AUSTRALIAN CONSERVATION FOUNDATION

23 DECEMBER 2023

ACF Submission
Net Zero Plan: Agriculture and land sector

The Australian Conservation Foundation (ACF) is Australia's national environment organisation. We are over 500,000 people who speak out for nature – for the air we breathe, the water we drink, the food we eat, and the places and wildlife we love. We are independent, non-partisan and funded by donations from our community.

ACF welcomes the opportunity to make a submission to the consultation on how the agriculture and land sectors can play a part in the economy-wide Net Zero Plan that "aligns with the nature positive goals while providing opportunities for First Nations peoples and other communities."[1]

This submission focuses on opportunities for the agriculture sector to contribute to climate and nature positive outcomes together.

Recommendations

1. Develop a national food strategy and plan to ensure the transformation of the Australian food system into one that operates within planetary boundaries and aligns with the GBF (Global Biodiversity Framework), incorporates Indigenous knowledge and supports First Nations rights and self-determination, and aligns with the Paris Agreement goal of limiting global temperature rise to 1.5°C while providing all Australians with access to good quality food, contributing sustainably to global food security, and improving farmer wellbeing.
    a. In support of a national food strategy, measure current impacts and set targets for the national agricultural estate in line with planetary/earth system boundaries

[1] https://www.dcceew.gov.au/about/news/agriculture-land-plan-hys

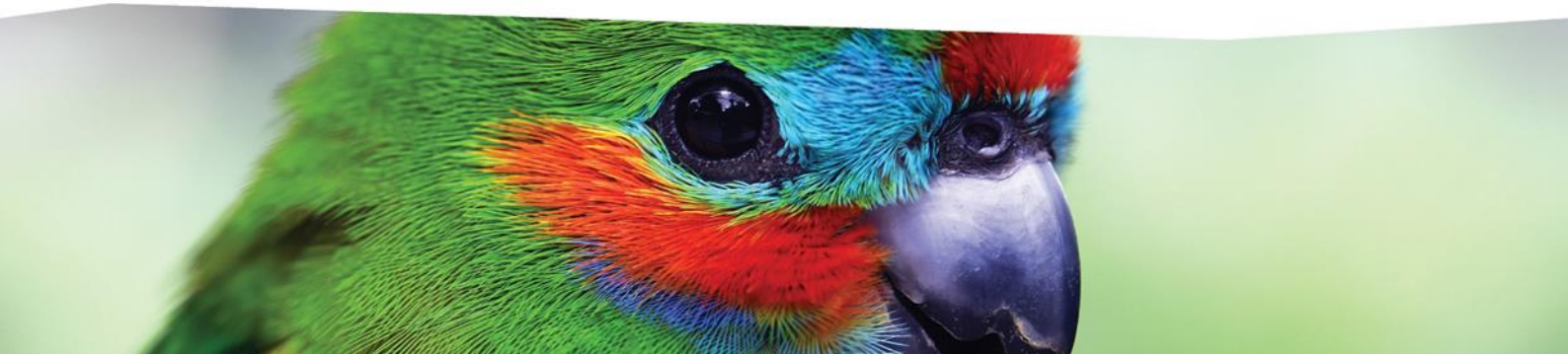
including for biogeochemical flows, water use and quality, greenhouse gas emissions and storage, novel entities, and biodiversity.

2. Implement a system of national, integrated natural capital accounting with enhanced environmental data – in particular vegetation mapping and land use change data – to allow for the measurement and modelling of environmental trends and performance, including greenhouse gas emissions and carbon storage, to support corporate risk management and impact disclosure, and enable the informed assessment of public and private environmental and economic benefits and trade-offs of varied land, water, and biodiversity management approaches.
    a. Enable and mandate full 'farm-to-fork' agricultural supply chain traceability
3. Fund expanded projects that measure the gains in long-term productivity and profitability, farmer wellbeing, biodiversity outcomes and carbon storage from adopting agroecological, regenerative or other farming practices that enhance natural capital.
4. Reform corporate and financial laws to mandate world-leading disclosure of climate and nature related impacts, dependencies and risks and set due diligence obligations for large businesses and financial institutions to mitigate their impacts, including along agricultural value chains.
5. Enhance carbon storage in the land and reduce extinction risk by ending broadscale land clearing and improving the extent, condition, and connectivity of natural ecosystems across the agricultural estate through improved incentivisation, regulation (including Environment Protection and Biodiversity Conservation Act reform) and compliance.

Discussion

The need for an integrated national food strategy in support of a national economy that operates within ecological limits.

We are in a climate and nature crisis. A quarter of all the world's living species are threatened with extinction. Australia's contibution to this crisis is significant. The changes we have made to the land and seascapes in Australia have driven more mammals to extinction than on any other continent. The 2021 State of the Environment report finds Australia's natural environment is in



an overall poor condition and is deteriorating due to increasing pressure from climate change, habitat destruction, invasive species, and pollution.[2]

Beyond the loss of intrinsic, cultural and ecological values associated with healthy nature, these impacts are likely to have major social and economic consequences. Approximately half of Australia's GDP (49.3% or $892.8bn) has a moderate to very high direct dependence on ecosystem services. As nature's limits are exceeded, ecological systems and functions are altered, along with the ecosystem services they provide to people, and nature's contribution to the economy falls.

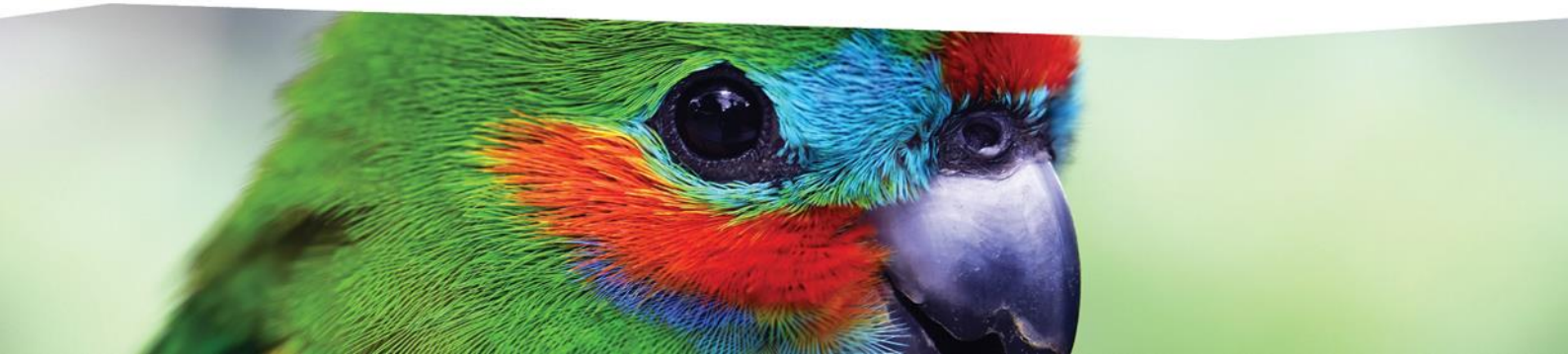
Solving the climate and nature crises will require tranformational, economy-wide change and a new economic paradigm based on an economy operating within ecological limits. It will require a shift to production and consumption patterns across all sectors, agriculture in particular, that not only fit within planetary boundaries but result in a net gain in biodiversity and planetary health, alongside traditional and innovative conservation approaches that include recovery programs for threatened species and ecosystems, expansion of the (public and private) protected area estate, large scale restoration of ecosystems, the incorporation of First Nations knowledge and rights into sustainability objectives, and the funding of First Nations-led restoration programs.

To illustrate the profound impact agriculture has on the Australian landscape, and the equally profound opportunity the sector has to contribute to its repair, a 2021 study involving 38 experts, 21 universities, and the CSIRO, which determined 19 Australian ecosystems should be classified as 'collapsing' listed agricultural practices, alongside climate change and invasive species, as the most prevalent drivers of ecosystem change.[3]

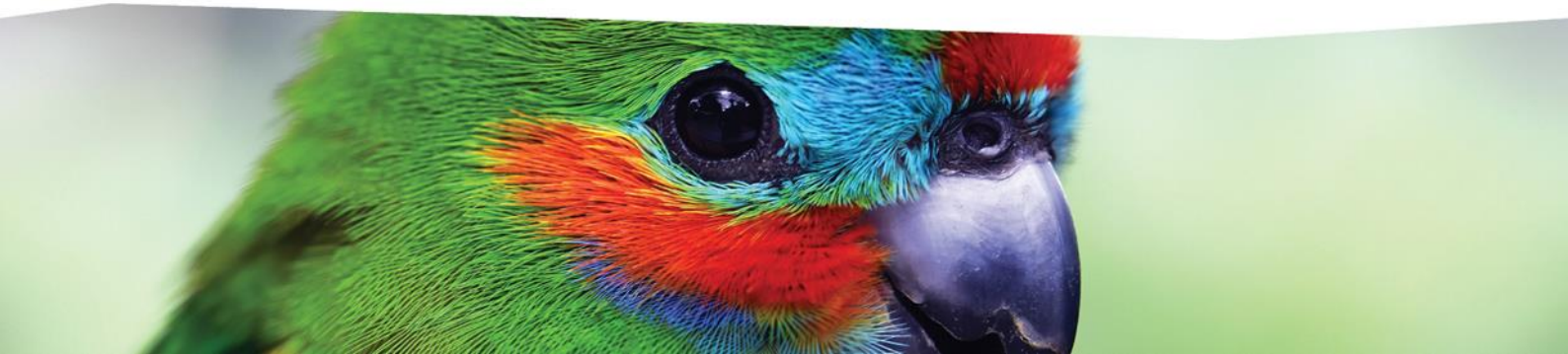
Table 1: Agriculture-related impacts on collapsing Australian ecosystems

[2] Cresswell ID, Janke T, Johnston EL (2021) Australia State of the environment 2021. Australian Government Department of Agriculture, Water and the Environment, Canberra

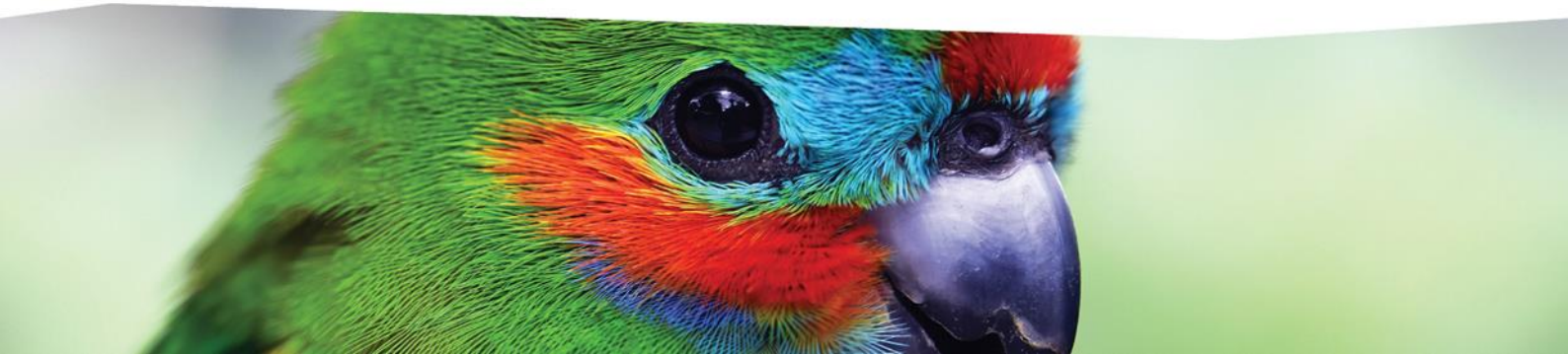
[3] Bergstrom, Dana M., et al. (2021) "Combating Ecosystem Collapse from the Tropics to the Antarctic."



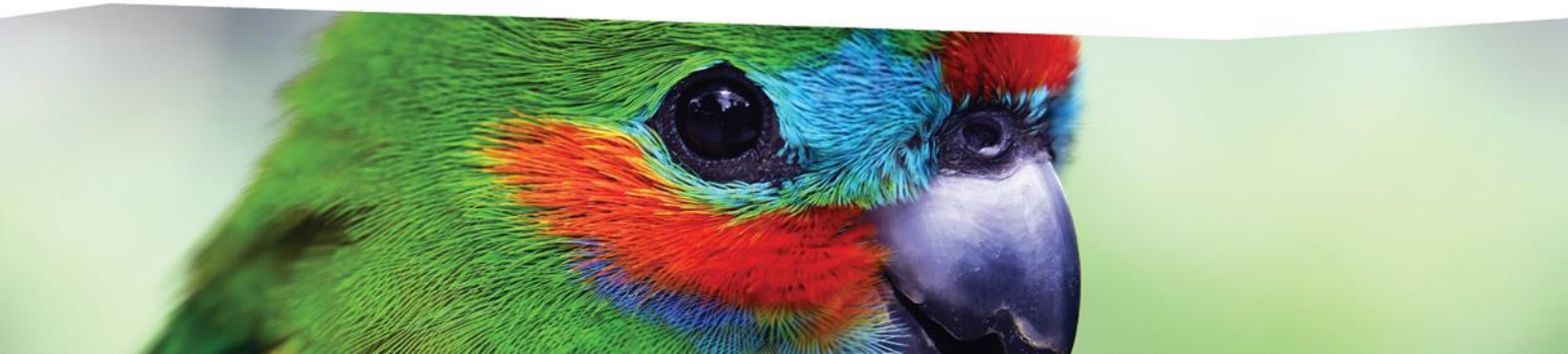
Ecosystem	Biodiversity values	Direct Human Pressures (distinct from climate change pressures)	Social and economic consequences of collapse
Great Barrier Reef	The Great Barrier Reef is the world's largest coral reef system (10% of global coral reef area). At least 5,000 species of mollusc, 1,500 species of fish, 400 species of coral, >240 species of birds and many sponges, worms, crustaceans, and anemones.	Poor water quality from agricultural sediment runoff and dredge spoils, commercial and recreational fishing, tourism, coastal development, and chronic pollution from shipping lines.	The Great Barrier Reef provides ~$12 trillion of ecosystem services in terms of habitat for marine organisms, water quality and food. It supports >64,000 jobs, and contributes ~$6.4 billion per year to the Australian economy. The value of coastal protection of 49,000 km^2 of coral reef was estimated at $438 million. More than 70 Aboriginal and Torres Strait Islander clan groups, the Traditional Owners of the Great Barrier Reef, maintain cultural connections to the reef and rely on it for food and ceremony.
Australian Tropical Savanna	Australia's tropical savannas cover ~1.3	Increasing development and	The extension of the fire season due to



	million km² across northern Australia from the Kimberley to Kakadu National Park, Arnhem Land, and Queensland's tropical coast. It is one of the most intact savannah ecosystems in the world with high levels of biodiversity and endemism. It includes one of the largest networks of free-flowing and least polluted rivers in the world, with the most biologically diverse and healthy aquatic ecosystems in Australia.	land degradation (e.g., extensive cattle grazing and land clearing including for cotton expansion) leading to habitat loss. Increased prevalence of invasive plant and animal species. Diversion and capture of fresh water. Altered fire regimes due to spread or non-native invasive pasture grasses.	gamba grass increases the cost of fire management. The loss due to fire of ecosystem services, production and pastoral lands amounted to $148 million per year. Australia's savannas are cultural landscapes that support the cultural, spiritual, and socio-economic livelihoods of Indigenous people. Economic analysis from Deloitte estimated Kakadu National Park supports over 1,180 jobs and contributes $136 million to the Australian economy each year.
Murray Darling River	The Murray-Darling river basin is Australia's largest river system with >77,000 km of watercourses. It comprises >30,000 wetlands as well as open forests and	Fragmentation of river habitat, increased suspended sediment loads, introduction of non-native fish. Alteration and loss of water flow due to	The Murray-Darling river basin is home to 46 sovereign First Nations and has at least 10,000 culturally significant places. More than 2.25 million people occupy the Murray-



	woodlands and Australia's largest forest of river red gums. It provides habitat for millions of mammals, birds, fish, and other animals; 120 species of waterbird and 46 native fish species. River red gums grow up to 45m tall and live up to 1,000 years, and are keystone species associated with the health of wetlands.	agricultural and urban water diversion, modified seasonal timing of water release, overall reduction of water flow. Agricultural runoff of nutrients, land use change for agriculture including clearing of riparian woodland and forests; timber harvesting.	Darling Basin including 9,200 irrigated agricultural businesses. It produces $22 billion worth of food annually. Tourism contributes some $8 billion each year. Due to the long running dry period, farm production has declined. Rural exports declined about 18% since early 2017, and for the first time since 2007, Australia had to import certain grains. Farm profits fell by about 30%, and the cost of bread and other cereal products and milk has increased. Other social and economic consequences include the loss of ecosystem functions of rivers and wetlands, loss of

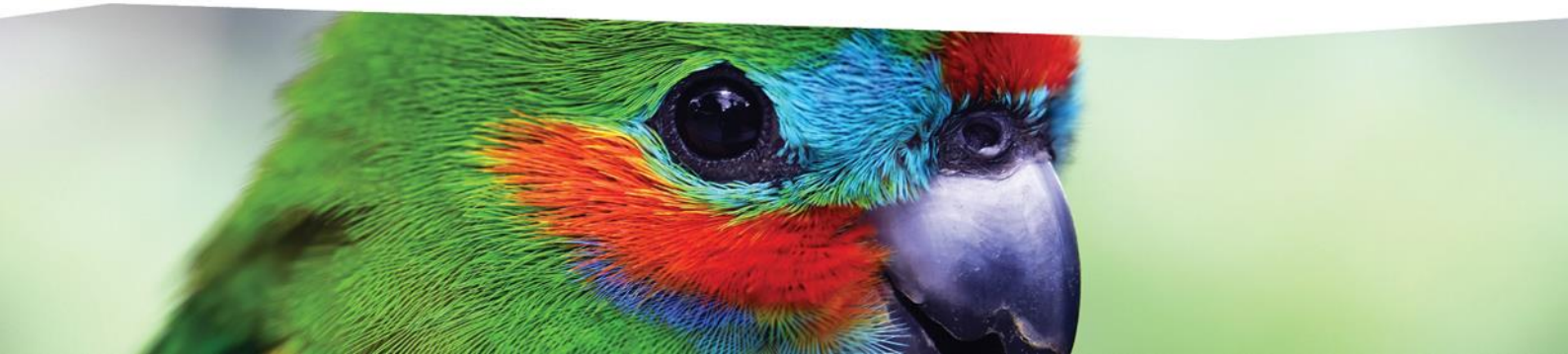


			pollinators, reduced aesthetic value, erosion, reduced carbon storage, diminished water quality and decreases in endemic fish species (including culturally significant and recreationally valued fish). In 2019, shortages of potable water occurred in some towns while dams at the upper reaches of the system contained water used for the irrigation of water-intensive crops.

Food and agriculture can be in balance with nature and climate and support the restoration and protection of nature and ecosystem services. Livestock, for example, can maintain balanced ecological mosaics through browsing, grazing, nutrient cycling, and the dispersal of seed. Agricultural practices, such as forest regeneration, can protect and restore carbon sinks, and play a vital role to mitigate climate change.

Since European colonisation the Australian agricultural system has become out of balance with nature and climate, resulting in the degradation of natural capital and ecosystem services, the removal of carbon sinks, and significant greenhouse gas emissions.

Mainstream farming methods have enabled substantial increases in yields, increasing the affordability of food for the world's growing population. However, significant climate,



environmental and other consequences have followed. Scaling productive and regenerative agriculture can reduce and potentially reverse these costs.

In their recent report, Change is in the Air, the Australian Farm Institute (AFI) and Farmers for Climate Action (FCA) note that for millennia, Indigenous Australians used agroecological practices to produce food in balance with the Australian landscape. However:

[This] has been almost completely superseded by the economically-driven modern European model of land ownership and farming over the past two centuries, which has at times resulted in a mismatch between farmscapes and healthy functioning landscapes and subsequent degradation of the natural capital on which future food and fibre production depend.

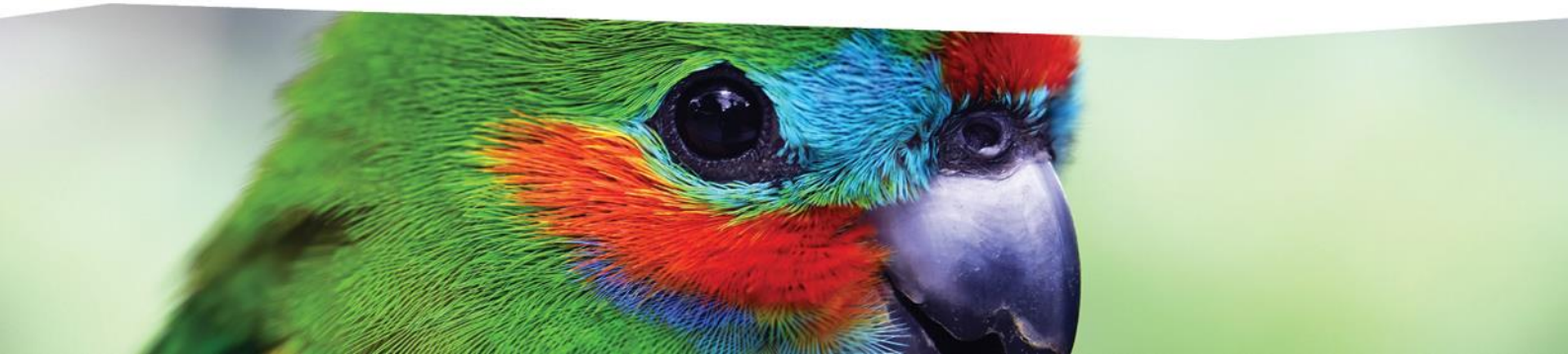
For Australia to continue to contribute to global food security, while halting and reversing nature destruction and limiting global temperature rise to 1.5ºC will require comprehensive transformation based on transdisciplinary research, strategic planning, and investment from government and the agriculture sector in consultation with stakeholders including Traditional Owners, NGOs and earth system scientists.

Recommendation 1:
Develop a national food strategy and plan to ensure the transformation of the Australian food system into one that operates within planetary boundaries and aligns with the GBF (Global Biodiversity Framework), incorporates Indigenous knowledge and supports First Nations rights and self-determination, and aligns with the Paris Agreement goal of limiting global temperature rise to 1.5°C while providing all Australians with access to good quality food, contributing sustainably to global food security, and improving farmer wellbeing.

a. In support of a national food strategy, measure current impacts and set targets for the national agricultural estate in line with planetary/earth system boundaries including for biogeochemical flows, water use and quality, greenhouse gas emissions and storage, novel entities, and biodiversity.

Improve environmental data and implement comprehensive, scalable natural capital accounting

The 2020 independent review of Australia's national environmental law found: "decision-makers, proponents of development and the community do not have access to the best available data, information and science. There is insufficient capability to understand the likely impacts



of the interventions made. Unacceptable information gaps exist, and many protected matters are not monitored."[4]

The inability to access consistent environmental data impedes best-practice land-management, corporate risk assessment, regulation, and accountability. It requires significant independent investment, beyond the reach of most agricultural producers, to measure natural capital performance on individual properties, information that is needed to improve management practices and demonstrate sustainability credentials. For example, national vegetation mapping and land use change monitoring is inconsistent, based on low-resolution satellite imagery, and its publication is significantly delayed. Supply chain actors and financial institutions need to invest in costly, bespoke data gathering exercises to determine exposure to deforestation and forest degradation risk that is increasingly a due diligence requirement of Australia's agricultural trading partners and private initiatives such as the Accountability Framework.[5] Improved national vegetation mapping – often referred to as a 'national SLATS' based on Queensland's statewide landcover and tree study (SLATS) which should be implemented with improvements nationally – is also needed to monitor Australia's progress toward the commitments of the Glasgow Leaders' Declaration on Forests and Land Use.

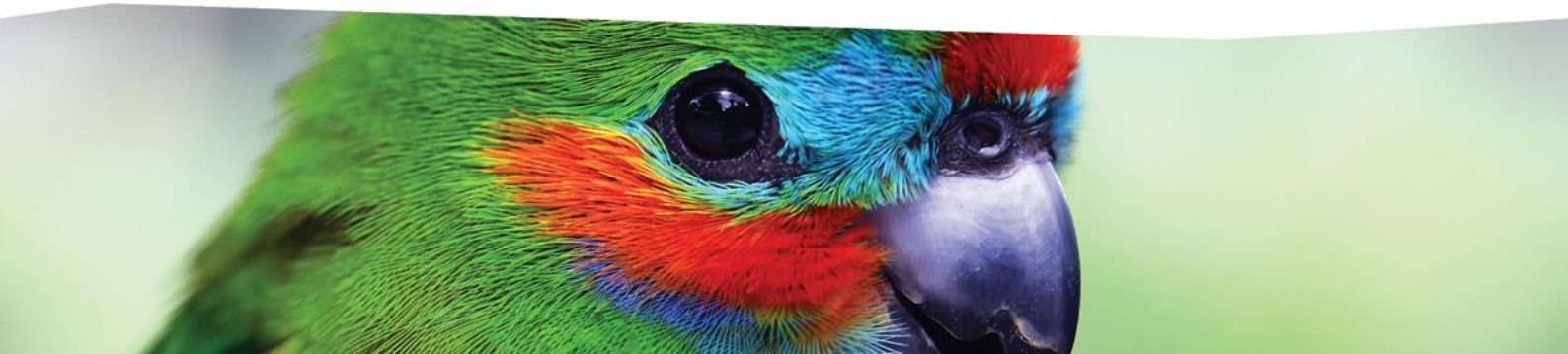
Recommendation 2:

Implement a system of national, integrated natural capital accounting with enhanced environmental data – in particular vegetation mapping and land use change data – to allow for the measurement and modelling of environmental trends and performance, including greenhouse gas emissions and carbon storage, to support corporate risk management and impact disclosure, and enable the informed assessment of public and private environmental and economic benefits and trade-offs of varied land, water, and biodiversity management approaches.

a. Enable and mandate full 'farm-to-fork' agricultural supply chain traceability

4 Samuel (2020) Final Report of the Independent Review of the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act).

5 ACF (2023) Banking on nature destruction: An analysis of Australian bank financing of deforestation https://assets.nationbuilder.com/auscon/pages/22067/attachments/original/1686717483/2304_Nature_BankingOnNatureDestructionReport_FOR_WEB.pdf



Numerous studies, including most recently by *Farming for the Future,* have demonstrated that improving natural capital on farms to enhance biodiversity, soil health, water retention, and carbon sequestration impacts farm performance.[6] Other studies have found that graziers that adopt regenerative farming methods are often more profitable, especially during dry years, and experience higher wellbeing than comparable farms.[7]

Recommendation 3:
Fund expanded, geographically representative, scalable projects that measure the gains in long-term productivity and profitability, farmer wellbeing, biodiversity outcomes and carbon storage from adopting agroecological, regenerative or other farming practices that enhance natural capital.

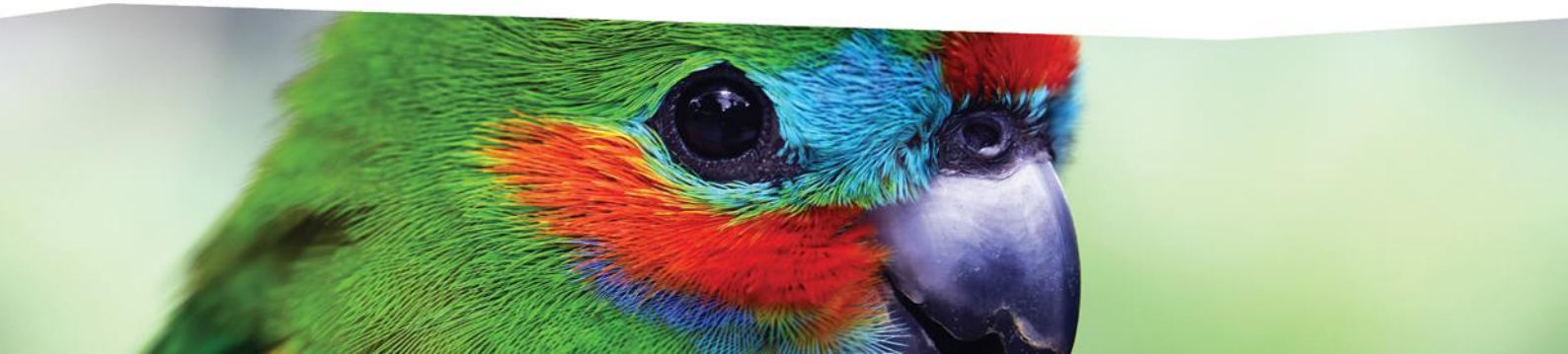
Mandate corporate nature-related risk disclosure and sustainability due diligence to support sector-wide transformation

The Australian government states its support for initiatives that: "align financial flows with nature-positive investments, activities and outcomes."[8] This a worthy ambition and a requirement for alignment with the GBF.

Agriculture is more exposed to nature related risks than almost any other economic sector. Impairment of ecosystem services stemming from damage to the environment, or a depreciation of natural capital, can affect the economic performance of agricultural businesses, acutely or chronically. For example, across the Australian wheat belt the loss of potential yields due to soil constraints – salinity, acidity, and sodicity (an excess of sodium) – results in an estimated $1.9 billion a year of lost income. Those soil constraints are exacerbated by incorrect fertiliser application, land clearing, and other land management approaches - 70% of the wheat belt suffers from soils with high acidity which is mainly caused by excessive application of ammonium-based fertilisers.[9]

[6] https://nff.org.au/media-release/world-first-research-suggests-natural-capital-impacts-farm-performance/
[7] Ogilvy, S., Gardner, M., Mallawaarachichi, T., Schirmer, J., Brown, K., Heagney, E. (2018) Report: Graziers with better profitability, biodiversity and wellbeing. Canberra Australia

[8] DCCEEW (2023) Financing solutions for Nature https://www.dcceew.gov.au/environment/environmental-markets/financing-solutions-for-nature
[9] ACF (2021) The nature-based economy: How Australia's prosperity depends on nature



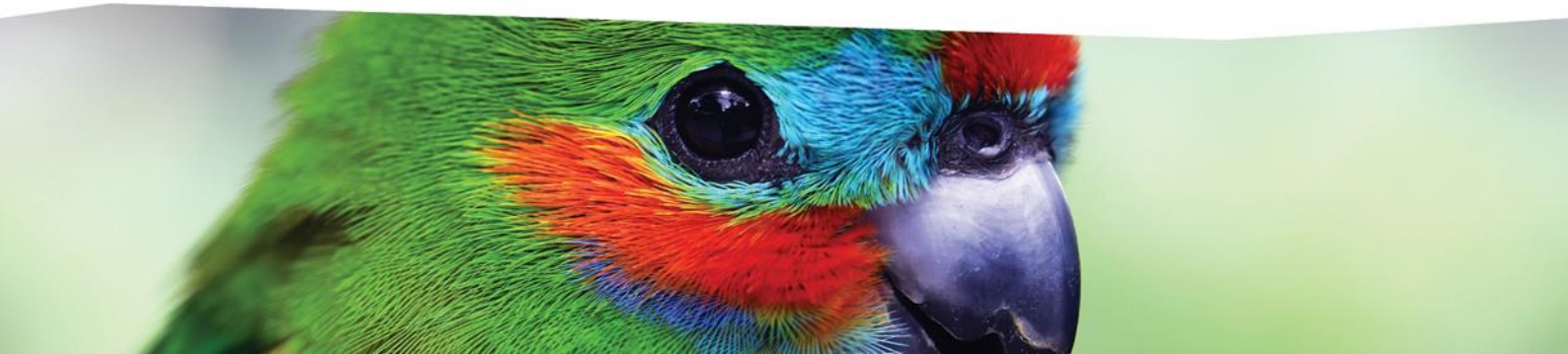
But nature related risks are not constrained within sectoral boundaries. Central bankers have also recognised that nature degradation is a macroeconomic threat that creates systemic risks across the economy.[10]

The voluntary taskforce on nature-related financial disclosures (TNFD) has the potential to accelerate business recognition of the importance of nature to economic performance and to improve investment in so-called 'nature positive' solutions. However, transitioning to a nature-positive economy, including a food system that supports global climate and nature goals, will require a more rapid transformation than voluntary actions can deliver. Mandatory nature-related risk disclosure and due diligence requirements will be necessary to shift capital towards activities that help rather than harm nature, arrest forest and land degradation, and maximise the economic opportunities for Australian producers that adopt nature-enhancing farming practices.[11] Implementing mandatory nature-related impact, dependency, and risk disclosures 9exceeding the recommendations of the TNFD for large companies) is also a requirement of Target 15 of the GBF. The European Union's Corporate Sustainability Reporting Directive (CSRD) and corporate due diligence requirements (in development) are the leading example of corporate law reform that Australia should look to as the basis for future law reform.

Recommendation 4:
Urgently reform corporate and financial laws to mandate world-leading disclosure of climate and nature related impacts, dependencies and risks and set due diligence obligations for large businesses and financial institutions to mitigate their impacts, including along agricultural value chains.

The potential for increased carbon storage in the land is recognised in the department's discussion paper, but the emphasis is on creating opportunities for landholders to provide offsets, which doesn't reduce emissions just compensates for emissions elsewhere and, as importantly, fails to recognise the scale and breadth of impact land clearing has on the

[10] NGFS (2023) Nature-related Financial Risks: a Conceptual Framework to guide Action by Central Banks and Supervisors https://www.ngfs.net/en/communique-de-presse/ngfs-publishes-conceptual-framework-nature-related-financial-risks-launch-event-paris
[11] Business for Nature (2022) make it mandatory: the case for mandatory corporate assessment and disclosure on nature.



Australian environment. It is important therefore to also use incentives, regulatory reform, and enhances compliance measures to increase carbon storage, reduce emissions and meet biodiversity conservation objectives.

The bulldozing of native vegetation is a major cause of habitat loss and fragmentation, heritage, and biodiversity decline and has been implicated in 60% of the federal listings of Australia's threatened species.[12] According to the federal government's threatened species scientific committee "land clearance has been the most significant threatening process in Australia since European settlement."[13]

Land clearing can also lead to processes that degrade soils, such as erosion, salinisation, loss of organic matter and spoil carbon, and depleted soil fertility which compounds impacts on biodiversity and reduces the productive capacity of agricultural land over time.[14] Broad-scale clearing of native vegetation can also influence local climatic conditions including temperature and rainfall, increase sediment and chemical pollutant loads in freshwater streams, increase pollutants in marine environments including the Great Barrier Reef, exacerbate the impacts of invasive predators like cats and foxes, and harm pollinators like honeybees.[15][16] These impacts

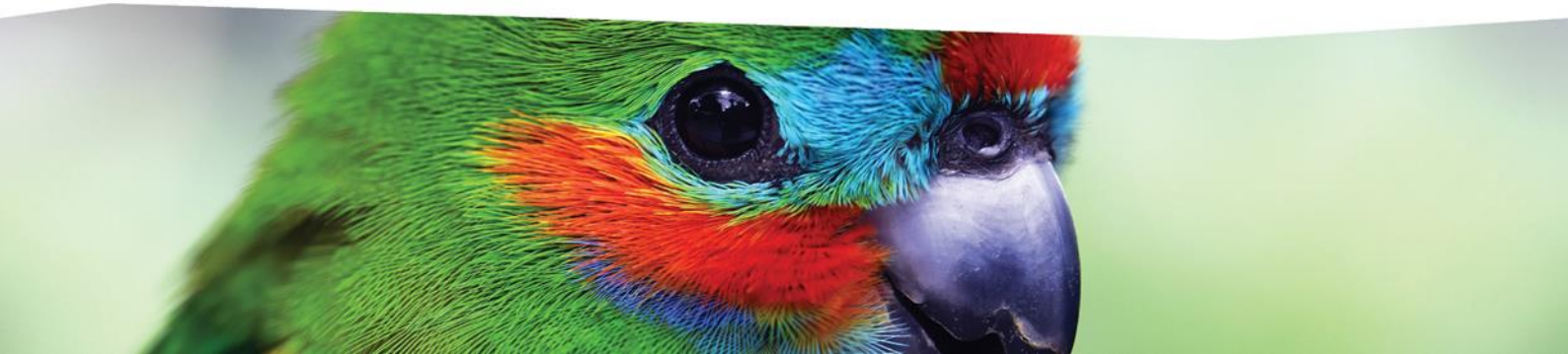
[12] Cresswell ID, Janke T, Johnston EL (2021) Australia State of the environment 2021. Australian Government Department of Agriculture, Water and the Environment, Canberra

[13] Department of Climate Change, Energy, the Environment, and Water (DCCEEW) (n.d.) Land Clearance: Advice to the Minister for the Environment and Heritage from the Threatened Species Scientific Committee on a public nomination of a Key Threatening Process under the Environment Protection and Biodiversity Conservation Act 1999 https://www.dcceew.gov.au/environment/biodiversity/threatened/key-threatening-processes/land-clearance

[14] Productivity Commission (1996) Land degradation and the Australian agricultural industry, Commonwealth of Australia.

[15] Reside, April E. et al (2017) Ecological consequences of land clearing and policy reform in Queensland, Pacific Conservation Biology.

[16] Tomlinson, Sean et al (2017) Landscape context alters cost of living in honeybee metabolism and feeding, Proceedings of the Royal Society Biological Sciences.



have obvious ramifications for biodiversity in Australia, but they also represent a material social and economic risk due to the degradation of natural capital that provides essential ecosystem services. Lastly, land use change including land clearing is responsible for approximately 25% of annual carbon emissions in Australia.[17]

Recommendation 5:

Enhance carbon storage in the land and reduce extinction risk by ending broadscale land clearing and improving the extent, condition, and connectivity of natural ecosystems across the agricultural estate through improved incentivisation, regulation (including Environment Protection and Biodiversity Conservation Act reform) and compliance.

ACF thanks the committee for its consideration of this submission.

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[17] Department of Industry, Innovation, Climate Change, Science, Research and Tertiary Education (DISER) (2013 Australian National Greenhouse Accounts: Australian Land Use, Land Use Change and Forestry Emissions Projections to 2030. Commonwealth of Australia.