

An Overview of the
WESTERN CAPE

BSP

BIODIVERSITY
SPATIAL PLAN



Definitions

BIODIVERSITY The wide variety of plant and animal species in their natural environment. It not only refers to species (plants, animals and micro-organisms) but also to ecosystems and landscapes, and the ecological and evolutionary processes that allow biodiversity to persist over time. It includes the diversity within species, between species, and of ecosystems.

BIODIVERSITY HOTSPOT An area on earth with an unusual concentration of species, many of which are endemic to the area, and which is under serious threat.

BIOME A major portion of the living environment of a particular region (such as Fynbos or Succulent Karoo), characterised by its distinctive vegetation and maintained largely by local climatic conditions.

Photo by Neil Bradfield - Shutterstock



THE WESTERN CAPE FLORISTIC REGION

The Western Cape, which includes most of the Greater Cape Floristic Region, contains the world's most diverse non-tropical flora – a precious natural endowment that carries with it great opportunities and tremendous responsibilities.

The Region's habitats are under serious threat from unsustainable land use practices, alien species infestation, changing weather patterns, effects of climate change and development. Its large and complex biodiversity and the threat of further habitat loss combine to make the Western Cape a Global Biodiversity Hotspot.

Balancing the need to protect biodiversity and the need for infrastructural and economic development is an ongoing challenge.

The Western Cape Biodiversity Spatial Plan (BSP)

The BSP is a spatial tool that comprises the Biodiversity Spatial Plan Map (BSP Map), and the BSP Handbook 2017. It was developed in accordance with standard systematic conservation planning methodology and represents the best available science. It provides a set of critical spatial planning tools designed to protect the province's ecological infrastructure and priority biodiversity areas, and to enable sustainable development.

Produced by CapeNature in collaboration with the Western Cape Government Department of Environmental Affairs and Development Planning (DEA&DP), the 2017 BSP Handbook is a detailed scientific contribution to the countrywide biodiversity planning effort. It is part of a broader set of tools and initiatives that are provided for in Outcome 10 of the National

Government's Medium Term Strategic Framework (MTSF), which requires that environmental assets, natural resources and biodiversity are well protected and continually enhanced, paying special attention to vulnerable ecosystems, species and habitats.

The BSP Map is the product of a systematic biodiversity planning process that delineates Critical Biodiversity Areas (CBAs) and Ecological Support Areas (ESAs), which need to be safeguarded. This mapping tool, which consists of numerous maps, each incorporating multiple layers, is designed to provide spatial information and assist decision making with regard to land use and environmental management.

The BSP Handbook is an authoritative document that explains the use of the vast storehouse of biodiversity and land use information that resides within the BSP, including land use guidelines that promote the effective management of biodiversity.

These guidelines, found in Chapter 4 of the Handbook, are intended for planners and decision-makers in municipal, provincial and national departments as well as landowners and Environmental Impact Assessment Professionals. Their purpose is to provide advice on which land uses and activities are most compatible with maintaining the ecological integrity of CBAs, ESAs and other parts of the landscape.

This booklet provides a summary of the information in the BSP.

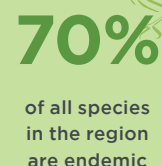
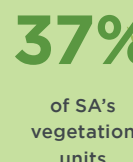
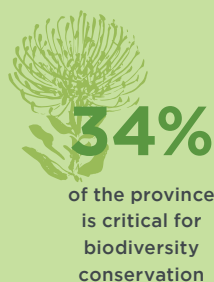
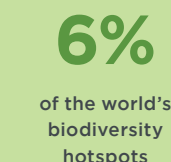
How to access the Western Cape BSP:

The Western Cape BSP Handbook 2017 is available as a downloadable PDF on the CapeNature website at: https://www.capenature.co.za/wp-content/uploads/2017/12/DEADP_CN_WCBSP_Handbook_2017.compressed-ilovepdf-compressed.pdf

The Western Cape BSP Map as well as municipal-level shapefiles can be accessed via the Biodiversity GIS website at: <http://bgis.sanbi.org/Projects/Detail/194>.

The BSP Map is hosted on a viewing platform on CapeFarmMapper, a product of the Western Cape Department of Agriculture, which can be accessed at: <https://gis.elsenburg.com/apps/cfm/>

WESTERN CAPE BIODIVERSITY



WHAT IS A SYSTEMATIC BIODIVERSITY PLAN?

Systematic biodiversity planning involves mapping biodiversity features and patterns of land and resource use. It uses multiple datasets, analysed using specialized software, to identify areas that are required to meet specific biodiversity objectives.

The maps generated show where natural resource management and conservation action should be focused to achieve biodiversity targets in the most efficient manner, and help planners assess the implications for biodiversity of various land use options. The maps are not only used to plan conservation management interventions, but also to ensure that biodiversity opportunities and constraints are incorporated proactively into integrated development planning and infrastructure investment.

Uses of the BSP

Developed at a relatively fine spatial scale, the BSP can be used for planning at local, district and provincial levels.

From a development point of view, the BSP is the primary source of biodiversity information for all land use planning and decision-making in the Western Cape, it aligns with national biodiversity planning tools and is designed to facilitate pro-active forward planning, conservation and restoration.

From an ecosystem services point of view, the BSP represents biodiversity and ecological infrastructure, which delivers ecosystem services, as highly valuable assets. These ecosystem services include improved resilience to climate change impacts and reduced disaster risk, which ultimately results in reduced impacts on people and their well-being. To prevent ecosystem fragmentation, all planning spheres must integrate sustainable management of these assets.

PRINCIPLES OF BIODIVERSITY PLANNING

1. **Principle of representation:** the need to conserve a representative sample of all biodiversity patterns
2. **Principle of persistence:** the need to maintain ecological and evolutionary processes that allow biodiversity to persist in the long term
3. **Biodiversity targets:** quantitative targets set for biodiversity features
4. **Efficiency and conflict avoidance:** to meet biodiversity targets through selecting the minimum area of land to achieve maximum biodiversity objectives, while avoiding conflict with other land uses where possible.

Photo by Scott Ramsay



6 KEY OBJECTIVES OF THE BSP



1. To provide a **spatial framework** for environmentally sustainable development and resource use, and to provide the province with **primary biodiversity information** for all land use planning and decision-making.
2. To **maintain the province's ecological infrastructure** and avoid ecosystem loss or fragmentation.
3. To strengthen the **resilience of ecosystems and human communities** to the impacts of climate change.
4. To **streamline and inform land use decision-making** and inform municipalities and planners about the wise management of spatial biodiversity priorities.
5. To focus on-the-ground **conservation and restoration action** in Biodiversity Priority Categories and support CapeNature in implementing its biodiversity mandate.
6. To **mainstream biodiversity conservation** in the development and production sectors, and promote greater synergy between them and biodiversity conservation.

Photo by Rupert Koopman



ECOSYSTEM SERVICES: PILLAR OF THE PROVINCIAL ECONOMY

Ecosystems, which are systems of relationship between the living components of biodiversity and their environments, operate at all scales, from microscopic aquatic life to tidal zones, forests and majestic mountain ranges.

Ecosystem services

The benefits that we as human beings derive directly from nature are vital for our survival. These natural goods and services include clean air and water, flood and erosion control, food sources, pollination and carbon storage. In the Western Cape, the ecological infrastructure and its ecosystem services are an important pillar of our provincial asset base as well as economic growth and job creation, and are taken into consideration in systematic planning processes.

Freshwater Ecosystems

Freshwater ecosystems provide a range of ecosystem services, especially in the context of water scarcity. For example, river catchments are highly productive

water providers, while groundwater systems play an important role in interacting with surface water through maintaining wetlands, river base flows and pools during low rainfall periods.

Coastal and Marine Ecosystems

The 1000 km Western Cape coastline is diverse and rich in marine biodiversity, with numerous estuaries that are either permanently or periodically open to the sea. South Africa's marine resources are over-exploited and 47% of marine and coastal habitats are threatened. The conservation of vulnerable marine biodiversity and ecotypes such as rocky and sandy shores, offshore reefs, offshore soft sediment and estuaries is crucial to maintain fishery yield.

KEY ECOSYSTEM SERVICES

PROVIDE life-supporting services such as air, water and food.

REGULATE climate and disease.

SUPPORT nutrient cycles and oxygen production, provision of habitat.

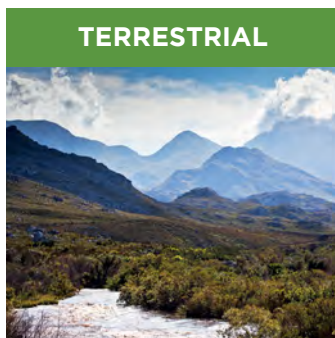
INCLUDE cultural services, such as spiritual and recreational benefits.

Photo by Rupert Koopman



FRESHWATER

Photo by Riaan van der Waalt



TERRESTRIAL

Photo by Scott Ramsay



COASTAL

Photo by Marie-Adèle de Villiers



ESTUARINE

Photo by Liesel Kershoff

Definitions

CRITICAL BIODIVERSITY AREAS Terrestrial (e.g. threatened vegetation type remnants) and/or aquatic features (e.g. vleis, rivers and estuaries), and the buffer areas along aquatic CBA features, whose safeguarding is critically required in order to meet biodiversity pattern and process thresholds. They are identified through a systematic biodiversity planning approach and represent the most land-efficient option to meeting all thresholds.

ECOLOGICAL INFRASTRUCTURE Naturally functioning ecosystems that deliver

valuable services to people, such as water and climate regulation, soil formation and disaster risk reduction. It is the nature-based equivalent of built or hard infrastructure and can be just as important for providing services and underpinning socio-economic development. Ecological infrastructure does this by providing cost effective, long-term solutions to service delivery that can supplement, and sometimes even substitute, built infrastructure solutions. Ecological infrastructure includes healthy mountain catchments, rivers, wetlands, coastal

dunes, and nodes and corridors of natural habitat, which together form a network of interconnected structural elements in the landscape.

ECOLOGICAL SUPPORT AREAS

A supporting zone or area required to prevent the degradation of Critical Biodiversity Areas and protected areas. They can be aquatic features, e.g. specific river reaches which feed into aquatic Critical Biodiversity Areas; or terrestrial features, e.g. the riparian habitat surrounding and supporting aquatic Critical Biodiversity Areas, and are often vital for delivering ecosystem services.

ENABLING LIVING FUNCTIONAL LANDSCAPES:

COSTS OF DEGRADATION



Unnecessary costs, penalties, bureaucratic difficulties



Negative landscape impacts, including fragmentation, loss of connectivity and reduced nutrient cycling

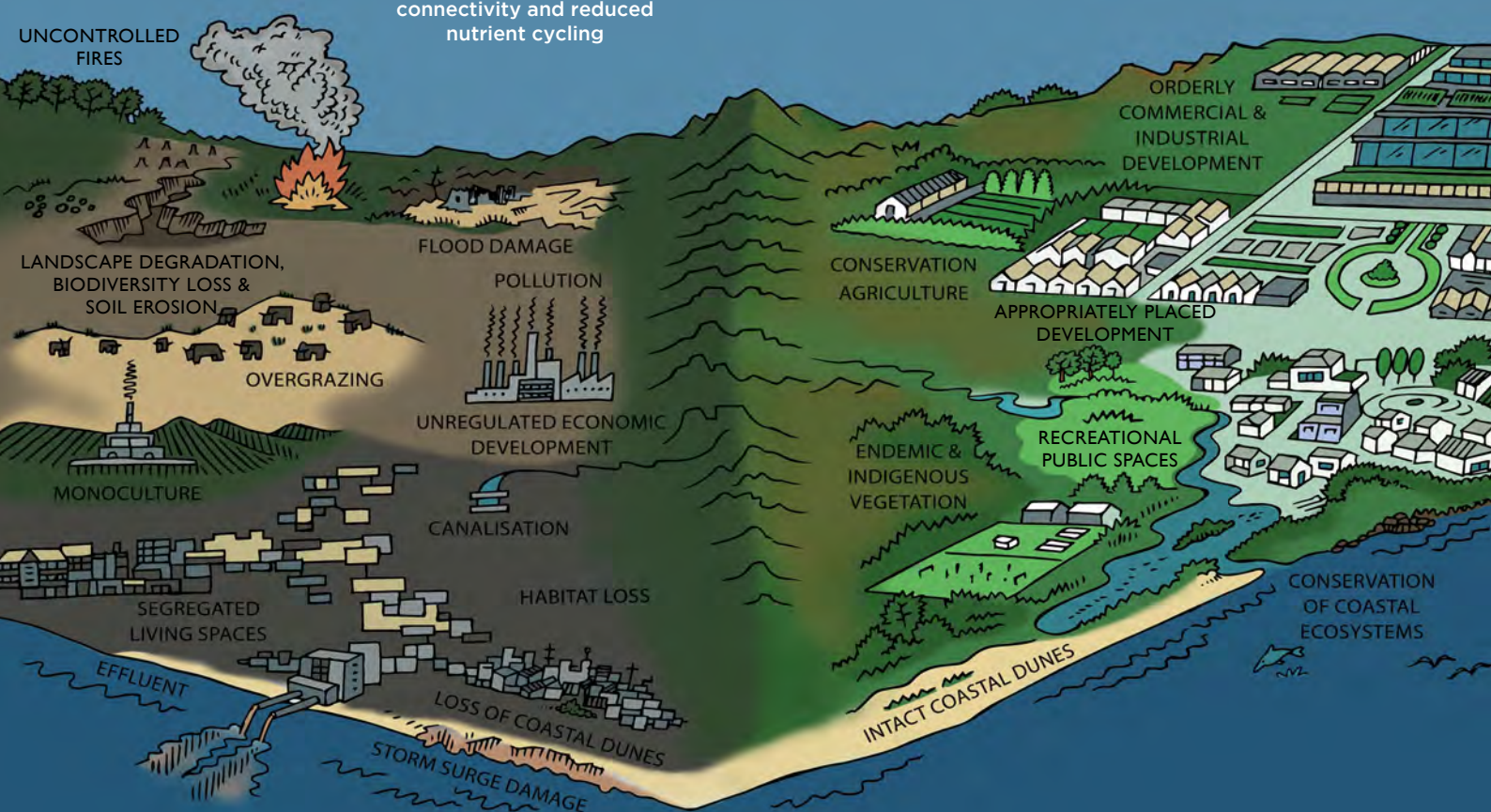
BENEFITS OF WORKING WITH NATURE



Ecological rehabilitation, resulting in functional and resilient landscapes



Crisis preparedness and disaster risk reduction



Responding to Climate Change

MITIGATION:
CO₂ emission reduction

ADAPTATION:
Disaster risk reduction

One of the most important ways of increasing the resilience of ecosystems to climate change is to increase functional habitat connectivity. The BSP included consideration of which areas should be prioritised to achieve this and incorporated it in the delineation of CBAs and EBAs, so by adhering to CBA and EBA objectives planners will be contributing towards climate resilience.

Definitions

PRIORITY BIODIVERSITY AREAS Areas required to meet biodiversity targets.

PROTECTED AREAS Formally protected areas declared in terms of the National Environmental Management: Protected Areas Act.

SPATIAL DEVELOPMENT FRAMEWORK a long-term, forward planning policy tool that spatially indicates the long-term growth and development path of a municipality. It co-ordinates the spatial implications of all strategic sector plans (engineering, transport, economic, housing, community services etc.) of a municipality and gives physical effect to the vision, goals and objectives of the municipal IDP; and informs land use management, economic development and infrastructure planning.

STRATEGIC WATER SOURCE AREAS Areas that supply a disproportionate amount of mean annual runoff to a geographical region of interest.

THREATENED ECOSYSTEMS An ecosystem type that has been classified as Critically Endangered, Endangered, or Vulnerable, based on an analysis of ecosystem threat status. A threatened ecosystem has lost or is losing vital aspects of its composition, structure, or function.



Photo by Alana Duffell-Canham

HABITAT LOSS AND ECOSYSTEM RESILIENCE

The Western Cape's ecological infrastructure and the ecosystem services that it provides are threatened by commercial fishing, coastal development, unregulated agricultural expansion, reduced freshwater flows, pollution, fires, invasive alien species and climate change.

Land use pressures and habitat change

If biodiversity threats are not reduced, some ecosystems could collapse.

The primary causes of loss of biodiversity in the Western Cape are loss of habitat due to:

- land transformation from natural to manmade landscapes
- modification and exploitation of natural watercourses
- increased frequency and intensity of fires, as well as shifts in the fire season
- invasive alien species
- climate change

What is ecosystem resilience?

Ecosystem resilience is the ability of the ecosystem to absorb a certain amount of change, yet still remain functional. Resilience can be maintained by focusing on intact areas and maintaining Biodiversity Priority Areas in a natural or near-natural state, and by maximising connectivity between these areas.

Resilient ecosystems are able to deliver ecosystem services to:

- maintain the ecological processes that allow biodiversity to persist
- better withstand human-induced pressures
- adapt to the impacts of climate change and mitigate its effects by capturing and storing carbon

Strengthening ecosystem resilience

By integrating BSP guidelines into their planning, decision-makers can reduce the impacts of climate threats and habitat loss. Systematic biodiversity planning focuses conservation action by setting clear goals. For example:

- protect water source areas, watercourses and groundwater recharge areas
- implement appropriate fire management
- restore and maintain biodiversity for carbon storage
- assist with disaster management and reduce vulnerability to floods and droughts
- create functional connectivity in landscapes

BSP IN THE INTERNATIONAL CONTEXT

The Sustainable Development Goals (SDGs) & Aichi Biodiversity Targets

Adopted by the UN in 2015, the SDGs present 17 global goals to transform our world. The BSP supports the province's work towards achieving the SDGs as well as the Aichi Biodiversity Targets. The six main SDGs relevant to the BSP are 3, 11, 12, 13, 14 and 15.

3 GOOD HEALTH AND WELL-BEING



11 SUSTAINABLE CITIES AND COMMUNITIES



12 RESPONSIBLE CONSUMPTION AND PRODUCTION



13 CLIMATE ACTION



14 LIFE BELOW WATER



15 LIFE ON LAND



BSP LAND USE GUIDELINES AND COMPLIANCE REQUIREMENTS

BSP Guidelines for land use planning, decision-making and resource management aim to achieve diversity-sensitive management of a mosaic of land uses, including protection, restoration, production, settlement and subsistence.

Biodiversity management objectives

Biodiversity management objectives must be integrated into the planning and practices of all land users, planners and decision-makers. Complete compliance with BSP Land Use Guidelines is required.

Guidelines for Protected Areas

The National Environmental Management: Protected Areas Act (NEM:PAA) requires that each protected area is governed by an approved management plan that identifies allowable activities and allocates them appropriately.

USING BSP IN IDPs & SDFs

Municipal Integrated Development Plans (IDPs) normally include an Environmental Sector Plan or Integrated Environmental Management Programme. The province and its municipalities are obliged to develop legally binding Spatial Development Frameworks (SDFs) which indicate desired patterns of land use, ensure sustainable development and provide strategic guidance for development and conservation.



BSP MAP CATEGORIES AND DESIRED MANAGEMENT OBJECTIVES

PROTECTED AREA: Must be kept in a natural state, with a management plan focused on maintaining or improving the state of biodiversity. A benchmark for biodiversity.

CRITICAL BIODIVERSITY AREA 1: Maintain in a natural or near-natural state, with no further loss of habitat. Degraded areas should be rehabilitated. Only low-impact, biodiversity-sensitive land uses are appropriate.

CRITICAL BIODIVERSITY AREA 2: Maintain in a functional, natural or near-natural state, with no further loss of natural habitat. These areas should be rehabilitated.

ECOLOGICAL SUPPORT AREA 1: Maintain in a functional, near-natural state. Some habitat loss is acceptable, provided the underlying biodiversity objectives and ecological functioning are not compromised.

ECOLOGICAL SUPPORT AREA 2: Restore and/or manage to minimise impact on ecological infrastructure functioning; especially soil and water-related services.

ONA: Natural to Near-Natural - Minimise habitat and species loss and ensure ecosystem functionality through strategic landscape planning. Offers flexibility in permissible land uses, but some authorisation may still be required for high-impact land uses.

NO NATURAL REMAINING: Manage land use in a biodiversity-friendly manner, aiming to maximise ecological functionality. In old lands, stabilise ecosystems and manage them to restore ecological functionality, particularly soil carbon and water-related functionality, using indigenous plant cover. Old lands should be burnt and grazed appropriately.

CATEGORIES ON THE BIODIVERSITY SPATIAL PLAN MAP AND THEIR RECOMMENDED CORRESPONDING SPATIAL PLANNING CATEGORY.

SPC	BSP Category						
	Pro- tected Areas	CBA 1	CBA2	ESA 1	ESA 2	ONA	NNR
Core 1	■						
Core 2		■					
Buffer 1			■				
Buffer 2				■			
Intensive Agriculture					■		
Settlement						■	
Industry & Existing Mining							■

BIODIVERSITY PRIORITY CATEGORIES

In order to include biodiversity priorities in existing municipal spatial plans, municipalities develop land use zoning schemes which need to align with the BSP categories. For more detail refer to the enclosed WESTERN CAPE BIODIVERSITY PRIORITY CATEGORIES MAP.



ECOSYSTEM SERVICES



LEGISLATIVE COMPLIANCE



ADAPTATION & RESILIENCE



KEY MESSAGES

The BSP reinforces three Key Messages that are crucial for all concerned with land use planning in the province.

1. THE VALUE OF PROTECTING BIODIVERSITY

Using the planning guidelines provided as part of the WCBSP to guide effective natural resource management and promote biodiversity awareness can improve land use efficiency and productivity.

2. THE NECESSITY OF COMPLIANCE WITH LAND USE AND ENVIRONMENTAL LEGISLATION

The relevant legislation at national and provincial levels are designed to limit loss of biodiversity and to ensure continued protection of ecological infrastructure and provision of ecosystem services.

3. DEVELOPING ADAPTIVE RESILIENCE TO CLIMATE CHANGE

Using the BSP to inform planning and development will assist in building resilience to climate change and disasters. The BSP can be used to inform positive planning which will help reduce risks to people and infrastructure.

The Key Messages reinforce the vision of the BSP: Biodiversity and ecological infrastructure are highly valued as assets and integrated into all planning spheres. They must be managed in a sustainable way to ensure the persistence of healthy functioning and representative ecosystems, and associated services which benefit all.



Cover photos by:

- Central: Amida Johns - View of Kogelberg Peak
- Left to Right: Etienne Stanyliet - Wood Owls
Rupert Koopman - Knersvlakte Quartz Gravel
Andrew Turner - Psammobates geometricus
Scott Ramsay - Marsh Pagoda



BIODIVERSITY PRIORITY CATEGORIES

PA: PROTECTED AREA

DEFINITION: Areas that are proclaimed as protected areas under national (National Environment Management: Protected Areas Act, Act 57 of 2003) or provincial (Mountain Catchment Areas Act, Act no 63 of 1970) legislation.

OBJECTIVE: Keep in a natural state, with a management plan focused on maintaining or improving biodiversity. A benchmark for biodiversity conservation.

SUB-CATEGORY: MPA Marine Protected Area

CBA: CRITICAL BIODIVERSITY AREA 1

DEFINITION: Areas in a natural condition. Required to meet biodiversity targets for species, ecosystems or ecological processes and infrastructure.

OBJECTIVE: Maintain in a natural or near-natural state, with no further loss of habitat. Degraded areas should be rehabilitated. Only low-impact, biodiversity-sensitive land uses are appropriate.

SUB-CATEGORIES: CBA1 River, CBA1 Estuary, CBA1 Wetland, CBA1 Forest, CBA1 Terrestrial

CBA2: CRITICAL BIODIVERSITY AREA 2

DEFINITION: Areas in a degraded or secondary condition. Required to meet biodiversity targets for species, ecosystems or ecological processes and infrastructure.

OBJECTIVE: Maintain in a functional, natural or near-natural state, with no further loss of habitat. Degraded areas should be rehabilitated. Only low-impact, biodiversity-sensitive land uses are appropriate.

SUB-CATEGORY: CBA2 Degraded

ESA1: ECOLOGICAL SUPPORT AREA 1

DEFINITION: Not essential for meeting biodiversity targets. An important role in supporting the functioning of PAs or CBAs. Often vital for ecosystem services.

OBJECTIVE: Maintain in a functional, near-natural state. Some habitat loss is acceptable, provided underlying biodiversity objectives/ecological functioning are not compromised.

SUB-CATEGORIES: ESA1 Foredune, ESA1 Forest, ESA1 Climate Adaptation Corridor, ESA1 Coastal Resource Protection, ESA1 Endangered Ecosystem, ESA1 River, ESA1 Estuary, ESA1 Wetland, ESA1 Watercourse Protection, ESA1 Water Source Protection, ESA1 Water Recharge Protection

ESA2: ECOLOGICAL SUPPORT AREA 2

DEFINITION: Not essential for meeting biodiversity targets. Important in supporting functioning of PAs or CBAs. Often vital for ecosystem services.

OBJECTIVE: Restore/minimise impact on ecological infrastructure functioning, especially soil and water-related services.

SUB-CATEGORY: ESA2 Restore from Near-Natural

ONA: OTHER NATURAL AREAS

DEFINITION: These areas retain most of their natural character and perform biodiversity and ecological infrastructure functions but have not been prioritised in the current Western Cape Biodiversity Spatial Plan.

OBJECTIVE: Minimise habitat and species loss to ensure ecosystem functionality through strategic landscape planning. Some flexibility in permissible land uses, but authorisation may still be required for high-impact uses.

SUB-CATEGORIES: ONA Natural to Near-Natural, ONA Degraded

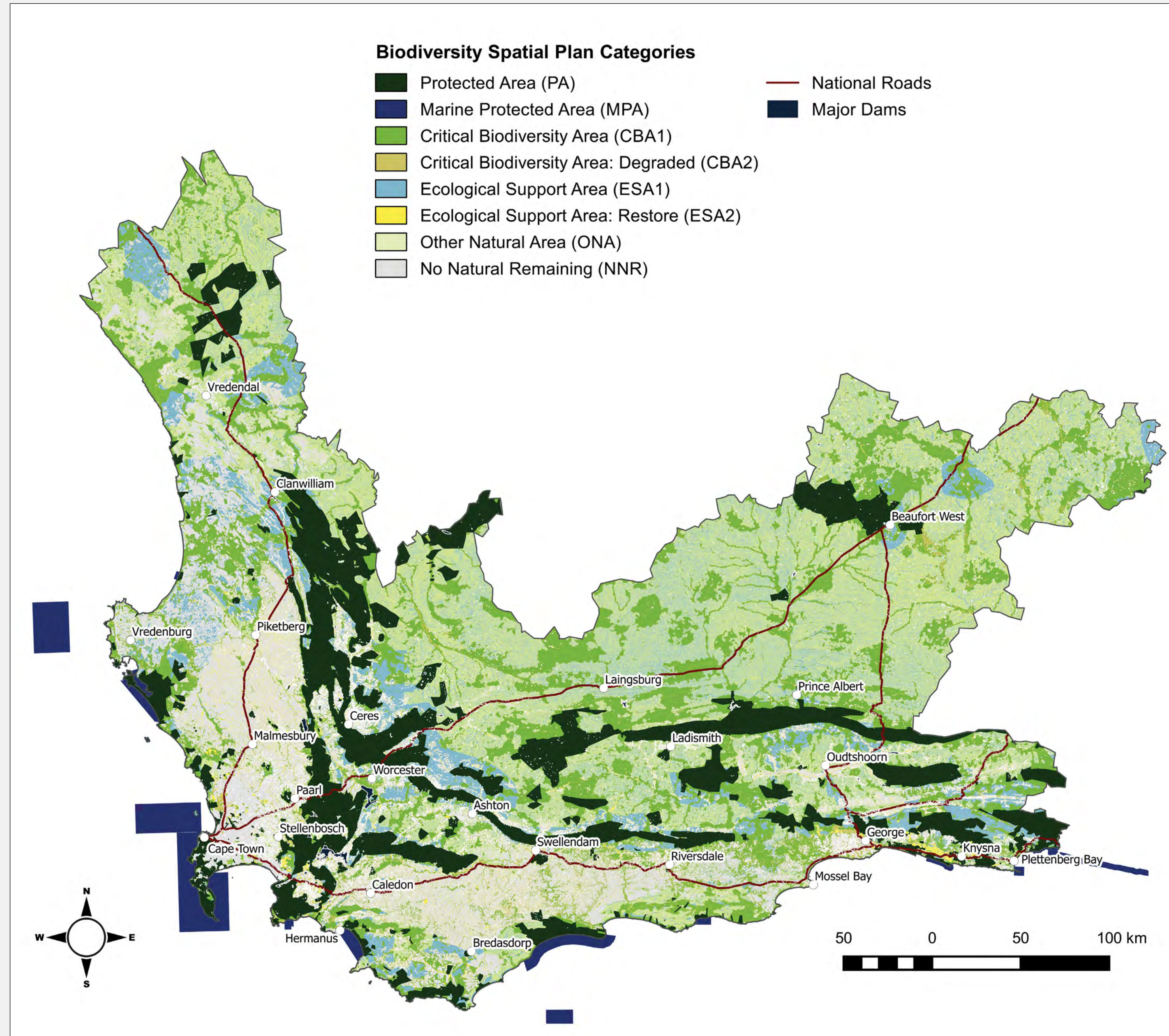
NNR: NO NATURAL REMAINING

DEFINITION: Modified by human activity and no longer natural nor contributing to biodiversity targets. May still provide limited biodiversity and ecological infrastructure functions, even if never prioritised for conservation action.

OBJECTIVE: Manage in a biodiversity-sensitive manner, aiming to maximise ecological functionality. Most flexibility i.t.o. potential land uses. Authorisation may still be required for high-impact land uses.

Biodiversity Spatial Plan Categories

- Protected Area (PA)
 - Marine Protected Area (MPA)
 - Critical Biodiversity Area (CBA1)
 - Critical Biodiversity Area: Degraded (CBA2)
 - Ecological Support Area (ESA1)
 - Ecological Support Area: Restore (ESA2)
 - Other Natural Area (ONA)
 - No Natural Remaining (NNR)
- National Roads
 - Major Dams



FAQs (Refer to Handbook p102 for more details and additional FAQs)

Q1 What if the BSP Map indicates that the property is located within a CBA but the site visit reveals that the site is degraded or that no natural habitat occurs on the site?

The site, although degraded, still contributes to the biodiversity of the area. The site's potential for rehabilitation should be assessed. Ground-truthing is essential in all cases. (See Handbook Section 4.7.)

Q2 What if natural habitat is found on a site but this is not indicated on the land cover map, and therefore the site is not classified as a CBA, ESA, or ONA?

Refer to the most recent available vegetation map to determine the vegetation type likely to occur on site. The site must be assessed w.r.t. biodiversity conservation or protection of ecological infrastructure. (See Handbook Table 3.3.)

Q3 What if the area has not been determined as a CBA but ground-truthing has revealed that plant species of conservation concern (SCC) are present?

It is possible that new localities of individuals or populations of plants will be found on site during EIA processes. Their conservation importance must be determined. It is preferable to avoid impacting SCC. Search and rescue should only be considered as a last resort if the impact on SCC cannot be avoided, and is not considered as mitigation sufficient to reduce impact ratings. In some cases an evaluation of restoration potential may be required.

Q4 Do Other Natural Areas require a biodiversity assessment?

In ONAs biodiversity features, e.g. presence or absence of wetlands or SCC, must be confirmed. The issue of scale is relevant here.

Q5 How does ecosystem status relate to the BSP Map?

All intact patches of Critically Endangered ecosystems or features should be included as CBAs. Two different ecosystem threat status references exist: (i) threatened ecosystems listed in terms of Section 52 of the National Environmental Management: Biodiversity Act (NEM:BA), and (ii) CapeNature's 2016 Ecosystem Threat Status information in the Western Cape BSP. Both are available on SANBI's BGIS website.

Q6 How do CBA and ESA categories affect existing land use rights?

The BSP Map does not grant or take away any existing land use rights. Proposed land uses require authorisation i.t.o. relevant legislation.

Q7 Will all CBAs become Protected Areas?

It is not feasible for all CBAs to be formally conserved in protected areas, but they should be afforded appropriate protection and managed accordingly. The National Environmental Management Act (NEMA) affords protection regarding the control of land use change on CBAs.

Q8 What does it mean if a CBA is lost?

Any disturbance or conversion of habitat within CBAs means either (i) the irremediable loss of an important ecological feature or part or whole of a corridor, and/or (ii) that more land will be required in order to meet the same threshold (see definition of CBA on page 4).

Q9 Will the BSP Map ever change?

Land use is dynamic and the BSP Map will be updated on an ongoing basis. It forms the basis for future updates. To be used for bioregional planning, it needs to be updated every five years i.t.o. relevant legislation.

