

# Restoring Landscapes in South-Africa (ReLISA) National Workshop

Monday 15th May 2023

Venue: CSIR International Convention Centre, Meiring Naudé Road, Brummeria, Pretoria

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# I: Overall rationale

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# ReLISA – the core value proposition: What are we trying to address?

1. There is a **lack of awareness** of commercial impacts and dependencies on ecosystems;
2. The **opportunities for bankable restoration activities are ‘off the radar’** (such as value chain development for sustainably produced goat meat, NTFP and other commodities, and projects for voluntary carbon market projects, **which could fund the upscaling of thicket, grassland or savanna restoration**); and
3. There are **coordination failures** leading to ‘locked-into’ pathways as the main actors (government, civil society, communities, private sector) need to coordinate effectively towards large-scale restoration

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# ReLISA – How are we going to address these issues?

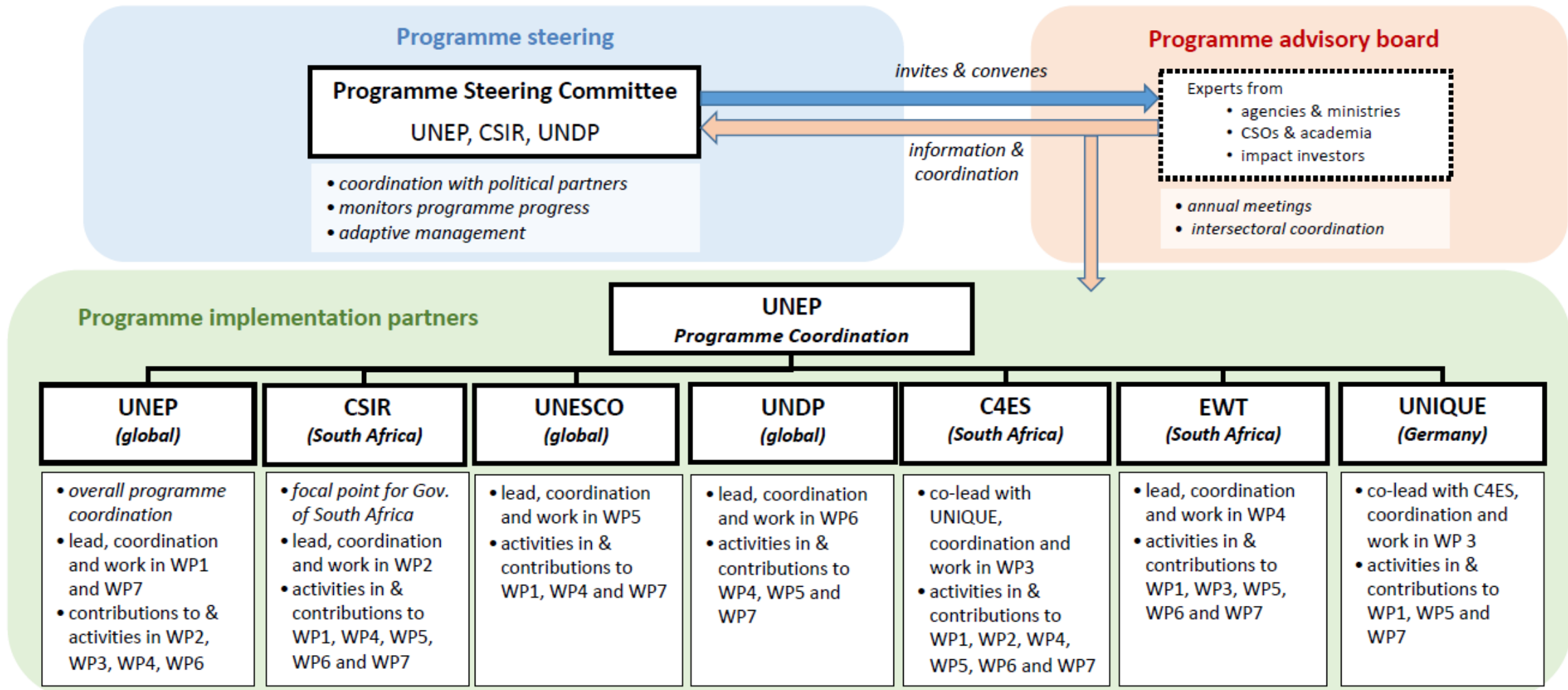
1. Develop and apply **biophysical and economic valuation modelling ex ante** to determine where there is the highest returns on investment (ROI) and opportunities to reduce income inequalities;
2. Consult with stakeholders (including the business and finance community) on final site selection to gain buy-in and create **'readiness' for restoration interventions**;
3. Develop **bankable business opportunities** for the private sector;
4. Implement **on-the-ground restoration activities**; and
5. Provide capacity building and knowledge products, so as to **ensure project sustainability**.

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# ReLISA - Consortium Structure



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# II: Business models and investment opportunities

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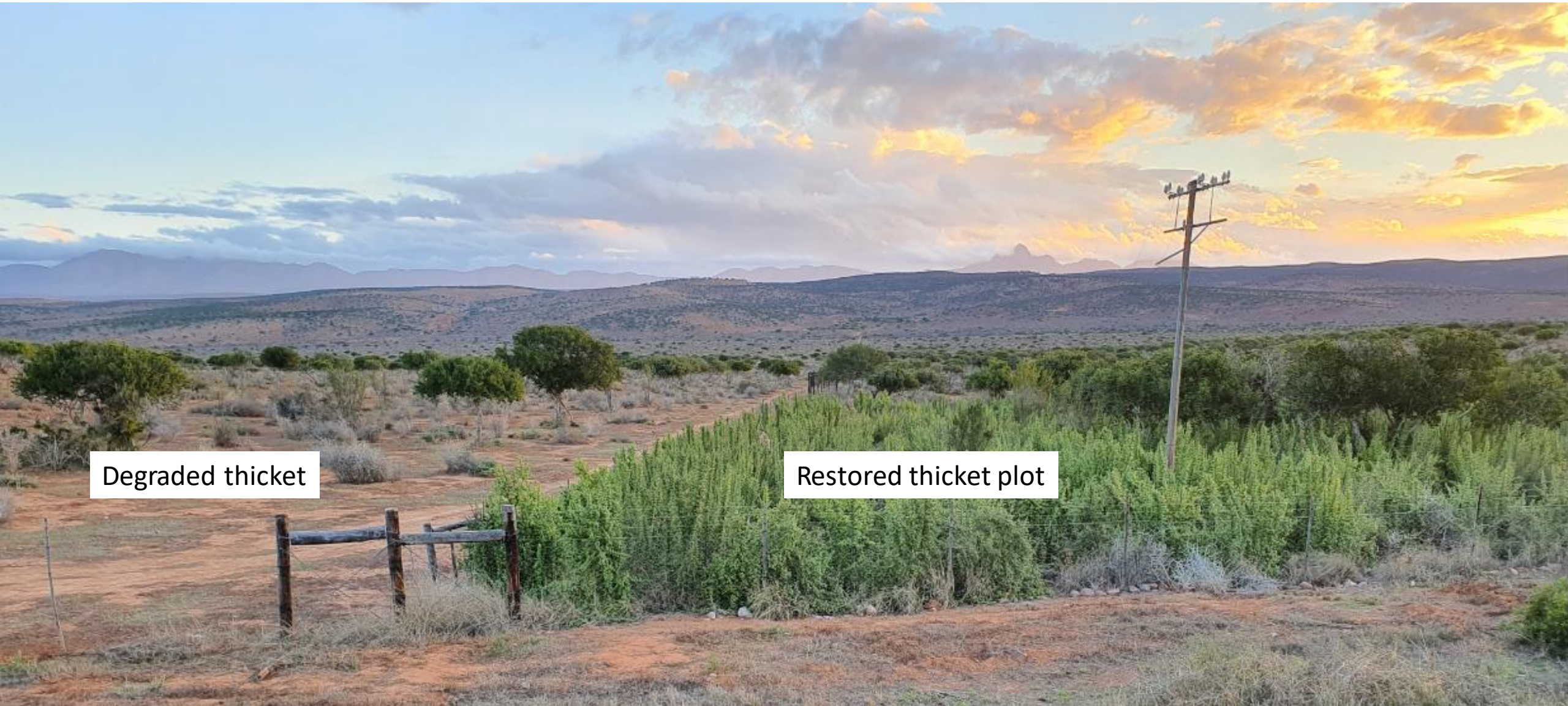
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# Work Package 3 : Business models & investment incubation

Co-led by C4 EcoSolutions and UNIQUE



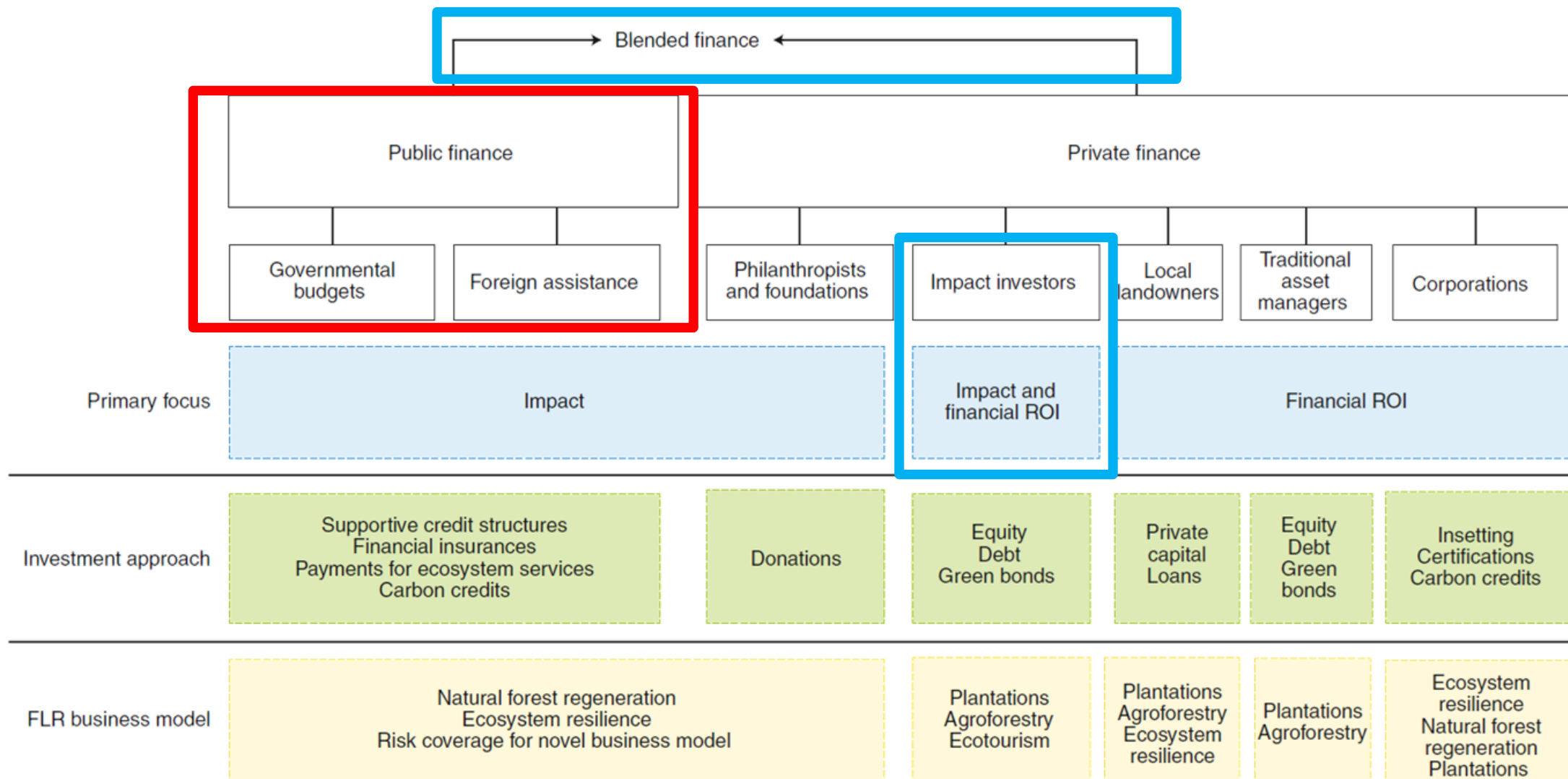
Degraded thicket

Restored thicket plot



# The Investment Landscape

Source: Löfqvist S. & Ghazoul J. 2019. Private funding is essential to leverage forest and landscape restoration at global scales. *Nature ecology & evolution*, 3(12):12-1615. Available at: <https://www.nature.com/articles/s41559-019-1031-y>

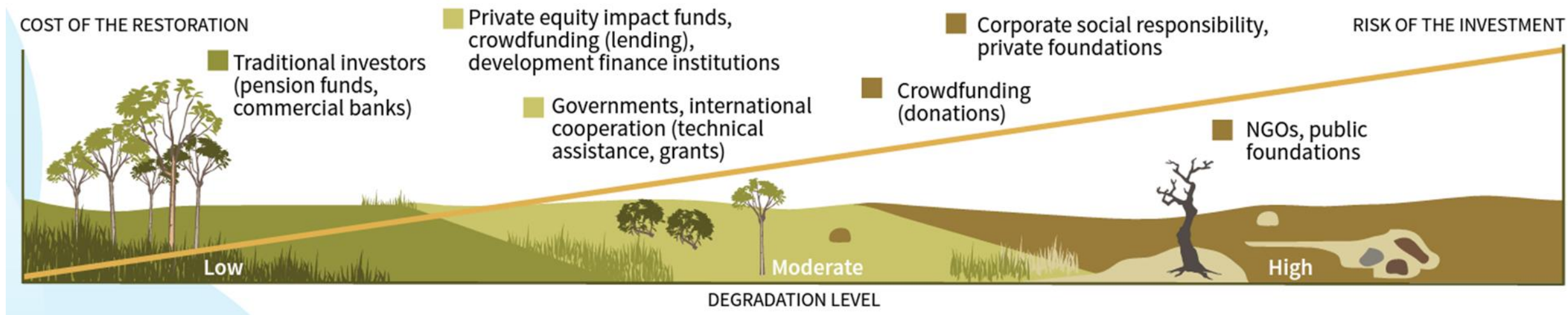


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# Risk appetite



Source: Walter S. 2015. Sustainable financing for forest and landscape restoration – key messages. Food and Agriculture Organization, Rome. Available at: <https://www.fao.org/3/i5031e/I5031E.pdf>

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# Private sector investment mechanisms

## 1. Voluntary Carbon Market (VCM)

Carbon credits are sold on the voluntary carbon market as tradable commodities that represent a reduction or removal of one metric ton of carbon dioxide equivalent (MtCO<sub>2</sub>e)

Over 30 carbon offset registries operate globally to verify carbon credits

## 2. Biodiversity credits

Biodiversity and Ecosystem Services Network (BES-Net)

Verified Conservation Areas (VCA) Standard

## 3. Payment for Ecosystem Services (PES) Schemes

## 4. Water Funds

Water Benefit Standard (WBS)

Alliance for Water Stewardship (AWS) Standard

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# III: Natural Capital Accounting: making the economic case

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# South Africa and Natural Capital Accounts

- 10-year NCA Strategy
- Established Governance structure: Natural Capital Accounting Forum; Community of Practice; Strategic Advisory Group
- In recent years:
  - *Land and Terrestrial Ecosystem Accounts*
  - *Protected Area Accounts*
  - *Strategic Water Source Areas,*
  - *River Terrestrial Ecosystem Accounts*
  - *Metropolitan Area Accounts*
  - *Species Accounts for Rhinos and cycads*
  - ***Ecosystem service accounts for KwaZulu-Natal***

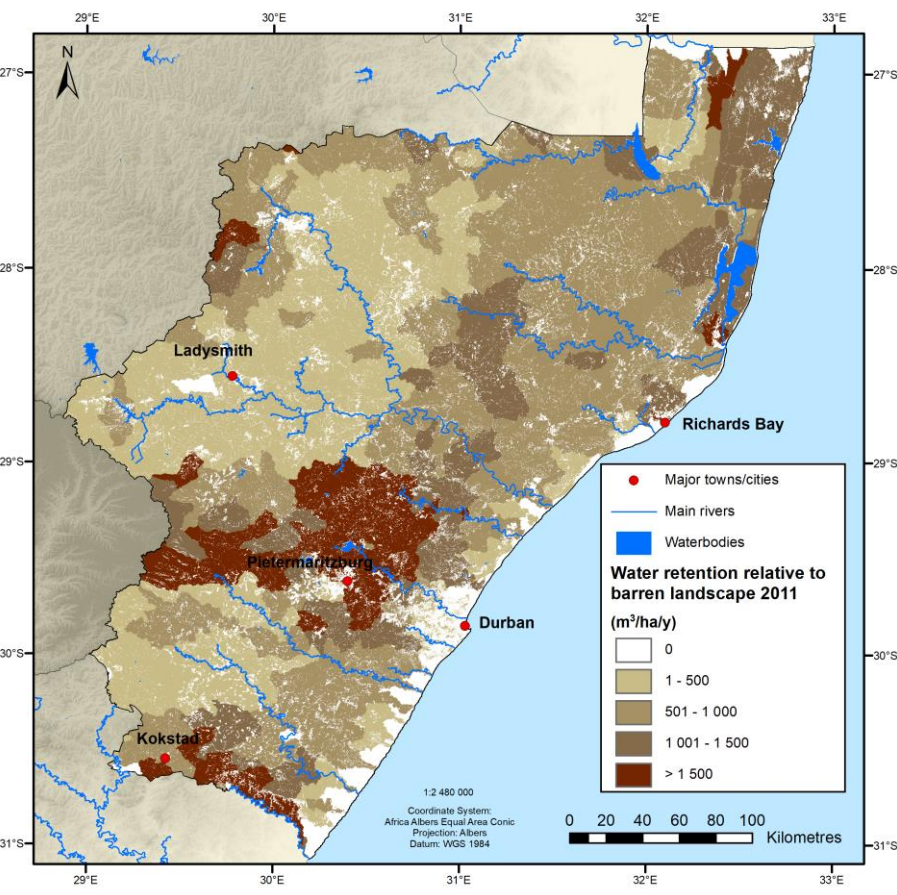
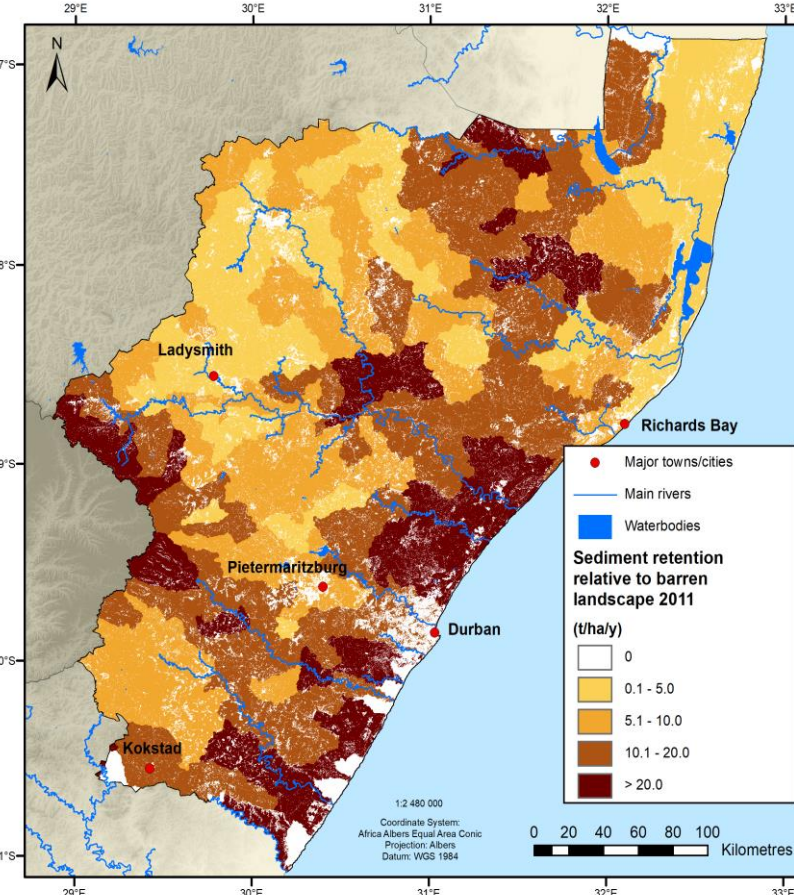
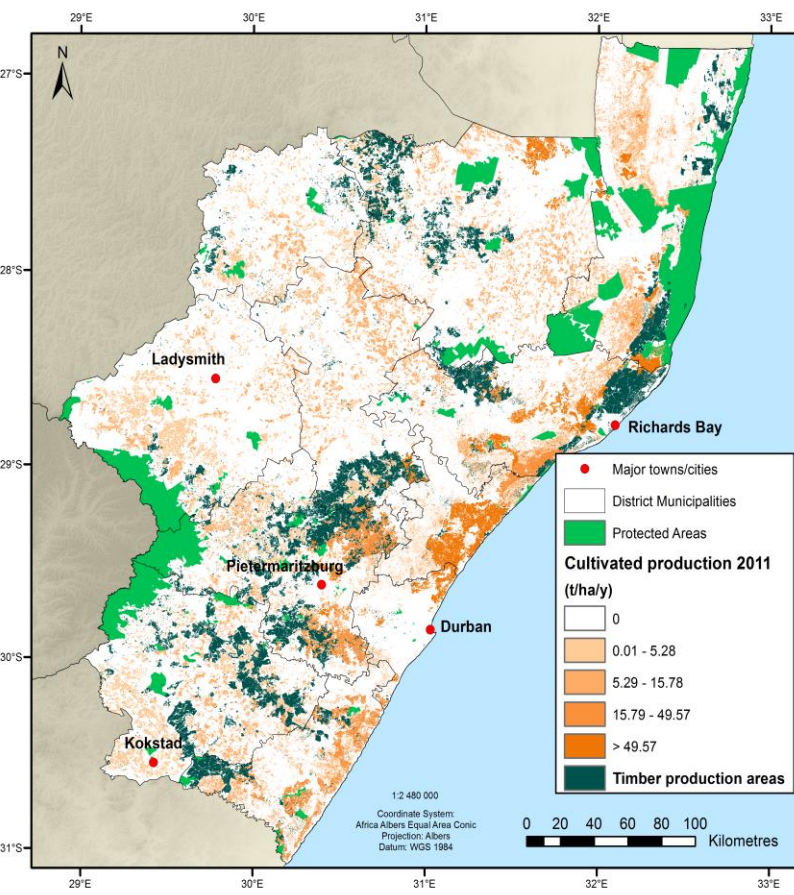
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# Ecosystem services accounts (biophysical) – KwaZulu Natal

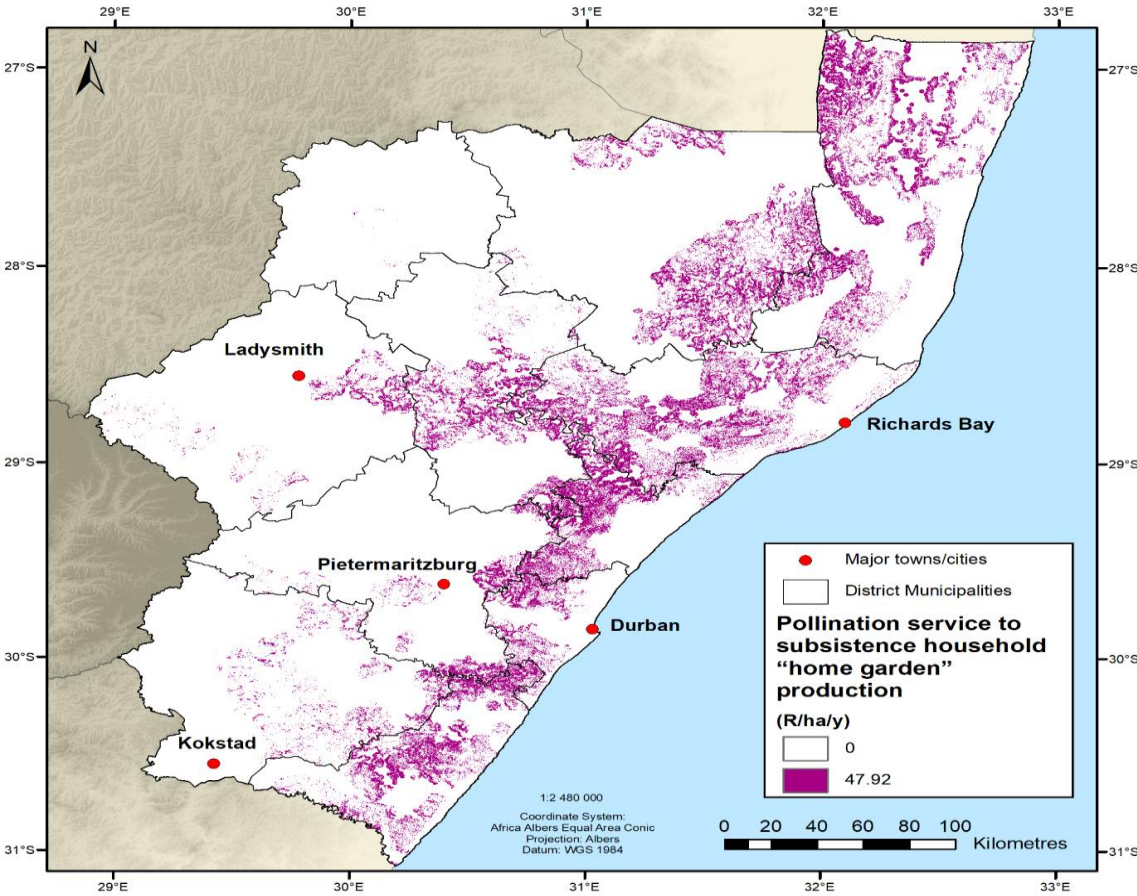
Spatially-explicit data on provision of ecosystem services – water retention, crop provisioning, and sediment retention shown here, but results for a suite of eleven ecosystem services



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# Ecosystem services accounts (monetary) – KwaZulu Natal South Africa

Spatially-explicit data on value of ecosystem services, and trends over time



Class	Ecosystem service	2005		2011	
		Annual flow R millions	Asset value R millions	Annual flow R millions	Asset value R millions
Provisioning	Wild resources	3 722.16	32 032.23	3 180.25	28 440.48
	Animal production	1 672.99	27 100.67	1 472.87	23 859.03
	Cultivation	6 456.70	104 591.91	7 535.43	122 066.22
Cultural	Nature-based tourism	532.83	8 631.31	798.83	12 940.22
	Property	1 164.97	18 871.27	1 327.78	21 508.60
Regulating	Carbon storage (global value)	29 922.56	484 745.42	34 579.34	560 185.33
	Pollination	51.26	830.33	47.69	772.50
	Flow regulation	3 247.87	52 612.12	3 166.78	51 298.55
	Flood attenuation	31.02	502.49	23.50	380.68
	Sediment retention	435.79	7 059.28	330.40	5 352.18
	Water quality amelioration	20.40	330.46	16.03	259.67
<b>Total</b>		<b>47 258.53</b>	<b>737 307.48</b>	<b>52 478.90</b>	<b>827 063.46</b>
<b>Value of flows and asset values in 2005 and 2011 when using national carbon values</b>					
Regulating	Carbon storage (national)	236.39	3 829.49	273.18	4 425.46
<b>Total</b>		<b>17 572.38</b>	<b>256 391.56</b>	<b>18 172.74</b>	<b>271 303.59</b>

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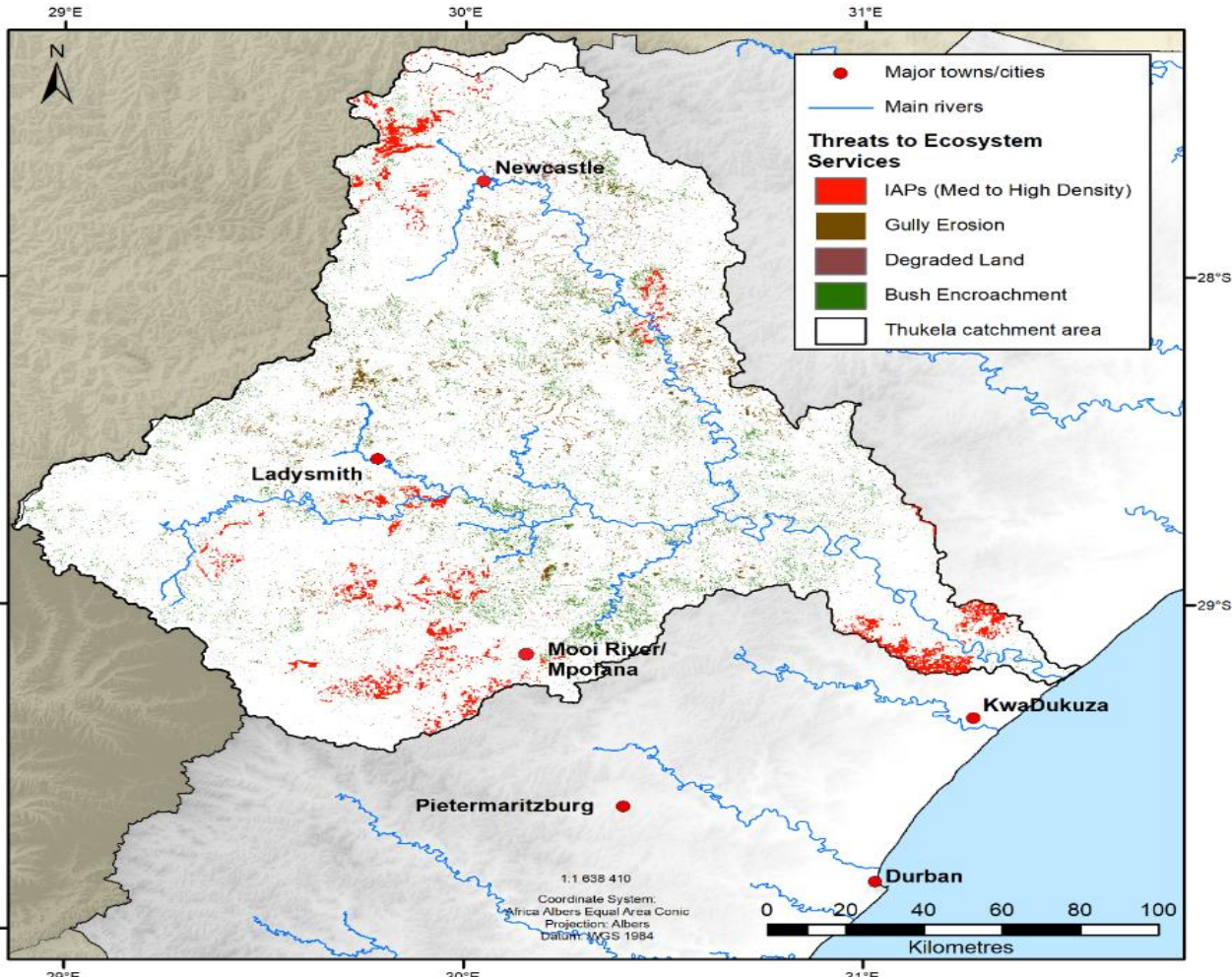


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# Policy application: Ecosystem restoration in South Africa

Cost-benefit analysis of ecosystem restoration programmes in Thukela river basin, KwaZulu Natal



## Policies:

Extension services

Betterment schemes

Natural Resource Management Programmes

e.g. 'Working for Water'

2030 Land Degradation Neutrality target, UNCCD and SDGs

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Cost-benefit analysis of ecosystem restoration programmes in Thukela river basin, KwaZulu Natal

	Present value (R millions)		
	LDN Scenario		Full Restoration Scenario
	Upper bound costs	Lower bound costs	
<b>Costs relative to BAU</b>			
Clearing IAPs	514.4	514.4	2 355.2
Addressing Bush Encroachment	507.2	237.6	691.1
Active restoration of grasslands, erosion	2 623.6	–	–
Sustainable land management	–	1 981.02	6 093.62
<b>Total present value of costs</b>	<b>3 645.18</b>	<b>2 733.09</b>	<b>9 139.98</b>
<b>Benefits relative to BAU</b>			
Water supply	2 591.4	2 591.4	10 757.2
Sediment retention	38.9	38.9	63.1
Tourism	121.8	121.8	243.6
Carbon storage (avoided national cost)	–274.91	–274.91	597.5
Harvested resources	70.6	70.6	2 391.3
Livestock production	620.7	620.7	1 476.9
<b>Total present value of benefits</b>	<b>3 168.6</b>	<b>3 168.6</b>	<b>15 529.6</b>
<b>Net Present Value</b>	<b>–476.6</b>	<b>435.5</b>	<b>6 389.6</b>
<b>BCR</b>	<b>0.9</b>	<b>1.2</b>	<b>1.7</b>

Likely a vast underestimate because many intangible benefits cannot be valued. Other studies estimate a ROI of 9 – 30 for restoration projects.



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# IV: MRV & Impact Monitoring

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# Focus of Work Package 2

## 1. Quantification of the impact of the project

Carbon stocks; GHG emissions; Adaptation (climate resilience); SDGs

## 2. Supporting national reporting to the United Nations

UNFCCC; GHG inventory (land use and land use change); BTR; CBD; UNCCD; SDG

## 3. Development and piloting of an impact monitoring tool

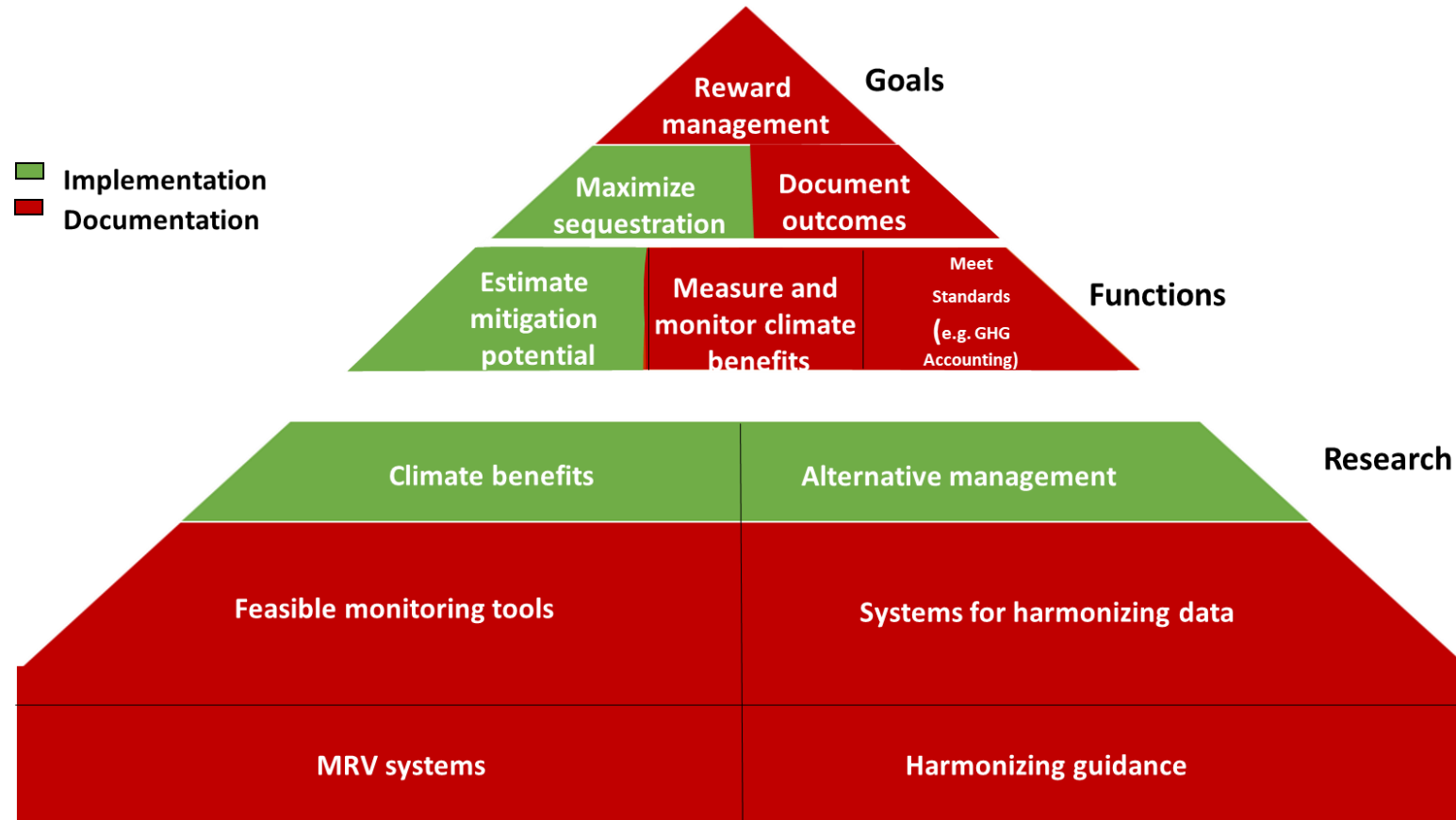
To provide an integrated approach that is easy to adopt for various reporting purposes and enables continuous learning and improvement over time.

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# Implementation and Documentation



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# V: Component 3: Direct Landscape level intervention and implementation

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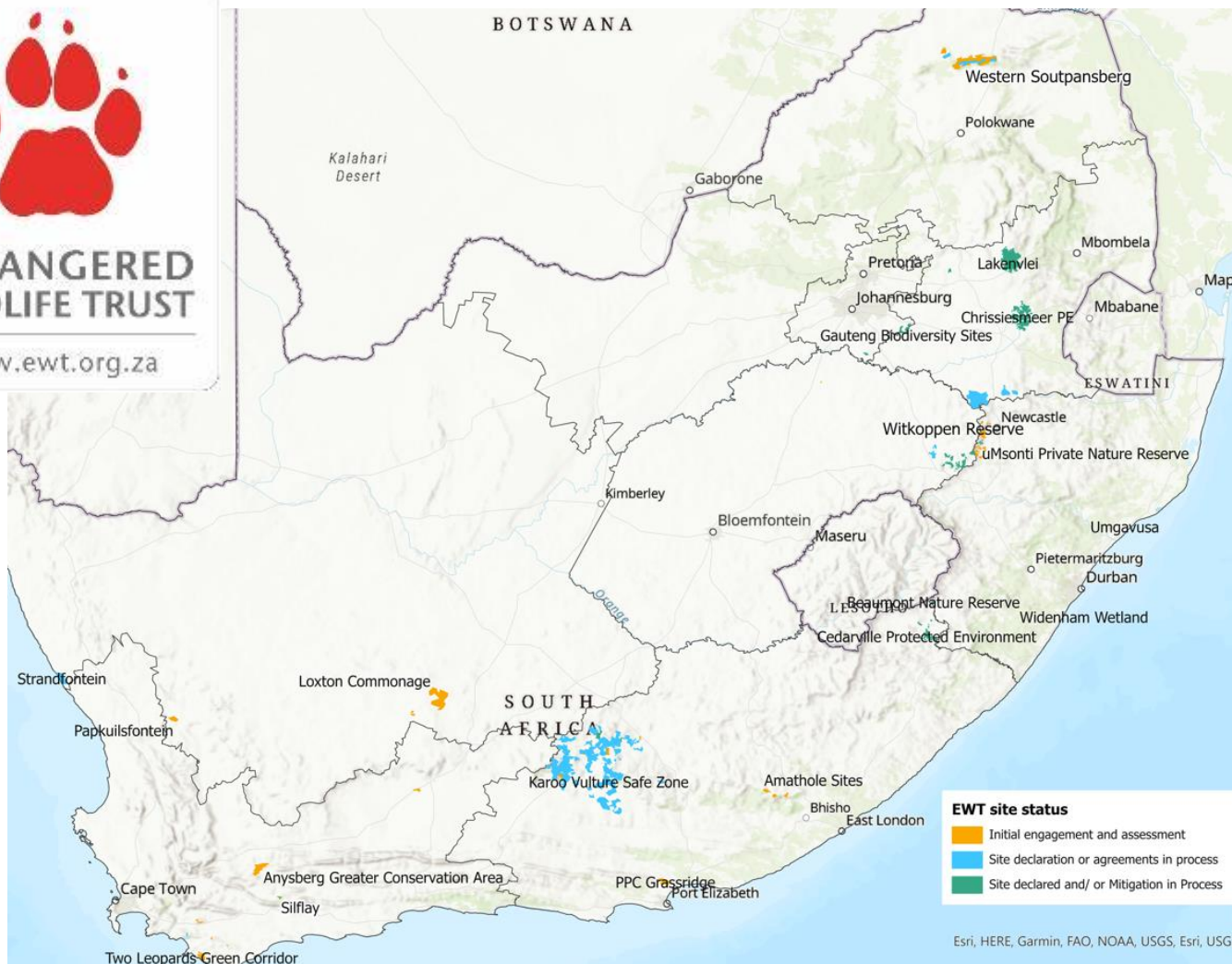
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# Protected Areas expansion initiatives



## Map of the EWTs protected area expansion initiatives

Through the biodiversity stewardship programme we are assisting to conserve more than 185 properties (over 139,000ha) in the last 10 years

We are actively working on a further >85,000ha

In all instances we are promoting improved management of sites using a multi-pronged approach.

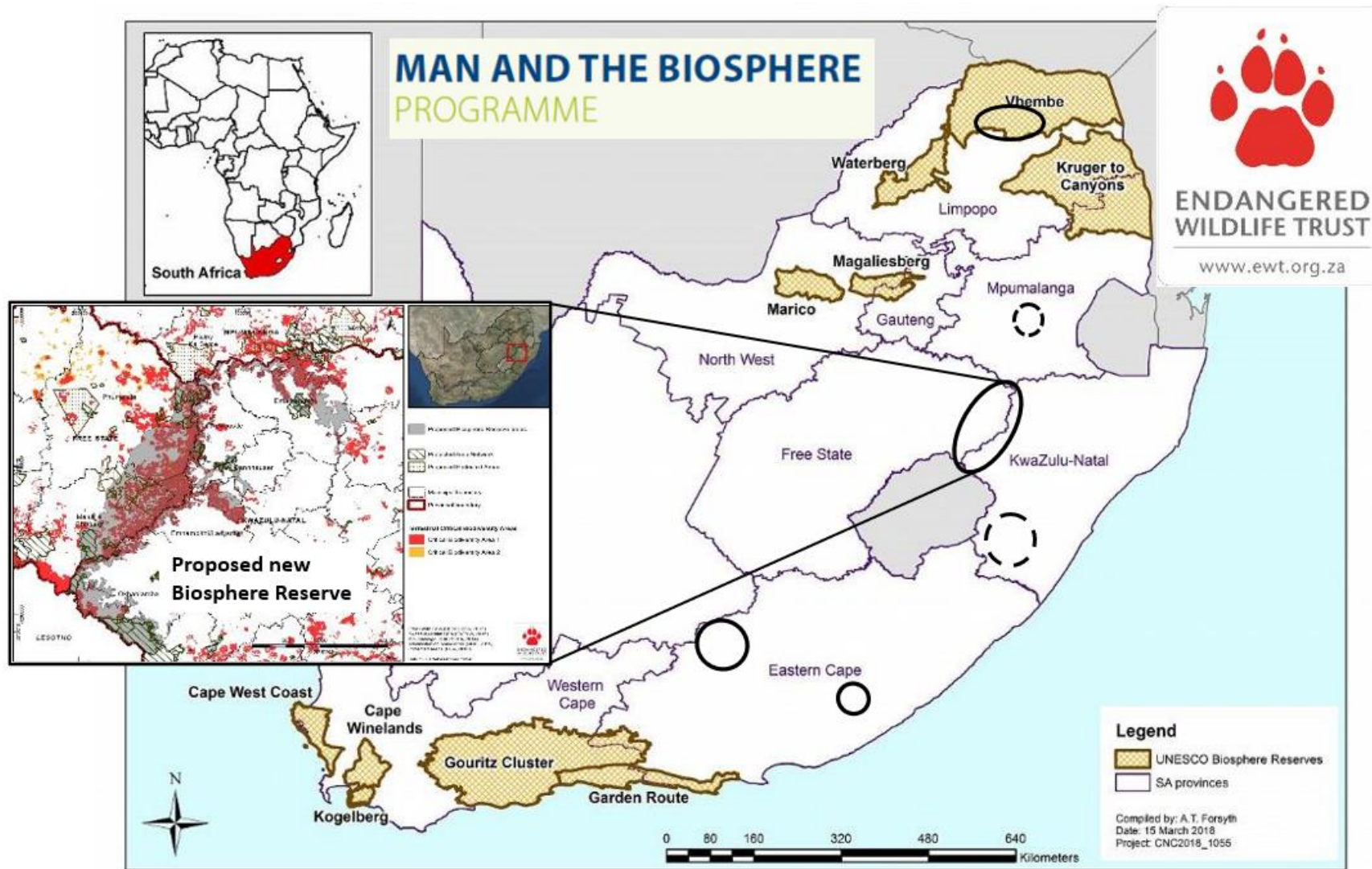
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# Grassland Biosphere reserve



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# Restoration in Strategic Water Source areas

## Strategic Water Source Areas-

- Supports at least 60% of the population
- All major cities in SA rely on these SWSAs:
  - Gauteng gets about 65% of its water from these areas;
  - Bloemfontein 70%;
  - Cape Town and eThekweni about 98%
- 67% of the economy relies on these areas:
  - 70% of irrigated agriculture rely on SWSAs

Bankable links to large corporate downstream water users

Statistics by place | Statistics South Africa ([statssa.gov.za](http://statssa.gov.za)) 2011

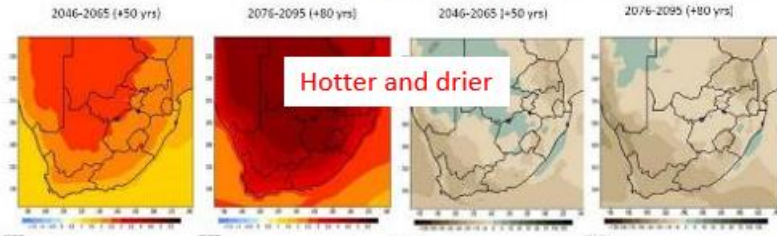
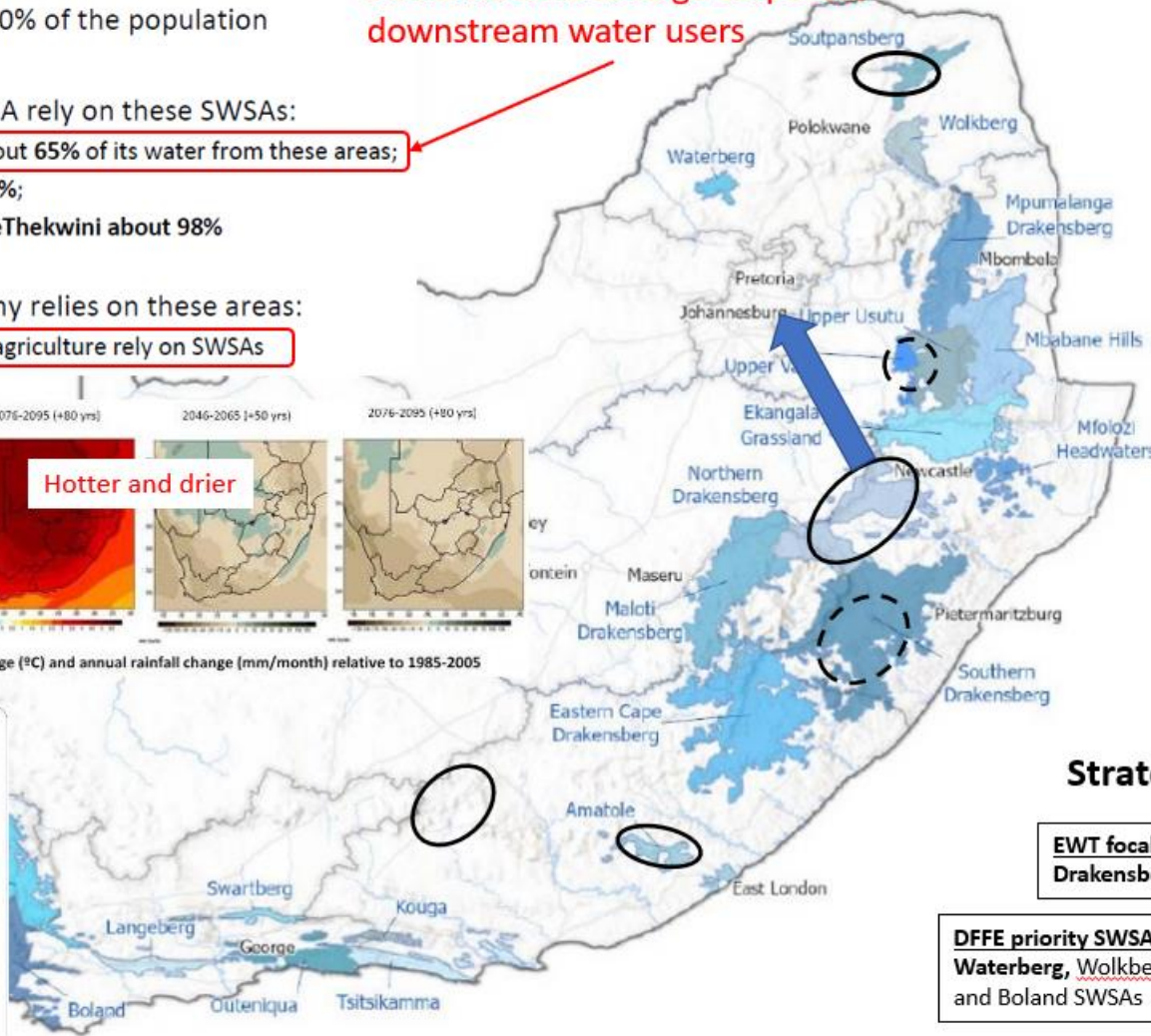


Figure 37 Annual temperature change (°C) and annual rainfall change (mm/month) relative to 1985-2005



**Makhadu LM:** 516,000 (0.43%) people  
 15.7% access to piped water  
 89.4% access to electricity  
 36.7% unemployed

**Free State LMs:** 48K-335K people  
 30.6-31.9% access to piped water  
 74.9-89% access to electricity  
 25.3-41.8% unemployed

**KZN LMs:** 132K-363K people  
 45.4-68% access to piped water  
 75.4-87.2% access to electricity  
 37.4-43% unemployed

**KwaSani LM:** 13,000 (0.85%) people  
 42.9% access to piped water  
 75.4% access to electricity  
 16% unemployed

## Strategic Water Source Areas

**EWT focal SWSAs:** Northern, Southern & Enkangala Drakensberg, Waterberg, Amathole, Soutpansberg

**DFFE priority SWSAs:** Northern, Southern, EC, Mpumalanga, Waterberg, Wolkberg, Maloti, Amathole, Tsitsikamma, Enkangala and Boland SWSAs

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# Clearing Invasive Alien Plants (IAP) and Habitat Rehabilitation

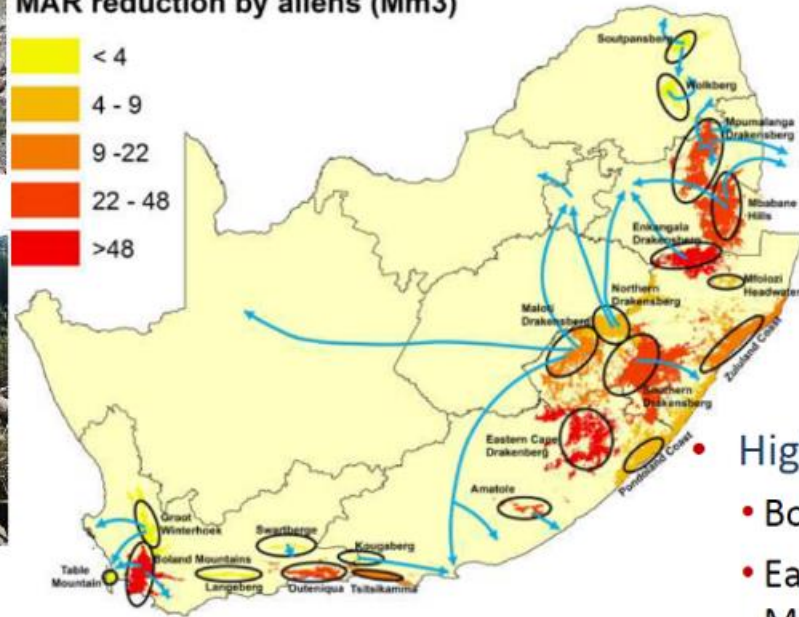


Figure 8: *Eucalyptus* spp removal along the water course is underway, using the cut stump method (chainsaw followed by chemical application shoulder sprays/knapsacks) on the McDonald property.



## Invasive alien plants (*Pine, eucalypt & black wattle*)

MAR reduction by aliens (Mm<sup>3</sup>)



- Use 460 Mm<sup>3</sup>/year
- Greater than EThekweni's annual water requirements
- Highest losses
- Boland Mountains
- Eastern Cape, Enkangala, Mpumalanga Drakensberg

- Important to engage with the water reconciliation data on towns in water deficit



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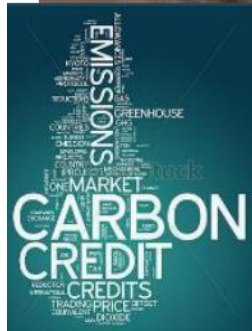
# Strategic partnerships

## Leveraging impact through strategic partnerships



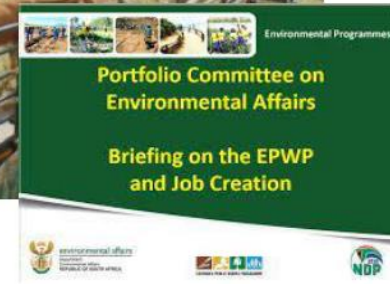
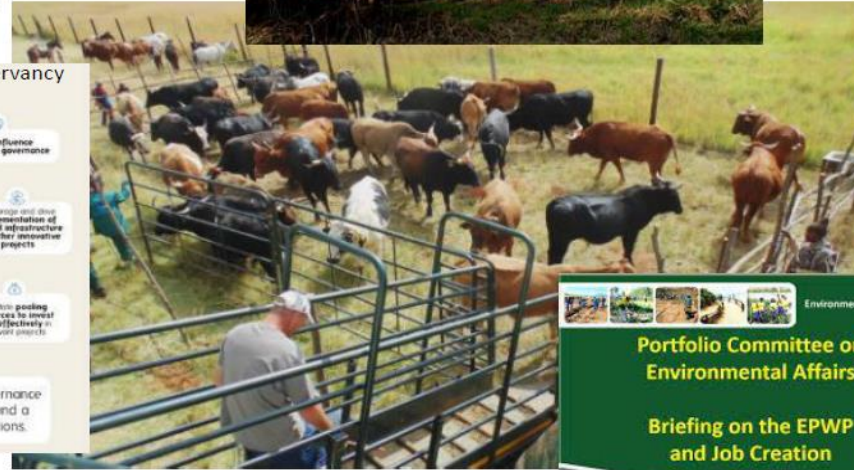
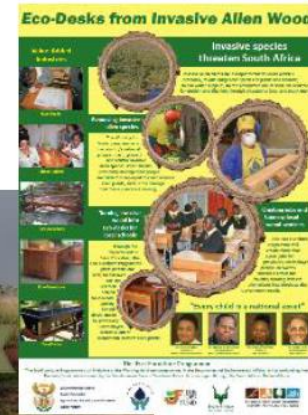
**Sustainable Land Management in Practice**

Guidelines and Best Practices for Sub-Saharan Africa  
FIELD APPLICATION



- Meat Naturally (WP3&4)
- SLM (WP4)
- Accessing carbon market (WP3)
- Water funds (WP5)
- IAP wood by-products (WP4&5)
- EPWP (WP4&5)

- Leverage govmt programmes
- Job creation
- Leverage SMMEs
- Climate resilience



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# Small Grants for Restoration

## MAIN FOCUS AREAS FOR IMPLEMENTING SMALL GRANTS FOR RESTORATION

1. Strategic Water Source Areas within the three focus biomes for the ReLISA Project
2. Post declaration support to land users part of the Biodiversity Stewardship Programme's already demonstrated their commitment towards conservation and SLM
3. Local communities and private land owners within existing and potential new Biosphere Reserves within project focus biomes
4. Communities and land users within buffer zones of National and Provincial National Parks or areas planned for the expansion of these conservation areas.

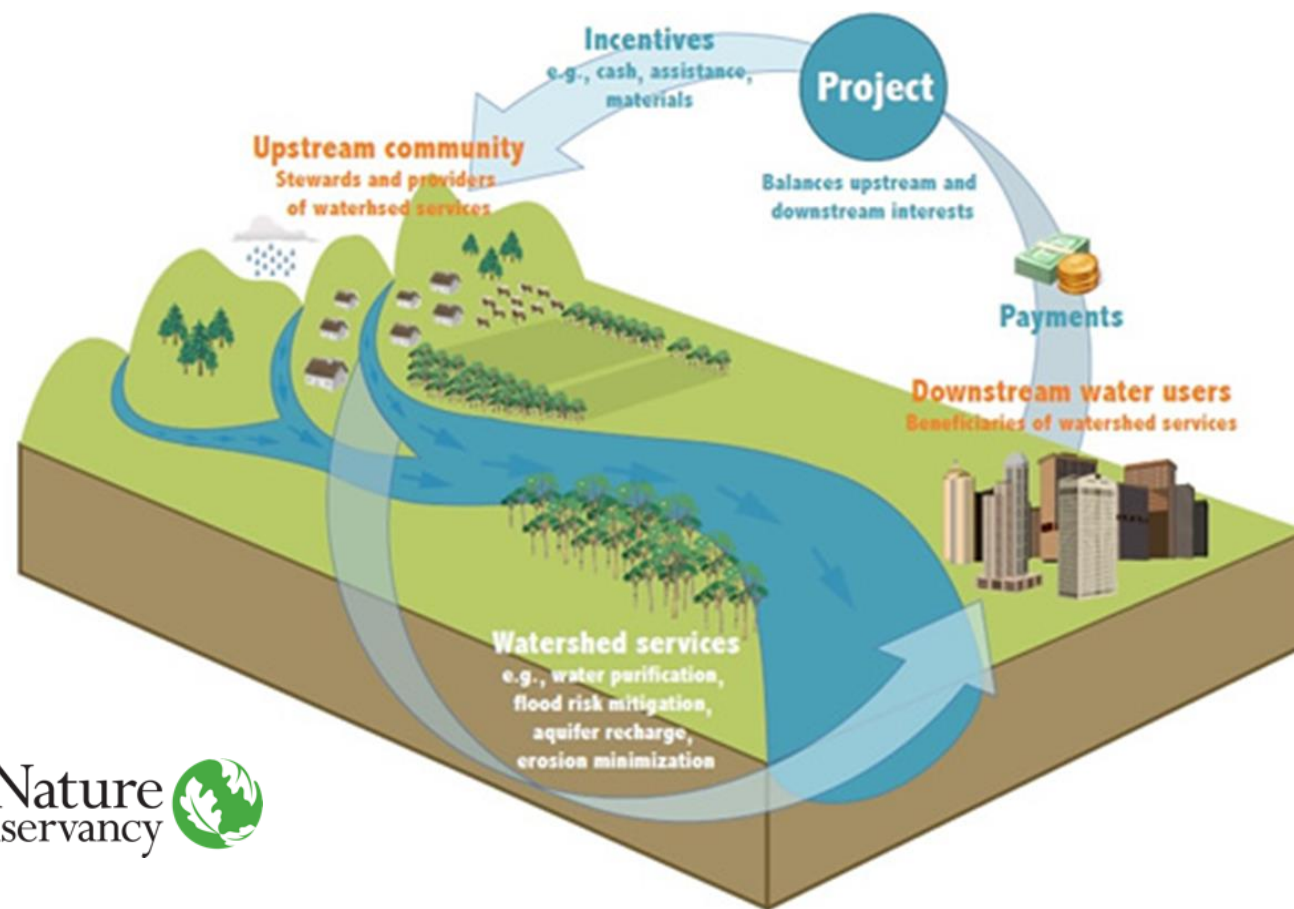
Please note that these focus areas will be refined after an assessment and analysis of their ecological importance and impact towards providing ecosystem services within and downstream of the project intervention area.



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# Magaliesberg Biosphere

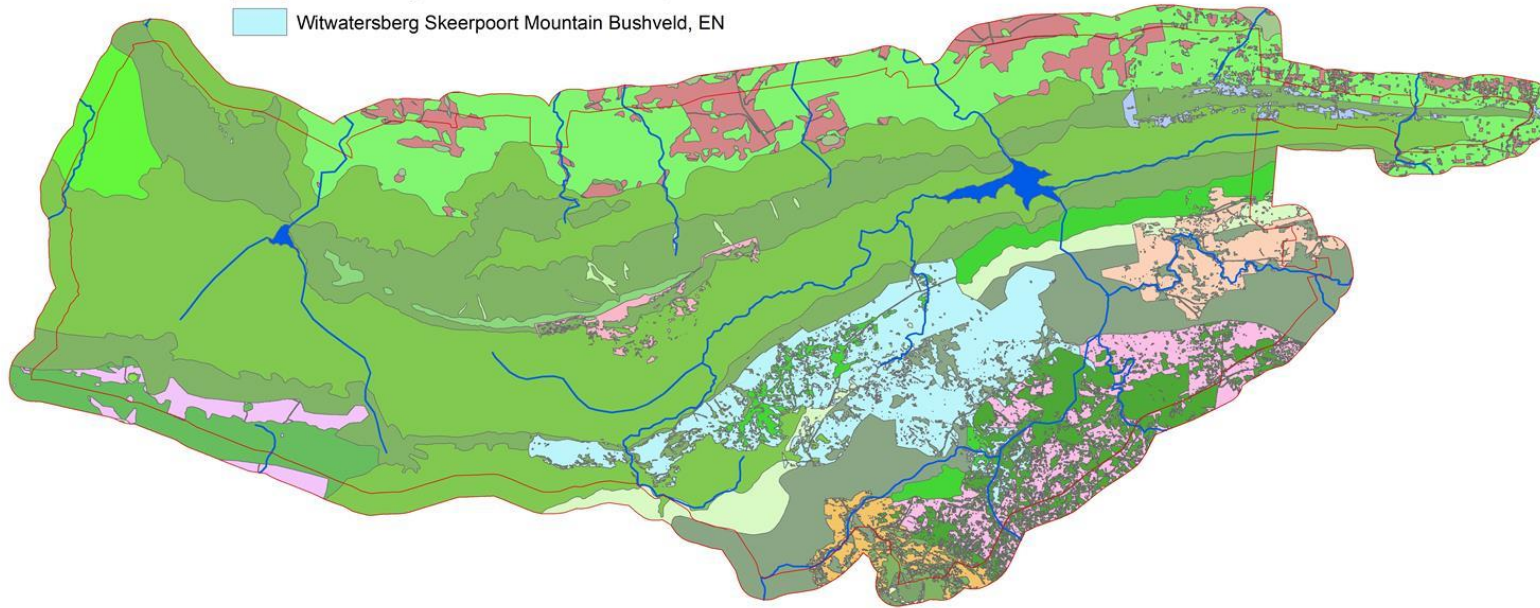


## Threatened Ecos 2011

### NAME, STATUS

- Eastern Temperate Freshwater Wetlands, VU
- Egoli Granite Grassland, EN
- Magaliesberg Hekpoort Mountain Bushveld, VU
- Magaliesberg Pretoria Mountain Bushveld, CR
- Marikana Thornveld, VU
- Rand Highveld Grassland, VU
- Roodepoort Reef Mountain Bushveld, CR
- Soweto Highveld Grassland, VU
- Witwatersberg Pretoria Mountain Bushveld, CR
- Witwatersberg Skeerpoort Mountain Bushveld, EN

## Vegetation Types & Remaining Extent of Threatened Ecosystems



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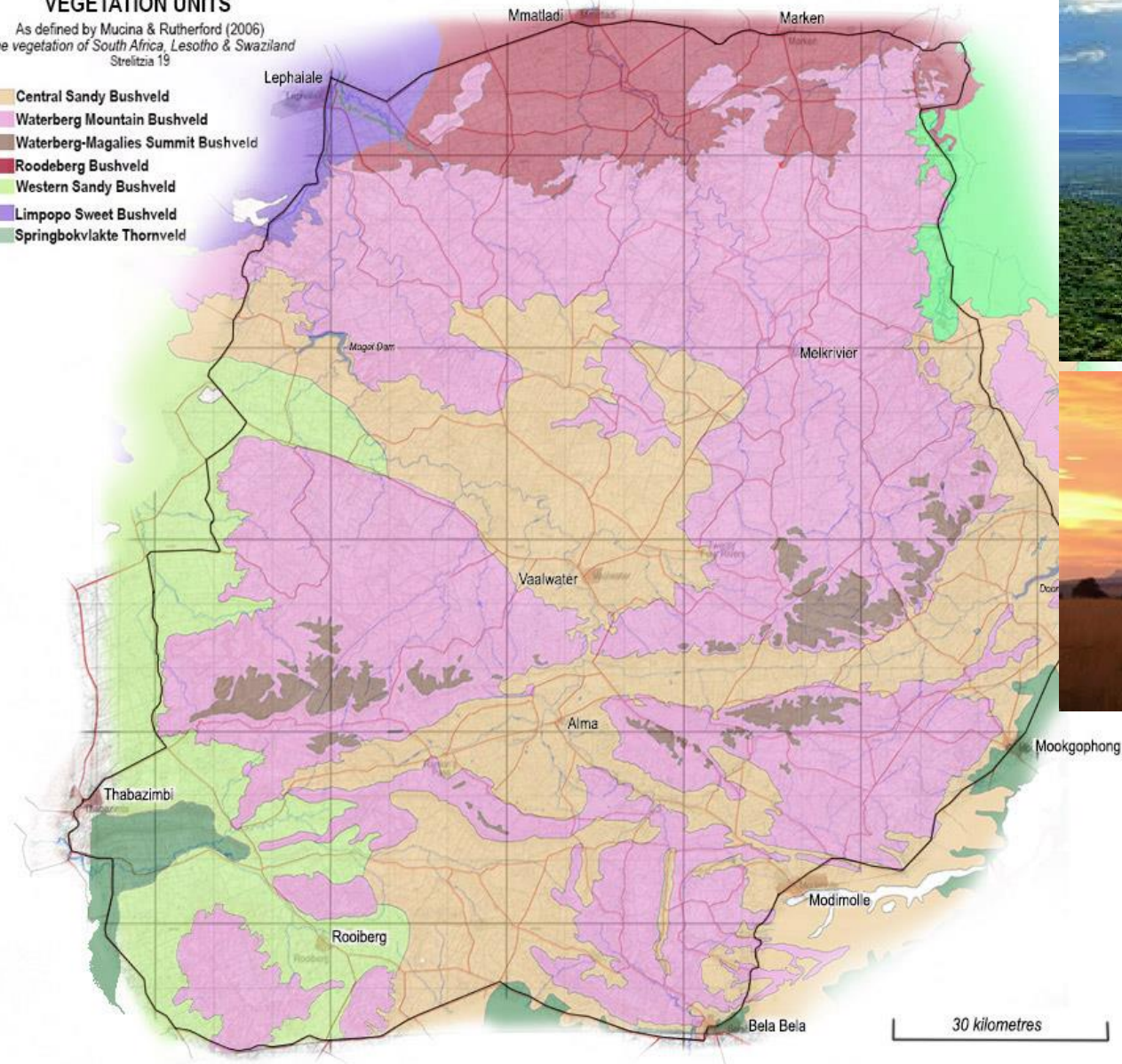
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# Waterberg



**VEGETATION UNITS**  
 As defined by Mucina & Rutherford (2006)  
 The vegetation of South Africa, Lesotho & Swaziland  
 Strelitzia 19

- Central Sandy Bushveld
- Waterberg Mountain Bushveld
- Waterberg-Magalies Summit Bushveld
- Roodeberg Bushveld
- Western Sandy Bushveld
- Limpopo Sweet Bushveld
- Springbokvlakte Thornveld



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# VI: ReLISA proposed long list of sites

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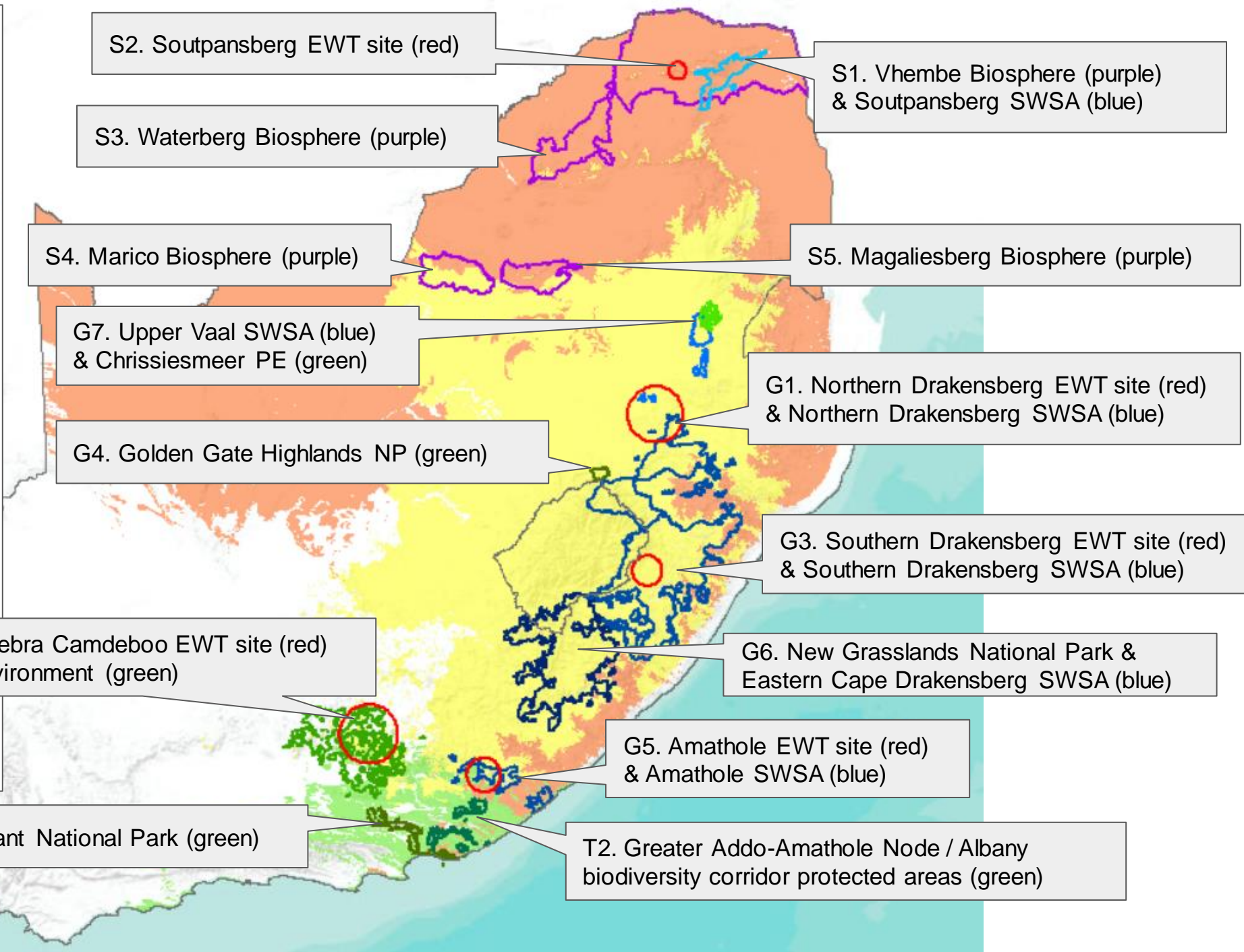
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land use

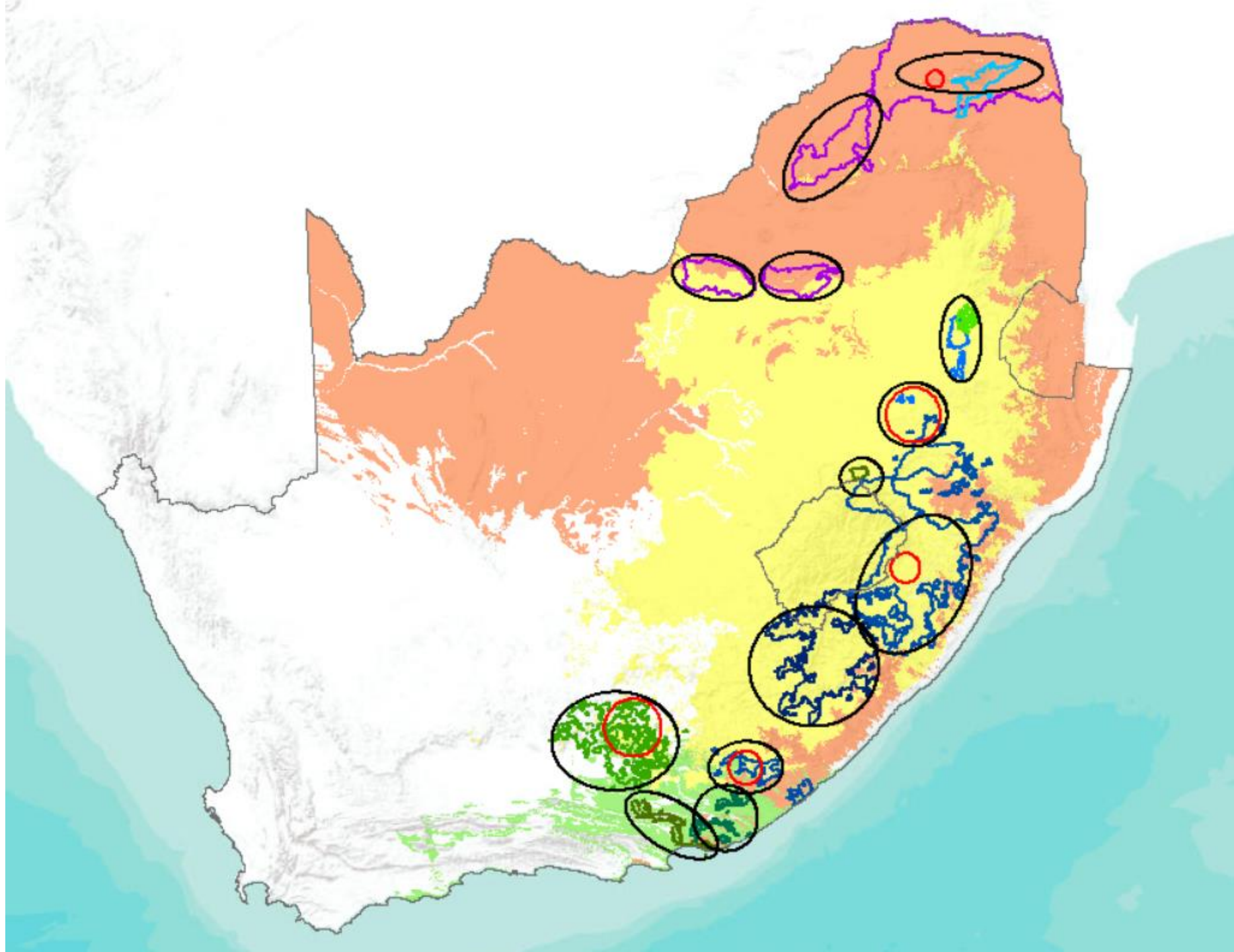


  
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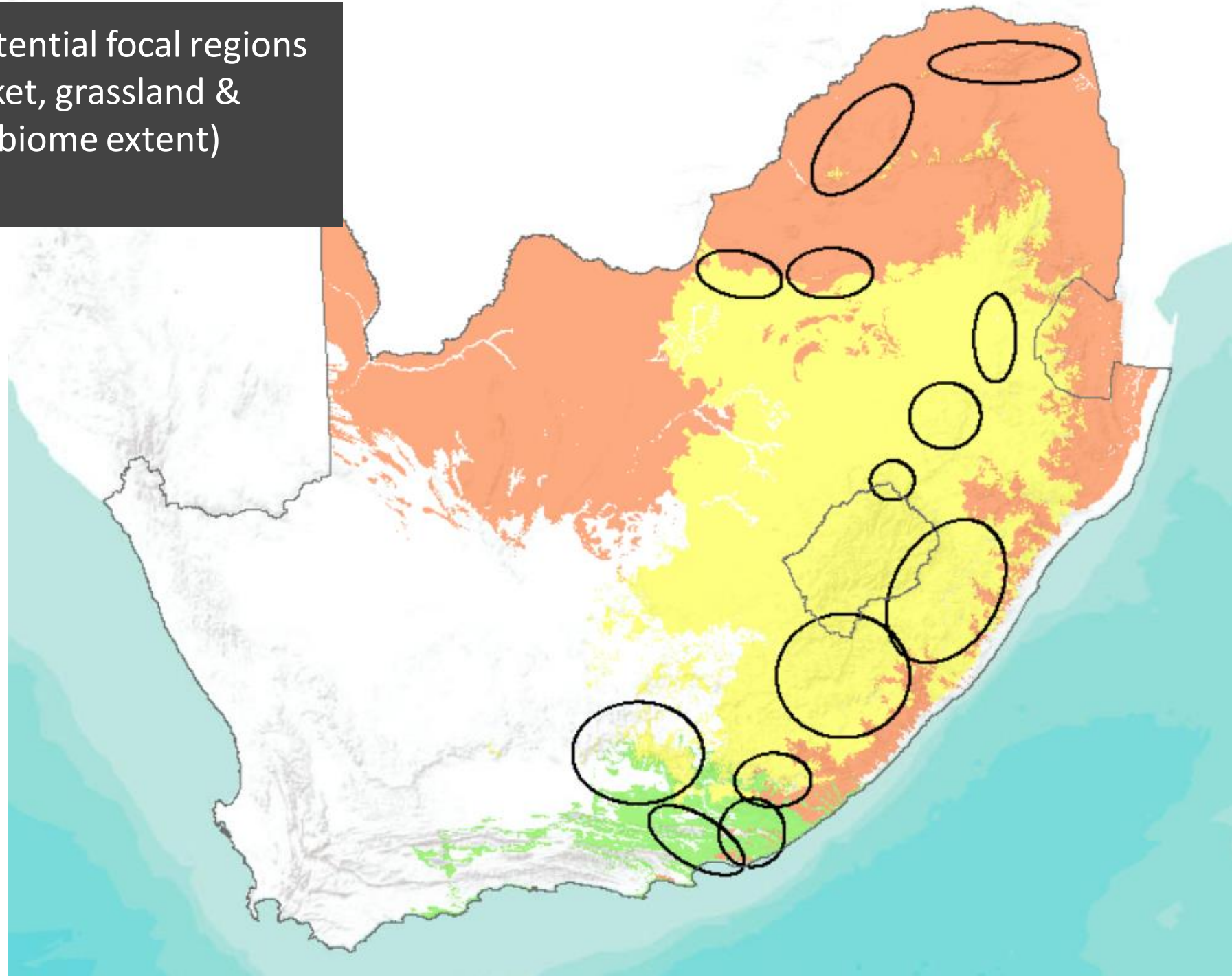
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- ReLISA boundaries
- RELISA\_EWT\_Sites
  - high-level site locations
- ReLISA\_National Park boundaries
- ReLISA Mtn Zebra Camdeboo PE boundaries
- ReLISA Chrissiesmeer PE boundaries
- Albany\_corridor\_PAs
- ReLISA\_SWSA boundaries
- Upper\_Vaal\_SWSA
- Soutpansberg\_SWSA
- ECape Drakensberg\_SWSA
- ReLISA\_Biosphere boundaries
- SAvegmap\_biomes\_dslv
  - BIOME
  - Albany Thicket
  - Grassland
  - Savanna





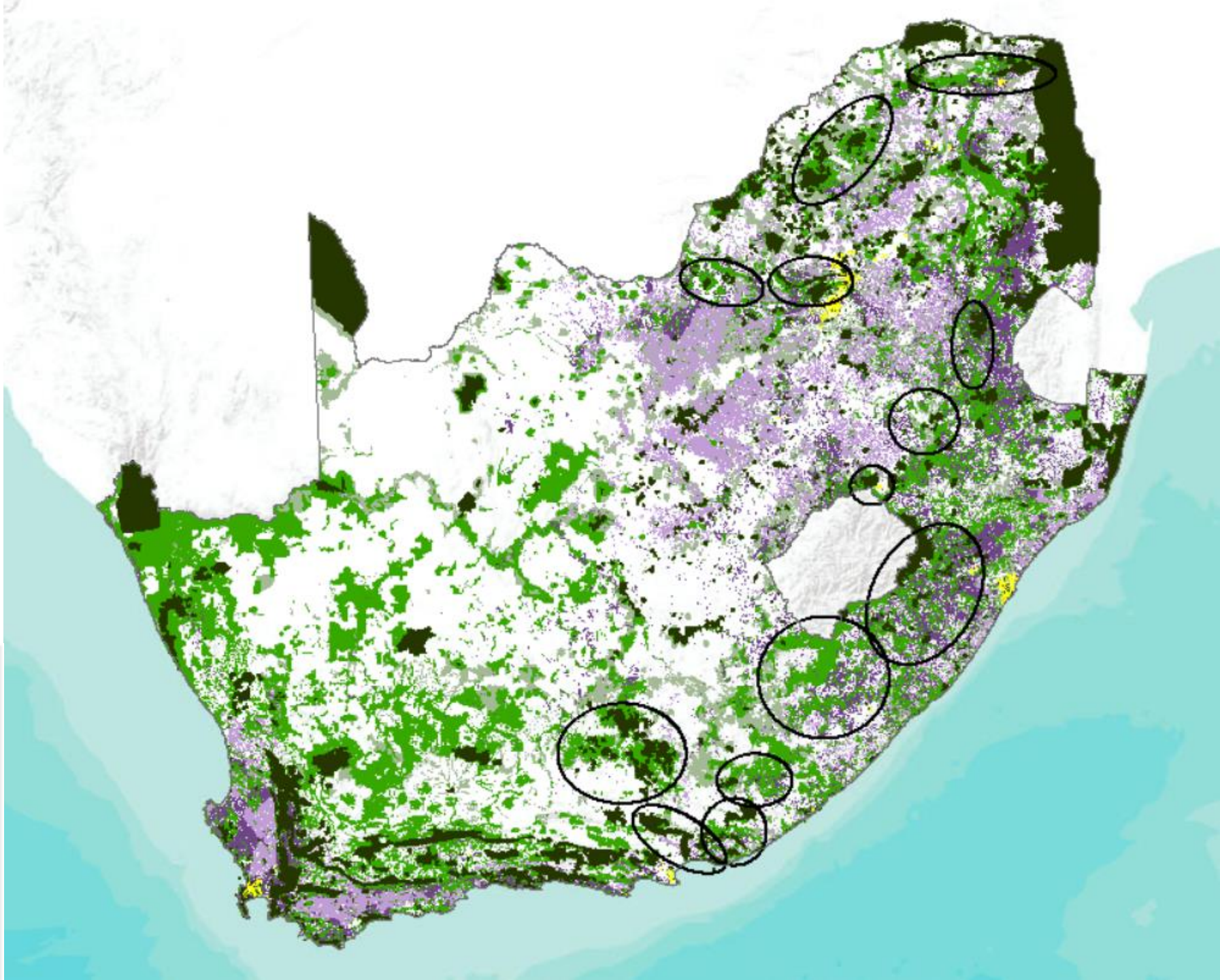
ReLISA potential focal regions  
(with thicket, grassland &  
savannah biome extent)



# Essential Life Support Action Areas (ELSAAAs), 2021

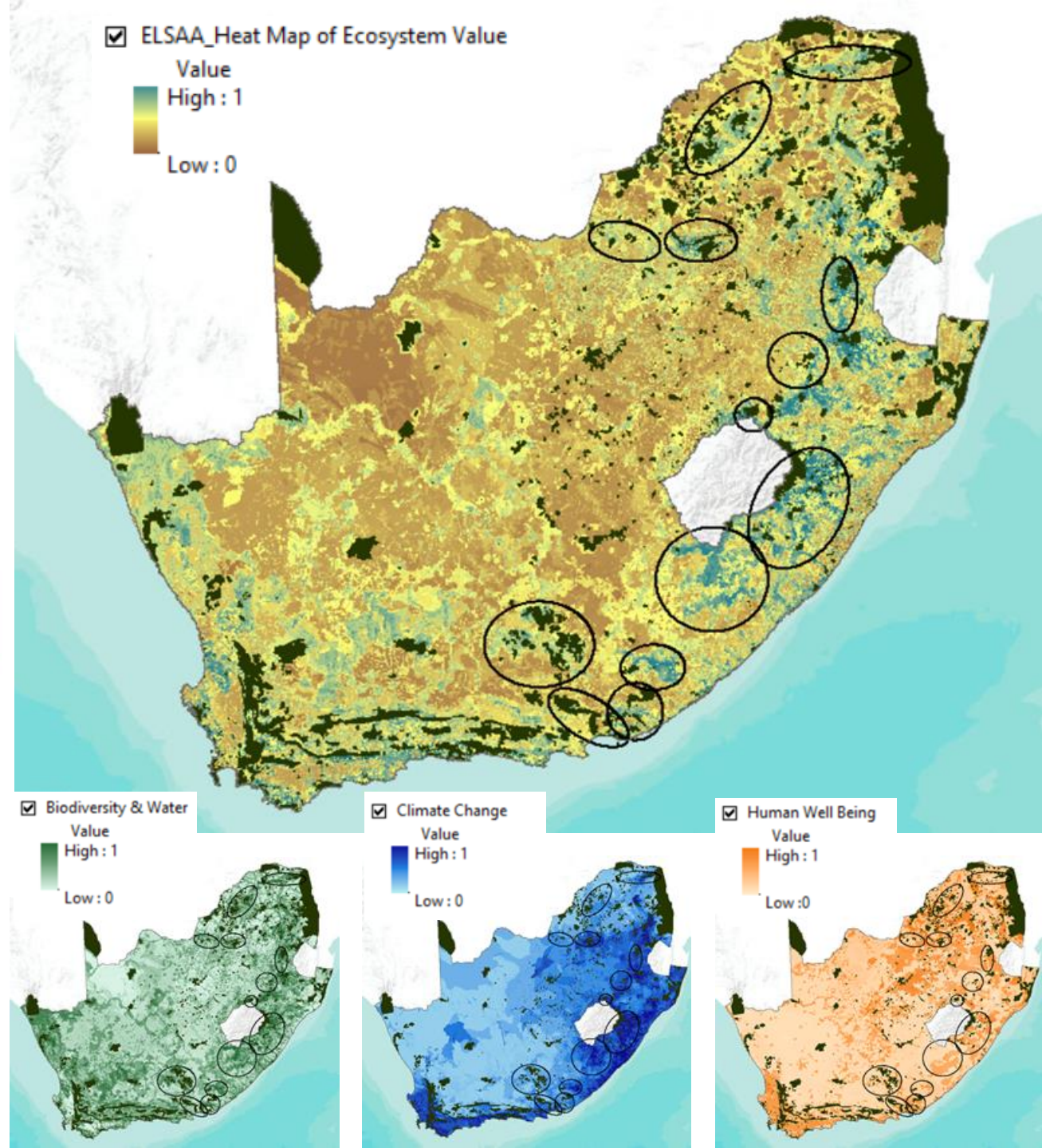
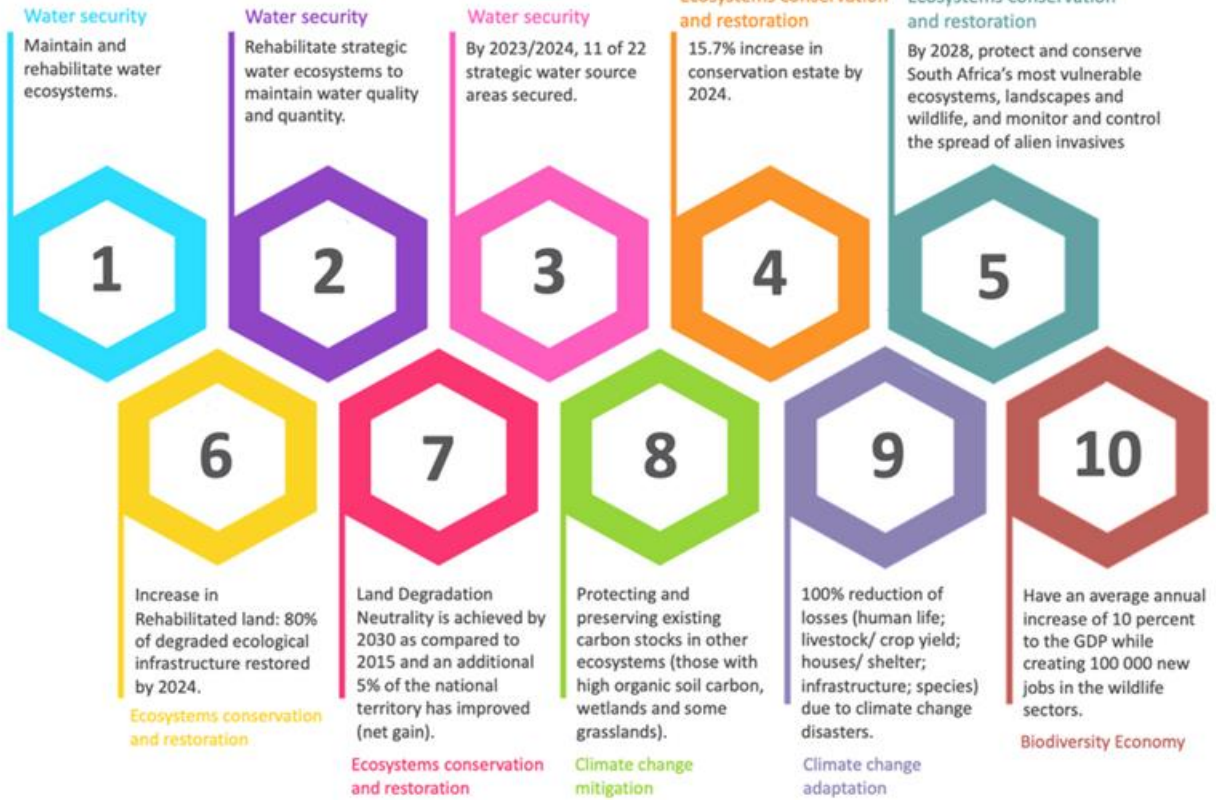


- Areas for protection
- Areas for restoration
- Areas to reduce pressures
- Areas for urban adaptation
- Areas to avoid loss
- Existing protected areas



# Essential Life Support Action Areas (ELSAA), 2021

## The 10 prioritized commitments for ELSA South Africa



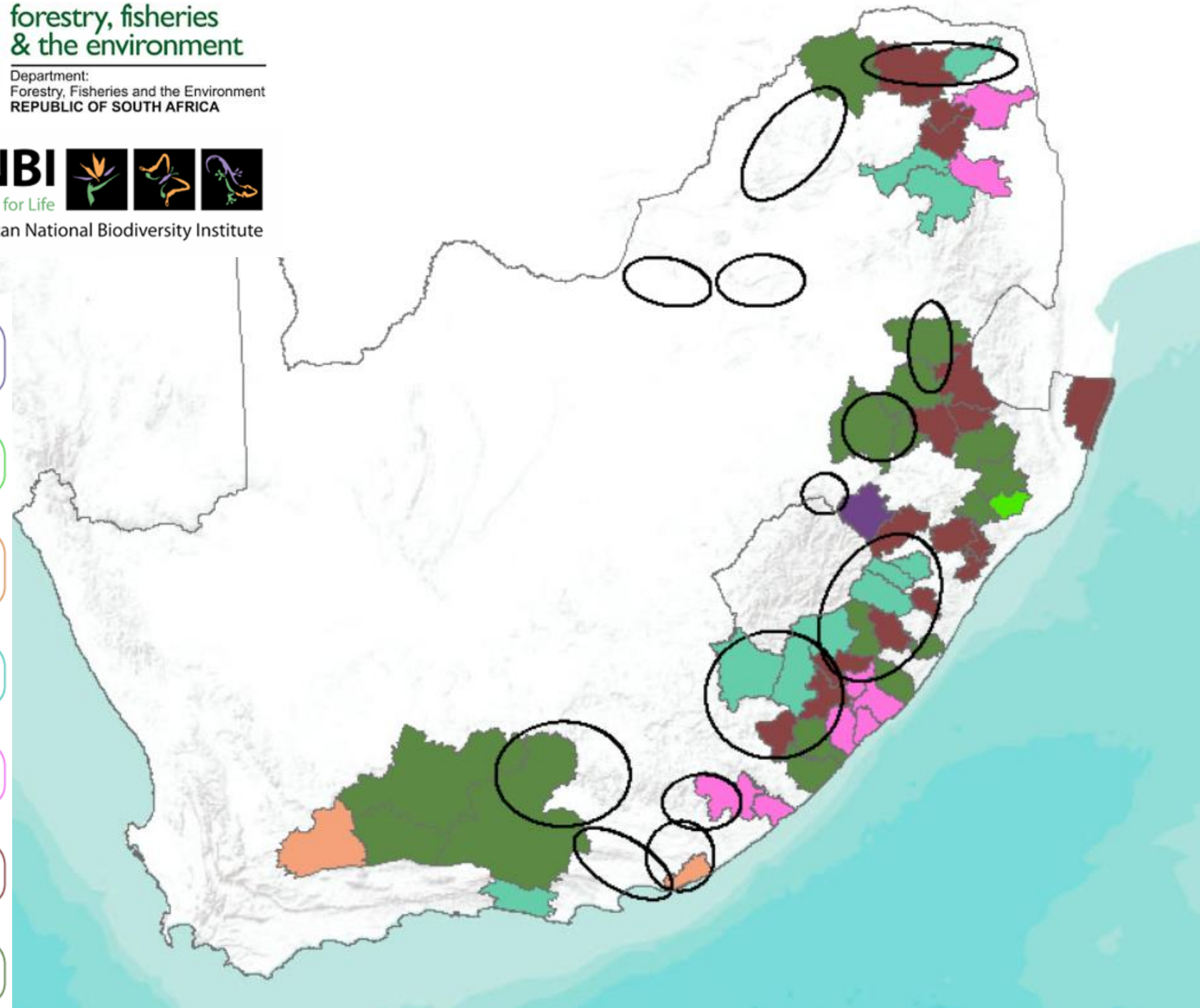
# Ecosystem-based Adaptation (EbA) Priority Areas, 2019

Implemented by



forestry, fisheries & the environment

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



## Scenario 6

Baseline plus high environmental risk, biodiversity importance and climate change vulnerability

## Scenario 5

Baseline plus high environmental risk and climate change vulnerability

## Scenario 4

Baseline plus high biodiversity importance and climate change vulnerability of ecosystems

## Scenario 3

Baseline plus high environmental risk and biodiversity importance

## Scenario 2

Baseline plus high biodiversity importance

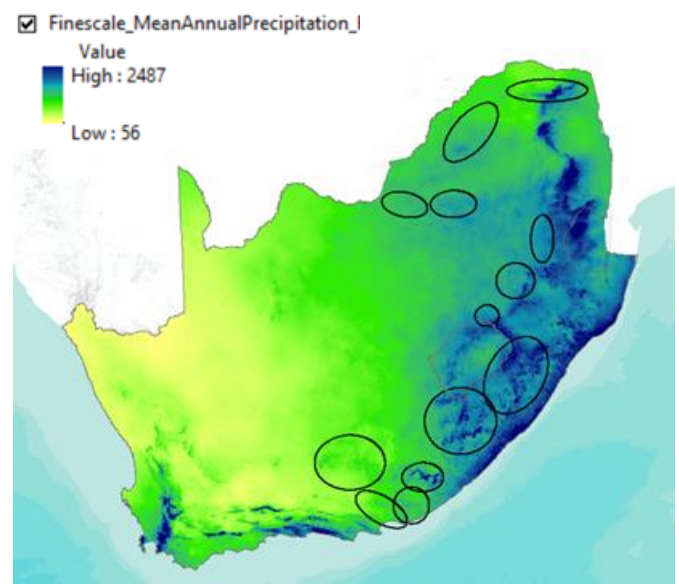
## Scenario 1

Baseline plus high environmental risk of EI being lost to human development

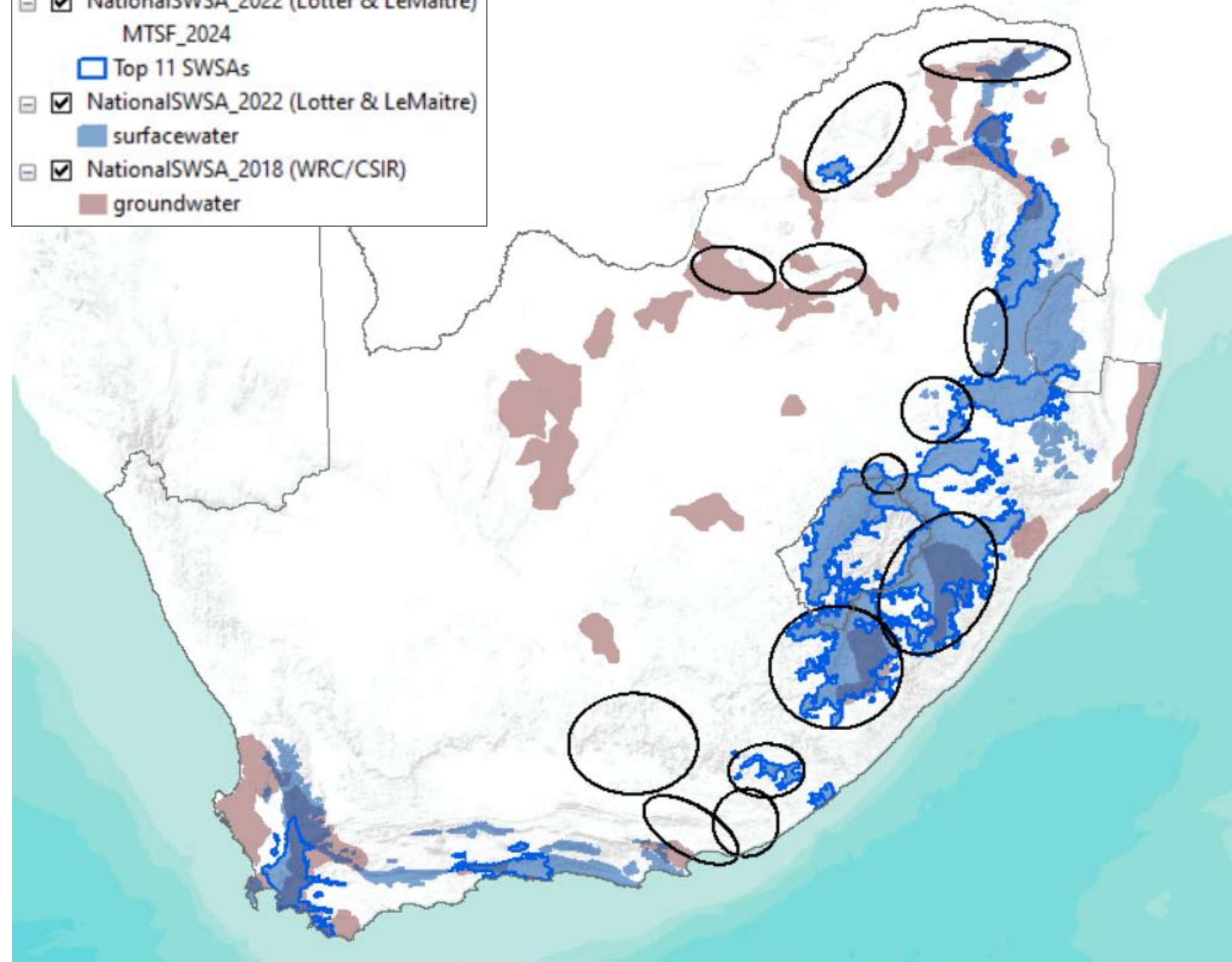
## Scenario 0

High EbA potential (baseline)

# National Strategic Water Source Areas (SWSAs)



- NationalSWSA\_2022 (Lotter & LeMaitre) MTSF\_2024
- Top 11 SWSAs
- NationalSWSA\_2022 (Lotter & LeMaitre)
- surfacewater
- NationalSWSA\_2018 (WRC/CSIR)
- groundwater

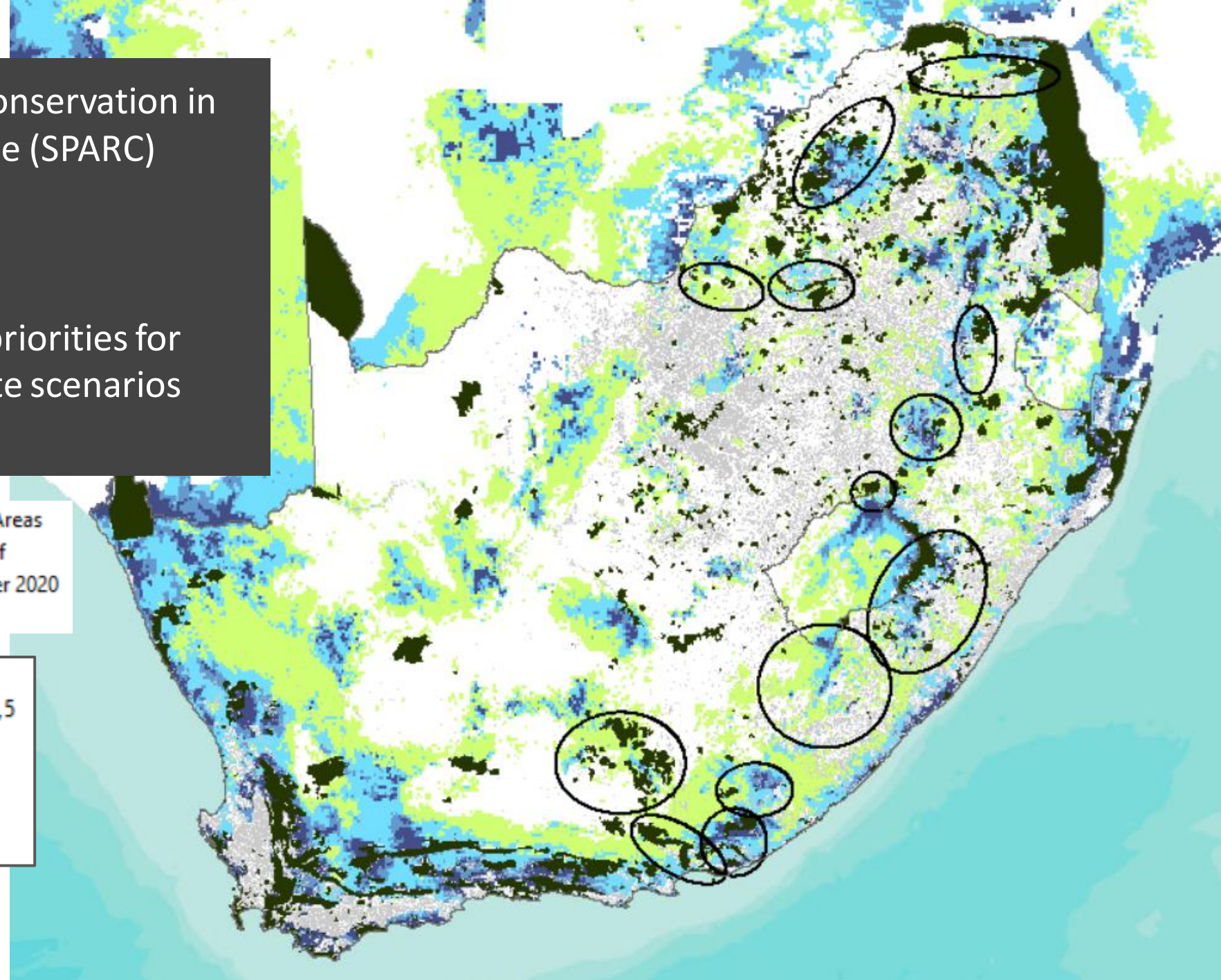
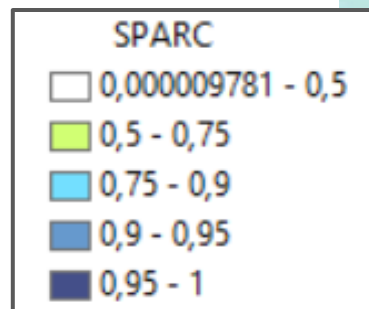




Spatial Planning for Area Conservation in Response to Climate Change (SPARC) Project  
(Hannah et al., 2020)

Protected area expansion priorities for species under future climate scenarios (rcp 2.6)

- Current Protected Areas
- LC20L4\_HM70ScNat.tif
- National Landcover 2020
- Developed



# ReLISA – the core value proposition: *Are our approaches and choices sensible?*

1. There is a **lack of awareness** of commercial impacts and dependencies on ecosystems;
2. The **opportunities for bankable restoration activities are ‘off the radar’** (such as value chain development for sustainably produced goat meat, NTFP and other commodities, and projects for voluntary carbon market projects, **which could fund the upscaling of thicket, grassland or savanna restoration**); and
3. There are **coordination failures** leading to ‘locked-into’ pathways as the main actors (government, civil society, communities, private sector) need to coordinate effectively towards large-scale restoration

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