Convention on Biological Diversity

UNDP

# Aichi Biodiversity Target 11 Country Dossier: SOUTH AFRICA

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Global Partnership on AICHI TARGET 11

UNBiodiversity Lab

# TABLE OF CONTENTS

# GLOSSARY

| | |
|---|---|
| AZEs | Alliance for Zero Extinction sites |
| CEPF | Critical Ecosystem Partnership Fund |
| EBSA | Ecologically or Biologically Significant Marine Area |
| EEZ | Exclusive Economic Zone |
| GCF | Green Climate Fund |
| GD-PAME | Global Database on Protected Area Management Effectiveness |
| GEF | Global Environment Facility |
| IBA | Important Bird and Biodiversity Area |
| ICCAs | Indigenous and Community Conserved Area Area (may also be referred to as territories and areas conserved by Indigenous peoples and local communities or "territories of life") |
| IPLC | Indigenous Peoples and Local Communities |
| KBA | Key Biodiversity Area |
| MEOW | Marine Ecosystems of the World |
| MPA | Marine Protected Area |
| NBSAP | National Biodiversity Strategy and Action Plan |
| OECM | Other Effective Area-Based Conservation Measures |
| PA | Protected Area |
| PAME | Protected Area Management Effectiveness |
| PPA | Privately Protected Area |
| PPOW | Pelagic Provinces of the World |
| ProtConn | Protected Connected land indicator |
| SOC | Soil Organic Carbon |
| TEOW | Terrestrial Ecosystems of the World |
| WDPA | World Database on Protected Areas |
| WD-OECM | World Database on Other Effective Area-Based Conservation Measures |

## Disclaimer

The designations employed and the presentation of material in this dossier do not imply the expression of any opinion whatsoever on the part of the Secretariat of the Convention on Biological Diversity (SCBD) or United Nations Development Programme (UNDP) concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. The information contained in this publication do not necessarily represent those of the SCBD or UNDP.

This country dossier is compiled by the UNDP and SCBD from publicly available information. It is prepared, within the overall work of the Global Partnership on Aichi Biodiversity Target 11, for the purpose of attracting the attention of the Party concerned and other national stakeholders to facilitate the verification, correcting, and updating of country data. The statistics might differ from those reported officially by the country due to differences in methodologies and datasets used to assess protected area coverage and differences in the base maps used to measure terrestrial and marine area of a country or territory. Furthermore, the suggestions from the UNDP and SCBD are based on analyses of global datasets, which may not necessarily be representative of national policy or criteria used at the national level. The analyses are also subject to the limits inherent in global indicators (precision, reliability, underlying assumptions, etc.). Therefore, they provide useful information but cannot replace analyses at a national level nor constitute a future benchmark for national policy or decision-making.

The preparation of this dossier was generously supported by: the Government of the Federal Republic of Germany, *Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GMbH*; the European Commission; the Government of the United Kingdom of Great Britain and Northern Ireland; and the Government of Japan (Japan Biodiversity Fund). The dossier does not necessarily reflect their views.



# EXECUTIVE SUMMARY

This document provides information on the coverage of protected areas (PAs) and other effective area-based conservation measures (OECMs), as currently reported in global databases (the World Database on Protected Areas (WDPA) and World Database on Other Effective Area-Based Conservation Measures (WD-OECM)). It also includes details on the status of the other qualifying elements of Aichi Biodiversity Target 11 based on this data. These statistics might differ from those reported officially by countries due to difference in methodologies and datasets used to assess protected area coverage, differences in the base maps used to measure terrestrial and marine area of a country or territory, or if global datasets differ from the criteria and indicators used at the national level. This dossier also provides a summary of commitments made under Aichi Biodiversity Target 11, and a summary of potential opportunities regarding elements of the target for future planning.

The dossier has been developed in consultation with the UN Environment Programme World Conservation Monitoring Centre (UNEP-WCMC), which manages the WDPA, WD-OECM and Global Database on Protected Area Management Effectiveness (GD-PAME). Parties to the CBD are requested to contact protectedareas@unep-wcmc.org with any updates to the information in these databases.

## Aichi Biodiversity Target 11 Elements: Current status and opportunities for action

### Coverage - Terrestrial & Marine

- **Status:** as of May 2021, terrestrial coverage from PAs and OECMs in South Africa is 191,520 km$^2$ (15.6%) and marine coverage is 239,621 km$^2$ (15.5%).
- **Opportunities for action:** opportunities for the near-term include updating the WDPA with any unreported PAs, and the recognizing and reporting OECMs to the WD-OECM. In the future, focus on relatively intact areas, while addressing the elements in the following sections, could be considered when planning new PAs or OECMs.

### Ecological Representativeness– Terrestrial & Marine

- **Status:** South Africa contains 20 terrestrial ecoregions, 5 marine ecoregions, and 3 pelagic provinces (all of which have at least some coverage by PAs and OECMs): the mean coverage by reported PAs and OECMs is 21.9% (terrestrial), 51.5% (marine), and 14.0% (pelagic).
- **Opportunities for action:** there is opportunity for South Africa to increase protection in terrestrial and marine ecoregions and pelagic provinces that have lower levels of coverage by PAs or OECMs.

### Areas Important for Biodiversity

- **Status:** South Africa has 165 Key Biodiversity Areas (KBAs): the mean coverage of KBAs by reported PAs and OECMs is 34.5%, while 48 KBAs have no coverage by reported PAs and OECMs.

- **Opportunities for action:** there is opportunity for South Africa to increase protection of KBAs that have lower levels of coverage by PAs and OECMs; priority could be given to those with no current coverage.

### Areas Important for Ecosystem Services

- **Status:** coverage of areas important for ecosystem services: In South Africa, 12.9% of aboveground biomass carbon, 13.9% of belowground biomass carbon, 11.3% of soil organic carbon, 12.6% of carbon stored in marine sediments is covered by PAs and OECMs.

- **Opportunities for action:** for carbon, there is opportunity for South Africa to increase PA and OECM coverage in both marine and terrestrial areas with high carbon stocks. Protecting areas with high carbon stocks secures the benefits of carbon sequestration in the area.

- For water, there is opportunity to increase the area of the water catchment under protection by PAs and OECMs, or in cases where there is high levels of protection, focus on effective management for these areas. Protecting the current area of forested land and potentially reforesting would have benefits for improving water security.

### Connectivity and Integration

- **Status:** coverage of protected-connected lands is 2.5%.

- **Opportunities for action:** there is opportunity for a general increase of PAs or OECMs and to focus on PA and OECM management for enhancing and maintaining connectivity. Improving connectivity increases the effectiveness of PAs and OECMs and reduces the impacts of fragmentation.

- As well, a range of suggested steps for enhancing and supporting integration are included in the voluntary guidance on the integration of PAs and OECMs into the wider land- and seascapes and mainstreaming across sectors to contribute, inter alia, to the SDGs (Annex I of COP Decision 14/8).

### Governance Diversity

- **Status:** the most common governance type(s) for reported PAs in South Africa is: 57.6% under Private governance (57.1% Individual landowners; 0.5% non-profit organisations). For OECMs, 58.8% are under Private governance (by non-profit organisations).

- **Opportunities for action:** explore opportunities for governance types that have lower representation, for South Africa this could relate to governance by Indigenous Peoples and/or local communities (IPLC) and shared governance.

- There is also opportunity for South Africa to complete governance and equity assessments, to establish baselines and identify relevant actions for improvement. As well, a range of suggested actions are included in the voluntary guidance on effective governance models for management of protected areas, including equity (Annex II of COP Decision 14/8).

### Protected Area Management Effectiveness

- **Status:** 60.3% of terrestrial PAs and 1.4% of marine PAs have completed Protected Area Management Effectiveness (PAME) assessments reported.

- **Opportunities for action:** the 60% target for completed management effectiveness assessments (per COP Decision X/31) **has** been met for terrestrial PAs and **has not** been met for marine PAs. Therefore, there is opportunity to increase protected area management effectiveness (PAME) evaluations for marine PAs to achieve the target.

- There is also opportunity to implement the results of completed PAME evaluations, to improve the quality of management for existing PAs and OECMs (e.g. through adaptive management and information sharing, increasing the number of sites reporting 'sound management') and to increase reporting of biodiversity outcomes in PAs and OECMs.

# INTRODUCTION

The Strategic Plan for Biodiversity 2011-2020 was adopted at the tenth meeting of the Conference of the Parties (COP) to the Convention on Biological Diversity (CBD) held in Nagoya, Aichi Prefecture, Japan from 18-29 October 2010. The vision of the Strategic Plan is one of "Living in harmony with nature" where *"By 2050, biodiversity is valued, conserved, restored and wisely used, maintaining ecosystem services, sustaining a healthy planet and delivering benefits essential for all people"* (CBD, 2010). In addition to this vision, the Strategic Plan is composed of 20 targets, under five strategic goals. Aichi Biodiversity Target 11 states that *"By 2020, at least 17 per cent of terrestrial and inland water, and 10 per cent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well-connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscapes and seascapes."*

With the conclusion of the Aichi Biodiversity Targets in 2020, Target 11 on area-based conservation has seen success in the expansion of the global network of protected areas (PA) and other effective area-based conservation measures (OECMs). The negotiation of the post-2020 Global Biodiversity Framework (GBF) and its future targets provide an essential opportunity to further improve the coverage of PAs and OECMs, to improve other aspects of area-based conservation, to accelerate progress on biodiversity conservation more broadly, while also addressing climate change, and the Sustainable Development Goals. This next set of global biodiversity targets are to be adopted at the fifteenth meeting of the Conference of the Parties to the Convention on Biological Diversity. These new targets must aim to build upon lessons learned from the last decade of progress to deliver transformative change for the benefit of nature and people, to realize the 2050 Vision for biodiversity.

The United Nations Development Programme (UNDP) and the Secretariat of the Convention on Biological Diversity have developed the Aichi Biodiversity Target 11 Country Dossiers, which provide countries with an overview of the status of Target 11 elements, opportunities for action, and a summary of commitments made by Parties over the last decade. Each dossier can support countries in assessing their progress on key elements of Aichi Biodiversity Target 11 and identifying opportunities to prioritize new protected areas and OECMs.

This dossier provides an overview of area-based conservation in South Africa. Section I of the dossier presents data on the current status of South Africa's PAs and OECMs. The data presented in Section I relates to each element of Target 11. Section I also presents the PA and OECM coverage for two critical ecosystem services: water security and carbon stocks. In addition, the dossier presents potential opportunities for action for South Africa, in relation to each Target 11 element. The analyses present options for improving South Africa's area-based conservation network to achieve enhanced protection and benefits for livelihoods and climate change. Section II presents details on South Africa's existing PA and OECM commitments as a summary of existing efforts towards achieving Target 11. This gives focus not only to national policy and actions but also voluntary commitments to the

UN. Furthermore, where data is available, this dossier provides information on potential OECMs, Indigenous and Community Conserved Areas (ICCAs; also, often referred to as territories and areas conserved by Indigenous peoples and local communities or "territories of life") and Privately Protected Areas (PPAs) and the potential contribution they will have in achieving the post-2020 targets.

The information on PAs and OECMs presented here is derived from the World Database on Protected Areas (WDPA) and World Database on Other Effective Area-Based Conservation Measures (WD-OECM). These databases are joint products of UNEP and IUCN, managed by UNEP-WCMC, and can be viewed and downloaded at www.protectedplanet.net. Parties are encouraged to provide data on their PAs and OECMs to UNEP-WCMC for incorporation into the databases (see e.g., Decisions 10/31 and 14/8). The significant efforts of Parties in updating their data in the build up to the publication of the Protected Planet Report 2020 (UNEP-WCMC and IUCN, 2021) were greatly appreciated. UNEP-WCMC welcomes further updates, following the data standards described here (www.wcmc.io/WDPA_Manual), and these should be directed to protectedareas@unep-wcmc.org. The statistics presented in this dossier are derived from the May 2021 WDPA and WD-OECM releases, unless explicitly stated otherwise. Readers should consult www.protectedplanet.net for the latest coverage statistics (updated monthly).

Some data from the WDPA and WD-OECM are not made publicly available at the request of the data-provider. This affects some statistics, maps, and figures presented in this dossier. Statistics provided by UNEP-WCMC (terrestrial and marine coverage) are based upon the full dataset, including restricted data. All other statistics, maps, and figures are based upon the subset of the data that is publicly available.

Where data is less readily available, such as for potential OECMs, ICCAs and PPAs, data has also been compiled from published reports and scientific literature to provide greater awareness of these less commonly recorded aspects. These data are provided to highlight the need for comprehensive reporting on these areas to the WDPA and/or WD-OECM. Parties are invited to work with indigenous peoples, local communities and private actors to submit data under the governance of these actors, with their consent, to the WDPA and/or WD-OECM.

Overall, PAs and OECMs are essential instruments for biodiversity conservation and to sustain essential ecosystem services that support human well-being and sustainable development, including food, medicine, and water security, as well as climate change mitigation and adaptation and disaster risk reduction. The data in this dossier, therefore, aims to celebrate the current contributions of PAs and OECMs, whilst the gaps presented hope to encourage greater progress, not just for the benefit of biodiversity and the post-2020 GBF, but also to recognize the essential role of PAs and OECMs to the Sustainable Development Goals and for addressing the climate crisis.

# SECTION I: CURRENT STATUS

Aichi Biodiversity Target 11 refers to both protected areas (PAs) and other effective area-based conservation measures (OECMs). This section provides the current status for all elements of Aichi Biodiversity Target 11 where indicators with global data are available. Statistics for all elements are presented using data on both PAs and OECMs (where this data is available and reported in global databases like the WDPA and WD-OECM). It is recognized that statistics reported in the WPDA and WD-OECM might differ from those reported officially by countries due to differences in methodologies and datasets used to assess protected area coverage and differences in the base maps used to measure terrestrial and marine area of a country or territory. Details on UNEP-WCMC's methods for calculating PA and OECM coverage area available here. The global indicators adopted here for presenting the status of other elements of Target 11 may also differ from those in use nationally.

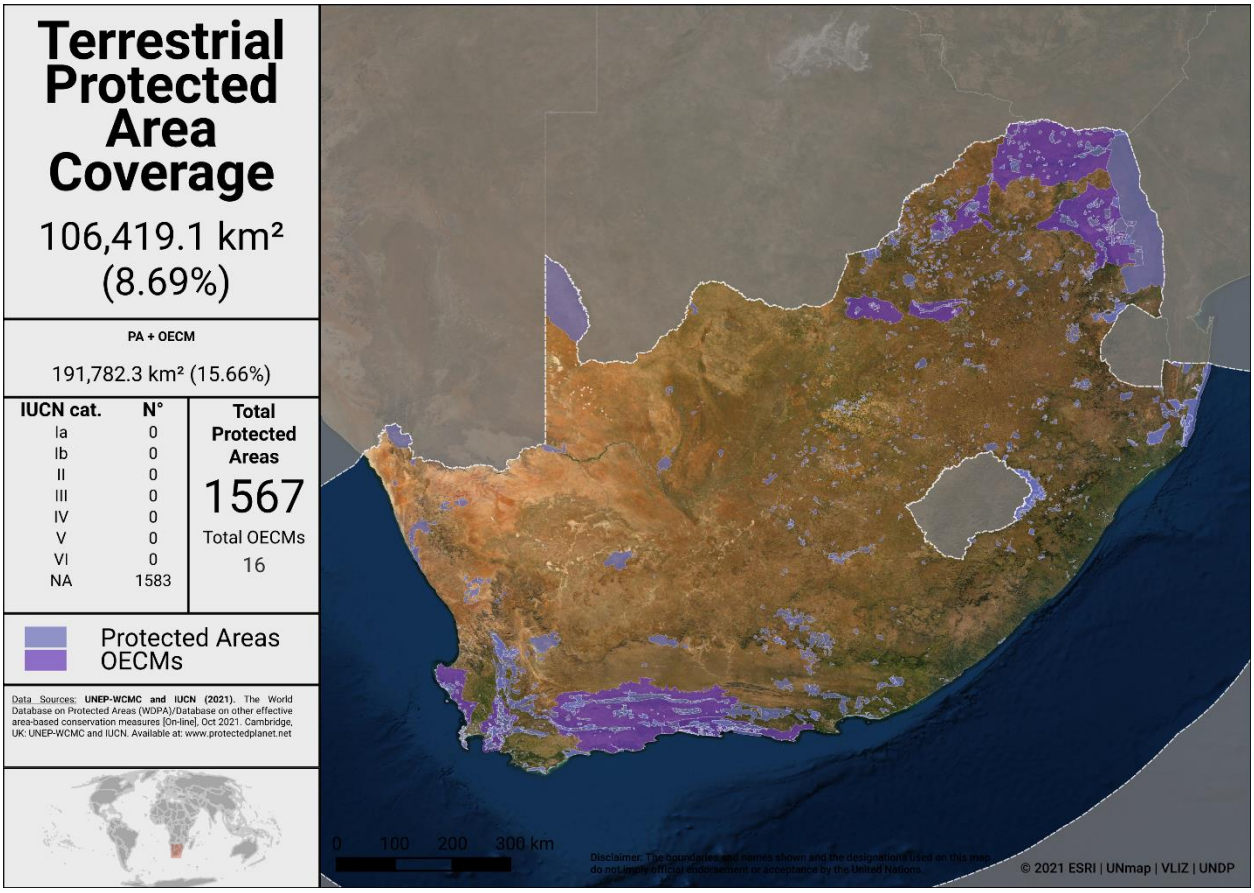
## COVERAGE - TERRESTRIAL & MARINE

As of May 2021, South Africa has **1,645** protected areas reported in the World Database on Protected Areas (WDPA). 10 UNESCO-MAB Biosphere Reserves are not included in the following statistics (see details on UNWP-WCMC's methods for calculating PA and OECM coverage **here**).

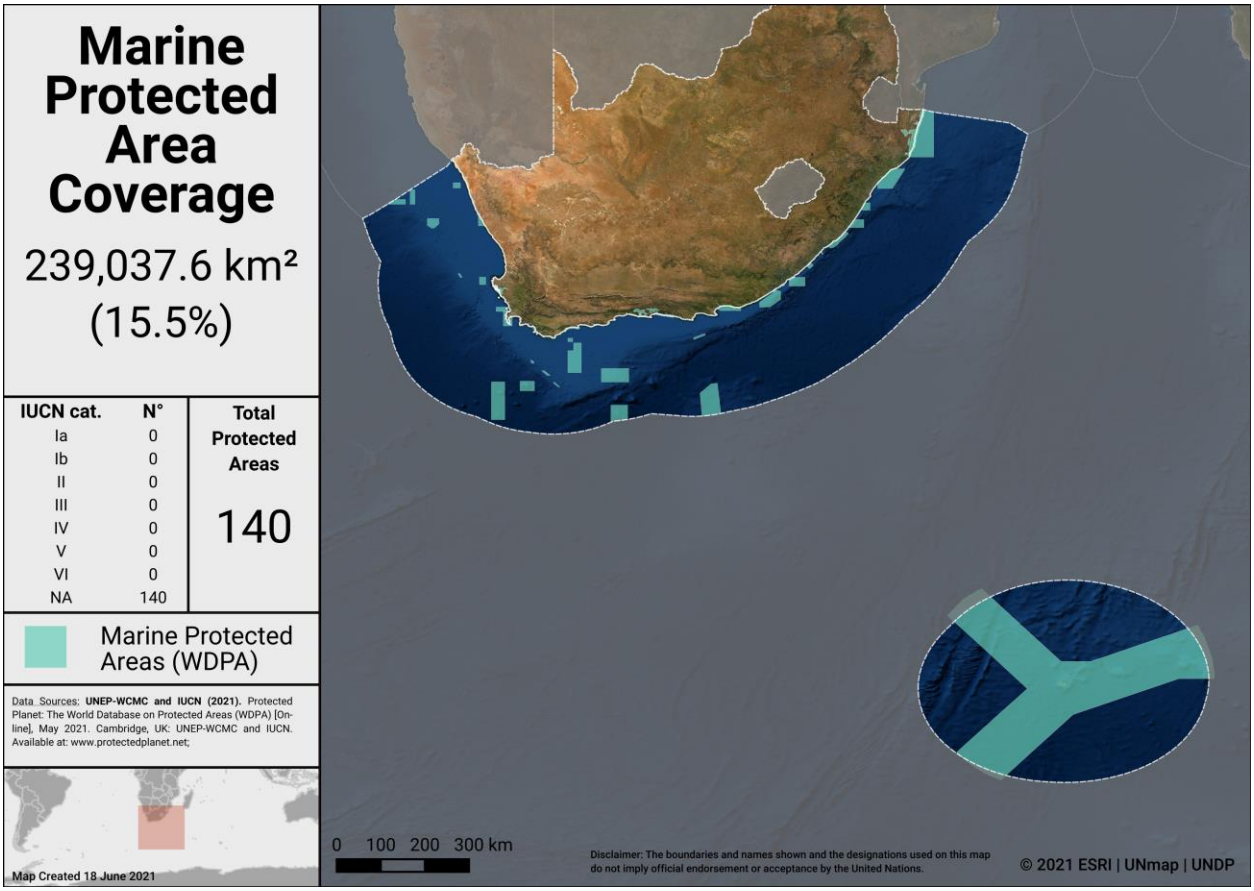
As of May 2021, South Africa has **17** OECMs reported in the world database on OECMs (WD-OECM).

Current total coverage for South Africa:

- 15.7% terrestrial (1,567 PAs, 106,419 km$^2$ and 16 OECMs, 85,363 km$^2$)
- 15.5% marine (140 protected areas, 239,038 km$^2$ and 1 OECM, 584 km$^2$)




Terrestrial Protected Areas in South Africa




Marine Protected Areas in South Africa (1 OECM not shown)

## Potential OECMs

In addition to the **17** OECMs reported in the World Database on OECMs (WD-OECM); there are 18 unprotected Key Biodiversity Areas (KBAs) managed in a way that is consistent with the OECM definition (See Donald et al., 2019 for full details regarding these 18 sites).

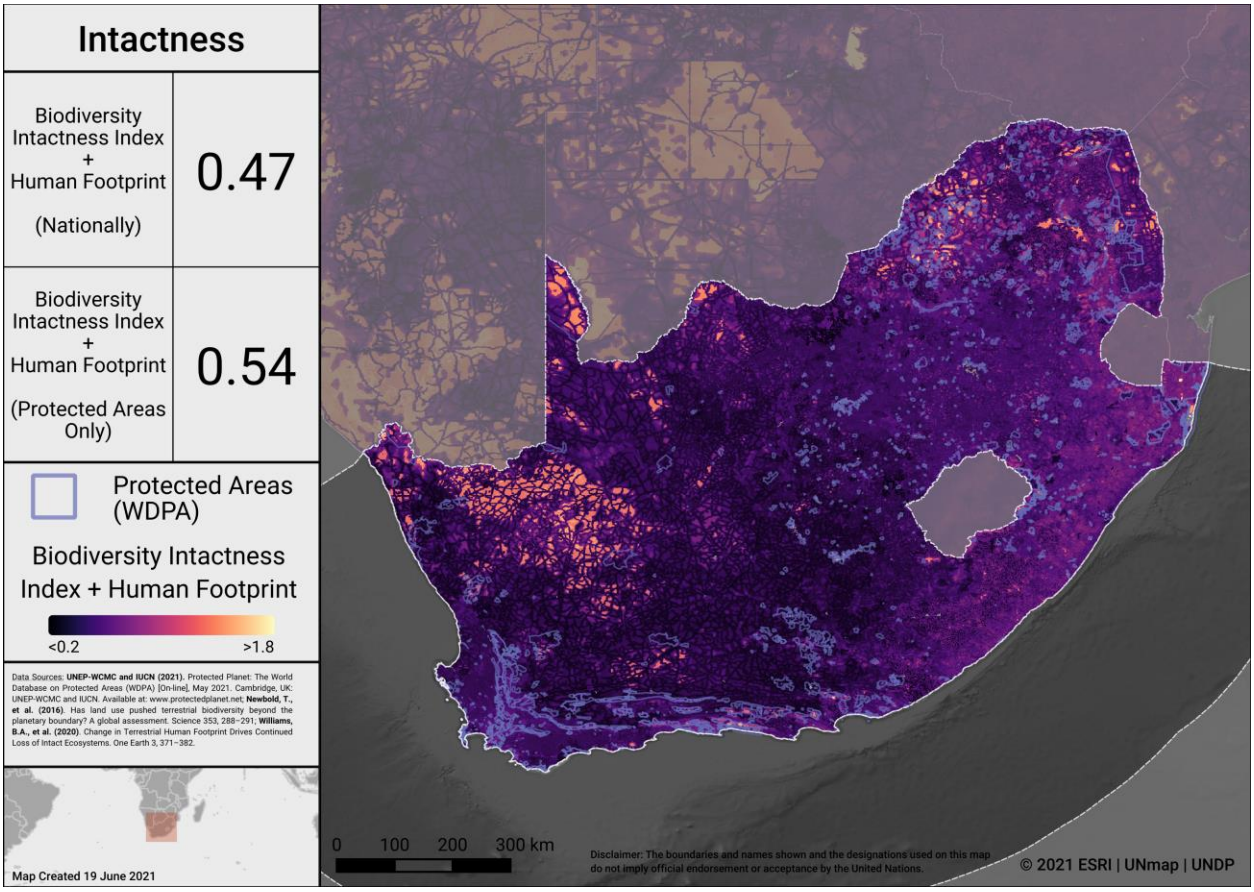
Other examples of potential OECMs in South Africa include:

| Potential OECM example | Area covered |
|---|---|
| Mabaso Community Stewardship Project, KZN Province. | 1472 ha |

For full details on this potential OECM see the collation of OECM case studies (IUCN, 2017) and summary details in Annex I in this dossier.

## Opportunities for action

Opportunities for the near-term include updating the WDPA with any unreported PAs, and the recognizing and reporting OECMs to the WD-OECM. In the future, as South Africa considers where to add new PAs and OECMs, the map below identifies areas in South Africa where intact terrestrial areas are not currently protected. Focus on relatively intact areas, while addressing the elements in the following sections, could be considered when planning new PAs or OECMs.




Intactness in South Africa

To explore more on intactness visit the UN Biodiversity Lab: map.unbiodiversitylab.org.

## ECOLOGICAL REPRESENTATIVENESS – TERRESTRIAL & MARINE

Ecological representativeness is assessed based on the PAs and OECMs coverage of broad-scale biogeographic units. Globally, ecoregions have been described for terrestrial areas (Dinerstein et al, 2017), marine coastal and shelf ecosystems (to a depth of 200m; Spalding et al 2007) and surface pelagic waters (Spalding et al 2012).

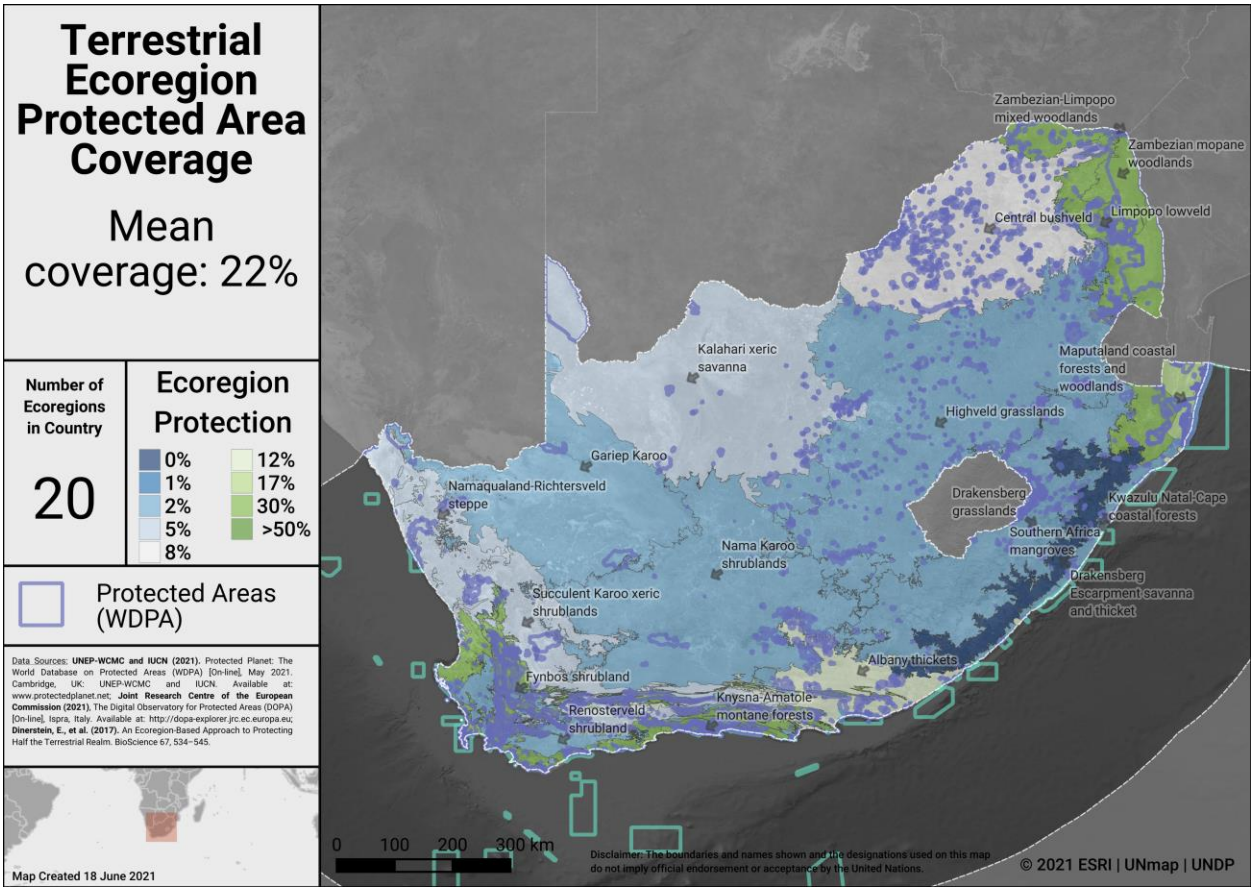
South Africa has 20 **terrestrial** ecoregions. Out of these:

- All 20 ecoregions have at least some coverage from PAs and OECMs.
- 7 ecoregions have at least 17% protected within the country.
- The average coverage of terrestrial ecoregions is 21.9%.

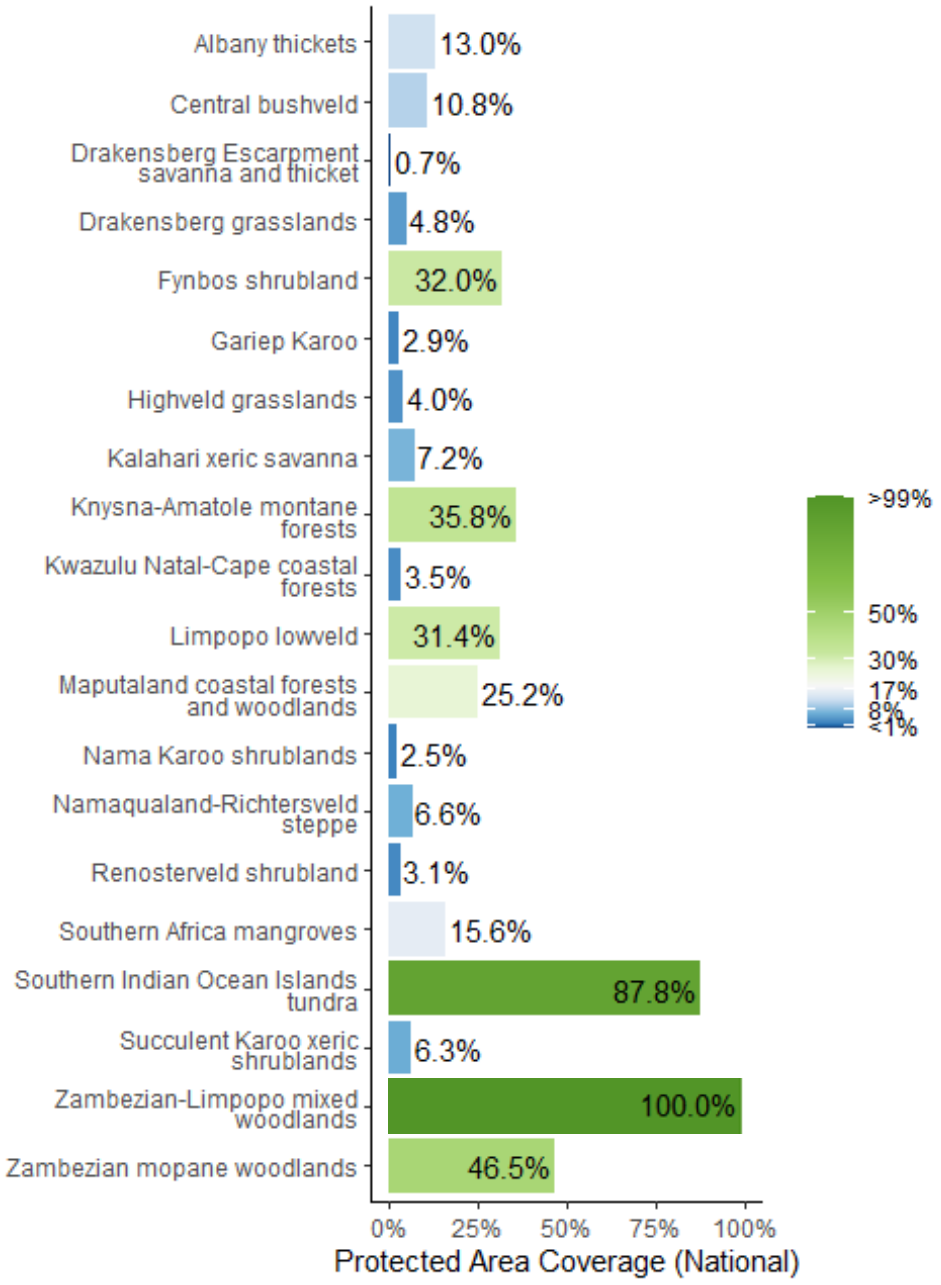
South Africa has 5 **marine** ecoregions and 3 **pelagic provinces**. Out of these:

- All 5 marine ecoregions and 3 pelagic provinces have at least some coverage from reported PAs and OECMs.
- 3 marine ecoregions and 1 pelagic province have at least 10% protected within South Africa's exclusive economic zone (EEZ).
- The average coverage of marine ecoregions is 51.5% and the average coverage of pelagic provinces is 14.0%.

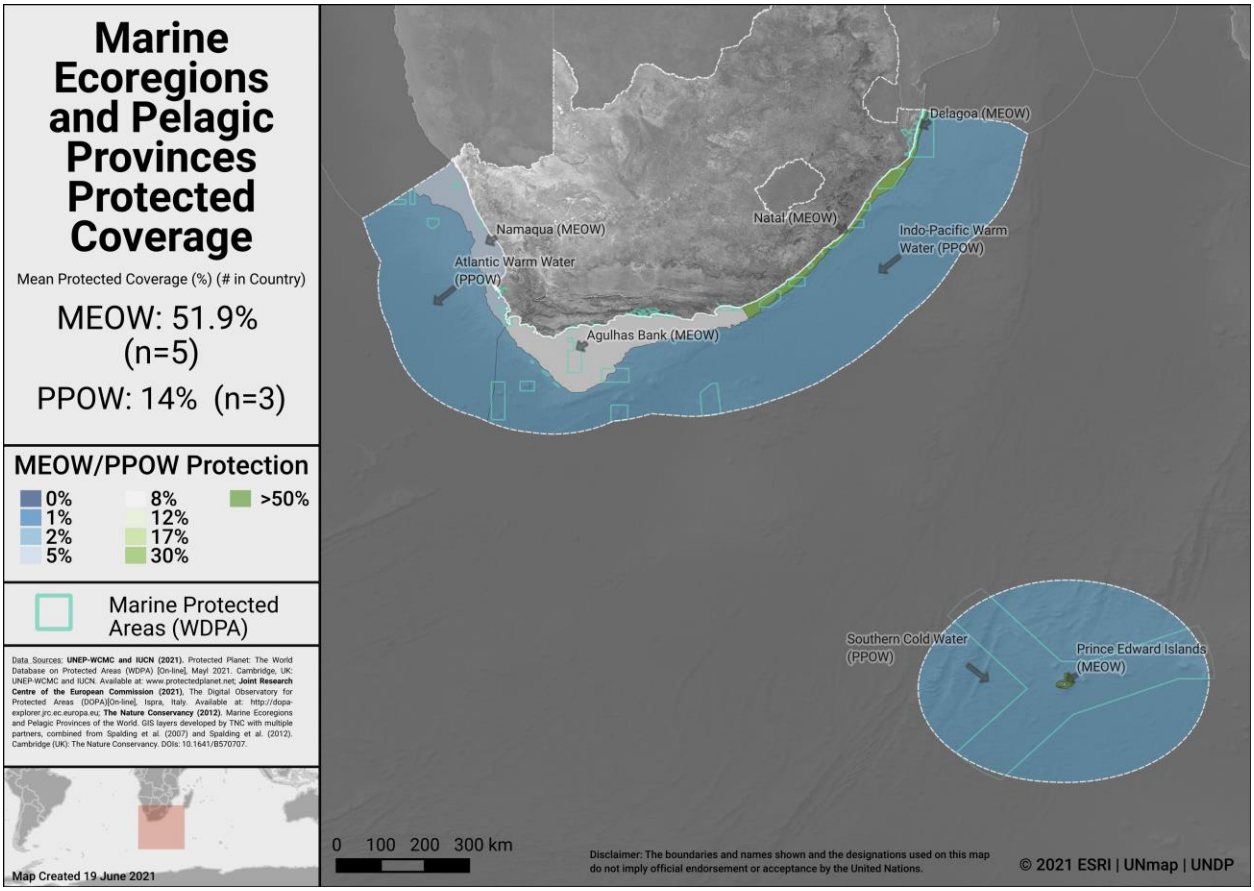
A full list of terrestrial ecoregions in South Africa is available in Annex II.



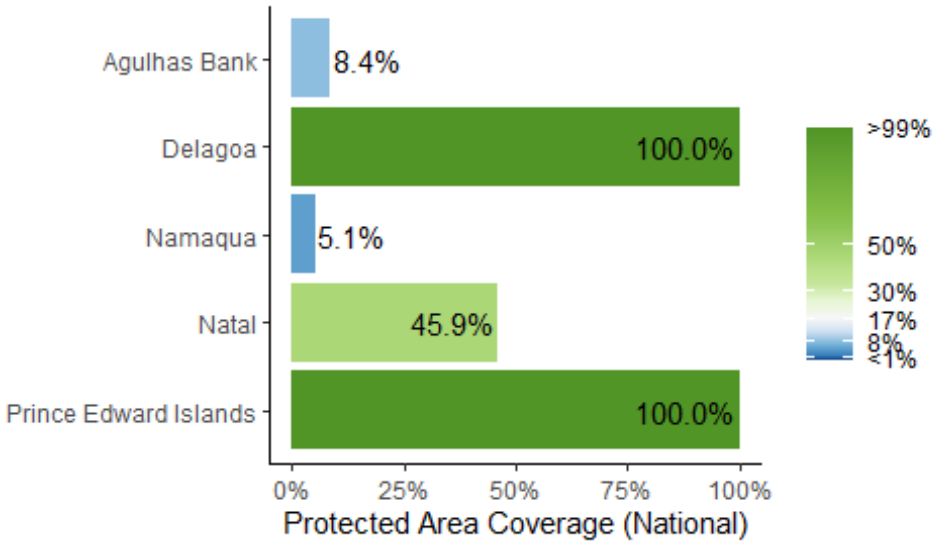

Terrestrial ecoregions in South Africa



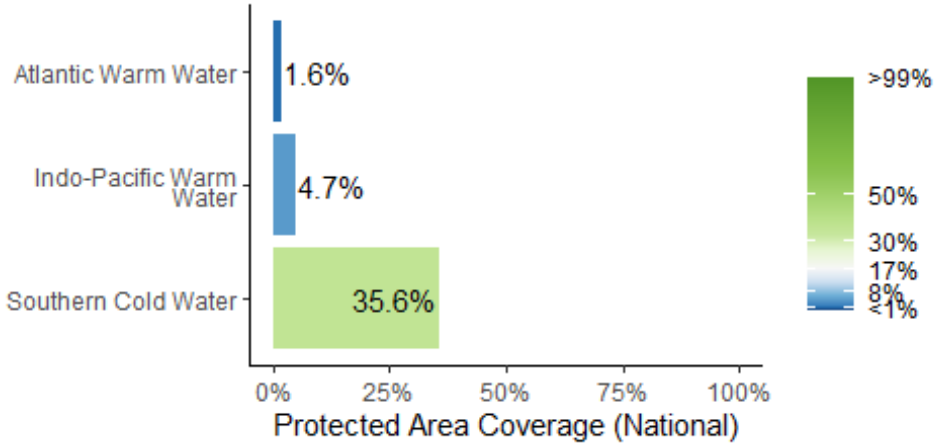

Terrestrial ecoregions of the World (TEOW) in South Africa




Marine ecoregions and pelagic provinces




Marine Ecoregions of the World (MEOW) in South Africa




Pelagic Provinces of the World (PPOW) in South Africa

## Opportunities for action

There is opportunity for South Africa to increase protection in terrestrial and marine ecoregions and pelagic provinces that have lower levels of coverage by PAs or OECMs.

## AREAS IMPORTANT FOR BIODIVERSITY

**Key Biodiversity Areas (KBAs)**

Protected area and OECM coverage of Key Biodiversity Areas (KBAs) provide one proxy for assessing the conservation of areas important for biodiversity at national, regional and global scales. KBAs are sites that make significant contributions to the global persistence of biodiversity (IUCN, 2016). The KBA concept builds on four decades of efforts to identify important sites for biodiversity, including Important Bird and Biodiversity Areas, Alliance for Zero Extinction sites, and KBAs identified through Hotspot ecosystem profiles supported by the Critical Ecosystem Partnership Fund. Incorporating these sites, the dataset of internationally significant KBAs includes Global KBAs (sites shown to meet one or more of 11 criteria in the Global Standard for the Identification of KBAs, clustered into five categories: threatened biodiversity; geographically restricted biodiversity; ecological integrity; biological processes; and irreplaceability), Regional KBAs (sites identified using pre-existing criteria and thresholds, that do not meet the Global KBA criteria based on existing information), and KBAs whose Global/Regional status is Not yet determined, but which will be assessed against the global KBA criteria within 8-12 years. Regional KBAs are often of critical international policy relevance (e.g., in EU legislation and under the Ramsar Convention on Wetlands), and many are likely to qualify as Global KBAs in future once assessed for their biodiversity importance for other taxonomic groups and ecosystems. To date, nearly 16,000 KBAs have identified globally, and information on each of these is presented in the World Database of Key Biodiversity Areas: www.keybiodiversityareas.org.

This country has established a Key Biodiversity Area (KBA) National Coordination Group which brings together a wide range of stakeholders, from government agencies, NGOs, academia and wider society. The group oversees and coordinates the identification, delineation, monitoring and promotion of conservation of KBAs, and is currently undertaking a national assessment of KBAs across all taxonomic groups and ecosystems for which data exist, building on the existing network of KBAs in the country.

South Africa has **165** Key Biodiversity Areas (KBAs).

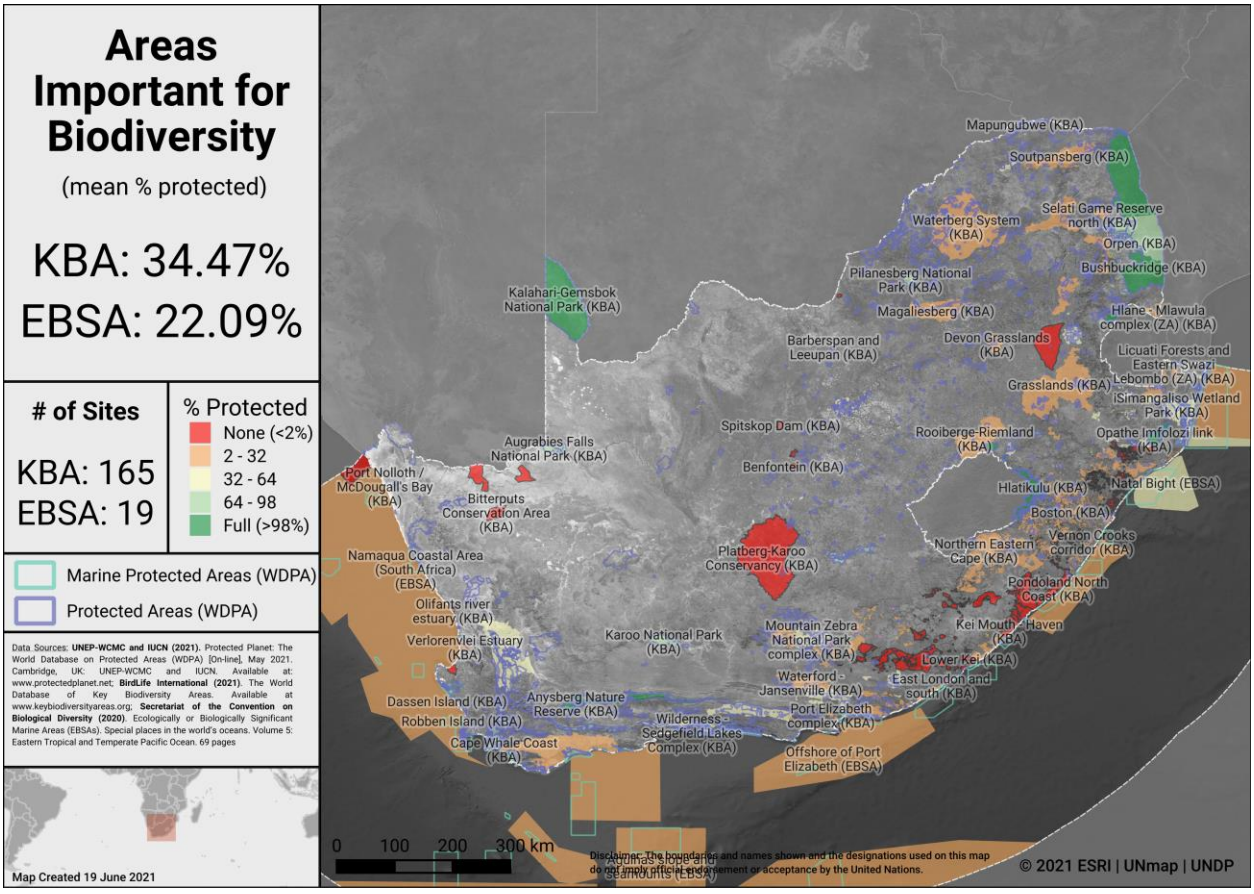
- Mean percent coverage of all KBAs by PAs and OECMs in South Africa is **34.5%**.
- **15** KBAs have full (>98%) coverage by PAs and OECMs.
- **97** KBAs have partial coverage by PAs and OECMs.
- **48** KBAs have no (<2%) coverage by PAs and OECMs.

The unprotected portion of 18 of the KBAs with low coverage from reported PAs are managed in a way that is consistent with the OECM definition (see Donald et al., 2019 for full details).

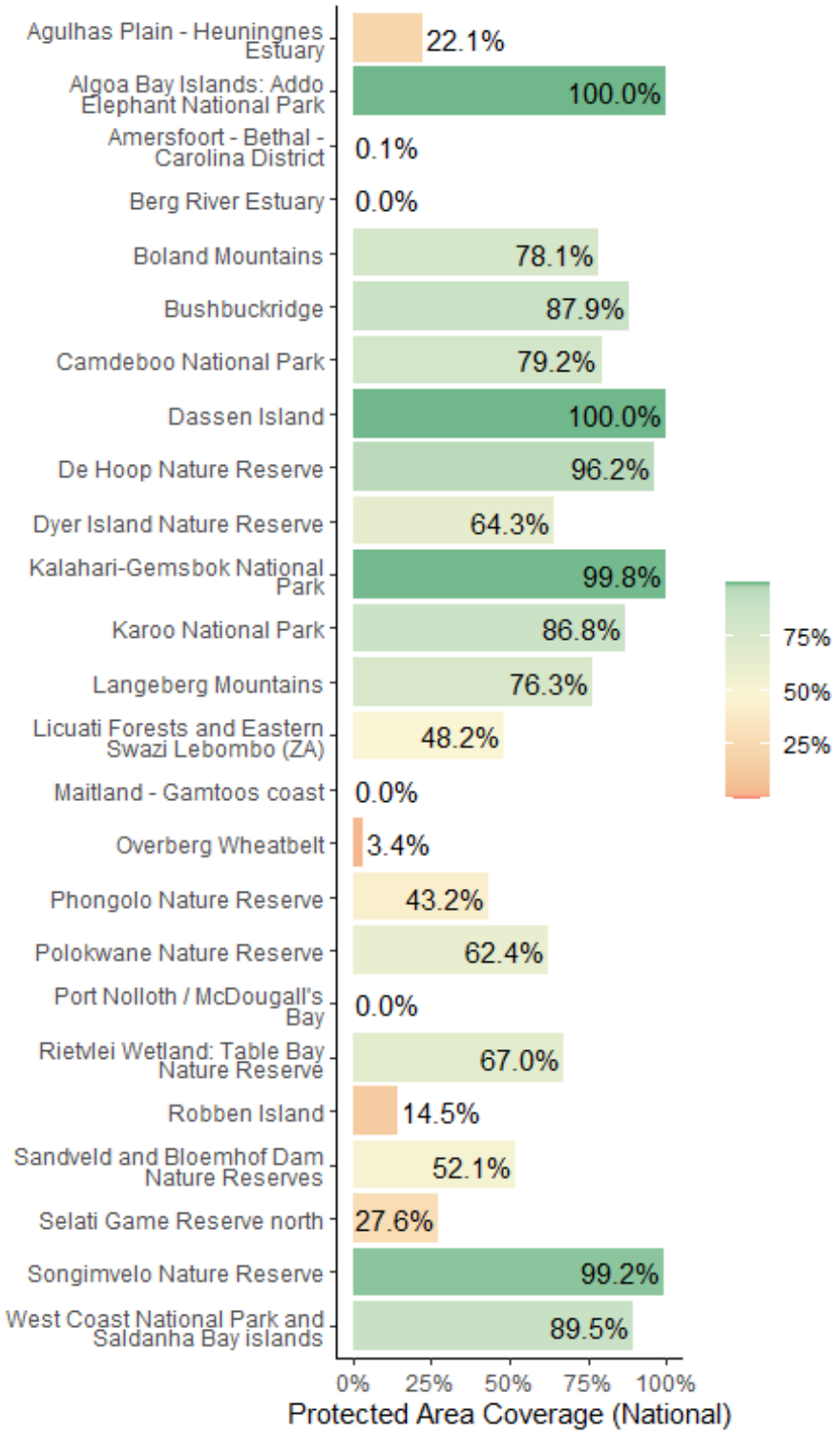
**Ecologically or Biologically Significant Marine Areas (EBSAs)**

Other important areas for biodiversity may also include Ecologically or Biologically Significant Marine Areas (EBSAs), which were identified following the scientific criteria adopted at COP-9 (Decision IX/20; see more at: https://www.cbd.int/ebsa/). Sites that meet the EBSA criteria may require enhanced conservation and management measures; this could be achieved through means including MPAs, OECMs, marine spatial planning, and impact assessment.

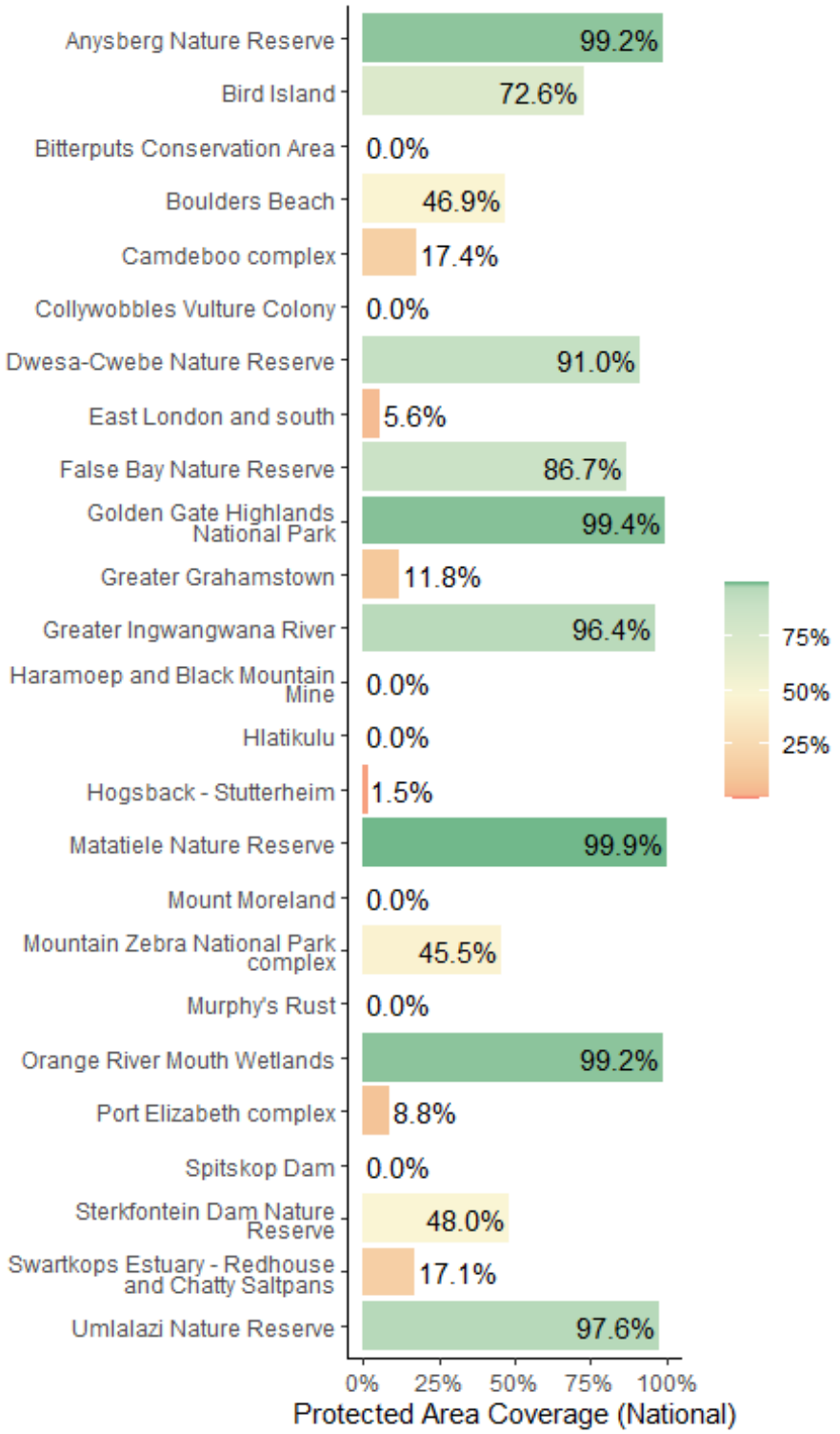
There are 19 EBSAs with some portion of their extent within South Africa's EEZ, all of which have at least some coverage from PAs and OECMs.



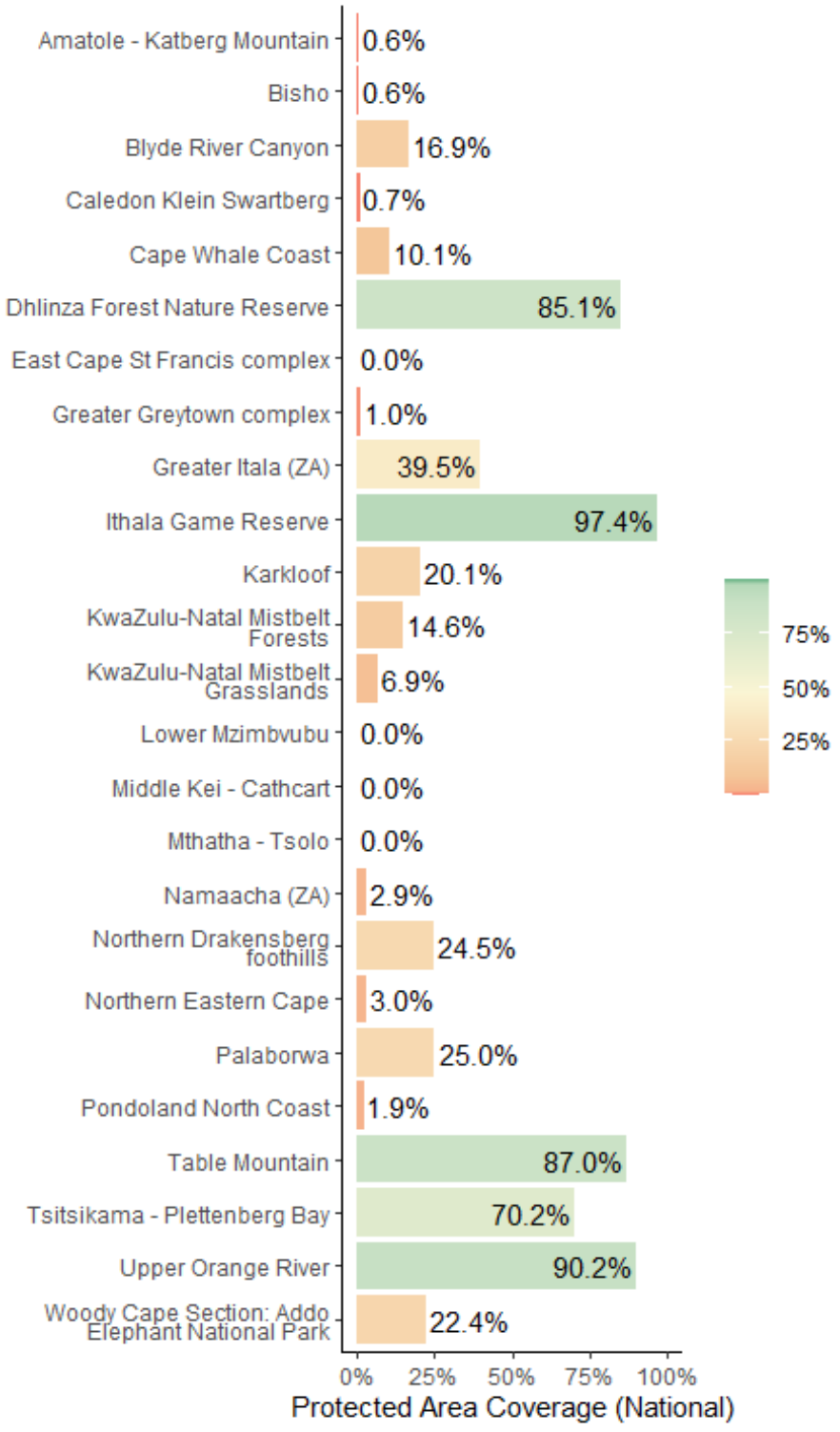

Areas Important for Biodiversity in South Africa



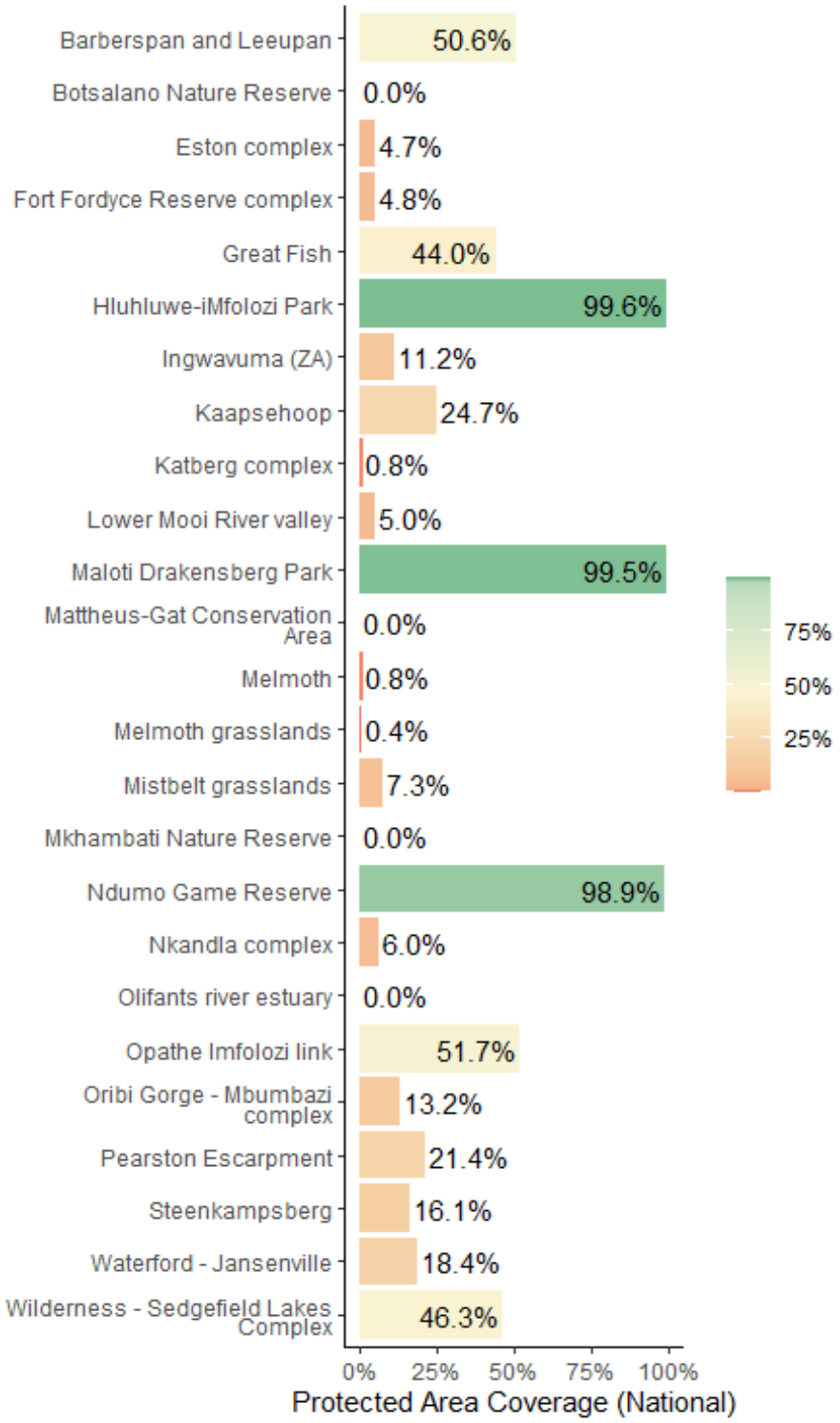

Key Biodiversity Area Coverage (KBA) in South Africa



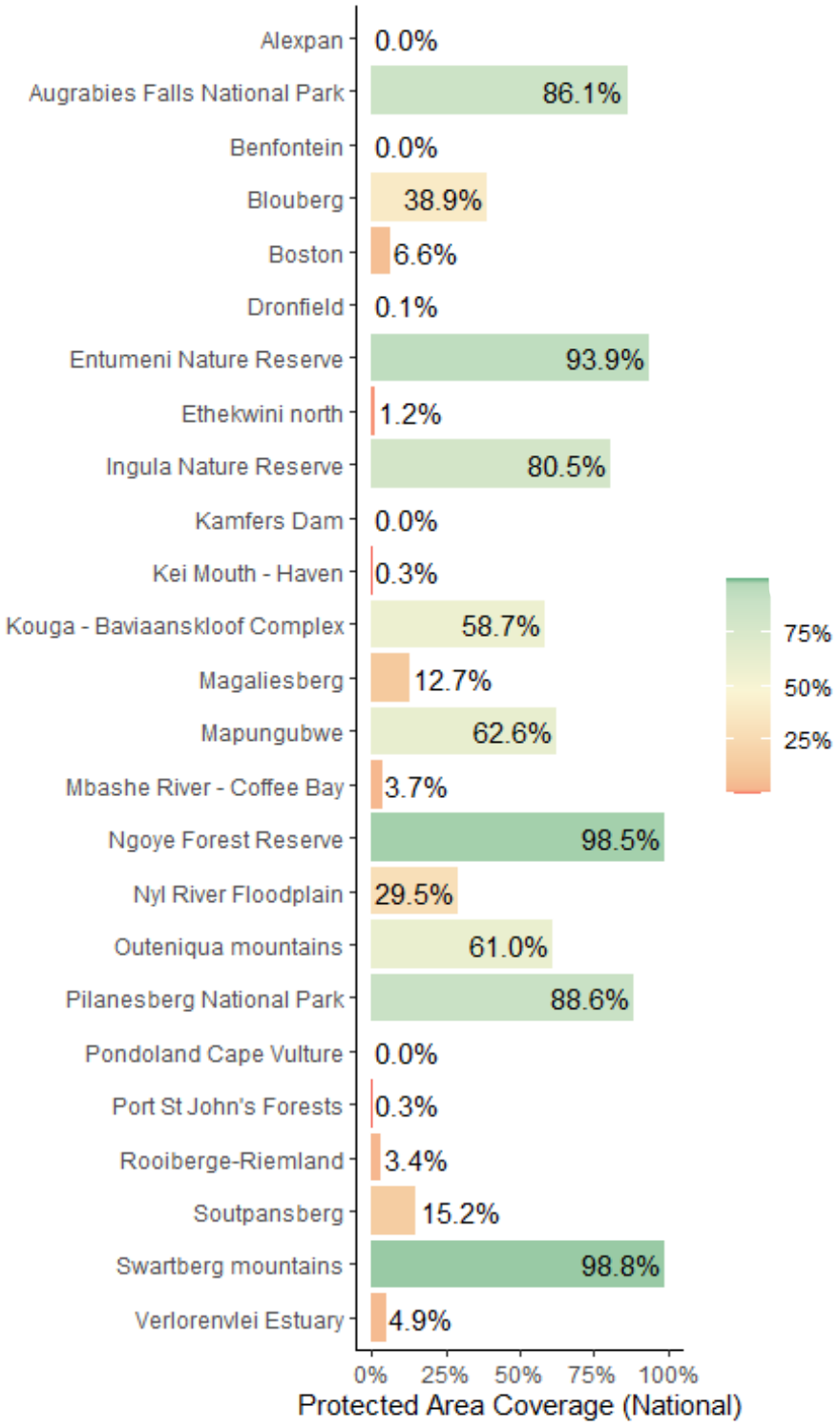

Key Biodiversity Area Coverage (KBA) in South Africa (continued)



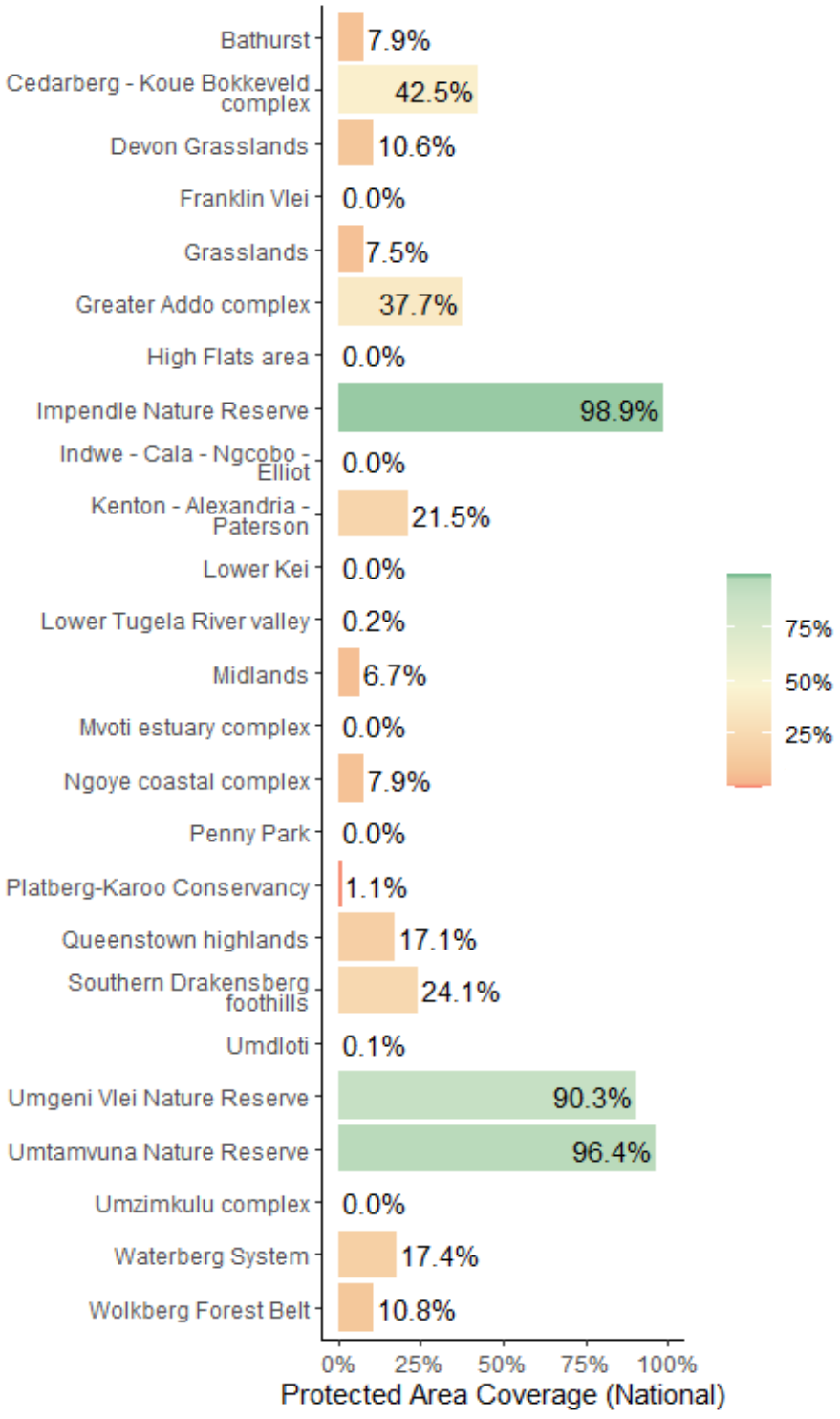

Key Biodiversity Area Coverage (KBA) in South Africa (continued)



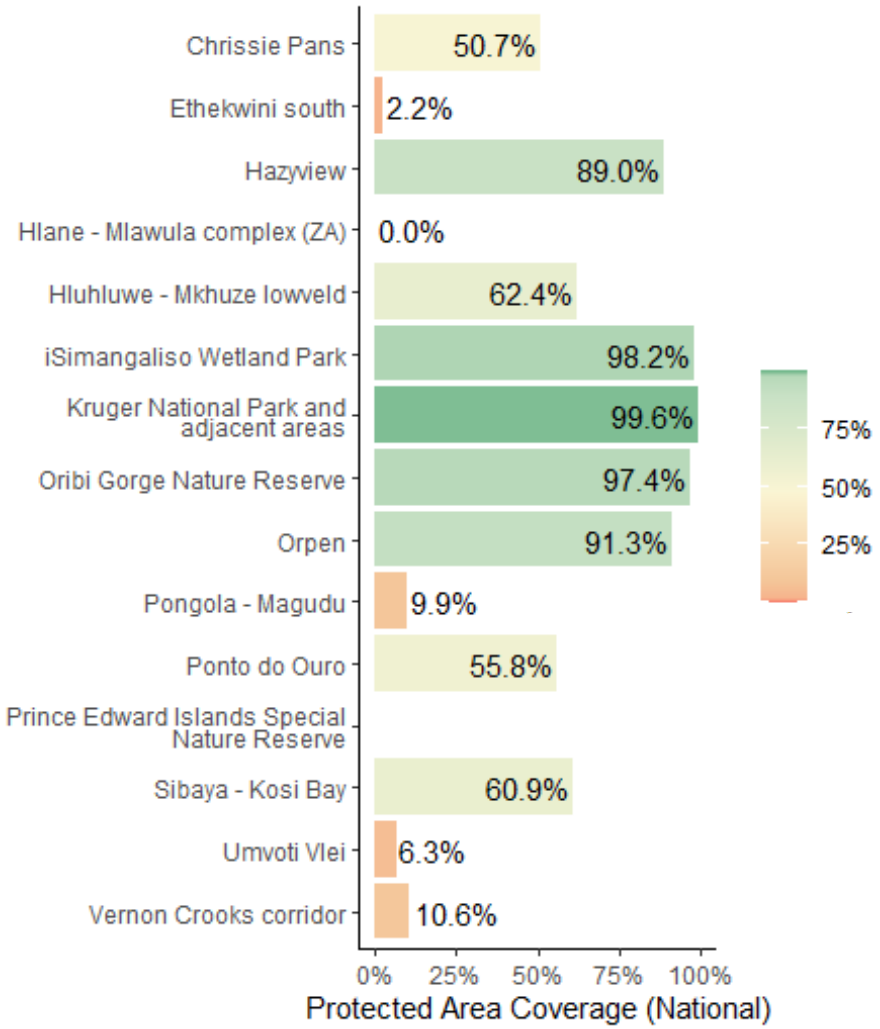

Key Biodiversity Area Coverage (KBA) in South Africa (continued)



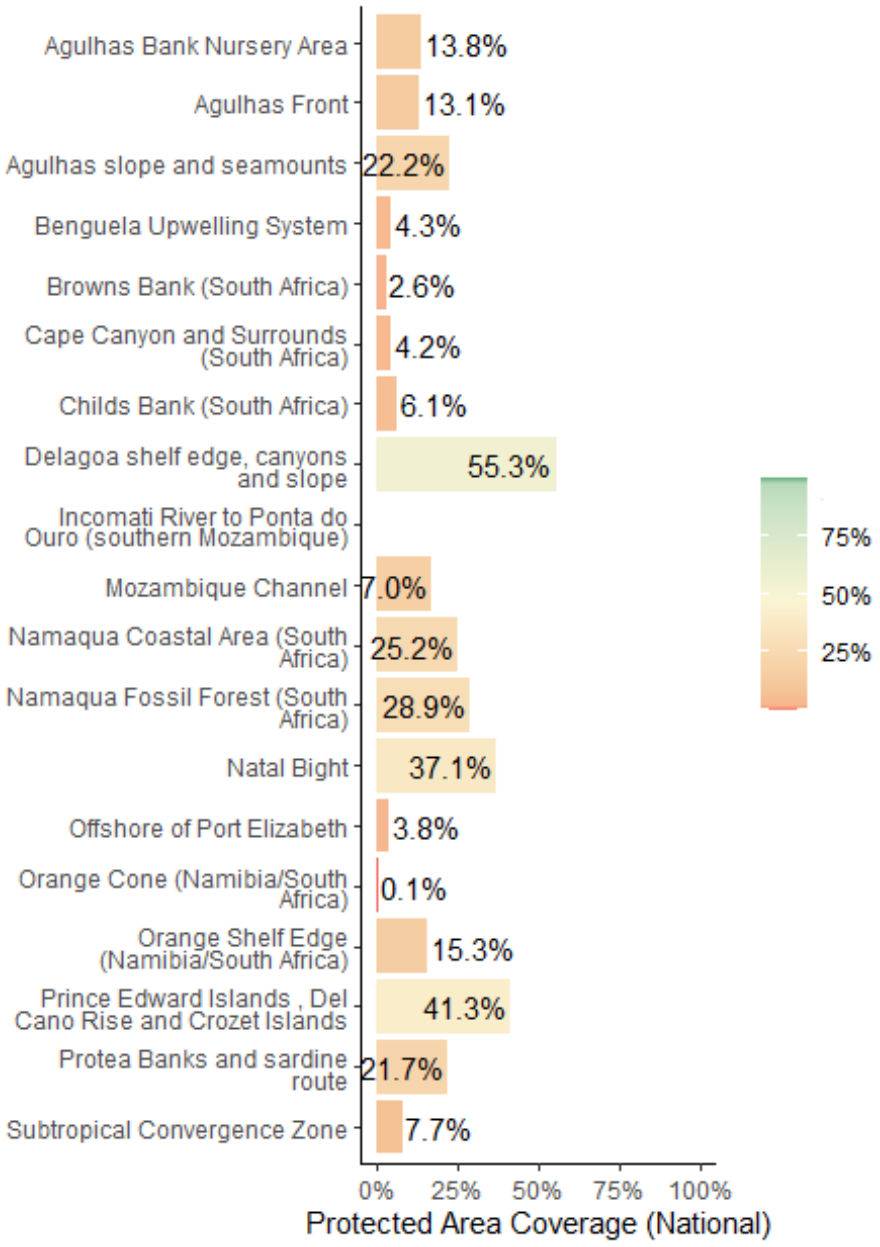

Key Biodiversity Area Coverage (KBA) in South Africa (continued)




Key Biodiversity Area Coverage (KBA) in South Africa (continued)




Key Biodiversity Area Coverage (KBA) in South Africa (continued)




Ecologically or Biologically Significant Marine Areas (EBSAs) in South Africa

## Opportunities for action

There is opportunity for South Africa to increase protection of KBAs that have lower levels of coverage by PAs and OECMs; priority could be given to those with no current coverage

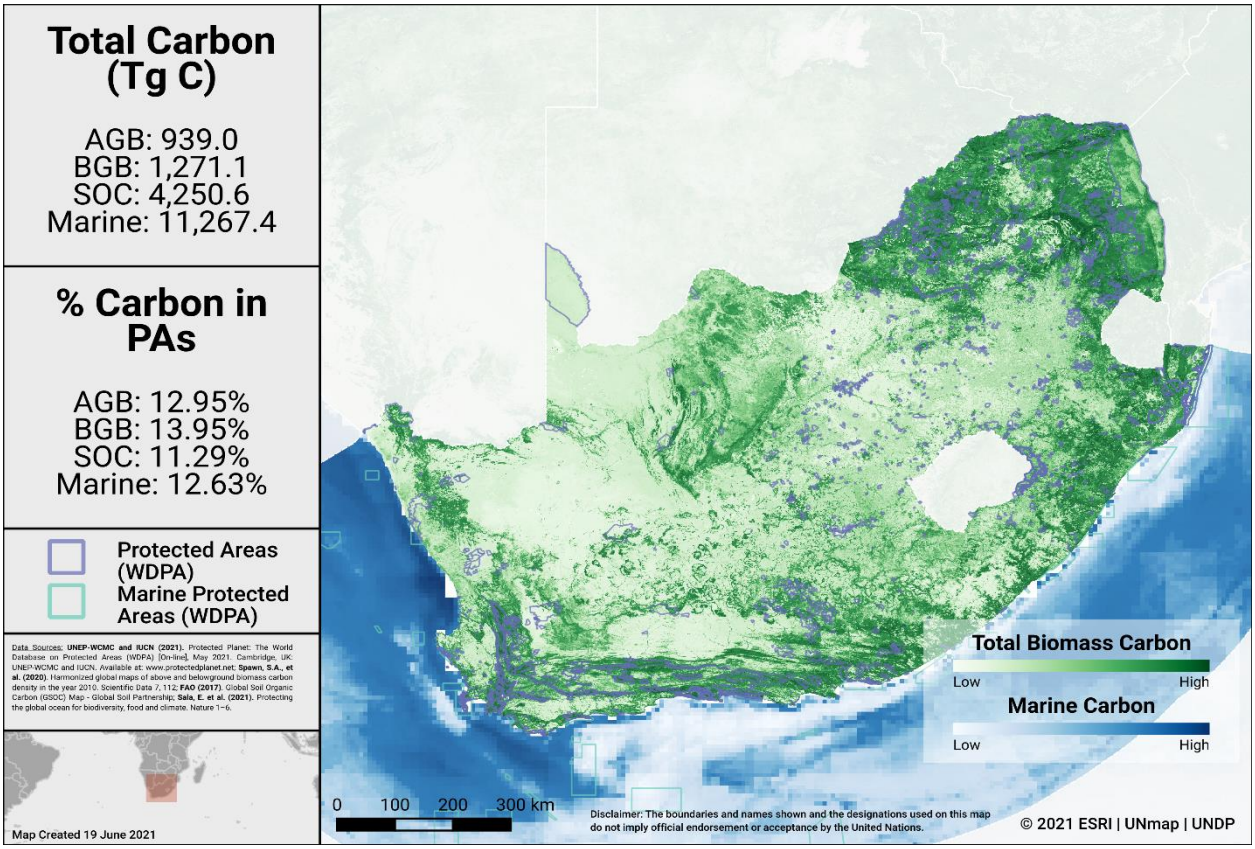
## AREAS IMPORTANT FOR ECOSYSTEM SERVICES

There is no single indicator identified for assessing the conservation of areas important for ecosystem services. For simplicity, two services with available global datasets are assessed here (carbon and water). In future, other critical ecosystem services could be explored.

### Carbon

Data for biomass carbon comes from temporally consistent and harmonized global maps of aboveground biomass and belowground biomass carbon density (at a 300-m spatial resolution); the maps integrate land-cover specific, remotely sensed data, and land-cover specific empirical models (see Spawn et al., 2020 for details on methodology). The Global Soil Organic Carbon Map present an estimation of SOC stock from 0 to 30 cm (see FAO, 2017). Data is also presented from global maps of marine sedimentary carbon stocks, standardized to a 1-meter depth (see Sala et al., 2021, and Atwood et al., 2020).

The map below presents the total carbon stocks in South Africa and the percent of carbon in protected areas. The total carbon stocks is 939.0 Tg C from aboveground biomass (AGB), with 12.9% in protected areas; 1,271.1 Tg C from below ground biomass (BGB), with 13.9% in protected areas; 4,250.6 Tg C from soil organic carbon (SOC), with 11.3% in protected areas; and 11,267.4 Tg C from marine sediment carbon, with 12.6% in protected areas.



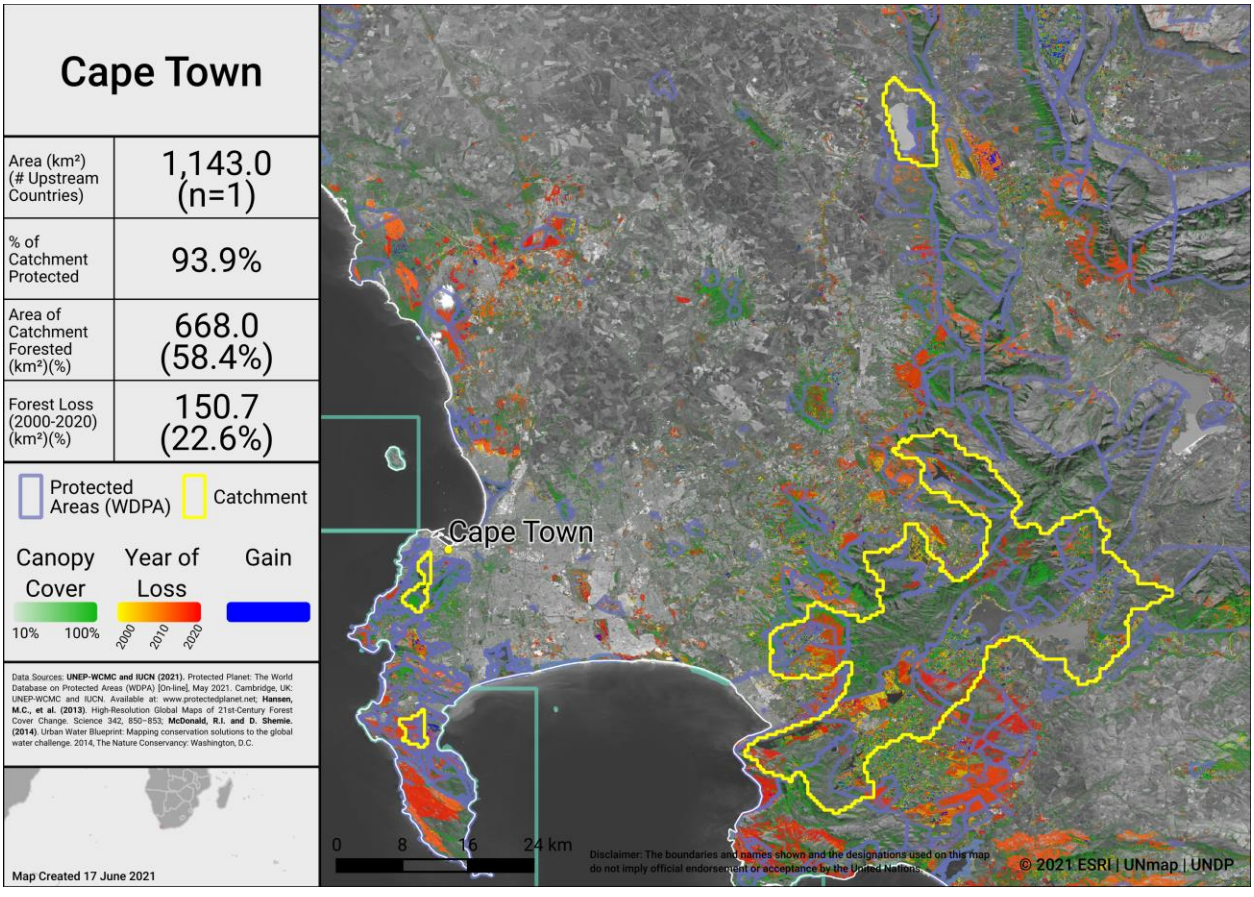

Carbon Stocks in South Africa

## Water

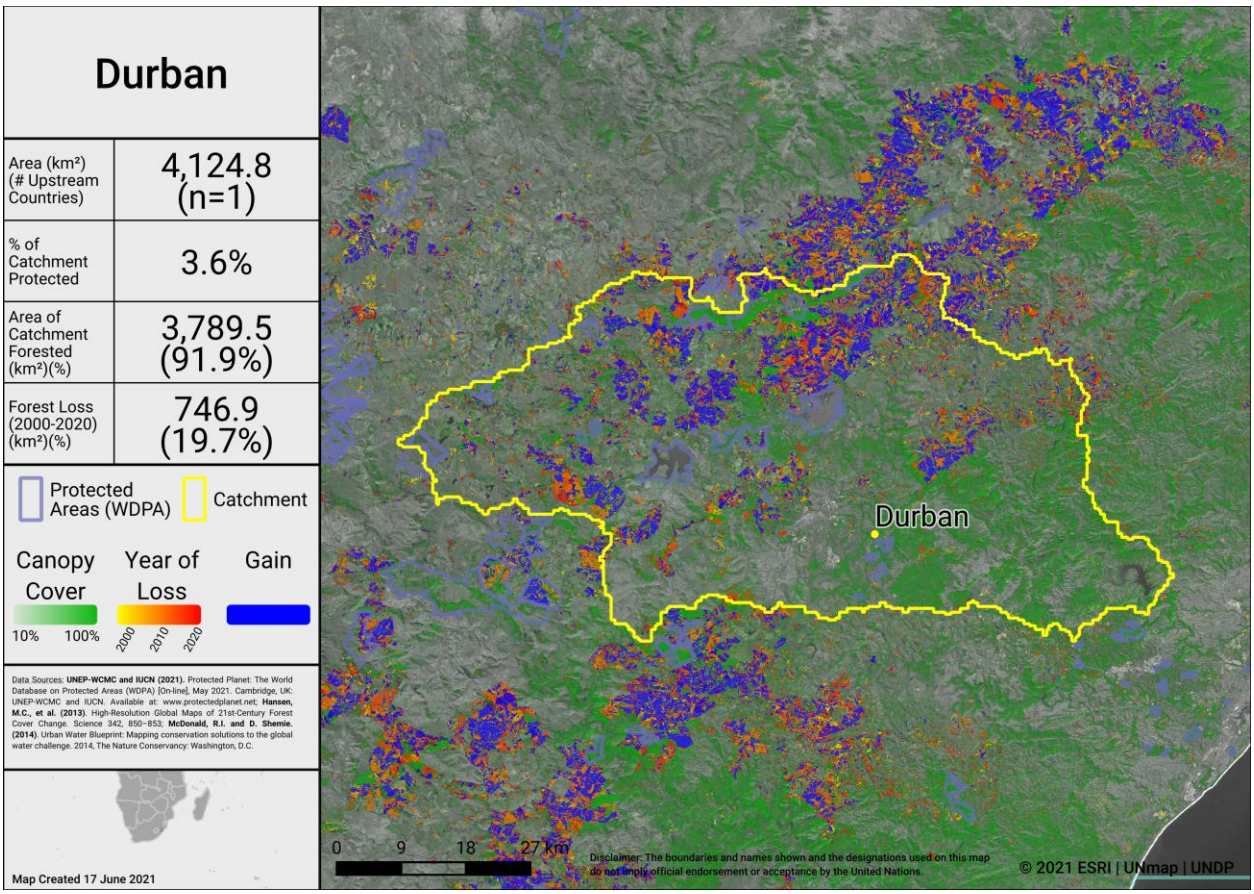
Information on the water sources for 534 cities is available via the City Water Map (CWM) and provides details on the catchment area of the watershed that supplies these cities (see McDonald et al., 2014 for details on methodology).

Forests and intact ecosystems support stormwater management and clean water availability, especially for large urban populations. Research that has examined the role of forests for city drinking water supplies shows that of the world's 105 largest cities, more than 30% (33 cities) rely heavily on the local protected forests, which provide ecosystem services that underpin local drinking water availability and quality (Dudley & Stolton, 2003).

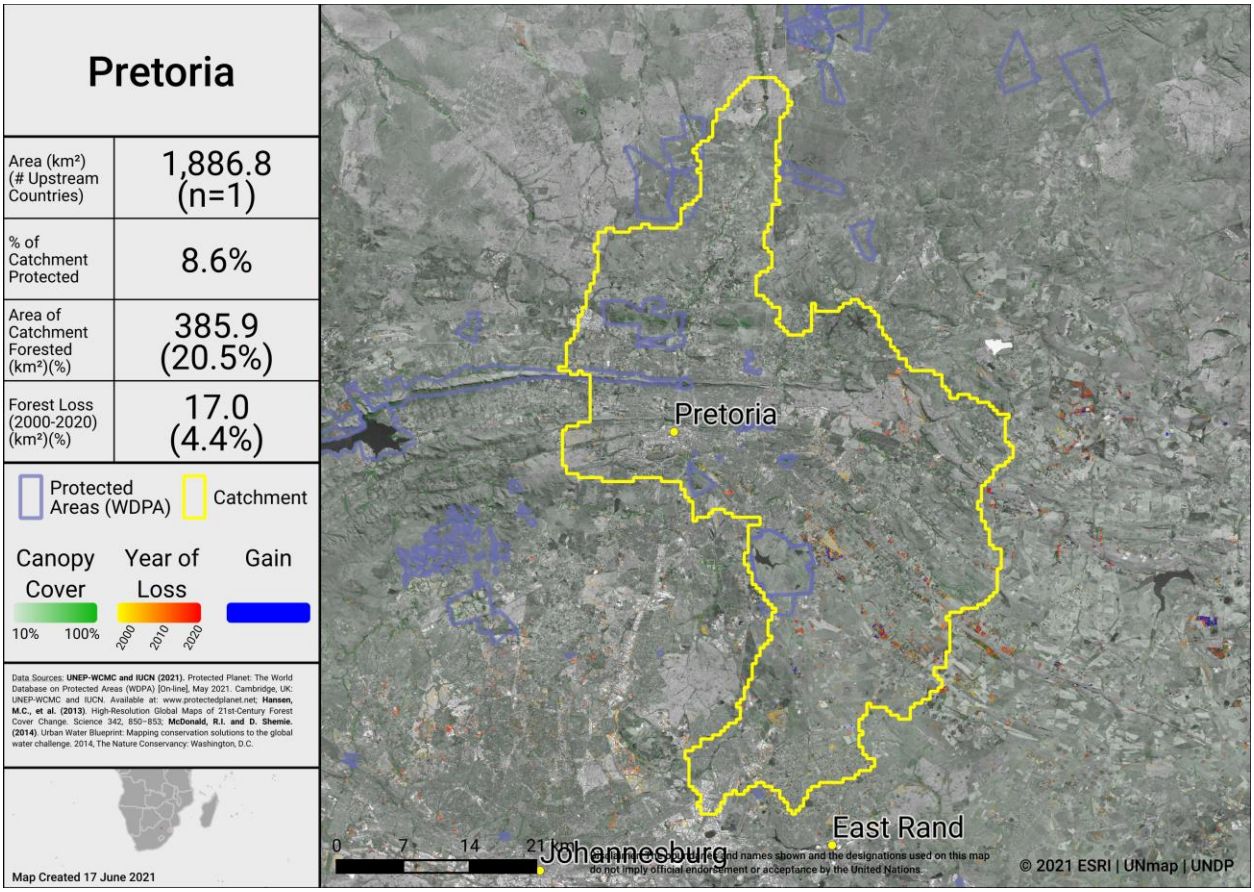
Drinking water supplies for cities in South Africa may similarly depend on protected forest areas within and around water catchments. The maps below show the percentage forest and PA cover and the forest loss from 2000-2020 in the most heavily populated water catchments of South Africa. Intact catchments can support more consistent water supply and improved water quality.




Water supply area for the city of Cape Town




Water supply area for the city of Durban




Water supply area for the city of Pretoria

## Opportunities for action

For carbon, there is opportunity for South Africa to increase PA and OECM coverage in both marine and terrestrial areas with high carbon stocks, as identified in the map above. Protecting areas with high carbon stocks secures the benefits of carbon sequestration in the area.

For water, there is opportunity to increase the area of the water catchment under protection by PAs and OECMs, or in cases where there is high levels of protection, focus on effective management for these areas. Protecting the current area of forested land and potentially reforesting would have benefits for improving water security.

## CONNECTIVITY & INTEGRATION

Two global indicators, the Protected Connected land indicator (ProtConn; EC-JRC, 2021; Saura et al., 2018) and the PARC-Connectedness indicator (CSIRO, 2019), have been proposed for assessing the terrestrial connectivity of PA and OECM networks. To date there is no global indicator for assessing marine connectivity, though some recent developments include proposed guidance for the treatment of connectivity in the planning and management of MPAs (see Lausche et al., 2021).

### Protected Connected Land Indicator (Prot-Conn)

As of January 2021, as reported in the Joint Research Centre of the European Commission's Digital Observatory for Protected Areas (DOPA) (JRC, 2021), the coverage of protected-connected lands (a measure of the connectivity of terrestrial protected area networks, assessed using the ProtConn indicator) in South Africa was 2.5%.

OECMs from South Africa were added to the WD-OECM in May 2021, so the current figure should be higher than the 2.5% reported in January.

### PARC-Connectedness Index

In 2019, as assessed using the PARC-Connectedness Index (values ranging from 0-1, indicating low to high connectivity), connectivity in South Africa is 0.47. This represents an increase from 0.42 in 2010.

### Corridor case studies

There are no corridor case studies available for South Africa (but see general details on conserving connectivity through ecological networks and corridors in Hilty et al 2020).

### Opportunities for action

There is opportunity for a general increase of PAs or OECMs and to focus on PA and OECM management for enhancing and maintaining connectivity. Improving connectivity increases the effectiveness of PAs and OECMs and reduces the impacts of fragmentation.

As well, a range of suggested steps for enhancing and supporting integration are included in the voluntary guidance on the integration of PAs and OECMs into the wider land- and seascapes and mainstreaming across sectors to contribute, inter alia, to the SDGs (Annex I of COP Decision 14/8).

## GOVERNANCE DIVERSITY

There is a lack of comprehensive global data on governance quality and equity in PAs and OECMs. Here, we provide data on the diversity of governance types for reported PAs and OECMs.

As of May 2021, PAs in South Africa reported in the WDPA have the following governance types:

- 42.2% are governed by **governments** (by federal or national ministry or agency)
- 0.1% are under **shared** governance (by joint governance)
- 57.6% are under **private** governance
  - 57.1% by individual landowners
  - 0.5% by non-profit organisations
  - 0.0% by for-profit organisations
- 0.0% are under **IPLC** governance
  - 0.0% by Indigenous Peoples
  - 0.0% by local communities
- 0.2% **do not** report a governance type
  - (All of which are international designations)

### OECMs

As of May 2021, OECMs in South Africa reported in the WD-OECM have the following governance types:

- 41.2% are governed by **governments** (by federal or national ministry or agency)
- 0.0% are under **shared** governance (by joint governance)
- 58.8% are under **private** governance (by non-profit organisations)
- 0.0% are under **IPLC** governance
- 0.2% **do not** report a governance type

### Privately Protected Areas (PPAs)

From Gloss et al. (2019), a UNDP study on PPA data for South Africa:

- PPAs **are** formally defined in PA legislation.
- PPAs **are** directly identified in South Africa's recent NBSAP.
- PPAs **are** included as part of the current PA network.
  - More than one-third of the terrestrial PA estate is privately owned

See additional info in South Africa's country profile and summarized in Annex III.

### Territories and areas conserved by Indigenous Peoples and local communities (ICCAs)

Examples of ICCAs in South Africa include the *Venda Community*, situated in the Limpopo province, its forests help to maintain the climate of the region, and the region is one of 19

centres of endemic flora in South Africa, hosting over 594 different species. See further case study details in the **ICCA Registry.**

### Other Indigenous lands

Lands managed and/or controlled by Indigenous Peoples cover an area of 12,829.0 km$^2$, of which 1,489.0 km$^2$ falls outside of formal protected areas. Indigenous lands with a human footprint less than 4 (considered as 'natural landscapes') cover an area of 9,538.0 km$^2$ (for details on analysis see Garnett et al., 2018).

For South Africa, evidence for the presence of Indigenous Peoples comes from: Indigenous Work Group on Indigenous Affairs. Indigenous World 2017 (Indigenous Working Group on Indigenous Affairs, 2017).

Boundaries of the lands Indigenous Peoples manage or have tenure rights over come from:

*‡Khomani San*: Channels, R. The ‡Khomani San Land Claim. Cult. Surv. Q. 26, 51–52 (2002); Nott, M. & Thondhlana, G. Fuelwood preferences, use and availability in the ‡Khomani San resettlement farms, southern Kalahari, South Africa. For. Trees livelihoods 26, 156–169 (2017); South African National Parks. Kgalagadi Transfrontier Par. Park Management Plan. https://www.sanparks.org/assets/images/conservation/park_man/kgnp/landtenure.jpg (2006); and Thondhlana, G., Shackleton, S. & Muchapondwa, E. Kgalagadi transfrontier Park and its land claimants: a pre-and post-land claim conservation and development history. Environ. Res. Lett. 6, 024009 (2011)

*Nama*: Richtersfeld Community Conservancy Reference Group. Management Plan (Richtersfeld Community Conservancy, 2006); South African National Parks. Richtersveld Nasionale Park. https://www.sanparks.org/assets/docs/conservation/park_man/richtersveld_approved_plans.pdf (2008); and Shackleton, C. M., Guthrie, G., Keirungi, J. & Stewart, J. Fuelwood availability and use in the Richtersveld National Park, South Africa. Koedoe 46, 1–8 (2003)

*Khwe, !Xho:* Smet, M. & Ward, D. Soil quality gradients around water-points under different management systems in a semi-arid savanna, South Africa. J. Arid Environ. 64, 251–269 (2006).

### Opportunities for action

Explore opportunities for governance types that have lower representation, for South Africa this could relate to governance by Indigenous Peoples and/or local communities (IPLC) and shared governance.

There is also opportunity for South Africa to complete governance and equity assessments, to establish baselines and identify relevant actions for improvement. Examples of existing tools and methodologies include: Governance Assessment for Protected and Conserved Areas (Franks & Brooker, 2018), Social Assessment of Protected Areas (Franks et al 2018), and Site-level assessment of governance and equity (IIED, 2020). As well, a range of suggested actions are included in the voluntary guidance on effective governance models for management of protected areas, including equity (Annex II of COP Decision 14/8).

## Equator Prize Projects

The Equator Initiative brings together the United Nations, governments, civil society, businesses and grassroots organizations to recognize and advance local sustainable development solutions for people, nature and resilient communities.

The Equator Prize projects provide examples of unique and locally based governance of natural resources. South Africa has the following Equator Prize winners that showcase examples of local, sustainable community action:

| Organization | Year | Project Description |
|---|---|---|
| Makuleke Ecotourism Project - Pafuri Camp- South Africa | 2010 | Pafuri Camp is a community-led ecotourism initiative in the northern part of the Kruger National Park that provides a wide range of activities, including game drives, night drives, walks and wildlife hides. Revenues from Pafuri Camp are used in both community development projects, as well as biodiversity conservation initiatives. Pafuri Camp takes a participatory approach to ecotourism, based on the idea that community-based action is often the most effective approach to biodiversity protection and sustainable development. Activities are designed not only to generate income for the local community, but also to raise awareness among the local population of the value of protecting biodiversity in the region. Anti-poaching teams have been established to identify and eliminate illegal poaching. |

Photo from the Equator Prize Project: Makuleke Ecotourism Project - Pafuri Camp

# PROTECTED AREA MANAGEMENT EFFECTIVENESS

This section provides information on the coverage of PAs and OECMs with completed protected area management effectiveness (PAME) assessments as reported in the global database (GD-PAME). The proportion of terrestrial and marine PAs with completed PAME assessments is also calculated and compared with the 60% target agreed to in COP-10 Decision X/31. Information is also included regarding changes in forest cover nationally within PAs and OECMs.

## Protected area management effectiveness (PAME) assessments

As of May 2021, South Africa has 1.645 PAs reported in the WDPA; of these PAs, 205 (12.7%) have management effectiveness evaluations reported in the global database on protected area management effectiveness (GD-PAME).

- 5.2% (63,784 km$^2$) of the terrestrial area of the country is covered by PAs with completed management effectiveness evaluations.
  - 60.3% of the area of terrestrial PAs have completed evaluations.
- 0.2% (3,232 km$^2$) of the marine area of the country is covered by PAs with completed management effectiveness evaluations.
  - 1.4% of the area of marine PAs have completed evaluations.

The 60% target for completed management effectiveness assessments (per COP Decision X/31) **has** been met for terrestrial PAs and **has not** been met for marine PAs.

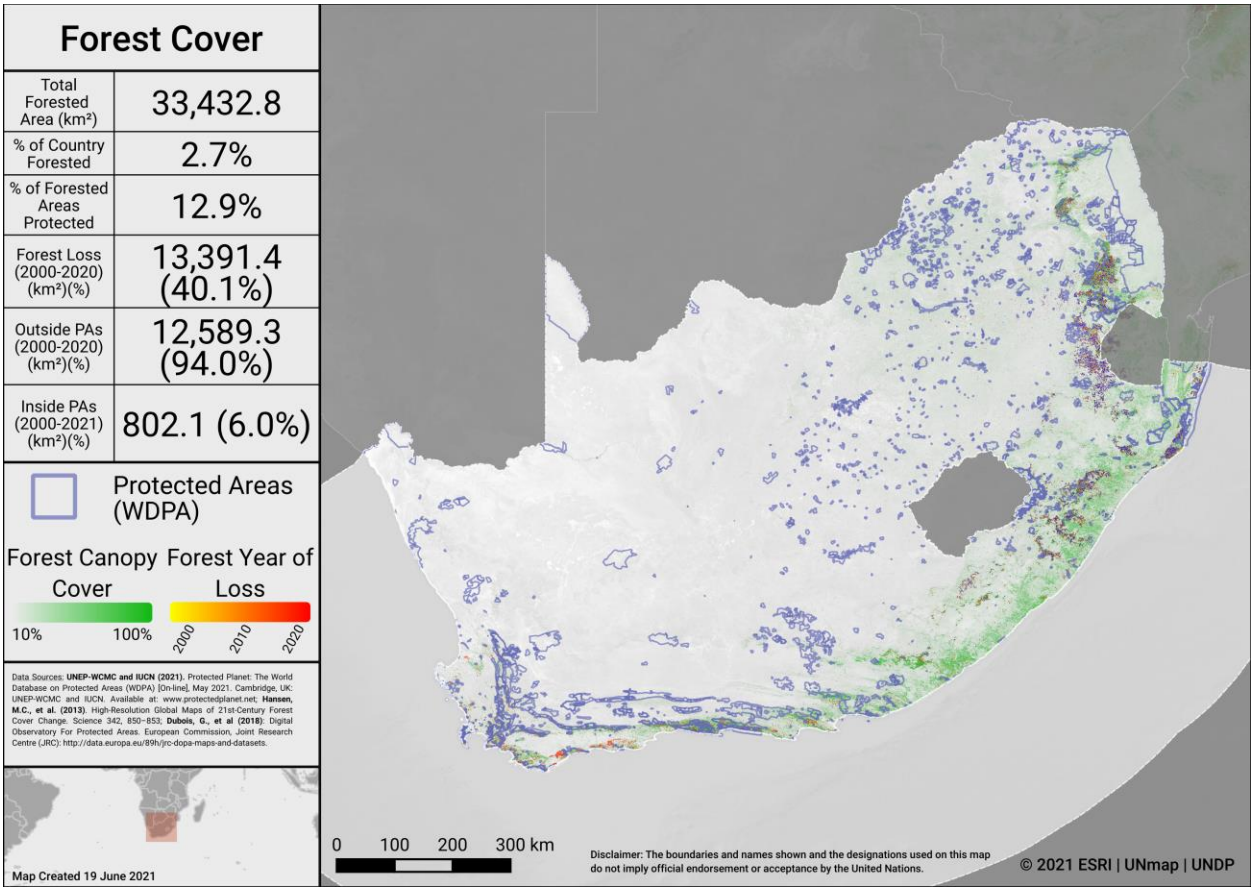
## OECMs

As of May 2021, there are 17 OECMs in South Africa reported in the WD-OECM, but there is no information available on their management effectiveness. See Annex I for information on conservation effectiveness of Mabaso Community Stewardship Project potential OECM. For the 18 unprotected KBAs which may fit the OECM definition; responding to 'How effective is the management in conserving biodiversity?':

- 2 potential OECMs are Effective
- 9 potential OECMs are Partly effective
- For 3 potential OECMs, the response was "Don't know"
- For the 4 remaining potential OECMs, there is no info

## Changes in forest cover in protected areas and OECMs

Forested areas in South Africa cover approximately 2.7% of the country, an area of 33,432.8 km$^2$. Approximately 12.9% (4,321.1 km$^2$) of this is within the protected area estate of South Africa. Over the period 2000-2020 loss of forest cover amounted to over 13,391.4 km$^2$, or 1.1% of the country (40.1% of forest area), of which 802.1 km$^2$ (6.0% of forest loss) occurred within protected areas. The map below shows how forest cover has changed in South Africa from 2000-2020 both inside and outside of PAs. This can indicate how effective PAs are in reducing forest cover loss




Forest Cover and Forest Loss in South Africa

## Opportunities for action

The 60% target for completed management effectiveness assessments (per COP Decision X/31) **has** been met for terrestrial PAs and **has not** been met for marine PAs. Therefore, there is opportunity to increase protected area management effectiveness (PAME) evaluations for marine PAs to achieve the target.

There is also opportunity to implement the results of completed PAME evaluations, to improve the quality of management for existing PAs and OECMs (e.g. through adaptive management and information sharing, increasing the number of sites reporting 'sound management') and to increase reporting of biodiversity outcomes in PAs and OECMs.

# SECTION II: EXISTING PROTECTED AREA AND OECM COMMITMENTS

## NATIONAL BIODIVERSITY STRATEGY AND ACTION PLANS (NBSAPs)

South Africa has submitted an NBSAP during the Strategic Plan for Biodiversity 2011-2020 (most recent NBSAP is available at: https://www.cbd.int/nbsap/search/).

*Outcome 1.1 The network of protected areas and conservation areas includes a representative sample of ecosystems and species, and is coherent and effectively managed*

*Targets:*

- By 2019, 13.2 % (16 121 794 ha) in the 'conservation estate'
- By 2019, 90% of area of state managed protected areas assessed annually with a METT score above 67%
- By 2028, in protected areas: 10.8m land-based hectares, 353km inshore, 210,000km$^2$ marine offshore in SA's EEZ plus 93,300km$^2$ marine offshore in Prince Edward Islands EEZ

Actions from the NBSAP will also address other elements of Aichi Biodiversity Target 11:

| NBSAP Action # | Action (original language from NBSAP) |
|---|---|
| 1.1.1 | Expand the protected area estate across all ecosystems (including marine, estuarine, freshwater and terrestrial), based on the Protected Area Expansion Strategies at national and provincial levels |
| 1.1.2 | Expand the network of conservation area through mechanisms under the Biodiversity Act, contract law and other informal agreements between the landowner and conservation authority. |
| 1.1.3 | Strengthen the institutional capacity of biodiversity stewardship programmes and the suite of incentives (such as access to technical expertise) to enhance their contribution to protected area and conservation area expansion, including through implementation of the Biodiversity Stewardship Business Case. |
| 1.1.4 | Strengthen and monitor management effectiveness in protected areas and conservation areas, with an emphasis on biodiversity objectives, socio-economic benefits and climate change resilience. |

| NBSAP Action # | Action (original language from NBSAP) |
|---|---|
| 1.1.5 | Strengthen inter-agency cooperation in the management of protected and conservation areas, within South Africa and internationally in the context of Transfrontier Conservation Areas |
| 1.1.6 | Strengthen access to and benefit sharing from protected areas, including assessing the potential for appropriate sustainable consumptive resource use in protected areas, and include this in protected area management plans |
| 3.3.3 | Identify areas of high sensitivity where certain types of development is prohibited, e.g. ‘no go’ areas for mining |

# APPROVED GEF-5, GEF-6, & GCF PROTECTED AREA PROJECTS

## Approved GEF-5 and GEF-6 PA-related biodiversity projects

This includes biodiversity projects from the fifth and sixth replenishment of the Global Environment Facility (GEF-5 and GEF-6) with a clear impact of the quantity or quality of PAs; also including some projects occurring within the wider landscapes/seascapes around PAs. Only those with a status of 'project approved' or 'concept approved' as of June 2019 were considered. The qualifying elements likely benefiting from each GEF project is assessed based on a keyword search of Project Identification Forms (PIF). Where spatial data for the proposed PAs was available, further details (based on an analysis by UNDP) regarding their impacts for ecological representation, coverage of KBAs, and coverage of areas important for carbon storage is included.

| GEF ID | PA increase? | Area to be added ($km^2$) | Type of new protected area | Qualitative elements potentially benefitting (based on keyword search of PIFs) |
|---|---|---|---|---|
| 4848 | Yes | 1,387 | Terrestrial | All except Ecosystem services |
| 4937 | No | N/A | N/A | Areas important for biodiversity; Effectively managed; Equitably managed; Integration |
| 5058 | No | N/A | N/A | All except Connectivity |
| 5070 | No | N/A | N/A | Ecosystem services; Equitably managed; Integration |
| 9255 | No | N/A | N/A | Areas important for biodiversity; Effectively managed; Equitably managed; Integration |

Based on spatial data available, benefits will arise for several elements of Target 11:

**Coverage of Terrestrial and Marine Ecoregions:**

- 10 Terrestrial Ecoregions will have improved coverage (Namaqualand-Richtersveld steppe; Zambezian mopane woodlands; Fynbos shrubland; Renosterveld shrubland; Albany thickets; Nama Karoo shrublands; Succulent Karoo xeric shrublands; Drakensberg grasslands; Highveld grasslands; Limpopo lowveld).
  - The average increase in coverage of Terrestrial Ecoregions will be 0.15%.

**Coverage of KBAs:**

- Coverage will improve for 51 KBAs.

**Ecosystem services:**

- 0.09 % increase in the PA coverage of aboveground biomass.
- 0.29 % increase in the PA coverage of soil organic carbon (SOC).

### Approved Green Climate Fund (GCF) Protected Area-related biodiversity projects

The Green Climate Fund's investments listed as approved projects as of May 2021 were considered. The GCF supports paradigm shifts in both climate change mitigation and adaptation that may impact quality of PAs or contribute to better integration within the wider land- and seascapes around PAs. Only projects with result areas for either or both *Forest and Land Use and Ecosystems and Ecosystem Services result areas* were included.

| GCF ID | Project theme | Result area | Target 11 element |
|---|---|---|---|
| FP122 | Adaptation | Ecosystems and ecosystem services | PA/OECM coverage; Effectively managed; Ecosystem services; Equitably managed; Integration |

## UN OCEAN CONFERENCE VOLUNTARY COMMITMENTS

Voluntary commitments for the UN Ocean Conference are initiatives voluntarily undertaken by governments, the UN system, non-governmental organizations, among other actors—individually or in partnership—that aim to contribute to the implementation of SDG 14 (here we focus in particular on SDG 14.5). The registry of commitments was opened in February 2017, in the lead up to the first UN Ocean Conference (5 to 9 June 2017).

### Ocean Actions improving MPA or OECM coverage:

*#OceanAction20508:* Declaration of Marine Protected Areas (MPAs), by Department of Environmental Affairs - Ocean and Coasts Branch (Government).

- Area to be added: 0 $km^2$ [already complete].
- Progress report: No progress report submitted (as of March 2021).
- Further details available at: https://oceanconference.un.org/commitments/?id=20508.

## OTHER ACTIONS/COMMITMENTS

South Africa's statement at the 2020 UN Biodiversity Summit mentions PAs, OECMs or corridors:

*We have increased our territorial protected areas and our protected ocean space. As nations of the world, we must appreciate the complex interdependence between nature, economic activity and human development.*

# ANNEX I

## ADDITIONAL DETAILS ON POTENTIAL OECMs

*Mabaso Community Stewardship Project*, KZN Province:

- **Overview:** The Mgundeni Community property, owned by the Mgundeni Community Trust, was identified in 2006 as a pilot site within the KZN Biodiversity Stewardship Programme. Following a detailed biodiversity assessment on the property an area was identified as qualifying for a Nature Reserve. However, due to the landowners' desire to continue with commercial livestock grazing, it was agreed to pursue a Biodiversity Agreement for a portion of the property. The area is composed mainly of Wakkerstroom Montane Grassland and is in good condition and supports a high diversity of birds, including critically endangered and vulnerable species. The land also has significant cultural and heritage value to the Mgundeni community. The focus is mostly on ensuring sustainable land management through providing technical and financial support, with voluntary agreements between the community and conservation agencies. The stewardship status recognizes the conservation value of an area, without placing restrictions such as those in formally declared protected areas.
- **Boundaries & Geographical Space:** 1472 ha.
- **Governance Type:** The land belongs to the Mgundeni community and is governed under the Mgundeni Trust. There was a lengthy community engagement and negotiation process to explain the concept of biodiversity stewardship and options suitable for this land. The Biodiversity Agreement option provides access to incentives and technical support, and does not restrict community land use.
- **Permanence:** There are measures in place year-round and a minimum duration of 5 years. The community can opt out when the contract lapses.
- **Management Objectives:** The objectives of the Mabaso Community Biodiversity Agreement are: to conserve the Indigenous biodiversity on the property, maintaining the ecological integrity and natural character of the area; to promote the sustainable utilization of the grazing resources; to promote management activities to improve the biodiversity value on the property; and to develop a strategy that will support the existence of appropriate business opportunities on the land.
- **Conservation Effectiveness:** The conservation agencies conduct annual assessments/audits to ensure compliance and to provide advice on management operations. The land was in good shape prior to the stewardship agreement. The plan includes the clearing of alien plans and rehabilitation of degraded land.

See full details in Collation of OECM Case Studies (IUCN, 2017).

# ANNEX II

## FULL LIST OF TERRESTRIAL ECOREGIONS

| Ecoregion Name | Area (km$^2$) | % of Global Ecoregion in Country | % of Country in Ecoregion | Area Protected (km$^2$) | % Protected in Country |
|---|---|---|---|---|---|
| Albany thickets | 36,717.8 | 100.0 | 3.0 | 4,761.8 | 13.0 |
| Central bushveld | 116,463.8 | 74.8 | 9.5 | 12,619.0 | 10.8 |
| Drakensberg Escarpment savanna and thicket | 34,968.4 | 100.0 | 2.9 | 237.5 | 0.7 |
| Drakensberg grasslands | 93,823.9 | 81.7 | 7.7 | 4,491.6 | 4.8 |
| Fynbos shrubland | 53,666.9 | 100.0 | 4.4 | 17,163.7 | 32.0 |
| Gariep Karoo | 109,420.3 | 43.5 | 9.0 | 3,174.9 | 2.9 |
| Highveld grasslands | 227,919.9 | 94.3 | 18.7 | 9,113.8 | 4.0 |
| Kalahari xeric savanna | 167,935.7 | 24.5 | 13.8 | 12,058.3 | 7.2 |
| Knysna-Amatole montane forests | 2,067.6 | 100.0 | 0.2 | 740.7 | 35.8 |
| Kwazulu Natal-Cape coastal forests | 10,978.1 | 100.0 | 0.9 | 380.1 | 3.5 |
| Limpopo lowveld | 49,046.3 | 59.8 | 4.0 | 15,415.8 | 31.4 |
| Maputaland coastal forests and woodlands | 9,117.8 | 30.2 | 0.7 | 2,298.4 | 25.2 |
| Nama Karoo shrublands | 161,740.2 | 100.0 | 13.3 | 3,985.2 | 2.5 |
| Namaqualand-Richtersveld steppe | 32,793.2 | 62.1 | 2.7 | 2,172.5 | 6.6 |
| Renosterveld shrubland | 28,364.1 | 100.0 | 2.3 | 892.0 | 3.1 |

| Ecoregion Name | Area (km$^2$) | % of Global Ecoregion in Country | % of Country in Ecoregion | Area Protected (km$^2$) | % Protected in Country |
|---|---|---|---|---|---|
| Southern Africa mangroves | 902.0 | 90.9 | 0.1 | 140.6 | 15.6 |
| Southern Indian Ocean Islands tundra | 330.6 | 4.0 | 0.0 | 290.2 | 87.8 |
| Succulent Karoo xeric shrublands | 57,022.4 | 100.0 | 4.7 | 3,621.5 | 6.4 |
| Zambezian-Limpopo mixed woodlands | 0.7 | 0.0 | 0.0 | 0.7 | 100.0 |
| Zambezian mopane woodlands | 26,378.2 | 6.8 | 2.2 | 12,261.9 | 46.5 |

# ANNEX III

## ADDITIONAL DETAILS ON PPAs

- South Africa's National Protected Area Expansion Strategy (NPAES) notes that meeting national policy objectives, and international targets such as Aichi Target 11, requires the expansion of protected areas on state, private and communally owned land.
- South Africa protected areas legislation has no differentiation in the legal status, rights or responsibilities of the land on the basis of ownership. South Africa's protected areas on privately or communally owned land are, first and foremost, protected areas, and are a clear example of credible and official recognition of a Privately Protected Areas.
- The Department of Environmental Affairs (DEA) in South Africa figures illustrate that currently, 35% of the terrestrial protected area estate in South Africa is privately owned and 5% communally owned.
- South Africa's primary tool for protected area expansion, as well as the use and applicability of conservation areas, internationally referred to as OECMs, on private and communal land, is the national biodiversity stewardship initiative. Biodiversity stewardship is an approach to securing land in biodiversity priority areas through entering into agreements with private and communal landowners, led by conservation authorities and supported by conservation NGOs.
- South Africa's Biodiversity Tax Incentives, in Section 37D of South Africa's Tax Act, creates financial sustainability for protected areas on private or communal land as well as motivating and rewarding landowner and community commitment. Section 37D allows the value of land of a Nature Reserve or National Park to be deducted from taxable income, reducing the tax owed by the landowner or community entity, thus ensuring greater cash flow for the management of the site and bolstering the economic and commercial viability of PPAs in South Africa.
- Processes are now underway to amend the Tax Act again with the creation of another dedicated biodiversity tax incentive geared towards reducing the costs to landowners and communities that arise as a result of their protected area management responsibilities
- WDPA lists 929 sites under private governance (including Nature Reserves, Protected environments, and Mountain Catchment Areas).

**Case studies/best practices:**

- *Nambiti Private Game Reserve*: **9,859 ha** reserve situated near Ladysmith in KwaZulu-Natal, South Africa. Declared a nature reserve in 2013. Nambiti was formed by a group of businessmen through the purchase of several farms and re-

introduction of game and then subject to a successful land claim and is now owned by the Senzo'kuhle Nkos'uNodada Communal Trust. What has followed is a successful partnership between the land claimants and the previous landowners. The Senzo'kuhle Nkos'uNodada Communal Trust is a legal entity that represents 136 successful land claimants from the Elandslaagte Community. The land was transferred to the community in June 2009 and is not under any tribal authority, all decisions are taken by the Trustees. Operations at Nambiti are multi-faceted, combining 10 luxury game lodges catering to local and international tourists, live capture and sale of game and more recently, the production of venison. Nambiti has been declared as a nature reserve, through the KZN Biodiversity Stewardship Programme, in terms of Section 23 of the Protected Areas Act.

See additional information in South Africa's country profile: http://nbsapforum.net/knowledge-base/resource/south-africa-country-profile-international-outlook-privately-protected-areas.

# REFERENCES

Atwood, TB, Witt, A, Mayorga, J, Hammill, E, & Sala, E. (2020). Global patterns in marine sediment carbon stocks. *Frontiers in Marine Science*. https://doi.org/10.3389/fmars.2020.00165

BirdLife International (2021). World Database of Key Biodiversity Areas. Available at: http://www.keybiodiversityareas.org

CBD (2010). Decision adopted by the Conference of the Parties to the Convention on Biological Diversity at its tenth meeting. Decision X/2. Strategic plan for biodiversity 2011–2020. Retrieved from https://www.cbd.int/doc/decisions/cop-10/cop-10-dec02-en.pdf.

CSIRO (2019). Protected area connectedness index (PARCconnectedness). https://www.bipindicators.net/indicators/protected-area-connectedness-index-parcconnectedness

Dinerstein, E., et al. (2017). An ecoregion-based approach to protecting half the terrestrial realm. BioScience 67(6), 534-545.

Donald et al., 2019, The prevalence, characteristics and effectiveness of Aichi Target 11′ s "other effective area-based conservation measures" (OECMs) in Key Biodiversity Areas. Conservation Letters, 12(5).

EC-JRC (2021). DOPA Indicator factsheets: http://dopa.jrc.ec.europa.eu/en/factsheets

FAO (2017). Global Soil Organic Carbon (GSOC) Map - Global Soil Partnership [WWW Document]. URL http://www.fao.org/global-soil-partnership/pillars-action/4-information-and-data/global-soil-organic-carbon-gsoc-map/en/.

Franks, P and Booker, F (2018). Governance Assessment for Protected and Conserved Areas (GAPA): Early experience of a multi-stakeholder methodology for enhancing equity and effectiveness. IIED Working Paper, IIED, London. https://pubs.iied.org/17632IIED

Franks, P. et al. (2018). Social Assessment for Protected and Conserved Areas (SAPA). Methodology manual for SAPA facilitators. Second edition. IIED, London. https://pubs.iied.org/14659iied

Garnett et al. (2018). A spatial overview of the global importance of Indigenous lands for conservation. Nature Sustainability, 1(7), 369.

Global Environment Facility (GEF-5 and GEF-6); all projects can be found online at: https://www.thegef.org/projects

Gloss, L. et al. (2019). International Outlook for Privately Protected Areas: Summary Report. International Land Conservation Network (a project of the Lincoln Institute of Land Policy) and United Nations Development Programme. Summary report, and individual country profiles, available at: https://nbsapforum.net/knowledge-base/resource/international-outlook-privately-protected-areas-summary-report

Hansen, M.C., Potapov, P.V., Moore, R., Hancher, M., Turubanova, S.A., Tyukavina, A., Thau, D., Stehman, S.V., Goetz, S.J., Loveland, T.R., Kommareddy, A., Egorov, A., Chini, L., Justice, C.O., Townshend, J.R.G., (2013). High-Resolution Global Maps of 21st-Century Forest Cover Change. Science 342, 850–853. https://doi.org/10.1126/science.1244693

Hilty, J et al. (2020). Guidelines for conserving connectivity through ecological networks and corridors. Best Practice Protected Area Guidelines Series No. 30. Gland, Switzerland: IUCN. https://portals.iucn.org/library/sites/library/files/documents/PAG-030-En.pdf

IIED 2020. Site-level assessment of governance and equity (SAGE) https://www.iied.org/site-level-assessment-governance-equity-sage.

IUCN (2016). A Global Standard for the Identification of Key Biodiversity Areas, Version 1.0. First edition. Gland, Switzerland: IUCN. https://portals.iucn.org/library/sites/library/files/documents/2016-048.pdf

IUCN-WCPA (2017). IUCN-WCPA Task Force on OECMs collation of case studies submitted 2016-2017. https://www.iucn.org/commissions/world-commission-protected-areas/our-work/oecms/oecm-reports

Joint Research Centre of the European Commission (JRC) (2021), The Digital Observatory for Protected Areas (DOPA) Explorer 4.1 [On-line], [Apr/2021], Ispra, Italy. Available at: http://dopa-explorer.jrc.ec.europa.eu

Kothari, A., et al. (Eds) (2012). Recognising and Supporting Territories and Areas Conserved By Indigenous Peoples And Local Communities: Global Overview and National Case Studies. Secretariat of the CBD, ICCA Consortium, Kalpavriksh, and Natural Justice, Montreal, Canada. Technical Series no. 64.

Lausche, B., Laur, A., Collins, M. (2021). *Marine Connectivity Conservation 'Rules of Thumb' for MPA and MPA Network Design*. Version 1.0. IUCN WCPA Connectivity Conservation Specialist Group's Marine Connectivity Working Group.

McDonald, R.I., Weber, K., Padowski, J., Flörke, M., Schneider, C., Green, P.A., Gleeson, T., Eckman, S., Lehner, B., Balk, D., Boucher, T., Grill, G., Montgomery, M., (2014). Water on an urban planet: Urbanization and the reach of urban water infrastructure. Global Environmental Change 27, 96–105. https://doi.org/10.1016/j.gloenvcha.2014.04.022

National Biodiversity Strategy and Action Plan (NBSAPs); most recent NBSAP is available at: https://www.cbd.int/nbsap/search/

Newbold, T., Hudson, L.N., Arnell, A.P., Contu, S., Palma, A.D., Ferrier, S., Hill, S.L.L., Hoskins, A.J., Lysenko, I., Phillips, H.R.P., Burton, V.J., Chng, C.W.T., Emerson, S., Gao, D., Pask-Hale, G., Hutton, J., Jung, M., Sanchez-Ortiz, K., Simmons, B.I., Whitmee, S., Zhang, H., Scharlemann, J.P.W., Purvis, A., (2016). Has land use pushed terrestrial biodiversity beyond the planetary boundary? A global assessment. Science 353, 288–291. https://doi.org/10.1126/science.aaf2201

Sala, E. et al. (2021). Protecting the global ocean for biodiversity, food and climate. Nature, 592(7854), 397-402. https://doi.org/10.1038/s41586-021-03496-1

Saura, S. et al. (2018). Protected area connectivity: Shortfalls in global targets and country-level priorities. Biological Conservation, 219, 53-67.

Saura, S. et al (2017). Protected areas in the world's ecoregions: How well connected are they? Ecological Indicators, 76, 144-158.

Spalding, M.D., et al. (2012). Pelagic provinces of the world: a biogeographic classification of the world's surface pelagic waters. Ocean & Coastal Management 60, 19–30.

Spalding, M.D., et al. (2007). Marine ecoregions of the world: a bioregionalization of coastal and shelf areas. BioScience 57(7): 573–583.

Spawn, S.A., Sullivan, C.C., Lark, T.J., Gibbs, H.K., (2020). Harmonized global maps of above and belowground biomass carbon density in the year 2010. Scientific Data 7, 112. https://doi.org/10.1038/s41597-020-0444-4

Stolton, S. et al. (2014). The Futures of Privately Protected Areas. Gland, Switzerland: IUCN.

UNEP-WCMC and IUCN (2021) Protected Planet Report 2020. UNEP-WCMC and IUCN: Cambridge UK; Gland, Switzerland.

UNEP-WCMC and IUCN (2021), Protected Planet: The Global Database on Protected Area Management Effectiveness (GD-PAME) [On-line], [May/2021], Cambridge, UK: UNEP-WCMC and IUCN. Available at: www.protectedplanet.net.

UNEP-WCMC and IUCN (2021), Protected Planet: The World Database on Protected Areas (WDPA) [On-line], [May/2021], Cambridge, UK: UNEP-WCMC and IUCN. Available at: www.protectedplanet.net.

UNEP-WCMC and IUCN (2021), Protected Planet: The World Database on Other Effective Area-based Conservation Measures (WD-OECM) [On-line], [May/2021], Cambridge, UK: UNEP-WCMC and IUCN. Available at: www.protectedplanet.net.

UN Ocean Conference Voluntary Commitments, available at: https://oceanconference.un.org/commitments/

Williams, B.A., Venter, O., Allan, J.R., Atkinson, S.C., Rehbein, J.A., Ward, M., Marco, M.D., Grantham, H.S., Ervin, J., Goetz, S.J., Hansen, A.J., Jantz, P., Pillay, R., Rodríguez-Buriticá, S., Supples, C., Virnig, A.L.S., Watson, J.E.M., (2020). Change in Terrestrial Human Footprint Drives Continued Loss of Intact Ecosystems. One Earth 3, 371–382. https://doi.org/10.1016/j.oneear.2020.08.009

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