



## 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.

While SANBI endeavours to keep the information on BGIS up-to-date and makes reasonable efforts to ensure that the data it publishes are accurate, SANBI makes no representations or warranties of any kind, express or implied, about the completeness, accuracy, reliability, suitability or availability with respect to the information contained on the website for any purpose. SANBI will not be liable for any loss or damage; including without limitation, indirect or consequential loss or damage, or any loss or damage whatsoever arising from loss of data or profits arising out of, or in connection with, the use of this tool.

**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](mailto: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
Lower Gariep Alluvial Vegetation	AZa 3	EN
Lower Gariep Alluvial Vegetation	AZa 3	EN
# threatened ecosystems: 2		

#### 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](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
Lower Gariep Alluvial Vegetation	AZa 3	Azonal Vegetation
Western Gariep Lowland Desert	Dn 4	Desert Biome

### 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
Lithosols (shallow soils on hard or weathering rock)	S13
Non soil land classes	S16

## 1.2. National aquatic information

### 1.2.1. Wetlands (NFEPAs Wetlands/National Wetlands Map 4)

**BGIS source:** National Freshwater Ecosystem Priority Areas (NFEPAs) Wetland Map/National Wetlands Map 4 and NFEPAs 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/NFEPAmap.asp>

### Wetlands

Wetland type	Description	Condition	NFEPAs rank	FEPAs status
Southern Namib Desert	<i>Natural</i>	AB	2	FEPAs
	<i>Natural</i>	Z1	2	FEPAs
	<i>Natural</i>	AB	2	FEPAs
	<i>Natural</i>	AB	2	FEPAs

Natural

AB

2

FEPA

# wetland units: 5

**Wetland clusters****Wetland cluster ID****Vegetation type****Wetland units****FEPA status**

# 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/NFEPAmap.asp>

**Sub-quaternary catchments (river FEPAs)**

NFEPA ID	FEPA status
3298	Phase2FEPA
# sub-quaternary catchments: 1	

**NFEPA river units**

River name	FEPA status	River type	Condition	Mainstem	Flagship
Orange	Phase2FEPA	25_P_F	C	Mainstem	No
Orange	Phase2FEPA	25_P_F	C	Mainstem	No
# river units: 2					

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><b>FEPA</b>= freshwater ecosystem priority area  <b>FISHFSA</b>= fish support area  <b>FISHCORRID</b>= corridor critical for movement of threatened Fish between habitats  <b>PHASE2FEPA</b>= phase 2 freshwater ecosystem priority area  <b>UPSTREAM</b>= 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><b>N</b>= not,permanent/flashy  <b>P</b>= permanent or seasonal  hyphen (-)</p> <p><i>followed by</i>  the geomorphological zone</p> <p><b>M</b>= mountain stream  <b>U</b>= upper foothills  <b>L</b>= lower foothills  <b>F</b>= lowland river</p>	<p>Used by NFEPA, A or B is considered intact and able to contribute towards river ecosystem biodiversity targets.</p> <p><b>A</b>= unmodified, natural  <b>B</b>= largely natural with few modifications  <b>AB</b>= A or B above  <b>C</b>= moderately modified  <b>D</b>= largely modified  <b>E</b>= seriously modified  <b>F</b>= critically extremely modified  <b>EF</b>= E or F above  <b>Z</b>= 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\\_formalprotectedareas.asp](http://bgis.sanbi.org/NBA/terrestrial_formalprotectedareas.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

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# NPAES focus areas 0

## 2. Information extracted from the most relevant biodiversity conservation plan for the Namakwa District.

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

### 2.1. Terrestrial information for the Namakwa District

**BGIS source:** Namakwa District Biodiversity Sector Plan – terrestrial CBAs

A list of all Critical Biodiversity Area (CBA) units which intersect the analysed area. Each unit's category is determined by the highest ranking biodiversity feature it contains which is included for each unit.

Note that the protected areas of the Namakwa District are not included and the CBA and protected area boundaries are not mutually exclusive.

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

BGIS download metadata and layer: <http://bgis.sanbi.org/namakwa/cbas.asp>

#### List of CBA or ESA units

<b>Terrestrial CBA 2 - T2</b>	<b>Unit size (Ha): 515.345</b>
<b>Biodiversity feature information</b>	
EXPERT IMPORTANT TERRESTRIAL	
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<b>Terrestrial CBA 2 - T2</b>	<b>Unit size (Ha): 747.714</b>
<b>Biodiversity feature information</b>	
SA VEG	Additional information: Lower Gariep Alluvial Vegetation
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<b>Terrestrial CBA 1 - T1</b>	<b>Unit size (Ha): 385.448</b>
<b>Biodiversity feature information</b>	
EXPERT CRITICAL TERRESTRIAL	

**Terrestrial ESA - ESA\_T****Unit size (Ha):** 59356.755**Biodiversity feature information**

CORRIDOR

Additional information: NDM Terrestrial Migration Corridor

# CBA or ESA units: 4

**Description of the biodiversity feature information included for each terrestrial CBA or ESA unit**

<b>Biodiversity feature</b>	<b>Description</b>
BOKKEVELD FSP TERRESTRIAL (CBA T1)	Irreplaceable sites identified through a computer analysis as part of the Hantam Fine Scale Plan for the Bokkeveld Plateau. These are areas or sites that are mandatory if conservation targets are to be achieved.
CORRIDOR (CBA T2)	Whole landscape-level biodiversity corridor network aimed at retaining connectivity between all geographic areas in the district and nationally. Corridor network identified based on existing corridor networks and following alignment guidelines laid out in the NSBA such as upland-lowland, climatic and latitudinal gradients.
CRITICAL SITES (CBA T1)	Buffered point locality of threatened species or other species of conservation concern. Point locality buffered by 500m. Only data for Riverine Rabbit included in this version of the Namakwa Biodiversity Sector Plan.
EXPERT CRITICAL TERRESTRIAL (CBA T1)	Areas in the terrestrial environments identified by experts as being most important for biodiversity. BCI vegetation map quartz patches, Kamiesberg vegetation map quartz patches, LHSKT highest ranked areas, expert mapped areas, estuary buffers (Groen and Spoeg rivers)
EXPERT IMPORTANT TERRESTRIAL (CBA T2)	Areas in the terrestrial environment identified by experts as being important for biodiversity.
KLOOFS (CBA T2)	All kloofs larger than 50ha in extent. These represent a keystone resource for biodiversity (e.g. presence of springs) and important climate change refugia for biodiversity.
RICHTERVELD SPRINGS (ESA T)	Keystone ecological support areas for terrestrial biodiversity as these are the only natural perennial source of water in the environment
RIVERINE RABBIT (CBA T2)	Modelled Riverine Rabbit habitat based on observed records and buffered 1:50 000 scale stream lines
SA VEG (CBA T1)	Remaining extent of critically endangered ecosystems (vegetation types). i.e. The amount remaining intact of this vegetation type is less than representation target. NOTE: The ecosystem status classification used is the provincial level classification and does not include degradation in the calculation
SA VEG (CBA T2)	Remaining extent of endangered and vulnerable ecosystems (vegetation types), i.e. The amount remaining intact of these vegetation types is less than 60%.
SA VEG QUARTZ (CBA T2)	SA vegetation types with quartz or other types of gravel patches present. Excluding Richtersveld vegetation types as these do not correspond closely to the occurrence of quartz patches. Richtersveld quartz patches picked up through the expert mapping process.

	through the expert mapping process.
SLOPES (CBA T2)	All areas with steep south-facing mountain slopes larger than 25ha in extent. These represent an important climate change refugia for biodiversity.

### Land management objective for Namakwa BSP CBA or ESA categories

Information on the recommended land use practices in each of these categories can be found in the Namakwa BSP report.

CBA or ESA unit category	Land management objective
CBA 1	<p>Natural landscapes:</p> <ul style="list-style-type: none"> <li>• Ecosystems and species fully intact and undisturbed</li> <li>• These are areas with high irreplaceability or low flexibility in terms of meeting biodiversity pattern targets. If the biodiversity features targeted in these areas are lost then targets will not be met.</li> <li>• These are landscapes that are at or past their limits of acceptable change</li> </ul>
CBA 2	<p>Near-natural landscapes:</p> <ul style="list-style-type: none"> <li>• Ecosystems and species largely intact and undisturbed.</li> <li>• Areas with intermediate irreplaceability or some flexibility in terms of area required to meet biodiversity targets. There are options for loss of some components of biodiversity in these landscapes without compromising our ability to achieve targets.</li> <li>• These are landscapes that are approaching but have not passed their limits of acceptable change.</li> </ul>
Ecological support Area (ESA)	<p>Functional landscapes:</p> <ul style="list-style-type: none"> <li>• Ecosystems moderately to significantly disturbed but still able to maintain basic functionality.</li> <li>• Individual species or other biodiversity indicators may be severely disturbed or reduced.</li> <li>• These are areas with low irreplaceability with respect to biodiversity pattern targets only</li> </ul>
ONA transformed (not listed)	Production landscapes: manage land to optimize sustainable utilization of natural.

## 2.2. Aquatic Information for the Namakwa District

**BGIS source:** Namakwa District Biodiversity Sector Plan (BSP)– aquatic CBAs

A list of all aquatic CBA units which intersect the analysed area. Each unit's category is determined by the highest ranking biodiversity feature it contains which is included for each unit.

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

BGIS download metadata and layer: <http://bgis.sanbi.org/namakwa/cbas.asp>

**List of CBA or ESA units**

# CBA or ESA units: 0

**Description of the biodiversity feature information included for each aquatic CBA or ESA unit**

Biodiversity features	Description
BOKKEVELD FSP AQUATIC (CBA A1)	Bokkeveld critical wetland and rivers as part of the Hantam Fine Scale Plan for the Bokkeveld Plateau.
BOKKEVELD FSP AQUATIC ESA (ESA A)	Bokkeveld critical wetland and river boffers as part of the Hantam Fine Scale Plan for the Bokkeveld Plateau.
KAMIESBERG WETLANDS (CBA A1, CBA A2)	Irreplaceable wetlands (CBA – A1) and remaining (CBA – A2) wetlands, rivers and pans in the Kamiesberg
KAMIESBERG WETLAND BUFFERS (ESA A)	The buffer zone around wetlands and rivers where land-use activities can impact the ecological functioning and integrity these features.
LOR EXPERT (CBA A1, CBA A2)	Pristine (CBA – A1) and near natural (CBA - A2) stretches of the Lower Orange River including the estuary (CBA - A1)

### 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):** Northern Cape(NC)

**Municipality (Cat B):** Richtersveld (NC061)

#### 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	<b>271/728</b>	0.746

# properties: 1

### 4. Envisaged development information

**Development type:** TEST ANALYSIS: Animal farming & dairy

**Additional information:**

Located on a 33 hectare piece of land from the point given and extending 1.5 km in a north easterly direction between the road to Alexander Bay and the Orange (Gariep) river. Twenty-five fish ponds 100 x 1000m, ten concrete tanks for fry 10m x 10m, water pumping station and laboratory facilities for a new farm to breed Large Mouth Yellow Fish (South Africa's largest scale fresh water species) for reintroduction into the Orange River where it is a favorite species for fly fishing. Some of the fish will be kept as breeding stock and later sold to special fishmongers.

## 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):** 16.6128922692873,-28.5340042085339

**Analysis area extents (decimal degrees):** 16.6094830542375,-28.5341468327495,16.6505559784076,  
-28.4907801835302

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