

# How does ecosystem accounting contribute to biodiversity monitoring in South Africa?

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Chief Executive Officer  
South African National Biodiversity Institute

CBD COP15 Side Event  
**Making Nature Count through Natural Capital Accounting**  
9 December 2022



# Core partners for ecosystem accounting in South Africa



**stats sa**

Department:  
Statistics South Africa  
REPUBLIC OF SOUTH AFRICA

## ← National Statistical Office

- Leads Natural Capital Accounting
- Compiles and publishes Central Framework accounts
- **Publishes** ecosystem accounts

**SANBI**

Biodiversity for Life

South African National Biodiversity Institute



## ← Government agency under Ministry of Environment

- Mandate includes monitoring & reporting on the state of ecosystems
- **Data owner** for several key data layers for ecosystem accounts
- **Compiles** ecosystem accounts



**forestry, fisheries  
& the environment**

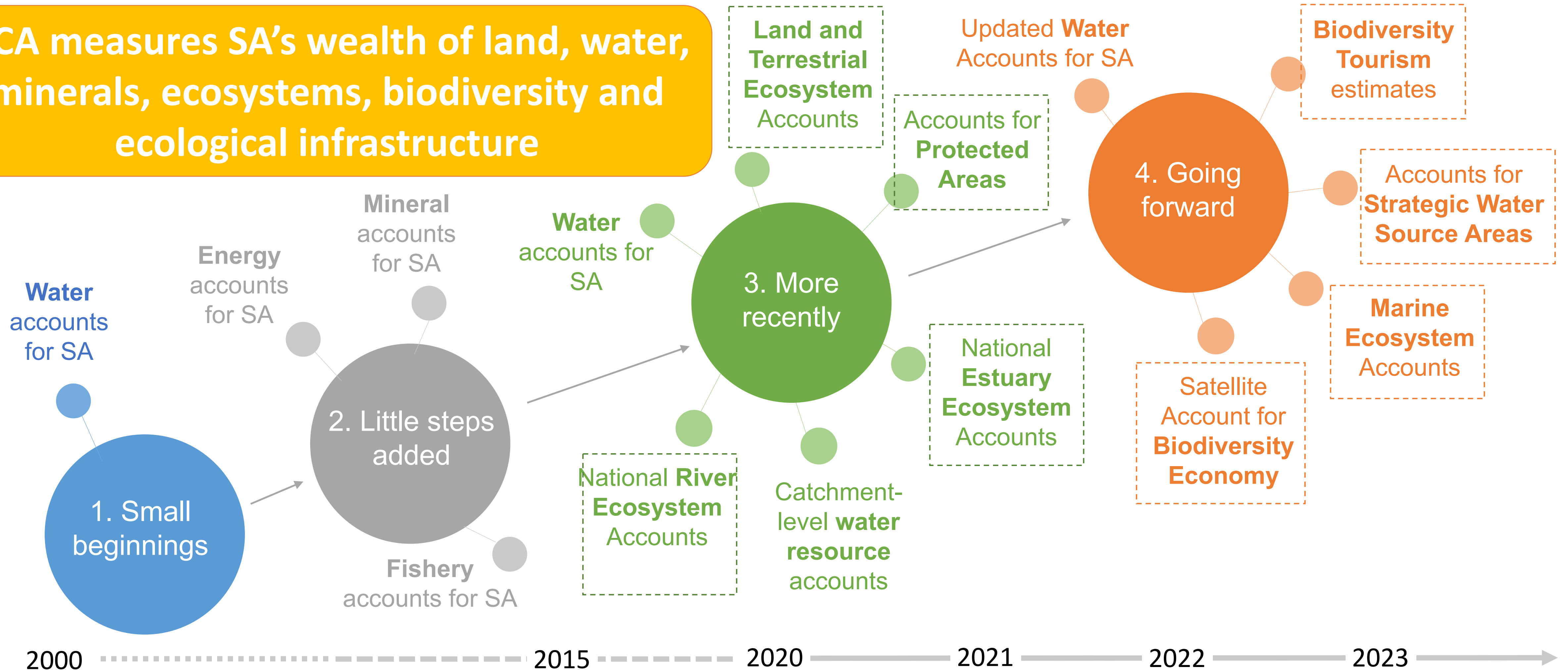
Department:  
Forestry, Fisheries and the Environment  
REPUBLIC OF SOUTH AFRICA

## ← Ministry of Environment

- Key user of ecosystem accounts
- **Data owner** for some key data layers for ecosystem accounts

# Snapshot of Natural Capital Accounting in South Africa

NCA measures SA's wealth of land, water, minerals, ecosystems, biodiversity and ecological infrastructure

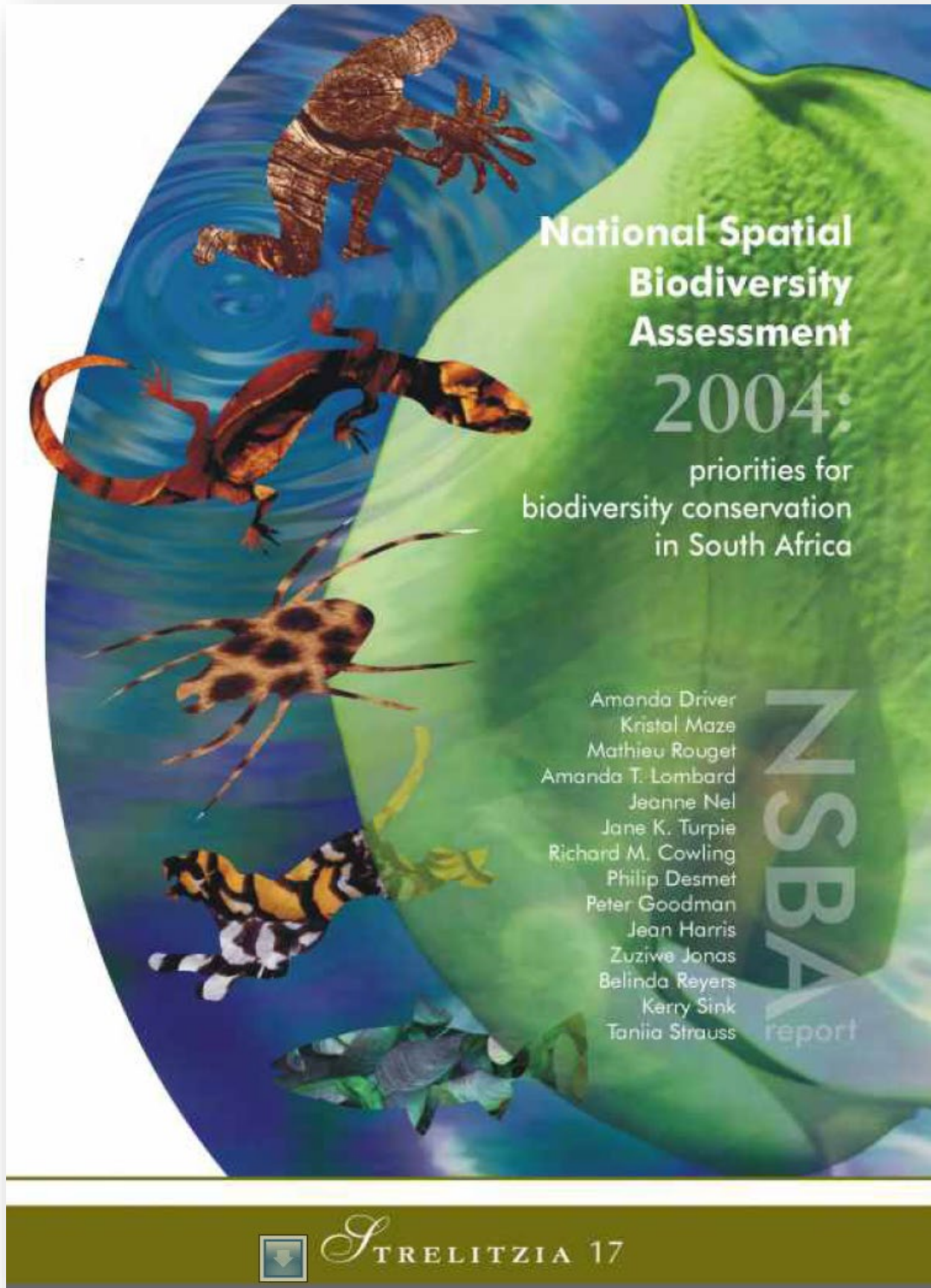


From early beginnings with national water accounts in 2000, momentum has grown.

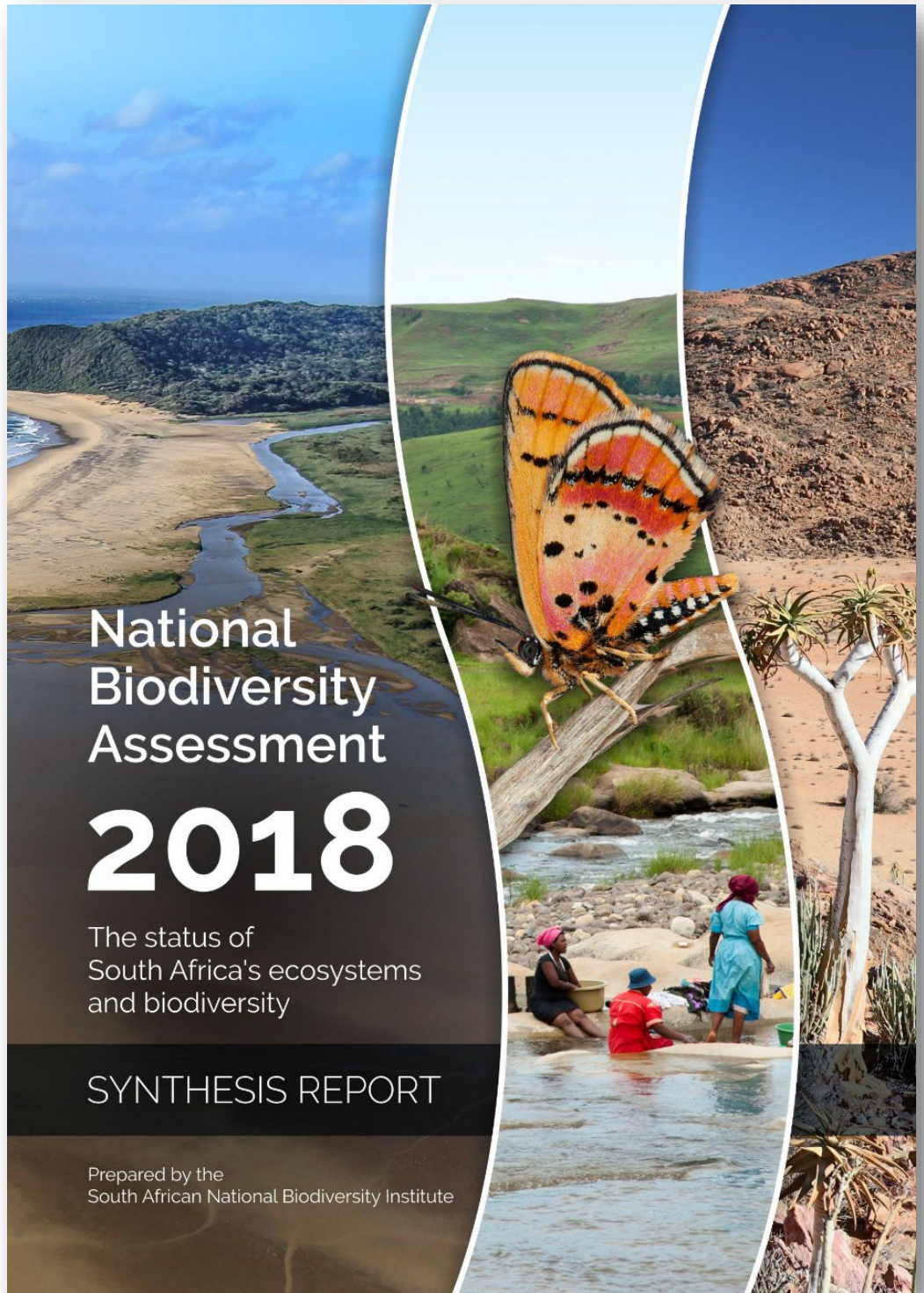
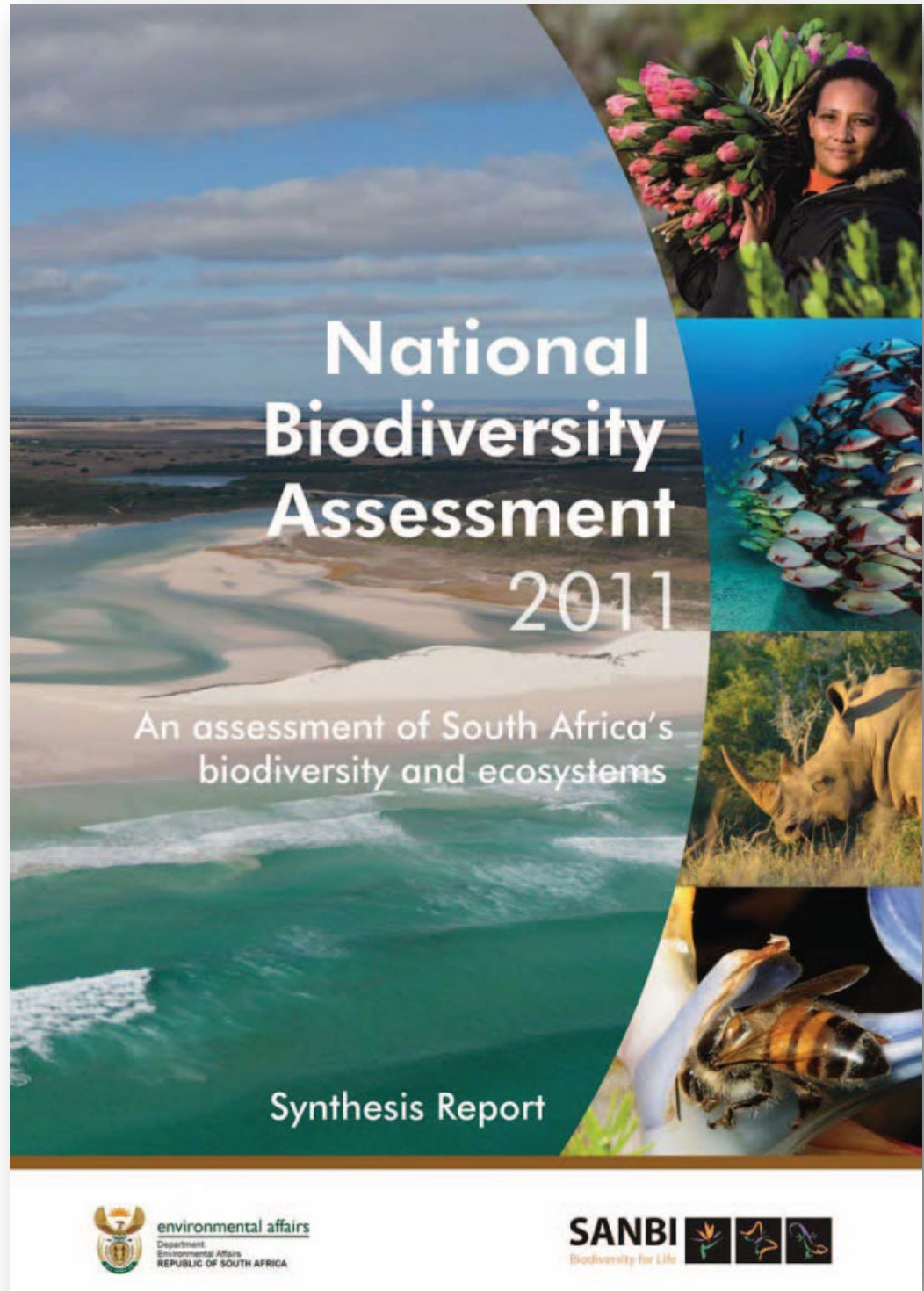
Since 2014, donor funded projects have helped to increase capacity, especially for ecosystem accounting.

# SANBI's mandate includes monitoring and reporting on the state of biodiversity → **National Biodiversity Assessment**

2004



2011



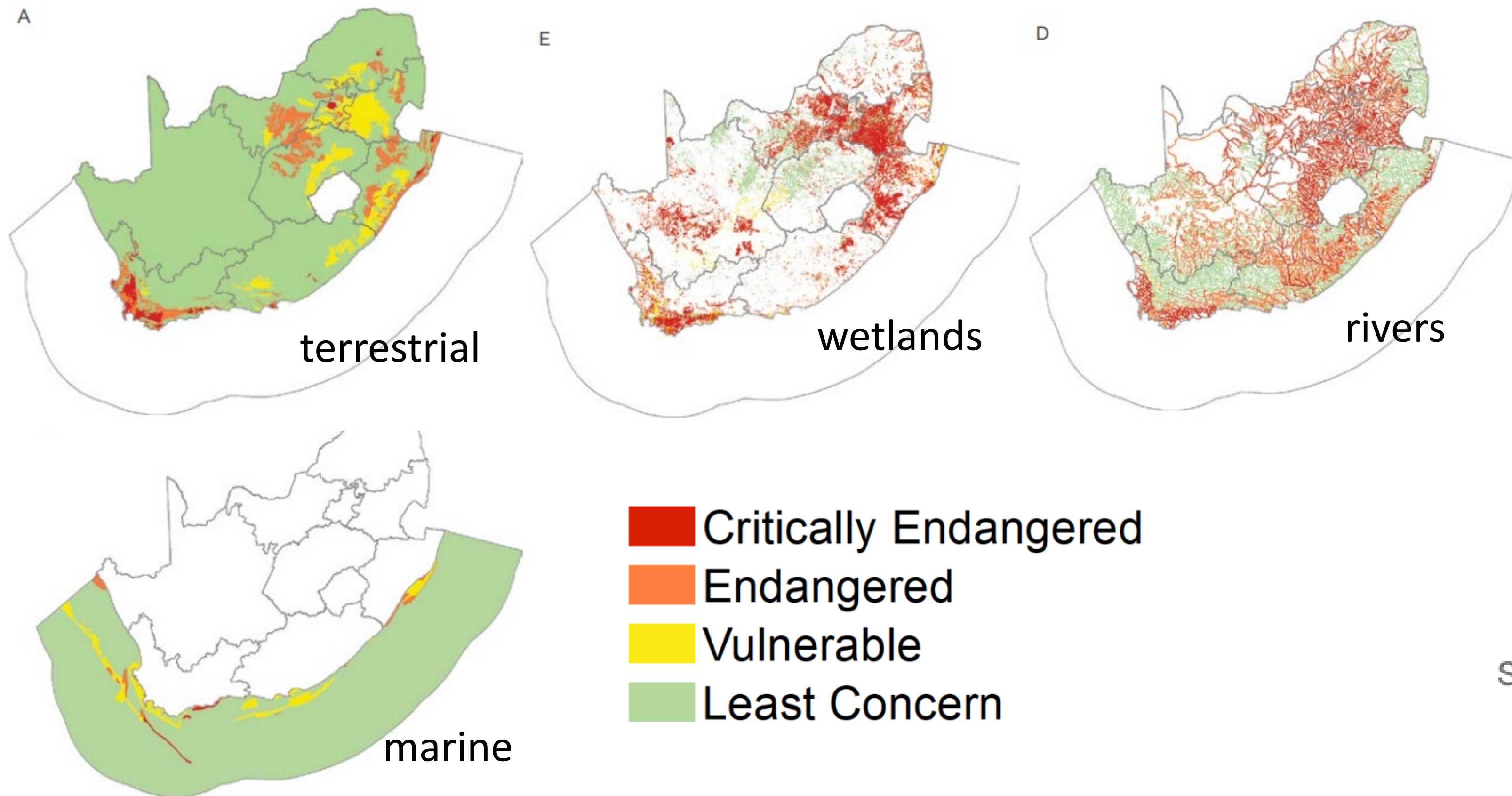
Collective effort of the science community – NBA 2018 involved 470 people from 90 institutions

NBA incorporates

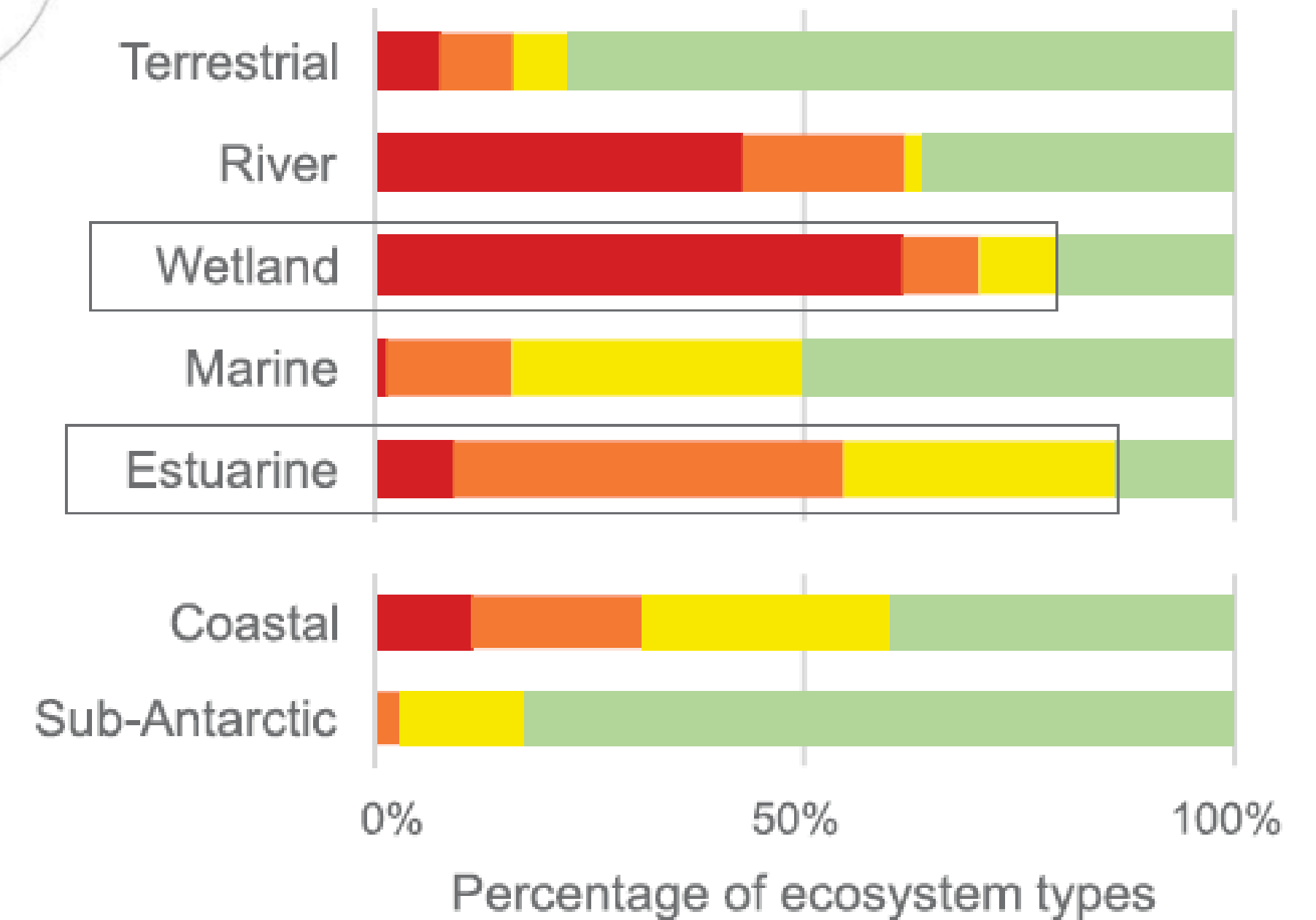


NBA informs our NBSAP and National Protected Area Expansion Strategy, and a range of other planning and decision-making in different sectors

# Headline indicator from NBA: Ecosystem Threat Status

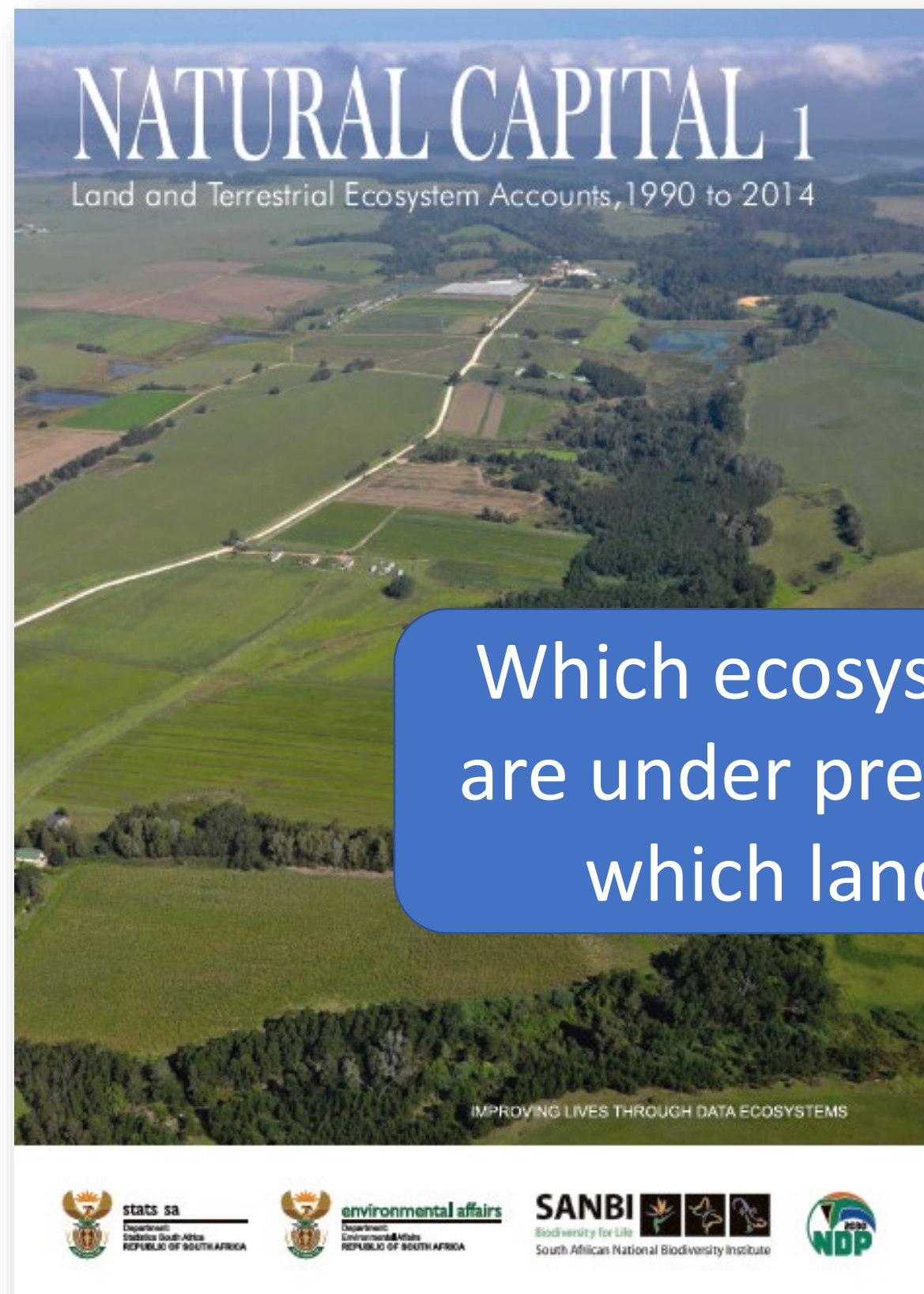


Allows for comparison across realms:



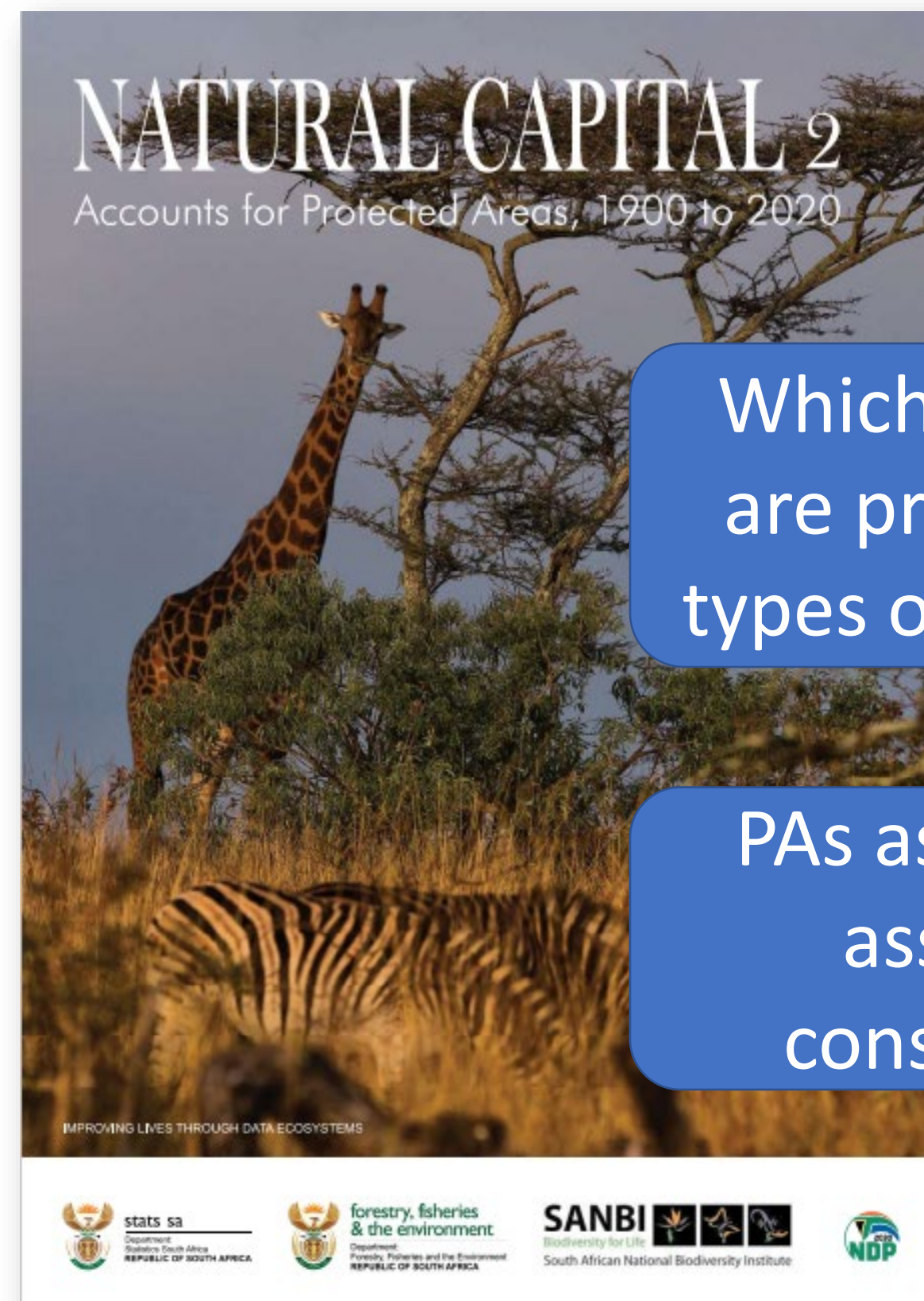
Red List of Ecosystems is a powerful tool for **mainstreaming**, and for informing **integrated spatial planning** and ecosystem management. Has become embedded in policy and legislation in SA.

# Natural Capital series launched by Stats SA in 2020



Which ecosystem types are under pressure from which land uses?

Accounts for **Land and Terrestrial Ecosystems** (released Dec 2020)



Which ecosystem types are protected by which types of protected areas?

PAs as socio-economic assets as well as conservation assets

Accounts for **Protected Areas** (released Oct 2021)

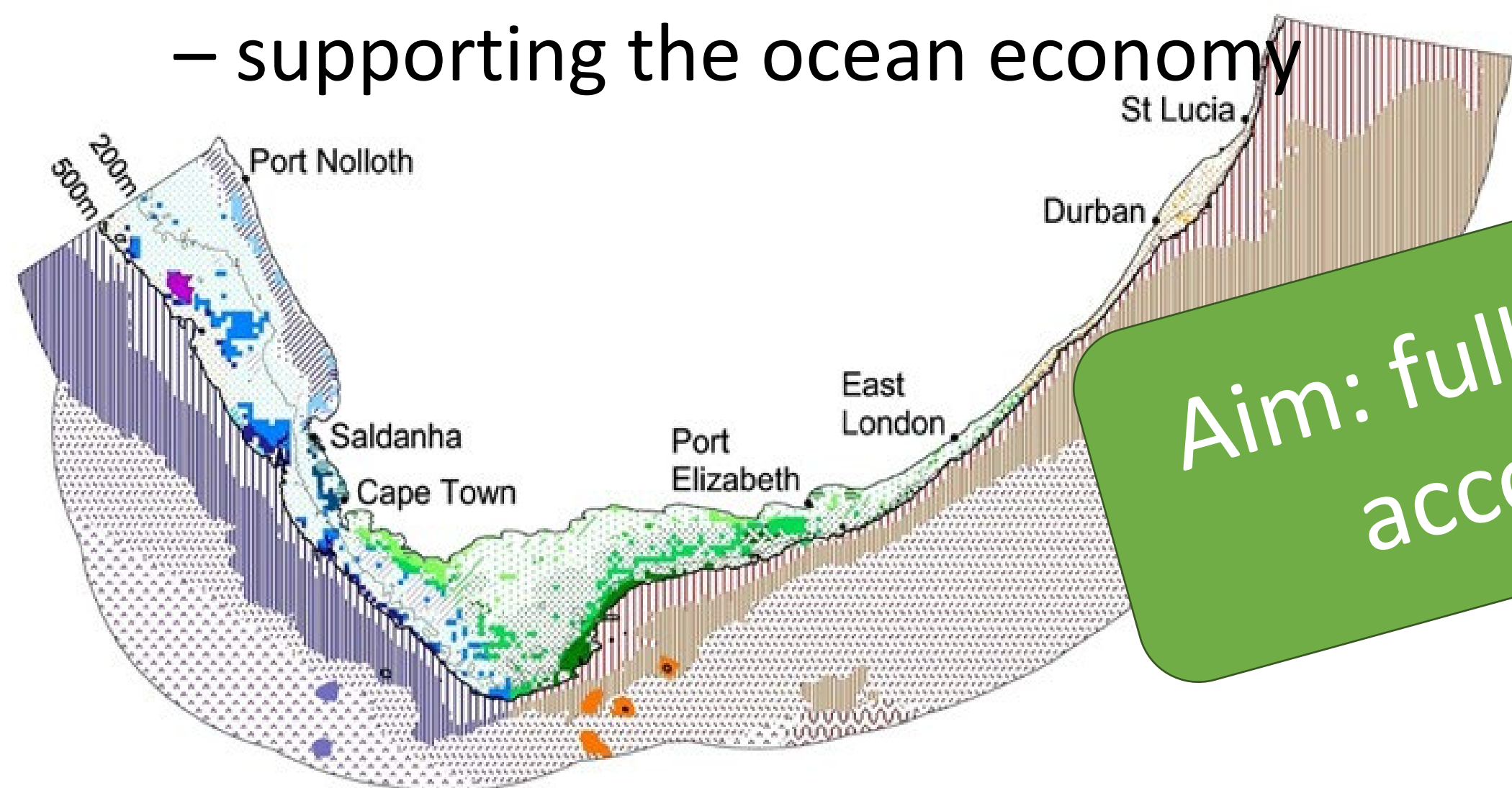


System of Environmental Economic Accounting

SANBI contributes best available science, spatial data layers, and expertise

# Future ecosystem accounts in Stats SA's *Natural Capital* series

Accounts for **marine ecosystems assets**  
– supporting the ocean economy



Aim: full suite of ecosystem asset accounts across all realms



Accounts for estuarine ecosystems

May include accounts for species, such as **rhino & cycads** – part of our biodiversity heritage

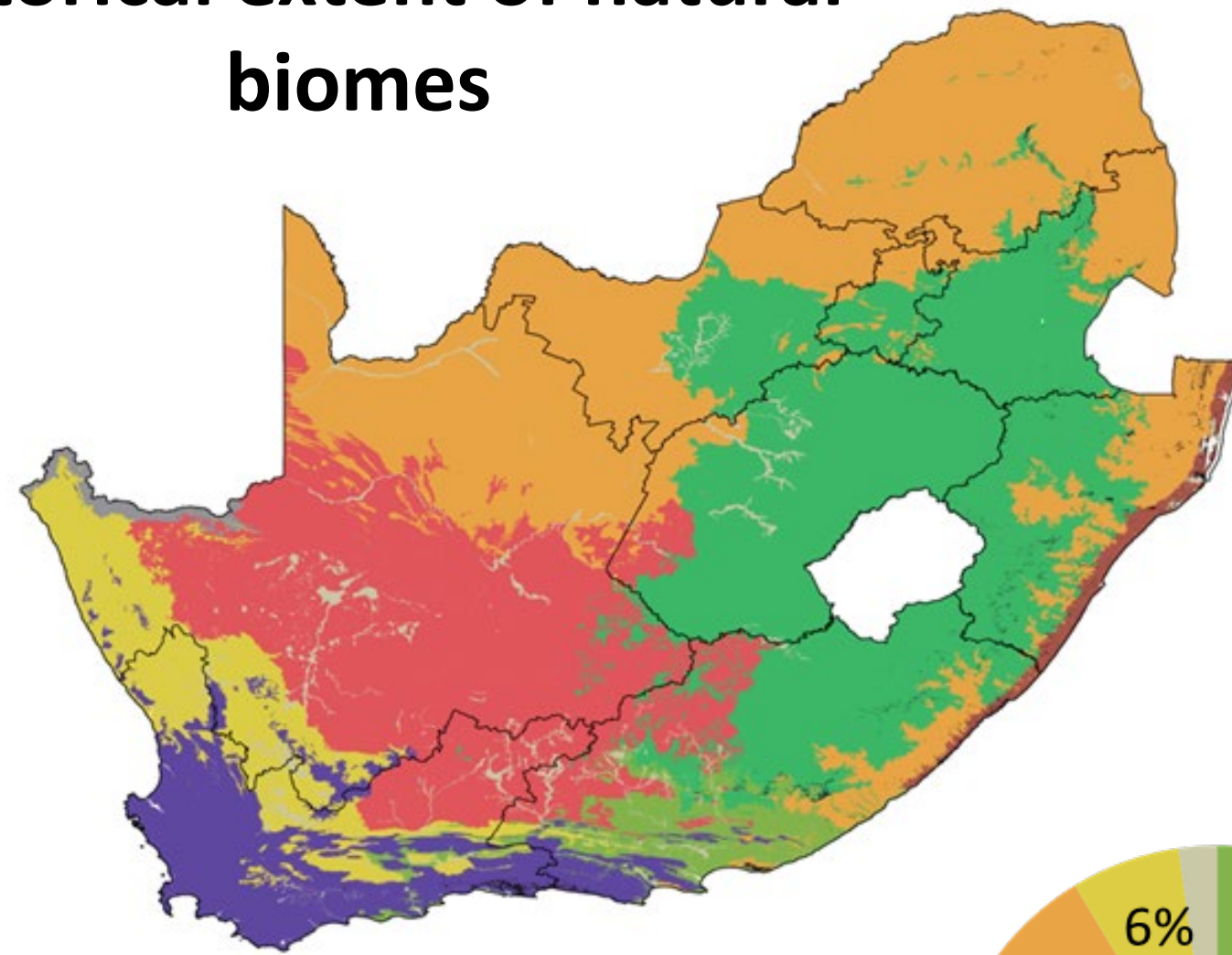


Accounts for river ecosystems



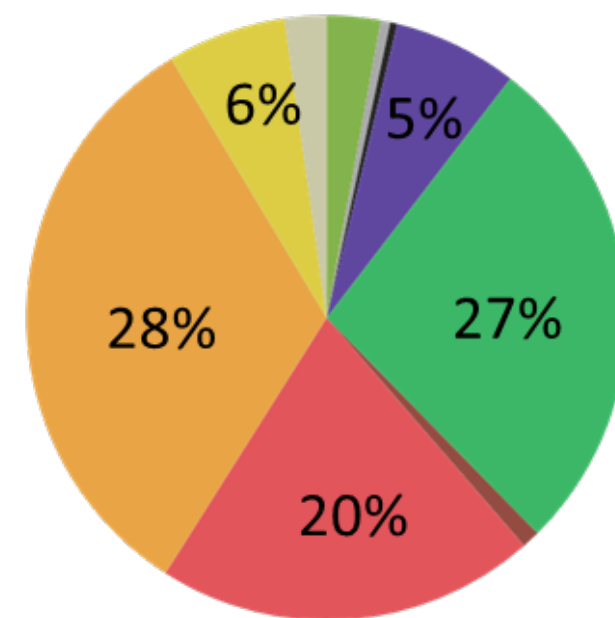
# Terrestrial ecosystem extent account, 1990 to 2014

## Historical extent of natural biomes



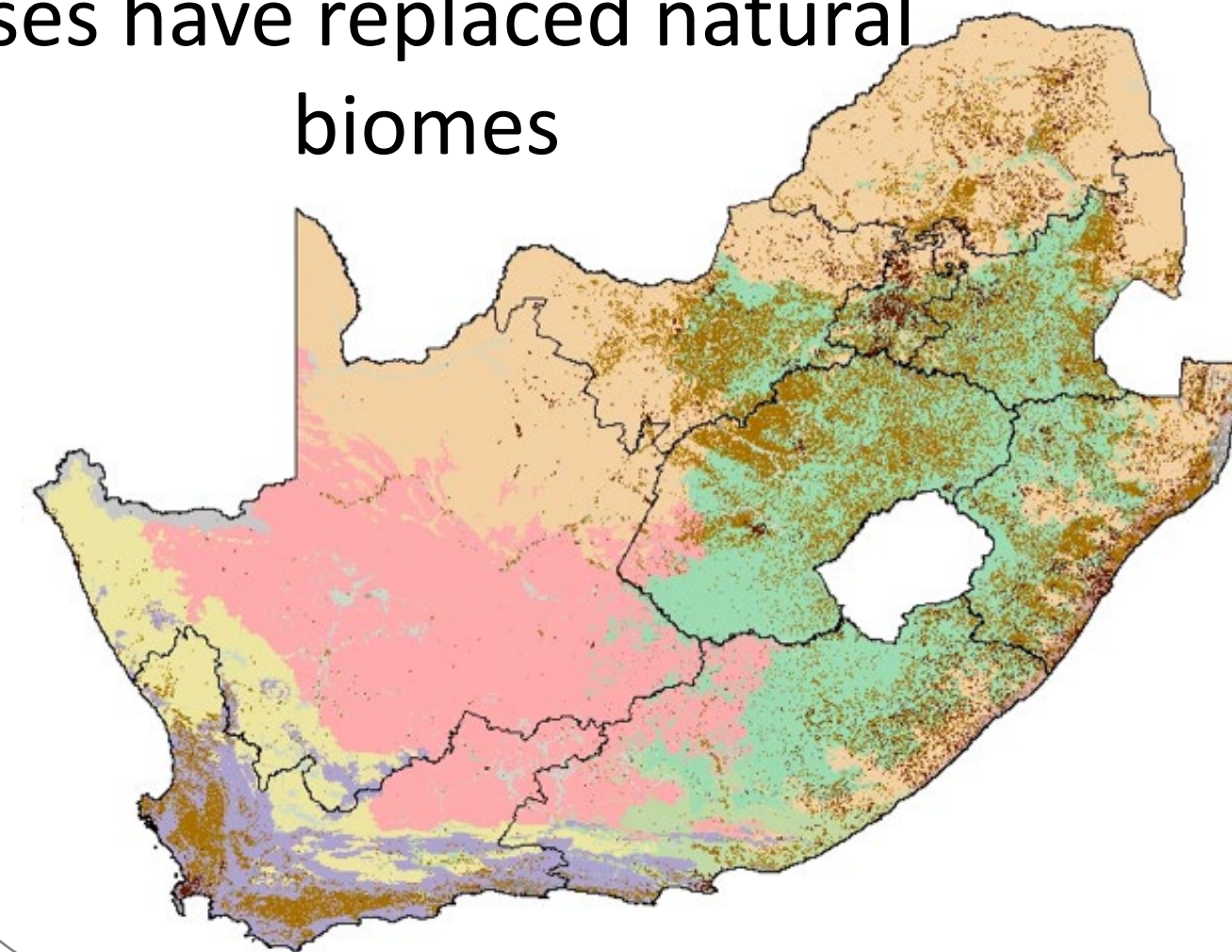
### Biomes

- Albany Thicket
- Desert
- Forests
- Fynbos
- Grassland
- Indian Ocean Coastal Belt
- Nama-Karoo
- Savanna
- Succulent Karoo



458 terrestrial ecosystem types are grouped into **9 biomes**

## Contemporary extent – showing where intensive land uses have replaced natural biomes

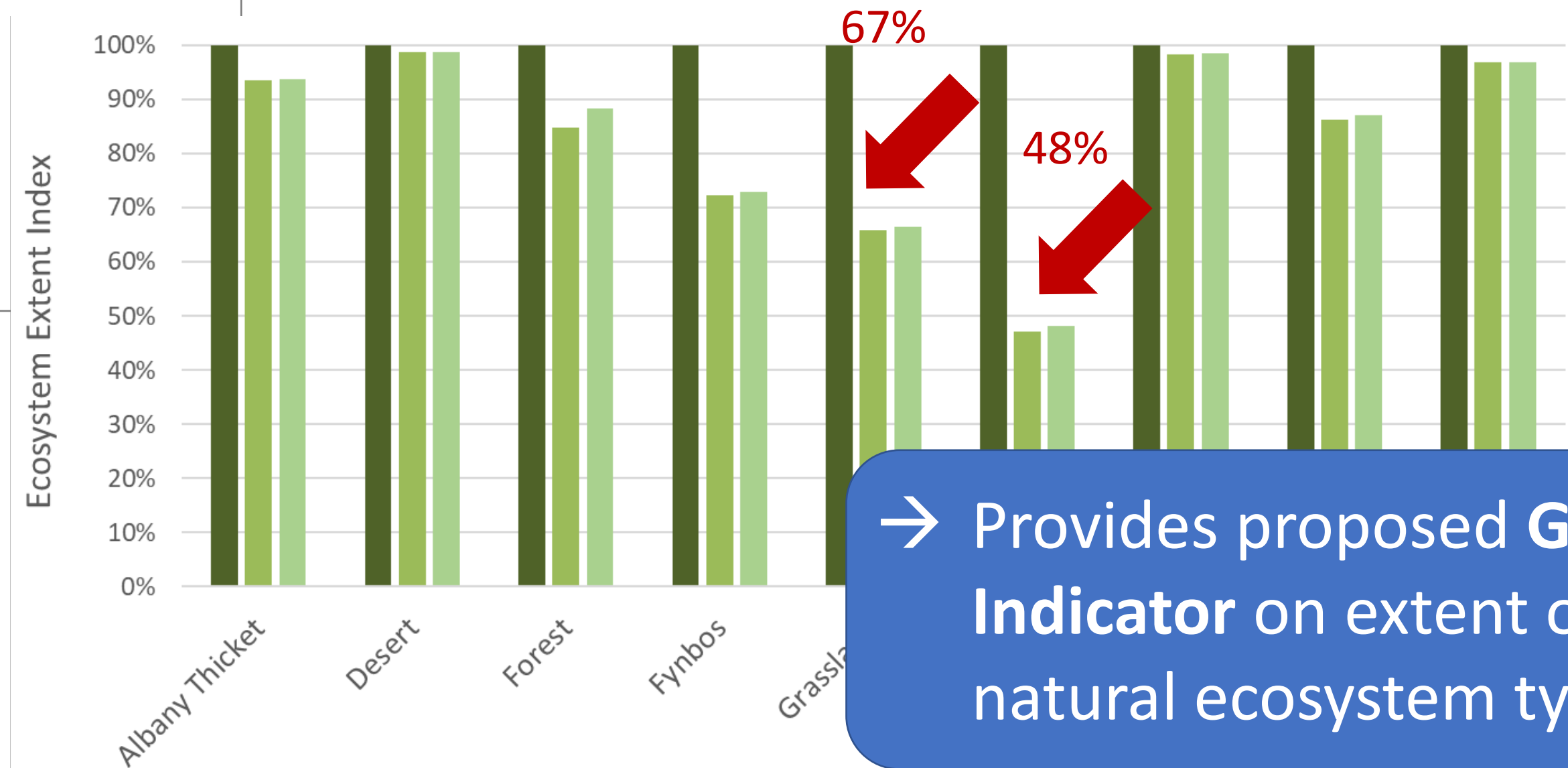


### Intensively modified "biomes"

- Built-up
- Cultivated
- Waterbodies

### Natural or semi-natural biomes

- Albany Thicket
- Desert
- Forest
- Fynbos
- Grassland
- Indian Ocean Coastal Belt
- Nama-Karoo
- Savanna
- Succulent Karoo
- Azonal Vegetation
- Provincial boundary



Headline indicator:

**Ecosystem Extent Index** →

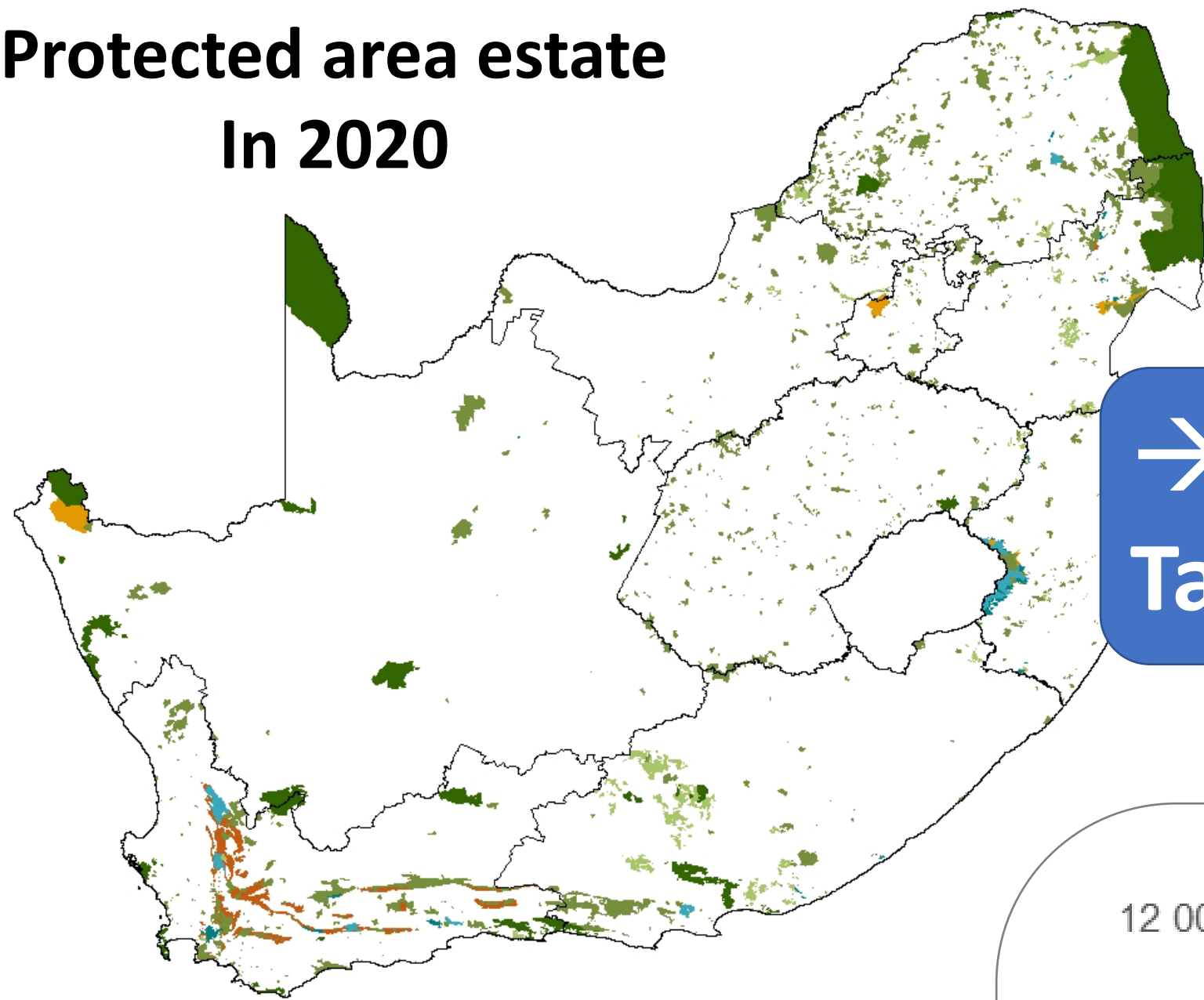
Measures remaining contemporary extent of natural biomes relative to their historical extent

→ Provides proposed **Goal A Indicator** on extent of natural ecosystem types



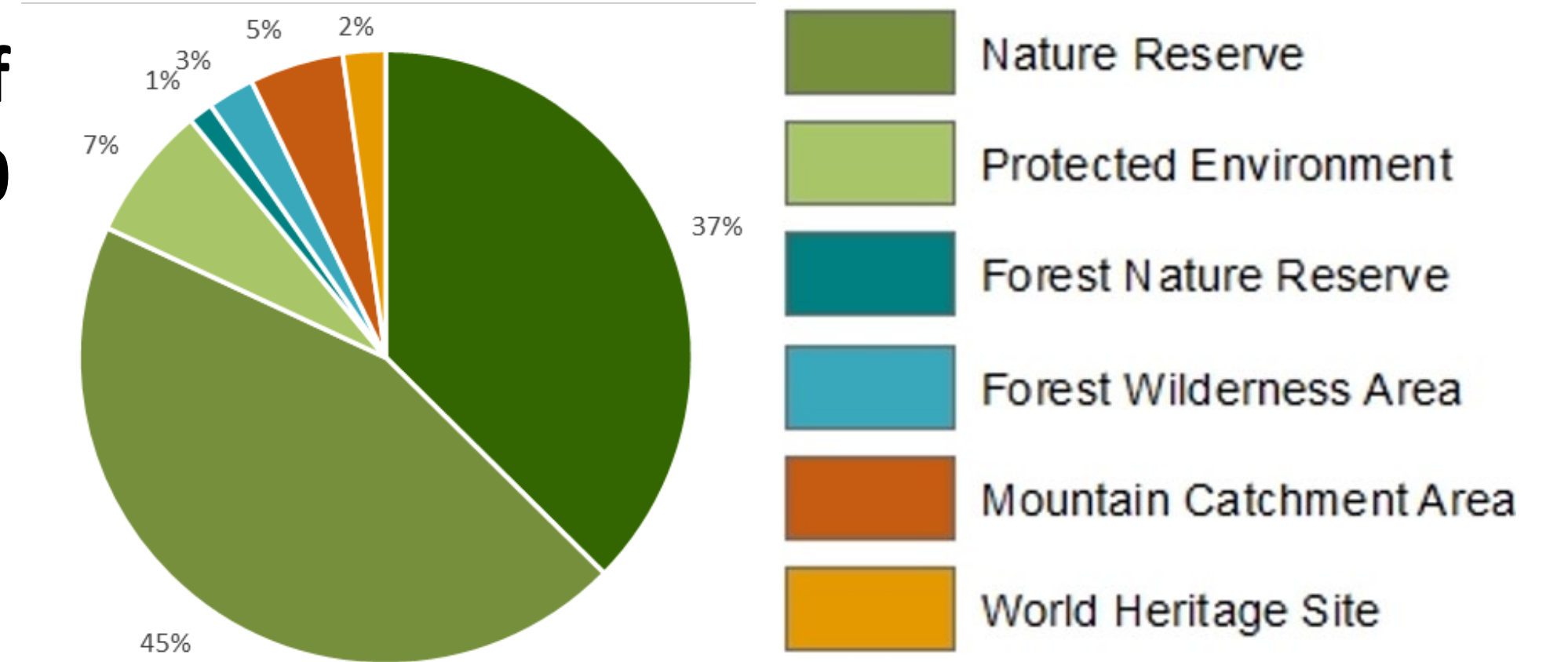
# Accounts for Protected Areas, 1900 to 2020

Protected area estate  
In 2020



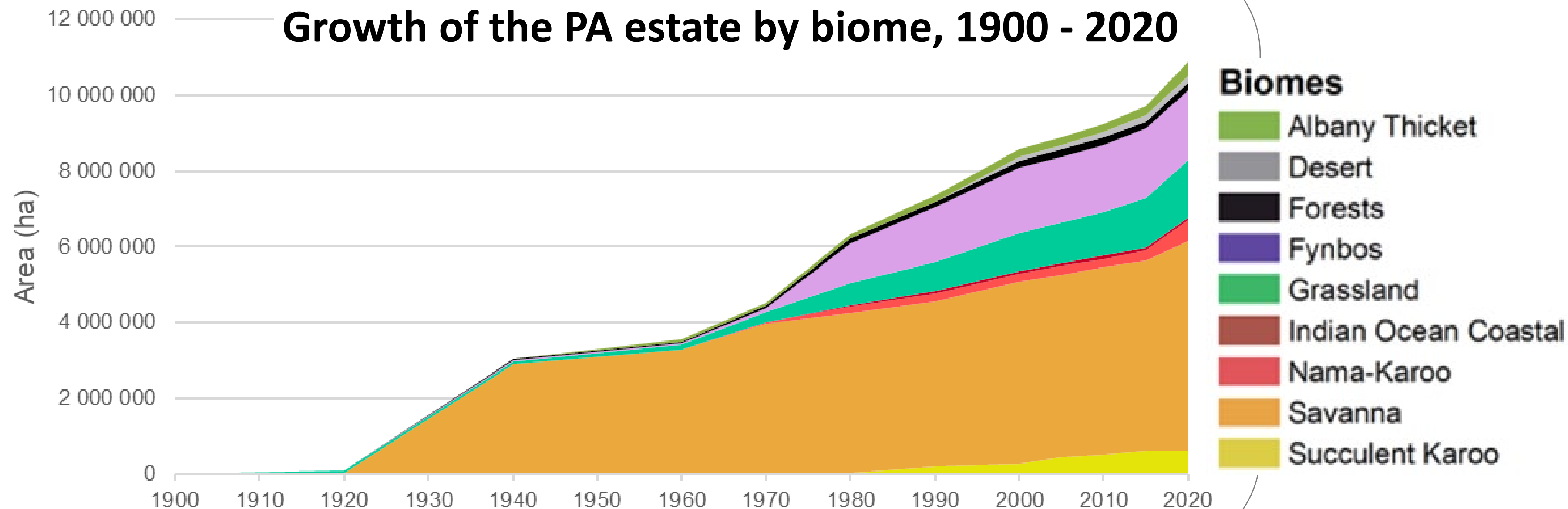
→ Useful for proposed  
Target 3 Indicator

Composition of  
PA estate, 2020

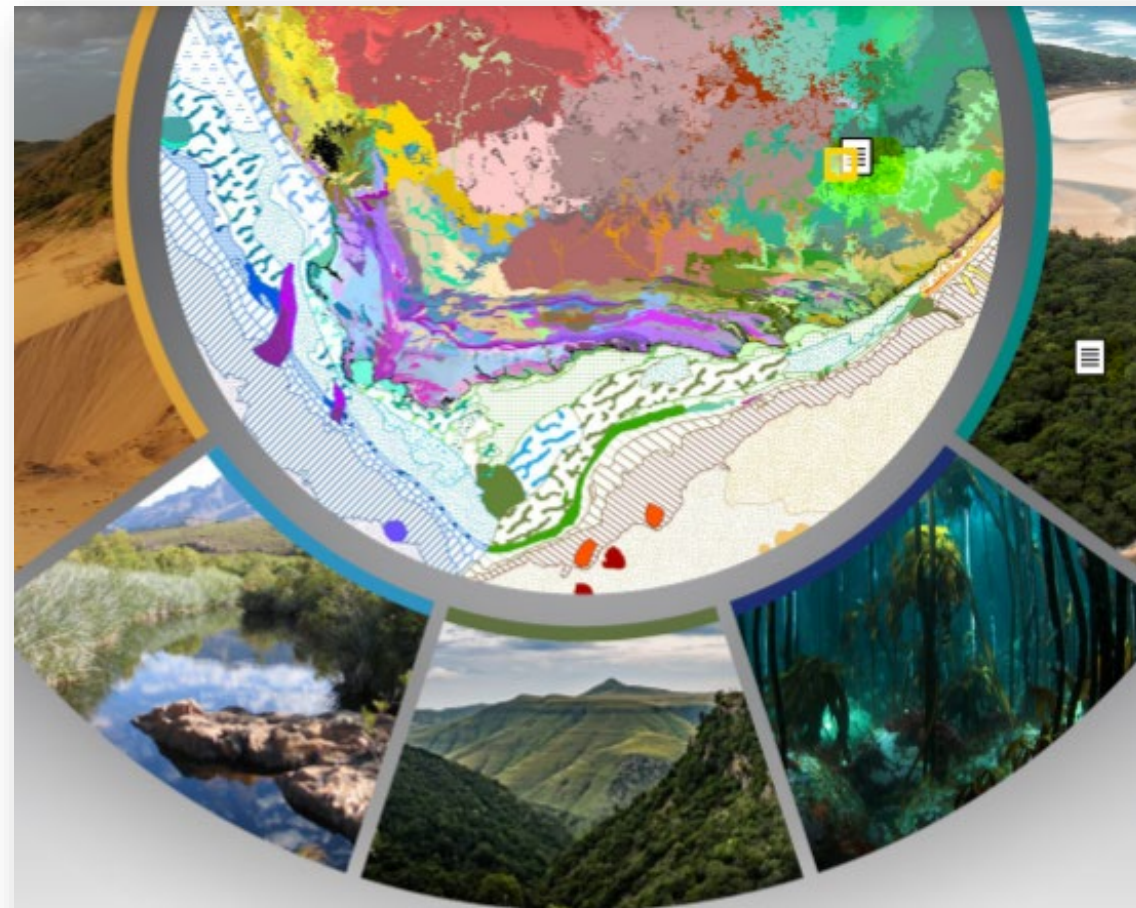


- Accounts track the **size and composition** of the protected area estate
- Future updates will build on this to show **socio-economic links**

Growth of the PA estate by biome, 1900 - 2020



# NBA and ecosystem accounts rest on the **same science foundations**

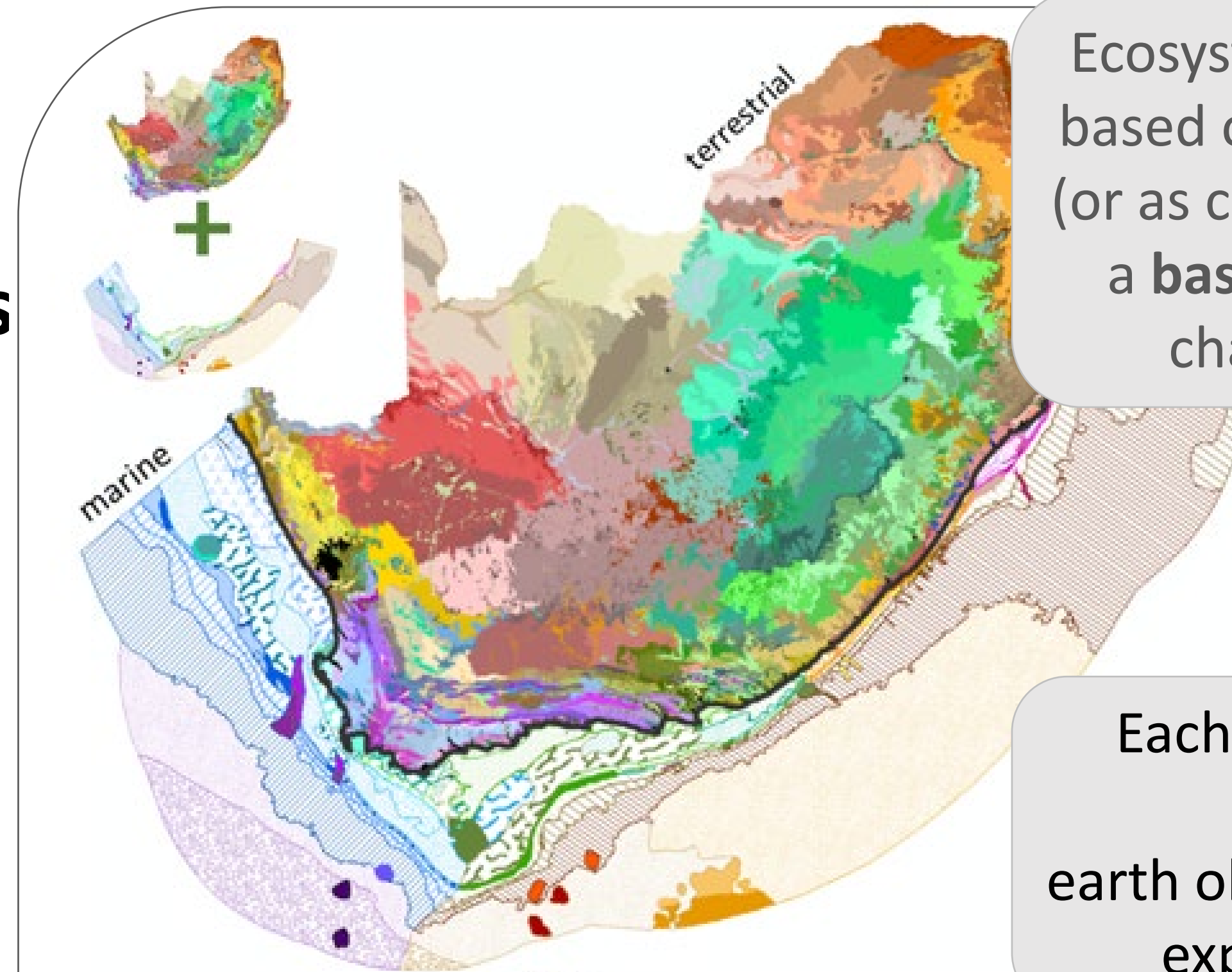


South African  
National Ecosystem  
Classification System  
Handbook



Classification & mapping of **ecosystem types**

–  
the foundation  
for ecosystem  
assessment and  
ecosystem  
accounting

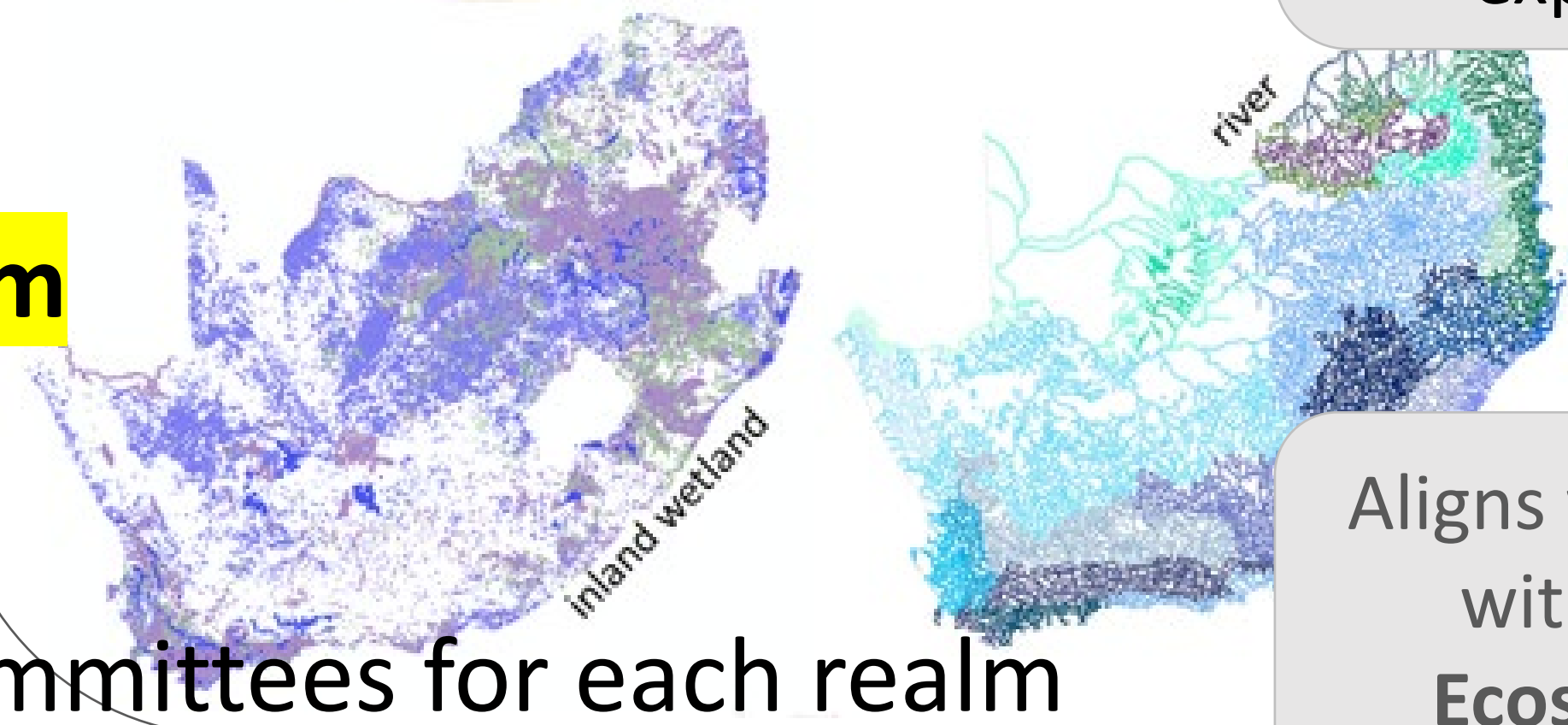


Ecosystem types mapped based on **historical extent** (or as close as possible), as a **baseline** for tracking change over time

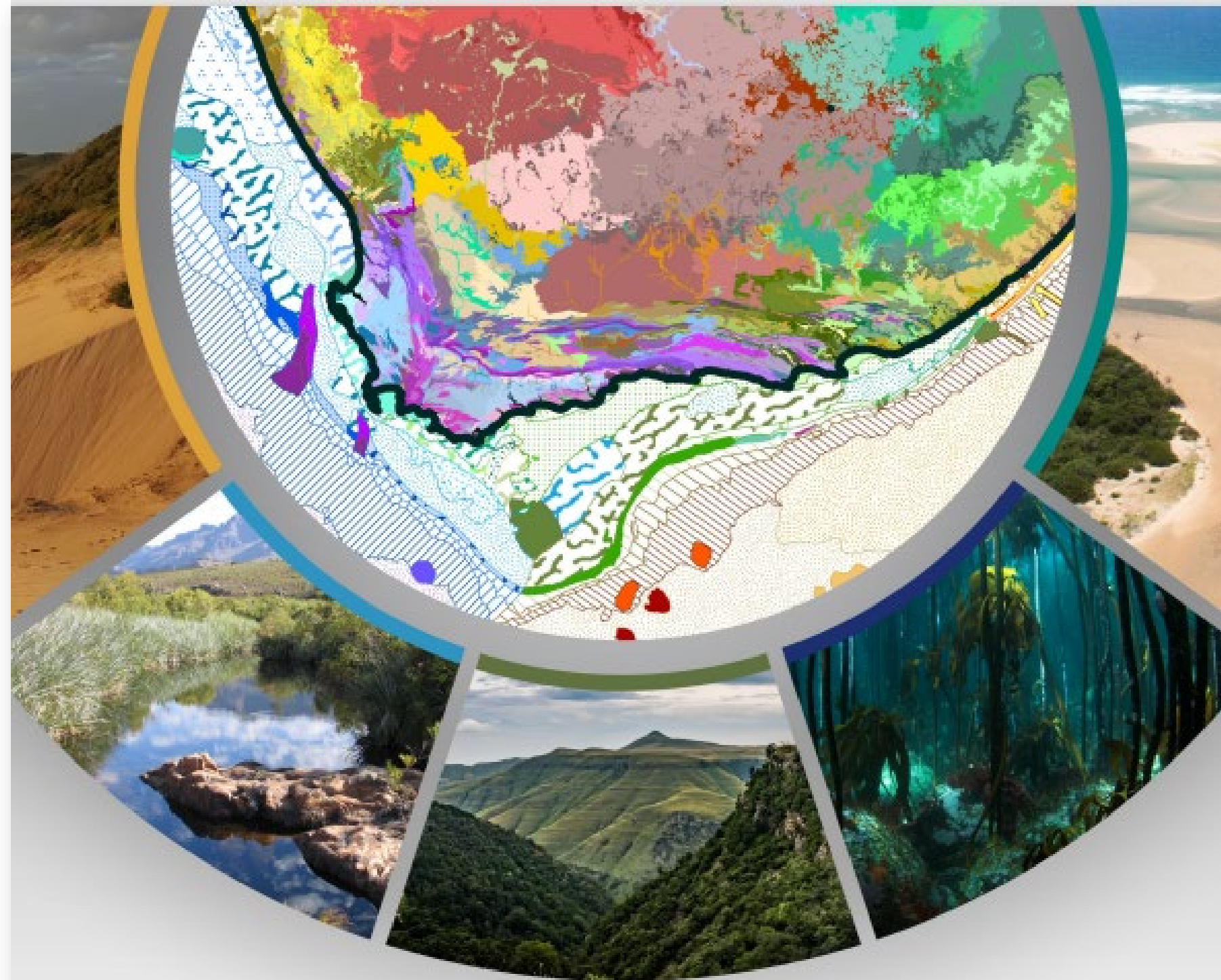
Each map synthesises field data, earth observation data and expert knowledge

## **SA National Ecosystem Classification System**

- Nested hierarchical classification & maps
- Used for multiple applications
- Governed by Ecosystem Classification Committees for each realm



Aligns well (not perfectly) with IUCN's **Global Ecosystem Typology**



# South African National Ecosystem Classification System Handbook

**South African  
National  
Ecosystem  
Classification  
System**  
was adopted by  
Stats SA as a  
standard in 2021



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Department:  
Statistics South Africa  
REPUBLIC OF SOUTH AFRICA



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**STATS SA 059: 2021**  
Version 1.00

**STATISTICS SOUTH AFRICA STANDARD**  
The South African National Ecosystem Classification System

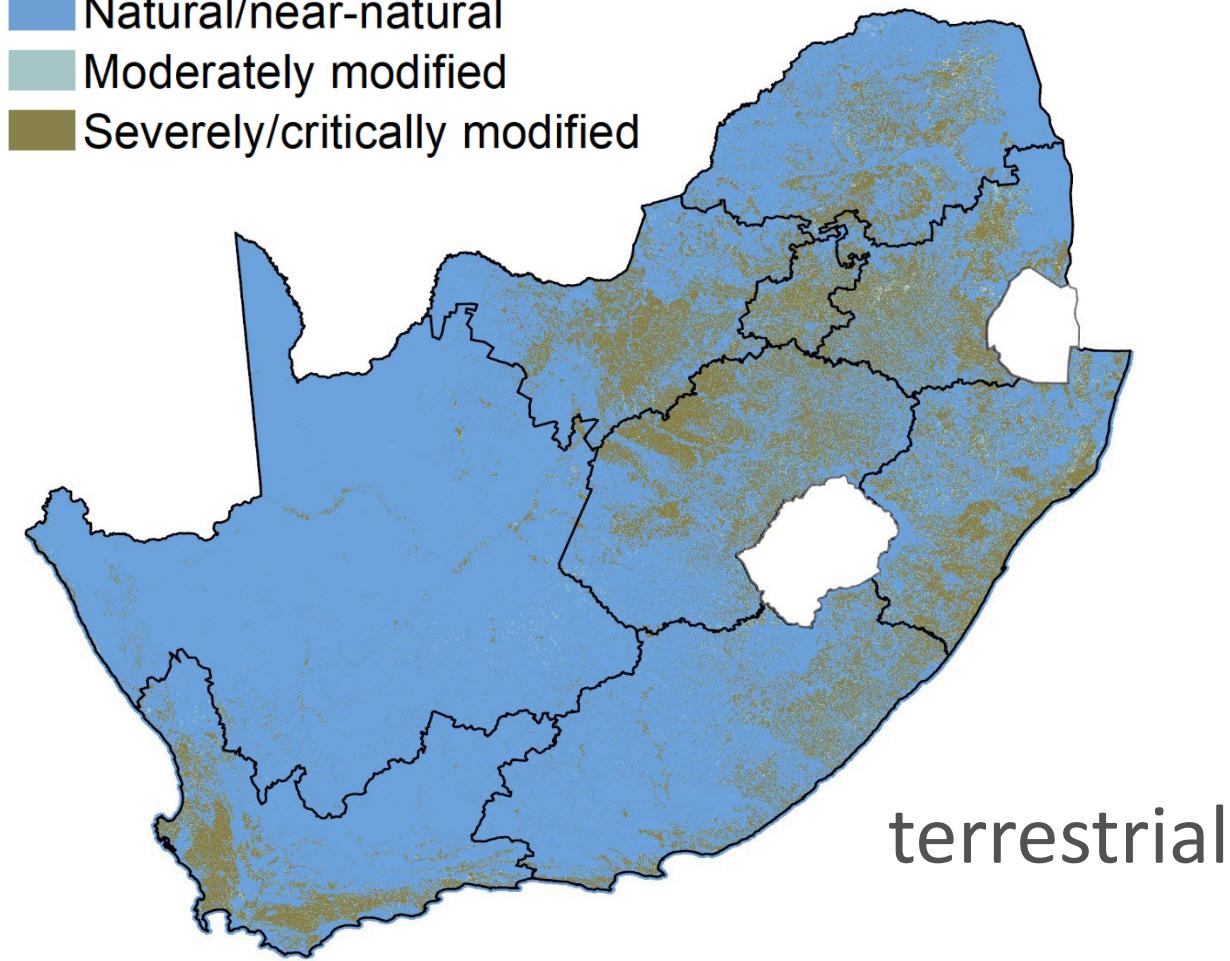
## APPROVAL OF STANDARD

**Stats SA 059:2021: The South African National Ecosystem Classification System**

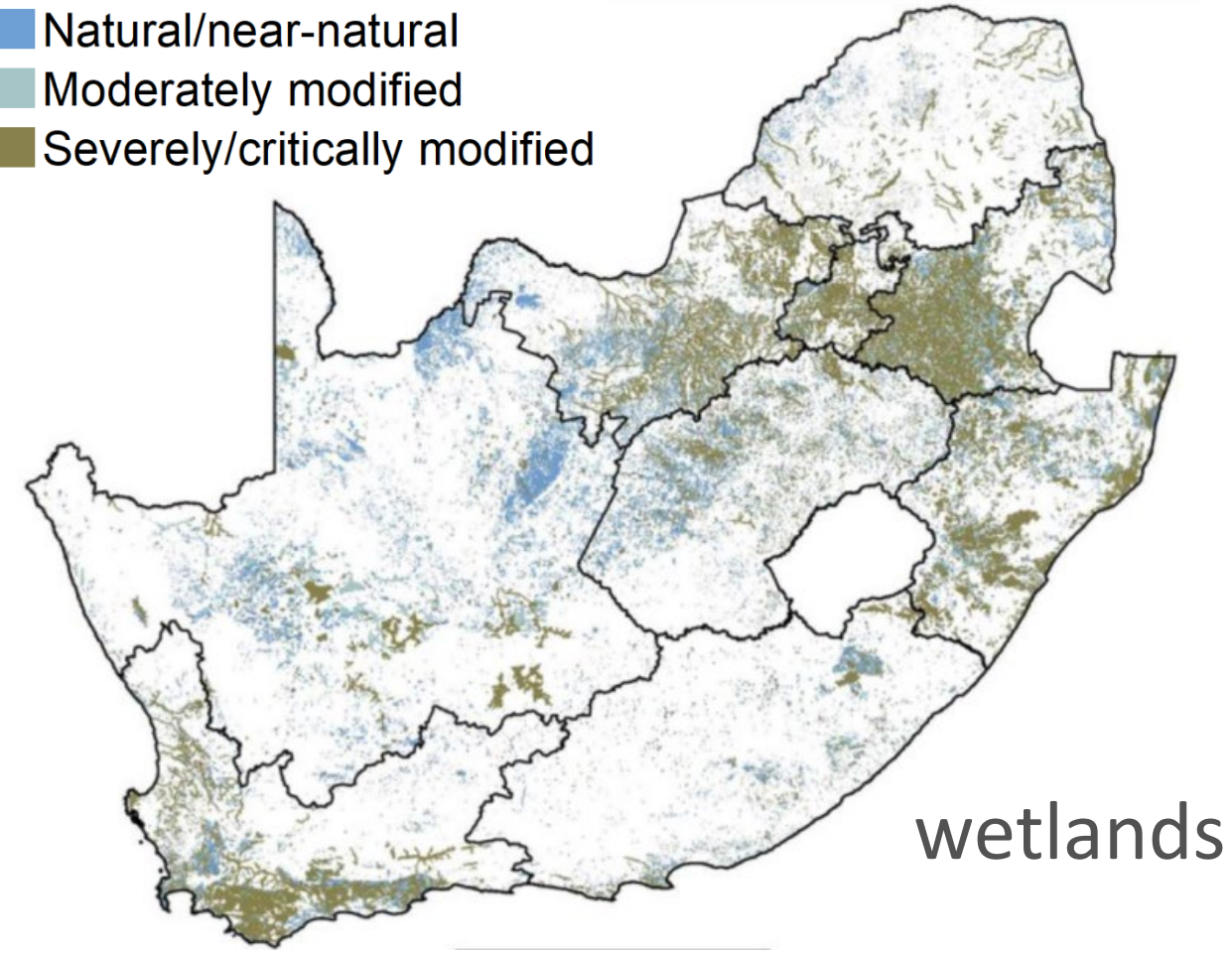


# Spatial assessment of **ecological condition**

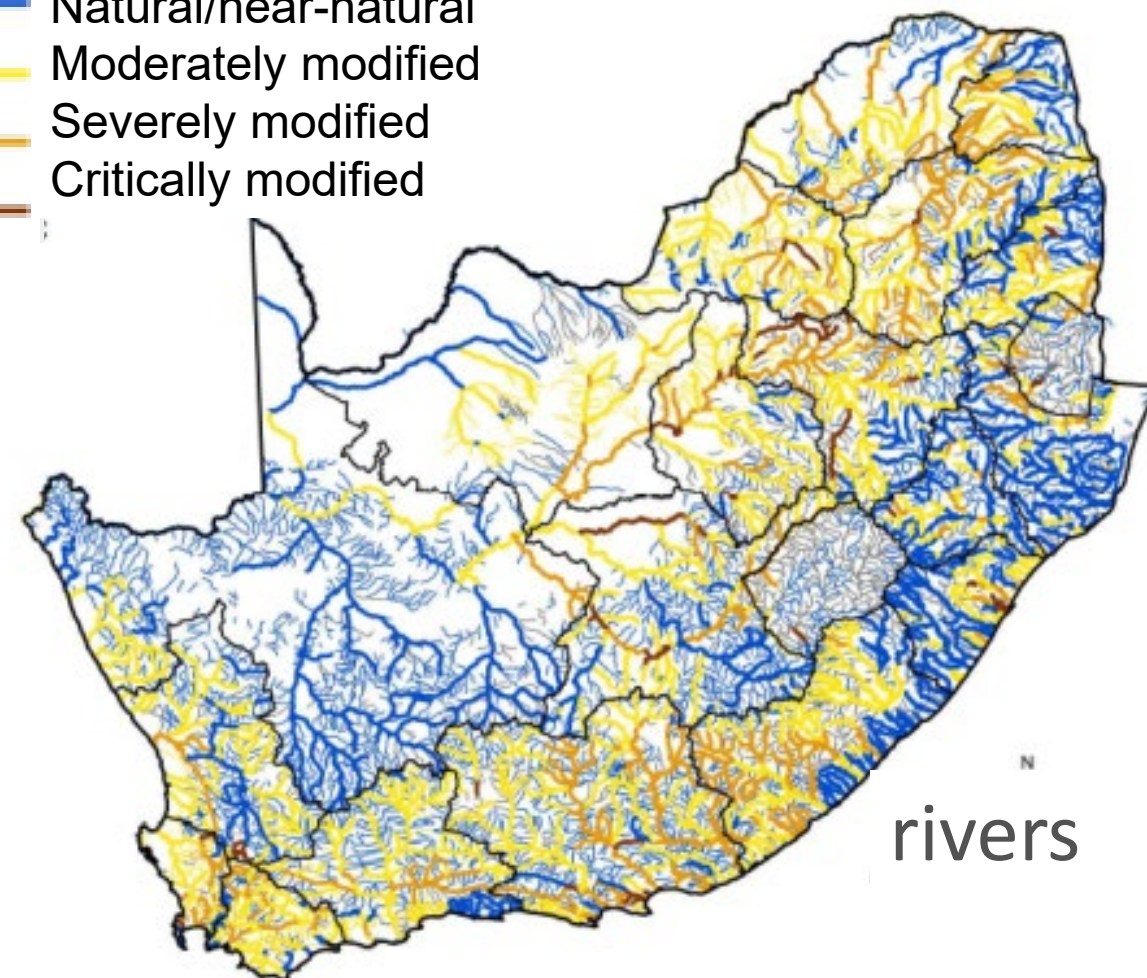
■ Natural/near-natural  
■ Moderately modified  
■ Severely/critically modified



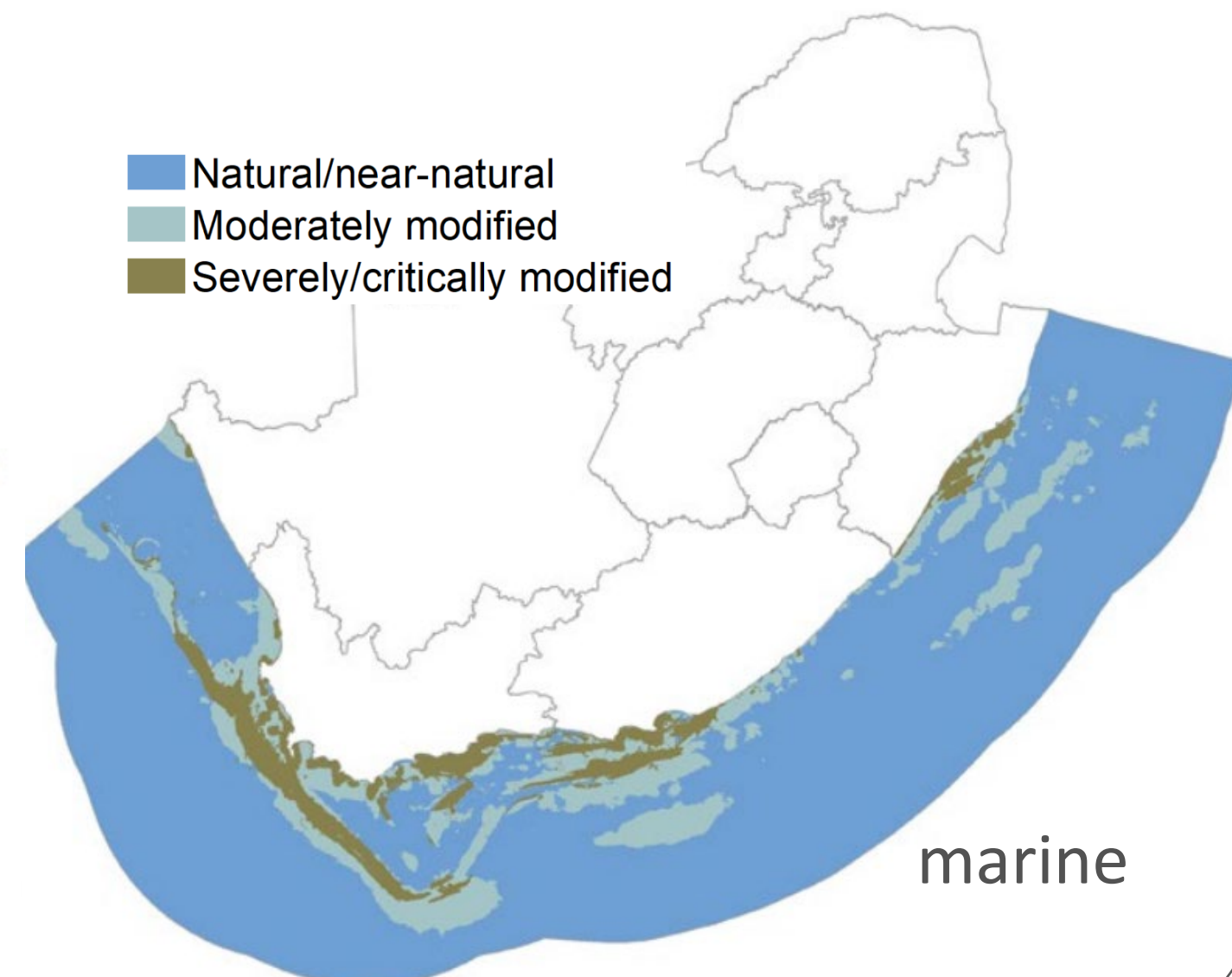
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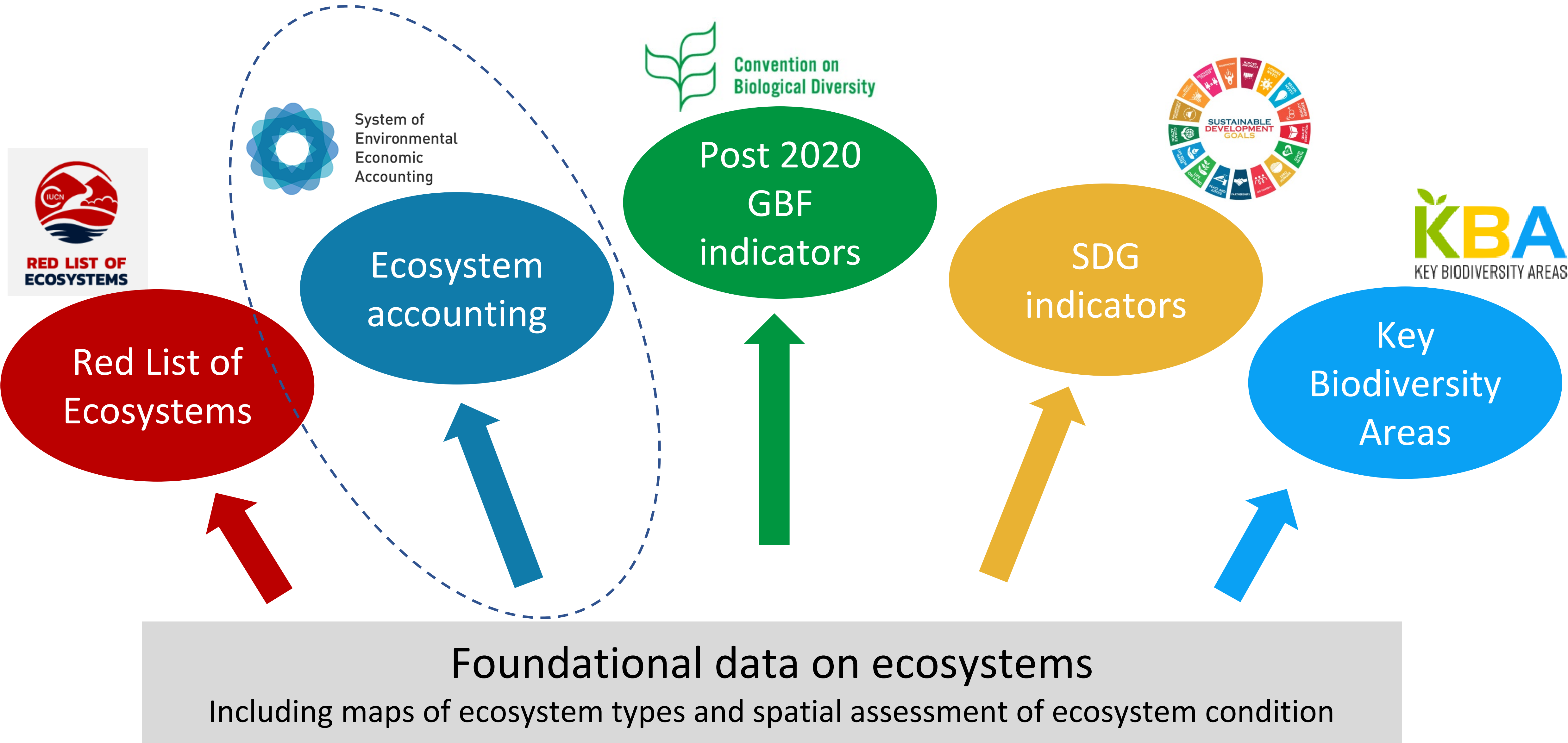


■ Natural/near-natural  
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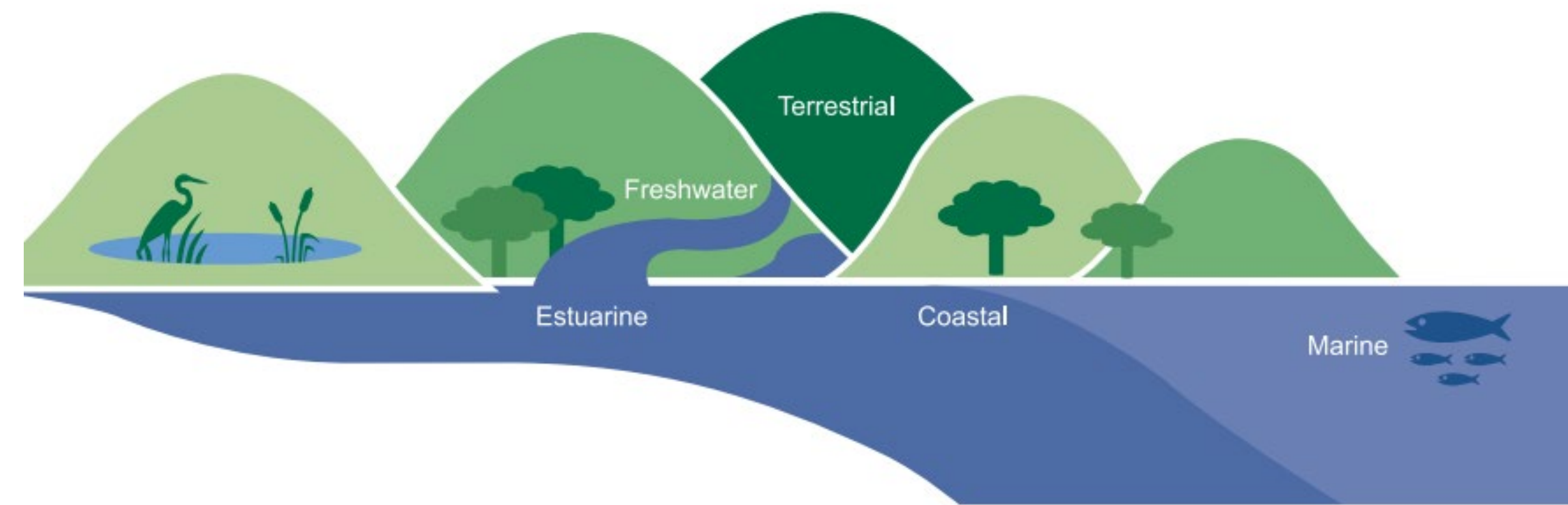
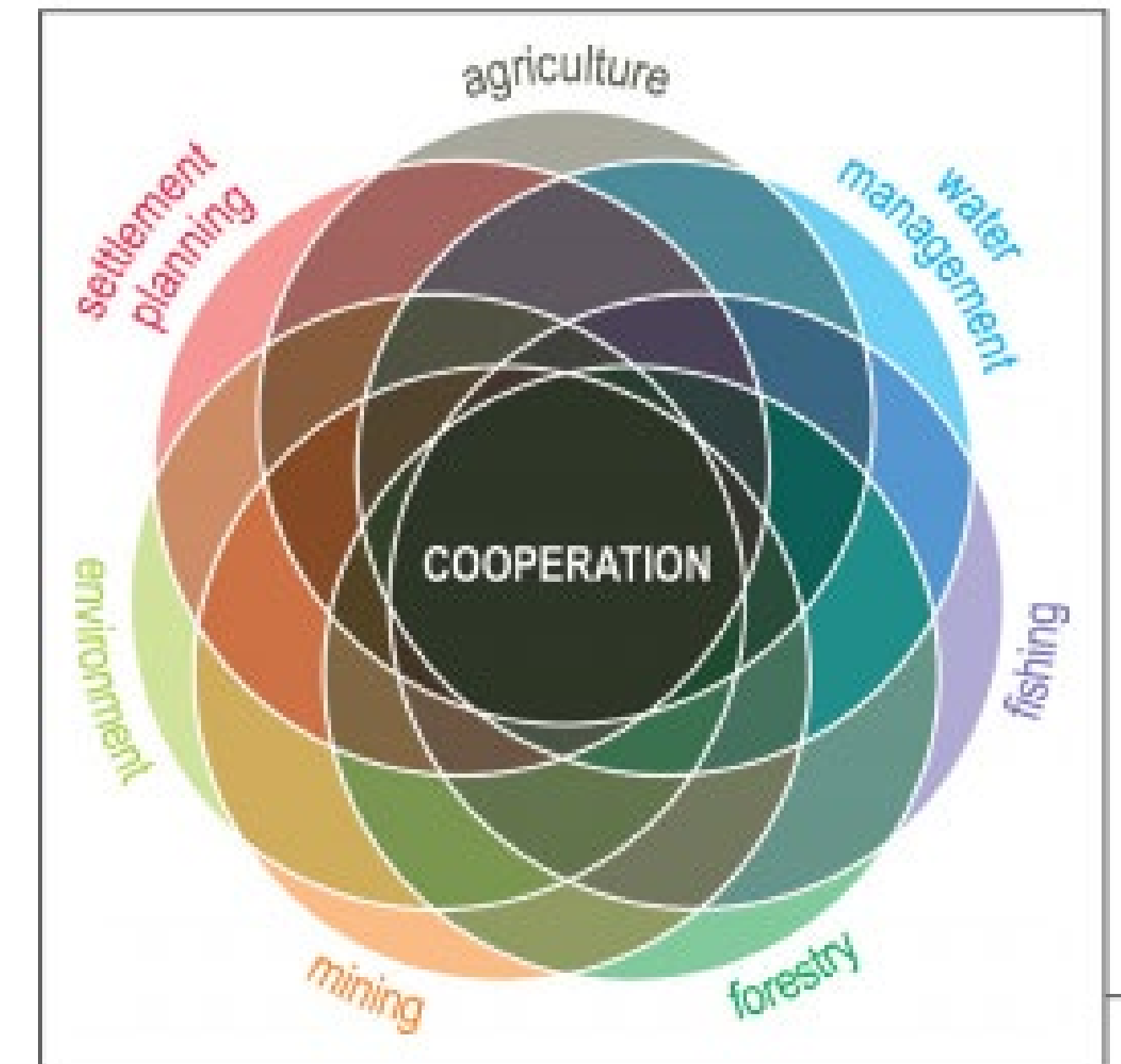
- Essential for Red List of Ecosystem assessments
- Overall maps of ecological condition synthesise many spatial datasets and expert knowledge
- Underlying spatial data and indicators can be used for ecosystem condition accounts

# Investing in foundational spatial data on ecosystems pays dividends



# In summary, what can ecosystem accounting do for biodiversity?

- 1. New audiences and visibility** – powerful mainstreaming tool
  - Elevates the status and credibility of environmental statistics
  - Boosts inclusion of ecosystems and biodiversity into national policy and decision making
- 2. New national indicators for ecosystems**, to complement existing indicators
  - For example, Ecosystem Extent Index complements Red List of Ecosystems
- 3. New partnerships and collaboration** between ecologists, statisticians, accountants, economists
- 4. Added incentive to invest** in foundational spatial data on ecosystems, with multiple benefits



# Two closing messages

**For CBD focal points –**

Get to know your National Statistical Office!

**For National Statistical Offices –**

Don't go it alone with ecosystem accounting!  
Involve ecologists and biodiversity scientists in  
ecosystem accounting teams