

Leveraging **shared foundations** to advance Natural Capital Accounting *and* spatial biodiversity assessment and planning

Mandy Driver

Independent Specialist: Natural Capital Accounting and Biodiversity

With acknowledgements to many colleagues, in South Africa and globally

National NCA Forum

14-15 September 2026, Pretoria



Overview

- What is ecosystem accounting, as a component of NCA?
- What is spatial biodiversity assessment and planning?
- How are they connected?
- Why does it matter?
- A call to action for the region

What is ecosystem accounting?

Natural Capital Accounting (NCA) is an **umbrella term**, encompassing:

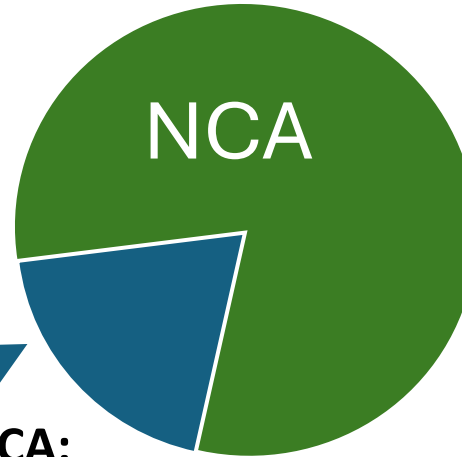
- Systematic measurement of stocks and flows of natural resources
- Quantifying the socio-economic importance of nature

Ecosystem accounting is one component of NCA:

- Accounting for ecosystem assets and ecosystem services
- Main focus: how ecosystems contribute to people and the economy

In countries:

- **NCA** is typically led by the national statistical office, in partnership with a range of policy and technical partners
- **Ecosystem accounting** requires collaboration between the statistical, ecosystem science and biodiversity communities

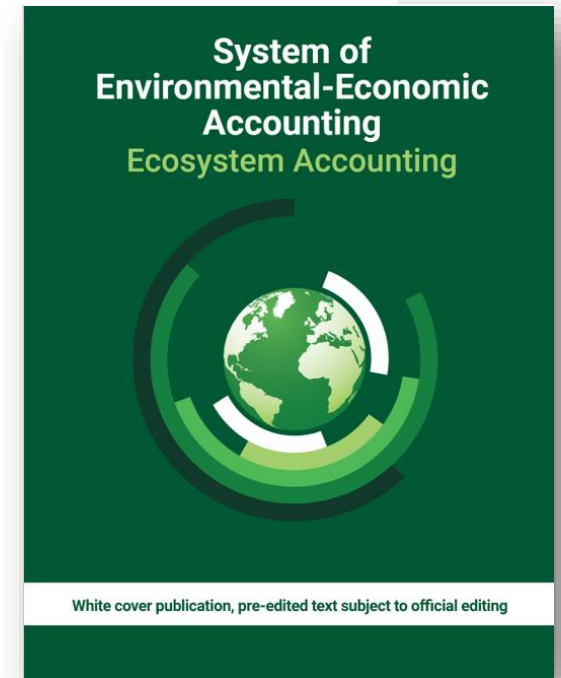


The measurement framework for NCA is the SEEA



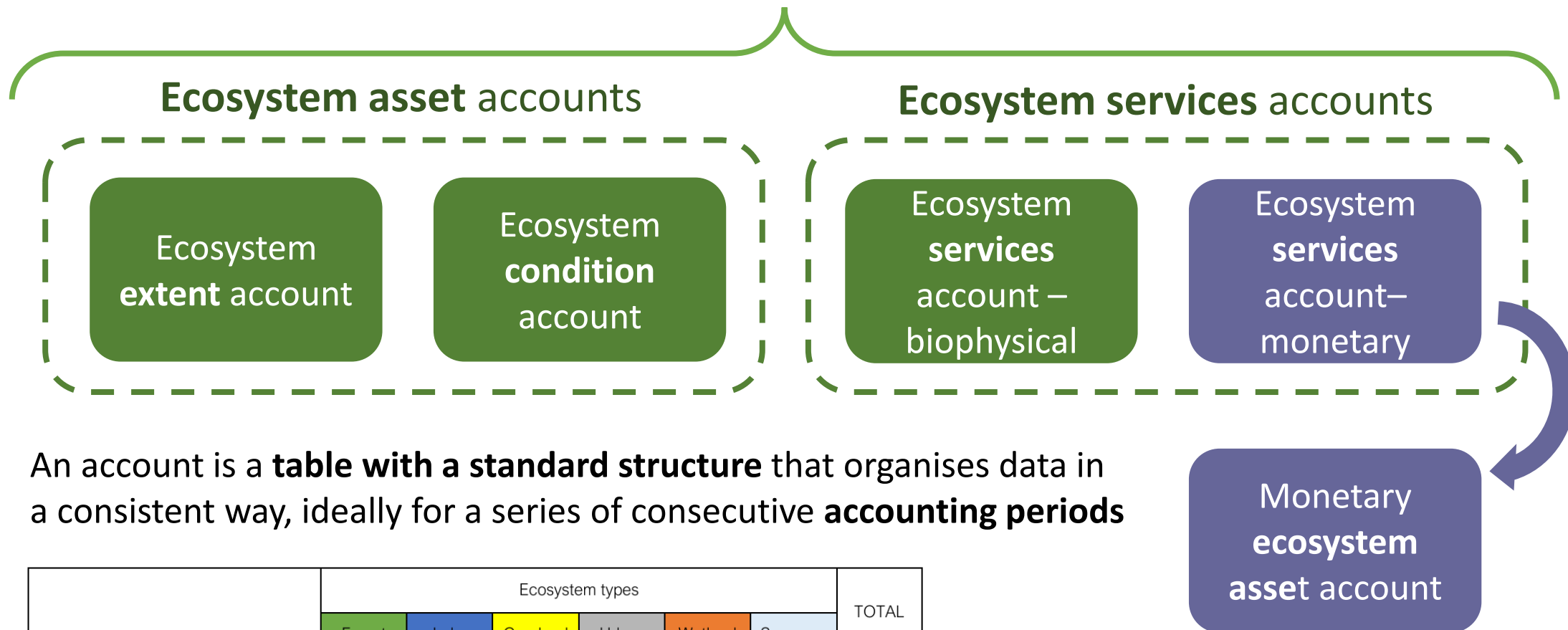
System of
Environmental
Economic
Accounting

SEEA Ecosystem Accounting is the global statistical standard for ecosystem measurement, adopted in 2021



Custodian: UN Statistical Commission

Core set of SEEA ecosystem accounts



An account is a **table with a standard structure** that organises data in a consistent way, ideally for a series of consecutive **accounting periods**

	Ecosystem types						TOTAL
	Forest	Lake	Cropland	Urban	Wetland	Seagrass	
Accounting entries (ha)							
Opening extent	40	30	60	50	20	50	250
Additions to extent			2				
Reductions to extent	2						
Net change in extent	-2		+2				
Closing extent	38	30	62	50	20	50	250

Source: SEEA-EA. <https://seea.un.org/ecosystem-accounting>

Stylised example of an ecosystem extent account

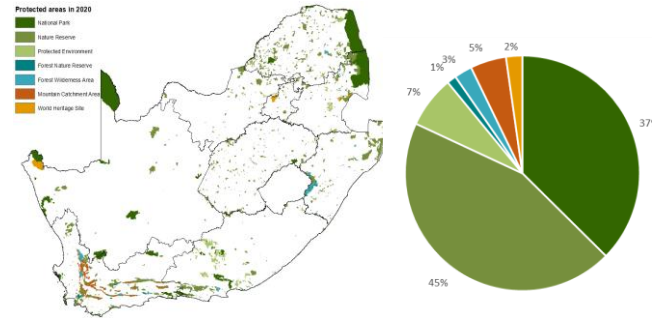
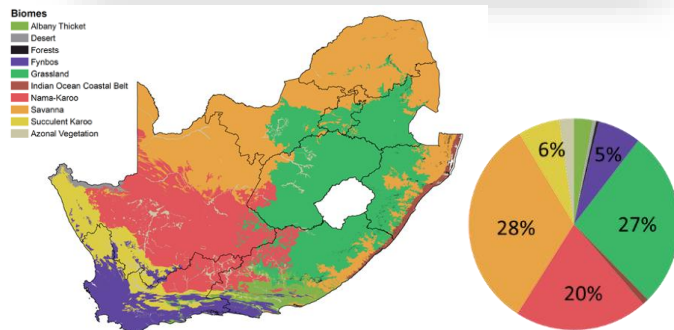
In SEEA Ecosystem Accounting, **accounts in biophysical terms are essential**. Accounts in monetary terms are optional.

Examples of South Africa's ecosystem accounts

NATURAL CAPITAL 1 Land and Terrestrial Ecosystem Accounts, 1990 to 2014

Which ecosystem types are under pressure from which land uses?

Accounts for Land and Terrestrial Ecosystems (released Dec 2020)



NATURAL CAPITAL 2 Accounts for Protected Areas, 1900 to 2020

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

Accounts for Protected Areas (released Oct 2021)

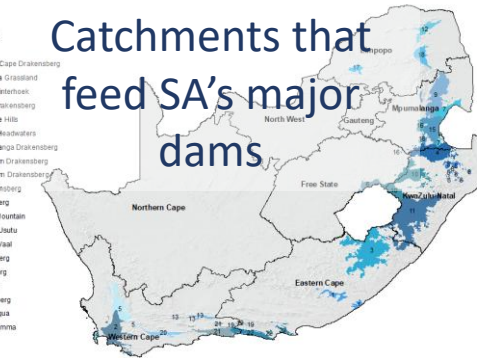


NATURAL CAPITAL 3 Accounts for Strategic Water Source Areas, 1990 to 2020

Accounts for Strategic Water Source Areas (released March 2023)



Catchments that feed SA's major dams



Ecological infrastructure assets for water security

→ Range of information and indicators for policy, planning and decision making

What is spatial biodiversity assessment, prioritisation and planning?

Overall focus: Which ecosystems and species, and which parts of the landscape and seascape, are priorities from a biodiversity perspective?

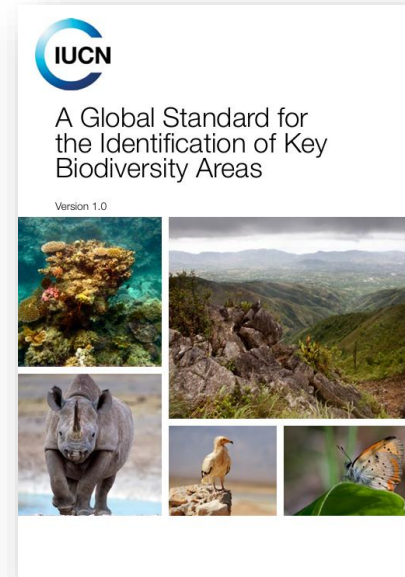
Question 1. What is the state of ecosystems and species?

→ Spatial biodiversity *assessment*



Question 2. Where should we act first?

→ Spatial biodiversity *prioritisation and planning*



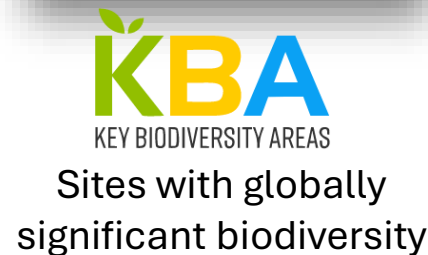
Also: Systematic biodiversity planning – a globally recognised approach based on clear principles

In countries:

- Often led by environment ministries or agencies, with support from NGOs and research institutions
- Typically *doesn't* involve the statistical community



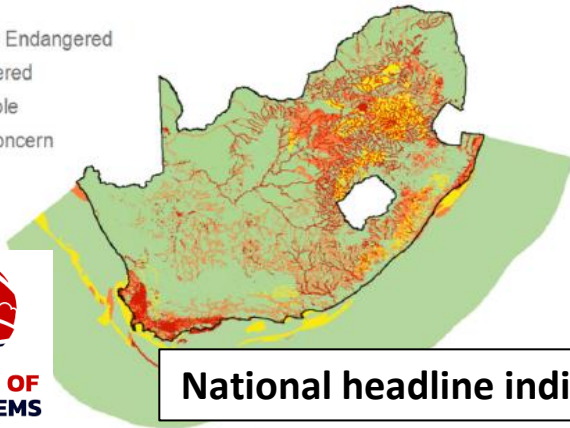
**Custodian for
Red List and
KBA standards:
IUCN**



Red List of Ecosystems

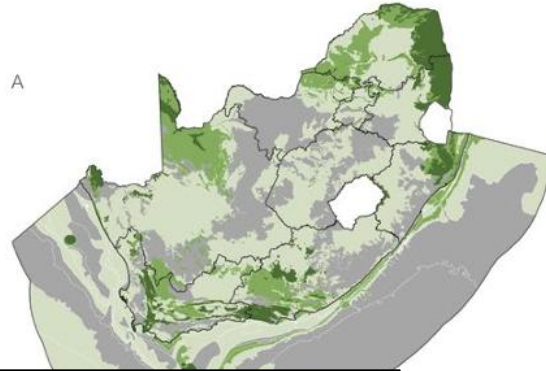
Ecosystem threat status

■ Critically Endangered
■ Endangered
■ Vulnerable
■ Least Concern

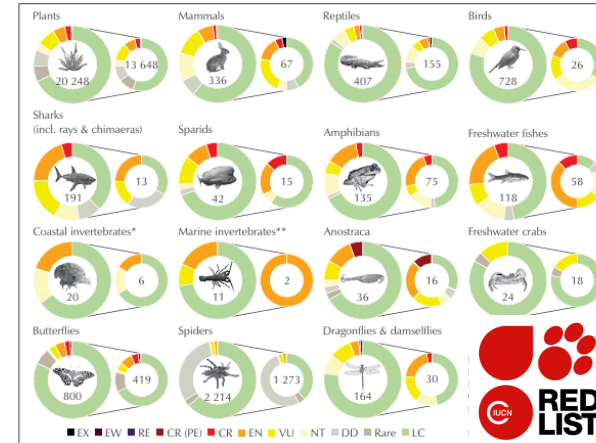


National headline indicators for biodiversity

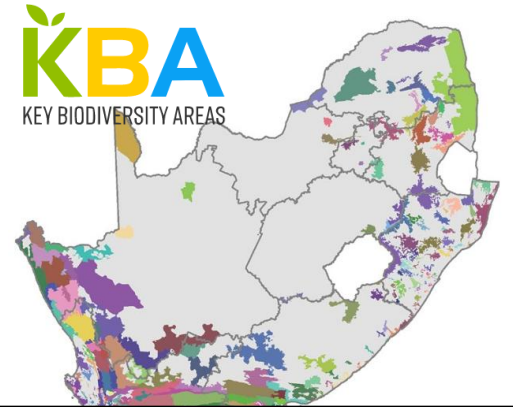
Ecosystem Protection Level



Red List of Species



Key Biodiversity Areas (KBAs)



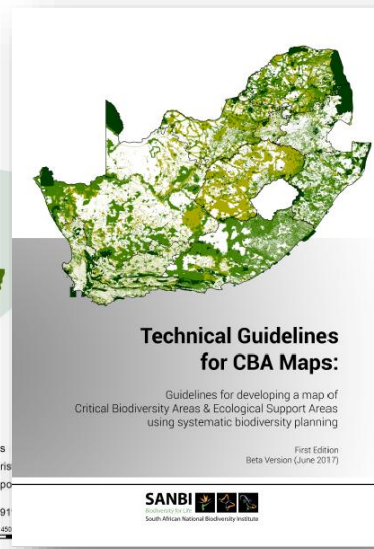
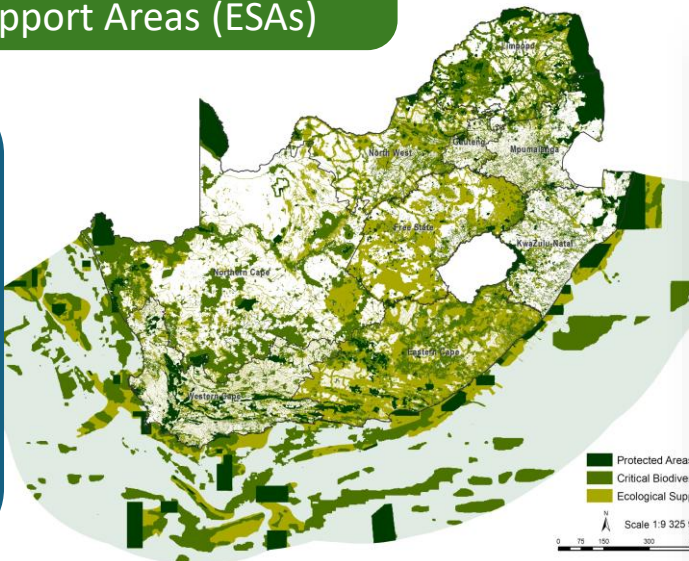
In SA context, mainly for **global comparison and reporting**

Informs **integrated spatial planning and environmental authorisations**

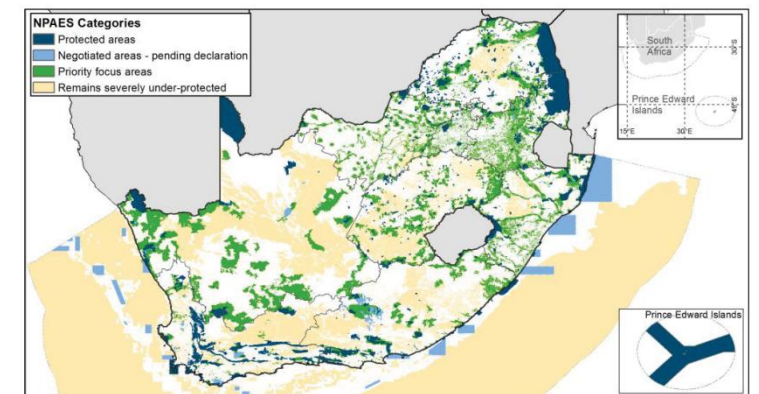
CBA Maps

Maps of Critical Biodiversity Areas (CBAs) and Ecological Support Areas (ESAs)

SA has well developed systematic biodiversity assessments and plans



Priorities for protected area expansion



National Protected Area Expansion Strategy, based on area targets per ecosystem type



NBA incorporates



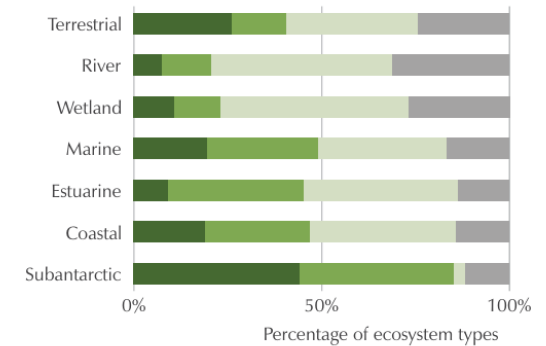
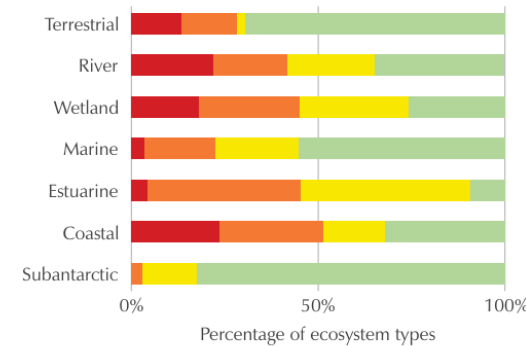
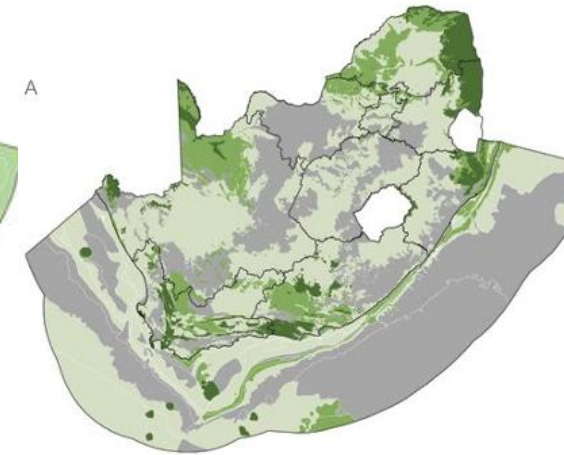
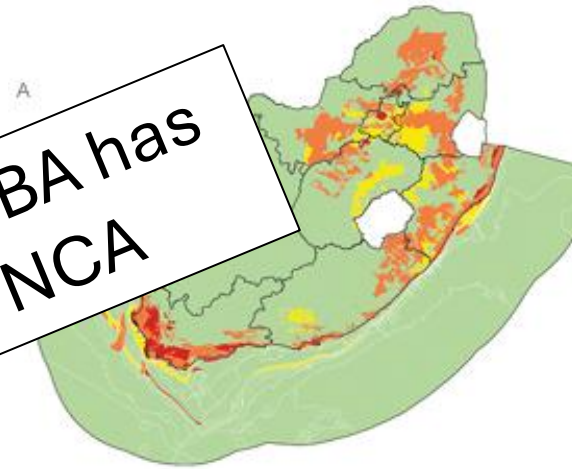
The **National Biodiversity Assessment** consolidates spatial biodiversity assessment data and results across the terrestrial, freshwater, estuarine and marine realms



In South Africa, the NBA has helped to unlock NCA

Most familiar headline ecosystem indicators from the National Biodiversity Assessment:

- Ecosystem Threat Status
- Ecosystem Protection Level

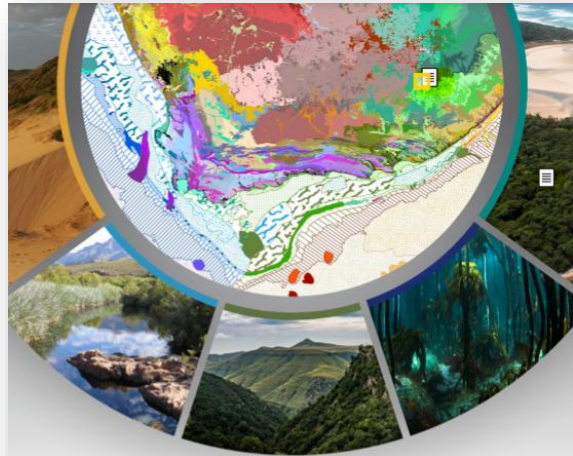


■ Critically Endangered
 ■ Endangered
 ■ Vulnerable
 ■ Least Concern
■ Well Protected
 ■ Moderately Protected
 ■ Poorly Protected
 ■ Not Protected

What do **ecosystem accounting** and **spatial biodiversity assessment and planning** have in common?

- Systematic and repeatable, based on **agreed frameworks**
- Use the **best available science**, providing credible evidence to inform policy, planning and decision making
- Complementary **perspectives**
 - Linking ecosystems to people and the economy
 - Biodiversity importance
- Shared **concepts** – defined in equivalent ways
 - Ecosystem types, ecosystem extent, ecosystem condition
- Common **data foundations**
- Inter-institutional **collaboration** essential

Underpinned by a national ecosystem map and classification



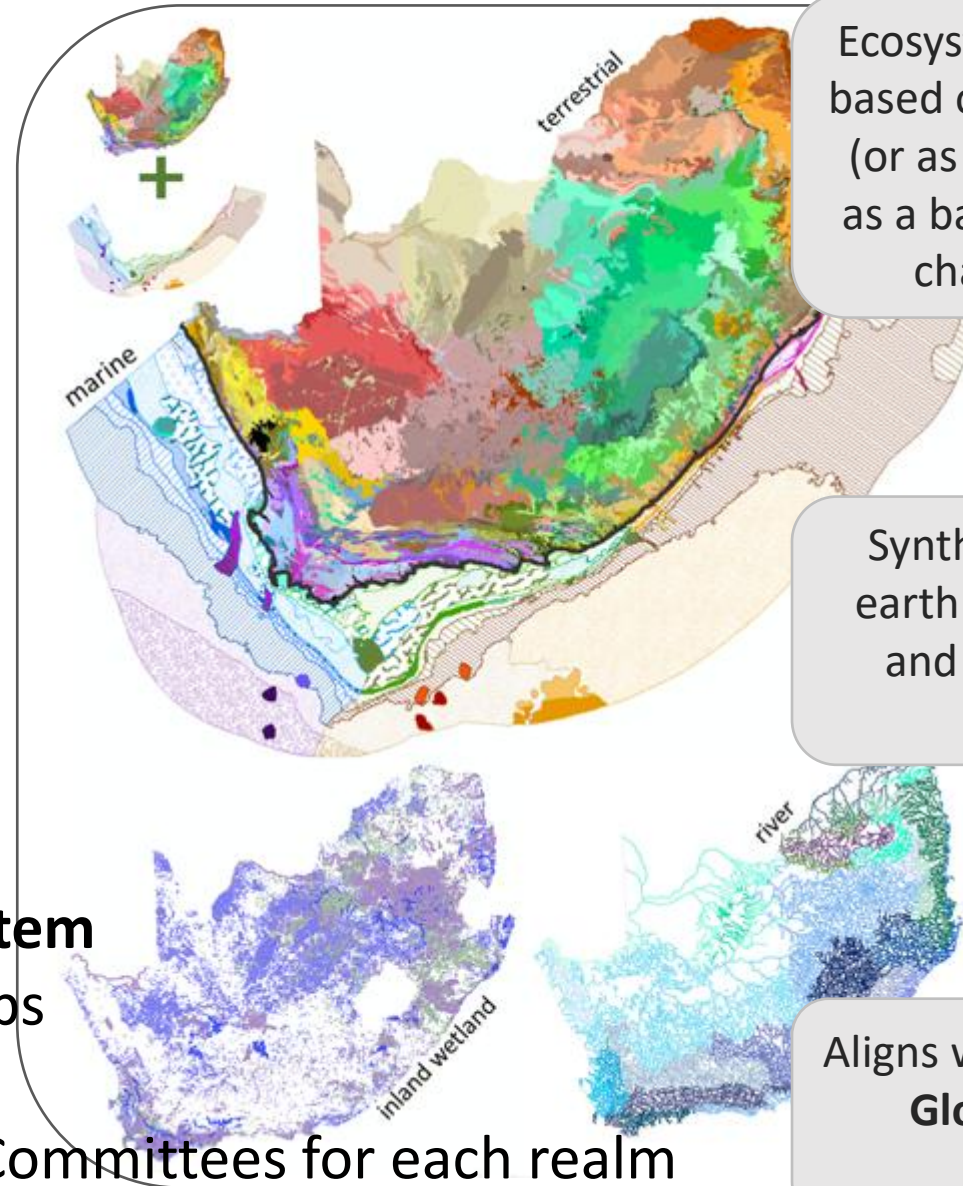
South African
National Ecosystem
Classification System
Handbook



Classification
& mapping of
**ecosystem
types** –
provides the
spatial units
for ecosystem
accounts *and*
SBAPP

SA National Ecosystem Classification System

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



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

Synthesises field data,
earth observation data,
and expert and local
knowledge

Aligns well with the IUCN's
**Global Ecosystem
Typology**



SANBI 
Biodiversity for Life
South African National Biodiversity Institute

**South African National
Ecosystem Classification
System (SA-NECS)
– adopted by
Statistics South Africa
as a statistical standard
in 2021**



stats sa

Department:
Statistics South Africa
REPUBLIC OF SOUTH AFRICA



stats sa

Department:
Statistics South Africa
REPUBLIC OF SOUTH AFRICA

STATS SA 059: 2021
Version 1.00

STATISTICS SOUTH AFRICA STANDARD

The South African National Ecosystem Classification System

APPROVAL OF STANDARD

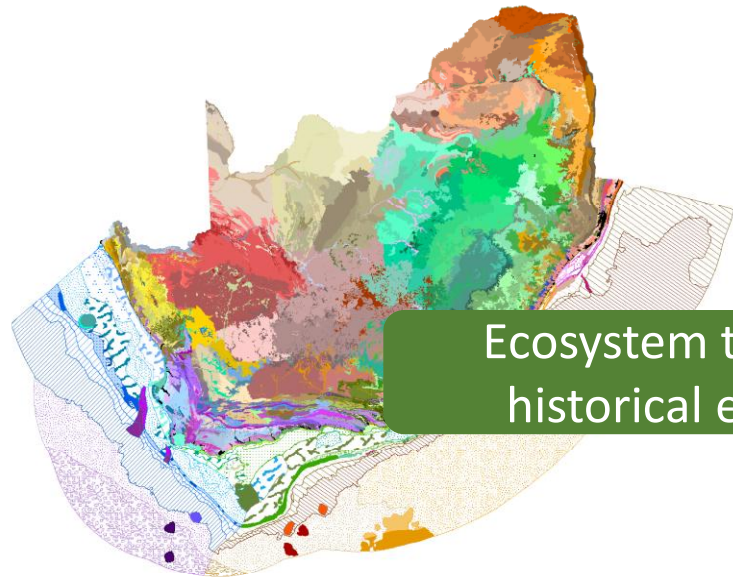
Stats SA 059:2021: The South African National Ecosystem Classification System

Bhopalgaon na dhorikarona / Bhopalgaon na dhorika Bawa / Gualhati na dhorikarona dhorika / Tashatashika dhorika Tashatashika / Tashatashika dhorika
 Tashatashika dhorika / Tashatashika na dhorika Bawa / Tashatashika na dhorika Bawa / Tashatashika na dhorika Bawa / Tashatashika na dhorika Bawa

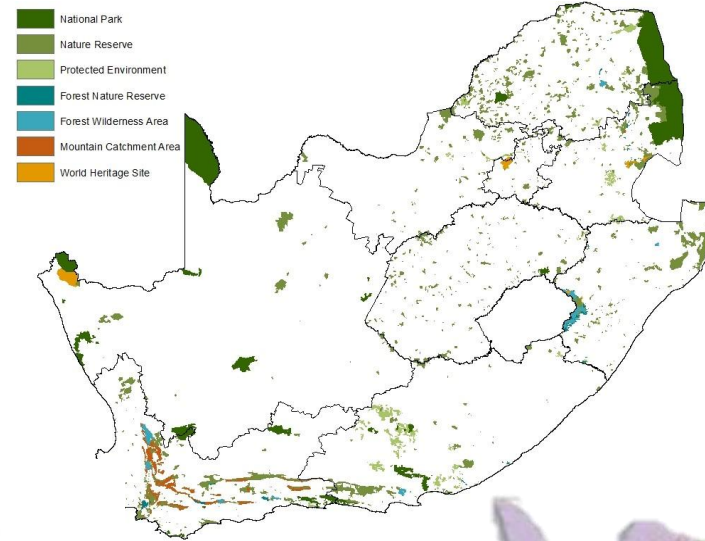
IMPROVING LIVES THROUGH DATA ECOSYSTEMS



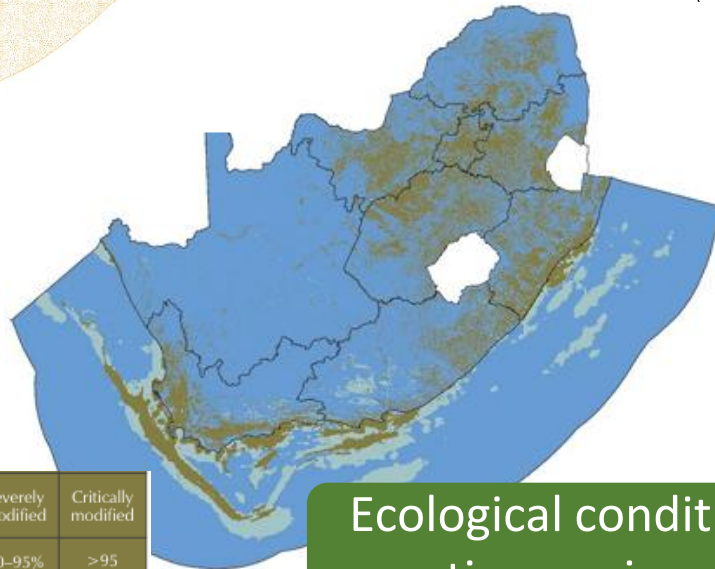
Common data foundations for ecosystem accounting AND spatial biodiversity assessment and planning



Ecosystem types –
historical extent



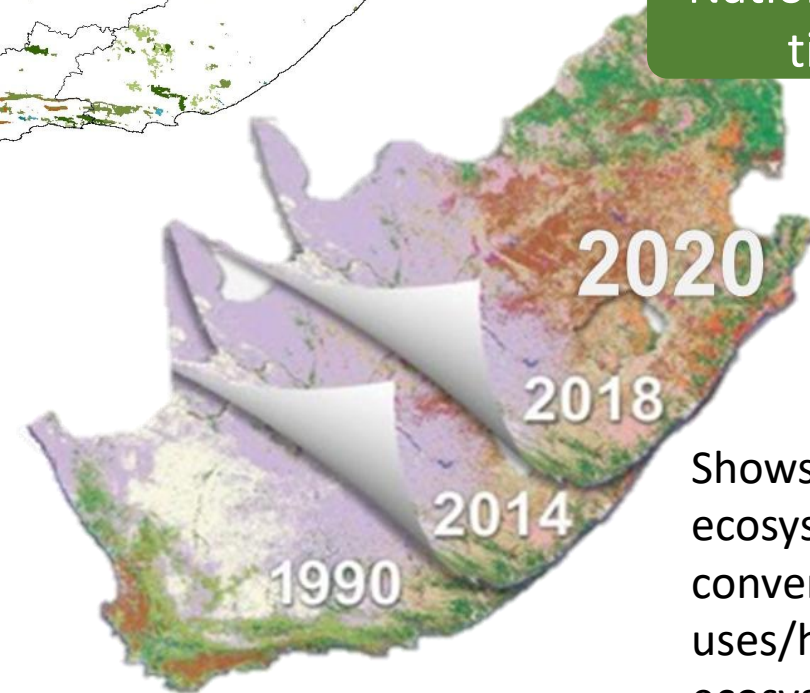
Protected area
time series



Ecological condition
time series

NBA	Natural	Near natural	Moderately modified	Heavily modified	Severely modified	Critically modified
Severity of disruption	<20%	20–50%	50–70%	70–90%	90–95%	>95

Decreasing ecosystem function →

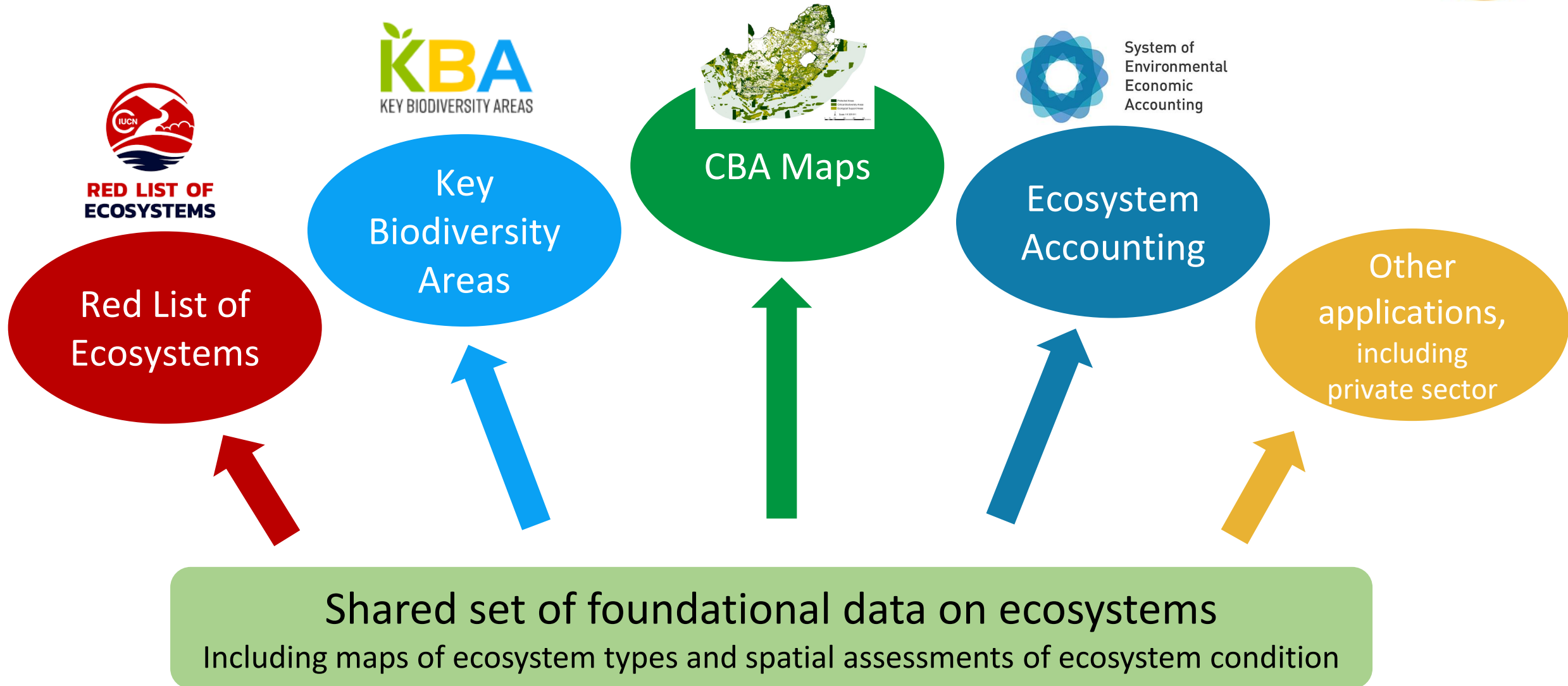


National Land Cover
time series

Shows where natural ecosystems have been converted to intensive uses/human-made ecosystems

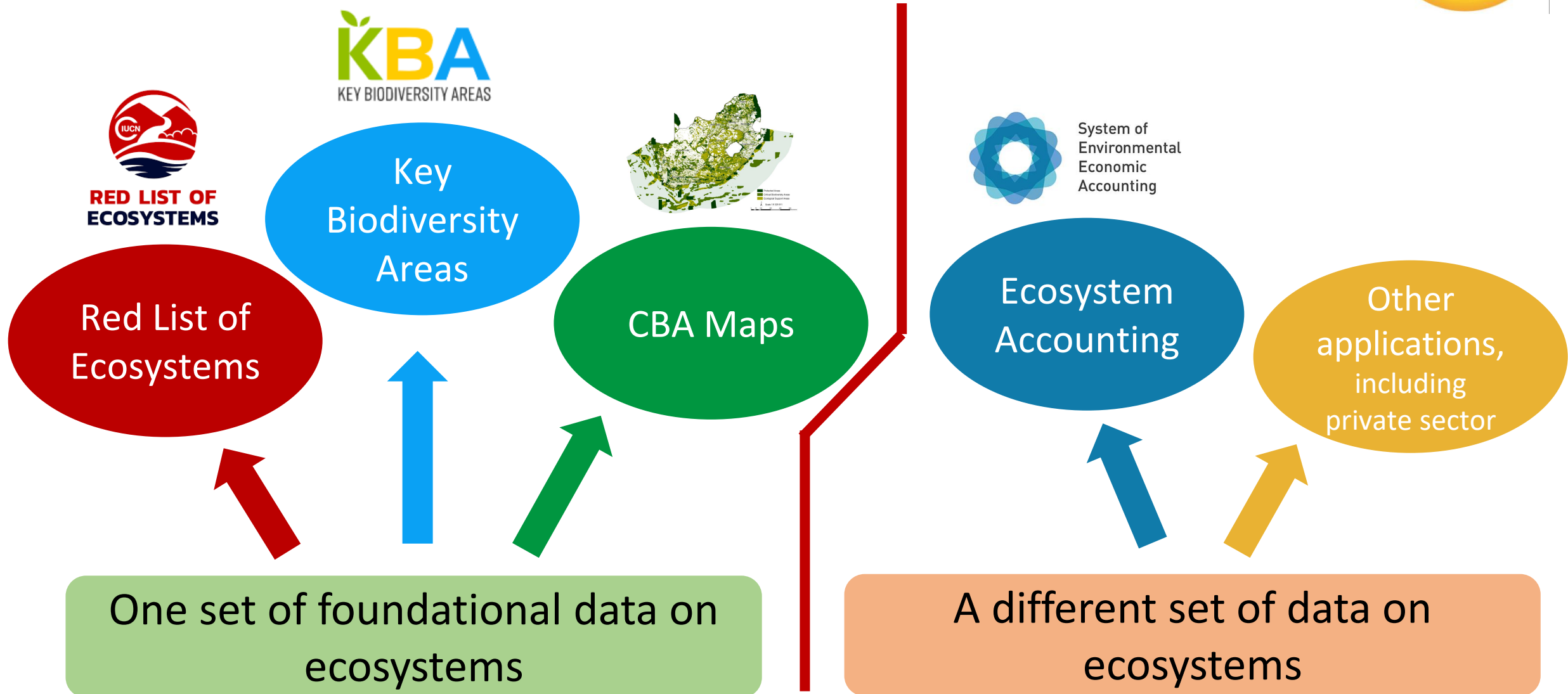
What we want

→ **Co-investment** in ecosystem data foundations for ecosystem accounting, spatial biodiversity assessment and planning, and more



What to avoid

→ Separate or fragmented data foundations on ecosystems



Why does this matter?

- Coherent information to support policy, implementation and monitoring, based on best available science
- Making the most of scarce resources
- Opportunities for shared learning and combining expertise

SBAPP Regional Project

Building biodiversity knowledge for action in Southern Africa:

Spatial Biodiversity Assessment, Prioritization and Planning in South Africa, Namibia, Mozambique and Malawi

Implemented by:

SANBI 
Biodiversity for Life
South African National Biodiversity Institute

With:

MEFT – Namibia
WCS & DINAB – Mozambique
MUST & EAD – Malawi

...and many partners.



Funded by:



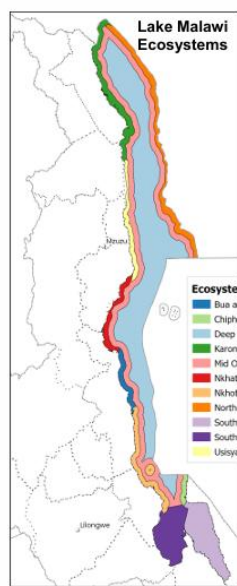
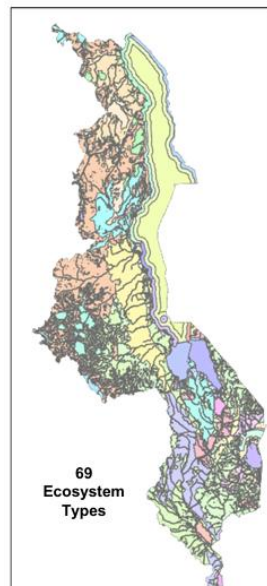
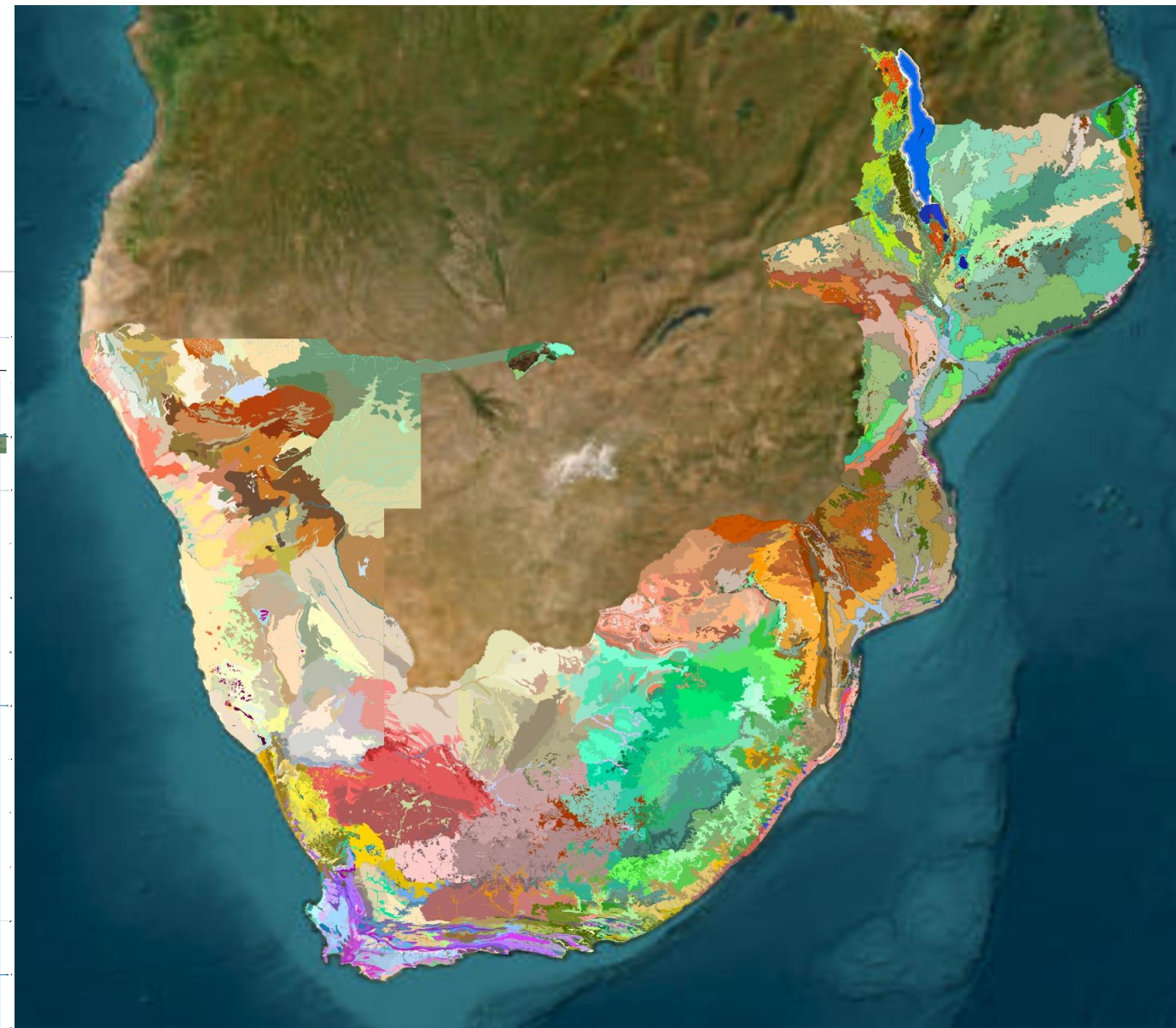
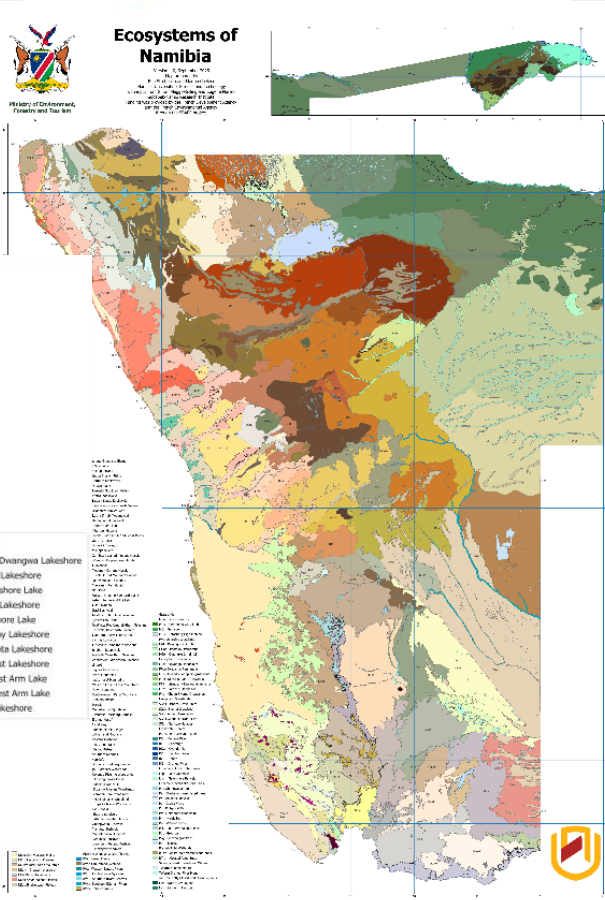
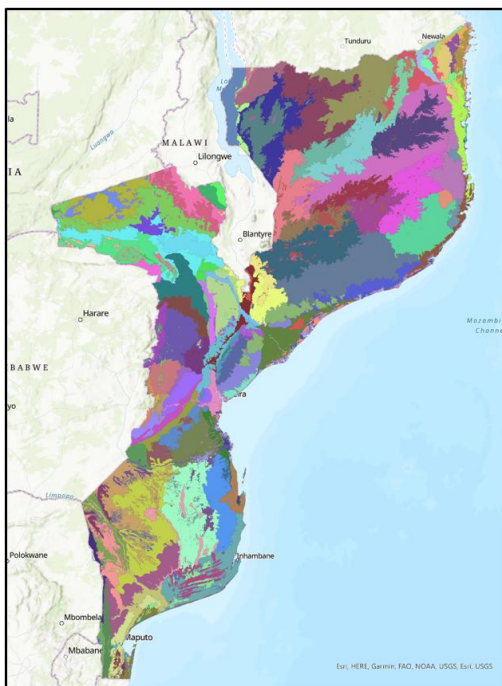
SBAPP:

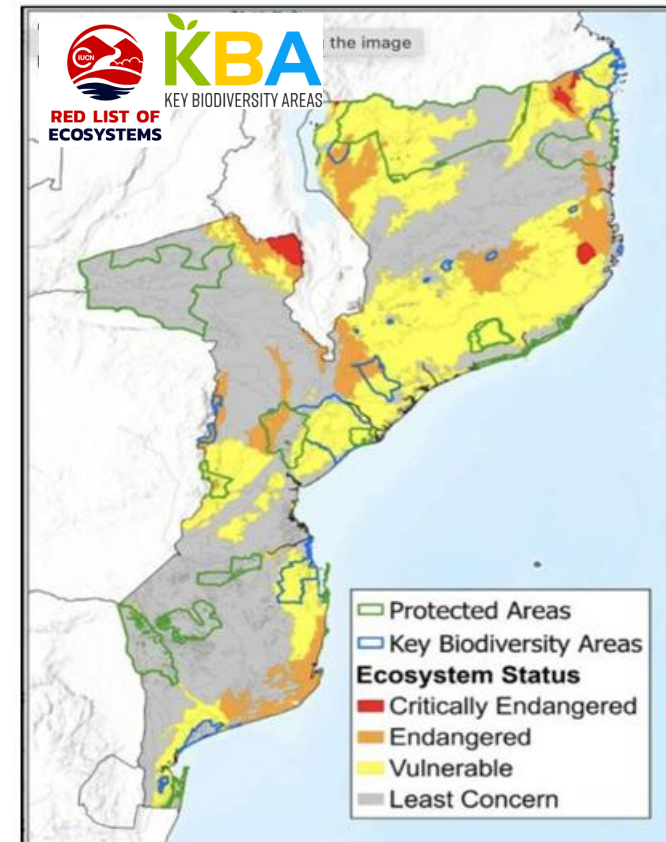
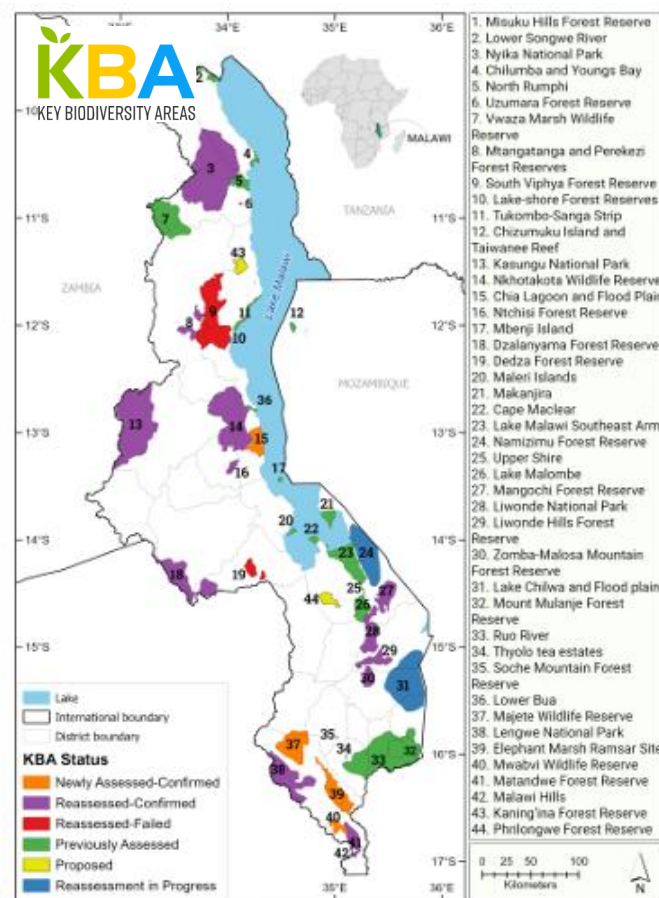
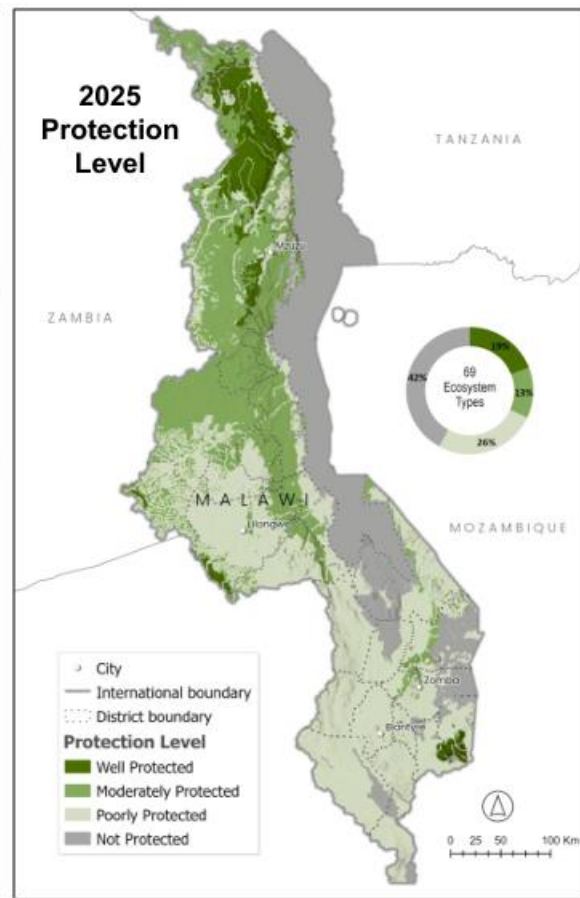
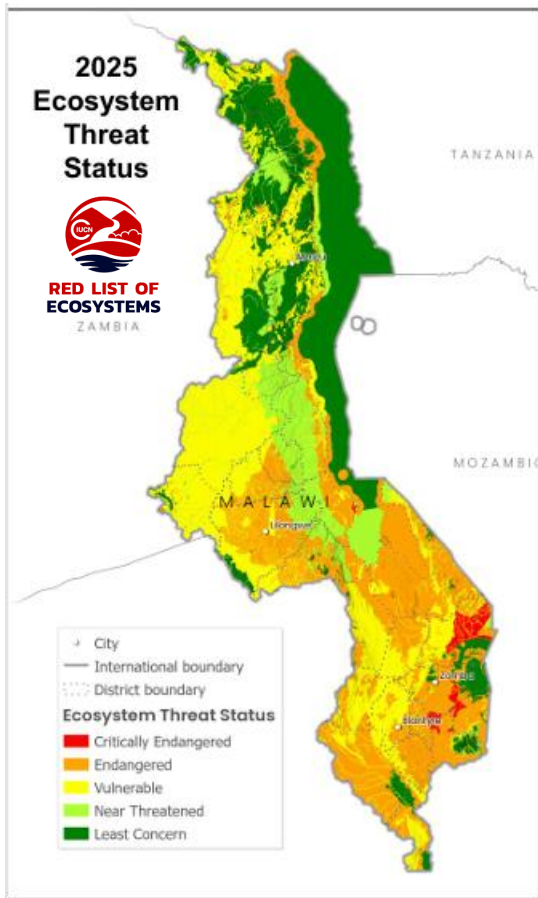
- **Spatial Biodiversity Assessment**
- **Prioritisation**
- **Planning**



Five year project
2022-2027

Foundational data on ecosystem types





Examples of **spatial biodiversity assessment and prioritisation** in Malawi and Mozambique, building on foundational data

... that could equally be used for **ecosystem accounting**

Southern Africa is poised to lead in both NCA *and* spatial biodiversity assessment and planning



Technical & Scientific
Cooperation Centre

SANBI 
Biodiversity for Life
South African National Biodiversity Institute

- SANBI hosts one of 18 regional and subregional centres established under the CBD
 - To help countries access, develop and share the scientific knowledge and technical tools needed to implement the GBF
- **Mechanism for collaboration between NCA and SBAPP communities in the region**

