Griffith UNIVERSITY
Queensland, Australia
Climate Action Beacon

CONNECTIVITY CONSERVATION: forging the nexus between biodiversity protection and climate action in Australia

Policy Discussion Paper 1/23

Authors

Brendan Mackey[1], Keith Bradby[2], Liz Gould[3], Gary Howling[4], James O'Connor[4], Tandi Spencer-Smith[4], David M Watson[5] and Virginia Young[6]

1 Climate Action Beacon, Griffith University, Queensland
2 Gondwana Link Ltd.
3 Healthy Land and Water
4 Great Eastern Ranges Ltd.
5 Gulbalit Institute, Charles Sturt University
6 Australian Rainforest Conservation Society

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KEY POINTS

The purpose of this policy discussion paper is to provide a summary of the importance of connectivity conservation for protecting and restoring biodiversity and ecosystems in Australia, including supporting Australia's response to climate change. It also provides guidance on the implications of connectivity for Australia's national biodiversity plan and related policy areas. Key points include:

1. Maintaining and enhancing ecosystem integrity and resilience through connectivity is a key element in the Kunming-Montreal Global Biodiversity Framework adopted at CBD COP15. Goal A and Targets 2, 3 & 12 explicitly recognise the importance of ecological connectivity for achieving biodiversity objectives.
2. Decisions taken by the UNFCCC at COPs 25, 26 and 27 reinforce the importance of integrating climate and biodiversity action for climate mitigation and ensuring ecosystem integrity. Protecting and restoring ecosystem integrity is an essential prerequisite for the success of Australia's commitments under the Convention on Biodiversity and the UN Framework Convention on Climate Change.
3. Connectivity conservation is also critical for achieving Australia's national biodiversity plan and meeting Australia's new goals of 30 by 30, preventing new extinctions and a 43% reduction in carbon emissions by 2030, leading to net zero by 2050.
4. All ecosystems, especially carbon dense ecosystems such as native forests, are the only means by which carbon can be removed from the atmosphere and accumulate in relatively stable, long-term ecosystem carbon stores. Protecting these ecosystems, therefore, has significant mitigation benefit by preventing anthropogenic emissions and enabling ongoing removals through natural growth.
5. 'Conservation corridors' provide a framework for conservation planning and implementation efforts informed by connectivity conservation and characterised by a whole-of-landscape approach, the integration of protection and restoration actions, partnerships within and between sectors, and coordination of actions across tenures and jurisdictions. In Australia, most conservation corridors are community-led in partnership with governments and NGOs, Traditional Owners and cognate enterprises.
6. Community-based connectivity conservation initiatives provide important vehicles for building partnerships within and across sectors and for the whole-of-landscape and system approach needed to address the multiple and interacting threats of habitat fragmentation, loss and damage, invasive species, and climate change.
7. Australia has been culturally connected for millennia by Songlines and other culturally significant pathways, including trade routes, that remain of great importance to First Nations people and are a living part of Australia's cultural heritage. Restoration of these can be important for strengthening connection to culture and country.
8. A national system of conservation corridors, with the National Reserve System and other protected areas as the cornerstones, would provide the foundation for enabling strategic, community-led connectivity initiatives that combine to create impact at the regional and continental scales.
9. This new national system could be implemented through a National Conservation Corridors Framework in support of the Australian Government's National Climate Resilience and Adaptation Strategy to ensure respectful, considered and meaningful consultation with stakeholders and support the roll-out of integrated nature-based solutions – those based on native ecosystems – that address our climate, biodiversity, climate-resilient development and health challenges.
10. Conservation corridors help safeguard Australia's unique species and ecosystems, maintain and restore the ecological integrity, resilience and adaptive capacity of our landscapes, waterways and seascapes and mitigate the impacts of climate change by:
    - Promoting coordinated, multi-scale biodiversity outcomes across tenures (public, private, leasehold, Indigenous)
    - Addressing the major threats to biodiversity that cascade and compound across tenures.
    - Maintaining and improving ecosystem carbon sequestration and storage and water quality through improved conservation management, increased protection and encouraging assisted natural regeneration in degraded landscapes.
    - Strengthening the population viability and resilience of wildlife,
    - particularly threatened species through maintaining critical habitat, including source habitats and refugia, and movement pathways, on all tenures.
    - Supporting the natural adaptative response of species to climate change, including supporting dispersal to new locations providing suitable habitat.
    - Maintaining the ecological processes that sustain ecosystem integrity, including long distance species migration and transfer of pollen and plant propagules between otherwise disconnected areas.
    - Supporting biodiversity recovery following mega-disturbances.

- Contributing to climate-resilient development, and
- Improving community health, wellbeing and resilience.

11. Robust, targeted and ongoing research is needed – including monitoring and evaluation of ecosystem condition – to support adaptive management in the face of a rapidly changing climate and other pressures and threatening processes.
12. There are important social and cultural benefits that arise from the approach. These include building capacity among local communities, creating awareness of the benefits from and threats to a healthy environment, and helping to cultivate the social mandate in support of strong biodiversity and climate action.

INTRODUCTION

As Australia begins the challenge of updating its national biodiversity plan to implement the new global biodiversity framework, connectivity conservation has a vital role to play as a critical strategy for meeting Australia's new goals of 30 by 30, net zero new extinctions and 43% reduction in carbon emissions by 2030 leading to net zero by 2050.

Connectivity features strongly in the Kunming-Montreal Global Biodiversity Framework under the Convention on Biological Diversity, specifically in:

- **Goal A** - The integrity, connectivity and resilience of all ecosystems are maintained, enhanced, or restored, substantially increasing the area of natural ecosystems by 2050.
- **Target 2** - Ensure that by 2030 at least 30 per cent 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, ecological integrity and connectivity
- **Target 3** - Ensure and enable that by 2030 at least 30 per cent of terrestrial, inland water, and of coastal and marine 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.
- **Target 12** - Significantly increase the area and quality and connectivity of, access to, and benefits from green and blue spaces in urban and densely populated areas.
- Connectivity is also highlighted as important in relation to the associated **Monitoring framework**.

Implementation of targets 1-8, 10-12 and 19, 22 and 23 of the framework would all be enhanced through community led, connectivity conservation initiatives.

The United Nations Framework Convention on Climate Change (UNFCCC) 27th Conference of the Parties (COP 27) continued to build on the critically important theme of integrating climate and biodiversity action:

- The preamble of the cover decision (CMA.4) reaffirmed the Glasgow/Paris Agreement language on the importance of ensuring the integrity of all ecosystems, including in forests, and the protection of biodiversity. At the same time recognising the critical role of protecting, conserving and restoring water- related ecosystems to deliver climate adaptation benefits and co-benefits.
- A new overarching decision (CMA 4 para 1) underlines the urgent need to address, in a comprehensive and synergistic manner, the interlinked global crises of climate change and biodiversity loss in the broader context of achieving the United Nations Sustainable Development Goals (SDGs). It also highlighted the vital importance of protecting, conserving, restoring and sustainably using nature and ecosystems for effective and sustainable climate action, and
- The mitigation section of the COP 27 Cover text (CMA 4 para 30) reconfirmed the Glasgow text on the importance of protecting, conserving and restoring nature and ecosystems to achieve the Paris Agreement temperature goal.

WHAT IS CONNECTIVITY CONSERVATION?

Connectivity conservation is a well-established, science-based approach that counters site-based approaches to conservation that manage remnant individual patches and reserves as isolated "islands". This locks many species into an ever-tightening extinction vortex by cutting off vital movement and adaptation pathways. The 'connectivity' part of connectivity conservation refers to various kinds of connections, including (Mackey et al., 2010):

- The structural configuration of habitats or habitat patches in a landscape mosaic.
- The permeability of a landscape mosaic for dispersal and movement of a species.
- The presence or absence of barriers or impediments to the natural flux of water, nutrients, or wildfire experienced in a landscape.
- Landscape permeability with respect to meta-population dynamics.
- Gene flows associated with micro- and macro-evolutionary processes.

FROM A SPECIES PERSPECTIVE connectivity needs to be considered at multiple scales of space (i.e., geography) and time (such as seasonal changes) depending on the mobility and requirements of the taxa or functional guild, for example:

Long-distance biological movement - many vertebrates and invertebrates have stages in their life cycles where they undertake large-scale movements. For example around half of Australia's land and freshwater birds are migratory - some move seasonally while others are eruptive or opportunistic (Gilmore et al., 2007). The patterns of these long-distance dispersive bird movements are complex in space and time, such as whole-of-east coast, intercontinental, inland circular and coast-inland migrations (Griffioen and Clarke, 2002). Some Australian birds are altitudinal migrants, with important implications for their responses to climate change.

Networks of micro-habitat refuges and core habitats – many species are dependent upon spatially restricted or temporally variable habitats, as well as drought and wildfire refugia and source habitats that support a population surplus. For example 16,500 small patches of monsoon rainforests (0.4% of land area of Kimberley and the northern half of NT) provide habitat for 585 plant species; narrow riparian strips along major water courses of north Queensland support an unrepresentative high proportion of biodiversity; and waterfowl, honeyeaters and flying foxes migrate out during lean times, undertaking broad-scale dispersal to find food resources (Woinarski et al., 2005).

Meta-population dynamics – The dispersal of individual animals between populations distributed across a network of habitat patches in a landscape (or bioregion) is essential for maintaining genetic health, re-populating patches where resident populations are extirpated and for juvenile animals that need to disperse from sites whose carrying capacity has been reached into the surrounding landscape in search of suitable habitat (O'Brien et al., 2008). For threatened species, such as the greater glider, connecting the remaining patches of suitable habitat is critical for their persistence and ongoing population viability. Pollinators and seed dispersers, particularly flying-foxes, enable genetic flow between isolated plants and ecosystem fragments, improving resilience and adaptive capacity.

Island biogeography – The size of reserves and the total area of protected habitat has been shown to be critical for maintaining viable populations of species at a bioregional level. For example, island biography analysis in south-west WA showed reserves of the order of 30,000-94,000 ha are required to conserve most of the avifauna of the wheatbelt (Kitchener et al., 1982) and 40,000 ha approximates the area of nature reserve likely to conserve that part of the regional assemblage of mammals in southern Western Australia liable to persist in the face of anthropogenic disturbances. Fragmentation and lack of connectivity results in a growing extinction debt in the remnant patches and reserves of inadequate size. Therefore, connecting new ecological plantings with restored and remnant habitat patches is a critical conservation priority in heavily cleared and fragmented landscapes.

FROM AN ECOSYSTEM PERSPECTIVE,connectivity considerations are related to ecological landscape processes and especially (Mackey et al., 2007):

Hydroecology describes the role native vegetation plays in regulating surface and subsurface hydrological flows and in turn, the importance of water availability for ecosystem productivity. In arid and monsoonal Australia, for example, groundwater recharge and discharge are critical for maintaining perennial springs and water holes, river base flows, and perennial stream flow that provide essential habitat refugia networks for wildlife.

Highly interactive species refers to the fact that species at any given trophic level can play a major role in regulating resource availability and population dynamics over species at other levels. Australian examples include the vital role of flying-foxes and honeyeaters as key pollinators (Paton et al., 2000) and mesopredators such as the dingo (Glen et al., 2007). Maintaining connectivity for such trophically interactive species – including protecting and restoring trophic levels in a food web on a landscape-wide basis – is a critical factor for effective conservation planning that is rarely considered.

Natural disturbance regimes of particular ecological importance in Australia are the natural patterns of wildfire and flooding which for tens of millions of years have been selective forces acting on the evolution of Australian species' adaptive traits, and are an important influence on the biological productivity, composition, and landscape patterning of ecosystems (Bradstock et al., 2002). We must now also consider anthropogenic exacerbation of disturbances and impacts through land clearing and other disruptive process, including climate change.

CORRIDORS, CONNECTIVITY AND ECOSYSTEM INTEGRITY

"Conservation corridors", as defined here, provide a framework for conservation planning and implementation efforts informed by connectivity conservation science and characterised by a whole-of-landscape approach, the integration of protection and restoration actions, partnerships within and between sectors, and coordination of actions across tenures. In Australia, conservation corridors are in the main community-led but often in partnership with governments and NGOs, Traditional Owners and cognate enterprises (e.g. native plant nurseries). Two long-standing continental-scale connectivity initiatives are Gondwana Link (**https://gondwanalink.org/**) in south-west WA and the Great Eastern Ranges (**https://ger.org.au/**) which works across eastern Australia. These are both led by non-government organisations, and funded through a variety of sources. Both work across a wide spectrum of affiliated groups, improve permeability across state borders and between regional natural resource management boundaries, have strong international connections, have made substantial achievements in on-ground change and have been pivotal in the development of a range of improved implementation tools and techniques. This includes the establishment of biodiverse plantings and assisted natural regeneration that meets urgent ecological needs, but which also provides climate mitigation and adaptation, economic, cultural and social benefits.

The term "corridor" however, is used in a range of related contexts (**Table 1**):

- A **landscape corridor** is the principal geographic setting for a given conservation corridor initiative, however, initiatives can be so extensive that they encompass a number of landscape corridors and
- **Linear, habitat, dispersal** and **ecological corridors** are all components of a landscape corridor.

Type of corridor	Definition
Landscape corridor	The main geographic setting of a connectivity conservation initiative that maintains or establishes multidirectional connections over entire landscapes and can encompass up to thousands of square kilometres.
Biodiversity or biological corridor	Biodiversity or biological corridor synonymous with landscape corridor.
Linear corridor	Establishment or maintenance of relatively straight-line connections between larger habitat blocks and extend over distances of up to tens of kilometres. Typically, linear strips of native habitat linking two larger blocks of the same habitat.
Habitat corridor	Can be synonymous with linear corridors or refer to a corridor comprising spatially disjunct "stepping stone" habitats.
Dispersal corridor	Synonyms include movement corridors and wildlife corridors, i.e., corridors designed to promote the movements or migrations of specific species or guilds.
Ecological corridor	Corridors that aim to protect and restore ecological processes including those that sustain habitat resources.

Table 1. Definitions of the various ways in which the term "corridor" is used in connectivity conservation initiatives. Sources: (Mackey et al., 2010, Anderson and Jenkins, 2006)

Other components of a landscape corridor include:

- **stepping stones** which are geographically disjunct areas of suitable habitat for a species that provide resting, feeding or reproduction resources during a species migration or dispersal.
- **buffers** which are used to help secure the boundaries of protected areas and corridors through a combination of bush regeneration and conservation management practices, and
- the **matrix**, which refers to the surrounding landscape outside protected areas and remnant bush and bush regeneration sites, i.e. the land being used for agriculture, mining etc. (**Figure 1**)

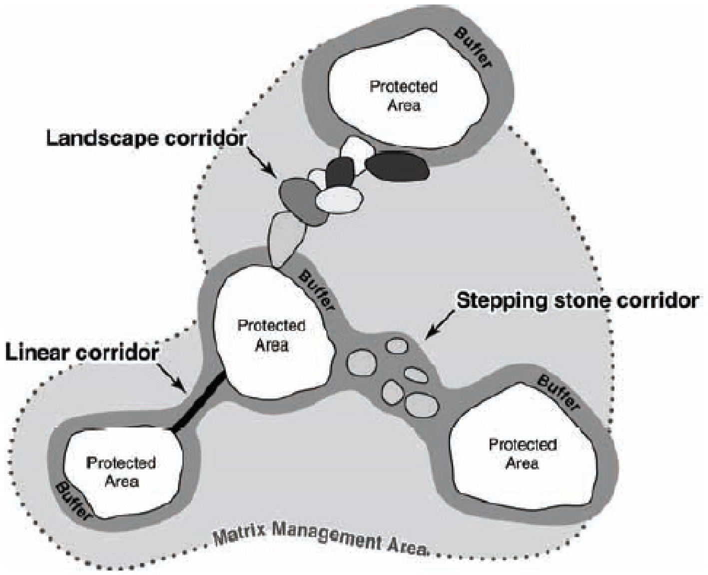

Figure 1. Some of the conceptual elements that comprise connectivity conservation spatial planning: core protected areas, the landscape-wide matrix management area, native vegetation that serves as stepping stones and linear corridors (Mackey et al., 2010) (Bennett, 2004).

CLIMATE CHANGE ADAPTATION AND CONNECTIVITY

We are already witnessing the severe impacts of human-influenced climate change on Australia's species and ecosystems (Mackey et al., 2022). However, it is critical for effective conservation planning to be based on an understanding of the multiple ways in which species and ecosystems respond to climate change and how these natural adaptations can be facilitated by connectivity conservation. There are six fundamental ways in which species are able to persist through climate change:

- **Long-distance dispersal** to locations that meet a species' physiological niche and habitat resource requirements. Given the extreme year-to-year variation in Australian rainfall and associated plant productivity, many Australian species are highly dispersive. They may be pre-adapted to rapid climate change (Smith and Smith 2012), highlighting the need to maintain ecological connectivity spatially and temporally.
- **Local adaptation** through microevolution in populations that possess modified or new traits that are better suited to the new conditions.
- **Phenotypic plasticity**, i.e., the natural variability in the physical expression of a species genome. For example, some plants can change their growth form from a tree to a bush in response to a shift in rainfall regimes.
- Contract to **climate refugia**, i.e., populations of a species become restricted to locations that retain at a local or topographic scale the required micro-climatic conditions that fall within the species physiological niche.
- Possessing a **wide fundamental niche** and being a **habitat generalist** means a species can successfully occupy a range of climatic conditions. For example, many Australian forest birds and mammals find suitable habitat in tropical, sub-tropical and temperate bioregions.

Connectivity conservation initiatives can support all of the potential species' responses to climate change through creating and protecting key conservation corridors. For example, landscape corridors can encompass the large scales needed to accommodate long-distance dispersal and the maintenance of genetic diversity in populations across a species' entire range. Protecting source habitats and refugia networks helps maintain a species' reproductive capacity and resilience.

However, understanding the ecological context of a given landscape is critical to identifying the appropriate connectivity strategies. For example, species that have narrow ranges, with limited dispersal capacity and are edaphic endemics – including those found in old climatically buffered infertile landscapes (OCBILs) by proximity to ancient coastlines, with much of the Southwest Australian Floristic Region being one classic example – require connectivity conservation efforts that enable them to persist in situ in what are naturally fragmented and often small habitat patches (Hopper et al., 2021). However, while these landscapes contain what can be called OCBIL species – ones that have developed and lived in situ for millennia - they also contain more mobile species reliant on connectivity for their survival. The challenge here is to maintain the genetic heritage of ancient local endemics while restoring connectivity for those dispersive species, ensuring this does not accelerate invasion by recently introduced species, such as invasive weeds and predators.

Connectivity conservation also contributes more broadly to meeting climate adaptation needs. The IPCC 6th Assessment Report AR6 Working Group II on Impacts, vulnerability and Adaptation, including chapter 11 on Australia and New Zealand, provides useful insights into the importance of maintaining and enhancing ecosystem integrity for climate adaptation (IPCC, 2022),including that: safeguarding biodiversity and ecosystems is fundamentally important for achieving resilient climate development; building the resilience of biodiversity and supporting ecosystem integrity which maintains benefits for people, including livelihoods, human health and wellbeing and the provision of food, fibre and water, as well as contributing to disaster risk reduction and climate change adaptation and mitigation; and that protecting and restoring ecosystems is essential for maintaining and enhancing the resilience of the biosphere.

CLIMATE CHANGE MITIGATION AND CONNECTIVITY

Connectivity conservation initiatives provide a landscape-wide planning framework for the protection and restoration of ecosystems that supports both biodiversity and climate mitigation goals. All natural ecosystems, and especially carbon dense ecosystems such as native forests, are critical for climate change mitigation as they are the only means by which carbon can be removed from the atmosphere and accumulate in relatively stable, long-term carbon stocks (Keith et al., 2022). The mitigation value of protecting ecosystems from human land use impacts lies in the fact that significant and immediate anthropogenic emissions can be prevented and ongoing and additional removals achieved, through natural growth. For example, fostering recovery of degraded native forests allows their depleted ecosystem carbon stores to be replenished up to their natural carbon carrying capacity (Mackey et al., 2008) and their overall integrity and stability to be restored. This reduces the future risk of emissions associated with drought, fire, pests and disease.

The mitigation benefits of ecosystem protection and restoration were recognised in the IPCC 6th

Assessment Report, which states that among the mitigation options, the protection, improved management, and restoration of forests and other ecosystems (wetlands, savannas and grasslands) have the largest potential to reduce emissions and/or sequester carbon. Measures that 'protect' are ranked as having the single highest total mitigation and mitigation densities in the agriculture, forestry and land use (AFOLU) sector (Shukla and Al., 2022). They also have the greatest capacity to mitigate biodiversity loss and threatened species extinction. The IPCC 6th Assessment Report also recognised that carbon lost from carbon-dense ecosystems will likely be irrecoverable by 2050.

The critical factor in understanding the mitigation benefits of native forests and woodlands is that their carbon stocks are more dense, stable and long-lived compared to logged forests and plantations. This enhanced mitigation value is a product of their evolved biodiversity – the characteristic species, the genetic diversity they contain, and the complex food webs and synergistic community relations they form - which make them more resilient in the face of perturbations and ensures great adaptive capacity to accommodate environmental change, including human-induced climate change (Rogers et al., 2022). Protecting and restoring native ecosystems, therefore is a superior mitigation strategy compared to approaches that focus on establishing monocultures or non-ecological plantings (Mackey et al., 2020).

THREATS TO BIODIVERSITY AND CONNECTIVITY

Major conclusions from The Australian State of Environment Report for 2022 (Coa, 2022) include that:

- Habitat loss and degradation resulting from broad-scale clearing, logging, mining, urbanisation, transportation, energy production and agricultural activity is the primary reason for biodiversity loss and decline. Nearly 70% of Australian threatened taxa suffer from habitat loss and degradation - the most dominant mechanism by which species are threatened in Australia.
- Invasive species continue to be a major threat.
- Climate change and extreme weather events are becoming increasingly important as direct drivers of changes in biodiversity, with Australian ecosystems and associated species expected to continue to change substantially in response to threats like drought and fire that will increase in severity with climate change.
- Following the 2019–20 bushfire season, many species and ecosystems require rapid recovery interventions, mitigation of ongoing threats, and reassessment of their status.

These threats interact with each other resulting in compounding, cascading and aggregating impacts on species and ecosystems that cannot be contained by any single agency or within a given land tenure. Rather, their management requires a whole-of-landscape and systems approach and coordination of efforts across sectors and tenure – precisely the approach enabled through conservation corridors.

CONNECTIVITY AND TRADITIONAL KNOWLEDGE

There is increasing recognition in policy and practice of the practical conservation benefits to be derived from drawing upon both Traditional Knowledge and the information from modern scientific monitoring and assessment. This "two-toolbox" approach (Mackey and Claudie, 2015) is now being applied through programmes such as Indigenous Rangers, the co-management of protected areas, and conservation partnerships with First Nations organisations across Australia. From the perspective of connectivity, it is also important to acknowledge that Australia has been culturally connected for millennia by Songlines, trade routes and other culturally significant pathways. These remain of great importance to First Nations people and are a living part of Australia's cultural heritage. These often trace the journeys of ancestral spirits and contain information about the land, encoding the locations of resources across the landscape throughout the seasons and mapping sacred spaces and other notable places (Higgins, 2021). Rejuvenation and restoration of habitats along these ancient pathways have begun in some areas, are consistent with restoring ecological connectivity, and also provides multiple benefits to First Nations communities, such as employment and opportunities to reconnect with country and culture.

POLICY SOLUTIONS

A fundamental premise of connectivity conservation is that it provides a platform for actions that can improve the outlook for biodiversity and ecosystem integrity at the range of scales needed to respond to multiple threats. It deals with the causes of ecological decline and species loss rather than the symptoms. In addition to helping our unique species and ecosystems persist in the face of climate change and increasing land use pressures, ecosystem carbon sequestration and storage across landscapes is also protected and restored.

It is important that connectivity conservation planning and implementation be informed by robust, targeted and ongoing scientific research, including monitoring and evaluating ecosystem condition (Watson et al. 2017). This information supports the adaptive management now needed in the face of a rapidly changing climate and other compounding pressures and threatening processes.

Treating biodiversity as a potential co-benefit of climate action in the land has hidden the functional importance of biodiversity as a building block for success in long-term carbon retention. Climate action in the land sector that is not built on protecting and restoring biodiversity has a much higher risk of failure compared to actions based on an understanding of the functional role of biodiversity and how it underpins ecosystem integrity and stability (Rogers et al., 2022). Yet few mechanisms exist to foster holistic solutions to the linked global challenges we face. Government policy needs to recognise that the biodiversity and climate crises amplify each other and create new incentives which foster integrated action across land, forests and other terrestrial and coastal ecosystems.

Connectivity conservation helps curb the loss of Australia's unique species and ecosystems, maintains and restores the ecological integrity, resilience and adaptive capacity of our landscapes, waterways and seascapes. It makes a major contribution to the fight against climate change and mitigating its impacts by:

- Achieving coordinated, multi-scale climate and biodiversity outcomes across tenures (public, private, leasehold, Indigenous) and institutional boundaries.
- Addressing the major threats to biodiversity that cascade and compound across tenures.
- Maintaining and improving ecosystem carbon storage and water quality through protecting and encouraging assisted natural regeneration in degraded ecosystems.
- Strengthening the population viability and resilience of a range of wildlife, including many threatened species, through maintaining critical habitat networks on all tenures, including source habitats and refugia.
- Supporting the natural adaptative response of species to climate change including facilitating dispersal to new locations that provide suitable habitats and conditions (Watson and Watson 2015).
- Maintaining the ecological processes that sustain ecosystem integrity and the provision of ecosystem services.
- Supporting biodiversity recovery following mega-disturbances.

Connectivity conservation also contributes to climate-resilient development and community health and wellbeing. Many social and cultural benefits arise from the approach, including building and sustaining capacity among local communities, creating environmental awareness, and helping cultivate the social mandate in support of biodiversity and climate action. Connectivity conservation initiatives also enable individual and local efforts over time to be understood in the context of wider and long-term endeavours, in turn fostering a sense of connection to and within community.

A national system of conservation corridors, with protected areas as the cornerstones, would provide the foundation for enabling strategic, community-led connectivity initiatives that combine to create impact at the local, regional and continental scales. This could be implemented through a National Conservation Corridors Framework in support of the National Climate Resilience and Adaptation Strategy. This would help ensure respectful, considered and meaningful consultation with stakeholders and support the roll-out of integrated nature-based solutions that address our climate, biodiversity and health challenges by:

- Ensuring that First Nations People are actively involved in the creation and implementation of the framework.
- Acknowledging, valuing and promoting the ecosystem service benefits to Australia of interconnected ecosystems on land and sea, including for climate mitigation and adaptation.
- Promoting strong integration of conservation corridors across government programs such as the National Reserve System and threatened species recovery plans and their inclusion in national environmental laws.
- Building upon the respective strengths of existing community-based frameworks including connectivity conservation initiatives, Landcare and regional NRM structures so that they complement and value-add each other.
- Recognising and providing funding to support established and emerging conservation corridors and related connectivity conservation initiatives with the necessary existing partner networks, ongoing projects and expertise to build on the foundations already in place, and
- Adopting guidelines for future funding programs that support the establishment of national, regional, and local-scale conservation corridors, including in areas where biodiversity is threatened by urban growth and where social inequality has impacted on both communities and wildlife.

A supportive and adequately resourced national policy framework is needed to ensure good governance and involve and empower landholders, regional communities, First Nations Peoples and other local groups to protect, connect and regenerate nature.

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AUTHOR FOR CORRESPONDENCE

Prof Brendan Mackey b.mackey@griffith.edu.au