Goegap Nature Reserve
Northern Cape Province, South Africa

Protected Area Expansion Strategy

Planned Cycle: 2020 to 2024

GOEGAP NATURE RESERVE PAES

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List of acronyms

CBA	Critical Biodiversity Area
CSA	Conservation South Africa
DEA	Department of Environmental Affairs (National)
DENC	Department of Environment and Nature Conservation (Northern Cape)
DEARL	Northern Cape Department of Agriculture Environmental Affairs, Rural Development and Land Reform
FEPA	Freshwater Ecosystem Priority Area
GIS	Geographic Information System
Ha	Hectares
LHSKT	Leslie Hill Succulent Karoo Trust
MEC	Member of the Executive Council (Provincial Government)
NBA	National Biodiversity Assessment (2019)
NBF	National Biodiversity Framework
NCPAES	Northern Cape Protected Area Expansion Strategy
NEMA	National Environmental Management Act
NEMBA	National Environmental Management: Biodiversity Act (10 of 2004)
NEMPA	National Environmental Management: Protected Areas Act (57 of 2003)
NFEPA	National Freshwater Ecosystem Priority Area project (2011)
NPAES	National Protected Area Expansion Strategy (2016)
NSBA	National Spatial Biodiversity Assessment (2004)
PA	Protected Area
SANBI	South African National Biodiversity Institute
SANParks	South African National Parks
SKEP	Succulent Karoo Ecosystem Programme
WFA	Wilderness Foundation Africa
WWF-SA	World Wide Fund for Nature: South Africa

1. Background

The terrestrial Protected Area (PA) estate has grown steadily over the last 30 years, with more than 8% of South Africa's landmass now falling within a Protected Area (as defined by the Protected Areas Act). The terrestrial protected area network is increasingly representative of the full range of ecosystem types, and overall ecosystem protection levels are improving (SANBI, 2019).

A National Protected Area Expansion Strategy (NPAES) was compiled for South Africa in 2008 and revised in 2016. The aim of the NPAES is to achieve cost effective protected area expansion for improved ecosystem representation, ecological sustainability and resilience to climate change. The NPAES sets five- and twenty-year protected area expansion targets, identifies focus areas for protected area expansion, and makes recommendations on potential mechanisms through which protected area expansion could be achieved (DEA, 2016).

The Northern Cape priority areas includes the Succulent Karoo areas of the Namakwa District, Bushmanland, and the southern Nama-Karoo as well as in the expansion areas of the existing national parks in the province (DEA, 2016). GNR forms part of the Succulent Karoo area of the Namakwa District. According to the NPAES conservation action in this area should be aimed at reducing further habitat loss and ecosystem functioning as well as identifying approaches to increase protection for the vegetation types that require it.

A Northern Cape Provincial Protected Area Expansion Strategy (NCPAES) was prepared by Balfour & Holness for DENC during 2017. The NCPAES' goal is to implement the objectives of the National Protected Area Expansion Strategy in the province. The NCPAES envisage to achieve this through:

(i) providing for a representative network of protected areas on state, private and communal land
(ii) identifying an explicit set of spatial priorities for protected area expansion; and
(iii) developing an action plan that can be implemented by DEARL over the next 5 years (Balfour & Holness, 2017).

2. Protected areas and management agencies in the Northern Cape

According to Balfour & Holness (2017), the existing terrestrial protected area estate in the Northern Cape includes 39 formally protected areas covering an area of 18,744km² and managed by 32 different agencies or private concerns (Figure 1). The bulk of the protected area estate is managed by South African National Parks (8 National Parks covering 14,730km²) followed by the privately owned and managed protected areas (10 reserves covering 1,832km²). A single protected area, the Richtersveld Cultural and Botanical Landscape World Heritage Site under the control of a management committee is 1,421km² while the provincial government, Northern Cape Department of Agriculture Environmental Affairs, Rural Development and Land Reform (DEARL) manages 7 reserves covering 624km². Local municipalities manage 12 areas covering 76km² and the SANBI manages the Hantam National Botanical Garden (60km²).

Protected Areas in the Northern Cape are managed by all three spheres of government. At the national level, South African National Parks (SANParks) is responsible for the management of all National Parks (including those with a trans-frontier component) in the province. The South African National Biodiversity Institute (SANBI) is responsible for the Hantam National Botanical Garden and Northern Cape Department of Agriculture Environmental Affairs, Rural Development and Land Reform (DEARL) is responsible for the management of all provincial Nature Reserves (Balfour & Holness, 2017).

Both SANParks and DEARL are on the management committee for the Richtersveld Cultural and Botanical Landscape alongside a number of other local stakeholders. Local Municipalities are responsible for the management of Municipal Nature Reserves. In addition, there are a number of privately owned and managed nature reserves in the Northern Cape (Table 1).

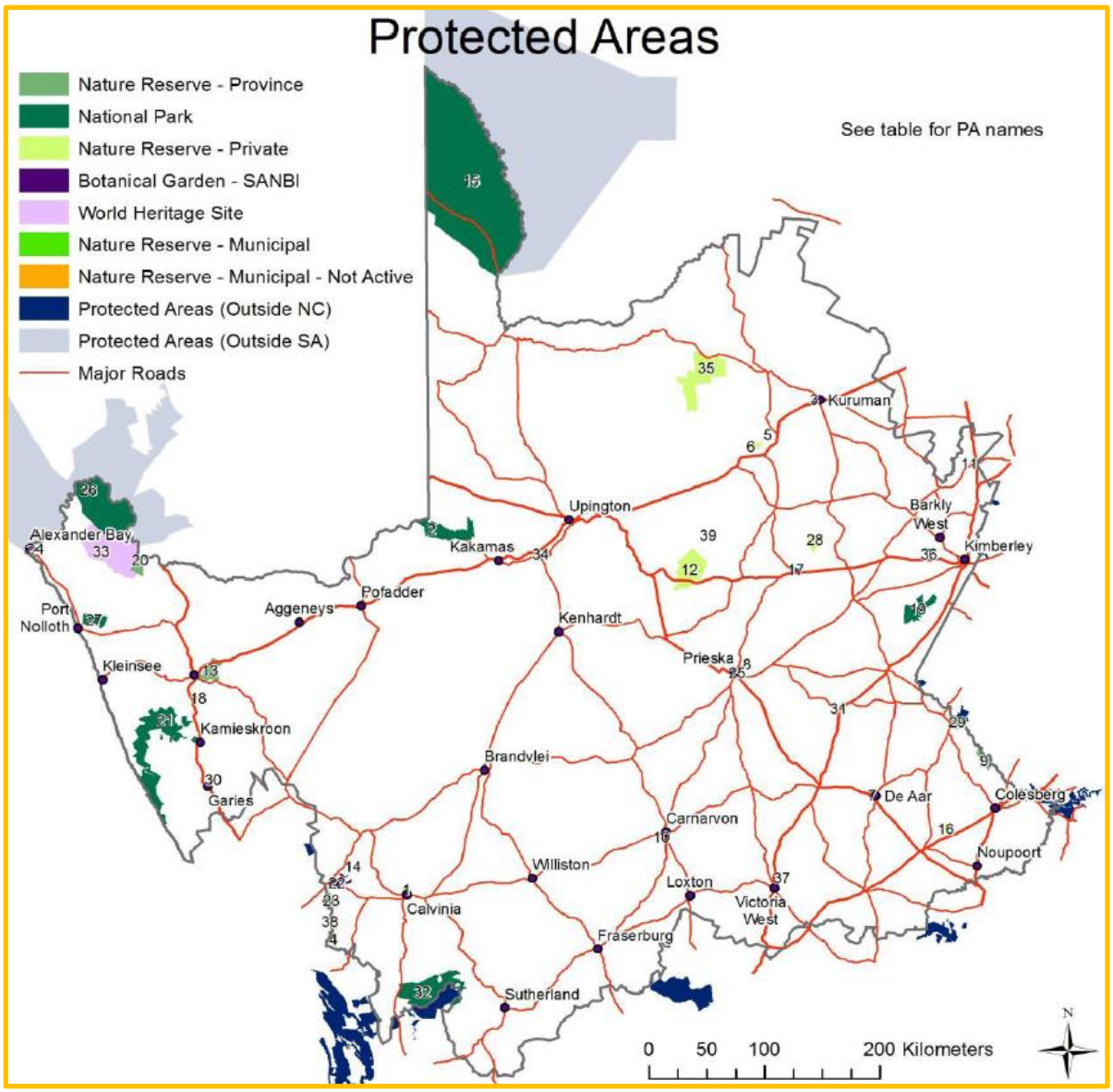

Figure 1 Protected Areas of the Northern Cape (Balfour & Holness, 2017)

Table 1 Protected areas classified by management authority, their size (ha) and their identifier code as used in Figure 1 (Balfour & Holness, 2017)

Nature Reserves - Privately Managed		
Blomfontein Nature Reserve	2 318 ha	4
Bredenkamp Nature Reserve	2 578 ha	5
Brooks Nature Reserve	2 134 ha	6
Glen Lyon Nature Reserve	63 412 ha	12
Karoo Gariep Nature Reserve	4 298 ha	16
Melkrivier Nature Reserve	1 576 ha	18
Rockwood Nature Reserve	9 184 ha	28
Sandhoog Nature Reserve	856 ha	30
Tswalu Nature Reserve	96 247 ha	35
Wit Clay Gat Nature Reserve	591 ha	38
Total	**183 194 ha**	
Municipal Nature Reserves		
Akkerendam Nature Reserve	2 327 ha	1
Ganspan Waterfowl Nature Reserve	173 ha	11
Nieuwoudtville Wild Flower Reserve	68 ha	22
Billy Duvenhage Nature Reserve	2 006 ha	3
De Aar Nature Reserve	333 ha	7
Die Bos Nature Reserve	50 ha	8
Dr Appie van Heerden Nature Reserve	1 570 ha	10
Klaarwater Nature Reserve	801 ha	17
Prieskakoppie Nature Reserve	9 ha	25
Strydenburg Aalwynprag Nature Reserve	2 ha	31
Tierberg Nature Reserve	78 ha	34
Victoria West Nature Reserve	144 ha	37
Total	**7 561 ha**	
World Heritage Site		
The Richtersveld Cultural & Botanical Landscape	142 114 ha	33
Botanical Garden - Managed by SANBI		
Hantam National Botanical Garden	6 039 ha	14
Overall Total	**1 874 377 ha**	

3. Biodiversity significance of the Northern Cape

According to the 2017 NCPAES the Northern Cape's current protected area network falls far short of sustaining biodiversity and ecological processes.

Only 25 ecosystem types (20%) are well protected (i.e. have their targets fully met), while a further 11 types (9%) are categorized as moderately protected. These ecosystem types are largely limited to the Richtersveld, Kalahari, Tankwa-Karoo and Augrabies regions.

Sixty-eight (or 54%) of the ecosystem types are effectively not represented in the protected area network at all. Most of these types are found in the central, north-east and south-east regions of the province (Balfour, D. & Holness, 2017).

In addition, there is poor representation of other important components of biodiversity in the Succulent Karoo. These include aquatic features like riparian habitats, estuaries, wetlands and rivers, areas important for ecosystem services and climate change resilience, and areas important for threatened species.

With an estimated 5400 plant species in the Northern Cape the biodiversity significance is further evidenced by the presence of six of the eight biomes found in South Africa (Figure 2) and eight of the eighteen national Centres of Endemism (Balfour, D. & Holness, 2017).

The six biomes found in the Northern Cape are:

- Nama Karoo
- Succulent Karoo
- Desert
- Savanna
- Grassland
- Fynbos

The eight Centres of Endemism represented in or fully contained by the Northern Cape are:

- Griqualand West
- Gariep
- Hantam Roggeveld
- Albany
- Kamiesberg
- Knersvlakte
- The Succulent Karoo Region
- The Cape Floristic Region

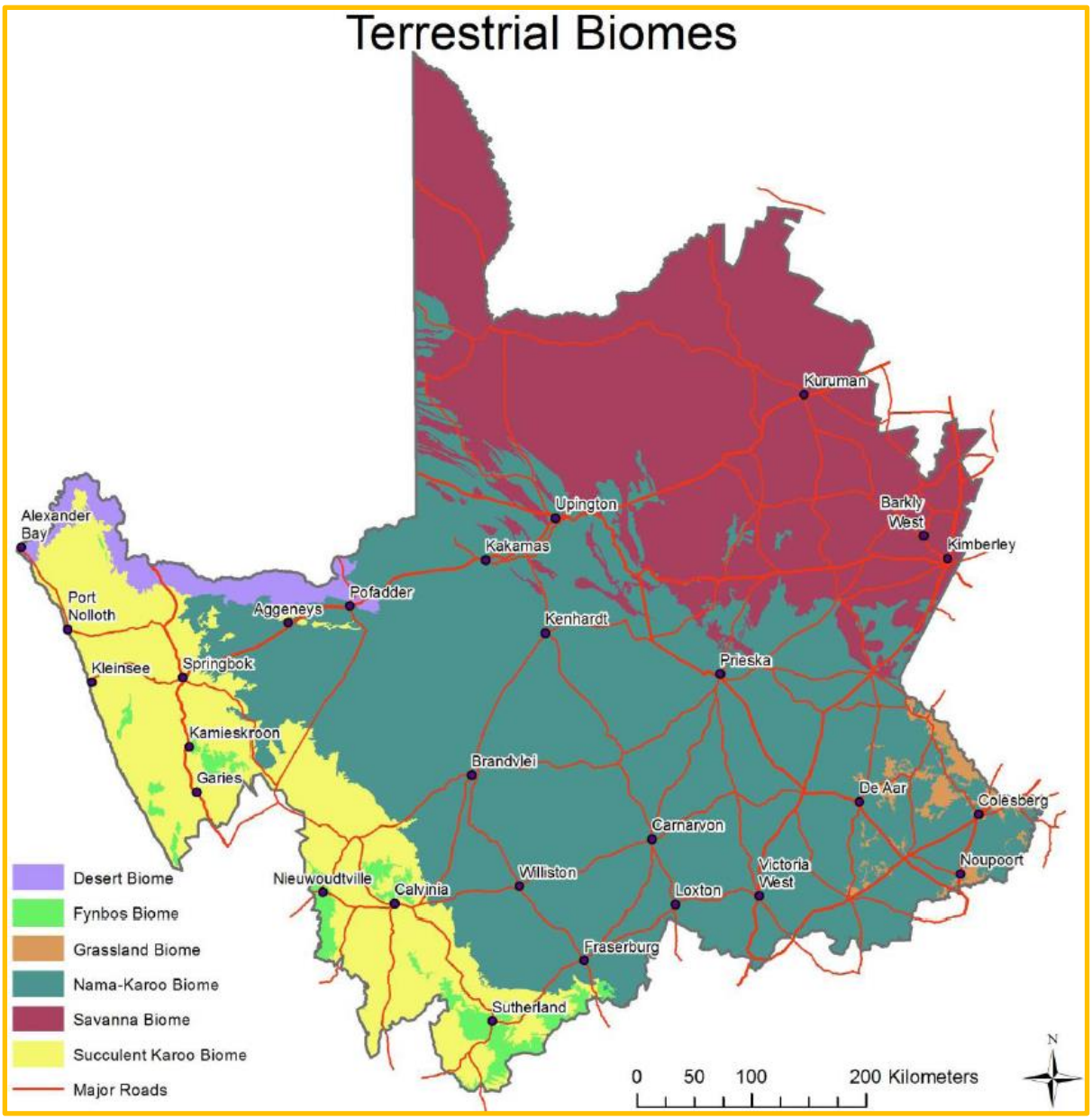

Figure 2 Terrestrial Biomes of the Northern Cape (Balfour & Holness, 2017)

Balfour & Holness (2017) indicates that the current protection levels for terrestrial ecosystems in Northern Cape was calculated using the methodology described in the National Biodiversity Assessment and the NPAES and is provided in Figure 3. The categories (Table 2) are also the same as those applied in the National Biodiversity Assessment and the NPAES.

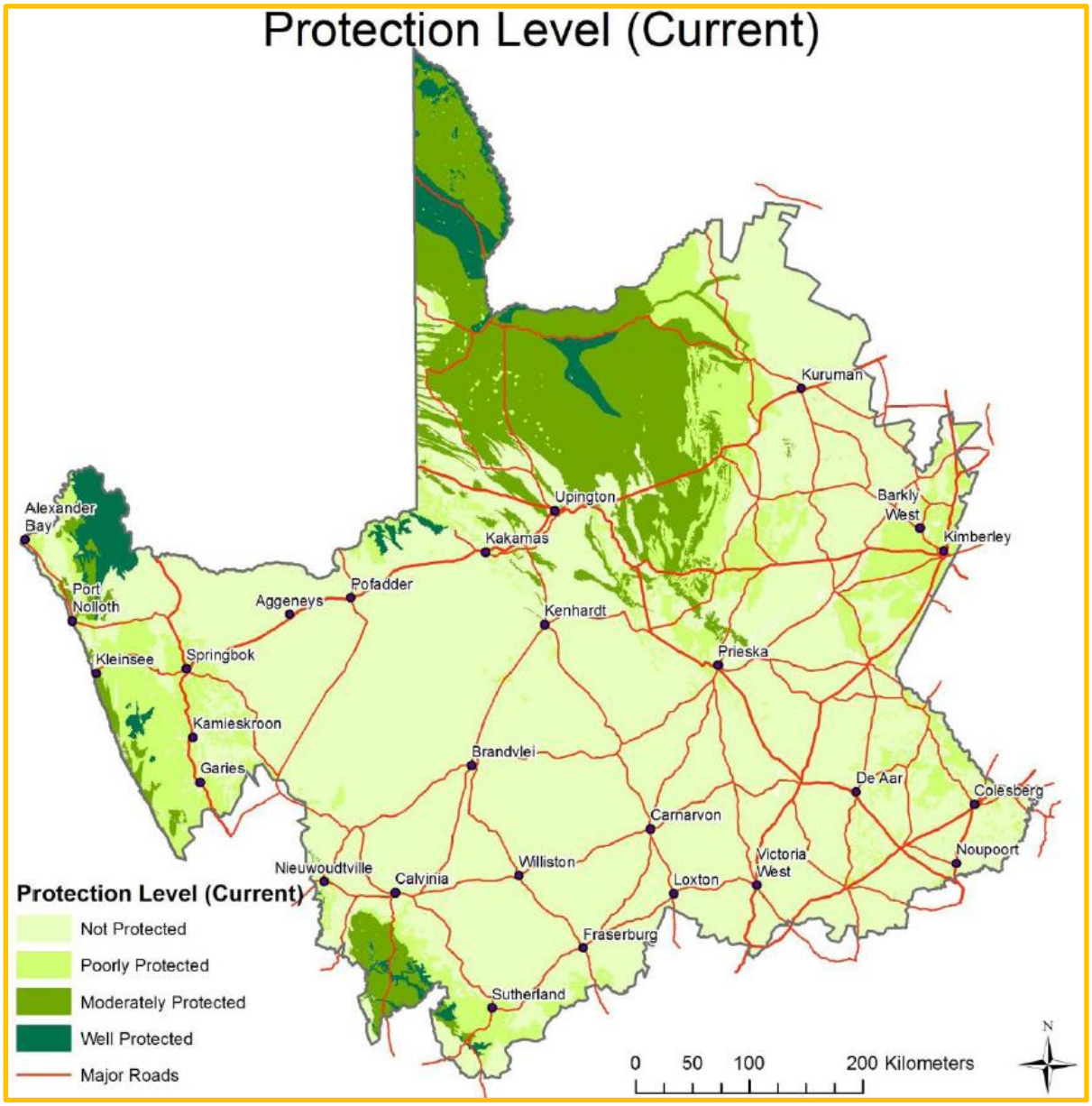

Figure 3 Current protection levels for terrestrial ecosystems in Northern Cape (Balfour & Holness, 2017)

Table 2 Categories used to evaluate ecosystem protection levels (Balfour & Holness, 2017)

Category	Definition
Not protected	Zero or less than 5% of protection target
Poorly protected	5–49% of protection target
Moderately protected	50–99% of protection target
Well protected	>=100% of protection target

A systematic conservation plan for the Northern Cape (Holness & Oosthuysen, 2016), identify the integrated set of spatial biodiversity conservation priorities in the province. It incorporates priority areas for meeting targets for all known nationally and provincially important biodiversity assets (Figure 4), including terrestrial and freshwater ecosystems and estuaries (Figure 5). It also includes threatened plant and animal species as well as significant ecosystem service and climate change adaption elements.

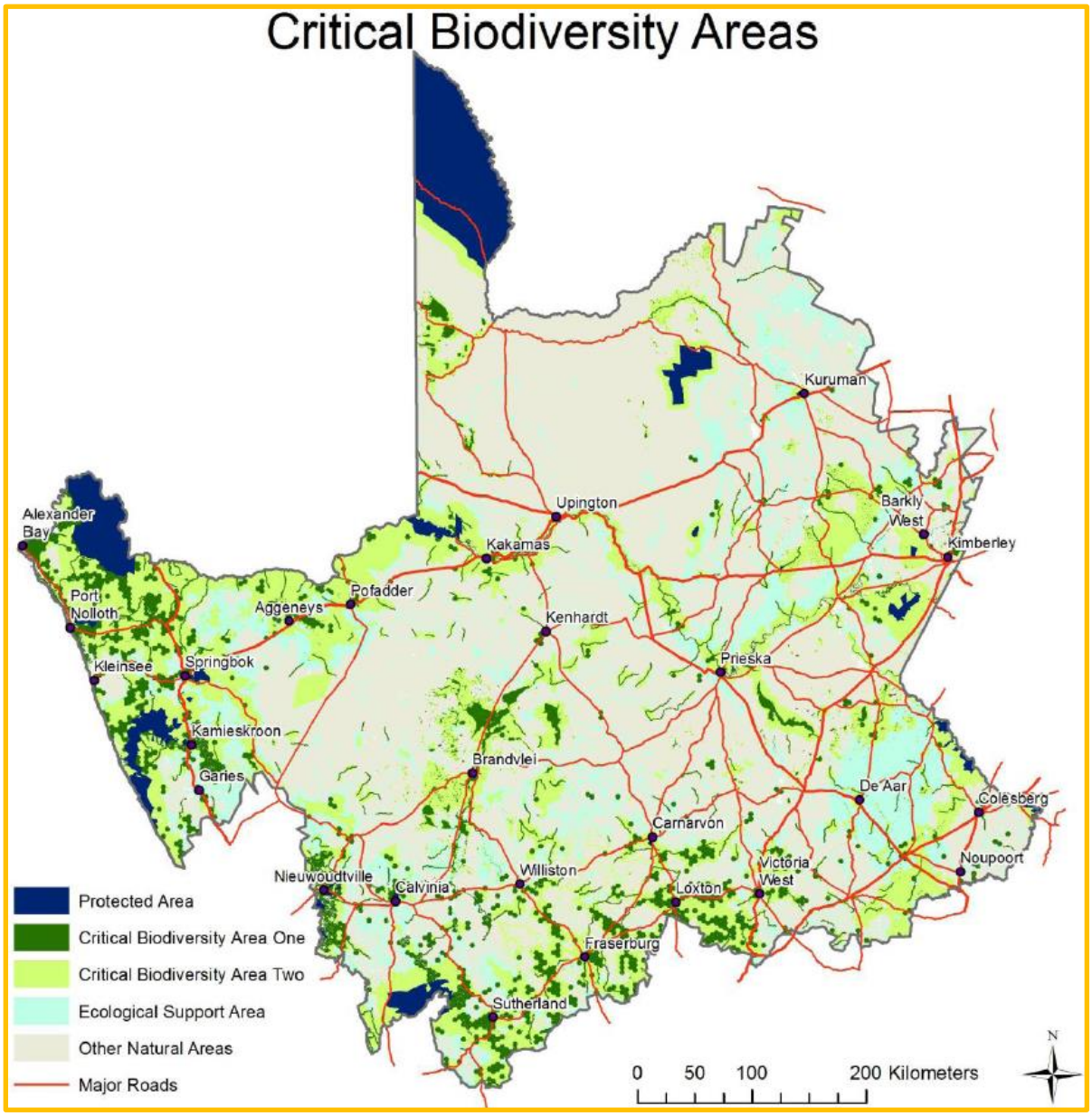

Figure 4 Critical biodiversity areas of the Northern Cape (Holness & Oosthuysen, 2016)

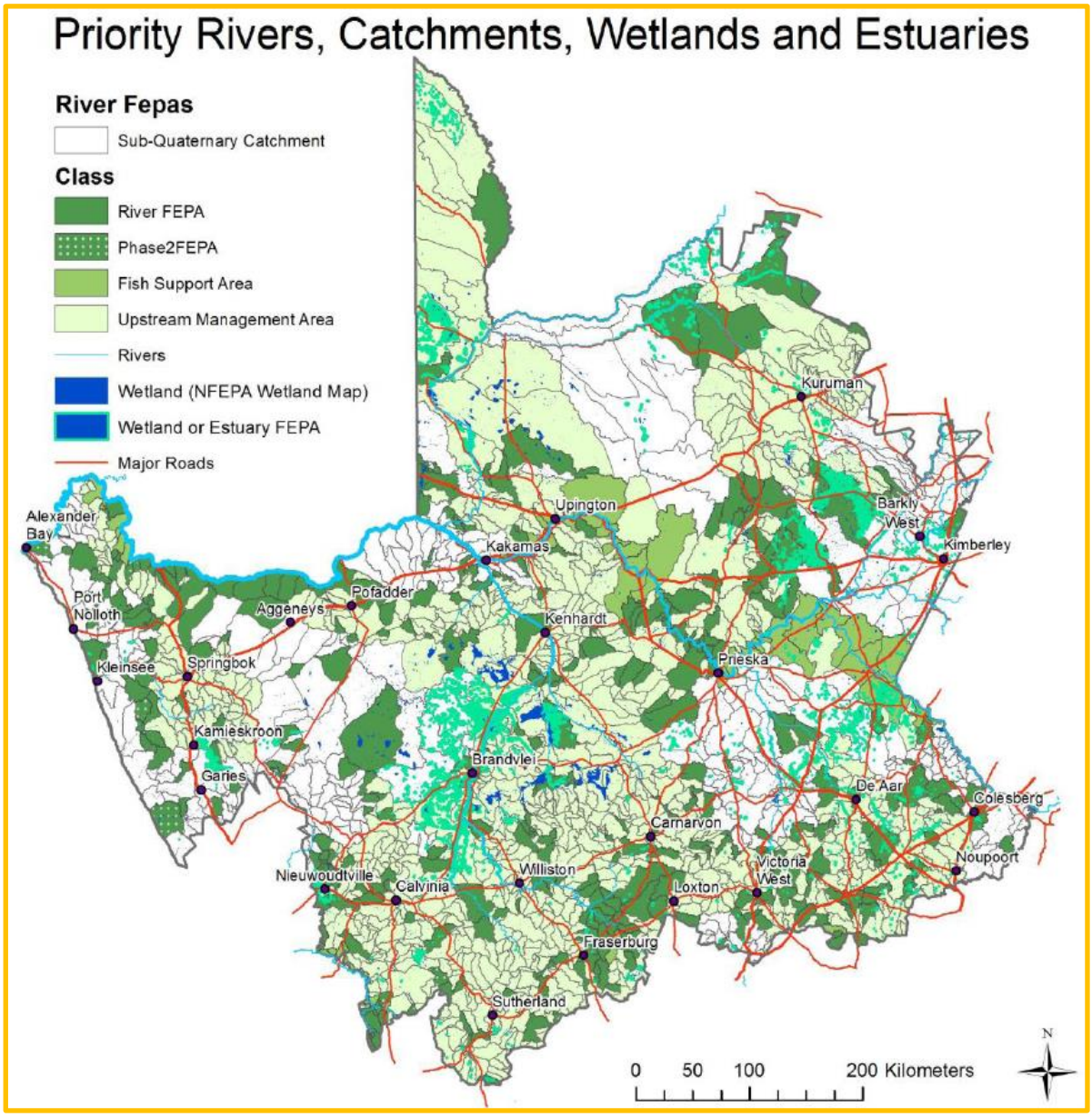

Figure 5 Priority rivers, catchments, wetlands and estuaries of the Northern Cape (Balfour & Holness, 2017)

Taking all the biodiversity components above into account the NCPAES assessment identified 18 primary focus areas (Figure 6). These are the priority areas identified in the NCPAES analysis which are broadly within areas where there are active protected area expansion initiatives or which were identified as short-term potential implementation areas through the various project workshops.

In addition, secondary focus areas were identified, which are the large intact priority areas identified in the NCPAES analysis which are outside of areas targeted by active protected area expansion initiatives (Balfour, D. & Holness, 2017).

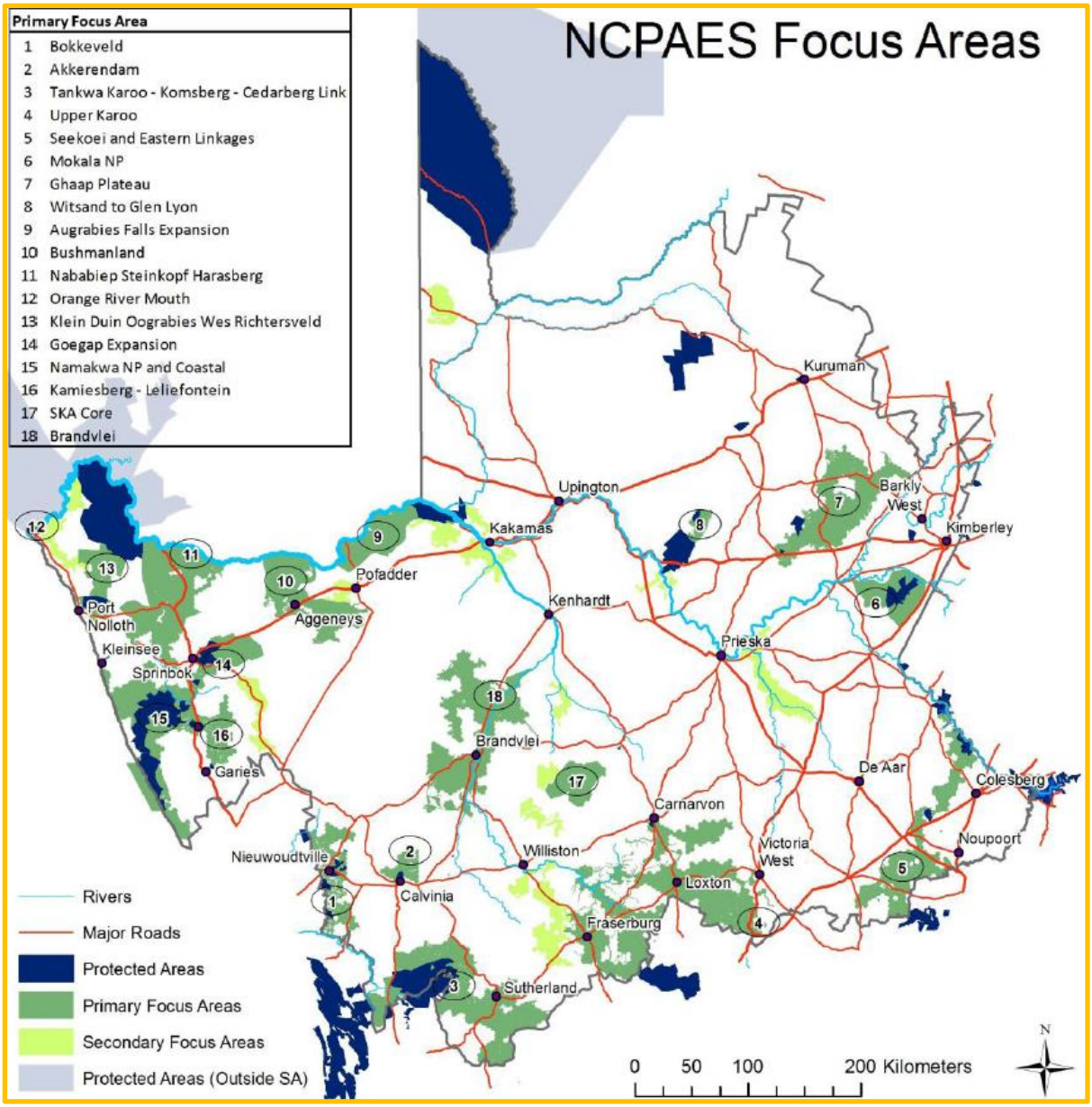

Figure 6 Focus areas for protected area expansion in the Northern Cape (Balfour & Holness, 2017)

The primary and secondary focus areas should be the main areas targeted for the strategic expansion of protected areas, and wherever possible biodiversity offsets should also be concentrated in these areas. Protected area expansion in primary and secondary focus areas would significantly improve the representation levels of terrestrial ecosystems and other important biodiversity features. However, these areas do not include all important biodiversity features in the province, and hence other Critical Biodiversity Areas and remaining aquatic priorities (i.e. FEPA wetlands and rivers) could be targeted for expansion where there are low opportunity costs or there are specific offset requirements that make it impossible to secure targets in the focus

areas (Balfour & Holness, 2017). As can be seen from Figure 6 and 7 the Goegap Expansion focus area is one of eighteen primary focus areas identified.

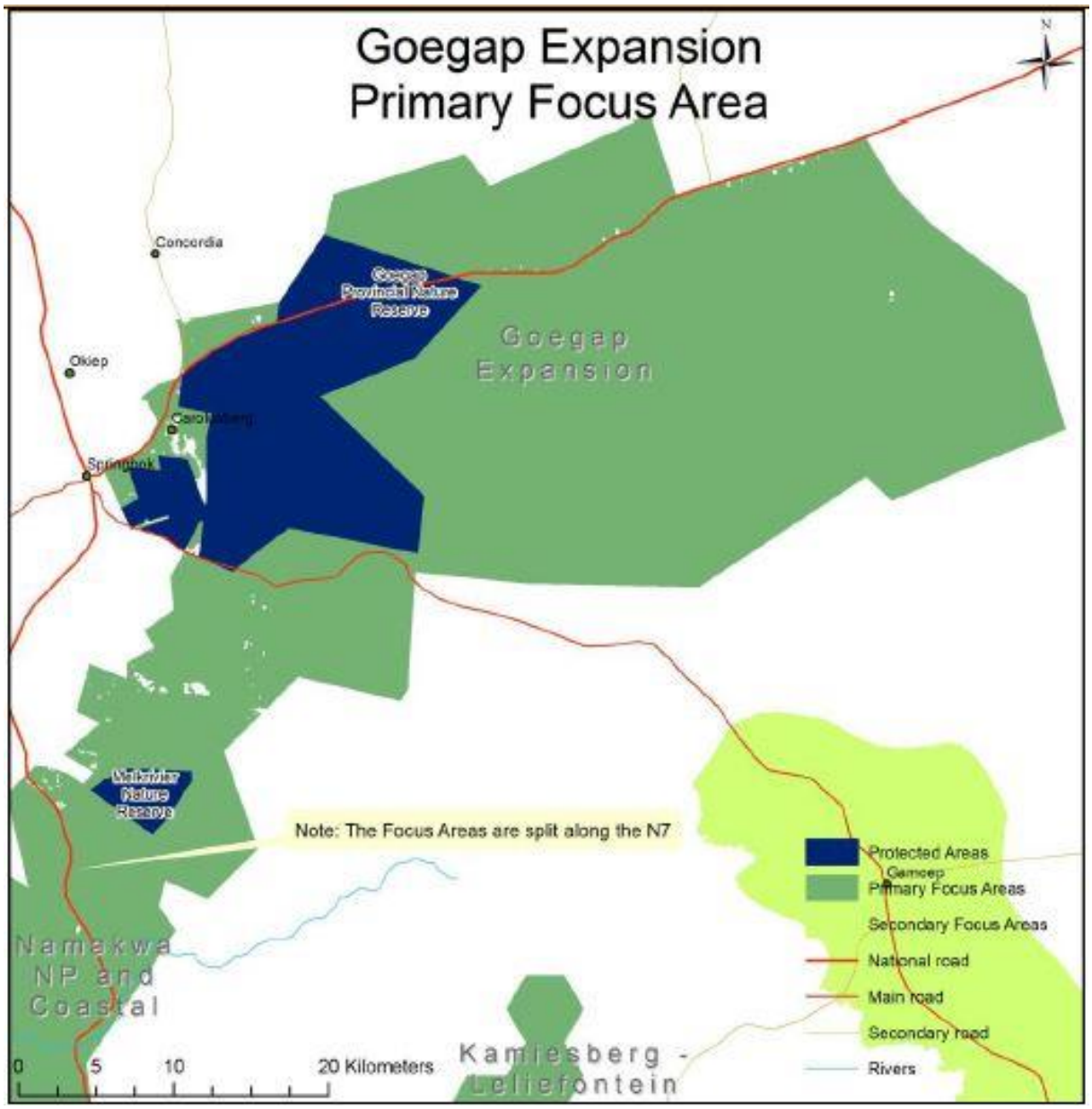

Figure 7 Goegap Expansion Primary Focus Area (Balfour, D. & Holness, 2017)

Reason for priority status:

There is an existing expansion initiative and the land has CBA status.
The area contains priority Succulent Karoo vegetation and can enable ecological connectivity between inselbergs and the Namaqua corridor.

Implementation time line :

Initial declaration(s): within 5yrs
Future declaration(s): longer than 5yrs

Expansion Mechanism : Purchase / Declarations / Biodiversity Stewardship
Specific details: There is a need to finalise contracts and management agreements between WWF and DEARL (for the Klein Goegap and Kaip properties)
Implementing agent and partners: Primary implementer: DEARL Supporting partners: WWF, WFA
Target for 2017 to 2021: Declare three properties Purchase two properties and submit intent to declare them

4. Supporting documentation

A range of National and Regional-scale studies has shown the importance of expanding Goegap Nature Reserve with regard to biodiversity conservation.

The National Biodiversity Assessment (SANBI, 2019) aims to provide a high level summary of the state of South Africa's biodiversity at regular points in time, with a strong focus on spatial information. It informs various policies and strategies in the biodiversity sector e.g. National Biodiversity Framework and National Protected Area Expansion Strategy.

Under-protected regions identified in the 2019 NBA include the northern grassland areas of the Eastern Cape and the Northern Cape interior including Bushmanland and the northern Namaqualand coast. The NSBA (2004), identified the Succulent Karoo Biome as a geographic priority region for conservation action in South Africa. The biome is also recognized as one of 25 global Biodiversity Hotspots and the only arid Biodiversity Hotspot in the world. The conservation status of the Succulent Karoo Biome is very low and a mere 5.8% of the Biome is formally protected in statutory and non-statutory protected areas (Driver et al., 2003). The Succulent Karoo Biome is divided in six Bioregions and GNR is situated within the Namaqualand Hardeveld Bioregion. The conservation status of the bioregion is very low and less than 2% of the area is under formal conservation with only 4 of the 19 vegetation units covered. The Nama Karoo biome is divided into three Bioregions and the reserve falls within

the Bushmanland Bioregion. The conservation status of this bioregion is about 15% under formal conservation, but only 4 of the 10 vegetation units are covered.
The NBA also identified the need to plan for the maintenance of landscape-level connectivity via a biodiversity corridor network aligned along major environmental gradients. The eastward expansion of Goegap Nature Reserve will play a major role in acting as a landscape level biodiversity corridor linking the Succulent Karoo Biome and Nama-Karoo Biome. The area is also a transition between winter and summer rainfall and therefore a species rich ecotone. The need to plan for landscape level biodiversity corridors is important as this is a key component of the country's adaptation strategy to dealing with the effects of climate change.

The National Protected Area Expansion Strategy (NPAES) was looking at identifying spatial priorities for the expansion of South Africa's formal protected area network in order to guide government spending on land acquisition and PA development. The northwestern corner of South Africa is identified as highly suitable for the creation/expansion of PA's due to:
(a) the large number of outstanding conservation targets for vegetation types, and
(b) the relatively intact landscapes are ideal for the creation of large continuous PA's (DEA, 2016).

On regional-scale the Succulent Karoo Ecosystem Plan (Driver et al. 2003) used a systematic conservation planning to provide a hierarchy of priority actions to guide conservation efforts and donor investment in the biome (both on and off formal reserves). The Succulent Karoo Ecosystem Program (SKEP) was formed to promote the conservation of the global biodiversity hotspot and they identified 9 geographic priority areas (Figure 8) one of which is the Greater Richtersveld area covers Goegap NR.

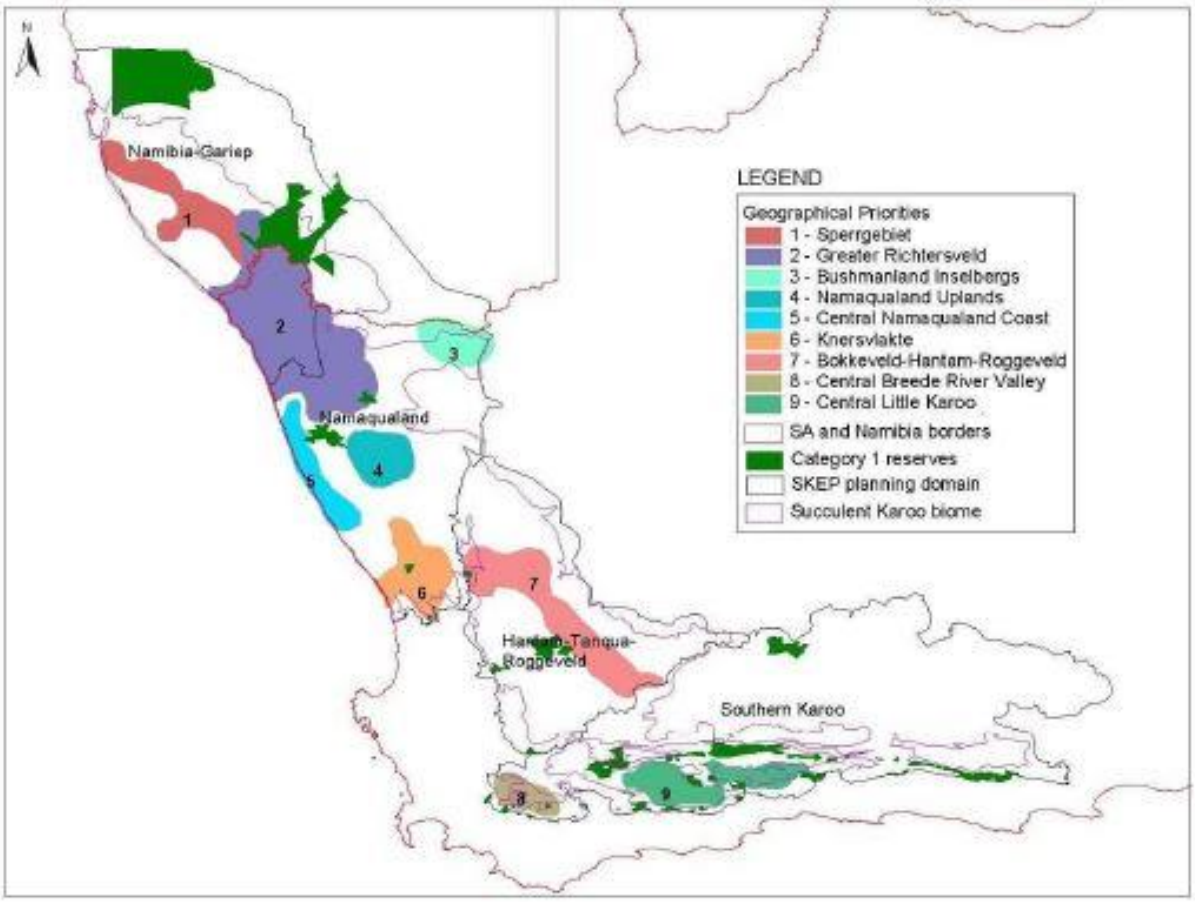

Figure 8 SKEP Priority Areas ((Driver et al. 2003)

The Namakwa District Biodiversity Sector Plan (Desmet & Marsh, 2008) intended to help guide land-use planning, environmental assessments and authorisations and natural resource management within the Namakwa District Municipality (NDM). In addition it aimed to developed awareness of the unique biodiversity in the area, the value this biodiversity represents to people as well as the management mechanisms that can ensure its protection and sustainable utilisation. A Critical Biodiversity Area (CBA) map (Figure 9) was also developed to provide regional biodiversity priorities and ensure sustainable management and conservation of all Critical Biodiversity Areas and Ecological Support Areas in accordance with biodiversity land management objectives.

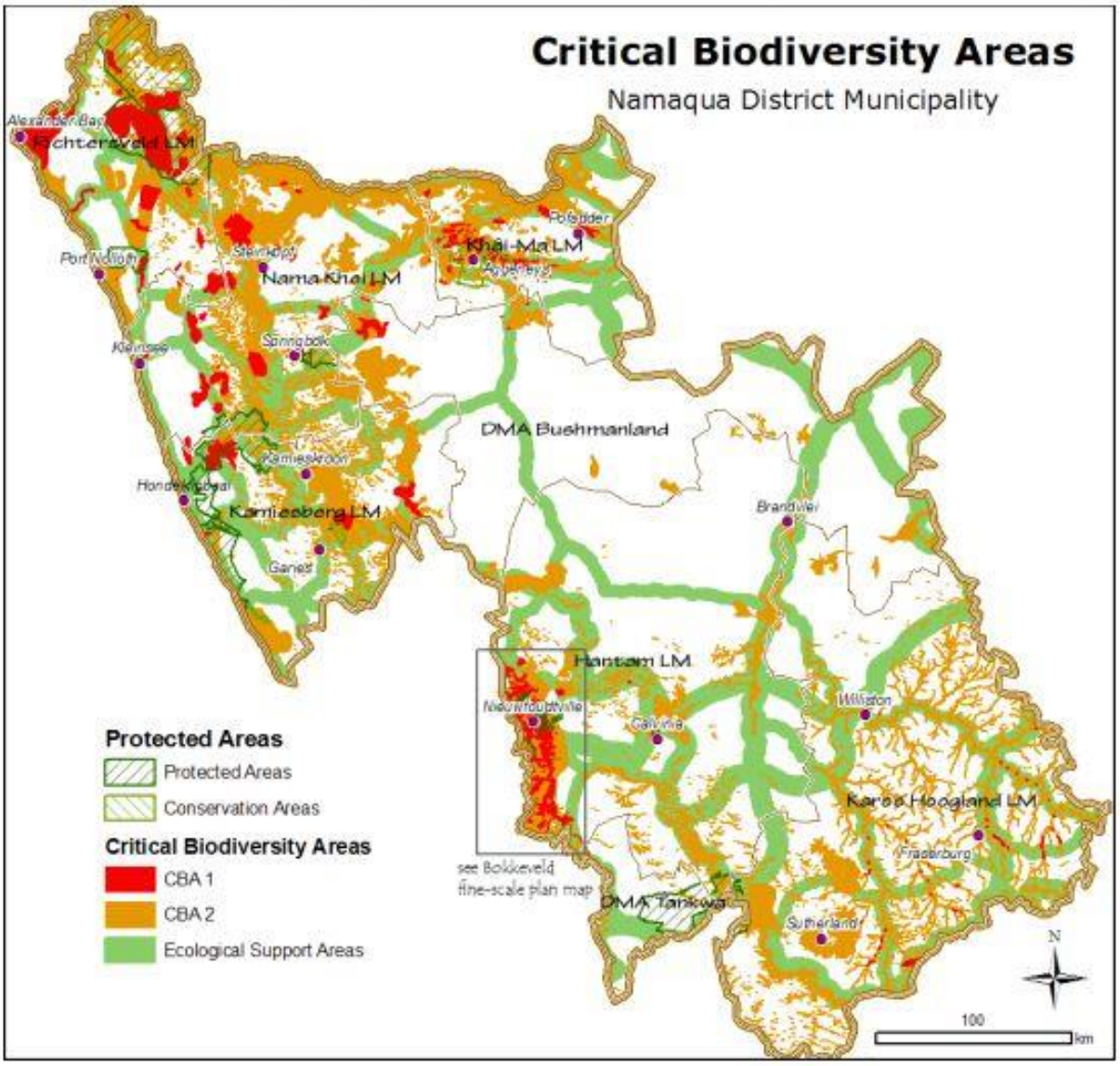

Figure 9 Critical Biodiversity Areas for the Namakwa District (Desmet & Marsh, 2008)

5. PAES Goegap Nature Reserve

To meet the goals set for this focus area, the area has been divided according to properties as follow (Table 3 & Figure 10):

- The properties to be included as part of the GNR in the next 5 years and
- The properties to be included as part of the GNR in the next 20 years.

Table 3 Properties to be included as part of the Goegap NR PAES

5 Year Expansion Strategy										
Property					Distance from PA	Proposed Protected Status	Purpose of PA		Priority for Protection	
No	Name	Owner	Size Ha	Title Deed			Code	Description	Level	Criteria
1	Areb RE/75	FJ Agenbach	7633,9	T54873//1988	< 10 km	3	1	Protection of specific natural features	Low	Ecological support areas
							2	Maintenance of ecosystems and biodiversity	Low	Buffer areas of 1Km
							3	Protection of species and genetic diversity		
2	Kareehoutekloof 221/3	E Strauss	253,315	T31361/1970	Adjacent	3	7	Management purposes	Low	Management Areas
									Low	Buffer areas of 1Km
3	Kareehoutekloof 221/5	E Strauss	122,728	T31361/1970	Adjacent	3	7	Management purposes	Low	Management Areas
									Low	Buffer areas of 1Km
4	Kweekfontein RE/73	JHJ Kennedy	5907,71	T3517/1966	Adjacent	3	1	Protection of specific natural features	Low	Ecological support areas
							2	Maintenance of ecosystems and biodiversity	Low	Buffer areas of 1Km
							3	Protection of species and genetic diversity		
20 Year Expansion Strategy										
Property					Distance from PA	Proposed Protected Status	Purpose of PA		Priority for Protection	
No	Name	Owner	Size Ha	Title Deed			Code	Description	Level	Criteria
5	Biesjesfontein 218/6	Koperberg Boerdery CC	380,213	T25127/1993	Adjacent	4	2	Maintenance of ecosystems and biodiversity	Low	Ecological support areas
							3	Protection of species and genetic diversity	Low	Buffer areas of 1Km
6	Biesjesfontein 218/12	MWU Blunck	259,45	T54965/1984	< 10 km	4	2	Maintenance of ecosystems and biodiversity	Low	Ecological support areas
							3	Protection of species and genetic diversity	Low	Buffer areas of 1Km
7	Biesjesfontein 218/18	Nama Khoi Finansiele Dienste CC	213,473	T76938/1999	< 10 km	4	2	Maintenance of ecosystems and biodiversity	Low	Ecological support areas
							3	Protection of species and genetic diversity	Low	Buffer areas of 1Km

8	Biesjesfontein 218/22	T Scheepers	280,844	T51137/1992	< 10 km	4	2	Maintenance of ecosystems and biodiversity	Low	Ecological support areas
							3	Protection of species and genetic diversity	Low	Buffer areas of 1Km
9	Biesjesfontein 218/33	WB Cloete	215,673	T16973/1999	< 10 km	4	2	Maintenance of ecosystems and biodiversity	Low	Ecological support areas
							3	Protection of species and genetic diversity	Low	Buffer areas of 1Km
10	Biesjesfontein 218/34	Blue Magnolia Trading 678 CC	215,149	T90778/1999	< 10 km	4	2	Maintenance of ecosystems and biodiversity	Low	Ecological support areas
							3	Protection of species and genetic diversity	Low	Buffer areas of 1Km
11	Biesjesfontein 218/35	NJ Maass	213,323	T91202/2001	< 10 km	4	2	Maintenance of ecosystems and biodiversity	Low	Ecological support areas
							3	Protection of species and genetic diversity	Low	Buffer areas of 1Km
12	Deur Drift RE/219	HAB Mostert	892,047	T80149/1991	< 10 km	4	2	Maintenance of ecosystems and biodiversity	Low	Ecological support areas
							3	Protection of species and genetic diversity	Low	Buffer areas of 1Km
13	Deur Drift 219/1	AC Bond	21,1869	T1139/1957	< 10 km	4	2	Maintenance of ecosystems and biodiversity	Low	Ecological support areas
							3	Protection of species and genetic diversity	Low	Buffer areas of 1Km
14	Deur Drift 219/2	AG van Zyl	43,3785	T22574/1988	< 10 km	4	2	Maintenance of ecosystems and biodiversity	Low	Ecological support areas
							3	Protection of species and genetic diversity	Low	Buffer areas of 1Km
15	Deur Drift 219/3	JM Mostert	510,78	T33211/1983	< 10 km	4	2	Maintenance of ecosystems and biodiversity	Low	Ecological support areas
							3	Protection of species and genetic diversity	Low	Buffer areas of 1Km
16	Draay 346/9	CA Jansen	968,401	T27495/1971	< 30 km	4	2	Maintenance of ecosystems and biodiversity	Low	Ecological support areas
							3	Protection of species and genetic diversity	Low	Buffer areas of 1Km
17	Drogedaap RE/255	CM Archer	342,999	T79775/1992	10 km	4	2	Maintenance of ecosystems and biodiversity	Low	Ecological support areas
							3	Protection of species and genetic diversity	Low	Buffer areas of 1Km

18	Drogedaap 255/1	FP Lombardt	131,806	T46543/1985	10 km	4	2	Maintenance of ecosystems and biodiversity	Low	Ecological support areas
							3	Protection of species and genetic diversity	Low	Buffer areas of 1Km
19	Drogedaap 255/2	Nama Khoi Finansiele Dienste CC	27,3393	T6890/1999	10 km	4	2	Maintenance of ecosystems and biodiversity	Low	Ecological support areas
							3	Protection of species and genetic diversity	Low	Buffer areas of 1Km
20	Drogedaap 255/3	AM Bond	39,5083	T30227/1993	10 km	4	2	Maintenance of ecosystems and biodiversity	Low	Ecological support areas
							3	Protection of species and genetic diversity	Low	Buffer areas of 1Km
21	Drogedap RE/258	MMG Dixon	2196,45	T15832/1986	10 km	4	2	Maintenance of ecosystems and biodiversity	Low	Ecological support areas
							3	Protection of species and genetic diversity	Low	Buffer areas of 1Km
22	Farm RE/629	BE van Dyk	1553,6	T96054/1998	< 30 km	4	2	Maintenance of ecosystems and biodiversity	Low	Ecological support areas
							3	Protection of species and genetic diversity	Low	Buffer areas of 1Km
23	Farm 629/1	HAJ van Zyl	2247,25	T50912/1998	< 30 km	4	2	Maintenance of ecosystems and biodiversity	Low	Ecological support areas
							3	Protection of species and genetic diversity	Low	Buffer areas of 1Km
24	Goinoep RE/126	JH Roux	14379,5	T60694/1987	Adjacent	3	2	Maintenance of ecosystems and biodiversity	Low	Ecological support areas
							3	Protection of species and genetic diversity	Low	Buffer areas of 1Km
25	Melkboschkuil 132/1 (Middelpos Conservancy)	J Shade	433,52		Adjacent	4	2	Maintenance of ecosystems and biodiversity	Low	Ecological support areas
							3	Protection of species and genetic diversity	Low	Buffer areas of 1Km
26	Mesklip 259/12	AS Dippenaar	806,113	T4708/1965	< 30 km	4	2	Maintenance of ecosystems and biodiversity	Low	Ecological support areas
							3	Protection of species and genetic diversity	Low	Buffer areas of 1Km
27	Mesklip 259/14 (Namaqua Game Lodge)	Namaqua Game Lodge PTY LTD	3040,26	T53262/1996	< 30 km	4	2	Maintenance of ecosystems and biodiversity	Low	Ecological support areas
							3	Protection of species and genetic diversity	Low	Buffer areas of 1Km

28	Mesklip 259/22	Markivan Invest CC	50,2934	T120219/1998	< 30 km	4	2	Maintenance of ecosystems and biodiversity	Low	Ecological support areas
							3	Protection of species and genetic diversity	Low	Buffer areas of 1Km
29	Mesklip 259/23	H Dippenaar	471,603	T96370/1999	< 30 km	4	2	Maintenance of ecosystems and biodiversity	Low	Ecological support areas
							3	Protection of species and genetic diversity	Low	Buffer areas of 1Km
30	Namaras RE/256 (Melkrivier)	P Smith	886,0008	T54546/2007	< 30 km	3	2	Maintenance of ecosystems and biodiversity	Low	Ecological support areas
							3	Protection of species and genetic diversity	Low	Buffer areas of 1Km
31	Namaras 256/1	CAJ Mostert	155,738	T28148/1981	< 30 km	4	2	Maintenance of ecosystems and biodiversity	Low	Ecological support areas
							3	Protection of species and genetic diversity	Low	Buffer areas of 1Km
32	Perde Kraal 346/5	CA Jansen	3711,31	T31251/1975	< 30 km	4	2	Maintenance of ecosystems and biodiversity	Low	Ecological support areas
							3	Protection of species and genetic diversity	Low	Buffer areas of 1Km
33	Platjesfontein RE/222	JH Roux	2091,85	T60694/1987	Adjacent	3	2	Maintenance of ecosystems and biodiversity	Low	Ecological support areas
							3	Protection of species and genetic diversity	Low	Buffer areas of 1Km
34	Platjesfontein RE/223	JH Roux	4979,95	T60694/1987	< 10 km	3	2	Maintenance of ecosystems and biodiversity	Low	Ecological support areas
							3	Protection of species and genetic diversity	Low	Buffer areas of 1Km
35	Platjesfontein RE/224	JH Roux	2252,32	T60694/1987	Adjacent	3	2	Maintenance of ecosystems and biodiversity	Low	Ecological support areas
							3	Protection of species and genetic diversity	Low	Buffer areas of 1Km
36	Platjesfontein RE/225	JH Roux	4159,22	T60694/1987	<10 km	3	2	Maintenance of ecosystems and biodiversity	Low	Ecological support areas
							3	Protection of species and genetic diversity	Low	Buffer areas of 1Km
37	Soehijs 346/4	Yolandy Trust	1805,33	T5787/1965	<10 km	4	2	Maintenance of ecosystems and biodiversity	Low	Ecological support areas
							3	Protection of species and genetic diversity	Low	Buffer areas of 1Km

Key for Type of Protected Area	
1	Special Nature Reserves
2	National Parks
3	Nature Reserves
4	Protected Environments
5	World Heritage Sites
6	Marine Protected Areas
7	Special protected forest areas
8	Mountain Catchment Areas

Key for Purpose of Protected Area	
1	Protection of specific natural features
2	Maintenance of ecosystems and biodiversity
3	Protection of specific natural features
4	Securing tourism and recreation opportunities
5	Providing education opportunities
6	Providing benchmarks for sustainable development
7	Management purposes

Key for Priority for Protection		
High	Critical Endangered ecosystems	Alexander Bay Coastal Duneveld
		Namib Lichen Fields
		Namaqua Marine Bioregion
		SA river ecosystems
		Lower Gariep Alluvial Vegetation
	Endangered ecosystems	Cape Vernal Pools
	Endangered Species Habitat	Riverine Rabbit habitat
		Bank Cormorant habitat
		Aloe pilansii habitat
Medium	Vulnerable ecosystems	Bokkeveld Sandstone Fynbos
		Namaqualand Granite Renosterveld
		Namib Seashore Vegetation
		Richtersveld Coastal Duneveld
		Vanrhynsdorp Gannabosveld
		Nieuwoudtvile Shale Renosterveld
Low	Management Areas	
	Ecological support areas	
	Buffer areas of 1Km	
	Geological areas	
	Areas with potential treats to biodiversity	
	Tourism and aesthetic value areas	
	Cultural heritage areas	

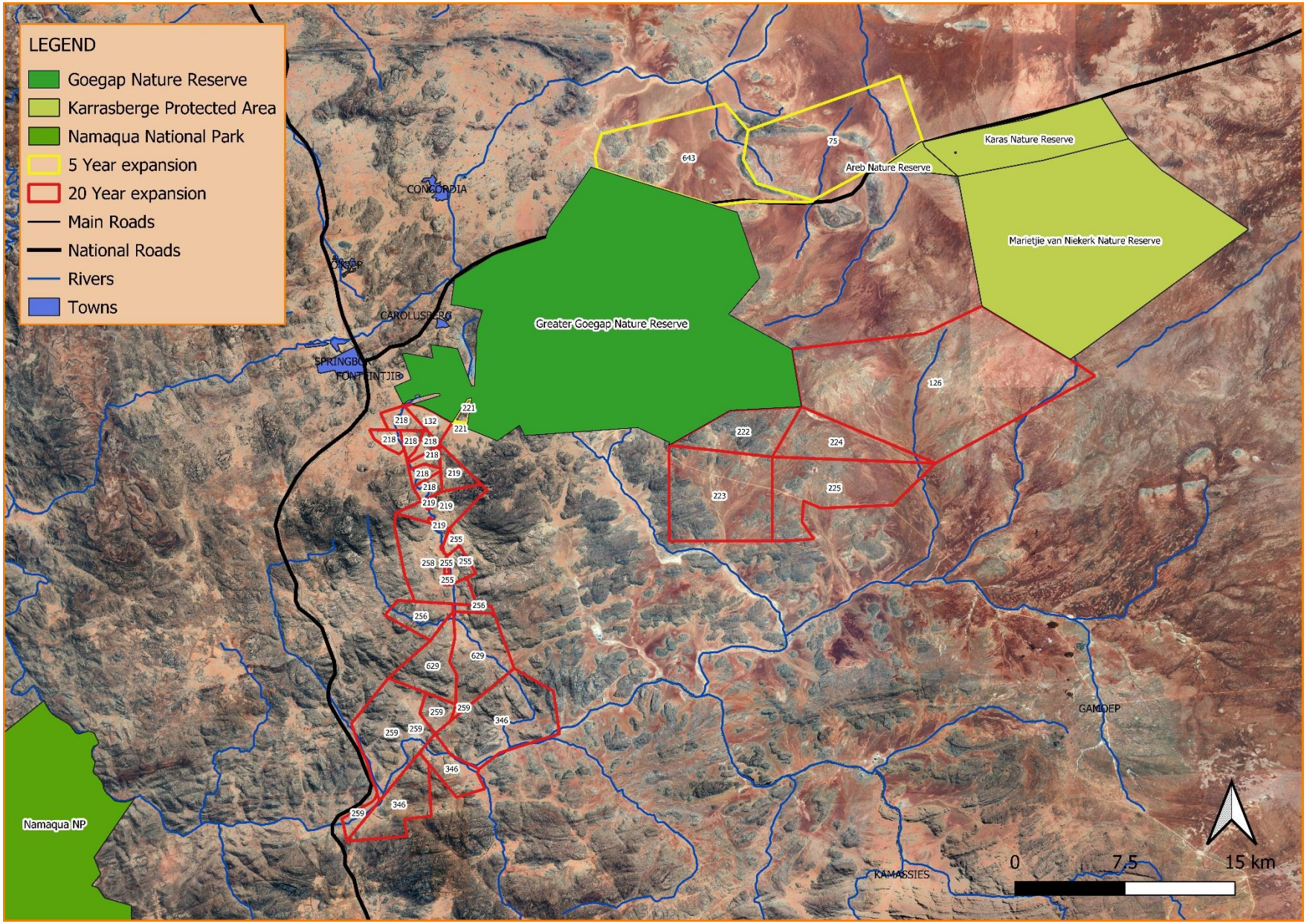

Figure 10 Properties identified as part of GNR PAES

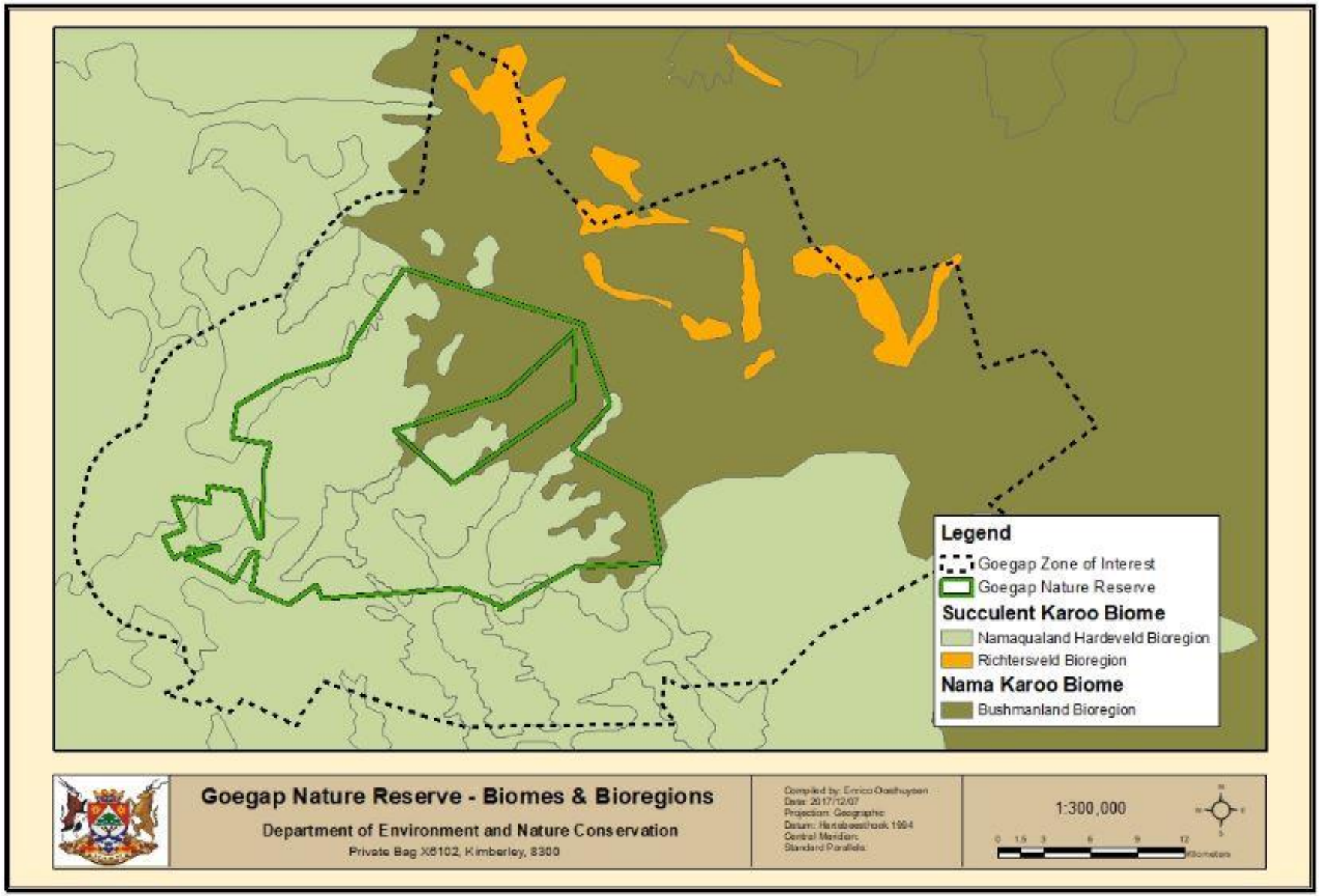

Figure 11 Biomes and Bioregions of GNR

5.1 Goegap Nature Reserve short term expansion (5 years)

The properties identified (Figure 10) represents the short term (5 year) expansion strategy for the GNR and involves the expansion of the reserve to the north-east to include ecosystems associated with the Richtersveld Bioregion and to create linkage between GNR and the Karrasberge Protected Area. It also aims to consolidate the south-western boundary of the reserve. Four properties (Kweekfontein RE/73, Areb RE/75 and Kareehoute Kloof 221/3 & 221/5) of approximately 13 700 Ha is adjacent to Goegap Nature Reserve (Table 3 and Figure 10).

5.1.1 Background

The World Wide Fund for Nature: South Africa (WWF-SA) through the Leslie Hill Succulent Karoo Trust (LHSKT) aims to implement strategic conservation initiatives in the Succulent Karoo, particularly protected area expansion through acquisition of land, for the creation and expansion of priority conservation areas. As part of this initiative 4 properties on the north-eastern border and one property on the southern border of the reserve, has been bought and included in the management of Goegap Nature Reserve from 2009 until 2020.

During 2018 - 2021, Wilderness Foundation Africa (WFA) funded by WWF South Africa and the Leslie Hill Succulent Karoo Trust (LHSKT), implemented phase 2 of their Protected Area Expansion and Stewardship Project in the Northern Cape. The project was launched to assist the Department of Environment and Nature Conservation (DENC) and South African National Parks (SANParks) in implementing the National Protected Area Expansion Strategy in the Northern Cape. Subsequently the Karrasberge Protected Area was established during this period and is situated north-east of Goegap Nature Reserve.

5.1.2 Meeting outstanding biodiversity targets

The expansion of GNR in a north-eastern direction will make a significant contribution in meeting outstanding biodiversity targets for vegetation types (Refer Table 4 and Figure 11).

Succulent Karoo Biome

In the Richtersveld Bioregion of the Succulent Karoo Biome the conservation status for vegetation types will improve as follow:

Bushmanland Inselberg Shrubland (SKr 18)

The conservation status of this vegetation unit is threatened by potential mining around Aggeneys (Mucina & Rutherford, 2006). The inselbergs support a high number of local endemic, especially Succulents of the families Aizoaceae, Apocynaceae, Crassulaceae, Portulacaceae and Didiereaceae.

The long-term biodiversity target for formal protection is 34% and less than 1% is conserved in statutory conservation areas. With the implementation of the PAES of GNR the percentage of the original area under protection will increase to 24.23%.

In the Namaqua Hardeveld Bioregion of the Succulent Karoo Biome the conservation status for vegetation types will improve as follow:

Namaqualand Klipkoppe Schrubland (SKn 1)

The conservation status of this vegetation unit is least threatened with 95% remaining and is largely untransformed, with protection from agricultural activities due to the steep rocky landscape. Transformation of the granite-koppie landscape due to mining has left old mine spoils that disturb the view in some areas (Mucina & Rutherford, 2006).

The long-term biodiversity target for formal protection is 28% and 6% is conserved in statutory conservation areas. With the implementation of the PAES of GNR the percentage of the original area under protection will increase to 22.27%.

Namaqualand Blomveld (SKn 3)

The conservation status of this vegetation unit is least threatened with only 6% of the total area transformed. According to Mucina & Rutherford (2006), transformation mainly occurred due to agricultural activities including grain cultivation and planting of salt-bush (*Atriplex nummularia*). Overgrazing occurs throughout the area and alien infestations are only local in extent. The long-term biodiversity target for formal protection is 28% and 1.5% is conserved in statutory conservation areas. With the

implementation of the PAES of GNR the percentage of the original area under protection will increase to 23.28%.

Nama Karoo Biome

In the Bushmanland Bioregion of the Nama Karoo Biome the conservation status for vegetation types will improve as follow:

Bushmanland Arid Grassland (Nkb 3)

The conservation status of this vegetation unit is least threatened with 99% remaining and very little of the area has undergone transformation (Mucina & Rutherford, 2006). The long-term biodiversity target for formal protection is 21% and 0.4% is conserved in statutory conservation areas. With the implementation of the PAES of GNR the percentage of the original area under protection will increase to 7.58%.

5.2 Goegap Nature Reserve Long Term Expansion (20 years)

The long term (20 year) expansion strategy identified for the GNR involves the expansion of the reserve southward to include ecosystems associated with the Namaqualand Hardeveld Bioregion and to create linkage between GNR, Melkrivier NR and the Namaqua National Park. Additionally it also aims to create a corridor for animal movement along the Droëdap River, stretching all the way to the Buffels River. The establishment of a corridor to the east and south-east of GNR to link the biodiversity offset area, Oranjefontein, with the Karrasberge Protected Area has also been prioritized. Thirty three properties of approximately 50 000 Ha that is situated adjacent to and within a 30 km radius of Goegap Nature Reserve is included (Table 3 and Figure 10).

5.2.1 Background

The Northern Cape land project by Wilderness Foundation Africa (WFA) is funded by WWF South Africa through the Leslie Hill Succulent Karoo Trust (LHSKT). It is a multi-phased land protection programme to assist the Northern Cape Province and SANParks in implementing their Protected Area Expansion Strategies by securing land through the implementation of Biodiversity Stewardship and Land Purchase.

As part of phase three of this initiative properties between GNR, Melkrivier NR and the Namaqua National Park along the Droëdap River, have been identified to create linkages between these Protected Areas.

5.2.2 Meeting outstanding biodiversity targets

The long-term PAES of GNR will also make a significant contribution in meeting outstanding biodiversity targets for vegetation types (Refer Table 4 and Figure 11).

Succulent Karoo Biome

In the Namaqua Hardeveld Bioregion of the Succulent Karoo Biome the conservation status for vegetation types will improve as follow:

Namaqualand Klipkoppe Schrubland (SKn 1)

The conservation status of this vegetation unit is least threatened with 95% remaining and is largely untransformed, with protection from agricultural activities due to the steep rocky landscape. Transformation of the granite-koppie landscape due to mining has left old mine spoils that disturb the view in some areas (Mucina & Rutherford, 2006).

The long-term biodiversity target for formal protection is 28% and 6% is conserved in statutory conservation areas. With the implementation of the PAES of GNR the percentage of the original area under protection will increase to 30.36%.

Namaqualand Blomveld (SKn 3)

The conservation status of this vegetation unit is least threatened with only 6% of the total area transformed. According to Mucina & Rutherford (2006), transformation mainly occurred due to agricultural activities including grain cultivation and planting of salt-bush (*Atriplex nummularia*). Overgrazing occurs throughout the area and alien infestations are only local in extent. The long-term biodiversity target for formal protection is 28% and 1.5% is conserved in statutory conservation areas. With the implementation of the PAES of GNR the percentage of the original area under protection will increase to 35.60%.

Platbakkies Succulent Schrubland (SKn 5)

The conservation status of this vegetation unit is least threatened with 99% remaining untransformed, but overgrazing on communal land areas is a serious threat to this vegetation unit. Infestation of the alien plant species *Prosopis* throughout 2-3% of the area also poses a conservation challenge (Mucina & Rutherford, 2006).

The long-term biodiversity target for formal protection is 28% and 0% is conserved in statutory conservation areas. With the implementation of the PAES of GNR the percentage of the original area under protection will increase to 57.19%.

Nama Karoo Biome

In the Bushmanland Bioregion of the Nama Karoo Biome the conservation status for vegetation types will improve as follow:

Bushmanland Arid Grassland (Nkb 3)

The conservation status of this vegetation unit is least threatened with 99% remaining and very little of the area has undergone transformation (Mucina & Rutherford, 2006).

The long-term biodiversity target for formal protection is 21% and 0.4% is conserved in statutory conservation areas. With the implementation of the PAES of GNR the percentage of the original area under protection will increase to 8.27%.

Table 4: GNR PAES contribution to Provincial Biodiversity Targets

GNR PAES Contribution to Provincial Biodiversity and Protected Area Targets												
Name of the Biome	Name of Bioregion	Vegetation type		CBA Classification		Provincial targets						
2 of 9 Biomes represented		Name	Code	Protection Status	Conservation Status (Biod Sector Plan)	Original Size	Remaining after transformation		Biodiversity Target		Other PA's Contribution	
							Ha	%	Ha	%	Ha	%
Succulent Karoo Biome	2 out of 6 Bioregions	1 out of 19 Vegetation types										
	Richtersveld	Bushmanland Inselberg Shrubland	SKr 18	Not Protected	Least Concern	63789,50	63667,40	99,81%	21688,40	34,00%	291,00	0,46%
		1 out of 6 Vegetation types										
	Namaqua Hardeveld	Namaqualand Klipkoppe Schrubland	SKn 1	Poorly Protected	Least Concern	777586,00	763508,00	98,19%	217724,00	28,00%	7260,00	0,93%
		Namaqualand Blomveld	SKn 3	Poorly Protected	Least Concern	330624,00	323877,00	97,96%	92574,70	28,00%	0,00	0,00%
		Platbakkies Succulent Schrubland	SKn 5	Not Protected	Least Concern	97770,10	97694,70	99,92%	27375,60	28,00%	0,00	0,00%
Nama Karoo Biome	1 out of 3 Bioregions	1 out of 6 Vegetation types										
	Bushmanland	Bushmanland Arid Grassland	Nkb3	Not Protected	Least Concern	4546150,00	4530720,00	99,66%	954692,00	21,00%	373,00	0,01%

GNR PAES Contribution to Biodiversity Target							Biodiversity Target met after GNR PAES implementation		
Area in Ha			% of Original size						
Estate	Domain	ZOI	Estate	Domain	ZOI	Total	Ha	5 year %	20 year %
0	1865	3100	0,00%	2,92%	4,86%	7,78%	5256,00	24,23%	24,23%
19974	0	21250	2,57%	0,00%	2,73%	5,30%	48484,00	22,27%	30,36%
5713	0	15836	1,73%	0,00%	4,79%	6,52%	21549,00	23,28%	35,60%
157	0	15500	0,16%	0,00%	15,85%	16,01%	15657,00	0,00%	57,19%
11349	10062	50588	0,25%	0,22%	1,12%	1,59%	72372,00	7,58%	8,27%

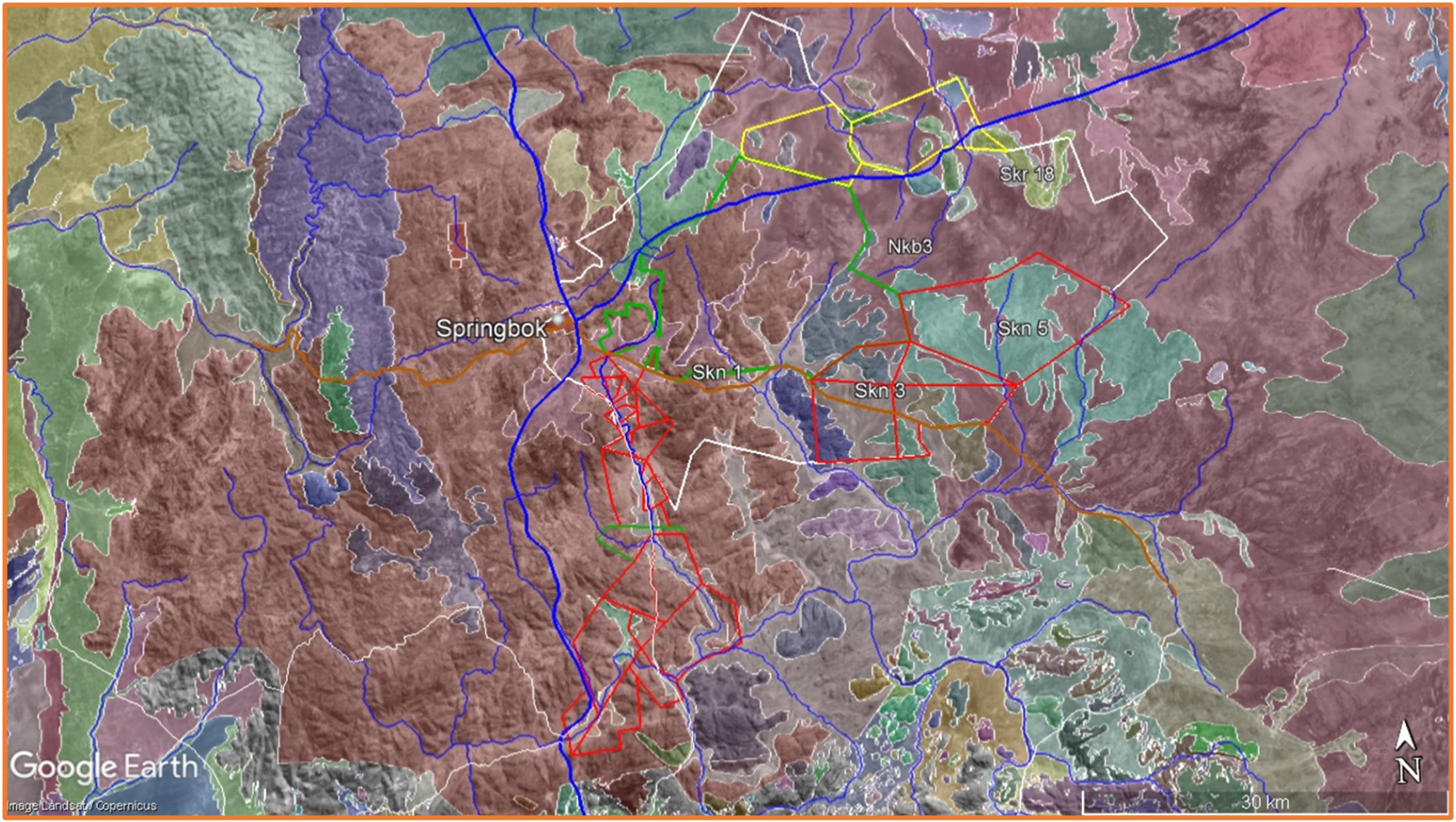

Figure 12: Vegetation Units identified for PAES

6. Conclusion

Protected area expansion in the Northern Cape is currently being undertaken by several entities and organisations. These include the state (SANParks, DEARL) as well as entities from the private and NGO sectors (WWF, WFA, CSA) and collaboration between these organisations will remain crucial in implementing the PAES of Goegap Nature Reserve. Biodiversity Offset Agreements has already contributed to the expansion of Goegap NR through the addition of the Oranjefontein property and can also be utilised to further expansion in the future. The growth of the current Biodiversity Stewardship Program will also aid the establishment of private nature reserves and protected environments to create corridors and links between the reserve and other established Protected Areas e.g. Namaqua National Park, Melkrivier Private Nature Reserve and the Karrasberge Protected Area.

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