



agriculture, environmental affairs,
rural development and land reform

Department:
agriculture, environmental affairs,
rural development and land reform .
NORTHERN CAPE PROVINCE
REPUBLIC OF SOUTH AFRICA

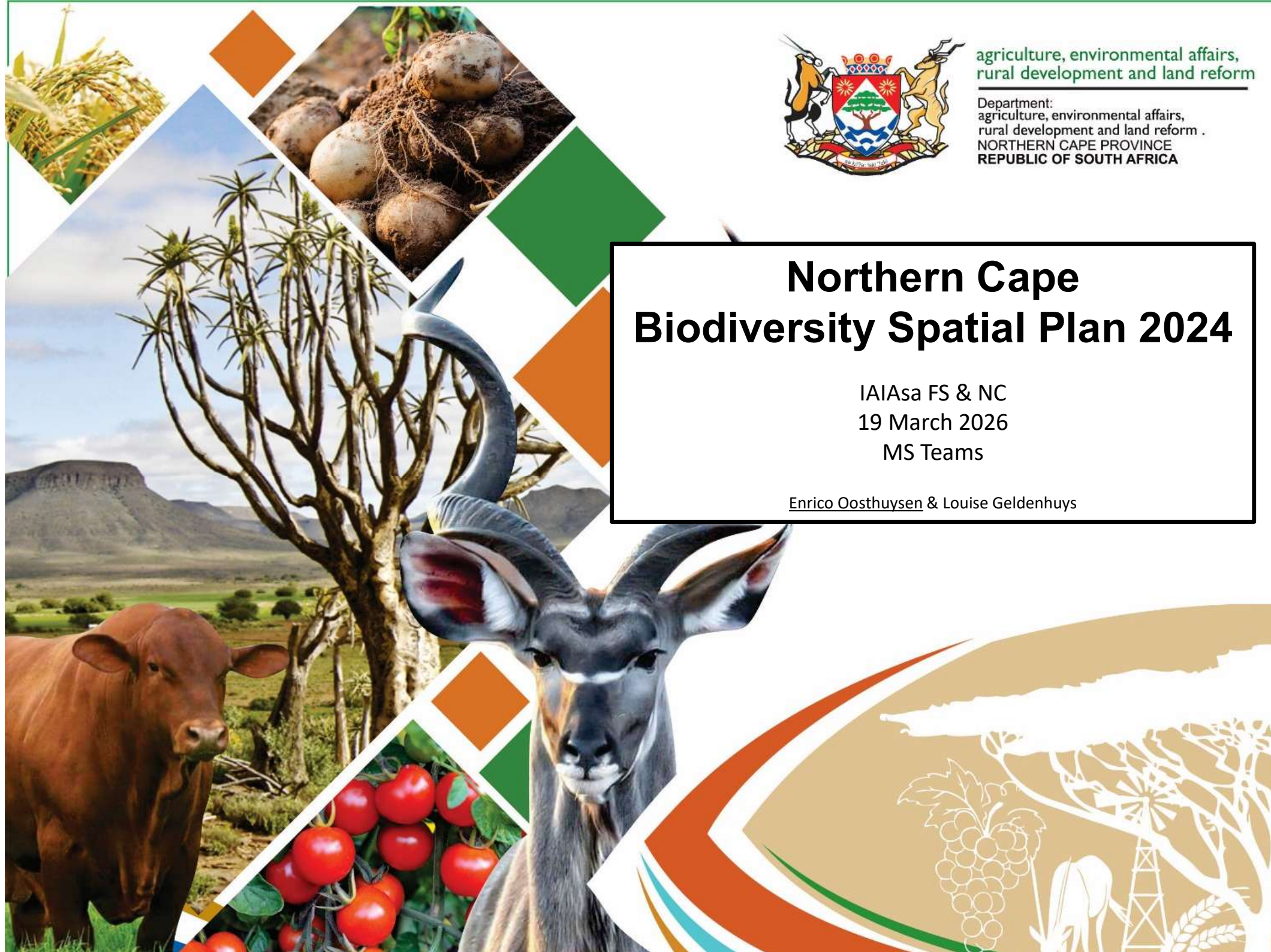
Northern Cape Biodiversity Spatial Plan 2024

IAIAsa FS & NC

19 March 2026

MS Teams

Enrico Oosthuysen & Louise Geldenhuys

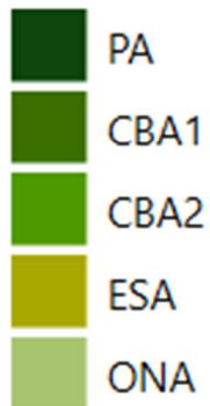


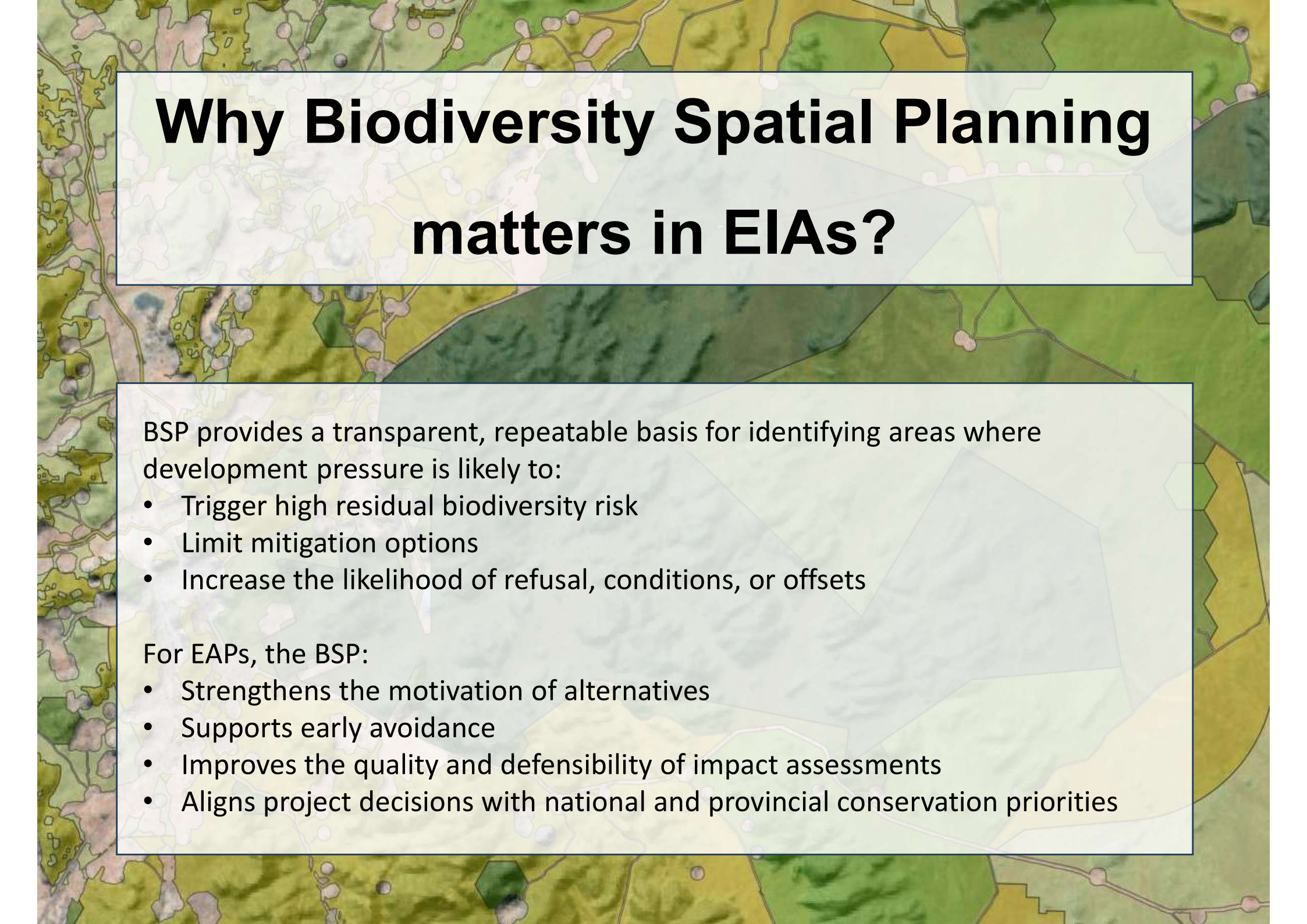
A science-based spatial framework for defensible EIA decision-making

It provides best-available scientific evidence to support:

- Early environmental screening
- Identification of fatal flaws and high-risk sensitivities
- Consistent interpretation of biodiversity significance across EIAs
- Legally defensible avoidance, mitigation, and offset decisions
- Supports competent authority decision-making under NEMA Section 24o

Greater clarity, reduced uncertainty, and fewer surprises later in the process.





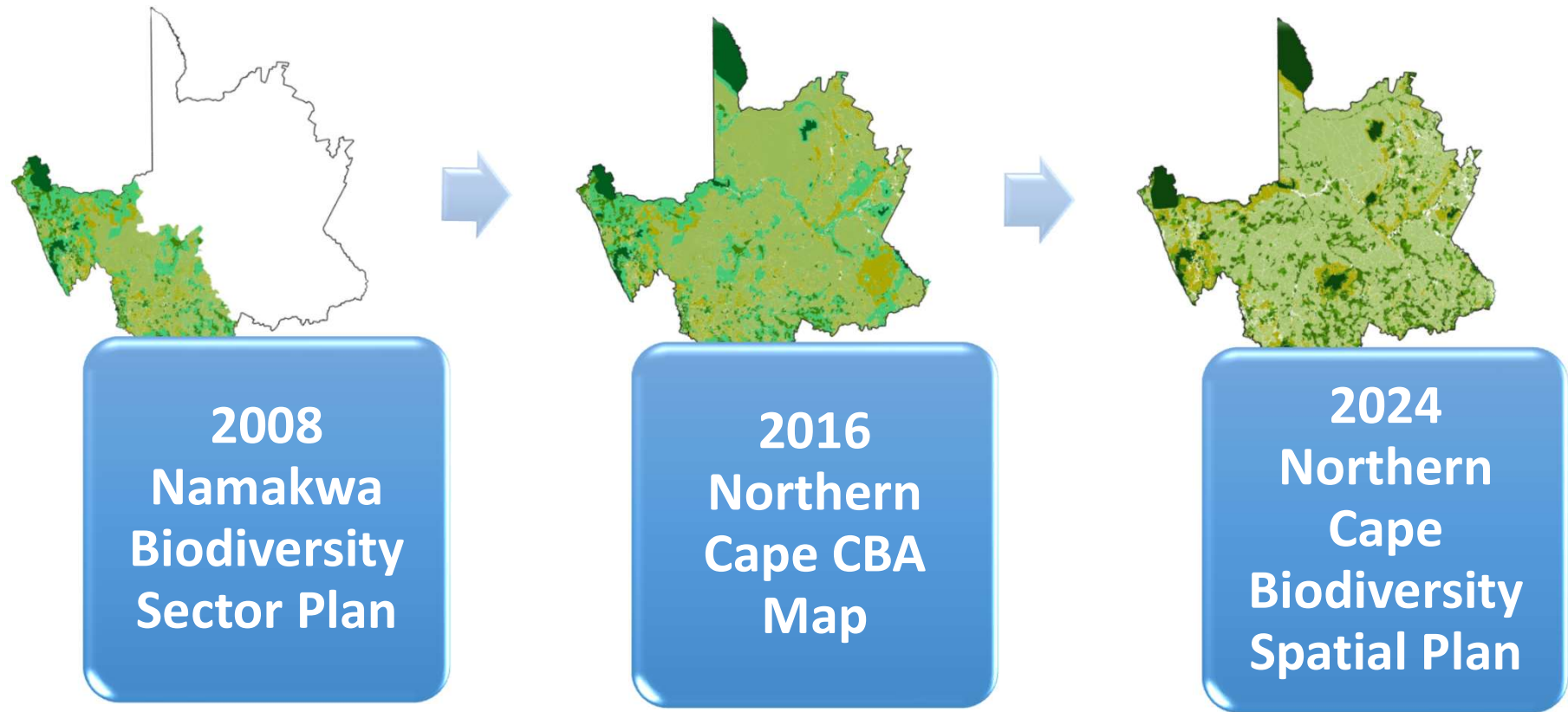
Why Biodiversity Spatial Planning matters in EIAs?

BSP provides a transparent, repeatable basis for identifying areas where development pressure is likely to:

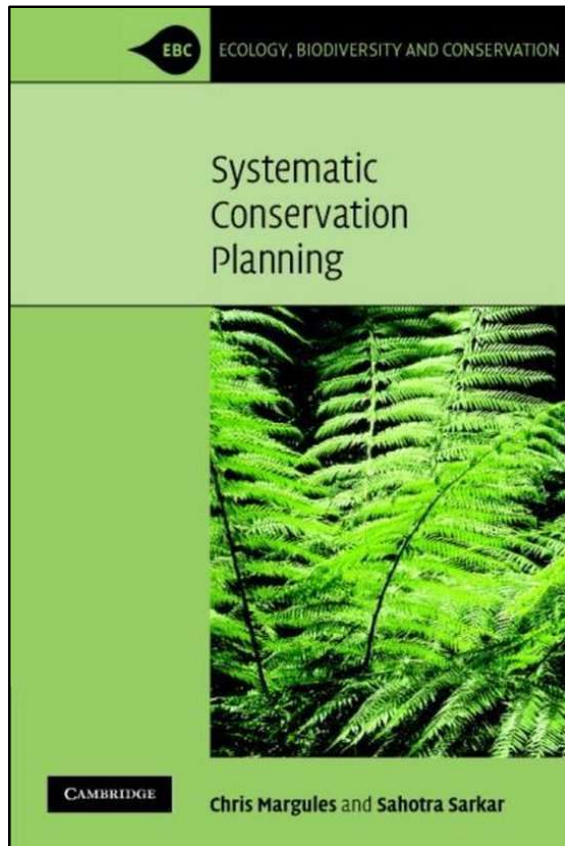
- Trigger high residual biodiversity risk
- Limit mitigation options
- Increase the likelihood of refusal, conditions, or offsets

For EAPs, the BSP:

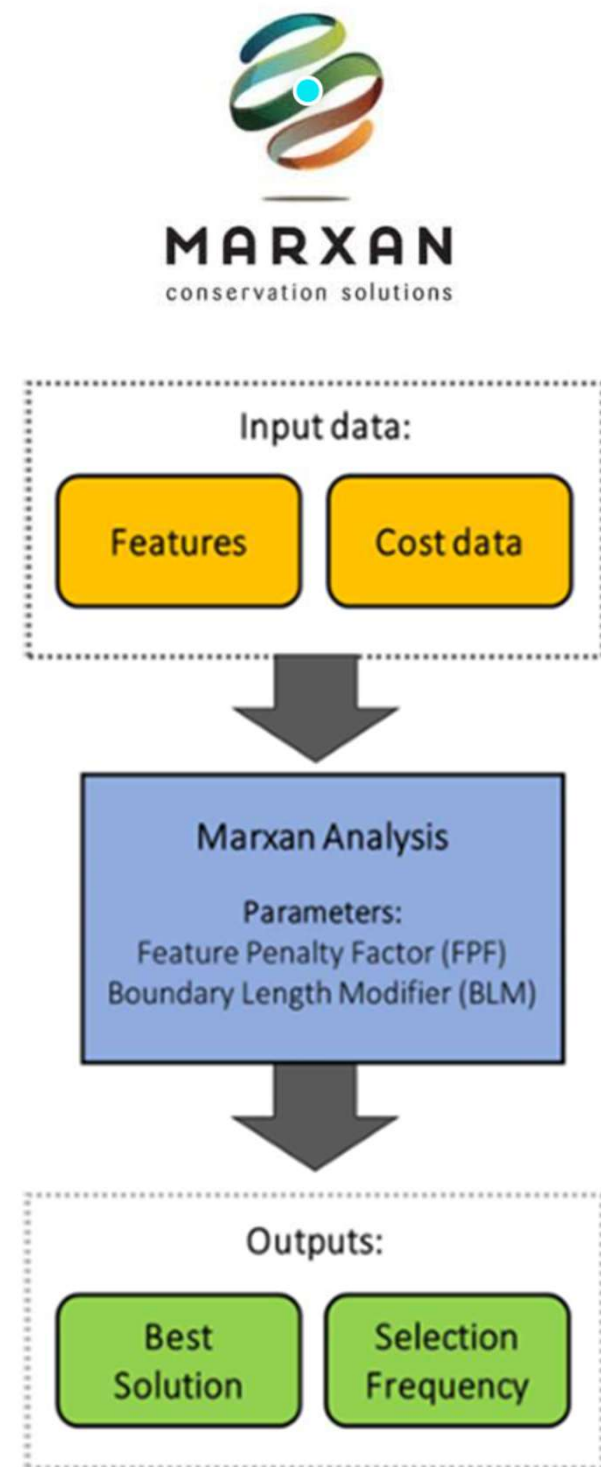
- Strengthens the motivation of alternatives
- Supports early avoidance
- Improves the quality and defensibility of impact assessments
- Aligns project decisions with national and provincial conservation priorities

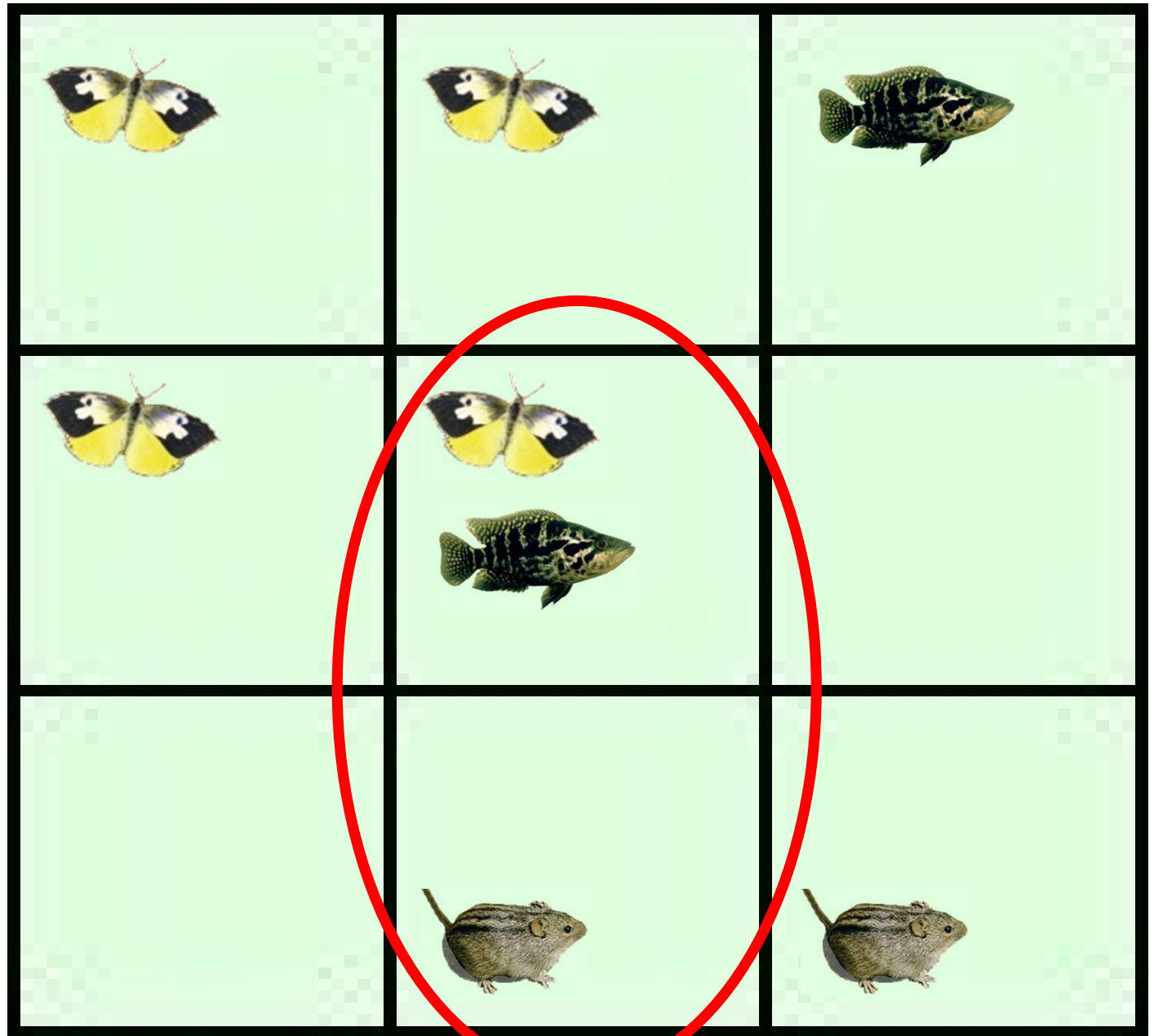


- 1st in-house BSP
- Resolution improved 800%
- Updated & refined datasets
- Improved target setting
- Stronger collaboration

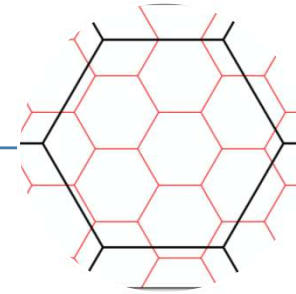
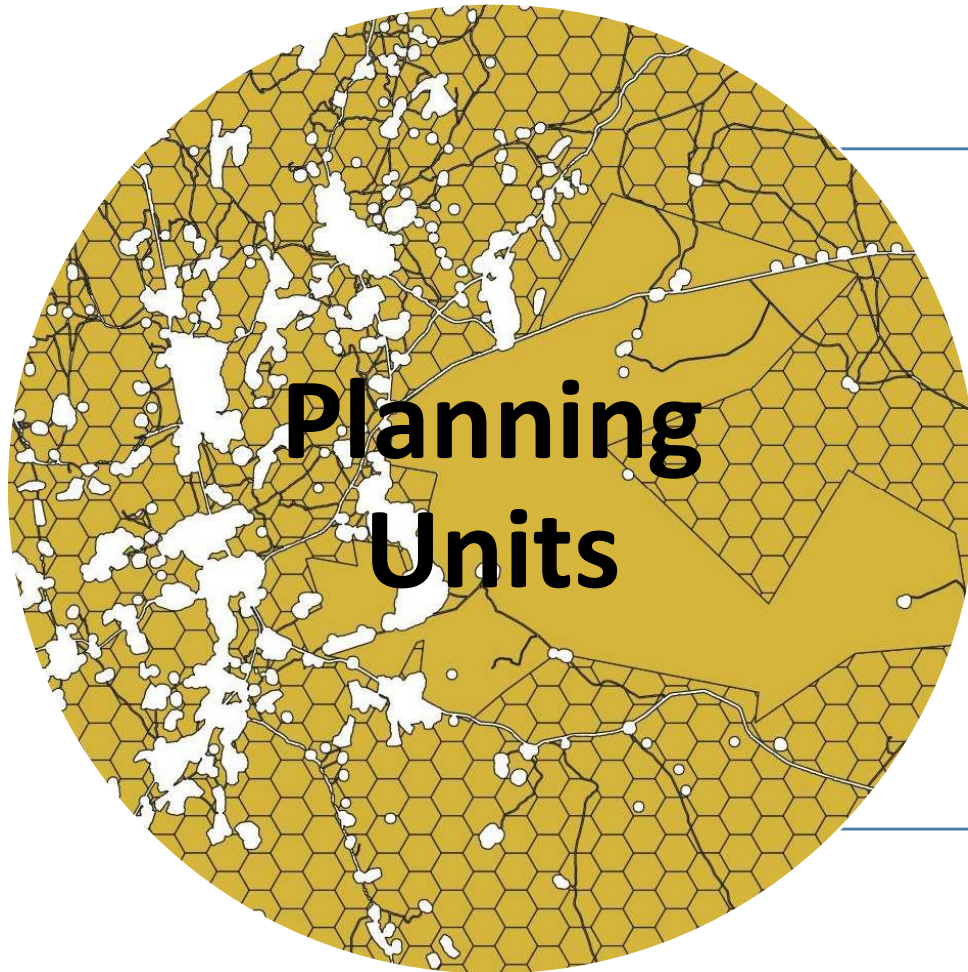


Patterns & Processes

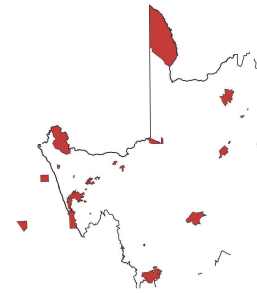




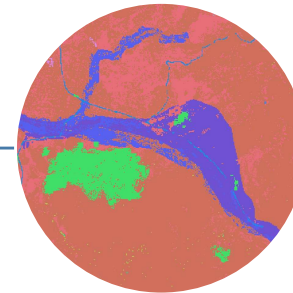
Foundation Layers



Hexagons
Grid
(200ha)



Protected
Areas
(SAPAD)



Land
Cover
(2020)

Land Cover Data (2020)

Roads - 25-50m

Railways – 25m

Artificial water body – 50m

Commercial – 200m

Extraction – 200m

Old fields – 50m

Industrial – 200m

Permanent crops – 200m

Permanent forest – 50m

Residential – 200m

Small holdings – 200m

Surface infrastructure – 200m

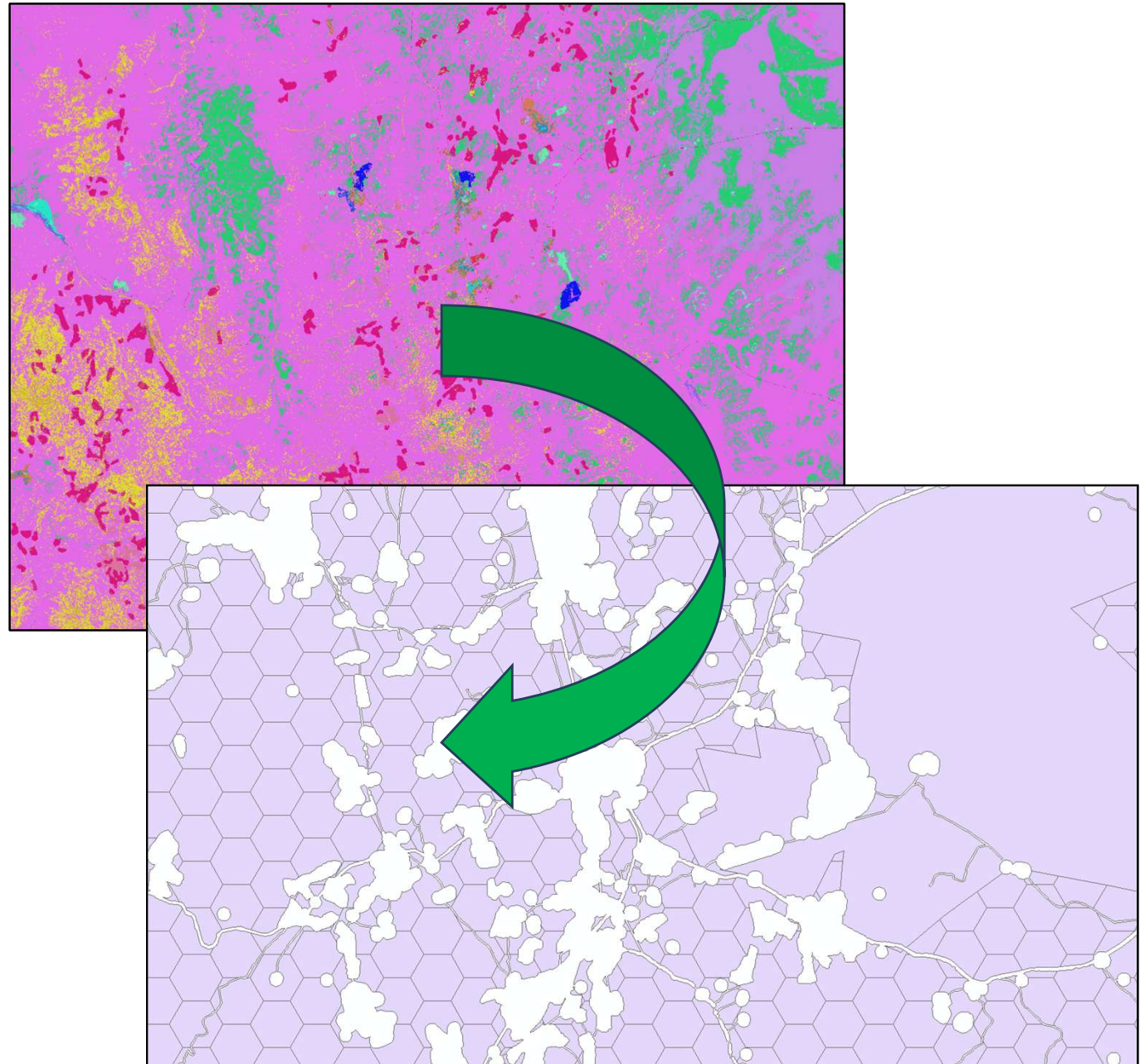
Temporary crops – 200m

Transport – 50m

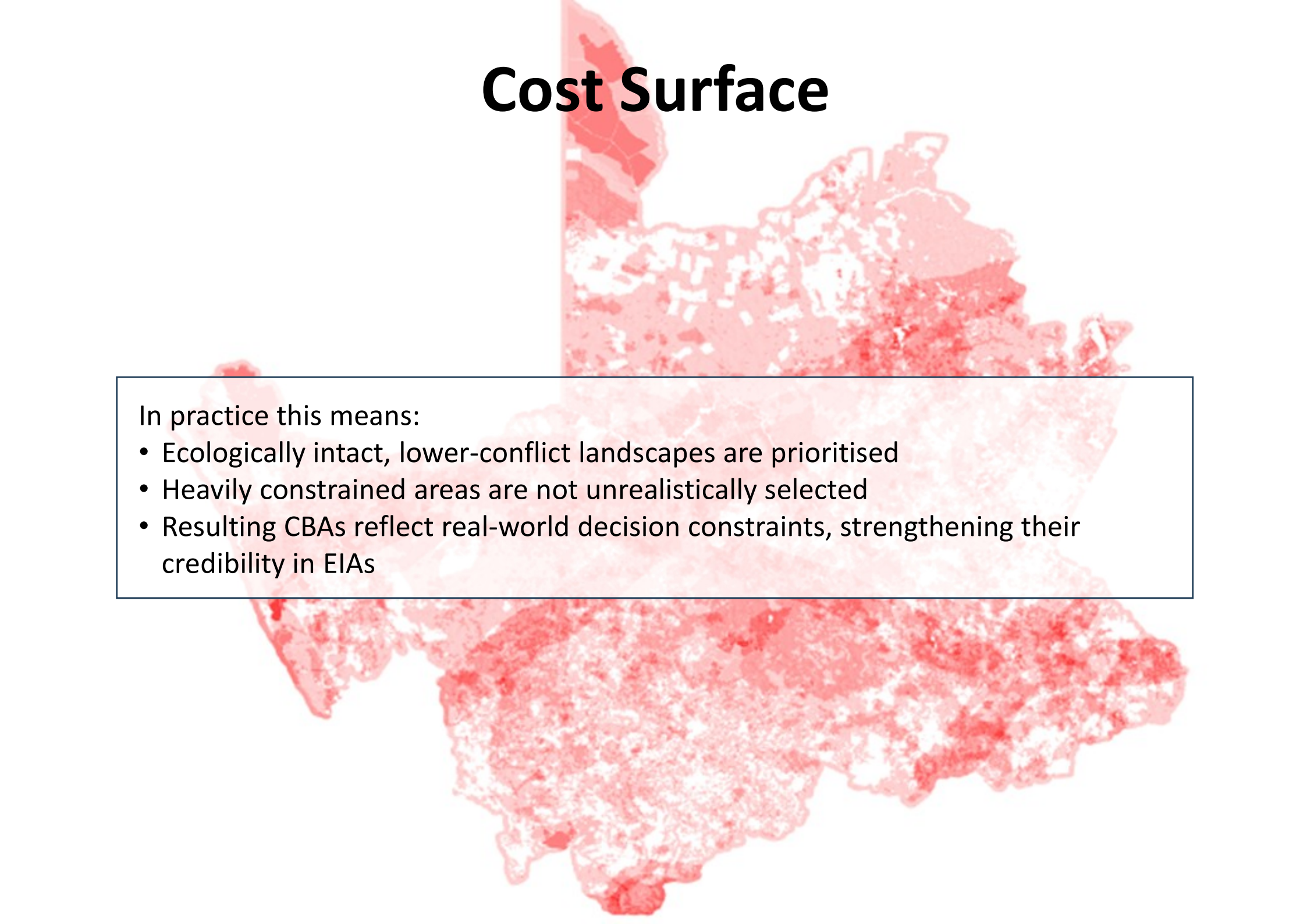
Urban vegetation – 200m

Village – 200m

Dumps – 200m



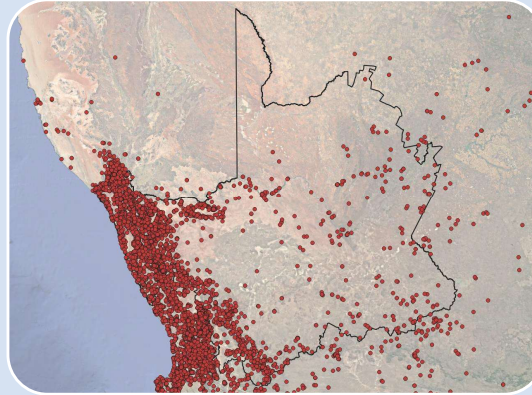
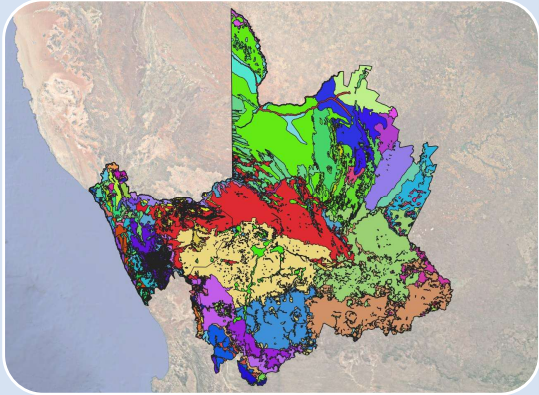
Cost Surface



In practice this means:

- Ecologically intact, lower-conflict landscapes are prioritised
- Heavily constrained areas are not unrealistically selected
- Resulting CBAs reflect real-world decision constraints, strengthening their credibility in EIAs

Biodiversity Features



Ecosystems

- Vegetation Types (123)
- Wetlands (63)
- Estuaries (5)
- Rivers

ESA

Species

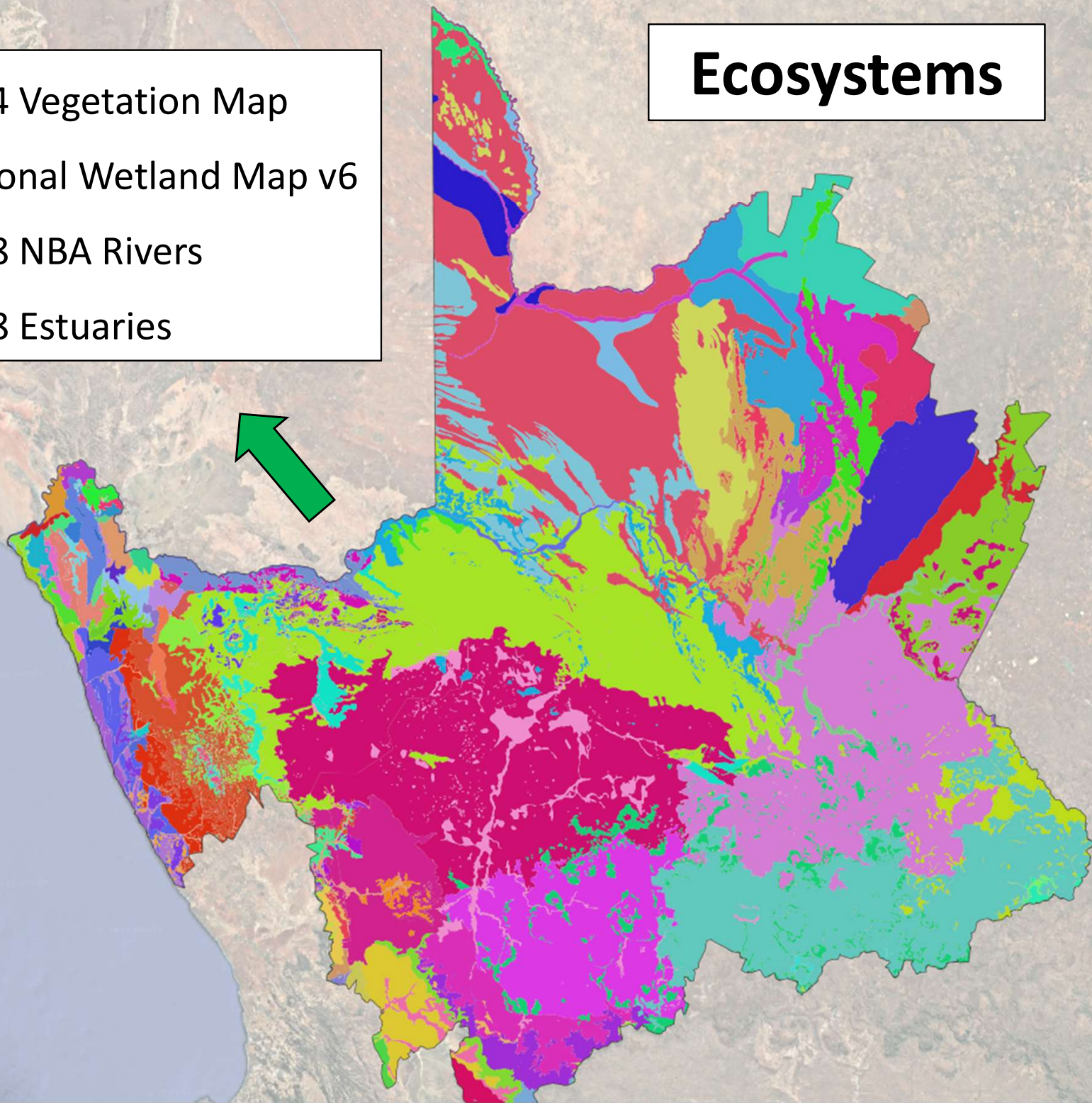
- Birds (22)
- Mammals (4)
- Plants (722)
- Reptiles (3)
- Butterflies (2)
- Fish (2)

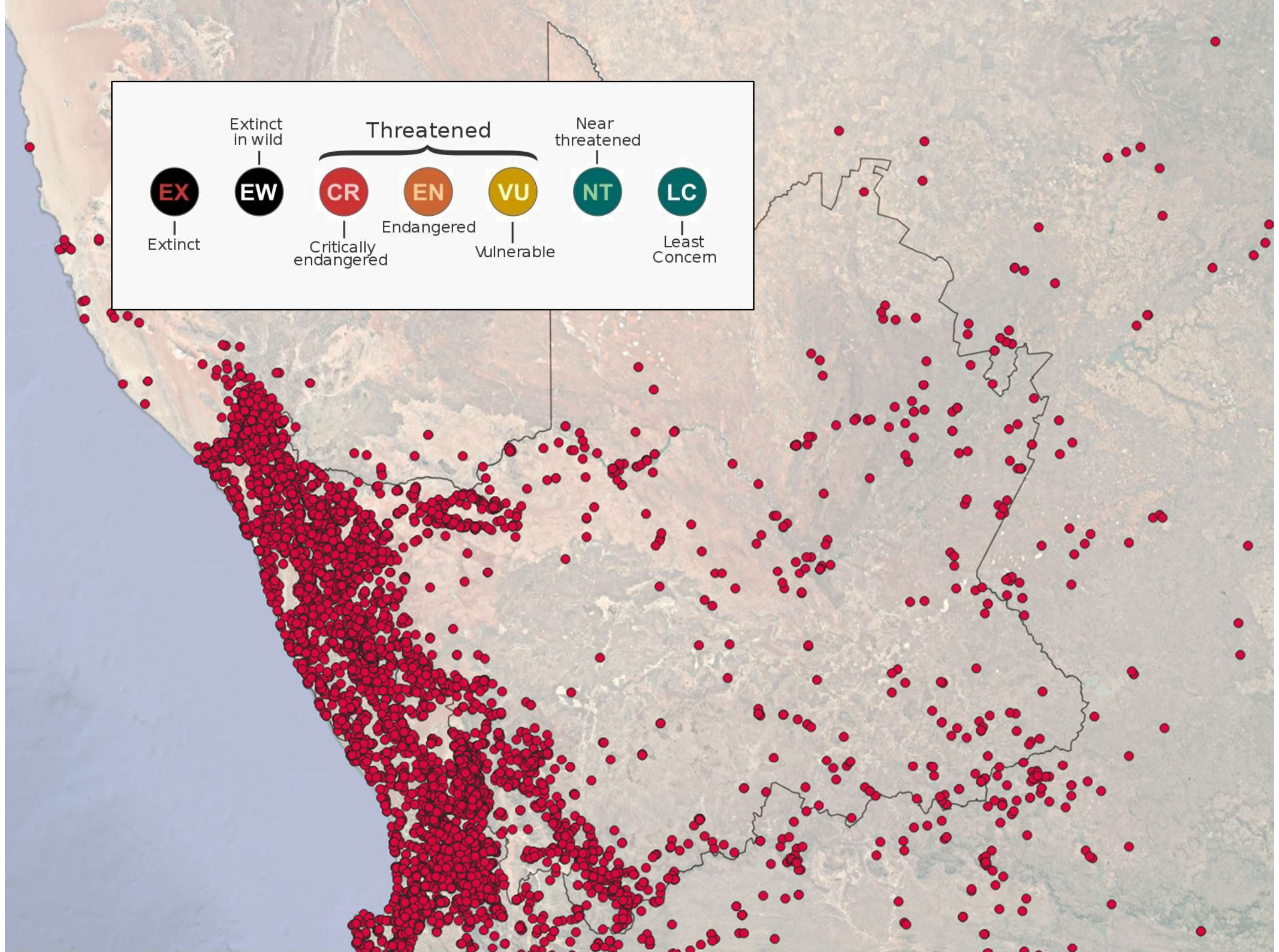
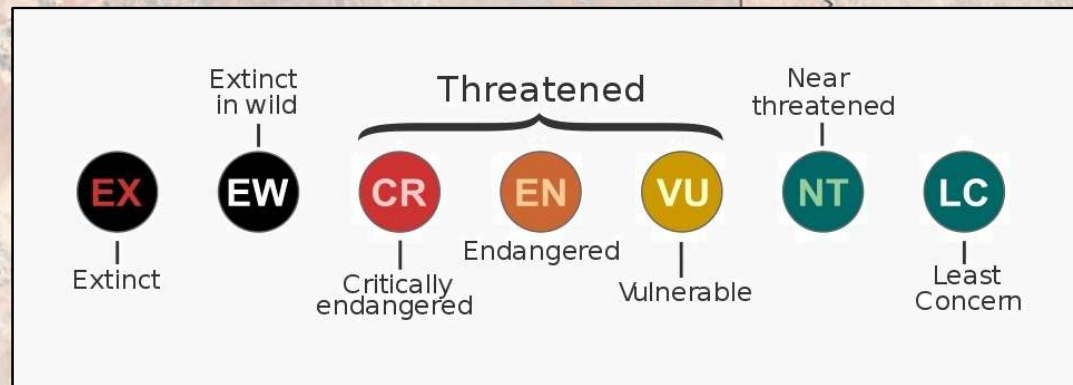
Ecological Infrastructure

- Orange River
- Vaal River

Ecosystems

- 2024 Vegetation Map
- National Wetland Map v6
- 2018 NBA Rivers
- 2018 Estuaries



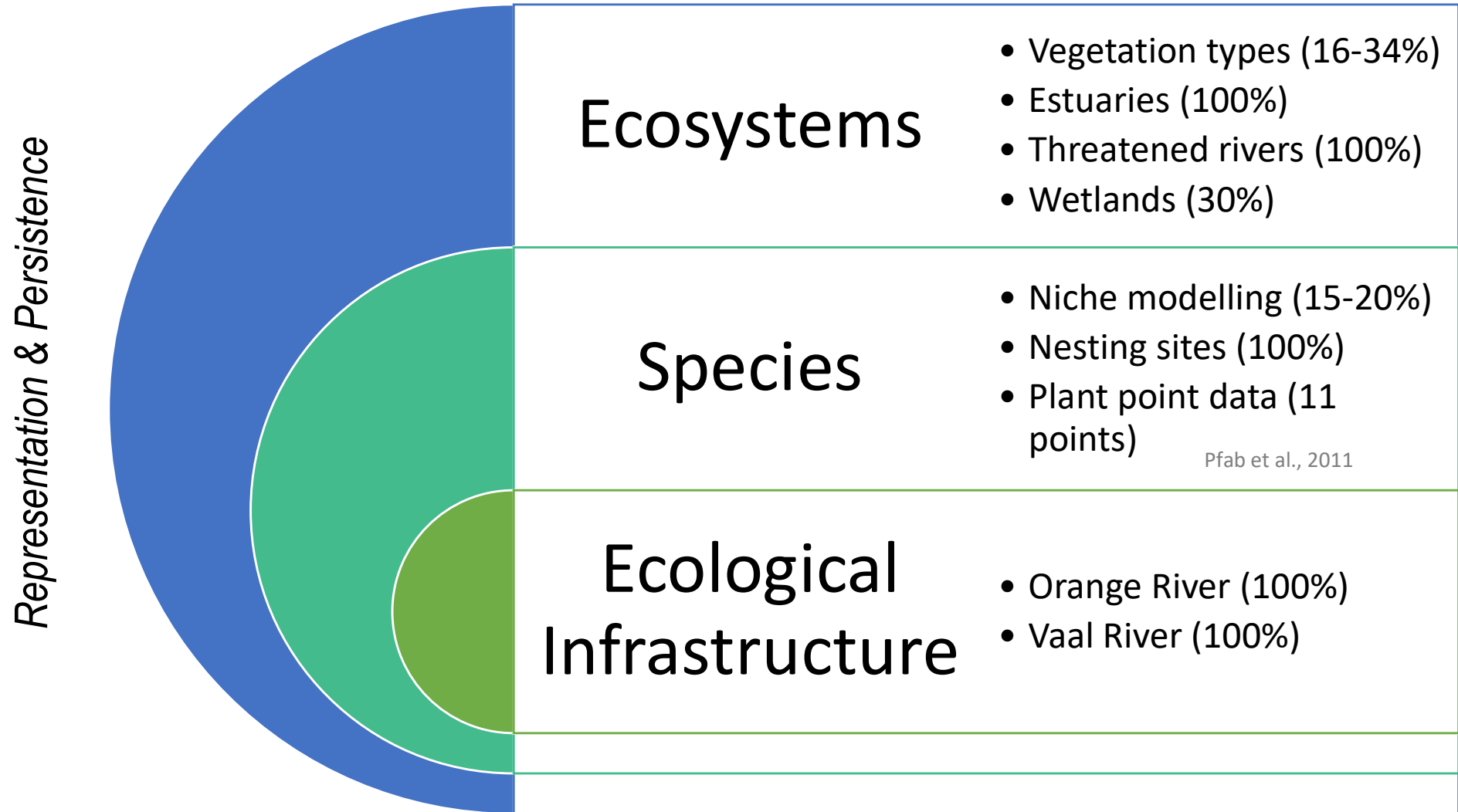


Ecological Infrastructures

- Lower & Upper Gariep Alluvial Vegetation
- Orange River Buffer 500m
- Vaal River Buffer 500m

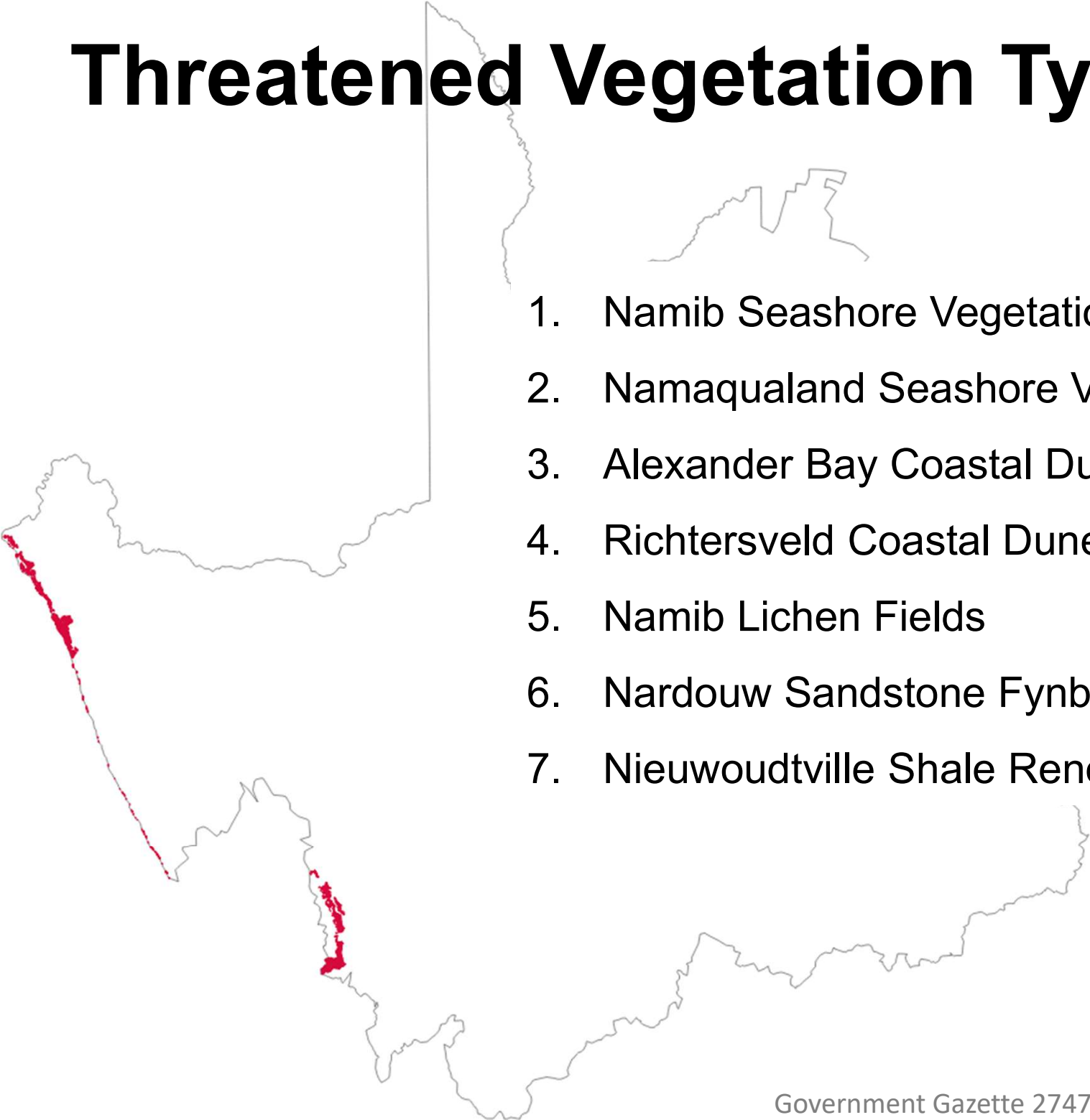


Targets

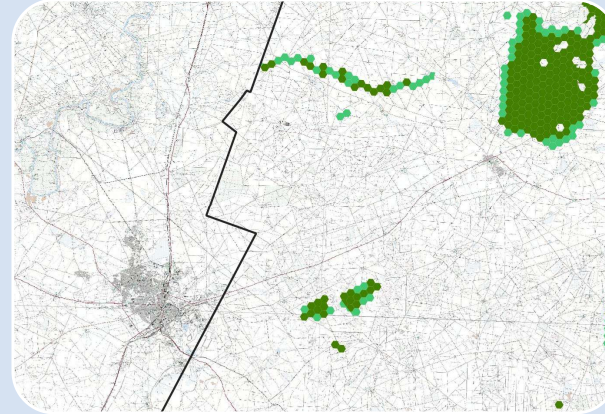
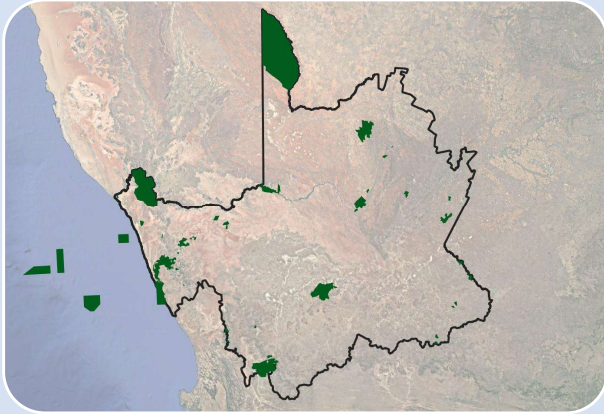




Threatened Vegetation Types

- 
- A map of Namibia with its coastline and major rivers outlined in grey. Two specific coastal areas are highlighted in red: a long, narrow strip along the western coast and a smaller, more irregular area further south along the coast.
1. Namib Seashore Vegetation
 2. Namaqualand Seashore Vegetation
 3. Alexander Bay Coastal Duneveld
 4. Richtersveld Coastal Duneveld
 5. Namib Lichen Fields
 6. Nardouw Sandstone Fynbos
 7. Nieuwoudtville Shale Renosterveld

Discount Features



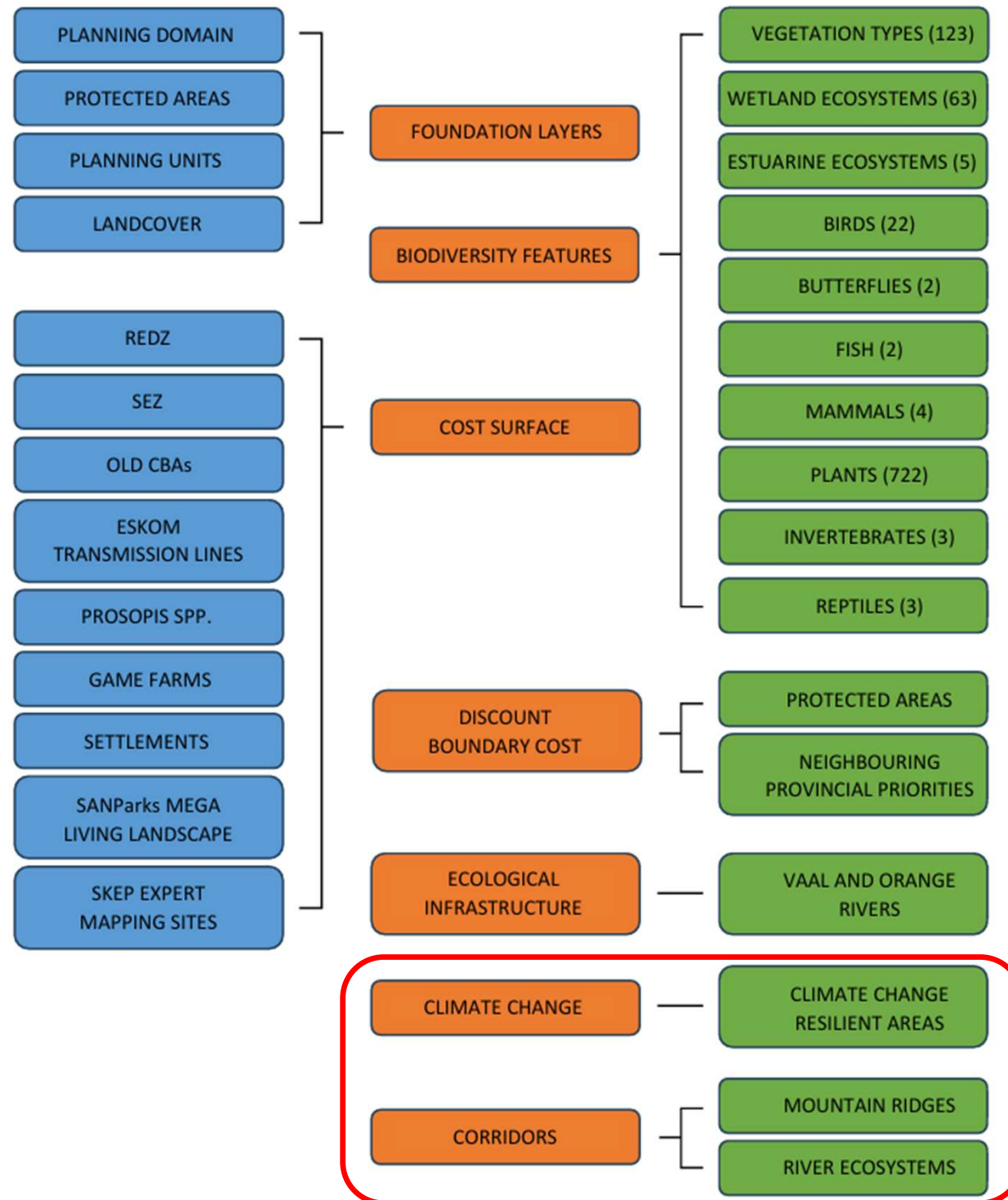
Protected Areas

- National Parks
- Nature Reserves
- Protected Environments
- World Heritage Sites
- Forest Nature Reserves

Neighbouring Priorities

- North West
- Free State
- Eastern Cape
- Western Cape
- Coastal Ecosystems

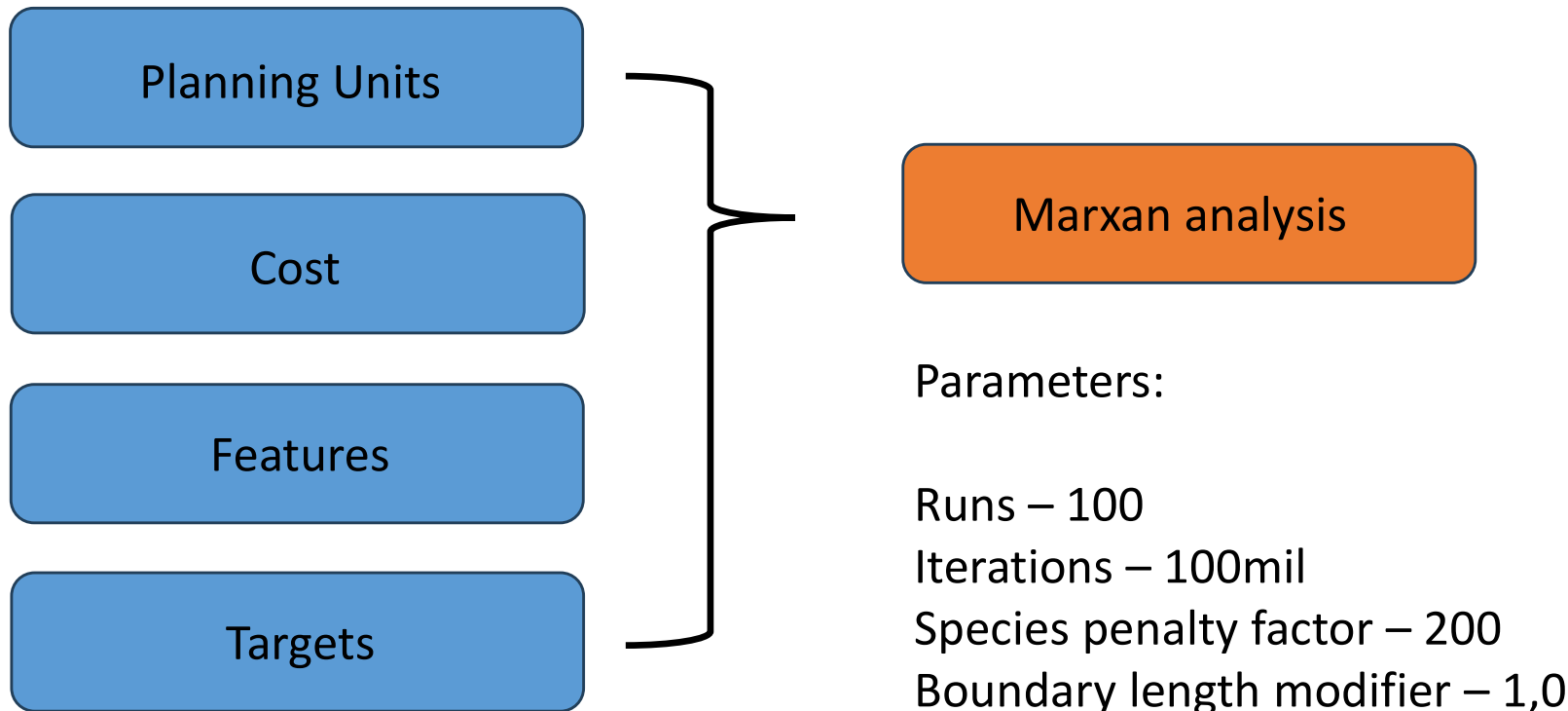
Input data - Marxan Model



ESA

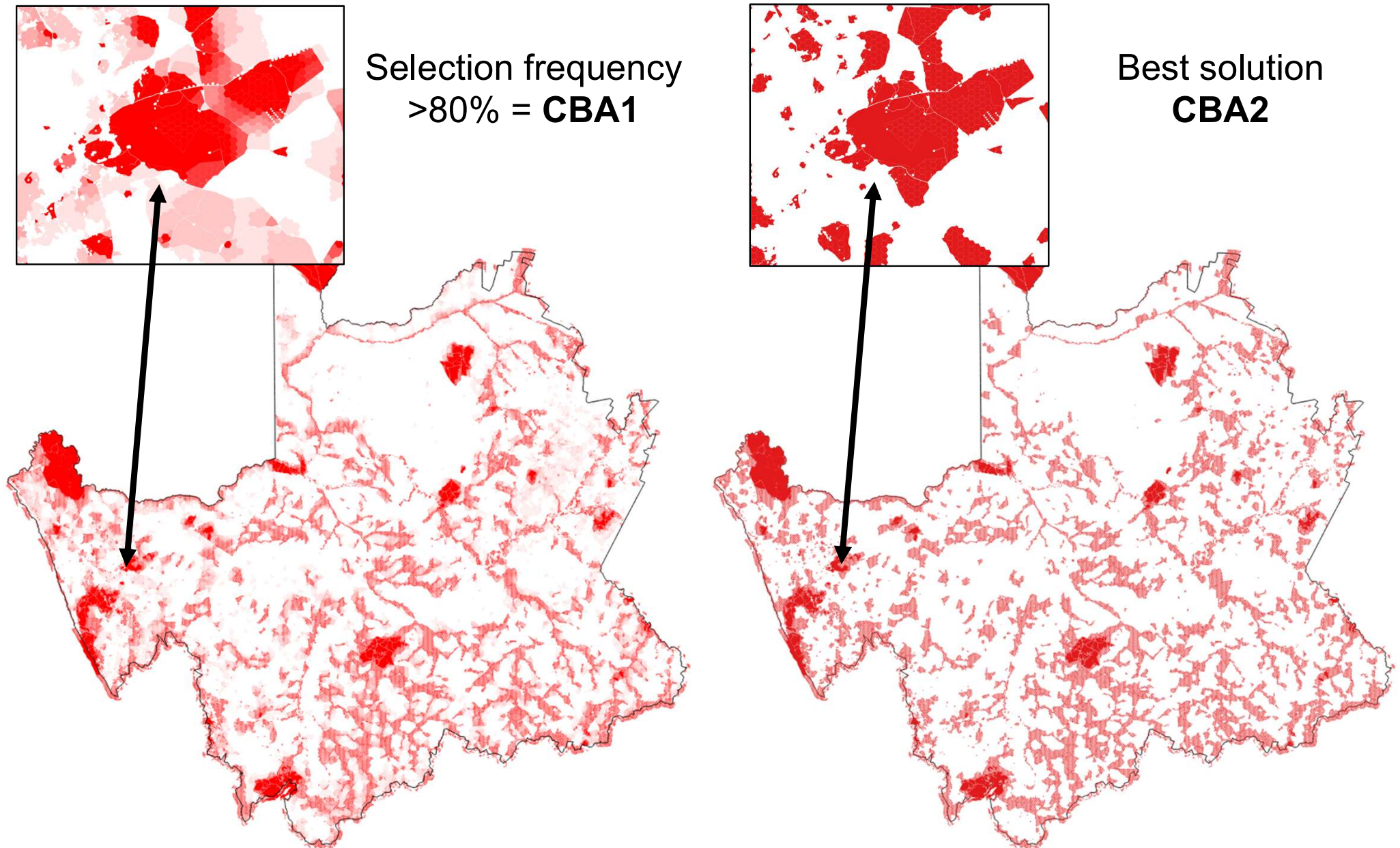
Marxan Workflow

Input data:



$$\sum_{PUs} Cost + BLM \sum_{PUs} Boundary + \sum_{PUs} SPF \times Penalty + CostThresholdPenalty(t)$$

Marxan Output



CBA classes should always be interpreted alongside site-specific verification, but they provide a reliable early signal of regulatory risk.

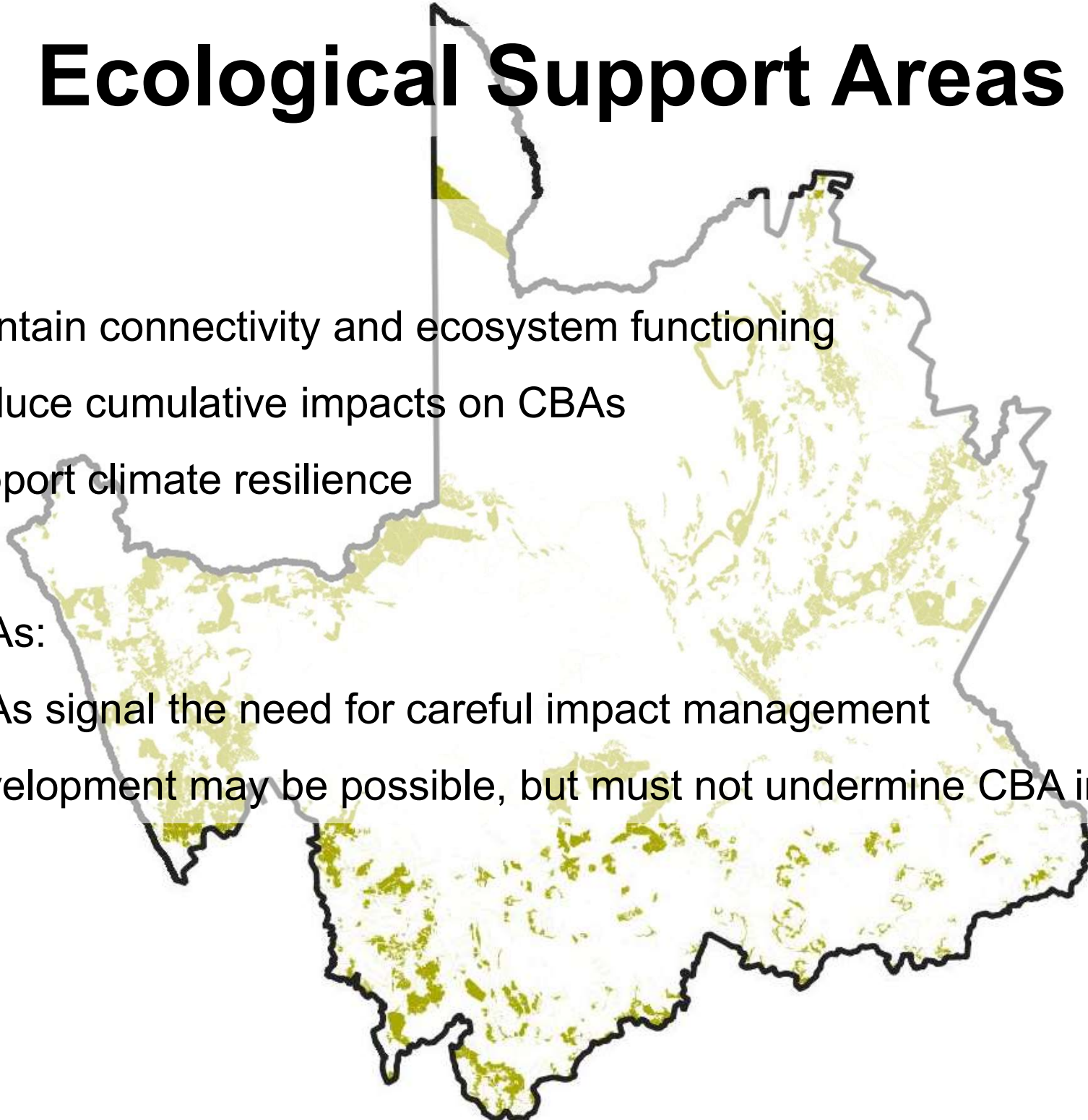
Ecological Support Areas

ESAs:

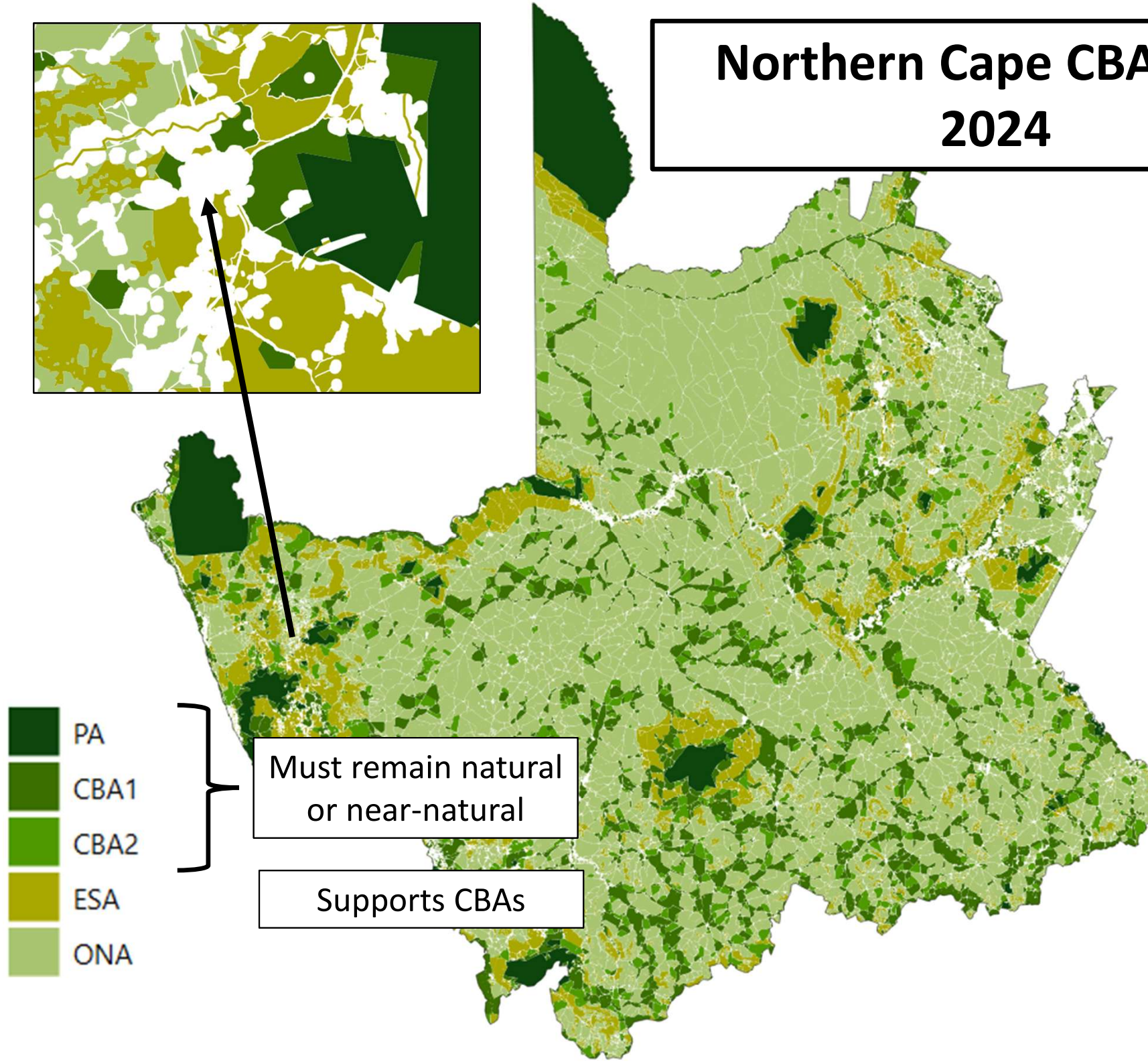
- Maintain connectivity and ecosystem functioning
- Reduce cumulative impacts on CBAs
- Support climate resilience

For EIAs:

- ESAs signal the need for careful impact management
- Development may be possible, but must not undermine CBA integrity

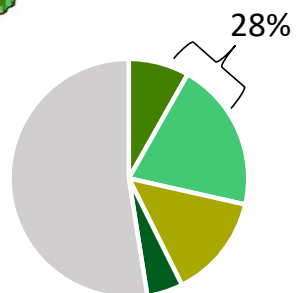
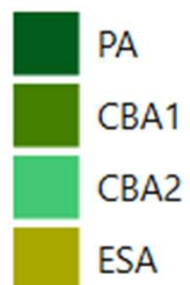
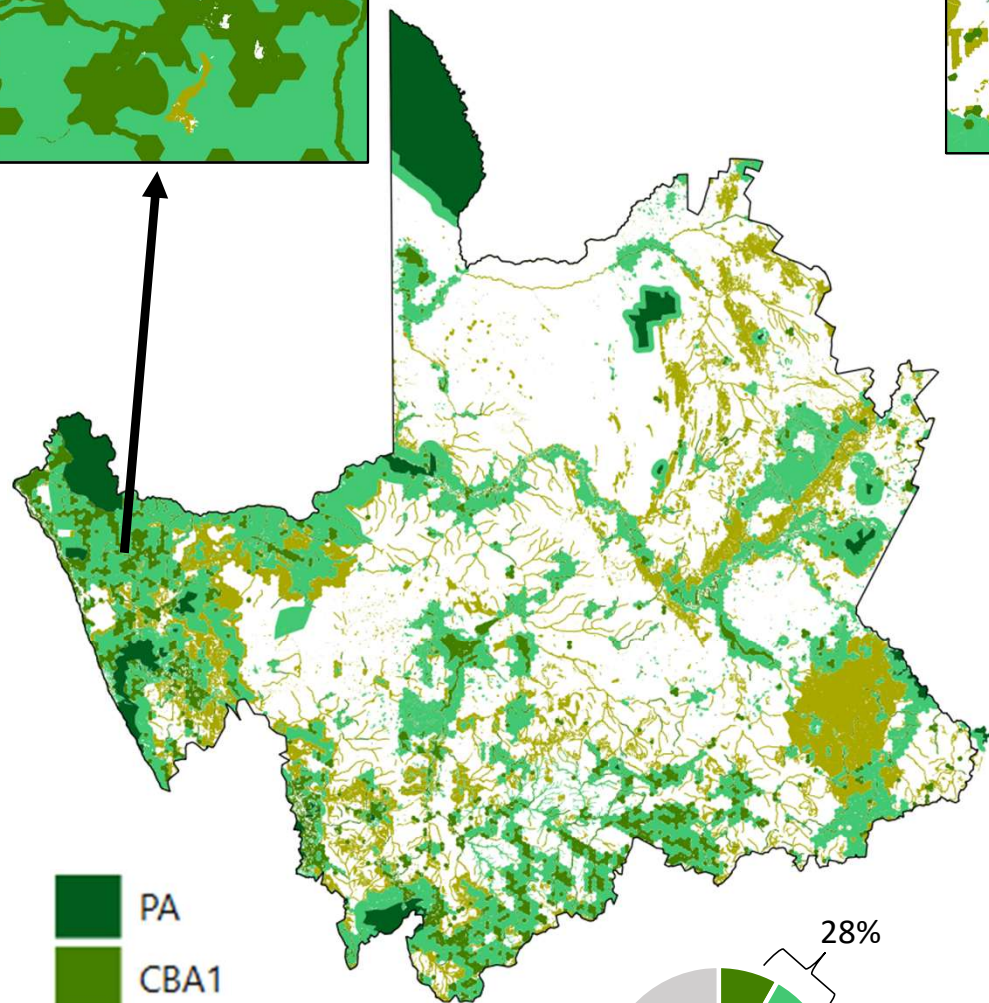


Northern Cape CBA Map 2024

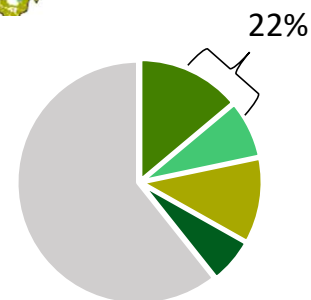
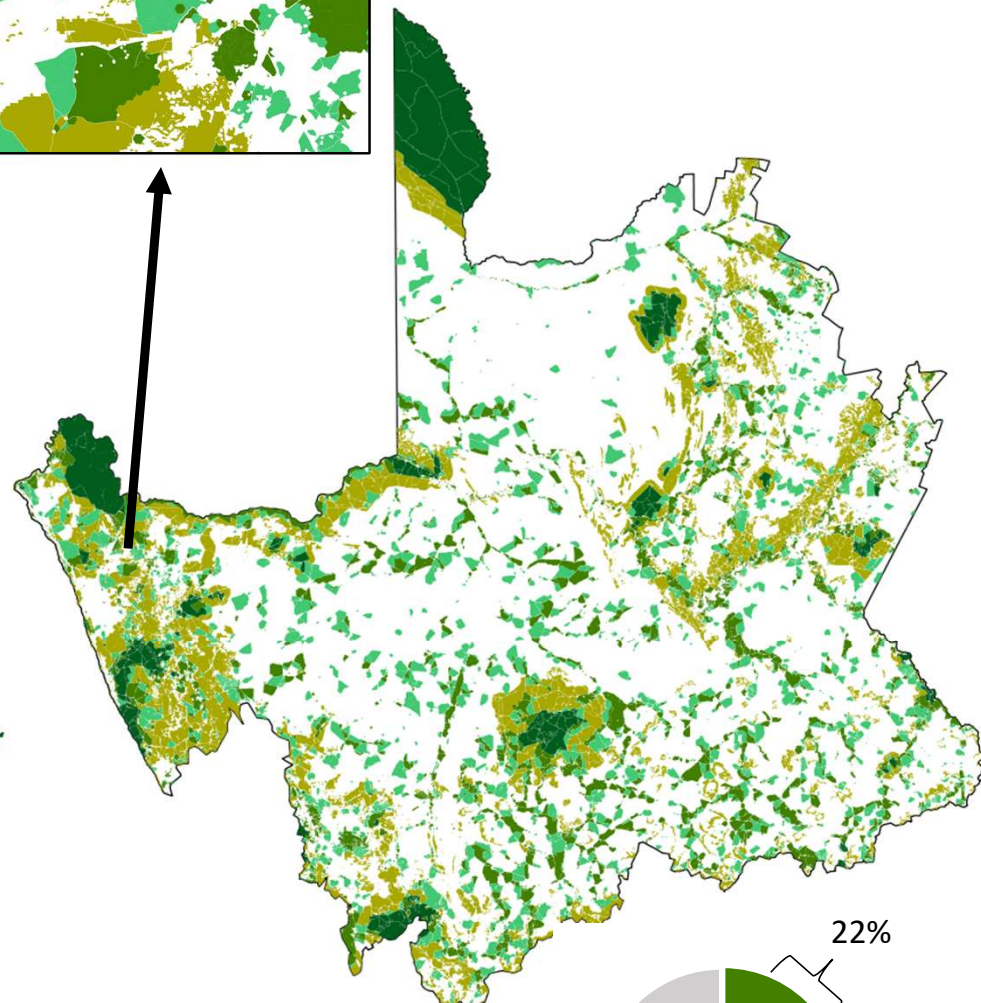


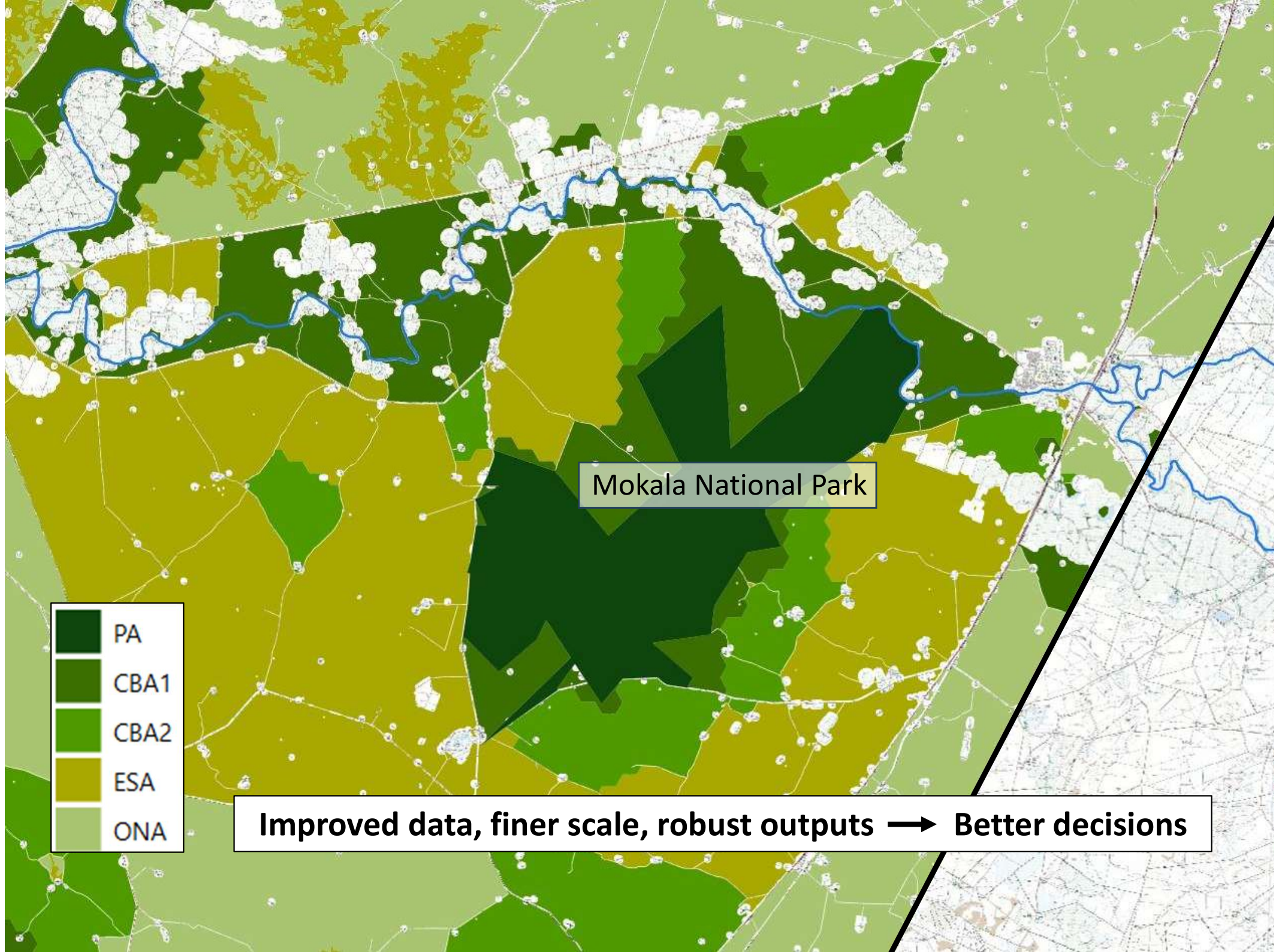
Spatial framework for a resilient, biodiverse Northern Cape

2016

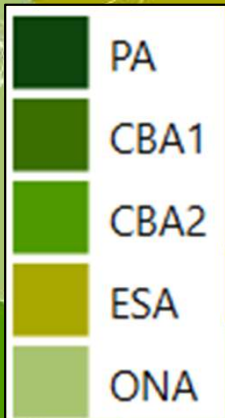


2024





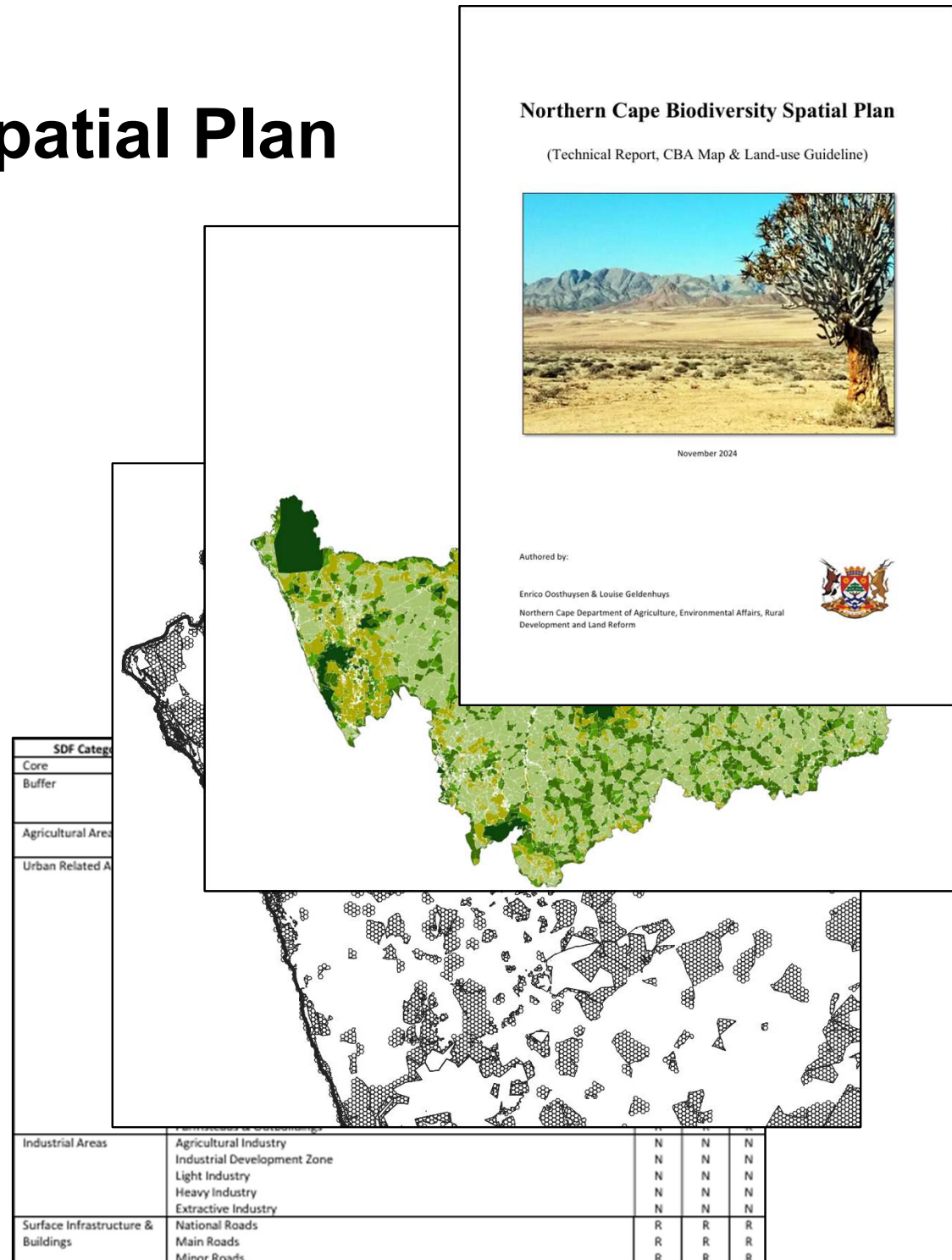
Mokala National Park



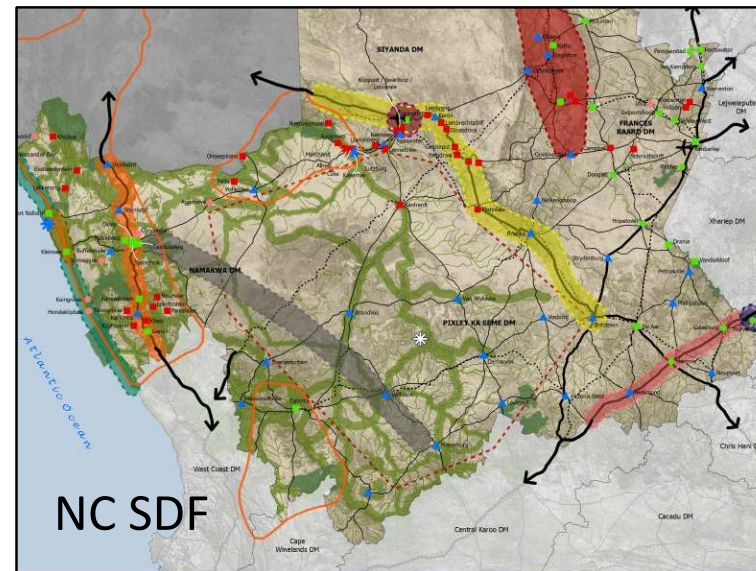
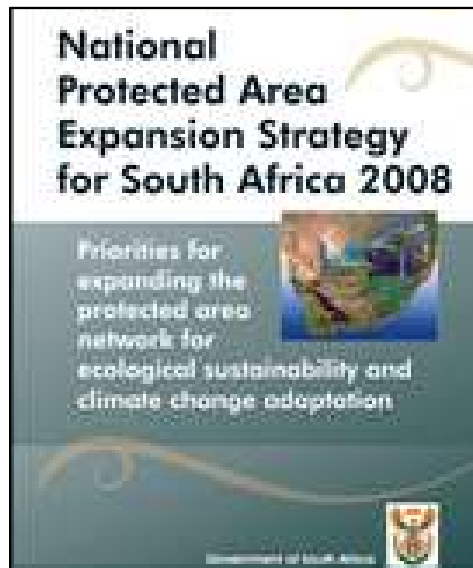
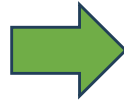
Improved data, finer scale, robust outputs → Better decisions

NC Biodiversity Spatial Plan 2024

“It’s not just a map - it’s a
decision-making compass
for conservation,
development, and resilience.”



How the BSP Shapes Real Decisions



It's where science meets policy – where maps become meaningful action



forestry, fisheries
& the environment

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



NATIONAL WEB BASED ENVIRONMENTAL SCREENING TOOL

Welcome to the National Screening Tool

The National Web based Environmental Screening Tool is a geographically based web-enabled application that allows a proponent intending to submit an application for environmental authorisation in terms of the Environmental Impact Assessment (EIA) Regulations 2014, to screen their proposed site for any environmental sensitivity.

The Screening Tool also provides site specific EIA process and review information. The Screening Tool may identify if an industrial development zone, minimum information requirement, Environmental Management Framework or Regional plan applies to a specific area.

Some of these documents can then be accessed through the Screening Tool via links, for consideration during screening.

Further to this, the Screening Tool identifies the specific requirements including specialist studies applicable to the proposed site and/or development, based on the national environmental management system and the environmental sensitivity of the site.

Finally, the Screening Tool generates a Screening Report referred to in Regulation 16(1)(v) of the Environmental Impact Assessment Regulations 2014, and as such a Screening Report is required to accompany any application for Environmental Authorisation and as such the tool has been developed in a manner that is user friendly and no specific software or specialised GIS skills are required to operate this system.

All users are required to agree to the **Terms and Conditions** before proceeding from the Home Page. The terms and conditions are downloadable by clicking on this **Terms and Conditions** link.

NC BSP is imbedded in the EIA Screening Tool

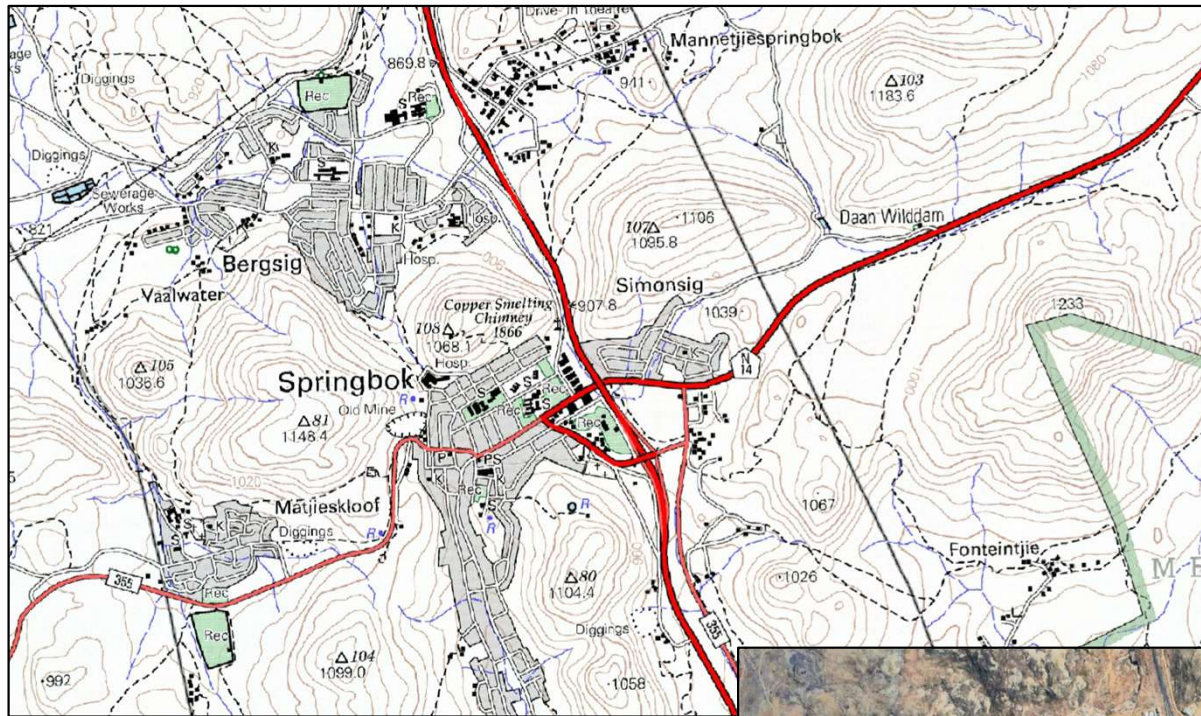
Pre-application process includes a EIA Screening Tool report regarding environmental sensitivity - Environmental Assessment Practitioner (EAP)

**NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998
(ACT NO. 107 OF 1998)**

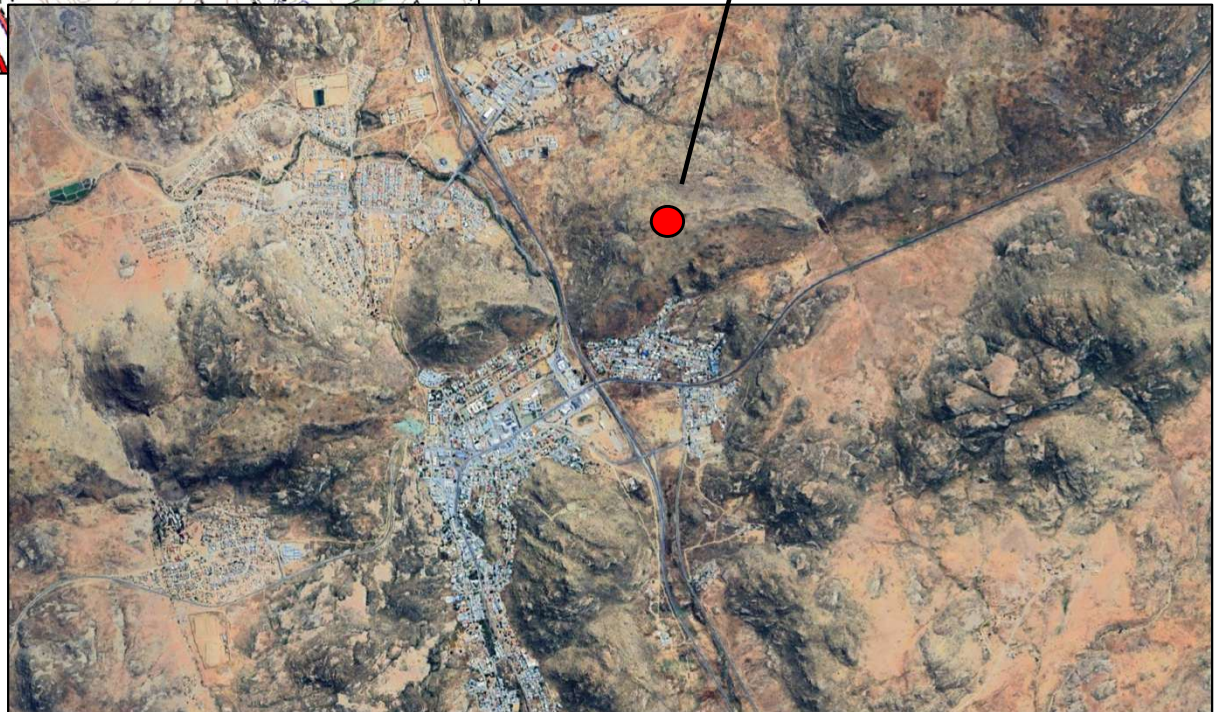
**AMENDMENT OF THE ENVIRONMENTAL IMPACT ASSESSMENT
REGULATIONS LISTING NOTICE 3 OF 2014**

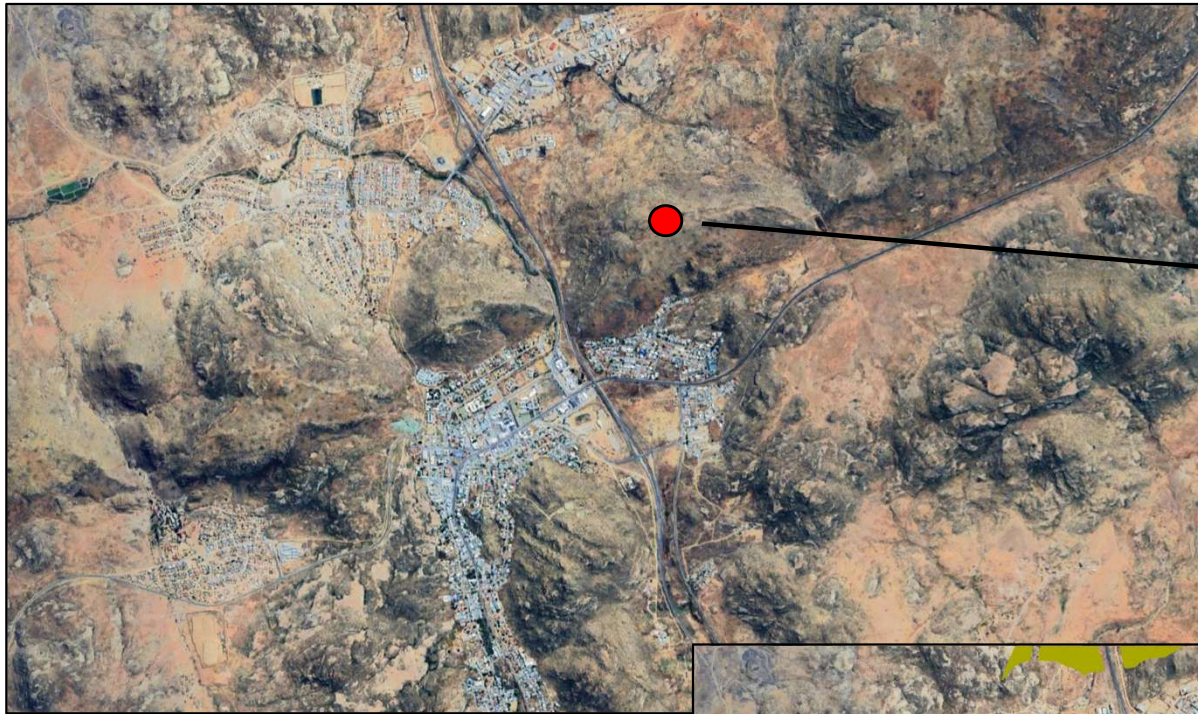
		(bb) <u>Areas designated for conservation use in Spatial Development Frameworks adopted by the competent authority, or zoned for a conservation purpose.</u>
3.	The development of masts or towers of any material or type used for telecommunication broadcasting or radio transmission purposes where the mast or tower— (a) is to be placed on a site not previously used for this purpose; and (b) will exceed 15 metres in height— but excluding attachments to existing buildings and masts on rooftops.	g. Northern Cape i. <u>In an estuary:</u> ii. <u>Outside urban areas:</u> (aa) <u>A protected area identified in terms of NEMPAA, excluding conservancies;</u> (bb) <u>National Protected Area Expansion Strategy Focus areas; contemplated in chapter 5 of the Act and as adopted by the competent</u> (cc) <u>Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority;</u> (dd) <u>Sites or areas identified in terms of an international convention;</u> (ee) <u>Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;</u> (ff) <u>Core areas in biosphere reserves;</u> (gg) <u>Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core areas of a biosphere reserve; or</u> (hh) <u>Areas seawards of the development setback line or within 1 kilometre from the high-water mark of the sea if no such development setback line is determined; or</u> iii. <u>Inside urban areas:</u> (aa) <u>Areas zoned for use as public open space; or</u> (bb) <u>Areas designated for conservation use in Spatial Development Frameworks adopted by the competent authority or zoned for a conservation purpose.</u>





Proposed Site

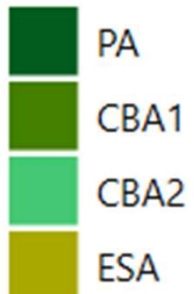




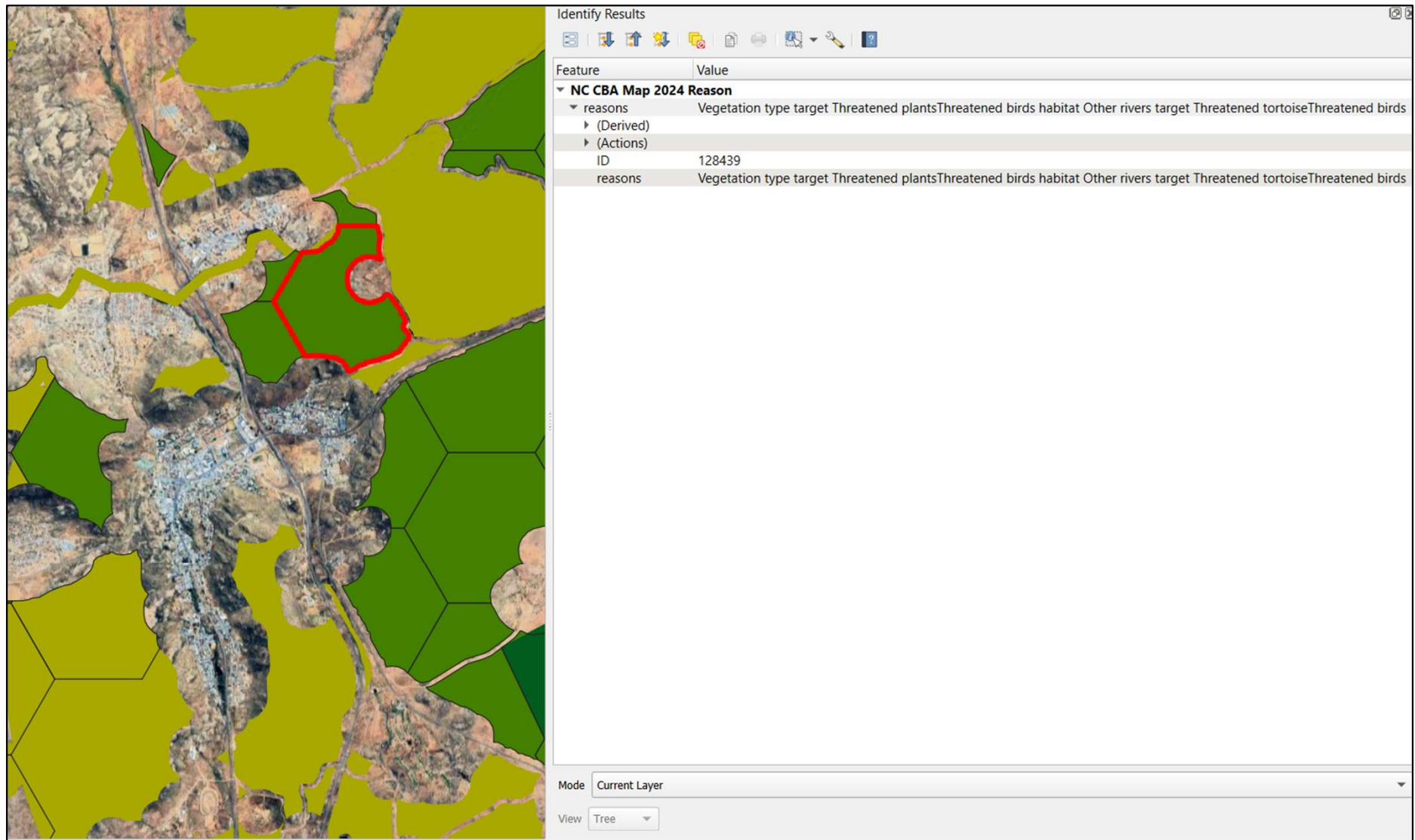
Proposed Site

2024 NC CBA Map (shapefile)

QGIS or Google Earth Pro



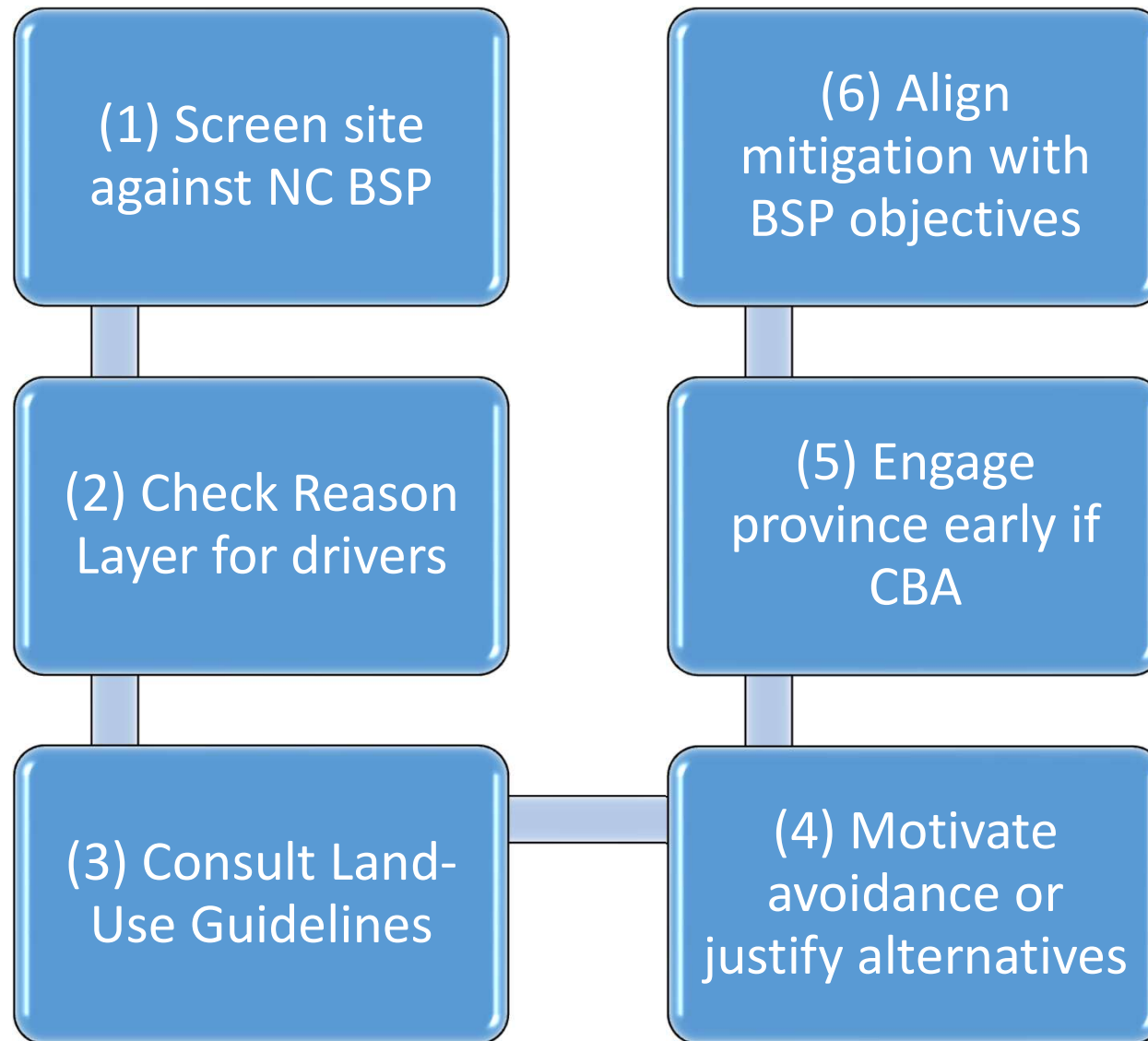
NC CBA Map 2024 Reason (shapefile)



NC BSP Land-use Guidelines

SDF Category	SDF Sub-Categories	CBA1	CBA2	ESA
Core	Statutory Protected Areas	Y	Y	Y
Buffer	Non-Statutory Conservation Areas	Y	Y	Y
	Ecological Corridors	Y	Y	Y
	Urban Green Areas	R	Y	Y
Agricultural Areas	Extensive Agriculture Areas	Y	Y	Y
	Intensive Agriculture Areas	N	N	N
Urban Related Areas	Main Towns	N	N	N
	Local Towns	N	N	N
	Rural Settlements	N	R	R
	Tribal Authority Settlements	N	R	R
	Institutional Areas	N	N	N
	Authority Areas	N	N	N
	Residential Areas	N	N	N
	Business Areas	N	N	N
	Service-Related Business	N	N	N
	Special Business	N	N	N
	SMME Incubators	N	N	N
	Mixed Use Development Areas	N	N	N
	Cemeteries	N	N	N
	Sport Fields & Infrastructure	N	N	N
	Airport and Infrastructure	N	N	N
	Resorts & Tourism Related Areas	N	N	R
	Farmsteads & Outbuildings	R	R	R
Industrial Areas	Agricultural Industry	N	N	N
	Industrial Development Zone	N	N	N
	Light Industry	N	N	N
	Heavy Industry	N	N	N
	Extractive Industry	N	N	N
Surface Infrastructure & Buildings	National Roads	R	R	R
	Main Roads	R	R	R
	Minor Roads	R	R	R
	Public Streets	N	N	N
	Heavy Vehicle Overnight Facilities	N	N	R
	Railway Lines	R	R	R
	Power Lines	R	R	R
	Telecommunication Infrastructure	R	R	R
	Renewable Energy Structures	N	N	R
	Dams & Reservoirs	N	N	R
	Canals	N	N	R
	Sewerage Plants and Refuse Areas	N	N	R

When a project footprint overlaps a CBA



The BSP does not replace site-specific specialist studies - it informs where the risk lies and how high it is likely to be.

Search for spatial biodiversity information for South Africa

Enter keywords, geographical location, themes, etc

Search Q

Recently uploaded spatial datasets

2018 Coast ecosystem threat status and protection level
[More »](#)

2018 Estuary ecosystem threat status and protection level
[More »](#)

2018 Marine ecosystem threat status and protection level
[More »](#)

2018 Sub-Antarctic terrestrial ecosystem threat status and protection level
[More »](#)

2018 Sub-Antarctic Marine ecosystem threat status and

Scheduled System Downtime

Please be advised that due to a scheduled software upgrade, the BGIS system will be temporarily unavailable for up to two days. The downtime is expected to occur on Wednesday, 28 August 2024. During this period, access to the system will be restricted.

We apologise for any inconvenience this may cause and appreciate your understanding as we work to improve our services. Please plan accordingly and check back after the upgrade is complete.

Feedback

The BGIS team is continually striving to improve the BGIS website by adding innovating tools and relevant datasets. If you feel that we are missing crucial datasets or that our website can be improved in anyway, please drop us a line.

[Feedback »](#)

Favourites

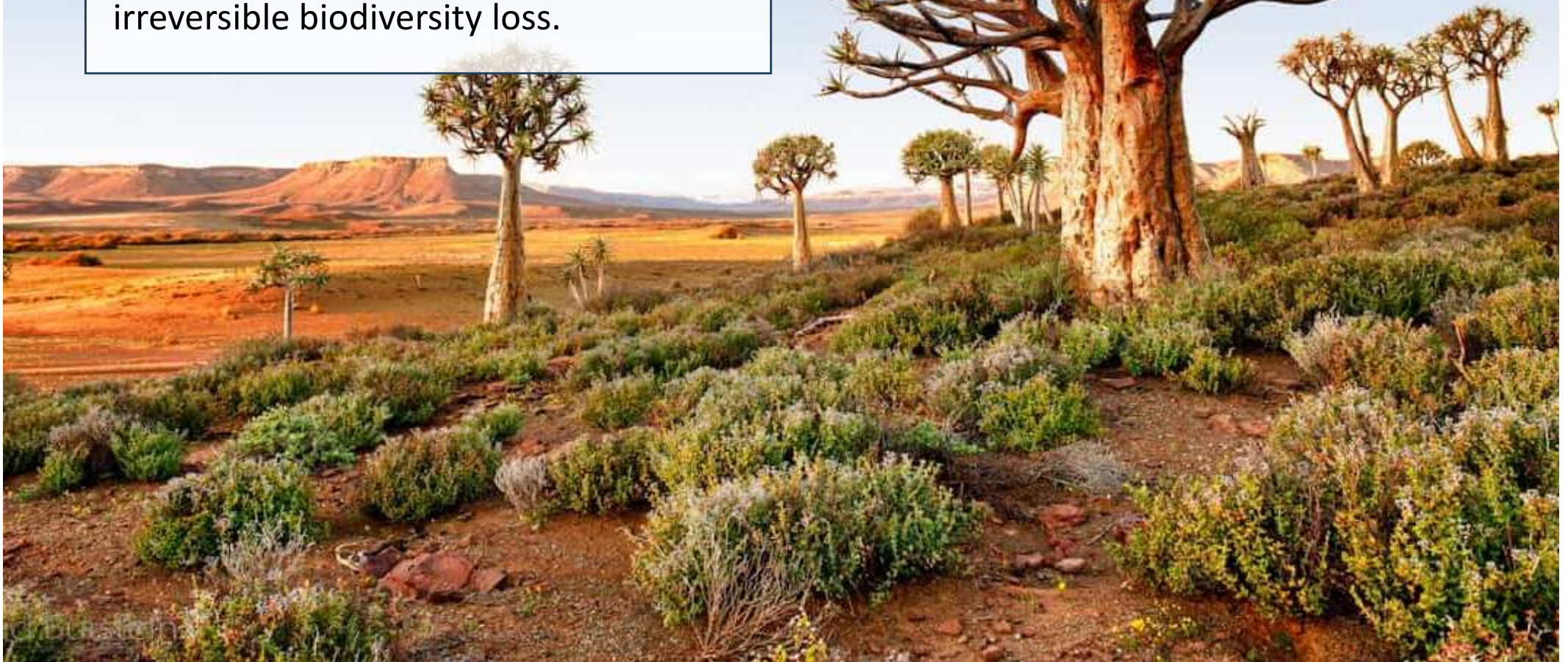
2018 Vegetation Map of South Africa, Lesotho and Swaziland [More »](#)

<https://bgis.sanbi.org/Projects/Detail/2259>

The NC BSP is not intended to constrain EAPs - it exists to:

- Provide clarity
- Reduce uncertainty
- Support consistent, defensible decisions

When used early and correctly, it helps all parties avoid conflict, appeals, and irreversible biodiversity loss.



Thank you



SOUTH AFRICAN
national
biodiversity
institute
S A N B I



**ENDANGERED
WILDLIFE TRUST**
Protecting forever, together.



Project Menu

[Project Home](#)

Information

➤ [Archive 2016 Northern Cape Critical Biodiversity Areas](#)

Contact

Department of Agriculture,
Environmental Affairs, Rural
Development & Land Reform

Biodiversity Planner

027 718 8800

Private Bag X16, Springbok,
8240

eoosthuysen@daerl.co.za

2024 Northern Cape Biodiversity Spatial Plan

The Northern Cape Biodiversity Spatial Plan 2024 updates, revises and replaces all previous plans:

- Northern Cape CBA Map 2016
- Namakwa District Biodiversity Sector Plan 2008
- Cape Fine-Scale Plan Systematic Conservation Assessment 2008 (only the extent of areas in the Northern Cape)
- Richtersveld Municipality Biodiversity Assessment 2008

The NC BSP includes three components: Technical Report, Critical Biodiversity Area (CBA) Map and Land-use Guidelines. The identification of CBAs was undertaken using Systematic Conservation Planning approach to be consistent with the principles of the identification of biodiversity priorities, which ensure representation and persistence against quantitative biodiversity targets. The NC BSP further conforms to the minimum technical requirements set out in the Technical Guidelines for CBA Maps: Guidelines for developing a map of Critical Biodiversity Areas & Ecological Support Areas using Systematic biodiversity planning, and went through peer review at the 2024 National Biodiversity Planning Technical Working Group.

Northern Cape



Technical document

➤ [2024 NC BSP Technical Report \(3260.33 KB\)](#)

Spatial Datasets

➤ [2024 Northern Cape Biodiversity Spatial Plan](#)

<https://bgis.sanbi.org/Projects/Detail/2259>