



BGIS Land Use Decision Support (LUDS) Report

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Disclaimer:

The Land-Use Decision Support (LUDS) Tool has been developed to facilitate and support biodiversity planning and land-use decision-making at a national and provincial level. Its primary objective is to serve as a guide for biodiversity planning and should not replace specialist ecological assessments.

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Please note: that the spatial information incorporated into the LUDS Tool was mapped at various scales, with much of the spatial information mapped at a scale of 1:250 000 (i.e. 1 cm on the map = 2,5 km on the ground) or greater. To ensure maximum accuracy, always check the map against actual conditions on the ground when undertaking planning and decision-making, or contact the relevant conservation authority for additional assistance.

Please forward any queries or concerns to BGIShelp@SANBI.org.za.

1. Information extracted from national datasets

The information below is extracted for the analysed area from national datasets available on BGIS. There is a short description of the dataset under each heading and the URLs to the webpage on BGIS with further information.

1.1. National terrestrial information

1.1.1. National list of threatened terrestrial ecosystems

BGIS source: National list of threatened terrestrial ecosystems for South Africa (2011) – original extents

A list of all threatened ecosystem patches which original extent intersects the analysed area. Note: the data represents the **original extents** of the threatened ecosystems; in other words, natural areas which have been converted to agriculture, mining and urban areas have been **included**. Please view the area using the BGIS online map viewer Bing maps or Google maps tool in order to see whether any natural vegetation may still exist.

BGIS project overview and report: <http://bgis.sanbi.org/ecosystems/project.asp>

BGIS download metadata and layer: <http://bgis.sanbi.org/ecosystems/map.asp>

Ecosystem Name	Code	Status
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# threatened ecosystems: 0		
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1.1.2. National vegetation types

BGIS source: Vegetation Map of South Africa, Lesotho and Swaziland (Mucina & Rutherford 2006)

A list of all the national vegetation types the corresponding number of patches of each which original extents covered the analysed area. Note that this list is based on the estimated original extents of the vegetation types prior to any transformation. Please view the area using the BGIS online map viewer Bing maps or Google maps tool in order to see whether any natural vegetation may still exist.

BGIS project overview and report: <http://bgis.sanbi.org/vegmap/project.asp>

BGIS download metadata and layer: <http://bgis.sanbi.org/vegmap/map.asp>

Instructions on how to find Mucina & Rutherford (2006) vegetation type descriptions using BGIS online maps:

http://bgis.sanbi.org/vegmap/Veg_Map_Instructions.pdf

The **map code** below refers to the short code used on the wall map and BGIS interactive maps which helps to accurately identify a vegetation type given the complexity of the map's legend colours.

Vegetation type name	Map code	Biome
Gamka Karoo	NKI 1	Nama-Karoo Biome
Southern Karoo Riviere	AZi 6	Azonal Vegetation

1.1.3. Indigenous forest patches (DWAF)

BGIS source: DWAF Indigenous Forest Patches (2005)

A list of all the indigenous forest patches found within the analysed area

BGIS project overview and report: <http://bgis.sanbi.org/indigenousforest/project.asp>

BGIS download metadata and layer: <http://bgis.sanbi.org/indigenousforest/map.asp>

Forest name	Forest group	Patch Size
# forest patches: 0		

1.1.4. National soil classes

BGIS source: General soils and soil classes

A list of all the dominant soil classes the extents of which cover the analysed area. Please note that these soil classes were developed for agricultural use.

BGIS project overview and report: <http://bgis.sanbi.org/Soils/project.asp>

BGIS download metadata: <http://bgis.sanbi.org/Soils/project.asp> (Please contact the data owner, the Agricultural Research Council, to obtain the GIS data)

Soil Class	Soil Class ID
Freely drained, structureless soils	S2
Lithosols (shallow soils on hard or weathering rock)	S13

1.2. National aquatic information

1.2.1. Wetlands (NFEPA Wetlands/National Wetlands Map 4)

BGIS source: National Freshwater Ecosystem Priority Areas (NFEPA) Wetland Map/National Wetlands Map 4 and NFEPA

wetland clusters

A list of all Wetland units found within the analysed area, should these belong to a wetlands cluster its information is also included. Wetlands and wetland clusters which were selected as freshwater ecosystem priority areas (FEPAs) are indicated. A key to the information codes used is given below.

BGIS project overview and report (National Wetlands 4/Wetland clusters):

<http://bgis.sanbi.org/nfepa/project.asp>

BGIS download metadata and layer (National Wetlands 4/Wetland clusters):

<http://bgis.sanbi.org/nfepa/NFEPAmapping.asp>

Wetlands

Wetland type	Description	Condition	NFEPA rank	FEPA status
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wetland units: 0

Wetland clusters

Wetland cluster ID	Vegetation type	Wetland units	FEPA status
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wetland clusters: 0

Key for NFEPA wetlands condition information codes

NFEPA condition	Description	% of total wetland area
AB	Percentage natural land cover \geq 75%	47
D	Percentage natural land cover 25-75%	18
DEF	Riverine wetland associated with a D, E, F or Z ecological category river	2
Z1	Wetland overlaps with a 1:50 000 'artificial' inland water body from the Department of Land Affairs: Chief Directorate of Surveys and Mapping (2005-2007)	7
Z2	Majority of the wetland unit is classified as 'artificial' in the wetland locality GIS layer	4
Z3	Percentage natural land cover < 25%	20

* This percentage excludes unmapped wetlands, which includes those that have been irreversibly lost due to draining, ploughing and concreting

Key for NFEPA wetlands rank codes 1-6

Rank	Criterion
1	Wetlands that intersect with a Ramsar site
2	Wetlands within 500 m of a IUCN threatened frog point locality
2	Wetlands within 500 m of a threatened waterbird point locality
2	Wetlands (excluding dams) with the majority of its area within a sub-quaternary catchment that has sightings or breeding areas for threatened Wattled Cranes, Grey Crowned Cranes and Blue Cranes
2	Wetlands (excluding dams) within a sub-quaternary catchment identified by experts at the regional review workshops as containing wetlands of exceptional biodiversity importance, with valid reasons documented
2	Wetlands (excluding dams) within a sub-quaternary catchment identified by experts at the regional review workshops as containing wetlands that are good, intact examples from which to choose
3	Wetlands (excluding dams) within a sub-quaternary catchment identified by experts at the regional review workshops as containing wetlands of biodiversity importance, but with no valid reasons documented
4	Wetlands (excluding dams) in A or B condition AND associated with more than three other wetlands (both riverine or non-riverine wetlands were assessed for this criterion)
4	Wetlands in C condition AND associated with more than three other wetlands (both riverine or non-riverine wetlands were assessed for this criterion)
5	Wetlands (excluding dams) within a sub-quaternary catchment identified by experts at the regional review workshops as containing impacted Working for Wetland sites
6	Any other wetland (excluding dams)

1.2.2. Sub-quaternary catchments and rivers (NFEPAs)

BGIS source: National rivers and sub-quaternary catchment FEPA status (NFEPAs)

A list of all NFEPAs sub-quaternary catchments and their FEPA status followed by the river units they contain with various parameters and indicators. A sub-quaternary catchment and its river indicated as FEPA are fresh water ecosystem priority areas, A blank FEPA status indicates that NFEPAs did not give the sub-quaternary catchment or river priority status. A key to the other information codes used is given below.

BGIS project overview and report (NFEPAs river FEPAs and NFEPAs rivers):

<http://bgis.sanbi.org/nfepa/project.asp>

BGIS download metadata and layer(NFEPAs river FEPA and NFEPAs rivers):

<http://bgis.sanbi.org/nfepa/NFEPAmapping.asp>

Sub-quaternary catchments (river FEPAs)

NFEPA ID	FEPA status
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7211	Upstream
# sub-quaternary catchments: 1	

NFEPA river units

River name	FEPA status	River type	Condition	Mainstem	Flagship
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Kuils	Upstream	21_N_L	C	Tributary	No
# river units: 1					

Key for NFEPA sub-quaternary catchment and river units information codes

FEPA status	River types	River condition
<p>Summarized FEPA status using a text description, where:</p> <p>FEPA= freshwater ecosystem priority area FISHFSA= fish support area FISHCORRID= corridor critical for movement of threatened Fish between habitats PHASE2FEPA= phase 2 freshwater ecosystem priority area UPSTREAM= upstream management area</p> <p>In instances where several of these map categories overlapped, the status took the following order of precedence: "FEPA", "PHASE2FEPA", "FISHFSA" or "FISHCORRID", and then "upstream management area"</p>	<p>Used by NFEPA which comprises:</p> <p>the level 1 ecoregion number hyphen (-)</p> <p><i>followed by</i> the flow</p> <p>N= not,permanent/flashy P= permanent or seasonal hyphen (-)</p> <p><i>followed by</i> the geomorphological zone</p> <p>M= mountain stream U= upper foothills L= lower foothills F= lowland river</p>	<p>Used by NFEPA, A or B is considered intact and able to contribute towards river ecosystem biodiversity targets.</p> <p>A= unmodified, natural B= largely natural with few modifications AB= A or B above C= moderately modified D= largely modified E= seriously modified F= critically extremely modified EF= E or F above Z= Tributary condition modeled as not intact, according to natural land cover</p>

1.3. National protected area information

BGIS source: Protected areas formal and informal (NBA 2011 and NPAES 2010)

A list of all protected areas the extents of which intersect with the analysed area. The formal protected areas were updated by the National Biodiversity Assessment (NBA 2011) whereas the informal protected areas were updated by the National Protected Areas Expansion Strategy (NPAES 2010).

Also included is a list of any NPAES 2010 focus areas that were intersected by the analysed area.

BGIS NBA 2011 project overview and report:

<http://bgis.sanbi.org/NBA/project.asp>

BGIS formal protected areas (NBA 2011) download metadata and layer:

http://bgis.sanbi.org/NBA/terrestrial_formalprotecedareas.asp

BGIS NPAES 2010 project overview and report:

<http://bgis.sanbi.org/protectedareas/NPAESinfo.asp>

BGIS informal protected areas (NPAES 2010) download metadata and layer:

<http://bgis.sanbi.org/protectedareas/ProtectedAreas.asp>

BGIS NPAES 2010 focus areas download metadata and layer:

<http://bgis.sanbi.org/protectedareas/NPAES.asp>

Protected area name	Category	Management agent
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Formal protected areas

Formal protected areas: 0

Informal protected areas

Informal protected areas: 0

NPAES focus area name

NPAES focus areas: 0

2. Information extracted from the most relevant biodiversity conservation plan for the Central Karoo District

The information below is extracted for the analysed area from the most relevant and up to date biodiversity conservation plan available on BGIS - **The Central Karoo District Biodiversity Assessment**. There is a short description of the dataset under each heading and the URLs of the webpage on BGIS with further information.

Note on the criteria defining the CBA map categories used by the Central Karoo District Biodiversity Assessment

In order to better understand the Central Karoo District Biodiversity Assessment CBA maps examine the table below which briefly summarises the CBA categories it uses. Note the CBA map does not differentiate between terrestrial and aquatic CBA map categories. Please refer to the Central Karoo Biodiversity Assessment Report for more information.

Category	Defining criteria
Protected areas (PAs)	Any formally Protected Area including nature reserves, national parks, forest nature reserves, mountain catchment areas. RAMSAR sites, World Heritage sites and marine protected areas.
Critical Biodiversity areas (CBAs)	Any terrestrial or aquatic area required to meet biodiversity pattern and/or process thresholds including: <ul style="list-style-type: none"> Any area that is required for meeting biodiversity pattern thresholds such as remaining areas of Critically Endangered habitat types, special habitats, listed threatened ecosystems, indigenous forest patches, high priority river reaches Any area that is required for meeting process thresholds including: ecological or landscape corridors, areas for climate change adaptation and riparian corridors Hydrological process areas (wetlands and priority catchment areas). All 'best design' sites (largest, most intact, least disturbed, connected and/or adjacent) in terms of meeting pattern and process thresholds.
Ecological Support Areas (ESAs)	Supporting zone required to prevent degradation of Critical Biodiversity Areas and Protected Areas including: <ul style="list-style-type: none"> Areas required to prevent degradation of CBAs and formal PAs. Remaining catchment and other process areas that are required to prevent degradation of CBAs and formal PAs. Areas that are already transformed or degraded, but which are currently or potentially still important for supporting ecological processes
Other Natural Areas (ONAs)	Natural areas not required included in the categories above
No Natural Remaining Areas (Transformed)	These areas no longer contain natural areas and their safeguarding would not result in any biodiversity protection including cultivated lands, plantations, mined areas, urban areas, infrastructure, dams and areas under coastal development.

2.1. Terrestrial and aquatic information for the Central Karoo District

BGIS source: Central Karoo District Municipality Biodiversity Assessment - CBA map lookup layer

A list of Critical Biodiversity Area (CBA) map lookup layer units that intersect with the analysed area. Included are each unit's CBA map category and biodiversity features information which is indicative of its CBA map category

classification. Descriptions of the biodiversity features are given below.

Note that the list combines both terrestrial and aquatic biodiversity feature information. All aquatic information is grouped together under the “Aquatic” biodiversity features

BGIS project overview and report: <http://bgis.sanbi.org/CKDM/project.asp>

BGIS download metadata and layer: http://bgis.sanbi.org/CKDM/CKDM_CBAs.asp

List of CBA map units

Critical Biodiversity Area **Unit size (Ha): 0.889**

Management objective: Maintain natural land. Rehabilitate degraded to natural or near natural

Biodiversity feature information

Required habitat: Habitat required as part of best design

Special species: N/A

Expert identified areas: N/A

Plan priority areas: N/A

Ecological process areas: Maintain ecological processes and linkages especially for climate change

Unfragmented areas: N/A

Threatened habitats: N/A

Aquatic

Rivers: N/A

Catchments: Priority catchments

Wetlands: Potential wetland

Ecological Support Area **Unit size (Ha): 0.326**

Management objective: Maintain ecological processes

Biodiversity feature information

Required habitat: N/A

Special species: N/A

Expert identified areas: N/A

Plan priority areas: N/A

Ecological process areas: Maintain ecological processes and linkages especially for climate change

Unfragmented areas: N/A

Threatened habitats: N/A

Aquatic

Rivers: N/A

Catchments: Priority catchments

Wetlands: Potential wetland

Ecological Support Area

Unit size (Ha): 0.906

Management objective: Maintain ecological processes

Biodiversity feature information

Required habitat: N/A

Special species: N/A

Expert identified areasN/A

Plan priority areas: N/A

Ecological process areas: N/A

Unfragmented areas: N/A

Threatened habitats: N/A

Aquatic

Rivers: N/A

Catchments: Priority catchments

Wetlands: N/A

Ecological Support Area

Unit size (Ha): 0.905

Management objective: Maintain ecological processes

Biodiversity feature information

Required habitat: N/A

Special species: N/A

Expert identified areasN/A

Plan priority areas: N/A

Ecological process areas: N/A

Unfragmented areas: N/A

Threatened habitats: N/A

Aquatic

Rivers: N/A

Catchments: Priority catchments

Wetlands: N/A

Ecological Support Area

Unit size (Ha): 0.47

Management objective: Maintain ecological processes

Biodiversity feature information

Required habitat: N/A

Special species: N/A

Expert identified areasN/A

Plan priority areas: N/A

Ecological process areas: Maintain ecological processes and linkages especially for climate change

Unfragmented areas: N/A

Threatened habitats: N/A

Aquatic

Rivers: N/A

Catchments: Priority catchments

Wetlands: Potential wetland

Ecological Support Area

Unit size (Ha): 0.958

Management objective: Maintain ecological processes

Biodiversity feature information

Required habitat: N/A

Special species: N/A

Expert identified areas: N/A

Plan priority areas: N/A

Ecological process areas: N/A

Unfragmented areas: N/A

Threatened habitats: N/A

Aquatic

Rivers: N/A

Catchments: Priority catchments

Wetlands: N/A

Ecological Support Area

Unit size (Ha): 0.848

Management objective: Maintain ecological processes

Biodiversity feature information

Required habitat: N/A

Special species: N/A

Expert identified areas: N/A

Plan priority areas: N/A

Ecological process areas: Maintain ecological processes and linkages especially for climate change

Unfragmented areas: N/A

Threatened habitats: N/A

Aquatic

Rivers: N/A

Catchments: Priority catchments

Wetlands: N/A

Ecological Support Area

Unit size (Ha): 0.958

Management objective: Maintain ecological processes

Biodiversity feature information

Required habitat: N/A

Special species: N/A

Expert identified areas: N/A

Plan priority areas: N/A

Ecological process areas: N/A

Unfragmented areas: N/A

Threatened habitats: N/A

Aquatic

Rivers: N/A

Catchments: Priority catchments

Wetlands: N/A

Ecological Support Area

Unit size (Ha): 0.754

Management objective: Maintain ecological processes

Biodiversity feature information

Required habitat: N/A

Special species: N/A

Expert identified areas: N/A

Plan priority areas: N/A

Ecological process areas: Maintain ecological processes and linkages especially for climate change

Unfragmented areas: N/A

Threatened habitats: N/A

Aquatic

Rivers: N/A

Catchments: Priority catchments

Wetlands: N/A

Ecological Support Area

Unit size (Ha): 0.859

Management objective: Maintain ecological processes

Biodiversity feature information

Required habitat: N/A

Special species: N/A

Expert identified areas N/A

Plan priority areas: N/A

Ecological process areas: Maintain ecological processes and linkages especially for climate change

Unfragmented areas: N/A

Threatened habitats: N/A

Aquatic

Rivers: N/A

Catchments: Priority catchments

Wetlands: N/A

Ecological Support Area

Unit size (Ha): 0.85

Management objective: Maintain ecological processes

Biodiversity feature information

Required habitat: N/A

Special species: N/A

Expert identified areas N/A

Plan priority areas: N/A

Ecological process areas: N/A

Unfragmented areas: N/A

Threatened habitats: N/A

Aquatic

Rivers: N/A

Catchments: Priority catchments

Wetlands: N/A

Ecological Support Area

Unit size (Ha): 0.875

Management objective: Maintain ecological processes

Biodiversity feature information

Required habitat: N/A

Special species: N/A

Expert identified areas N/A

Plan priority areas: N/A

Ecological process areas: Maintain ecological processes and linkages especially for climate change

Unfragmented areas: N/A

Threatened habitats: N/A

Aquatic

Rivers: N/A

Catchments: Priority catchments

Wetlands: N/A

CBA map units: 12

Description of biodiversity feature information included for each CBA map unit.

Biodiversity feature	Description
CBA category	The CBA category for the polygon. It indicates whether the polygon is a Formal Protected Area, a Conservation Area, a Critical Biodiversity Area (CBA) or an Ecological Support Area (ESA).
Management objective	Outlines the management objective for the land parcel. This relates to either maintaining ecological patterns or processes.
Required habitat	Indicates areas where the remaining intact habitat within that planning unit is contributing significantly to targets. Habitats are indicated as contributing to best design if this was likely to be a major reason why the polygon was selected. Selected polygons (<50ha) with small amounts of intact habitat, which were not selected as threatened habitats were considered to be important from a habitat best design point of view.
Special species	Indicates if threatened plant or mammal species are likely to occur at the site. Polygons are indicated as "Potential threatened plant species" or "Potential Riverine rabbit habitat."
Expert identified area	These are areas identified within the various expert layers included in the conservation plan. Polygons are flagged as having "Potential occurrence of expert identified special feature" and this will relate to a feature such as a quartz patch or a forest.
Plan priority area	These areas are the sites that were identified in other conservation plans as important. They are likely to include possible important habitats, for example those identified in the Leslie Hill Succulent Karoo Assessment.
Ecological process area	These are all the climate change process, corridor and linkage areas, important both for links within the district and to adjacent areas. These areas include potential climate refugia, and are flagged as "Maintain ecological processes and linkages especially for climate change".
Unfragmented area	These are important unfragmented areas which potentially contribute significantly to the climate change resilience of the area. Developments which result in these areas being fragmented should be avoided.
Threatened habitats	These are threatened habitats identified at in either the national assessment or within the Little Karoo plan.
Aquatic	
River	Priority river reaches are indicated. These are areas where developments should be carefully screened to ensure no major impact on the rivers and their riparian corridors are likely.
Catchments	This indicate priority catchments from any of the underlying assessment, and these are areas where special attention needs to be given to avoiding major impacts on hydrological processes and aquatic features.
Wetland	These are sites with identified wetlands.

3. Municipal and cadastral information

3.1. Province and municipality

The Municipal Demarcation Board's 2009 boundaries are used for the BGIS LUDS tool as these correspond with the municipal biodiversity summaries. The boundaries in the LUDS tool will be updated along with the next municipal biodiversity summaries update.

Municipal biodiversity summary information can be on BGIS by going to the following link

<http://196.21.45.151/devBGIS/municipalities/municipality.asp>.

and following the steps i.e. choose a province and then a municipality on the map or from the dropdown box. These steps also constitute STEP 1: *Find the appropriate BGIS map (LUDS Map) for your municipality*. Please contact [SANBI municipal programme](#) for more information about the Municipal Biodiversity Summaries Project.

Note: the LUDS tool does not allow analyses to cut cross municipal and provincial boundaries i.e. any analysis must fall within a single province and municipality.

Province (code): Western Cape(WC)

Municipality (Cat B): Beaufort West (WC053)

3.2. Cadastral information

A list of all cadastral units (parent farm and sub-unit properties only) which intersect the analysis area.

SG 21 code	Parcel number	Size (Ha)
C05500000000072800271	271/728	0.746

properties: 1

4. Envisaged development information

Development type: TEST ANALYSIS: Animal farming & dairy

Additional information:

A new abattoir will serve as the premier facility in the central Karoo.

5. Analysis area information

Below are the size (Ha) and location (centroid and extents) in degrees, minutes and seconds of the analysis area, shown in red on the map.

Unfortunately a map of the analysis area cannot at this stage be included in these LUDS reports. If you wish to have a map of the analysis area please use the print map button provided on the LUDS toolbar.

Analysis area centroid (decimal degrees): 22.6007484850742,-32.3304657444668

Analysis area extents (decimal degrees): 22.5994773167527,-32.3493757547726,22.6217412734067,
-32.3202029300328

Analysis area size (Ha): Cannot be calculated, please use area tool