Ecosystem Profile

THE SUCCULENT KAROO HOTSPOT

NAMIBIA AND SOUTH AFRICA

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INTRODUCTION

The Critical Ecosystem Partnership Fund (CEPF) is designed to safeguard the world's threatened biodiversity hotspots in developing countries. It is a joint initiative of Conservation International (CI), the Global Environment Facility (GEF), the Government of Japan, the MacArthur Foundation and the World Bank. CEPF supports projects in hotspots, areas with more than 60 percent of the Earth's terrestrial species in just 1.4 percent of its land surface. A fundamental purpose of CEPF is to ensure that civil society is engaged in efforts to conserve biodiversity in the hotspots. An additional purpose is to ensure that those efforts complement existing strategies and frameworks established by local, regional and national governments.

CEPF aims to promote working alliances among community groups, nongovernmental organizations (NGOs), government, academic institutions and the private sector, combining unique capacities and eliminating duplication of efforts for a comprehensive approach to conservation. CEPF is unique among funding mechanisms in that it focuses on biological areas rather than political boundaries and examines conservation threats on a corridor-wide basis to identify and support a regional, rather than a national, approach to achieving conservation outcomes.

The Succulent Karoo hotspot, which covers an area of approximately 116,000 km^2 in Namibia and South Africa, is an appropriate recipient of CEPF investment for several reasons. The region's levels of plant diversity and endemism rival those of rain forests, making the Succulent Karoo an extraordinary exception to the low diversity typical of arid areas and the only arid ecosystem to be recognized as a global biodiversity hotspot. Nearly one-third of the floral species of the region are unique to the hotspot and the region boasts the richest variety of succulent flora in the world (just under one-third of the Succulent Karoo's flora are succulents). In addition to its floral diversity, the hotspot is a center of diversity for reptiles and many groups of invertebrates.

The Succulent Karoo hotspot is under extreme pressure from human activities, including overgrazing, mining, illegal collection of wild plants and animals and the impact of climate change. However, there are many opportunities for conserving the hotspot's remarkable biodiversity due to the low human population density, large areas of extant (albeit severely grazed in places) habitat, low costs of conservation in most of the region and good opportunities for biodiversity-friendly forms of land use in many areas.

The Ecosystem Profile

The purpose of a CEPF ecosystem profile is to provide an overview of the root causes of biodiversity loss in a particular region and to couple this assessment with an inventory of current conservation investments and activities in order to identify the niche where CEPF investments can provide the greatest incremental value.

The ecosystem profile is intended to recommend strategic opportunities, called strategic funding directions. Civil society organizations will propose projects and actions that fit into these strategic directions and contribute to the conservation of biodiversity in the targeted region. Applicants propose specific projects consistent with these funding

directions and investment criteria. The ecosystem profile does not define the specific activities that prospective implementers may propose, but outlines the conservation strategy that will guide those activities. Applicants for CEPF grants will be required to prepare detailed proposals identifying and describing the interventions and performance indicators that will be used to measure the success of the project.

Defining Biodiversity Conservation Outcomes

An emerging trend across the conservation community is the realization that biological diversity cannot be saved by *ad hoc* actions. Threats to biodiversity are simply too severe to allow scarce conservation resources to be invested in poorly targeted projects, or programs with no baselines for monitoring. For CEPF, this trend has led to the development of a focus on conservation outcomes: the targets against which the success of investments can be measured.

Biodiversity is not measured in any single unit, but rather is distributed across a hierarchical continuum of ecological scales. This continuum can be condensed into three levels: species, sites and landscapes. These three scales are admittedly arbitrary, and interlock geographically through the presence of species in sites and of sites in landscapes, but are nonetheless identifiable and discrete. Given threats to biodiversity at each of these three levels, quantitative, justifiable and repeatable targets for conservation can be set in terms of extinctions avoided, areas protected and corridors created.

Generally the conservation community has adapted the concept of corridors as a mechanism for conserving important species and sites. Existing protected areas in these crucial environments are often too small and isolated to maintain viable ecosystems and evolutionary processes; indeed, in many hotspots, even the remaining unprotected habitat fragments are acutely threatened. In such circumstances, conservation efforts must focus on linking major sites across wide geographic areas in order to sustain these large-scale processes and ensure the maintenance of a high level of biodiversity. Such networks of protected areas and landscape management systems are *biodiversity corridors*.

BACKGROUND

The ecosystem profile for the Succulent Karoo hotspot is based on the results of the Succulent Karoo Ecosystem Planning (SKEP) process. This comprehensive and participatory process was initiated in September 2001 and completed one year later. The project team, facilitated by CI's Southern Africa Hotspots Programme as part of CEPF preparations to expand to the hotspot, included special advisors and four coordinating organizations: the Botanical Society of South Africa, Eco-Africa Environmental Consultants, the Institute for Plant Conservation and the National Botanical Institute. It also included 10 conservation champions, well-connected and respected individuals with biodiversity or social development expertise who raised awareness about the process and gathered vital information within their own communities.

SKEP, which means "to serve" or "to create" in Afrikaans (the predominant language in the hotspot), involved more than 60 scientific experts and more than 400 local stakeholders representing government, academia, NGOs, private sector interests and local

communities. SKEP pioneered a unique approach to conservation planning that integrated high-level scientific expertise with sociopolitical, economic and institutional concerns. SKEP developed an overarching framework for biodiversity conservation and sustainable development in the hotspot from which the best niche for CEPF investment and other funding support could be determined. The CEPF profile for this hotspot is one of many SKEP products.

Summary of SKEP Priority-setting Process

The objectives identified for the SKEP planning phase were to:

- identify a hierarchy of priority areas, using sound biological assessments and systematic conservation planning techniques, and actions through a broad stakeholder process to guide conservation efforts and donor investment in the hotspot
- leverage existing biological and socioeconomic initiatives to contribute to the identification of these priorities and engender innovation and consensus in the form of a long-term conservation plan
- expand human resource capacity to implement the plan by including training and mentorship opportunities as part of the planning process
- secure the institutional and government support required to ensure effective implementation of the plan by linking conservation to regional development needs

Although previous scientific studies had prioritized various areas within the Succulent Karoo, biodiversity priority-setting at the hotspot level had not taken place. Information on habitat types was inconsistent between the two countries and species-level data was held in numerous formats by various organizations and individuals. The SKEP participants took on the ambitious task of gathering spatial information and expert opinion on trends in the distribution of biodiversity and important ecological processes for the hotspot. Data on the distribution of important taxa and ecological process was obtained via a workshop and numerous follow-up contacts, resulting in a comprehensive dictionary of the data and known gaps where scientific information is still needed. Data on the extent of land transformation was gathered from satellite imagery and augmented by participatory mapping workshops and meetings with local experts from agriculture, mining, tourism, conservation authorities, communal lands and local government sectors in each of four subregions: Namibia-Gariep; Namaqualand; Hantam Tanqua Roggeveld; and Southern Karoo (Figure 1). SKEP results can be found in reports available on www.cepf.net and in the form of GIS files and associated databases for each main land use.

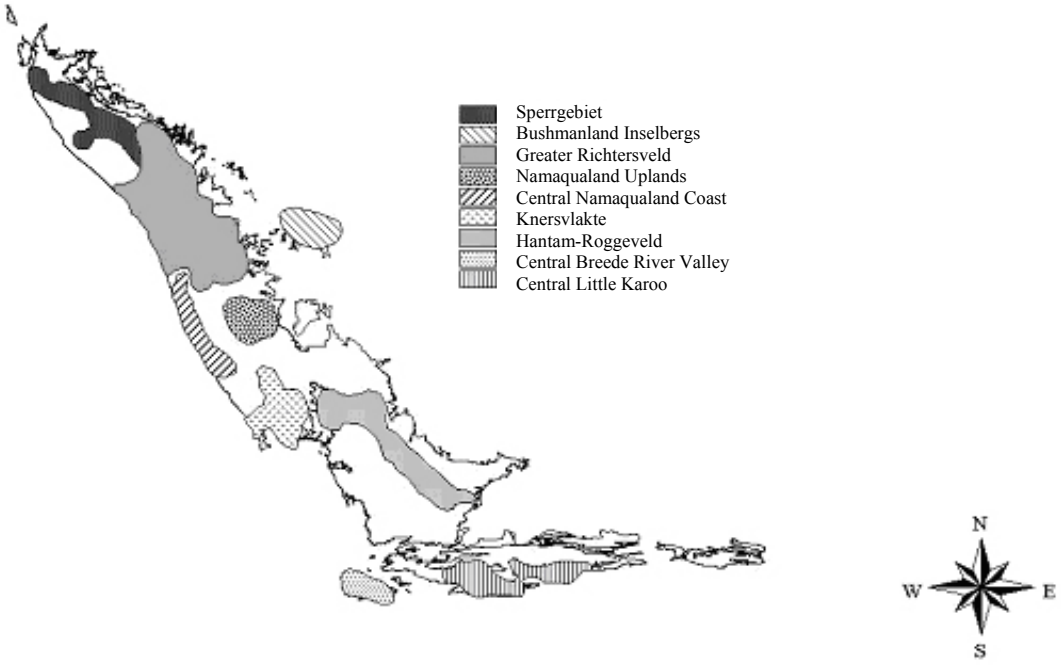
With this new understanding of the distribution of biodiversity and transformation pressures in the hotspot, SKEP's team of scientists determined what would be needed in terms of area to ensure that the region's species and the ecological processes that support them are conserved and then set conservation targets for biodiversity features such as vegetation types, river ecosystems, sand movement corridors and the presence of Red Data and endemic species based on this assessment. Appendix 1 of this document lists the total area, the amount of land already transformed and the area conservation targets

for each of the 135 vegetation types defined by the National Botanical Institute of South Africa and the National Botanical Research Institute of Namibia within the Succulent Karoo.

Figure 1. **Subregions in the SKEP Planning Domain.** The planning domain is larger than the Succulent Karoo hotspot. Additional information on how the domain was defined can be found in the SKEP documents on www.cepf.net.

Using a GIS-based computer program that uses an iterative algorithm to show maps of options for achieving these targets, a SKEP "Framework for Action Map" was produced that highlights areas essential for achieving conservation targets as well as areas that require additional research for refining and defining finer-scale outcomes for the SKEP Program. This map was then evaluated in light of the stakeholder information on land-use pressures and nine priority geographic areas were identified as the most efficient locations for achieving the conservation targets of SKEP and refined on the basis of their ability to contribute to the maintenance of Red Data List species and maintaining important ecological processes, particularly in the face of climate change. The nine priority areas are illustrated in Figure 2 and Appendix 2 details the contribution to achieving conservation targets that would be secured if the areas were brought under conservation management practices.

Figure 2: Priority areas for conservation in the Succulent Karoo hotspot, as defined through the SKEP process.



Defining Conservation Outcomes for the Succulent Karoo

The SKEP process also set out to identify important sites, species and corridors for biodiversity conservation that could be adopted as 20-year conservation targets for the Succulent Karoo hotspot. The process undertaken thus far has focused on defining broad geographic priorities and targeted specific vegetation types. Nonetheless, the SKEP team recognizes the need to do a finer analysis of specific species and sites that would result in a more formal summary of the conservation outcomes for the Succulent Karoo hotspot.

The 20-year conservation targets that have been identified thus far for the Succulent Karoo are:

- 75 percent of the conservation targets set in the SKEP process for 135 vegetation types will be protected and conserved.
- Key climatic gradients and riverine corridors are taken into consideration in the creation or expansion of any protected areas.
- Globally threatened and endangered species listed in the Red Data sources will be under additional protection.
- Sites in the Succulent Karoo hotspot that house unique, endemic and globally threatened species will be identified and protected.

After a more fine-scaled analysis, these conservation targets will be formalized as conservation outcomes for the Succulent Karoo hotspot and an outcome map will be created.

BIOLOGICAL IMPORTANCE OF THE SUCCULENT KAROO

The rich biodiversity of the Succulent Karoo hotspot is due to an extensive and complex array of habitat types derived from topographical and climatic diversity in the region's rugged mountains, semi-arid shrublands and coastal dunes. The hallmark of the hotspot is its exceptionally diverse and unique flora, especially succulents and bulbs. Many species are extreme habitat specialists, mainly related to soil type and of limited range size. Local endemism (i.e. the restriction of species to extremely small ranges of <50 km^2) is most pronounced among bulbs and Mesembryanthemaceae and other succulents. Similar patterns of compositional change along gradients have been observed for certain groups of invertebrates. In addition to invertebrates, faunal diversity and endemism is high for reptiles, amphibians and some mammals.

Levels of protection

Only 3.5 percent of the hotspot is formally conserved. This protected area system, like most others in the world, is not representative of the region's biodiversity; consequently many biodiversity features are not protected. In particular, the protected area system has not been designed to accommodate the ecological and evolutionary processes that maintain and generate the hotpot's biodiversity.

Despite the documented diversity of the hotspot, global and local awareness of the significance and value of the Succulent Karoo is scant. While funding to secure land has made substantial progress, lack of funding to develop and manage these resources has resulted in a situation where the parks are largely protected only on paper. Grazing, collection of wildlife for trade and mining and prospecting continue unabated in some areas.

The complex sociopolitical environment also impacts the levels of protection for biodiversity in the hotspot. Two countries, three provincial/regional governments and more than 50 local government bodies are located within the hotspot. Decentralization of many of the administrative functions of the South African and Nambian governments to the provincial (regional in Namibia) and municipal levels has led to the expansion of the role of local government in conservation and land-use issues. Building the capacity of staff in local government to integrate biodiversity concerns into their planning and regulatory practices is an important opportunity for civil society to participate in and influence long-term planning for conservation.

In addition to land-use planning, influencing land users toward long-term conservation outcomes needs to be developed at the local level. Increasing the outreach capacity of conservation agencies and piloting innovative approaches for involving civil society in protected areas is essential for expanding the overall levels of protection for biodiversity.

SYNOPSIS OF PRESSURES ON BIODIVERSITY IN THE SUCCULENT KAROO

Irreversible land transformation in the Succulent Karoo hotspot is not extensive and although livestock grazing as a land use dominates 90 percent of the region, only 5 percent of the land has been transformed. Poor soils, low rainfall and inaccessible mountain areas have limited the expansion of agriculture, invasive species and urbanization pressures that have transformed so much of the adjacent Cape Floristic Region hotspot in South Africa. As a result of the demise of the historical herds of springbok that once grazed the area, grazing as a land use is not incompatible with biodiversity conservation if managed properly. Well-managed grazing can help maintain niches for plant diversity. There are sufficiently extensive areas of intact habitat for many options to design and implement large conservation corridors. Implementation will, however, require some restoration in mined and severely overgrazed areas and mechanisms to reduce grazing pressure. Nonetheless, the Succulent Karoo's biodiversity is decreasing at an alarming rate as a result of several direct pressures.

Current and direct pressures

The hotspot is vulnerable to several land use pressures (Table 1), particularly overgrazing on communal lands, ostrich farming in the southeast, mining and the illegal collection of plants and animals for trade. Anthropogenic climate change is predicted to have a serious impact on the region's biodiversity.

Of the land use pressures summarized in Table 1, the greatest threats to biodiversity are associated with overgrazing and mining. Overgrazing is most problematic in communal areas and in the Southern Karoo where ostrich farming has seriously transformed large areas. Agriculture is restricted to a limited number of riverine habitats that collectively occupy a small area. Similarly, off-road impacts are also restricted spatially. Over-harvesting of fuel wood is a major problem in communal lands.

Agriculture: The most extensive pressure on biodiversity in the Succulent Karoo is livestock grazing. Goat, sheep, ostrich and small game ranching are the dominant land uses in approximately 90 percent of the hotspot and although stock limits and grazing plans exist for much of the hotspot, signs of overgrazing are evident over much of the landscape. This is particularly true in communal lands where motives for maintaining livestock numbers that exceed the capacity are not simply profit driven and where limited incentives and economic alternatives exist. Ostrich grazing, unlike small livestock grazing, tremendously impacts veld by selective grazing of high protein plants and seeds and compacting soil, effectively creating dust bowls.

Mining: The entire northern extension of the Succulent Karoo is mineral rich and with various mining applications pending throughout the region, transformation from mining operations represents a significant pressure. Open caste and alluvial mining activities for diamonds along the coast and river flood plains have nearly transformed the entire coastline. New markets and discoveries of base metals such as zinc and copper as well as gypsum and quartz deposits continue to transform large areas of limited habitat types. In

addition to large corporations, uncontrolled prospecting by smaller companies and individuals is encroaching on the fragment patches of dune and coastal shrubland.

Other direct pressures: In addition to these indiscriminate pressures, collection of rare and commercially valuable species is a pressure as is an increase of unregulated tourism activities in many fragile ecosystems. Thus, although the increase in tourism to the region could certainly help create an opportunity for biodiversity conservation, it is currently having a negative impact on numerous species.

Table 1. Summary of pressures on biodiversity in the Succulent Karoo hotspot

Pressure	Key components	Examples
Agriculture	Cultivation	6% of the Southern Karoo converted for cultivation Wine and grape farming established along all major perennial river systems with arable soils
	Overgrazing by livestock	Extensive overgrazing throughout the hotspot, particularly on communal lands
	Ostrich ranching	Ranching of ostrich causing irreversible soil compaction and erosion as well as local extinction of many plant species, especially dwarf succulents and bulbs
Mining	Alluvial and coastal diamond mining	Diamond mining by five companies has impacted most of the coastline and much of the riverine habitat in the Namaqualand and Namibian/Gariep subregions
	Open-pit extraction of base-metals	Base-metal vein mining near the Namibia-South Africa border coincides with areas of highest diversity for succulents and the corresponding increase in migration to these areas in search of mining jobs has negatively impacted biodiversity.
	Small-scale prospecting and extraction	Mining concessions, with small-scale prospecting for gemstones is one of the biggest pressures on biodiverse inselbergs in the Namaqualand and Namibian/Gariep subregions

Harvesting of plants and animals	Illegal collection by and for international collectors mainly for the pet and horticultural trade	Wildlife trade threatens numerous species. Armadillo girdled lizard (*Cordylus catabractus*) is one of an unknown number of these that are threatened with extinction in the wild as a result of collection for the pet trade
	Illegal or over-harvesting of species for use by local inhabitants	Increasing population pressure having an unknown impact on several useful plant and animal species
Inappropriate tourism development	Expansion of 4x4 trails in sensitive environments by tourism companies	Uncontrolled 4x4 tourism impacts negatively on sensitive habitats and biodiversity in desert mountains and the coastal zone by compacting soil and running over succulents.

Opportunities for Sustainable Development

While not minimizing the critical nature of the threats to Succulent Karoo biodiversity, there are viable solutions and measures that, if designed and implemented properly, can be taken to maintain biodiversity and promote sustainable development. More than 90 percent of the region is used for grazing purposes, a land use that is theoretically compatible with the maintenance of biodiversity and ecosystem processes.

Implementation of conservation farming techniques, the development of which is already funded by GEF, will ensure that existing and future grazing activities will be sustained and reduce the chances of further desertification of this fragile ecosystem. Furthermore, opportunities for generating employment and regional development through ecotourism, drawing on lessons learned from several successful community-based ecotourism initiatives in both Namibia and South Africa, can be developed to take advantage of the region's spectacular scenery, diversity of succulents, brilliant spring flower displays and increasing interest in local cultures.

The perceived root causes of threats to biodiversity

The stakeholders in the SKEP process also identified root causes of the unsustainable practices that are directly impacting the Succulent Karoo's biodiversity (Table 2).

Table 2. Summary of root causes of biodiversity loss in the Succulent Karoo hotspot

Root Cause	Manifestation
Lack of awareness of the existence and value of biodiversity	Inadequate sense of ownership and pride in biodiversity Little or no reaction to land use pressures that result in biodiversity loss Lack of knowledge about innovative ways to reduce the negative impacts on biodiversity of sectors such as mining, agriculture and land use planning
Lack of awareness of the market value of biodiversity, except for items such as ostriches and diamonds, that already have commercial value	Lack of desire to mainstream biodiversity into economic sectors such as mining and agriculture (e.g. biodiversity-linked marketing of diamonds, "green branding of ostrich products) Inadequate development of biodiversity-based industries such as ecotourism and wildlife farming
Lack of capacity to undertake conservation actions and inadequate knowledge of possible alternative interventions	Lack of capacity to undertake conservation work in protected areas Lack of knowledge and capacity to catalyze and implement innovative conservation actions Inability to mainstream biodiversity concerns in land-use planning
Lack of alternatives to unsustainable use of biodiversity	Opportunity costs of economic sectors outweigh biodiversity value in the short-term (e.g. mining, agriculture) Livelihoods dependant on the unsustainable use of biodiversity (subsistence livelihoods in communal lands, commercial pastoralism)

SYNOPSIS OF CURRENT INVESTMENTS

National, provincial and local governments have historically invested significantly in conservation in the major game park areas of Namibia and South Africa. However, the arid environment of the Succulent Karoo has received little attention from government or donors until recently. Fortunately, several large foreign investments are being made into the establishment of new protected areas in the region and, to a lesser extent, into projects that will provide a foundation to link conservation and sustainable development. While government funding by the two countries necessarily focuses on social issues in the region, opportunities to integrate biodiversity issues into government programs are increasing. Some of the major existing projects are described below.

Expanding protected areas

Sperrgebiet

- The Ministry of Environment and Tourism in Namibia, $44,000 from the Danish Agency for International Development to develop an initial land-use plan for the Sperrgebiet
- CI Global Conservation Fund, $23,000 to refine the management zoning of the land-use plan and develop a national implementation strategy for the region.

Conservancies in southern Namibia

- Namibia Development Trust, $114,860 to facilitate and strengthen a network or community-based conservancies in southern Namibia by increasing awareness and conducting trainings around natural resource management and by supporting organizational skills for the development of community-based tourism initiatives

Richtersveld Ais-Ais Transfrontier Conservation Area

- Global Environment Facility, $877,000 (3 years) as part of the Richtersveld Community Based Conservation Project to design and implement livelihood projects and environmental guidelines for the Richtersveld Park
- Peace Parks Foundation, $1 million (3 years) to develop appropriate management programs and capacity for the Richtersveld and Ais-Ais National Parks as a single trans-frontier Park
- South African Government Poverty Relief Fund, $3 million (3 years) to create jobs through to develop infrastructure within the Richtersveld Park
- Swiss Development Corporation, $600,000 (3 years) to support the establishment of a community conservancy project adjacent to the Richtersveld Park, thereby expanding protection in this important region
- NORAD, $233,500 (2 years) to delimit boundaries of mining activities within the Richtersveld Contractual Park, to encourage community-based tourism efforts and to support the application of a Richtersveld World Heritage Site

Namaqua National Park

- Global Environment Facility, $7.85 million (5 years) for developing an environmental education center and program and establishing mechanisms to increase participation and benefits in the park by local communities
- Leslie Hill Succulent Trust, 49,000 hectares of land acquisition
- DEAT Poverty Alleviation Funds, $133,000 for job creation to develop core infrastructure
- National Parks Development Fund, $12,000

Tanqua-Karoo National Park

- Leslie Hill Succulent Trust, fine-scale plan to identify priority cadastrals for land acquisition to expand the park

Moedverloren Provincial Reserve in the Knesvlakte

- Leslie Hill Succulent Trust, 7,392-hectare land acquisition in 1999 to create the reserve

Provincial reserves in the Little Karoo

- Leslie Hill Succulent Trust, 4,800-hectare land acquisition in Groenfontein to expand the Rooiberg protected area
- WWF-South Africa, land acquisition in Vaalhoek to expand the Rooiberg protected area
- Leslie Hill Succulent Trust, 24,525 hectares in land acquisitions since 1995 to expand the Anysberg Provincial Reserve
- Leslie Hill Succulent Trust, 5,000-hectare land acquisition in Doringkloof to create a new protected area in the Barrydale area

Regional development projects

TRANSFORM/GTZ initiative, $80,000. This initiative in the Greater Richtersveld area is investing in the development of Community Property Associations to build capacity to determine and secure legal status for community land. Securing legal status is being accomplished through several options such as maintaining independence, incorporating into local government municipalities or developing a contractual relationship with another entity for the provision of services. This is being carried out through a process prescribed in the Transformation of Certain Rural Areas Act of 1998 and should be completed in the Richtersveld region in 2003.

South-North Tourism Route. Originally funded by DEAT ($100,000) and later supported by the local Rare Center for Tropical Conservation program, this project created community-based tourism nodes, a Web site and trained guides. However, limited marketing and seasonal tourism cycles have negatively impacted the full potential contribution of this project to biodiversity conservation.

Corporate foundations provide funds for community-development projects and skills training for staff being retrenched from mine closures in the area. Although these programs currently do not include biodiversity in their programs, several opportunities for doing so were identified during the SKEP process.

Research

In South Africa, both long-term and short-term research projects on biodiversity are being supported through small to medium-sized grants to eligible graduate students from a number of universities to enable them to study land-use effects on plant and animal communities in the Karoo; rehabilitation of degraded Karoo ecosystems; distribution, success and impacts of alien plants and animals in Karoo ecosystems; and social and ecological costs and benefits of ecotourism in the Succulent Karoo. Relevant topics studied include climate change modeling by the National Botanical Institute, funded by the Center for Applied Biodiversity Science, and surveys, sponsored by WWF-South Africa grants, to contribute information from the Succulent Karoo to the Frog Atlas Project. Numerous other studies have large implications for local conservation efforts.

For example, one initiative that can have important impact if effectively integrated into action in the Tanqua-Hantam-Roggeveld subregion is the GEF-funded Conservation Farming Project. This five-year research initiative began in 1998 and is aimed at assessing different livestock farming methods on three sites in South Africa. One of the sites occurs on the Bokkeveld Plateau, a priority area for geophyte conservation, and important recommendations for management for biodiversity in this priority region are already resulting from the study. The total grant for the project was $750,000, approximately one-third of which went to the Bokkeveld site.

Government-funded initiatives

Land-use planning is an area where both Namibia and South Africa are investing substantial resources that could be leveraged to support biodiversity conservation. In both countries, efforts to decentralize government responsibilities have led to requirements for local governments to produce regional development plans. The central Namibian government is sponsoring a regional development plan for the Karas, while in South Africa substantial funding by both government and donor sources is directed toward creating Integrated Development Plans. As part of these plans, spatial development frameworks are required which demarcate zones for urban expansion, rural development and conservation. While the financial outlay for these plans varies among the municipalities, districts and provinces, an indication of the higher level of investment from the Gariep region is $500,000 from government sources. A specific investment in conservation comes from the Western District Council where provincial authorities have invested $10,000 into the demarcation of boundaries for the Knersvlakte Biosphere reserve.

Other important government funding is being channeled to environmental education and poverty alleviation projects that contribute to biodiversity conservation. WWF-South Africa has supported the development of a new environmental education curriculum, which is scheduled to launch in 2003 throughout South Africa. The Namibia Biodiversity Program of MET has created posters and a toolbox for involving students in conservation. In the Breede River Valley, $360,000 has been budgeted for use in the Working for Water Project to remove invasive alien vegetation in 2002/03. Additionally, investment into development projects, such as the $100,000 invested in developing a guesthouse at Papendorp, and the purchase of additional land for communities, such as important land along the Namaqualand Coast for the Griqua Community, can be linked to conservation of the natural ecosystem with additional investment in long-term ecological and financial management.

Stakeholders in the Succulent Karoo Hotspot

Conservation in the Succulent Karoo will depend on the active participation of civil society. Addressing knowledge gaps, facilitating partnerships between non-conservation NGOs and biodiversity-focused institution, and involving communities, private farmers, and corporations inhabiting the hotspot will be essential. Examples of such groups are:

NGOs: There are a large number of NGOs dedicated to conservation and sustainable land use in the Succulent Karoo, most of which will be involved in supporting land users

to become stewards of the biodiversity on their lands. Several local, regional and international organizations currently work in both the Namibian and South African regions of the Succulent Karoo. **Eco-Africa Environmental Consultants** has been involved in promoting and working with local communities on cultural and natural heritage conservation and development projects in the Succulent Karoo for nearly two decades. Currently, the organization is involved in efforts to establish a trans-frontier conservation area and World Heritage Site in the Richtersveld, an initiative to work with local fishing communities on coastal care programs, and a Namibian Conservancy project. Eco-Africa was the coordinator for the sociopolitical component of SKEP. The **Peace Parks Foundation** works to assist government, nature conservation bodies and the local community to unlock the potential of trans-frontier conservation areas. **BirdLife South Africa** does not currently have any projects in the Succulent Karoo but has identified the Orange River Mouth as an Important Bird Area. **CI** established an office in the region in 1998 and a Southern Africa Hotspots Program in 2001. This program supports the implementation of the Cape Action Plan for conservation of the Cape Floristic Region and facilitated the SKEP planning process. Additionally, CI is active in a project to secure the Sperregebiet as a wilderness area and the creation of trans-frontier conservation areas along the boundary between Namibia and South Africa. CI will support the transition to implementation of a programmatic approach for conservation in the Succulent Karoo, but will then limit its focus to supporting the creation of mega reserves and biodiversity and business initiatives in the region.

WWF-South Africa has a strong local presence and significant ability to raise funds and awareness in the Succulent Karoo. WWF-South Africa manages the **Leslie Hill Succulent Trust**, purchasing land to expand protected areas in the Succulent Karoo. Over the last five years, it has invested in the creation and expansion of Namaqua National Park, Tanqua Karoo National Park, and the Anysberg and Groenefontein provincial reserves. Another significant NGO in the region is the **Botanical Society of South Africa (BOTSOC).** BOTSOC has more than 25,000 individual members and actively promotes conservation, cultivation, study and wise use of the indigenous flora and vegetation of southern Africa. BOTSOC's Cape Conservation Unit plays an important role in conservation of the hotspot and its activities include advocacy, planning and research. With strong links to scientific expertise on Succulent Karoo flora and fauna, the Conservation Unit coordinated the biodiversity component of SKEP. Founded in 1927, the **Wildlife and Environment Society of South Africa** is one of the oldest environmental NGOs in South Africa. In the Succulent Karoo, it is particularly active in the Southern Karoo sub-region where it works through volunteer groups to raise awareness and involve the public in environmental and conservation issues. **The Environmental Monitoring Group** is an NGO that has offices in Cape Town and Nieuwoudtville. The group is involved in several projects related to conservation in the Succulent Karoo, including policy advising to South Africa's National Programme to Combat Desertification and a community development program involving the sustainable production and marketing of organic rooibos tea in the Southern Bokkeveld area. Two other NGOs, the **Surplus Peoples Project** and the **Legal Resources Centre** assist landless, dispossessed and homeless communities to solicit and obtain land rights and housing. As land tenure is a crucial first step in developing conservation practices, the

efforts of these groups to support the transformation process in Namaqualand will be supported by CEPF.

Namibia is a large country with a relatively small population of 1.8 million people. As a result, it has relatively few conservation bodies in general and given the fact that the majority of the Succulent Karoo in Namibia has been off-limits to the public for nearly a century (90% of the Succulent Karoo in the country lies within the Sperrgebeit Diamond Concession), few organizations are active in this area of the country. However, the **Namibian Development Trust**, the **Desert Research Foundation** and the **Namibia Nature Foundation** are involved in wide range of projects in the Succulent Karoo region of the country, focusing on public awareness, capacity building, conservancy establishment, erosion control and research on the unique flora and fauna of the region. Other Namibian organizations, such as the **Wildlife Society of Namibia,** also have environmental outreach programs.

Agricultural Unions: There are several farmers associations under the agricultural unions present in the Succulent Karoo. They operate as subdepartments of the Department of Agriculture, endeavoring to establish agriculture as a sustainable land use and maintain biodiversity with the emphasis on soil conservation. Several of the agricultural unions were active participants in the information gathering and action-planning phases of SKEP. As the primary land users in the hotspot, building awareness about biodiversity and offering incentives for conservation through these groups will have a tremendous impact.

Conservancies: These are established by voluntary agreements between two or more landowners to manage the environment. Conservation objectives are achieved by cooperation and commitment to the conservation of the environment on private property. Through cooperation between the farming community and conservation authorities this concept has grown into a national conservation movement.

- Communal Private Farmer's initiatives
- Nababiep Nature Reserve

Community Groups: Many community-based initiatives headed up by individuals within the local community exist, including:

- Griqua National Council (Namibia)
- Papendorp/Ebenaeser Community Trust
- Onse Ground Aksie Group
- The Ladismith Action Group
- The Montagu Action Group
- The Community Property Association
- The communally owned Moravian settlement of Wupperthal
- The Youth Forum
- Communal Private Farmer's initiatives
- Farmers Associations

- South North Tourism Route Association: There is an emerging community-based tourism initiative that operates on the principles of sustainable, responsible and equitable tourism.

Private Sector Forums: Existing forum for industries having a large impact on biodiversity are important mechanisms for integrating biodiversity concerns into their practices. Numerous associations in target sectors of mining, wine, fruit, ostrich, and tourism exist in the Succulent Karoo. Linkages and cooperation between various governmental and parastatal organizations as well as conservancies can be addressed through these forums and SKEP has identified opportunities for influencing these associations as a high priority and high-impact activity. An example of how these forums can be used to contribute to biodiversity conservation comes from the ostrich industry.

CEPF NICHE FOR INVESTMENT IN THE REGION

As originally intended, CEPF preparation funding in the Succulent Karoo has developed a set of priority areas and actions for conservation and sustainable development. These priorities enjoy broad consensus and support as a result of the participatory approach used to identify them and these priorities now form a solid foundation for addressing biodiversity issues. However, to ensure that the Succulent Karoo is conserved and that the SKEP 20-year vision and targets are achieved, it is important to focus the initial CEPF investment on areas and actions that will catalyze the greatest impact now and in the long term. The specific niche for CEPF in the Succulent Karoo hotspot is to catalyze key activities in under-funded geographic priority areas using innovative mechanisms to achieve biodiversity conservation by involving specific land users such as the agriculture sector, mining companies and communal authorities.

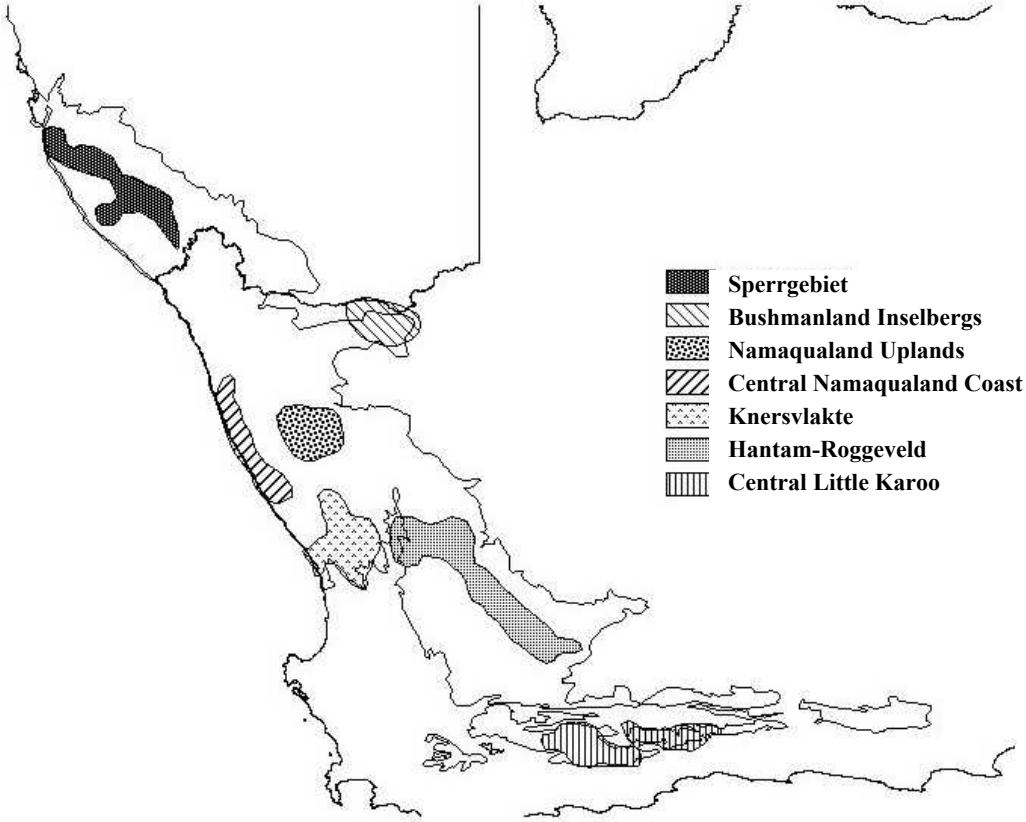
CEPF Geographic Priorities

Nine geographic priority areas were identified as a result of the SKEP process (see map on page 7). A full summary of the methodology for defining conservation targets and additional information on how these geographic priorities were determined can be found in the SKEP subregional and technical reports.

There is great synergy between the geographic priorities identified by the SKEP process and Important Bird Areas as defined by BirdLife International. BirdLife uses birds as the primary indicators and an international set of agreed criteria had previously selected seven Important Bird Areas that coincide with six of the nine geographic areas identified by the SKEP process as priorities for conservation. These are the Central Namaqualand Coast (SA099 Olifants River Estuary), Knersvlakte (SA 104 Lower Berg River Wetlands), Greater Richtersveld (SA 030 Orange River Mouth Wetlands), Central Little Karoo (SA 106 Swartberg Mountains & SA 108 Anysberg Nature Reserve), Bushmanland Inselbergs (SA035 Haramoep & Blackmountain Mine Nature Reserve) and Hantam-Roggeveld (SA 101 Cedarberg-Koue Bokkeveld Complex). The Important Bird Areas selected for South Africa form the basis of BirdLife South Africa's national and site-specific conservation action, advocacy and monitoring programs.

In developing this profile, CEPF determined that two of the nine areas identified as priorities for conservation by the SKEP process—the Greater Richtersveld and the Worcester-Robertson Karoo—have substantial existing investment. Therefore, while CEPF small grants will be available to increase civil society conservation projects in these two areas, the other seven geographic areas listed below from north to south and highlighted in Figure 3 will be the primary focus of CEPF investment.

Figure 3: Priority areas for CEPF investment in the Succulent Karoo hotspot.



1. Sperrgebiet

Sperrgebiet encompasses nearly all of the Succulent Karoo vegetation extant in Namibia and is the only area of the hotspot that could be considered a wilderness area. Since the area has been held as a mining concession for the last century, it has been strictly off-limits to the public, including scientists, for much of the last century. Large tracts of unspoiled dune and mountain landscapes typify the area, and the stark landscapes hide an unknown number of biodiversity gems. The few scientific studies that have been carried out in the 56,100-hectare area generated records for 776 plant species, including 234 endemics and 284 Red Data List taxa. In addition to the high concentration of endemic plants, amphibians and reptiles, wild populations of gemsbok, springbok and carnivores such as brown hyena live in this undisturbed environment. In fact, this unique wilderness

area boasts the highest levels of biodiversity in all of Namibia. Although mining has been the savior of the Sperrgibiet to date, exploration for new mineral riches beyond the already transformed coastal zones is a major land use pressure and periodic use of the eastern grasslands of the Sperrgebiet as "emergency grazing" are also a concern for conservation of this fragile landscape. Fortunately, establishment by the Namibian authorities of a Sperrgebiet National Park is well advanced. CI's Global Conservation Fund is supporting a scoping initiative to refine management zoning within the Sperrgebiet and design an implementation strategy for securing long-term protection for this unique wilderness area.

2. Bushmanland Inselbergs

The Bushmanland Inselbergs area is located on the northeast margin of the Succulent Karoo hotspot, just south of the Orange River and the border between Namibia and South Africa. The area is dominated by a plain of desert grasslands and peppered by inselbergs, ancient rocky outcrops in irregular patterns, throughout the landscape. These inselbergs are important refugia for plants and animals and act as stepping-stones for rock-loving species migrating east west across the sand-covered plains of Bushmanland. Isolation of populations has led to diversification within the dwarf succulent shrublands. In total, the 31,400-hectare area includes 429 plant species, of which 67 are found only in this hotspot and 87 are Red List species. Mining has impacted many of the inselbergs, and a proposed opencast zinc mine may impact on most of the spectacularly diverse Gamsberg inselberg which is home to two flagship endemics: *Conophytum ratum* and *Lithops dorotheae.* The red lark (*Certhilauda albescens*) is also an important endemic species to this part of the Bushmanland plateau, although severe overgrazing on communal lands in this region is impacting its habitat. One Important Bird Area (IBA), SA035 Haramoep & Blackmountain Mine Nature Reserve, is located in this priority geographic area and contains populations of the red lark.

3. Namaqualand Uplands

The Namaqualand Uplands encompass the highlands of central Namaqualand in the Northern Cape Province. The area is known for its spectacular displays of spring flowers and high diversity and endemism of bulbous flowers. The 33,500-hectare area includes 1109 species, of which 286 are Succulent Karoo endemics and 107 are Red List species. In addition to its diversity, the region contains large zones of transitional vegetation between succulent and *fynbos* habitats. These zones are considered crucial for conservation by experts for both species diversification and resilience to climate change. Conserving this area will provide an important corridor between the Namaqualand National Park and the Central Namaqualand coast priority area (see 4 below). Agriculture, mainly grain production, has already transformed all areas of level terrain and overgrazing by livestock, especially on communal lands, is a significant land-use pressure on this area.

4. Central Namaqualand coast

The Central Namaqualand coast incorporates a crucial tract of relatively pristine Namaqualand coastline. As a result of diamond mining and tourism development, much of this coastline has been transformed. However, again as the result of strict access

control, this approximately 30-kilometer-wide stretch of coastline is relatively pristine. The 34,600-hectare area includes 432 plant species, 85 of which are Succulent Karoo endemics and 44 of which are Red List species. Flagship species include locally dominant succulent endemics such as *Wooleya farinosa*, Grant's golden mole (*Eremitalpa granti)* and Gronovi's dwarf burrowing skink (*Scelotes gronovii*). One IBA, SA099 Olifants River Estuary, is located in this priority geographic area. Although the IBA is primarily aimed at protecting a wetland habitat it also contains significant amounts of Succulent Karoo habitat.

5. Knersvlakte

The Knersvlate is defined as the extensive dry plain located in the center of the Succulent Karoo hotspot bounded on the east by the Bokkeveld Mountains. The area is typified by gently rolling hills covered by "fields" of white quartz pebbles and saline soils. The 48,500-hectare area is extremely rich in plant species, with a total of 1,324 species, 266 of which are Succulent Karoo endemics. Within the hotspot, this priority area has the greatest percentage of threatened endemics with 128 species being listed on the Red List. Small-scale mining for gypsum, diamonds and limestone/marble, overgrazing and the illegal harvesting of rare and spectacular species for national and foreign plant collections are the greatest pressures in this area. One IBA, SA 104 Lower Berg River Wetlands, is located in this priority geographic area. Although the IBA is primarily aimed at protecting a wetland habitat it contains sufficient amounts of Succulent Karoo habitat to warrant attention.

6. Hantam-Roggeveld

The Hantam-Roggeveld area is centered on the town of Calvinia and encompasses both the Bokkeveld and Roggeveld escarpments. These rugged slopes and cool highlands include a wide range of species types characteristic of transition zones between the renosterveld-Succulent Karoo interface. As with the Namaqualand Uplands, conserving these cooler areas is an essential strategy for maintaining the unique diversity of the hotspot in the face of global warming. Additionally, due to relatively low levels of transformation in this priority area, there are excellent opportunities to include upland-lowland seasonal migration routes for fauna (especially springbok) as well as viable populations of black rhinoceros. The total plant species in this 86,600-hectare area is 1,767, of which 357 are Succulent Karoo endemics and 173 are Red List species. One IBA, SA 101 Cedarberg-Koue Bokkeveld Complex, is located in this area and contains components of both the Cape Floristic Region and Succulent Karoo hotspots.

7. Central Little Karoo

The Central Little Karoo area of the Succulent Karoo hotspot lies in the intermontane valley between the Langeberg and Swartberg mountain ranges at the southern extension of the hotspot. The area consists of a wide range of microhabitats across extensive plains arid foothills and rugged rocky ridges and experiences extreme seasonal and diurnal temperature fluctuations (up to 28 degrees Celsius difference between day and night). In total, there are 1,325 species in this 51,000-hectare area, including 182 Succulent Karoo endemics and 92 Red List species. Although unique and rare species are found throughout the Central Little Karoo landscape, many of the endemics are concentrated

along veins of weathered quartz, which creates patches of white pebbles that provide camouflage and moderate the temperature for the "stone plants." Much of the vegetation in the important river corridors has already been transformed for agriculture, principally lucerne but also vines and deciduous fruit. However, it is ostrich ranching that, as a result of ostriches' amazing ability to live off even the driest veld, is the greatest pressure on biodiversity in this priority area. Two IBAs—SA 106 Swartberg Mountains and SA 108 Anysberg Nature Reserve—are located in this priority area. The former contains components of both the Cape Floristic Region and Succulent Karoo hotspots.

CEPF INVESTMENT STRATEGY AND PROGRAM FOCUS

SKEP identified a comprehensive conservation program and action plan to achieve its vision and strategic objectives. Clearly, not all of these strategic objectives and their associated funding directions are appropriate for CEPF support. The CEPF funding niche for the hotspot is characterized by strategic funding opportunities that cannot readily be filled by other funding agencies and which will be incremental steps towards achieving the larger SKEP 20-year vision.

The specific niche for CEPF in the Succulent Karoo hotspot is to catalyze key activities in under-funded geographic priority areas using innovative mechanisms to achieve biodiversity conservation by involving specific land users such as the agricultural sector, mining companies and communal authorities.

The following table summarizes the strategic funding directions for CEPF.

Strategic Funding Directions	**Investment Priorities**
1. Expand protected area corridors through public-private-communal partnerships in the priority areas of Bushmanland Inselbergs, Central Namaqualand Coast, Namaqualand Uplands, Knersvlakte, Hantam-Roggeveld, Central Little Karoo and Sperrgebiet	1.1 Establish catalyst teams responsible for mobilizing local stakeholder participation; securing necessary political support; consolidating baseline information on biodiversity for long-term monitoring; developing management plans that formalize roles of each partner; and creating strategies for long-term financial sustainability
2. Engage key industrial sectors in meeting conservation objectives identified by SKEP	2.1 Promote best practices in the ostrich industry through pilot projects, policy recommendations and marketing options 2.2 Support mining forums of corporate and small-scale mining enterprises to discuss and develop mechanisms for addressing biodiversity concerns 2.3 Direct corporate investment into conservation projects that contribute to conservation targets and regional development objectives

	2.4 Assist landowners in the development of ecotourism and natural resource-based enterprises that protect biodiversity
3. Retain and restore critical biodiversity in areas under greatest land-use pressure	3.1 Conduct a rapid assessment to map grazing impacts in all geographic priority areas 3.2 Develop fine-scale conservation and monitoring plans for priority areas under greatest land use pressure where the impact of biodiversity conservation will be the most significant 3.3 Refine the conservation targets and establish a monitoring system for the targets and outcomes. 3.4 Investigate mechanisms, such as direct payment and others, that will enable the creation of small conservation areas in priority areas under high land use pressures 3.5 Synthesize research on best grazing practices and implement outreach programs based on findings
4. Mainstream conservation priorities into land-use planning and policy-making	4.1 Interpret conservation plans and design suitable products for municipal planners and other land-use decision making agencies 4.2 Increase the capacity of agencies to use these products to integrate biodiversity concerns into their operations and policies
5. Increase awareness of the Succulent Karoo hotspot	5.1 Increase awareness of the Succulent hotspot and its unique biodiversity among local, subregional and national constituencies through a binational awareness campaign 5.2 Support efforts to publicize the biological importance of the Succulent Karoo hotspot 5.3 Support projects that educate stakeholders about threatened and unique species in the hotspot
6. Create the capacity to catalyze the SKEP program	6.1 Support a small network of locally based champions that will represent biodiversity concerns at a subregional level and assist with the identification, monitoring and mentoring of small-scale conservation projects 6.2 Establish a small grants program aimed at promoting small-scale development of

	biodiversity-based livelihood projects 6.3 Establish a coordination unit to lead implementation of the SKEP program, including providing technical assistance to launch components of the strategy, rapidly reviewing potential CEPF projects and leveraging additional resources to ensure long-term financial sustainability

Expand protected area corridors through public-private-communal partnerships in specific geographic priorities

This funding direction is aimed at undertaking specific catalytic activities that will assist in the expansion of the Succulent Karoo hotspot's protected area system through the establishment of five large conservation corridors (or megareserves). When implemented, these corridors should be sufficiently large to achieve conservation targets for numerous Red List species and many vegetation types. In addition, they should be able to accommodate a wide range of processes, including large mammal migration routes, riverine corridors and climatic gradients. The incorporation of the last-mentioned feature should provide resilience to climate change.

A major obstacle to implementing projects of this scale is a lack of capacity among conservation agencies. Consequently, CEPF's niche within the larger objective is to establish project management teams which can catalyze planning and specific implementation of key activities that will build the momentum required to eventually establish five large conservation corridors. These teams, appointed under the auspices of an appropriate nongovernmental organization, should work in close partnership with the appropriate conservation agency and provide mentorship for officials of the agency that will ultimately inherit the project. These teams that will include individuals with project management, community extension, and conservation planning expertise will develop strategies for creating new protected areas that enjoy support and generate benefits for a broad range of stakeholders. These teams, will be responsible for securing local stakeholder participation, necessary political buy-in, consolidating baseline information on biodiversity for long-term monitoring, developing management plans that formalize roles of each partner, and creating strategies for long-term financial sustainability. Such a model is being piloted for the Baviaanskloof megareserve in the Cape Floristic Region, where the provincial conservation agency has provided substantive co-funding.

Wherever possible, these projects should build on and be integrated with existing projects in and around the respective priority areas. For example, the potential synergies between the Cederberg and Gouritz megareserves (being implemented as part of the Cape Action Plan for the Environment) and the Hantam-Roggeveld and Central Little Karoo megareserves, respectively, should be expanded.

Engage key industrial sectors in meeting conservation objectives identified by SKEP

Many potential partnerships exist between the conservation community and key industrial sectors in the Succulent Karoo hotspot that could lead to positive conservation outcomes. This funding direction will target these sectors by building relationships with key stakeholders and exposing them to opportunities for enhancing their business interests while simultaneously meeting conservation objectives. These include industries based on resources that constitute high opportunity costs for conservation (e.g. mining, ostrich ranching) as well as those whose objectives are potentially aligned with conservation (e.g. ecotourism, wildlife ranching).

Retain and restore critical biodiversity in areas under greatest land use pressure

The achievement of conservation targets in landscapes subject to severe land use pressures, where extant habitat is often fragmented, is a huge challenge for conservation. This funding direction will address this challenge through the identification of spatial priorities at the fine-scale (1:10,000 – 1:50,000) and the investigation of mechanisms to create small reserves and reduce pressures on the unreserved remnants.

Mainstream conservation planning outcomes in land-use planning and decision-making

In both Namibia and South Africa, decisions regarding land use have been devolved to local or district municipalities. These municipalities are legally bound to prepare spatial plans and associated development priorities for investment every five years. Local government legislation requires these plans to incorporate biodiversity concerns. This legislation provides an excellent opportunity to mainstream biodiversity concerns into land use planning and practice. Unfortunately, most local government agencies in the Succulent Karoo hotspot do not have the capacity to produce the appropriate information on biodiversity as well as the ability to use such information, even if it were provided. This strategic funding direction is aimed at providing the appropriate biodiversity products for municipal-level planning and increasing the capacity of officials to use these products. The associated projects should draw on the experience gained from similar exercises in the Cape Floristic Region and the Subtropical Ecosystem Planning Project planning domain. The intention should be to build core capacity for generating and updating products, and for providing training within the provincial conservation agency of the Northern Cape as well as within the Conservation Planning Unit of the Western Cape Nature Conservation Board.

Increase awareness of the Succulent Karoo hotspot

Unlike the adjacent Cape Floristic Region hotspot, where the "fynbos" and "Cape Floral Kingdom" names are widely known, awareness of the Succulent Karoo's unique biodiversity status is relatively poorly developed at the local, regional and national levels. This funding direction will meet the urgent need to promote awareness of the hotspot from local to national scales, through support to projects such as a well-coordinated binational awareness campaign. Within this strategic direction, CEPF will

also support efforts to publicize the biological importance of the Succulent Karoo hotspot and educate stakeholders about threatened and unique species from the Succulent Karoo as flagship species.

Create capacity to catalyze the SKEP program

Effective identification and implementation of projects consistent with CEPF investment priorities and the larger 20-year SKEP vision will require a proactive approach to catalyzing targeted activities that will build the momentum required to conserve the Succulent Karoo hotspot. These include the establishment of a small grants fund and a network of champions to identify, mentor and monitor small-scale projects, which can be undertaken at a local scale and involve largely, but not exclusively, disadvantaged communities. Champion teams may also become involved in larger projects occurring within their subregions and will hopefully participate in or influence local government deliberations that deal with biodiversity concerns.

This funding direction will also establish a coordination unit for implementing SKEP, including the CEPF investment priorities identified above. As per agreed policy, this unit will be incorporated into the Bioregional Planning Unit of South Africa's National Botanical Institute (soon to become the National Biodiversity Institute).

CONCLUSION

The Succulent Karoo is one of the biological wonders of the world, with unrivaled levels of diversity and endemism for an arid area. The increasing threats to this unique region have compelled significant global, national and local commitment to a comprehensive plan for its conservation: the Succulent Karoo Ecosystem Plan. CEPF provides a source of funding in the Succulent Karoo designed to reach NGOs in a way that complements funding for government agencies and other stakeholders; supports the framework established by SKEP; ensures that civil society has an opportunity to contribute to conservation; and provides a flexible, responsive funding mechanism for innovative conservation activities. By aligning its focus with the conservation and sustainable development goals of SKEP, CEPF will augment efforts to address immediate threats and contribute to long-term conservation in the hotspot, developing a model of sustainable regional conservation efforts that could be replicated in other arid regions facing similar pressures and in other biodiversity hotspots around the world.

The momentum generated by the stakeholder process for developing this profile and existing capacity in the region provides an exciting opportunity for CEPF to support priority actions within the SKEP framework that will secure areas for conservation, build the capacity for a programmatic approach and conserve the Succulent Karoo's biodiversity in perpetuity.

APPENDIXES

Appendix 1. **Vegetation types in the Succulent Karoo hotspot, with targets**

Appendix 1 shows the overall area targets and how they relate to the amount of each vegetation type that is already transformed. This table shows which vegetation types are represented in the nine SKEP geographic priorities. It also shows those vegetation types still not represented in any of the priority areas as the column "Geographic Priority" is blank (e.g. Hottentots Bay Rock Outcrops) and which are being represented in several (e.g. Namaqualand Klipkoppe Flats, which is found in both the Greater Richtersveld and the Namaqualand Uplands Priority Areas). Appendix 2 then provides much more detailed analysis of how much of each of the vegetation targets represented are met by an individual priority region (e.g. by conserving the Namaqualand Uplands Priority region you will be protecting 46 percent of the area target still required, not already under protection. Alternatively, if you secure the entire Greater Richtersveld priority area, 102,500 hectares of the Namaqualand Klipkoppe Flats will be conserved and your conservation target will be achieved. Overlaps in representation by the various priority regions were included to provide buffers by large scale changes anticipated from climate change. This detailed information provides a baseline for measuring conservation success and can be modified as transformation or new locations of important species are identified. The complete database will be evaluated and updated as part of the larger SKEP monitoring and evaluation program.

Vegetation Group	Vegetation types within the Succulent Karoo Biome	Total area (ha)	Target*		Transformed**		Conserved in cat 1 reserves		Target met in cat 1 reserves	Required to meet target		Geographic priority area(s)
			ha	%	Ha	%	ha	%	%	ha	% of avail	
Lowland Succulent Karoo	Central Knersvlakte Lowland Succulent Karoo	16 753	5 864	35	115	1	0	0	0	5864	35	Knersvlakte
	Central Little Karoo	68 846	24 096	35	7173	10	0	0	0	24096	39	Central Little Karoo
	Eastern Little Karoo	24 500	8 575	35	2305	9	36	0	0	8539	38	Central Little Karoo
	Grillenthal Coastal Inselbergs & Gravel Plains	103 421	36 197	35	0	0	5513	5	15	30685	30	Sperrgebiet
	Hottentots Bay Rock Outcrops & Gravel Plains	12 467	4 363	35	0	0	0	0	0	4363	35	
	Knersvlakte Dolorites	2 639	1 055	40	82	3	0	0	0	1055	41	Knersvlakte
	Knersvlakte Shales	83 414	29 195	35	574	1	0	0	0	29195	35	Bokkeveld-H-R; Knersvlakte
	Luderitz-Pomona Rock Outcrops & Gravel Pl.	179 443	62 805	35	279	0	41	0	0	62764	35	Sperrgebiet
	Namaqualand Klipkoppe Flats	302 920	106 022	35	19133	6	3522	1	3	102500	36	Greater R'veld; Namaq Uplands

Vegetation Group	Vegetation types within the Succulent Karoo Biome	Total area (ha)	Target*		Transformed**		Conserved in cat 1 reserves		Target met in cat 1 reserves	Required to meet target		Geographic priority area(s)
			ha	%	Ha	%	ha	%	%	ha	% of avail	
	Namaqualand Lowland Succulent Karoo	226 120	79 142	35	13969	6	20392	9	26	58750	28	Central Namaq Coast; Greater R'veld; Namaq Uplands
	Northern Knersvlakte Lowland Succ. Karoo	143 953	50 384	35	73	0	0	0	0	50384	35	Knersvlakte
	Northern Richtersveld Lowland Succ. Karoo	23 955	8 384	35	0	0	0	0	0	8384	35	Greater R'veld
	Prince Albert Succulent Karoo	223 061	44 612	20	2142	1	319	0	1	44293	20	
	Robertson Karoo	61 257	24 503	40	20727	34	152	0	1	24351	60	Central BR Valley
	Southeastern Richtersveld Desert	62 527	21 884	35	11	0	0	0	0	21884	35	Greater R'veld
	Southeastern Richtersveld Succulent Karoo	52 147	18 251	35	16	0	0	0	0	18251	35	Greater R'veld
	Southern Knersvlakte Lowland Succ. Karoo	98 952	34 633	35	16910	17	0	0	0	34633	42	Knersvlakte
	Southern Richtersveld Lowland Succ. Karoo	72 296	25 303	35	0	0	0	0	0	25303	35	Greater R'veld
	Southern Tanqua Karoo	125 141	43 799	35	434	0	0	0	0	43799	35	Bokkeveld-H-R
	Springbokvlakte East Gariep Desert Plains	9 677	3 387	35	2020	21	0	0	0	3387	44	Greater R'veld
	Steytlerville Karoo	16 167	3 233	20	9	0	0	0	0	3233	20	
	Stinkfonteinberge Lowland Succulent Karoo	4 552	1 593	35	4	0	0	0	0	1593	35	Greater R'veld
	Tanqua Karoo	595 871	208 555	35	5786	1	45224	8	22	163331	28	Bokkeveld-H-R
	Tanqua Sheet Wash Plains	162 805	56 982	35	6169	4	18597	11	33	38385	25	Bokkeveld-H-R
	Upper Annisvlakte Succulent Karoo	19 180	6 713	35	265	1	0	0	0	6713	35	Greater R'veld
	Vanwyksdorp Gwarrieveld	73 353	25 674	35	1164	2	9	0	0	25665	36	Central Little Karoo
	West Gariep Lowlands	46 028	16 110	35	2912	6	0	0	0	16110	37	Greater R'veld
	Western Little Karoo	335 057	117 270	35	31330	9	19126	6	16	98144	32	Central Little Karoo
Mountain Succulent Karoo	Agter-Sederberg Succulent Karoo	221 903	77 666	35	4305	2	1752	1	2	75914	35	Bokkeveld-H-R; Knersvlakte
	Aughrabies Mountain Succulent Karoo	7 968	2 789	35	0	0	0	0	0	2789	35	Greater R'veld
	Aurusberg Succulent Karoo	15 925	5 574	35	0	0	0	0	0	5574	35	Sperrgebiet
	Boegoeberg Succulent Karoo	37 069	12 974	35	954	3	0	0	0	12974	36	Sperrgebiet
	Central Richtersveld Succulent Karoo	100 381	40 153	40	82	0	0	0	0	40153	40	Greater R'veld
	Die Plate Succulent Karoo	12 756	4 465	35	0	0	0	0	0	4465	35	Greater R'veld
	Doring River Succulent Karoo	21 889	7 661	35	5109	23	0	0	0	7661	46	Knersvlakte

Vegetation Group	Vegetation types within the Succulent Karoo Biome	Total area (ha)	Target*		Transformed**		Conserved in cat 1 reserves		Target met in cat 1 reserves	Required to meet target		Geographic priority area(s)
			ha	%	Ha	%	ha	%	%	ha	% of avail	
	Eenriet Quartzite Succulent Karoo	11 132	3 896	35	0	0	0	0	0	3896	35	Greater R'veld
	Fish River Mountain Succulent Karoo	5 621	1 967	35	0	0	5544	99	282	0	0	Greater R'veld
	Goariep Mountain Succulent Karoo	17 077	5 977	35	0	0	0	0	0	5977	35	Greater R'veld
	Harras Quartzite Succulent Karoo	17 810	6 233	35	0	0	0	0	0	6233	35	Greater R'veld
	Klinghardberg Succulent Karoo	23 464	8 213	35	0	0	0	0	0	8213	35	Sperrgebiet
	Koingnaas Quartzite Succulent Karoo	22 440	7 854	35	271	1	0	0	0	7854	35	Greater R'veld
	Nababiepsberge Desert	137 903	48 266	35	3228	2	706	1	1	47560	35	Greater R'veld
	Namaqualand Klipkoppe	797 444	398 722	50	42993	5	23489	3	6	375233	50	Central Namaq Coast; Greater R'veld; Knersvlakte; Namaq Uplands
	Namus Mountain Succulent Karoo	47 622	16 668	35	0	0	16540	35	99	128	0	Greater R'veld
	Naroegas Quartzite Succulent Karoo	26 694	9 343	35	0	0	0	0	0	9343	35	Greater R'veld
	Noams Mountain Desert	171 470	60 014	35	7427	4	116992	68	195	0	0	Greater R'veld
	Nuwerus Quartzite Succulent Karoo	63 877	22 357	35	1024	2	0	0	0	22357	36	Central Namaq Coast; Knersvlakte
	Richtersberg Mountain Desert	51 912	18 169	35	1331	3	182	0	1	17987	36	Greater R'veld
	Richtersveld S-Western Foothills Succ. Karoo	33 109	11 588	35	5569	17	0	0	0	11588	42	Greater R'veld
	Richtersveld Western Foothills Succ. Karoo	11 129	3 895	35	0	0	0	0	0	3895	35	Greater R'veld
	Rooiberg Quartzite Succulent Karoo	16 585	5 805	35	124	1	1200	7	21	4605	28	Knersvlakte
	Rosh Pinah Mountain Succulent Karoo	91 442	32 005	35	2097	2	26376	29	82	5629	6	Greater R'veld; Sperrgebiet
	Rosyntjieberge Succulent Karoo	5 995	2 098	35	0	0	0	0	0	2098	35	Greater R'veld
	Southeastern Richtersveld Quartzites	60 050	21 017	35	170	0	0	0	0	21017	35	Greater R'veld
	Southern Richtersveld Inselbergs	12 867	4 503	35	59	0	0	0	0	4503	35	Greater R'veld
	Southern Tanqua Mountain Succulent Karoo	205 015	82 006	40	141	0	0	0	0	82006	40	Bokkeveld-H-R
	S-Western Richtersveld Mountain Succ. Karoo	15 810	5 534	35	0	0	0	0	0	5534	35	Greater R'veld
	Springbok Quartzite Succulent Karoo	22 253	7 789	35	8	0	0	0	0	7789	35	Greater R'veld
	Swartruggens Sandstone Karoo	60 032	21 011	35	950	2	2984	5	14	18027	31	
	Umdaus Quartzite Succulent Karoo	40 166	14 058	35	0	0	0	0	0	14058	35	Greater R'veld

Vegetation Group	Vegetation types within the Succulent Karoo Biome	Total area (ha)	Target*		Transformed**		Conserved in cat 1 reserves		Target met in cat 1 reserves	Required to meet target		Geographic priority area(s)
			ha	%	Ha	%	ha	%	%	ha	% of avail	
	West Gariep Desert	142 850	49 997	35	26701	19	12737	9	25	37260	32	Greater R'veld; Sperrgebiet
Quartz & Gravel Patch Succulent Karoo	Alexander Bay Gravel Patches	26 341	9 219	35	11652	44	0	0	0	9219	63	Greater R'veld
	Anysberg Quartz Patches	26 526	9 284	35	181	1	15636	59	168	0	0	Central Little Karoo
	Buffels River Quartz & Gravel Patches	15 686	5 490	35	1196	8	0	0	0	5490	38	Greater R'veld
	Calitzdorp Quartz Patches	10 390	3 636	35	936	9	1596	15	44	2041	22	Central Little Karoo
	Concordia Quartz Patches	832	291	35	0	0	0	0	0	291	35	Greater R'veld
	Eastern Bushmanland Quartz & Gravel Patches	165 586	57 955	35	13592	8	0	0	0	57955	38	Bushmanland Inselbergs
	Eastern Richtersveld Quartz Patches	24	8	35	0	0	0	0	0	8	35	Greater R'veld
	Gamoep Quartz & Gravel Patches	55 217	19 326	35	0	0	0	0	0	19326	35	
	Kamma River Quartz Patches	8 610	3 013	35	0	0	0	0	0	3013	35	Greater R'veld
	Kliprand Gravel Patches	117 533	41 136	35	0	0	0	0	0	41136	35	
	Knersvlakte Quartzfields	122 376	48 950	40	1198	1	5104	4	10	43846	36	Knersvlakte
	Koekenaap Quartz Patches	1 597	639	40	51	3	0	0	0	639	41	Knersvlakte
	Komkans Quartz Patches	27 295	9 553	35	65	0	0	0	0	9553	35	
	Kotzerus Quartz Patches	4 303	1 506	35	0	0	0	0	0	1506	35	Central Namaq Coast
	Langeberg Quartz Patches	23 799	8 330	35	1275	5	0	0	0	8330	37	Central Little Karoo
	Lekkersing Quartz Patches	53 675	18 786	35	273	1	0	0	0	18786	35	Greater R'veld
	Loeriesfontein Gravel Patches	56 944	19 931	35	0	0	0	0	0	19931	35	
	Moreskadu Quartz Patches	8 372	2 930	35	0	0	0	0	0	2930	35	
	Oernoep River Quartz Patches	22 643	9 057	40	0	0	0	0	0	9057	40	Greater R'veld
	Olifants River Quartz Patches	21 546	8 618	40	11335	53	0	0	0	8618	84	Knersvlakte
	Oudtshoorn Quartz Patches	10 972	3 840	35	628	6	0	0	0	3840	37	Central Little Karoo
	Platbakkies Quartz & Gravel Patches	38 441	13 454	35	117	0	0	0	0	13454	35	Namaq Uplands
	Remhoogte Quartz Patches	3 336	1 168	35	201	6	0	0	0	1168	37	Knersvlakte
	Riethuis Quartzfields	23 257	9 303	40	0	0	8116	35	87	1187	5	Central Namaq Coast
	Steytlerville River Terraces	32 383	11 334	35	154	0	0	0	0	11334	35	
	Troe-Troe River Quartz Patches	5 018	1 756	35	3	0	0	0	0	1756	35	Knersvlakte

Vegetation Group	Vegetation types within the Succulent Karoo Biome	Total area (ha)	Target*		Transformed**		Conserved in cat 1 reserves		Target met in cat 1 reserves	Required to meet target		Geographic priority area(s)
			ha	%	Ha	%	ha	%	%	ha	% of avail	
	Vanwyksdorp Quartz Patches	20 919	7 322	35	1039	5	0	0	0	7322	37	Central Little Karoo
	Warmwaterberg Quartz Patches	39 956	13 984	35	2484	6	0	0	0	13984	37	Central Little Karoo
	West Gariep Gravel Plains	3 909	1 368	35	0	0	0	0	0	1368	35	Greater R'veld
	Western Bushmanland Quartz & Gravel Patches	25 632	8 971	35	0	0	0	0	0	8971	35	
Sandveld	Namaqualand Red Sand Plains	351 439	123 003	35	31964	9	246	0	0	122757	38	Central Namaq Coast; Greater R'veld; Knersvlakte
	Namaqualand Sandveld Dunes	34 706	12 147	35	137	0	0	0	0	12147	35	Central Namaq Coast
	Namib Coastal Red Dunes	171 363	59 977	35	6	0	10186	6	17	49791	29	Greater R'veld; Sperrgebiet
	Namib Northern Sandy Plains	228 869	80 104	35	0	0	0	0	0	80104	35	Sperrgebiet
	Namib Red Sandy Plains	190 622	66 718	35	2	0	0	0	0	66718	35	Greater R'veld; Sperrgebiet
	Namib Southern Sandy Plains	85 608	29 963	35	3405	4	2454	3	8	27508	33	Greater R'veld; Sperrgebiet
	Northern Richtersveld Yellow Dunes	54 675	19 136	35	7757	14	0	0	0	19136	41	Greater R'veld
	Richtersveld Red Dunes	30 805	10 782	35	0	0	0	0	0	10782	35	Greater R'veld
	Southern Richtersveld Red Dunes	22 483	7 869	35	89	0	0	0	0	7869	35	Greater R'veld
	Southern Richtersveld Yellow Dunes	33 343	11 670	35	13303	40	0	0	0	11670	58	Greater R'veld
	Southern Richtersveld Yellow-Loam Dunes	27 958	9 785	35	3127	11	0	0	0	9785	39	Greater R'veld
Strandveld	Lamberts Bay Strandveld	38 063	13 322	35	8107	21	0	0	0	13322	44	Knersvlakte
	Namaqualand Coastal Dunes	82 130	28 745	35	38579	47	0	0	0	28745	66	Central Namaq Coast; Greater R'veld
	Namaqualand Northern Strandveld	176	61	35	115	65	0	0	0	61	100	Greater R'veld
	Namaqualand Pans	7 068	2 121	30	0	0	0	0	0	2121	30	Central Namaq Coast
	Namaqualand Southern Strandveld	10 292	3 602	35	984	10	0	0	0	3602	39	Central Namaq Coast; Greater R'veld; Knersvlakte
	Namaqualand White Sand Plains	47 875	16 756	35	19021	40	0	0	0	16756	58	Central Namaq Coast; Greater R'veld

Vegetation Group	Vegetation types within the Succulent Karoo Biome	Total area (ha)	Target*		Transformed**		Conserved in cat 1 reserves		Target met in cat 1 reserves	Required to meet target		Geographic priority area(s)
			ha	%	Ha	%	ha	%	%	ha	% of avail	
	Namib Coastal Hummock Dunes	6 848	685	10	5388	79	0	0	0	685	47	Greater R'veld
	Namib Coastal Mobile Dune Strandveld	120 309	42 108	35	3163	3	0	0	0	42108	36	Greater R'veld; Sperrgebiet
	Namib Coastal Strandveld	292 134	102 247	35	11274	4	1521	1	1	100725	36	Greater R'veld; Sperrgebiet
	Namib Inland Mobile Dune Strandveld	60 368	21 129	35	0	0	0	0	0	21129	35	Sperrgebiet
	Namib Inland Strandveld	101 498	35 524	35	0	0	2027	2	6	33497	33	Greater R'veld; Sperrgebiet
	Richtersveld White Dunes	10 938	2 880	35	8052	74	0	0	0	2880	100	Greater R'veld
Upland Succulent Karoo	Hantam Karoo	718 883	251 609	35	25927	4	0	0	0	251609	36	Bokkeveld-H-R
	Laingsburg-Touws Succulent Karoo	254 745	89 161	35	1457	1	789	0	1	88372	35	Bokkeveld-H-R
	Roggeveld Karoo	593 609	207 763	35	10750	2	0	0	0	207763	36	Bokkeveld-H-R
	Ruschia Spinosa Plains	19 109	6 688	35	0	0	0	0	0	6688	35	Greater R'veld
Azonal	Arid Coastal Salt Marshes	3 738	1 308	35	810	22	0	0	0	1308	45	Central Namaq Coast; Greater R'veld; Knersvlakte
	Muscadel Alluvia	36 723	12 853	35	20666	56	0	0	0	12853	80	Central Little Karoo
	Namaqualand Alluvia	56 868	19 904	35	11459	20	0	0	0	19904	44	Bokkeveld-H-R; Knersvlakte
Desert Grass-land	Augrabies Sandveld Grassland	12 330	4 316	35	0	0	0	0	0	4316	35	Greater R'veld
	Namaqualand Arid Grasslands	65 482	22 919	35	2761	4	12184	19	53	10735	17	Central Namaq Coast; Knersvlakte
	Namaqualand Spinescent Grasslands	49 462	17 312	35	1820	4	587	1	3	16725	35	Knersvlakte
Fynbos	Kamiesberg Mountain Fynbos	3 692	1 846	50	94	3	0	0	0	1846	51	Namaq Uplands
	Namaqualand Sand Fynbos	93 696	32 794	35	1973	2	781	1	2	32012	35	Central Namaq Coast; Greater R'veld; Knersvlakte
Renosterveld	Anenous Plateau Renosterveld	17 816	6 236	35	0	0	0	0	0	6236	35	Greater R'veld

Vegetation Group	Vegetation types within the Succulent Karoo Biome	Total area (ha)	Target*		Transformed**		Conserved in cat 1 reserves		Target met in cat 1 reserves	Required to meet target		Geographic priority area(s)
			ha	%	Ha	%	ha	%	%	ha	% of avail	
	Central Mountain Renosterveld	132 678	46 437	35	1516	1	0	0	0	46437	35	Bokkeveld-H-R
	Hantam Plateau Renosterveld	74 958	29 983	40	88	0	0	0	0	29983	40	Bokkeveld-H-R
	Namaqualand Renosterveld	71 447	35 723	50	3830	5	0	0	0	35723	53	Namaq Uplands
	Richtersveld Renosterveld	7 679	2 688	35	1	0	0	0	0	2688	35	Greater R'veld
	Roggeveld Renosterveld	274 116	109 646	40	1820	1	0	0	0	109646	40	Bokkeveld-H-R
	Steinkopf Plateau Renosterveld	13 695	4 793	35	14	0	0	0	0	4793	35	Greater R'veld
Thicket	Kamiesberg Mountain Brokenveld	212 396	106 198	50	9147	4	2894	1	3	103304	51	Namaq Uplands

Appendix 2. Contribution of priority conservation areas to vegetation targets and expert-identified geographic priorities

Geographic priority area	Vegetation types	% outstanding veg type target achieved[1]	Number of expert hotspots in this geographic priority area*, plus selected species-related notes from expert mappers	
1. Sperrgebiet	Rosh Pinah Mountain Succulent Karoo	100	Invertebrates	9
	Klinghardberg Succulent Karoo	100	Reptiles	3
	Aurusberg Succulent Karoo	100	• Many experts noted that this is a poorly surveyed and understudied area, because it has been largely off-limits for the last century • The only place in Namibia where grey rhebuck occurs: an isolated population, implying other isolated, unique or endemic taxa	
	Namib Coastal Red Dunes	100		
	Namib Southern Sandy Plains	100		
	Namib Red Sandy Plains	100		
	Grillenthal Coastal Inselbergs and Gravel Plains	100		
	Namib Inland Strandveld	100		
	Namib Inland Mobile Dune Strandveld	94		
	Luderitz-Pomona Rock Outcrops & Gravel Plains	89		
	Namib Coastal Strandveld	60		
	West Gariep Desert	54		
	Boegoeberg Succulent Karoo	48		
	Namib Coastal Mobile Dune Strandveld	26		
	Namib Northern Sandy Plains	26		
2. Greater Richtersveld	Namus Mountain Succulent Karoo	100	Plants	32
	Rosh Pinah Mountain Succulent Karoo	100	Amphibians	2
	Anenous Plateau Renosterveld	100	Birds	4
	Aughrabies Mountain Succulent Karoo	100	Fish	2
	Augrabies Sandveld Grassland	100	Invertebrates	17
	Concordia Quartz Patches	100	Mammals	1
	Die Plate Succulent Karoo	100	Reptiles	5
	Eastern Richtersveld Quartz Patches	100	• Global distribution of an endemic mole rat • Saltpan breeding site for endangered damara terns • Contact zone for Barlow's/karso lark, also for Cape long-billed lark and Karoo long-billed lark • Contains a number of important breeding sites (natural springs and pools) for endemic amphibians • Recreational development for Oranjemund has already destroyed the type locality and only known place where the Tenebrionid beetle *Calaharena irishi Penrith* occurred	
	Eenriet Quartzite Succulent Karoo	100		
	Goariep Mountain Succulent Karoo	100		
	Harras Quartzite Succulent Karoo	100		
	Kamma River Quartz Patches	100		
	Naroegas Quartzite Succulent Karoo	100		
	Northern Richtersveld Lowland Succulent Karoo	100		

Geographic priority area	Vegetation types	% outstanding veg type target achieved[1]	Number of expert hotspots in this geographic priority area*, plus selected species-related notes from expert mappers
	Richtersveld Red Dunes	100	(now presumed extinct)
	Richtersveld Renosterveld	100	• The southern distribution point of a subset of Namibia psammophilous invertebrates
	Richtersveld Western Foothills Succulent Karoo	100	
	Rosyntjieberge Succulent Karoo	100	
	Southeastern Richtersveld Succulent Karoo	100	
	Southern Richtersveld Lowland Succulent Karoo	100	
	Southwestern Richtersveld Mountain Succulent Karoo	100	
	Springbok Quartzite Succulent Karoo	100	
	Umdaus Quartzite Succulent Karoo	100	
	West Gariep Gravel Plains	100	
	Southeastern Richtersveld Quartzites	100	
	Southern Richtersveld Red Dunes	100	
	Steinkopf Plateau Renosterveld	100	
	Stinkfonteinberge Lowland Succulent Karoo	100	
	Lekkersing Quartz Patches	100	
	Southern Richtersveld Inselbergs	100	
	Upper Annisvlakte Succulent Karoo	100	
	Richtersberg Mountain Desert	100	
	Ruschia Spinosa Plains	100	
	Koingnaas Quartzite Succulent Karoo	100	
	Buffels River Quartz And Gravel Patches	100	
	Southern Richtersveld Yellow-Loam Dunes	100	
	Central Richtersveld Succulent Karoo	100	
	Northern Richtersveld Yellow Dunes	100	
	Richtersveld Southwestern Foothills Succulent Karo	100	
	Southeastern Richtersveld Desert	100	
	Springbokvlakte East Gariep Desert Plains	100	
	West Gariep Lowlands	100	
	Oernoep River Quartz Patches	100	
	Southern Richtersveld Yellow Dunes	100	
	West Gariep Desert	100	

Geographic priority area	Vegetation types	% outstanding veg type target achieved[1]	Number of expert hotspots in this geographic priority area*, plus selected species-related notes from expert mappers	
	Alexander Bay Gravel Patches	100		
	Namaqualand Klipkoppe Flats	100		
	Namaqualand Northern Strandveld	100		
	Richtersveld White Dunes	100		
	Namaqualand Southern Strandveld	84		
	Namib Southern Sandy Plains	83		
	Nababiepsberge Desert	80		
	Namaqualand Lowland Succulent Karoo	66		
	Namaqualand Red Sand Plains	51		
	Namaqualand Klipkoppe	50		
	Namaqualand Coastal Dunes	45		
	Namib Coastal Mobile Dune Strandveld	31		
	Namib Coastal Hummock Dunes	18		
	Namib Coastal Red Dunes	9		
	Namib Coastal Strandveld	8		
	Namaqualand Renosterveld	6		
	Namaqualand Sand Fynbos	5		
	Namib Red Sandy Plains	5		
	Arid Coastal Salt Marshes	0		
	Namaqualand White Sand Plains	0		
	Namib Inland Strandveld	0		
	Fish River Mountain Succulent Karoo	target already met		
	Noams Mountain Desert	target already met		
3. Bushmanland Inselbergs	Eastern Bushmanland Quartz And Gravel Patches	100	Plants	1
			Amphibians	1
			Invertebrates	2
			• Isolated patch of winter rainfall vegetation and associated invertebrates	
4. Namaqualand Uplands	Kamiesberg Mountain Fynbos	100	Plants	2
	Platbakkies Quartz and Gravel Patches	100	Amphibians	1
	Namaqualand Renosterveld	100	Invertebrates	1
	Kamiesberg Mountain Brokenveld	100	• Most important for strongylopus springbokensis, and supports a good diversity of Namaqualand frogs. Permanent water an important feature	
	Namaqualand Klipkoppe Flats	46		
	Namaqualand Klipkoppe	19		
	Namaqualand Lowland Succulent Karoo	0		

Geographic priority area	Vegetation types	% outstanding veg type target achieved[1]	Number of expert hotspots in this geographic priority area*, plus selected species-related notes from expert mappers	
5. Central Namaqualand Coast	Riethuis Quartzfields	100	Plants	3
	Kotzerus Quartz Patches	100	Birds	1
	Namaqualand Sandveld Dunes	100	Invertebrates	3
	Namaqualand Pans	100	Reptiles	1
	Namaqualand White Sand Plains	100	• Paleo-relic plants populations refuge • Riperian corridor • Typical west coast endemics	
	Namaqualand Coastal Dunes	100		
	Namaqualand Red Sand Plains	100		
	Namaqualand Southern Strandveld	99		
	Namaqualand Sand Fynbos	96		
	Namaqualand Lowland Succulent Karoo	68		
	Namaqualand Arid Grasslands	31		
	Arid Coastal Salt Marshes	23		
	Namaqualand Klipkoppe	1		
	Nuwerus Quartzite Succulent Karoo	1		
6. Knersvlakte	Rooiberg Quartzite Succulent Karoo	100	Plants	10
	Namaqualand Spinescent Grasslands	100	Invertebrates	2
	Remhoogte Quartz Patches	100	• The southern-most point where any Namib psammophilous invertebrates occur. Numerous endemic invertebrates known from the area	
	Troe-Troe River Quartz Patches	100		
	Knersvlakte Dolorites	100		
	Central Knersvlakte Lowland Succulent Karoo	100		
	Olifants River Quartz Patches	100		
	Koekenaap Quartz Patches	100		
	Knersvlakte Quartzfields	100		
	Arid Coastal Salt Marshes	100		
	Southern Knersvlakte Lowland Succulent Karoo	100		
	Lamberts Bay Strandveld	100		
	Nuwerus Quartzite Succulent Karoo	100		
	Doring River Succulent Karoo	85		
	Knersvlakte Shales	39		
	Northern Knersvlakte Lowland Succulent Karoo	26		
	Namaqualand Alluvia	25		
	Namaqualand Red Sand Plains	23		
	Namaqualand Sand Fynbos	18		
	Namaqualand Southern Strandveld	11		
	Namaqualand Klipkoppe	10		

Geographic priority area	Vegetation types	% outstanding veg type target achieved[1]	Number of expert hotspots in this geographic priority area*, plus selected species-related notes from expert mappers	
	Namaqualand Arid Grasslands	7		
	Agter-Sederberg Succulent Karoo	1		
7. Bokkeveld-Hantam-Roggeveld	Hantam Plateau Renosterveld	100	Plants	14
	Agter-Sederberg Succulent Karoo	100	Birds	1
	Roggeveld Renosterveld	100	Fish	2
	Hantam Karoo	98	Invertebrates	2
	Roggeveld Karoo	93	• Several endemics occur here • Includes the "trepad". Good colonies of endemic plants • Lower kokee infested with alien fish. Upper river of vital importance to future survival of *L. seeberi*, a critically endangered species • At least one endemic Lepismatid known only from this area	
	Tanqua Sheet Wash Plains	71		
	Central Mountain Renosterveld	69		
	Namaqualand Alluvia	20		
	Tanqua Karoo	13		
	Southern Tanqua Karoo	9		
	Southern Tanqua Mountain Succulent Karoo	7		
	Knersvlakte Shales	0		
	Laingsburg-Touws Succulent Karoo	0		
8. Central Breede River Valley	Robertson Karoo	100	Plants	1
			Amphibians	1
			Birds	2
			Fish	6
			Reptiles	1
			• Important corridor area for Karoo birds • One of few localities for *C. karoicum*	
9. Central Little Karoo	Calitzdorp Quartz Patches	100	Plants	4
	Vanwyksdorp Quartz Patches	100	Fish	2
	Oudtshoorn Quartz Patches	100	Mammals	1
	Langeberg Quartz Patches	100		
	Muscadel Alluvia	100		
	Central Little Karoo	100		
	Vanwyksdorp Gwarrieveld	100		
	Western Little Karoo	100		
	Warmwaterberg Quartz Patches	100		
	Eastern Little Karoo	10		
	Anysberg Quartz Patches	target already met		