets, including the very important GBF target 6 on invasive species. These national targets then need to be incorporated into other strategies, plans, policies and programs ('mainstreamed') – including by biosecurity agencies and state/territory governments.

However, we are deeply concerned about the draft Nature Strategy targets, as proposed in the discussion paper *Updating Australia's Strategy for Nature* (February 2024). We are particularly concerned that the draft target for invasive species only very partially addresses the GBF target, with no focus at all on prevention, and fails to specify any measurable outcome. The current draft target would set Australia up to fail to meet the GBF commitment to 'eliminate, minimise and or mitigate the impacts of invasive alien species on biodiversity and ecosystem services'.

To achieve other GBF targets will also require much more effective action on invasive species, particularly those reflected in draft targets in the following priority areas:

- Priority area 1 (GBF target 2) – effective restoration of degraded terrestrial, inland water, marine and coastal ecosystems: A major focus will need to be managing invasive species that contribute to degradation and impede restoration.
- Priority area 4 (GBF target 8) – minimising the impact of climate change on nature: To increase the resilience of native species (and also to reduce greenhouse gas emissions) will require abating the impacts of the many invasive species that render native species highly vulnerable to climate impacts.
- Priority area 5 (GBF target 3) – protect and conserve 30% of Australia's land and 30% of Australia's oceans by 2030: Effective conservation (not just lines on maps) will require much more effective management of invasive species in Australia's protected areas.
- Priority area 6 (GBF target 4) – work towards zero new extinctions: Stopping extinctions will require a much more effective threat abatement system, with a strong focus on managing known extinction drivers such as cats, foxes, non-native rats, trout, chytrid fungus, myrtle rust and phytophthora species, and preventing the arrival and emergence of new extinction drivers.

The *Updating Australia's Strategy for Nature* discussion paper notes that invasive species are 'the second biggest threat to Australia's native plants, wildlife and ecosystems, and have been implicated in the extinction of many Australian species'. This understates the impacts – invasive species have been by far the leading cause of Australian extinctions and are currently the most serious threat to threatened native species (as shown by analyses of both threatened species on the Red List and those listed under the EPBC Act, see Box 1).

This is not to downplay the significance of other major threats to nature – habitat loss and degradation, adverse fire regimes, altered hydrology and climate change. We live in an age of increasingly intensifying, multiplying and interacting threats, and the recovery of most threatened species and ecological communities will typically require abating multiple threats. We make the point about the #1 threat ranking of invasive species to emphasise that effective action on invasive

species, challenging and expensive though it is, is essential to halt extinctions and reverse the decline of Australian biodiversity.

In this submission, we identify deficiencies of the draft invasive species target and the related draft targets that depend on effective management of invasive species. We propose more comprehensive targets for invasive species that (a) reflect the commitment Australia has made to achieve GBF target 6 and (b) will assist in meeting several other targets (see Box 2 for recommendations).

The government's rationale in drafting targets that are more limited in scope and ambition than the GBF targets is presumably to avoid failure, by aiming for only what is considered achievable with the limited public resources allocated to nature conservation in Australia. It is also the case that the 6 years to 2030 is a short period in which to reverse many of the current detrimental trends. But to set Australia onto a trajectory of recovery and restoration, rather than ongoing decline and degradation, it is essential to fully reflect the GBF targets and then collaboratively and transparently work out how to optimally meet them – the budgets and reforms needed and the milestones by which to track progress. Persisting with low ambition and limited scope will perpetuate and normalise loss.

### ***Box 1. Invasive species as the leading cause of species extinction and decline in Australia***

**Causes of extinction:** Invasive species – predators and pathogens – have been the main drivers of animal extinctions in Australia, while habitat loss has been the major cause of plant extinctions [1]. There have been far more documented animal extinctions, mainly of mammals, than of plants. The probable mammal extinctions now number 43 species (many more than are formally listed) [2,3] – most considered as due to cat and fox predation [1]. Based on recent expert assessments of extinction likelihood of plants and animals [4,5] and other evidence, we estimate that at least 81 species – 69 animals and 12 plants – have been lost in Australia since European colonisation, and that invasive species have been the major driver in about three-quarters of these losses.

This is consistent with data from the IUCN's Red List showing that invasive species have been the most prevalent cause of extinction for most species groups, globally and in Australia.

Almost all modern extinctions in Australia, those since 1960, have been due to invasive species – at least 5 mammals, 6 frogs, 3 lizards (2 surviving in captivity), 2 fishes and 1 invertebrate [6]. At least 7 extinctions have occurred this century, all except one due mainly to invasive species.

**Threats to threatened species:** In an expert assessment of threats impacting taxa listed under the EPBC Act (in mid-2018), the most prevalent medium-impact and high-impact threats (presumably those that would need to be addressed to achieve recovery) were [7]:

- invasive species (impacting 43% of listed taxa)
- habitat loss, degradation and fragmentation (27%)
- adverse fire regimes (23%)
- climate change and extreme weather (8%).

An earlier analysis, based on data in the government's SPRAT database, found that 267 invasive species were impacting 82% of Australia's threatened species, and were more prevalent than any other threat category [8].

This is consistent with data from the IUCN's Red List, which rates invasive species as the most prevalent threat for threatened Australian mammals, birds, reptiles, amphibians, fishes, all chordates and all species, and the second most prevalent threat for plants.

### **Box 2. Recommendations**

1. Hold a workshop (with federal and state/territory environmental and biosecurity agencies, invasive species experts, Indigenous experts and environmental NGOs) to develop comprehensive invasive species targets and identify priority invasive species, places and actions/programs.

2. Adopt a target for the Nature Strategy that fully reflects the prevention focus of GBF target 6, as in the following proposed target:

Strengthen biosecurity on priority pathways for potential new invasive species to: (a) prevent the introduction and establishment of priority invasive species and (b) reduce the rates of introduction and establishment of other known or potential invasive species by at least 50%.

3. Adopt a target for the Nature Strategy that fully reflects the eradication and control focus of GBF target 6, as in the following proposed target:

Effectively manage established invasive species by eradication and control programs to (a) arrest and reverse the decline of species highly imperilled by invasive species, (b) arrest and reverse biodiversity decline and habitat degradation caused by invasive species in high priority sites across at least 30% of Australia's territory, including on islands and in protected areas and (c) eliminate priority invasive species where this is feasible.

4. Undertake an analysis of the priorities for invasive species management – including priority invasive species and priority places – needed for Australia to meet relevant GBF targets in addition to target 6.

5. Seek a commitment from Australia's biosecurity agencies at federal and state/territory levels that they will incorporate GBF target 6 and other relevant GBF targets into biosecurity strategies, plans, policies and programs and collaborate with environmental agencies and environmental and community groups to achieve the target.

6. Ensure that one high priority for the proposed Information Australia is to compile and analyse data relevant to preventing and managing invasive species that impact the environment.

7. To facilitate equitable representation and participation by First Australians, appoint an Indigenous Land and Sea Country Commissioner to advise governments and be a public advocate for Country.

## 2. Tackling the impact of invasive species (priority area 2)

### 2.1 What does GBF target 6 require?

*Eliminate, minimise and/or mitigate the impacts of invasive alien species on biodiversity and ecosystem services by identifying and managing pathways of the introduction of alien species, preventing the introduction and establishment of priority invasive alien species, reducing the rates of introduction and establishment of other known or potential invasive alien species by at least 50 per cent by 2030, and eradicating or controlling invasive alien species, especially in priority sites, such as islands.*

The GBF target comprises 2 main foci, each with several elements:

Prevention focus:

- Identify and manage introduction pathways.
- Prevent the introduction of priority invasive alien species.
- Prevent the establishment of priority invasive alien species.
- Reduce the rates of introduction and establishment of other known or potential invasive species by at least 50%.

Eradication and control focus:

- Eradicate priority invasive alien species.
- Control priority invasive alien species.
- As a priority, eradicate and control invasive species in priority sites such as islands.

For Australia to achieve GBF target 6 will therefore require at least 2 targets in the Nature Strategy – (a) a prevention target and (b) an eradication and control focus – that comprehensively encompass the various elements of target 6. The complexity of target 6 reflects the need for more effective action at each stage of invasion: to prevent more invasions while also mitigating the worst impacts of invasive species that cannot be eliminated.

### 2.2 Draft Australian target

The draft target for the Nature Strategy is:

*Minimise the impact of invasive species on biodiversity in our most precious places by 2030.*

The Invasive Species Council strongly objects to this proposed target for the following reasons:

- **Lack of focus on prevention:** The target excludes any focus on the essential prevention elements of Target 6 (this would narrow the scope of the current Nature Strategy).
- **Limited focus on eradication and control:** The focus on the eradication and control elements of Target 6 is minimalistic, addressing only the place-focused part of the 2 elements (this also would narrow the scope of the current Nature Strategy).
- **Lack of measurable outcome:** The target is vague, lacking any measurable component, and will not serve to drive the ambition needed to reverse decline caused by invasive species.

We address each of these deficiencies in more detail in the following sections and then propose 2 targets that would reflect a more genuine commitment to achieve GBF Target 6.

### 2.2.1 Lack of focus on prevention

The current Nature Strategy includes a measure relevant to prevention:

*7D Extent and success of management programs to minimise incursion and spread of new and emerging invasive species.*

‘Minimise incursion’ is a poor measure (it does not clearly specify the intended outcome), but the draft target is worse for completely neglecting the prevention focus. The reason given for the proposed neglect is that ‘Australia already has a mature biosecurity system that aims to prevent the introduction of invasive species’. ‘Mature’ the system may be, but effective in preventing the arrival and establishment of new harmful species it is not – as is evident by the constant stream of new potentially harmful species newly detected (as introduced or established) during the period of the Aichi targets (2010–2020) and since. The Australian Government clearly cannot meet GBF target 6 under the current biosecurity arrangements.

Species newly detected since 2010 (some likely to have been present for many years) include the following huge variety of animals and pathogens in terrestrial, freshwater and marine environments, in no particular order: myrtle rust, smooth newt, polyphagous shothole borer, freshwater gold clam, African black sugar ant, New Guinea flatworm, coral eating flatworm, 4 gecko species (*Hemidactylus platyurus*, *H. brookii*, *H. parvimaclatus*, *H. garnotii*), Nile tilapia, jaguar cichlid, 2 varroa mite species, Asian shore crab, carpet sea squirt, the waterflea *Daphnia galeata*, giant willow aphid, granulate ambrosia beetle, tomato red spider mite, indistinct river shrimp, soft-shelled clam, cyanobacteria sponge, *Nannizziopsis barbatae*, Bellinger River virus, white spot syndrome virus, parrot bornavirus, avian paramyxovirus 1, avian paramyxovirus 5, ostreid herpesvirus-1, *Ehrlichia canis*, *Edwardsiella ictalurid*, *Streptococcus iniae*, *Enterococcus lacertideformis*, *Plasmodium relictum*, *Plasmodium elongatum*.

In addition, based on recent trends, probably >250 new plant species have naturalised in Australia since 2010 [9].

The recently detected species include some that are on Australia’s National Priority List of Exotic Environmental Pests, Weeds and Diseases Dataset (EEPL). These species are meant to be the focus of concerted action to prevent their arrival and establishment, but due to limited funding for environmental biosecurity, the essential prevention and preparedness measures have not yet been comprehensively implemented (and the implementation plan remains as a draft). The EEPL is also far from comprehensive of the priority species that Australia should be striving to prevent to meet GBF target 6. It is intended as a representative list, but there needs to be much more focus on pathway analysis and pathway risk reduction for the EEPL to function effectively in a representative way.

Among the known harmful species that could establish in Australia are many that are approved imports, particularly plant and fish species. Most have never been assessed for their environmental risks and are the legacy of the period before risk assessment was required and when environmental biosecurity was not a focus. While there are some complications due to World Trade rules that restrict import bans unless a species already present in a country is under ‘official control’, Australia



could do much more to prevent the importation of high-risk species (including by enacting the required ‘official control’ measures).

The rationale for excluding a prevention focus in the Nature Strategy – that Australia has a biosecurity system that aims to prevent the introduction of invasive species – neglects the requirement under GBF target 6 to also prevent and reduce the establishment of invasive species. Many of the harmful new species establishing in the wild in Australia are already present in the country but not subject to effective post-border biosecurity – particularly invasive plants and fish, of which many thousands of species are traded and kept without restriction, including species known to be high risk.

### **2.2.2 Limited focus on eradication and control**

The current Nature Strategy includes a measure relevant to eradication and management:

*7C Extent and success of management programs for established invasive species that pose a significant threat to species and/or ecosystems that are vulnerable to this threat.*

The proposed draft target with a focus only on ‘precious places’ neglects the invasive species threats more generally to biodiversity, including listed threatened species and ecological communities. Although ‘priority sites’ are included in GBF target 6 as a priority focus, this should not constitute the entire focus of the Nature Strategy target. The draft target intimates that the management focus could be as limited as the 20 priority places identified in the Threatened Species Action Plan (6 islands, 14 mainland sites) – all very important places and most suffering the impacts of invasive species, but constituting less than 1% of Australia’s land area. Even if all are the focus of effective invasive species management, this will do little to address many of the extinction-driving invasive species threats operating elsewhere.

The proposed target and actions for priority area 6 (zero extinctions) cannot be achieved with its apparently primary focus on threatened species recovery. It also needs a strong focus on threat abatement, particularly of invasive species and adverse fire regimes.

### **2.2.3 Lack of specified and measurable outcomes**

The draft target – ‘Minimise the impact of invasive species on biodiversity in our most precious places by 2030’ – lacks the features needed to drive effective action, for it does not specify an intended outcome. ‘Minimise’ is a classic way of not committing to any particular outcomes, for it can even allow for an increased impact. The other symptom of limited commitment is a failure to specify what is meant by ‘our most precious places’. It could mean a focus on 2, 20 or 200 ‘precious places’ – Australia has no lack of precious places.

## **2.3 Nature Strategy targets to enable achievement of GBF target 6**

In the following sections, we propose targets and actions that are much more reflective of GBF target 6.

We acknowledge the great challenge in developing targets that are measurable and ambitious but realistic for invasive species. Therefore, we recommend that as part of the consultation the DCCEEW

holds a workshop focused on developing invasive species targets (including for other overlapping targets such as zero extinction) and identifying priority invasive species, priority focus areas and priority actions/programs. It should involve federal and state/territory environmental and biosecurity agencies, invasive species experts, Indigenous experts and environmental NGOs.

### **Recommendation 1**

Hold a workshop (with federal and state/territory environmental and biosecurity agencies, invasive species experts, Indigenous experts and environmental NGOs) to develop comprehensive invasive species targets and identify priority invasive species, places and actions/programs.

### **2.3.1 Prevention targets and actions**

The GBF target 6 clearly articulates the essential elements of a prevention target, with 2 specified measurable outcomes ('prevent' and 'reduce by 50%'). We recommend these be mirrored in the Nature Strategy target, with a 2-part target as follows:

Strengthen biosecurity on priority pathways for potential new invasive species to: (a) prevent the introduction and establishment of priority invasive species and (b) reduce the rates of introduction and establishment of other known or potential invasive species by at least 50%.

To achieve the proposed target will require at least the following actions in 5 categories:

(1) Prevent the introduction of priority invasive alien species likely to arrive accidentally (as stowaways or hitchhikers) or illegally (smuggled or unintentional imports):

- Revise the EEPL to comprehensively identify the priority invasive species or species groups (e.g. invasive ants) that Australia needs to keep out to protect native biodiversity.
- Undertake pathway risk analysis to identify priority pathways for potential environmental invaders.
- Prepare and implement pathway action plans to strengthen biosecurity on the priority pathways.

(2) Prevent the introduction of priority invasive alien species that are currently approved imports:

- Undertake risk scanning of approved live import species to identify priority environmental risk species.
- Identify and implement the measures needed to prevent the importation of harmful species and remain compliant with trade rules.

(3) Prevent the establishment of priority species that arrive in Australia:

- Develop and implement surveillance strategies for all priority species.
- Develop contingency plans for all priority species to facilitate rapid nationally cost-shared eradication if they are detected in Australia (or containment if eradication is not feasible).

(4) Prevent the establishment of priority species already present in Australia:

- Identify priority risk species already present in cultivation or keeping in Australia.
- Enact nationally consistent measures to eliminate, ban trade of, and/or mitigate the escape/release risks of priority species present in Australia.

(5) Reduce the rates of introduction and establishment of other known or potential invasive species by 50%:

- Identify the baseline rate of arrival of known or potential invasive species as the basis for assessing progress on this element of GBF target 6.
- Apply the measures identified in elements A1 to A4 to significantly reduce the risks of (a) other new potential invasive species arriving and establishing and (b) already present potential invasive species establishing permanently in the wild.

## Recommendation 2

Adopt a target for the Nature Strategy that fully reflects the prevention focus of GBF target 6, as in the following proposed target:

Strengthen biosecurity on priority pathways for potential new invasive species to: (a) prevent the introduction and establishment of priority invasive species and (b) reduce the rates of introduction and establishment of other known or potential invasive species by at least 50%.

### 2.3.2 Eradication and control targets and actions

The GBF target 6 specifies a broad scope for the eradication and control of invasive species but does not include a measurable outcome, which is difficult to do for the range of harmful invasive species, including some for which there are limited control options. The scope includes both an invasive species focus (eradication and control of invasive species) and a place focus (managing invasive species in priority places), in contrast to the narrower place focus in the draft Nature Strategy target.

It is important for the draft target to incorporate the broader invasive species focus (beyond priority sites) in part because this is needed to achieve other GBF targets to: (a) halt human-induced extinction (GBF target 4), (b) effectively conserve and manage at least 30% of terrestrial, inland waters and marine and coastal areas (GBF target 3), (c) undertake restoration of 30% of degraded terrestrial and aquatic areas (GBF target 2) and (d) minimise the impact of climate change (GBF target 8).

At least 2 of these targets have area-based outcomes – 30% of land and water and 30% of degraded areas. Given the spatial extent of invasive species threats, we can assume that most of these areas (except for many marine areas) will require management of invasive species to ensure effective conservation or restoration. These area targets therefore should also be reflected in the invasive species target. We suggest 30% as a very conservative target to encompass degraded areas, protected areas, islands and other ‘precious places’.

We recommend the following 3-part target to reflect both the priority invasive species focus and priority place focus of GBF target 6:

Effectively manage established invasive species by eradication and control programs to (a) arrest and reverse the decline of species highly imperilled by invasive species, (b) arrest and reverse biodiversity decline and habitat degradation caused by invasive species in high priority sites across at least 30% of Australia's territory, including on islands and in protected areas and (c) eliminate priority invasive species where this is feasible.

To achieve the proposed target will require at least the following actions in 5 categories.

(1) Abate the threats of the most harmful invasive species:

- Systematically identify and legislatively list the invasive species that imperil native species or ecological communities.
- Prepare threat abatement plans or action plans for the priority invasive species (those that imperil or could imperil significant numbers of native species or ecological communities) and effectively implement the plans, including by appointing coordinators, establishing taskforces, providing dedicated long-term funding and undertaking research where needed to achieve effective threat abatement.
- Undertake monitoring and reporting to track threat abatement progress.

(2) Effectively manage invasive species in protected areas:

- Assess the effectiveness of invasive species management in Australia's protected areas and identify sites where biodiversity is declining due to invasive species.
- Establish a dedicated national protected areas management fund to fund measures to reverse biodiversity decline in protected areas.
- Appoint an Indigenous Commissioner for Country and increase support for Indigenous rangers to manage invasive species and other threats on protected areas, including Indigenous protected areas as well as other priority sites for First Australians.
- Establish and implement standards for monitoring and transparently reporting on the effectiveness of invasive species management on protected areas.

(3) Safeguard island endemic species and create island or mainland havens for threatened species:

- Establish a national islands recovery and repair fund to systematically identify and eradicate priority invasive species on islands to (a) protect endemic species and (b) create safe havens for species threatened on the mainland by cats and foxes.
- Identify the highest priority threatened species needing haven protection, whether on islands or on the mainland (e.g. fenced reserves, freshwater sites with barriers to invasive fish), and prioritise their creation and protection [10].

(4) Eliminate priority invasive species, where this is feasible, to prevent future threats or threat escalation:

- Systematically identify and prioritise opportunities to eradicate invasive species or potential invasive species in the early stages of invasion (e.g. sleepers) or in sites where eradication is feasible.

- Establish federal funding arrangements (e.g. matched funding) to support priority eradications that are not eligible under the National Environmental Biosecurity Response Agreement.

(B5) Develop more-effective methods for managing priority invasive species:

- Prioritise research to develop effective methods for large-scale control of priority invasive species for which we currently lack effective methods (e.g. feral cats, trout, most weeds) or to replace methods whose social licence is at risk (e.g. 1080 baiting).
- Prioritise research into ecological methods for managing priority invasive species and to restore degraded sites – including by management of fire and grazing and predator protection.

### Recommendation 3

Adopt a target for the Nature Strategy that fully reflects the eradication and control focus of GBF target 6, as in the following proposed target:

Effectively manage established invasive species by eradication and control programs to (a) arrest and reverse the decline of species highly imperilled by invasive species, (b) arrest and reverse biodiversity decline and habitat degradation caused by invasive species in high priority sites across at least 30% of Australia’s territory, including on islands and in protected areas and (c) eliminate priority invasive species where this is feasible.

## 2.4 Discussion paper questions

We have addressed most of these questions in the previous sections. Here, we identify the relevant sections for those questions and provide notes for some questions we haven’t addressed.

### **Q1. What do you think of this target?**

See section 2.2 for a detailed response.

We think this target is highly inadequate: (a) it lacks a prevention focus (which is much needed to strengthen environmental biosecurity), (b) the eradication and control focus is limited to unspecified priority places, neglecting a focus on priority invasive species beyond these places and (c) the target does not specify a measurable outcome.

### **Q1a. Does this target appropriately apply GBF target 6 to the Australian context? If not, what needs to be included or removed from this target to improve the national focus?**

See section 2.2 and 2.3 for a detailed response.

We have recommended that 2 targets be developed to reflect the prevention and management focus of GBF target 6 and incorporate all elements of target 6. Recommendations 2 and 3 provide draft recommendations.

**Q2. What dedicated initiatives would you like to see for managing invasive species in Australia? For example, research initiatives, international collaboration, on-ground work, information sharing etc.**

See section 2.3 for a detailed response outlining some of the essential actions to achieve GBF target 6.

**Q2b. How could the enablers of change (environmental data; mainstreaming biodiversity considerations into decision-making; and equitable participation in nature related decisions) contribute to this target?**

See section 4 for a response to this question.

**Q3. What do you think will increase community support for the need to control invasive species to avoid species extinctions?**

Much more social science research is needed in Australia to address questions like this. One obvious fundamental need is to clearly and constantly explain in all sorts of ways the damage that invasive species have done and are doing to Australian species. Research commissioned by the Invasive Species Council helps address how best to communicate about invasive species issues (and can be made available).

**Q3a. What is the best method to enable and support individual contribution and behaviour changes from members of the community?**

**Q4. Are you (or your organisation) taking action to contribute to the target, if so, what contributions are you making and which enablers are you using?**

Action on invasive species — including advocacy, community mobilisation and on-ground work — is the core focus of the Invasive Species Council. See our website ([invasives.org.au](http://invasives.org.au)) for examples of the work we do. We use all enablers.

### 3. Other relevant priority areas

As noted, effective prevention and management of invasive species is essential to achieve most of the other draft Nature Strategy targets. The current invasive species draft target is far from sufficient to facilitate this. Here, we briefly outline the role of GBF target 6 in achieving other GBF targets and comment on the adequacy of the draft targets.

#### 3.1 Restoring degraded ecosystems (priority area 1)

**GBF target 2:** Ensure that by 2030 at least 30% of areas of degraded terrestrial, inland water, and coastal and marine ecosystems are under effective restoration, in order to enhance biodiversity and ecosystem functions and services.

**Draft Nature Strategy target:** 30% of priority degraded areas under effective restoration by 2030.

The draft target reflects the focus of GBF target 2, but not the scope – by reducing 30% of degraded areas to 30% of priority areas. The extent of restoration will depend on what are deemed priority areas.

There are few degraded ecosystems in Australia that do not suffer from extensive biological invasions. To achieve ‘effective restoration’ will require (a) extensive management of invasive species where there are effective methods, (b) research to develop methods where current methods are inadequate and (c) more effective prevention of new invasions of degraded areas. Priority actions for this target include the following:

- Assess the extent to which degraded terrestrial and aquatic ecosystems prioritised for restoration need invasive species management.
- Prioritise research to address deficiencies in tools and methods for managing invasive species in degraded areas.

#### 3.2 Minimising the impact of climate change (priority area 4)

**GBF target 8:** Minimise the impact of climate change and ocean acidification on biodiversity and increase its resilience through mitigation, adaptation, and disaster risk reduction actions, including through nature-based solutions and/or ecosystem-based approaches, while minimising negative and fostering positive impact of climate action on biodiversity.

**Draft Nature Strategy target:** Embed climate change adaptation into decision-making by 2030, to support increased resilience of biodiversity.

We strongly disagree that this very vague draft target for the Nature Strategy reflects GBF target 8.

Abating the threats of invasive species should be a high priority under this target as essential to strengthen the resilience of species to climate change impacts and to reduce some impacts of climate change. For example, abating the threats of flammable invasive grasses and shrubs is important for reducing fire impacts that are also exacerbated by climate change.

### 3.3 Conserving 30% of land and oceans (priority area 5)

**GBF target 3:** Ensure that by 2030, at least 30 per cent of terrestrial and inland water areas, and of marine and coastal areas, especially areas of particular importance for biodiversity and ecosystem functions and services, are effectively conserved and managed through ecologically representative, well-connected and equitably governed systems of protected areas and other effective area-based conservation measures, recognising indigenous and traditional territories, where applicable, and integrated into wider landscapes, seascapes and the ocean, while ensuring that any sustainable use, where appropriate in such areas, is fully consistent with conservation outcomes, recognising and respecting the rights of indigenous peoples and local communities, including over their traditional territories.

**Draft Nature Strategy target:** Protect and conserve 30% of Australia’s land and 30% of Australia’s oceans by 2030.

This is the clearest of all targets, but it is missing essential elements of GBF target 3, including (a) inland waters, of which 30% should be conserved and (b) effective management of protected areas.

Many protected areas, particularly terrestrial sites, are suffering extensive damage from invasive species – for example, the collapse of mammal populations in Kakadu, Booderee and Great Otway national parks; buffel grass invasion in Uluru, Tjoritja / West MacDonnell, Carnarvon and other national parks; gamba grass invasion in Litchfield National Park; feral horses and other ungulates in alpine national parks; lantana invasion and pig damage to dry rainforest in Forty Mile Scrub National Park; loss and decline of native fish in Murray-Darling Basin protected areas due to invasive trout, carp and other introduced fish.

Therefore, it is essential that the protected areas target for the Nature Strategy include ‘effectively manage’. Some actions necessary to achieve this target are addressed in section 2.3.2.

### 3.4 Zero extinctions (priority area 6)

**GBF target 4:** Ensure urgent management actions to halt human-induced extinction of known threatened species and for the recovery and conservation of species, in particular threatened species, to significantly reduce extinction risk, as well as to maintain and restore the genetic diversity within and between populations of native, wild and domesticated species to maintain their adaptive potential, including through in situ and ex situ conservation and sustainable management practices, and effectively manage human-wildlife interactions to minimise human-wildlife conflict for coexistence.

**Nature Strategy target:** Work towards zero new extinctions.

We strongly endorse a zero-extinction target. To achieve it will require much more effective abatement of major invasive species threats and other interacting threats such as adverse fire regimes. Recent expert assessments have identified another 100 or so species likely (>50%



likelihood) to go extinct within the next 10 to 20 years. Invasive species are a significant threat to almost three-quarters of these predicted extinctions, typically in combination with other threats. Freshwater fishes are the most imperilled animal group, with at least 22 species at high risk, most due to trout or other invasive fish, combined with climate change [11]. Australia's next extinction is most likely to be that of a galaxias (the Yalmy galaxias could be gone at any time). Chytrid fungus could wipe out several more frog species [12]. Many mammals remain highly threatened but are safe from imminent extinction because they have been introduced (or reintroduced) to islands and fenced reserves free of foxes and cats [13]. A recent invader has dramatically increased extinction risks for Australia's most iconic plant family, the Myrtaceae, with the predicted likely extinction of 16 widespread rainforest trees within one generation due to myrtle rust [14]. Phytophthora, feral herbivores (rabbits, goats, deer, horses) and weeds are other potential extinction drivers for plants [15].

Strengthening threat abatement is just as essential for stopping extinctions as recovery programs for particular threatened species [16]. And the only way to curtail more and more declines leading to extinctions in future is to abate the major threats. See section 2.3.2 for actions essential to achieve the zero extinction target.

### **3.5 Other relevant GBF targets**

An additional GBF target requiring a strong focus on invasive species management is target 1:

Ensure that all areas are under participatory, integrated and biodiversity inclusive spatial planning and/or effective management processes addressing land- and sea-use change, to bring the loss of areas of high biodiversity importance, including ecosystems of high ecological integrity, close to zero by 2030, while respecting the rights of indigenous peoples and local communities.

Large areas of high biodiversity importance are being lost due to biological invasions – for example, national parks being invaded and transformed by gamba grass or buffel grass. To achieve this target will require much more effective prevention and management of invasive species across much of Australia. This will need to include a focus on biosecurity to prevent invasions of ecosystems with high ecological integrity and intensive management of invasive species in areas with concentrations of endemic or threatened species.

#### **Recommendation 4**

Undertake an analysis of the priorities for invasive species management – including priority invasive species and priority places – needed for Australia to meet relevant GBF targets in addition to target 6.

## 4. Enablers

### 4.1 Enabler 1 – mainstreaming

*Enabler 1: Mainstreaming biodiversity considerations into government and business decision-making, including in financing, policies, regulations and planning processes*

It is essential to incorporate GBF target 6 and other relevant targets into biosecurity strategies, plans, policies, programs and reform agendas, at federal, state/territory and local government levels. Even though the federal Biosecurity Act 2014 cites the Convention on Biological Diversity, there is no indication that the federal biosecurity agency regards the biodiversity targets as relevant to their work. There have been no strategies, plans or other documents we have seen that have mentioned the previous Aichi biodiversity target or the new target. To achieve GBF target 6, that needs to change.

A commitment to achieve the GBF prevention target could be facilitated in part by the workshop we propose in recommendation 1. There also needs to be a formal agreement between the environment and agricultural departments at national and state/territory levels to collaborate to achieve the GBF target and other environmental priorities (this is consistent with a recommendation in the 2017 review of the Intergovernmental Agreement on Biosecurity for MoUs between environmental and biosecurity agencies). There also needs to be a genuine endeavour to implement the action under the National Biosecurity Strategy to 'Strengthen the involvement of environmental agencies and environmental and community groups to enhance biosecurity outcomes.'

#### **Recommendation 5**

Seek a commitment from Australia's biosecurity agencies at federal and state/territory levels that they will incorporate GBF target 6 and other relevant GBF targets into biosecurity strategies, plans, policies and programs and collaborate with environmental agencies and environmental and community groups to achieve the target.

### 4.2 Enabler 2 – environmental data

*Enabler 2: Ensuring environmental data and information is widely accessible and supports planning*

We strongly support the formation of Information Australia and advocate that a strong focus of its work be the compilation and analysis of data relevant to preventing and managing invasive species. The current state of data on environmental invaders is poor – often lacking or difficult to access and highly dispersed. We look forward to assisting Information Australia by providing the data we have compiled for our upcoming state of environmental biosecurity report.

#### **Recommendation 6**

Ensure that one high priority for the proposed Information Australia is to compile and analyse data relevant to preventing and managing invasive species that impact the environment.

### 4.3 Enabler 3 – equitable representation and participation

*Enabler 3: Ensuring equitable representation and participation in decisions relating to nature, particularly for First Nations peoples*

There is increasing recognition of the need to meaningfully involve First Australians in environmental decision-making and to provide better support for their essential role in preventing and managing biological invasions. In addition to increased funding for Indigenous rangers, we recommend the appointment of an Indigenous Land and Sea Country Commissioner to advise Australia's governments and be a public advocate for Country.

For the community at large, there are many barriers to equitable participation in decisions about invasive species, particularly in decision-making by biosecurity agencies when there is a conflict between environmental interests and commercial or utilisation interests. Agricultural departments, which typically administer biosecurity, often prioritise the interests of those they consider their primary stakeholders, without any transparent analysis of whether this is in the public interest. This has led to many conflicts and facilitated many serious environmental invasions – for example, of invasive pasture grasses and legumes and feral deer. Biosecurity should be administered independently of agriculture or industry/trade-focused departments.

#### **Recommendation 7**

To facilitate equitable representation and participation by First Australians, appoint an Indigenous Land and Sea Country Commissioner to advise governments and be a public advocate for Country.

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