



Caring for Our Biodiversity – made easy

An overview of Critical Biodiversity Area (CBA) maps for the Ba-Phalaborwa and Maruleng local municipalities

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What is biodiversity?

Biodiversity is all of NATURE. The term biodiversity refers not only to species (plants, animals and micro-organisms), but also to ecosystems, landscapes, and the ecological and evolutionary processes that allow biodiversity to persist into the future. It encompasses the diversity within species, between species, and of ecosystem.

In order to care for our biodiversity, we need to know where it is found in our landscape. The easiest way to do this is by means of a map. It is also useful to know where unique or special biodiversity features can be found so that we do not destroy these species.

To help municipalities determine where they can conduct biodiversity sensitive land use planning, the Department of Environment and Tourism has produced a tool called a **Critical Biodiversity Area (CBA) map**. A CBA map for a specific local municipality has a fine scale (1:50 000) so that spatial planners can use it in their daily activities.

This brochure explains CBA maps and their use for two local municipalities: Ba-Phalaborwa and Maruleng.

The information is taken from the Mopani District Bioregional Plan 2016 which was developed by the Limpopo Department of Economic Development, Environment and Tourism (LEDET).

A number of brochures have been developed to support this overview and are available as a CBA series from www.award.org.za

Biodiversity Sector Plan (BSP) handbooks

The BSP handbooks were prepared in order to assist the local municipalities in the application of the District Bioregional Plans at the local level. Other intended users include, for example Environmental Assessment Practitioners, developers, landowners, the agricultural sector and estate agents.

Central to using the BSP handbooks are the **Critical Biodiversity Area (CBA) map** and the **Land Use Guidelines**.



THE CBA map and its categories

The CBA map divides the landscape into **Protected Areas (PA)**, **Critical Biodiversity Areas (CBA)** and **Ecological Support Areas (ESA)** – referred to as *biodiversity priority areas* – as well as **Other Natural Areas** and **No Natural Remaining**.

■ **PA** are declared in terms of the National Environment Management: Protected Areas Act (57 of 2003).

■ **CBA** are terrestrial (land) and aquatic (water) areas which must be safeguarded in their natural or near-natural state because they are critical for conserving biodiversity and maintaining ecosystem functioning. These include natural areas

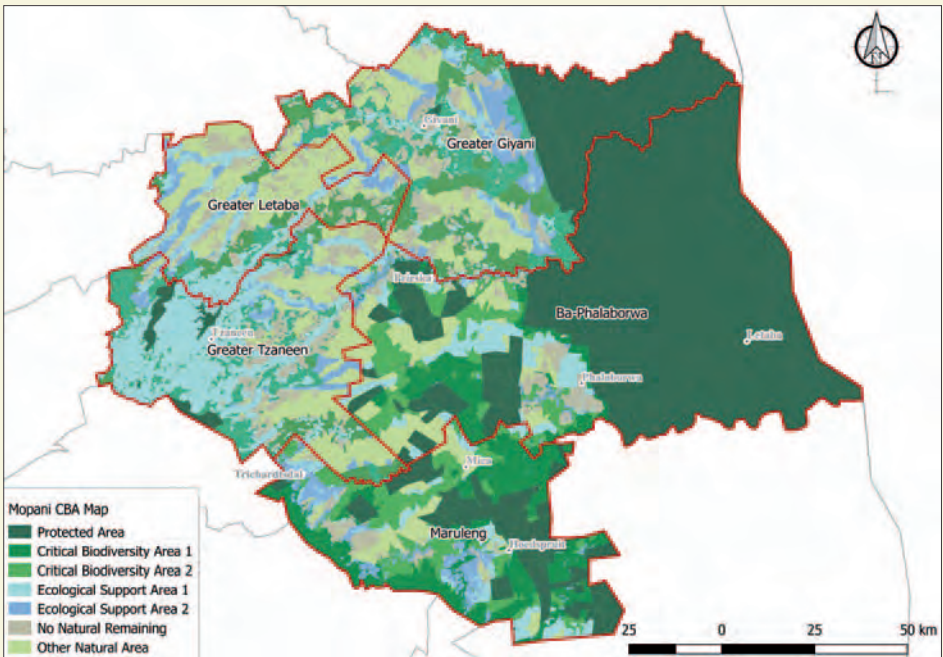
required to (a) meet national biodiversity targets (thresholds);* (b) ensure the continued existence and functioning of species and ecosystems, including the delivery of ecosystem services (e.g. water supply); and/or (c) important locations for biodiversity features or rare species.

■ **ESA** are supporting zones which must be safeguarded to prevent the degradation of CBA and PA.



A **biodiversity target (threshold)** is the area (hectares) that must be safeguarded in order for the component plants and animals to exist and for ecosystems to continue functioning (e.g. pollination, migration of animals). The targets (thresholds) for various types of habitats have been set nationally by the National Spatial Biodiversity Assessment (NSBA).

Figure 1 *Different area categories in the Mopani District CBA map*



Why use a CBA map?

CBA maps serve as the primary source of information on biodiversity for:

■ Proactive forward planning:

Provides input into planning tools, such as Integrated Development Plans (IDPs), Spatial Development Frameworks (SDFs), Environmental Management Frameworks (EMFs), Municipal Open Space Systems and land use schemes.

■ Reactive land use decision-making:

Provides guidance for evaluating Environmental Impact Assessments, Basic Assessments, agricultural land use permits, water use authorisations and development control decisions through land use legislation (e.g. rezoning and subdivision approvals), such as the Spatial Planning and Land Use Management Act (16 of 2013).

■ Proactive conservation:

Provides input into decisions on the expansion of protected areas through land acquisition by the state and biodiversity stewardship agreements with private or communal landowners, and for clearing of alien invasive plants.

Promoting climate change resilience

Protecting biodiversity protects us from climate change. The single most important climate change adaptation action the municipality can take is to secure the CBA network through appropriate land use planning mechanisms.



Key limitations of the CBA map

- The CBA map has a scale of 1:50 000 and therefore does NOT replace site assessments.
- CBA maps are part of the biodiversity sector's input into multi-sectoral planning procedures – i.e. the maps simply provide information on biodiversity, and must be used *in conjunction with* other land use or town and regional planning application procedures and principles.

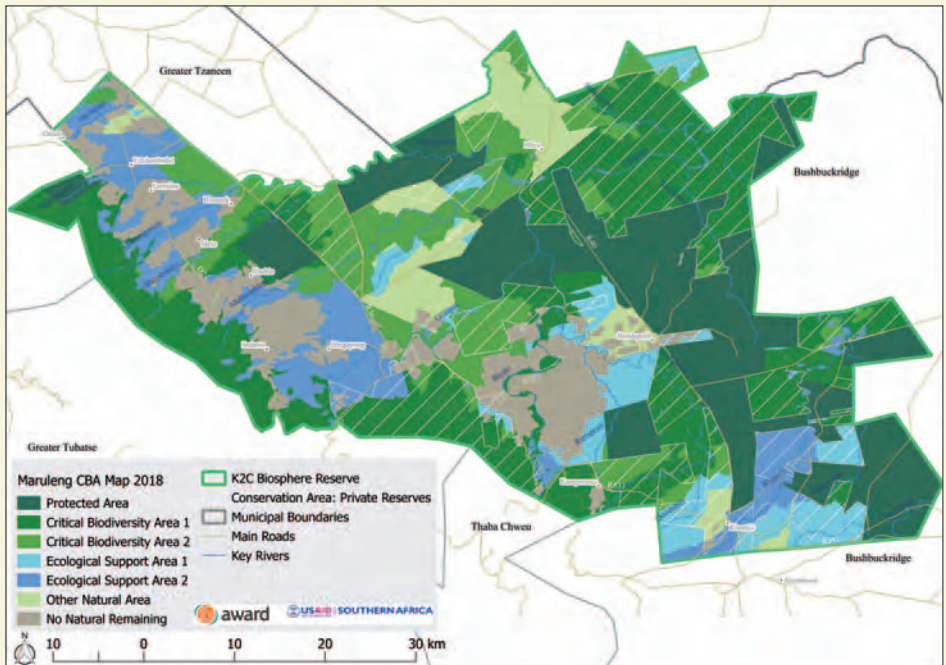


Figure 2 Maruleng CBA map

Promoting local economic development

The identification of biodiversity projects for the IDP through the CBA map supports Local Economic Development and poverty alleviation, such as sustainable harvesting, eco-tourism, alien invasive plant clearing and rehabilitation projects.





Promoting sustainable development

Biodiversity is the cornerstone of sustainable development. Both NATURAL and SOCIAL capital provide the inputs for ECONOMIC capital. The level of their quality and the ability of NATURE to manage the waste generated by economic activity have a major effect on the overall competitiveness and success of our economy as a whole.

The following GIS maps are provided with CBA maps:

■ Primary data:

Critical Biodiversity Areas Map (includes all CBA Map categories: Protected Areas, Critical Biodiversity Areas, Ecological Support Areas, Other Natural Areas and No Natural Remaining, including Conservation Areas)

■ Users can download this data from the SANBI BGIS website (<http://bgis.sanbi.org/SpatialDataset>) or contact AWARD Tel: 015 793 0503/0145, email: info@award.org.za, website: www.award.org.za.

■ Associated data:

South African vegetation types (2012), wetlands, key rivers, land cover

■ Users can download vegetation, river and wetland data from the SANBI BGIS website <http://bgis.sanbi.org/SpatialDataset>

■ Users can download the National Department of Environmental Affairs (DEA) land cover and protected areas maps from their website: https://egis.environment.gov.za/national_land_cover_data_sa; https://egis.environment.gov.za/protected_areas_database.



A user friendly Android app and A3 mapbook has been developed by AWARD to interrogate the CBA map in relation to any property in question. Visit www.award.org.za for more details. The app is available on Google play store.

The central component of the CBA map is the Land Use Guideline

■ The land use zones are based on those recommended under the Spatial Planning Land Use Management Act,16 of 2013 ('schedule 2 land use purposes')

■ These land use guidelines serve as the primary biodiversity informant to land use planning and decision-making, and cannot grant or take away existing land use rights.

■ The **biodiversity priority categories** (PA, CBA, ESA), and not the remaining categories are included in the guideline table. Always prioritise sustainable development, within general rural land-use principles, when considering land and water use applications in remaining categories i.e. other natural areas.

Table 1 Recommended biodiversity-compatible land use guidelines matrix (adapted from the MPTA, 2014; DEA&DP, 2004)

No	Land Use Zone	Associated Land use Activities	PA	CBA1	CBA2	ESA1	ESA2	ONA	NNR
1	Environmental Conservation (& similar zones in EMFs etc.)	Conservation management, low-intensity eco-tourism activities and sustainable consumptive activities. This includes both gazetted Protected Areas (NEMPA) and non-gazetted conservation areas	Y	Y	Y	Y	Y	Y	Y
2	Tourism and Accommodation	Low Impact Eco-Tourism (e.g. lodge or other ecotourism infrastructure on game reserve)	Y	Y	Y	Y	Y	Y	Y
		Medium Impact Tourism / Recreational and Accommodation	N	R	R	R	R	Y	Y
		High Impact Tourism / Recreational and Accommodation (e.g. golf and polo estates)	N	N	N	N	R	Y	Y
3	Rural Residential	Low density rural housing or eco-estates	N	R	R	R	R	Y	Y
		Moderate density rural housing or eco-estates	N	N	R	R	R	Y	Y
		Traditional Communal Areas and Rural Communal Settlement (new)	N	N	N	R	R	Y	Y
4	Agriculture	Extensive Game Farming	Y	Y	Y	Y	Y	Y	Y
		Extensive Livestock Production	N	Y	Y	Y	Y	Y	Y
		Extensive Game Breeding (≥100 ha camps)	N	R	R	Y	Y	Y	Y

No	Land Use Zone	Associated Land use Activities	PA	CBA1	CBA2	ESA1	ESA2	ONA	NNR
4	Agriculture (cont.)	Low Impact Extensive Game Breeding (permeable fencing and camps >100 ha)	N	Y	Y	Y	Y	Y	Y
		Intensive Game Breeding (<100 ha camps, high stocking densities, impermeable fencing)	N	N	N	R	R	Y	Y
		Arable Land - Dryland and Irrigated Crop Cultivation	N	N	N	N	R	Y	Y
		Plantation Forestry: Timber Production	N	N	N	N	R	Y	Y
		Agricultural Infrastructure - Intensive Animal Farming (e.g. feedlot, dairy, piggery, chicken battery)	N	N	N	N	R	Y	Y
5	Open-Space	Public or Private Open-Space (Modified), includes recreational areas, parks etc. i.e. loss of indigenous vegetation	N	N	N	N	Y	Y	Y
		Public or Private Open-Space (Natural) – includes natural open space (indigenous vegetation retained or rehabilitated in ESA2)	Y	Y	Y	Y	Y	Y	Y
6	Residential	Low, low-medium, medium-high, and high density urban residential development	N	N	N	N	N	Y	Y
7	Urban Influence	An amalgamation of land use zones, including Institutional, Urban Influence, General Mixed Use, Low Impact Mixed Use, Suburban Mixed Use and General Business	N	N	N	N	N	Y	Y
8	Low or High Impact and General Industry	Low Impact, General Industry and High Impact Industry (Urban & Business Development)	N	N	N	N	N	Y	Y
9	Transport Services	Transportation service land uses e.g. airports, railway stations, petro-ports and truck stops, bus and taxi ranks and other transport depots	N	N	N	R	R	Y	Y
10	Roads and Railways	Existing and planned linear infrastructure such as hardened roads and railways, including activities and buildings associated with road construction and maintenance, e.g. toll booths, construction camps and road depot sites (Linear Engineering Structures)	N	N	R	R	R	Y	Y
11	Utilities	Linear engineering structures, such as pipelines, canals and power lines (Linear Engineering Structures)	N	R	R	R	R	Y	Y

No	Land Use Zone	Associated Land use Activities	PA	CBA1	CBA2	ESA1	ESA2	ONA	NNR
11	Utilities (cont.)	Small-scale Infrastructural installations, including wastewater treatment works and energy sub-stations	N	N	R	R	R	Y	Y
		Large-scale Infrastructure installations, including bulk water transfer schemes, impoundments (Water Projects & Transfers), and energy-generation facilities	N	N	N	N	R	Y	Y
		Renewable Energy (Photovoltaic farms and solar arrays)	N	N	N	R	R	Y	Y
		Renewable Energy (wind farms)	N	N	R	R	R	Y	Y
12	Quarrying and Mining	Prospecting and Underground Mining	N	N	N	R	R	Y	Y
		Quarrying and Opencast Mining (includes surface mining, dumping & dredging)	N	N	N	N	N	Y	Y
		Hydraulic Fracturing	N	N	R	R	R	Y	Y

SPECIAL MANAGEMENT OVERLAY ZONE

13	CBA Map Overlay Zone / Bioregional Planning Overlay Zone / Environmental Management Overlay Zone	These are areas that are designated as priority areas for protection, namely CBAs and ESAs. Therefore the land use activities for CBA and ESA above will apply.	Land use activities for CBA and ESA above will apply						
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Key:

Y	YES, permitted and actively encouraged activity
N	NO, not permitted, actively discouraged activity
R	RESTRICTED to compulsory, site-specific conditions & controls when unavoidable, not usually permitted



Refer to Table 15 of the BSP handbook for a detailed definition of the land uses.

NOTE: There are slight differences with the land uses recommended in the Mopani District Bioregional Plan (Part 4, Tables 3 – 7). These are indicated in Table 16 of the BSP handbook. The BSP thus supports and elaborates upon the Mopani District Bioregional Plan.

STEP BY STEP guide to using the CBA map and BSP data

STEP 1

Assess the Biodiversity Sector Plan/CBA Map information

Consult the following GIS data to determine the CBA Map category, biodiversity features and land cover on the property:

- Consult the CBA Map GIS shapefile to determine the category of the property (CBA, ESA, ONA and/or No Natural Remaining).
- Consult the associated GIS shapefiles to determine the presence of specific biodiversity features on the property e.g. wetland, river, vegetation type.
- Consult the 'Land Cover' GIS shapefile to determine the land cover category of the property (natural, degraded, irreversibly modified etc.).

The user friendly cell phone app and A3 map book can also be used to interrogate the CBA Map in relation to the property in question.

STEP 2

Assess other available information

Consult other available information to assist with interpreting the biodiversity of the property and surrounding area. This is especially important since the CBA may not show enough detail. Consider, for example:

- The Land use Decision Support (LUDS) Tool on the SANBI BGIS website at <http://bgis.sanbi.org> to determine property specific details, and aerial imagery via Google Earth, if necessary.
- The SANBI website for additional biodiversity information resources at <http://www.sanbi.org/information>.
- Up-to-date orthophotos, aerial or satellite imagery and Google Earth imagery to assess the presence of natural vegetation on site and/or the level of modification or degradation.
- The national and provincial Protected Area Expansion Strategies to identify focus areas for expansion of the protected area network (downloadable from the SANBI BGIS website).
- The Provincial Spatial Development Framework (SDF) for land use policy recommendations.
- Other strategic guidelines e.g. Grazing and Burning Guidelines (SANBI, 2014); NFEPA Implementation Manual for Freshwater Ecosystem Priority Areas (Driver et al., 2011), Guidelines for Development within Kruger to Canyons Biosphere Region (unpublished report), Mining and Biodiversity Guideline (SANBI, 2013); Buffer zone guidelines for rivers, wetlands and estuaries (Macfarlane and Bredin, 2016 & 2017) etc.

STEP 3

Site verification

A **biodiversity specialist** or **ecologist** should conduct a site visit to verify that the CBA map is accurate. The role of the specialist is to confirm or modify the CBA classification of the site based on observed conditions. Refer to **Section 5.1.3 of the Biodiversity Sector Plan handbook** for the minimum requirements to be determined by the specialist.

STEP 4

Consult the Guidelines for Land Use Planning and Decision-Making (Section 4 of the BSP)

Once the CBA map category of the property has been verified (Step 3), consult the land management objective (Table 13), recommended biodiversity-compatible land uses (Table 14) and land management guidelines (Table 15) in **Section 4 of the BSP Handbook**. A comparison of the BSP land use guidelines with the Mopani District Bioregional Plan is provided in Table 16.

STEP 5

Follow the terms of reference for environmental assessments (recommended by the Botanical Society of South Africa - Conservation Unit)

The terms of reference should then be followed as part of the environmental assessment process (basic assessment or full EIA). Refer to **Section 5.1.5 of the Biodiversity Sector Plan handbook** or download the terms of reference on <http://biodiversityadvisor.sanbi.org/planning-and-assessment/environmental-assessments/contextualisation/what-is-screening/tor-for-screening/>



All mapped information should be provided in shapefile (GIS) format, with the proposed development area (go area) and the area that will not be developed (no go area) presented in hectares (extent of go and no go area per cadastral unit). This data should be integrated into a GIS land use management database to monitor changes in the CBA map and the loss of biodiversity in the municipal area.

Refer to **Section 5.1.6 of the BSP Handbook** for 'Frequently asked questions when using the CBA Map' to understand the map better.



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The Association for Water and Rural Development

AWARD is a non-profit organisation specialising in participatory, research-based project implementation. Their work addresses issues of sustainability, inequity and poverty by building natural-resource management competence and supporting sustainable livelihoods. One of their current projects, supported by USAID, focuses on the Olifants River and the way in which people living in South Africa and Mozambique depend on the Olifants and its contributing waterways. It aims to improve water security and resource management in support of the healthy ecosystems to sustain livelihoods and resilient economic development in the catchment.

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About USAID: RESILIM-O

USAID: RESILIM-O focuses on the Olifants River Basin and the way in which people living in South Africa and Mozambique depend on the Olifants and its contributing waterways. It aims to improve water security and resource management in support of the healthy ecosystems that support livelihoods and resilient economic development in the catchment. The 5-year programme, involving the South African and Mozambican portions of the Olifants catchment, is being implemented by the Association for Water and Rural Development (AWARD) and is funded by USAID Southern Africa.

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