



# Biodiversity, Australia's National Ecosystem Accounts, and the Global Biodiversity Framework

How biodiversity connects ecosystems, economics and society  
- and delivers a way forward

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**AUSTRALIAN BUREAU OF STATISTICS**

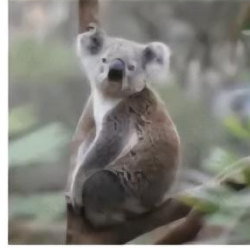
Informing Australia's important decisions

# Biodiversity in Australia

- ▶ Australia:
  - In global terms, what are Australia's strengths?
    - Natural wonders?
    - Indigenous culture?
    - AFL?
    - Great coffee and fine wine?
    - Movie stars and rock stars?
    - BIODIVERSITY!
  
- ▶ Australian biodiversity:
  - Unique and high significance
    - High levels of endemism, biogeography
  - Cultural significance
    - Bogong Moths, kangaroos
  - Economic significance
    - Agriculture, tourism



## Animals in Australia



- ▶ Definition of terms
  - Biodiversity is the variety of life within species (genetic diversity), between species, and between ecosystems
  - Ecosystems are shaped by the interactions among species, and between species and the non-living environment
- ▶ Importance and role of biodiversity
  - Environmental stability and services
    - ensures ecosystem resilience by supporting pollination, water purification, climate regulation, and nutrient cycling
  - Societal Wellbeing and Culture
    - enhances wellbeing and supports indigenous cultures through access to natural spaces and traditional knowledge
  - Economic Benefits and Sustainability
    - supports agriculture, fisheries, tourism, and medicine, providing resources vital for economic growth and sustainability



## ▶ Global Species Threat Levels

- Over 47,000 species worldwide face extinction, including severe declines in amphibians, mammals, reptiles, and birds

## ▶ Biodiversity Loss in Australia

- Australia has 742 endangered species including koalas and possums, reflecting serious national biodiversity challenges

## ▶ Conservation Legislation and Challenges

- The EPBC Act aims to protect species but faces criticism as habitat destruction continues under its regulation

## ▶ Importance of IUCN Red List

- The IUCN Red List provides a global standard for assessing extinction risk and supports conservation decision-making



## ▶ Under-recording of Extinctions

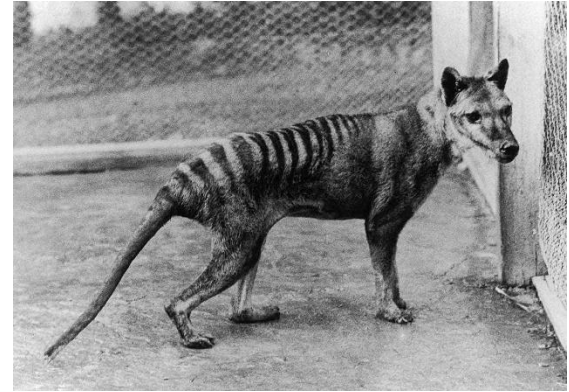
- Official records show about 100 extinctions, but recent studies estimate over 9,000 species lost, mainly invertebrates.

## ▶ Role of Invertebrates

- Invertebrates provide vital ecosystem functions like pollination and nutrient cycling, essential for ecological stability.

## ▶ Conservation Frameworks

- The EPBC Act and IUCN Red List work together to identify species needing urgent conservation protection.



- ▶ What can be included in a biodiversity account?
  - Species account
  - Species index
  - Habitat-based account
  - Others
  
- ▶ Australia is well-placed to provide insights into how to lead accounting for biodiversity
  - One of the most biodiverse nations on Earth
  - Responsibility to account for our biodiversity, despite challenges
  - Ongoing role of ABS (and DCCEEW/CSIRO) in NEA/SEEA EA discussions and development; expertise that this brings



# Australia's National Ecosystem Accounts

- ▶ What did we account for?
  - [National Ecosystem Accounts, experimental estimates, 2020-21 financial year | Australian Bureau of Statistics](#)
- ▶ How NEA can support national reporting to the Kunming-Montreal GBF
  - Already addresses indicators A2 and B1
  - Potential to address other GBF indicators (e.g. A3) and targets (e.g. Target 6)
- ▶ How NEA can support national policy, international commitments and national strategies
  - Australia's Strategy for Nature (2024-2030), EPBC Act 1999
  - Australian Pest Animal/Weeds Strategies (2017-2027)
  - Ramsar Convention, bilateral migratory bird agreements



# How the NEA addresses GBF indicators

- ▶ A2 Extent of natural ecosystems
  - Natural (and anthropogenic) ecosystems
  - Realms, Biomes, Ecosystem Functional Groups
  
- ▶ B1 Services provided by ecosystems
  - Terrestrial: grazed biomass provisioning and carbon retention services
  - Coastal: coastal protection services
  - Freshwater: water supply services
  - Marine: wild fish provisioning

## Extent of terrestrial ecosystems over time, by biome

Graph Table Download

Biome	2010-11 (million ha)	2015-16 (million ha)	2020-21 (million ha)
Deserts and semi-deserts	384.46	384.18	383.82
Savannas and grasslands	177.45	176.54	176.53
Intensive land-use	113.21	115.47	116.06
Palustrine wetlands	35.50	35.12	35.04
Temperate-boreal forests and woodlands	24.86	24.54	24.52
Lakes	16.35	16.13	16.11
Shrublands and shrubby woodlands	7.46	7.43	7.38
Unclassified	5.16	5.15	5.15
Semi-confined transitional waters	3.80	3.80	3.80
Tropical-subtropical forests	3.05	3.00	2.93
Brackish tidal	0.00	0.00	1.64
Artificial wetlands	1.21	1.20	1.20
Shorelines	0.83	0.82	0.83
Polar/alpine (cryogenic)	0.33	0.33	0.33
Supralittoral coastal	0.22	0.21	0.21

# How the NEA addresses GBF indicators

Table 3: Number of threatened animal species over time, by taxonomic group

Taxonomic group	2010 (no. species)	2015 (no. species)	2020 (no. species)
Birds	130	147	157
Mammals	123	130	135
Frogs	33	33	39
Fish	49	55	60
Reptiles	53	59	60
Other animals	42	55	67

Table 4: Threatened Species Index (TSX), relative to a reference year of 2000, by taxonomic group

Taxonomic group	2000	2010	2015	2020
Plants	1	0.57	0.4	0.31
Birds	1	0.66	0.52	0.46
Mammals	1	0.65	0.64	0.58
Amphibians	1	0.57	0.39	0.29
All	1	0.61	0.48	0.4

## ► Challenges

- **Data Gaps and Integration**
- **Valuation Limitations**
- **Measurement Frameworks**
- **Institutional Coordination**
- **Policy Translation**



## ► Opportunities

- **National Ecosystem Accounts (NEA)**
- **Alignment with GBF Targets**
- **Spatially Explicit Insights**
- **Economic Justification for Conservation**
- **Collaborative Framework Development**





**Thank you! Tänan teid kõiki!**

Mul on hea meel teid kõiki kohata.

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