CRITICAL ECOSYSTEM PARTNERSHIP FUND

ECOSYSTEM PROFILE

MAPUTALAND-PONDOLAND-ALBANY BIODIVERSITY HOTSPOT

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EXECUTIVE SUMMARY

Everyone depends on Earth's ecosystems and their life-sustaining benefits, such as clean air, fresh water and healthy soils. Founded in 2000, the Critical Ecosystem Partnership Fund (CEPF) has become a global leader in enabling civil society to participate in and benefit from conserving some of the world's most critical ecosystems. CEPF is a joint initiative of l'Agence Française de Développement, Conservation International, the Global Environment Facility, the Government of Japan, the John D. and Catherine T. MacArthur Foundation, and the World Bank. As one of the founders, Conservation International administers the global program through a CEPF Secretariat.

CEPF provides grants for nongovernmental and other private organizations to help protect biodiversity hotspots, Earth's most biologically rich and threatened areas. The convergence of critical areas for conservation with millions of people who are impoverished and highly dependent on healthy ecosystems is more evident in the hotspots than anywhere else.

CEPF is unique among funding mechanisms in that it focuses on biological areas rather than political boundaries and examines conservation threats on a landscape-scale basis. From this perspective, CEPF seeks to identify and support a regional, rather than a national, approach to achieving conservation outcomes and engages a wide range of public and private institutions to address conservation needs through coordinated regional efforts.

The Maputaland-Pondoland-Albany Hotspot spans an area of nearly 275,000 km² and includes portions of South Africa, Swaziland and Mozambique. The hotspot is the second richest floristic region in southern Africa (after the Cape Floristic Region) and also the second richest floristic region in Africa for its size. At a habitat level, one type of forest, three types of thicket, six types of bushveld and five types of grasslands are unique to the hotspot. The coastal waters of this hotspot are also significant at the global level for their diversity of marine species.

Paralleling the natural diversity, the cultural and socioeconomic diversity of the region is incredibly high. From residents of the urban centers of Maputo, Durban and Port Elizabeth to commercial farmers and foresters, to traditional pastoral cultures of the Zulu, Xhosa and Swazi and artisanal fishing culture in Mozambique, all are dependent on the region's natural resources for their livelihoods and well-being. The CEPF investment in this region is critical to stem the threats, balance human and natural needs, and conserve this unique part of the world.

The Ecosystem Profile for the Maputaland-Pondoland-Albany Hotspot was developed through a process of stakeholder consultation and expert research studies coordinated by Conservation International's Southern Africa Hotspots Program and the South African National Biodiversity Institute. More than 150 stakeholders from civil society, government and donor institutions were consulted during the preparation.

The ecosystem profile presents an overview of the hotspot in terms of its biological importance, climate change impacts, major threats to and root causes of biodiversity loss, socioeconomic context, and current conservation investments. It provides a suite of measurable conservation outcomes, identifies funding gaps, and opportunities for investment, and thus identifies the niche where CEPF investment can provide the greatest incremental value. It also contains a five-year investment strategy for CEPF in the region. This investment strategy comprises a series of strategic funding opportunities, termed strategic directions, broken down into a number of investment priorities outlining the types of activities that will be eligible for CEPF funding. The ecosystem profile does not include specific project concepts, as civil society groups will develop these as part of their applications for CEPF grant funding.

Conservation Outcomes

A systematic conservation planning process was undertaken to identify the highest priorities for conservation. Key biodiversity areas were identified for more than 6.4 million hectares, or approximately 24 percent, of the total hotspot. Given the extensive coverage and fragmentation, the fragments were then grouped into a smaller set of key biodiversity areas based on management units, bio-geographic similarity, considerations for species persistence, and adjacency and location with secondary river catchments. Thus, for the purposes of this ecosystem profile a total of 72 key biodiversity areas were identified for the Maputaland-Pondoland-Albany Hotspot. Twelve biodiversity conservation corridors were identified as the areas most important for protecting the processes and linkages required to support threatened species, particularly in terms of long-term adaptation to climate change. Given the growing importance of ensuring resilience of ecosystem functioning for essential services to natural and human communities, the corridor outcomes are also the most important for achieving long-term conservation results.

Other Important Considerations

Despite the considerable investments in conservation in the hotspot, many immediate and long-term threats to biodiversity persist primarily because of biodiversity-incompatible land use beyond protected area boundaries. Recent historical events, including apartheid, war and human displacement, have led to extensive degradation throughout the hotspot and this will take decades to redress. New economic development, driven partly by the urgent need to address high levels of poverty, is also placing pressure on natural resources. Coastal and peri-urban development, overexploitation of natural resources for commercial and subsistence purposes, and habitat degradation and loss from agriculture continue to degrade and destroy habitats at disturbing rates, making the entire region and its biodiversity more susceptible to negative impacts from anticipated climatic changes. Underlying these direct threats are poverty, population density, land tenure and reform conflicts, constraints to effective government response, poor knowledge and capacity, and changes in global climatic conditions. Better management of the hotspot's landscapes and seascapes is essential for sustainable growth and development in the region.

CEPF Niche and Investment Strategy

In this context, there is a great opportunity for CEPF to achieve biodiversity conservation in the region through support to targeted civil society initiatives. Current investment is already flowing to state conservation agencies, and governments are providing significant financing for protected area management. In Swaziland and South Africa, funds are also being directed toward restoration of habitats and removal of invasive alien species. However, government interests are understandably more focused on addressing the huge poverty challenges in the region and their work in conservation tends to focus on maintenance of existing protected areas. Civil society is well placed to bring innovation and new approaches and establish new partnerships to address threats to biodiversity and ensure sustainability in the future.

CEPF's niche in the Maputaland-Pondoland-Albany Hotspot will be to support civil society in applying innovative approaches to conservation in undercapacitated protected areas, key biodiversity areas and priority corridors, thereby enabling changes in policy and building resilience in the region's ecosystems and economy to sustain biodiversity in the long term. CEPF support will lead to broad participation of civil society in strengthening protection and management of the highest priority areas for conservation and will stimulate sustainability of its interventions by catalyzing and creating an enabling environment. Acknowledging key capacity constraints in Mozambique and Swaziland, CEPF will make specific contributions to enable longer-term conservation efforts in these countries. CEPF will secure and expand societal

investment in maintaining healthy ecosystems by influencing policies and practices, and will ensure that ecosystem resilience is maintained and restored.

To maximize CEPF's contribution, the full list of 72 key biodiversity areas and 12 conservation corridors identified for the hotspot were refined into a set of priority outcomes for CEPF investment. These include two of the highest-priority corridors for investment: Highland Grasslands and Pondoland. These corridors have extraordinary conservation value and are under moderate to high threat. They also provide excellent opportunities for the CEPF investment to demonstrate innovative and replicable approaches to conservation at the landscape scale and to both complement and leverage efforts by other donors. With the corridors being adjacent to one another, there is also the potential to create a mega-corridor along rivers and climatic gradients, and thereby increase resilience to climate change. In addition to the targeted corridor-level efforts, CEPF will support investment in 22 of the highest-priority key biodiversity areas. These sites include the top quarter of key biodiversity areas identified for the hotspot, as well as three key biodiversity areas within Mozambique and Swaziland and one additional site for its ability to become a model for conservation and land reform efforts elsewhere in the hotspot.

Six of these key biodiversity areas are coastal and dependent on the health and resilience of the adjacent marine environment and as such, CEPF will adopt the 12-nautical-mile territorial sea definition established by the UN Convention on the Law of the Sea as the outermost limit for CEPF attention and investment. This means conservation actions pertaining to a coastal key biodiversity area can include, as necessary, the belt of ocean measured seaward from the coastal nation and subject to its sovereignty. The full list of priorities is provided in the profile.

Five strategic directions will guide the CEPF investment, as follows:

CEPF Strategic Directions	CEPF Investment Priorities
1. Strengthen protection and management in undercapacitated and emerging protected areas in 3 priority key biodiversity areas	1.1 Support public-private partnerships and civil society initiatives to enable effective management of marine protected areas in the Ponto d'Ouro Partial Marine Reserve in Mozambique and adjacent to the Mkambati and Dwesa-Cwebe reserves in the Pondoland North Coast Key Biodiversity Area in South Africa
	1.2 Promote innovative approaches to strengthen protection and management in the Licuati Forests and Eastern Swazi Lebombo Key Biodiversity Area in Mozambique and Swaziland
2. Expand conservation areas and improve land use in 19 key biodiversity areas	2.1 Develop and implement innovative approaches to expand private and communal protected areas, particularly for habitats underrepresented in the current protected area network
	2.2 Integrate conservation practice into land-reform agreements to expand conservation management and sustain livelihood opportunities
3. Maintain and restore ecosystem function and integrity in the Highland Grasslands and Pondoland corridors	3.1 Develop and implement innovative projects that expand conservation management and benefit people in threatened catchment, freshwater and estuarine ecosystems
	3.2 Improve implementation of environmental regulations to maintain functional ecosystem corridors, particularly rivers

	and coastal zones
	3.3 Support community stewardship initiatives that will catalyze sustainable financing from local carbon markets.
	3.4 Improve effectiveness of government-sponsored large-scale natural resource management programs in the corridors by improving knowledge and support for implementation
4. Create an enabling environment to improve conservation and management of Maputaland-Pondoland-Albany priority sites	4.1 Expand and strengthen civil society by supporting training and further educational opportunities for the staff of civil society organizations in Mozambique and Swaziland
	4.2 Establish and strengthen institutional arrangements that will increase and coordinate civil society participation and facilitate lessons sharing to promote linkages that ensure effective conservation action at a broad scale
5. Provide strategic leadership and effective coordination of CEPF investment through a regional implementation team	5.1 Build a broad constituency of civil society groups working across institutional and political boundaries towards achieving the shared conservation goals described in the ecosystem profile

Conclusion

The Maputaland-Pondoland-Albany Hotspot is one of the biological wonders of the world, with globally significant levels of diversity and endemism and ecosystems that characterize the world's image of Africa. CEPF will provide a source of funding in the hotspot that is designed to reach civil society in a way that complements funding going to government agencies and inspires innovative conservation activities. By aligning its focus with the conservation and sustainable development goals of prior investments and government priorities of poverty alleviation, 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 biodiversity hotspots around the world.

INTRODUCTION

Everyone depends on Earth's ecosystems and their life-sustaining benefits, such as clean air, fresh water and healthy soils. Founded in 2000, the Critical Ecosystem Partnership Fund (CEPF) has become a global leader in enabling civil society to participate in and benefit from conserving some of the world's most critical ecosystems. CEPF is a joint initiative of l'Agence Française de Développement, Conservation International, the Global Environment Facility, the Government of Japan, the John D. and Catherine T. MacArthur Foundation, and the World Bank. As one of the founders, Conservation International administers the global program through a CEPF Secretariat.

CEPF provides grants for nongovernmental and other private organizations to help protect biodiversity hotspots, Earth's most biologically rich yet threatened areas. The convergence of critical areas for conservation with millions of people who are impoverished and highly dependent on healthy ecosystems for their survival is more evident in the hotspots than anywhere else. CEPF equips civil society groups to conserve their environment and influence decisions that affect lives, livelihoods and, ultimately, the global environment for the benefit of all.

CEPF is unique among funding mechanisms in that it focuses on biological areas rather than political boundaries and examines conservation threats on a landscape-scale basis. From this perspective, CEPF seeks to identify and support a regional, rather than a national, approach to achieving conservation outcomes and engages a wide range of public and private institutions to address conservation needs through coordinated regional efforts.

The Maputaland-Pondoland-Albany Hotspot, identified as a global biodiversity hotspot in 2005, spans an area of nearly 275,000 km² and includes portions of South Africa, Swaziland and Mozambique. The hotspot is the second richest floristic region in southern Africa (after the Cape Floristic Region) and also the second richest floristic region in Africa for its size. An estimated 8,100 species occur within Maputaland-Pondoland-Albany, of which at least 1,900 (23 percent) are unique, or endemic, to the region. At a habitat level, one type of forest, three types of thicket, six types of bushveld and five types of grasslands are endemic to the hotspot. Economic development coupled with a rapidly growing population is placing significant pressure on biodiversity in Maputaland-Pondoland-Albany and hundreds of species are at risk of extinction as the ecosystems upon which they depend on are transformed or degraded.

Paralleling the natural diversity, the cultural and socioeconomic diversity of the region is incredibly high. From residents of the urban centers of Maputo, Durban and Port Elizabeth to commercial farmers and foresters, to traditional pastoral cultures of the Zulu, Xhosa and Swazi and artisanal fishing culture in Mozambique, all are dependent on the region's natural resources for their livelihoods and well-being. The CEPF investment in this region is critical to stem the threats, balance human and natural needs, and conserve this unique region.

The Ecosystem Profile

Prior to awarding grants in each region selected for investment, CEPF prepares an ecosystem profile. This document includes an overview of the biological importance and an assessment of the highest priorities for conservation. The profile also provides an analysis of the socioeconomic and institutional context, threats to biodiversity, climate change and current conservation investments. This information is used to identify the niche where CEPF can provide the greatest incremental value, and thus the CEPF investment strategy. Consultations with diverse governmental and nongovernmental stakeholders are an integral part of the process, with the aim of creating a shared strategy from the outset.

Once the profile is approved by the CEPF Donor Council and a regional implementation team has been appointed, civil society organizations can propose projects and actions that fall within the identified strategic directions. The ecosystem profile does not define the specific activities that prospective implementers may propose, but outlines the strategy and investment priorities that will guide those activities. Applicants for CEPF funding are required to prepare proposals for the proposed activities and the performance indicators that will be used to monitor project success.

BACKGROUND

The Ecosystem Profile for the Maputaland-Pondoland-Albany Hotspot was developed through a process of stakeholder consultation and expert research studies coordinated by Conservation International's Southern Africa Hotspots Program (CI-SAHP) and the South African National Biodiversity Institute (SANBI). CI-SAHP and SANBI formed a Technical Working Team comprised of staff from the two organizations, an external institutional advisor, a GIS specialist from South Africa National Parks, and coordinators from each country in the hotspot.

More than 150 stakeholders from civil society, government and donor institutions were consulted during the preparation of this ecosystem profile. Participants gathered and synthesized data on biodiversity, socioeconomic and institutional context, climate change, ecosystem services and ongoing and planned conservation investments in the three countries in the hotspot. Leading scientific experts on climate change, spatial biodiversity planning and socioeconomic research investigated specific themes and informed the analysis for these components of the profile.

Stakeholder input also contributed significantly to the process of defining the niche for CEPF investment. Four stakeholder workshops were held at key locations in the hotspot: in Durban, South Africa; Maputo, Mozambique; Grahamstown, South Africa; and Salem, South Africa (during a special session of the Thicket Forum, a gathering of practitioners and scientists working on subtropical thicket conservation). In addition, three expert roundtables on the definition and conservation of regional ecological goods and services provided valuable information on this new element of biodiversity conservation that looks at the benefits that ecosystems provide for human societies. A final workshop was held in Mlawula Nature Reserve, Swaziland in October 2009 and comments from stakeholders on final drafts were integrated after this meeting.

BIOLOGICAL IMPORTANCE OF MAPUTALAND-PONDOLAND-ALBANY

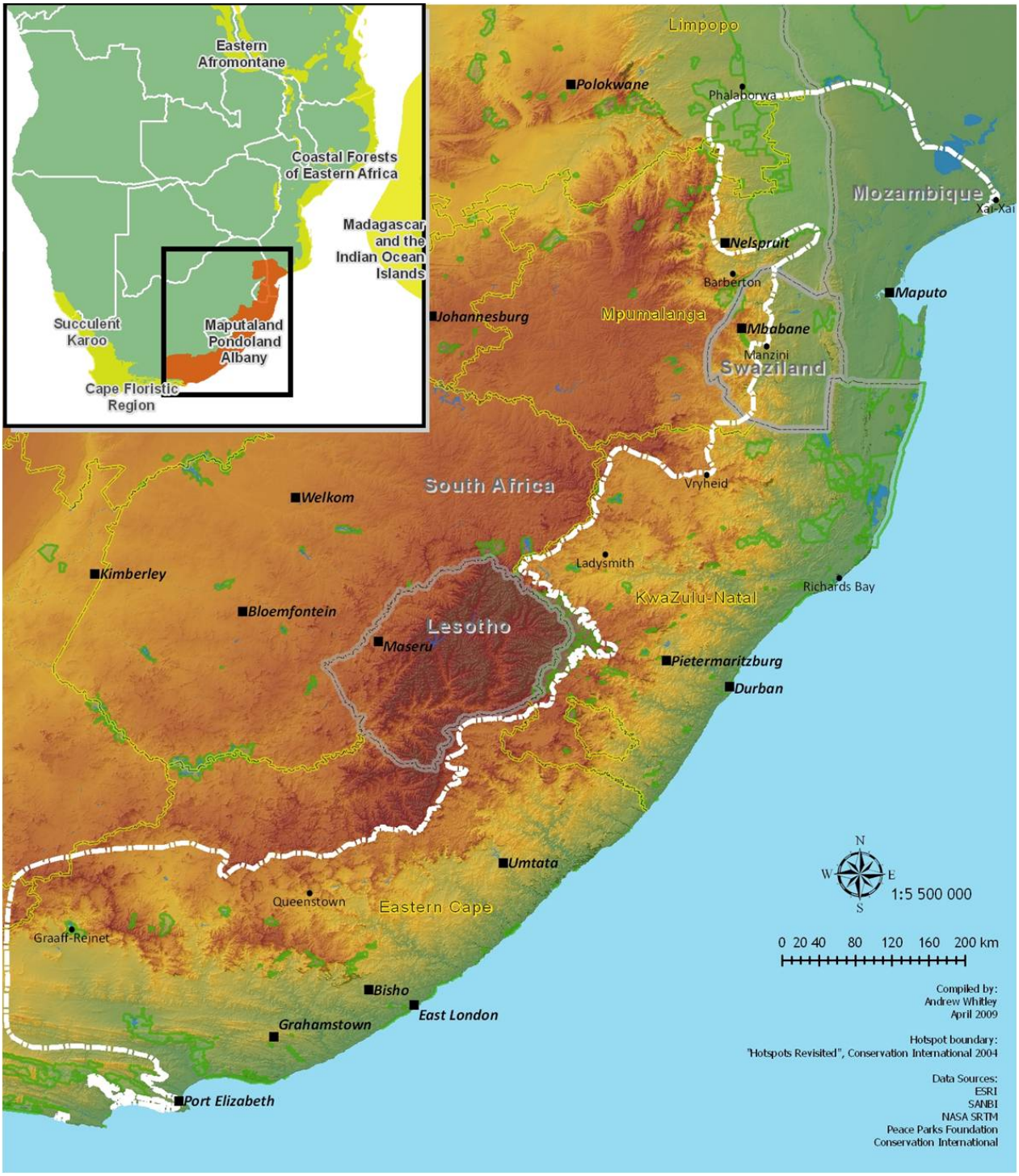
The Maputaland-Pondoland-Albany Hotspot is a diverse and enchanting region where the hooves of elusive buck tread across rocky gorges, rhino browse serene woodlands, vultures soar above expansive grasslands, endemic palms cling to the banks of steep ravines, turtles nest on pristine beaches and waterfalls flow directly into blue seas traversed by pods of whales and dolphins. It is the amalgamation of three centers of endemism (Maputaland, Pondoland and Albany), and is the remarkable meeting point of six of South Africa's eight biomes. The region has unusually high levels of endemism at all levels, as well as an endemic vegetation type called "subtropical thicket." Subtropical thicket is a condensed forest of thorny trees, shrubs and vines and is an unusual ecosystem driven by elephants, black rhino and Cape buffalo that crash open paths and disperse seeds through their digestive tracts.

Biogeography

The hotspot is roughly the size of New Zealand (274,000 km^2) and is located along the east coast of southern Africa, below the Great Escarpment. The boundaries of the hotspot correspond broadly to White's (1983) delimitation of the Tongaland-Pondoland Regional Mosaic and extend

from the Limpopo River in southern Mozambique and the Olifants River in Mpumalanga, South Africa in the north, through Swaziland and the KwaZulu-Natal Province in South Africa, to South Africa's Eastern Cape Province in the south (see Figure 1).

Figure 1. Map of the Maputaland-Pondoland-Albany Hotspot



The topography of the Maputaland-Pondoland-Albany region provides the foundation for the diversity of habitats, ranging from ancient and young sand dunes and low-lying plains in the north to a series of rugged terraces deeply incised by river valleys in the central and southern parts. Several mountain ranges, including the Sneeuberge, Winterberge, Amatole Mountains, Ngeli Range, Lubombo Mountains and Ngoye Range also occur within the hotspot, while the Great Escarpment borders it to the west (Steenkamp *et al.* 2004). The break up of Gondwana and subsequent cycles of uplift and erosion shaped the landscape of the hotspot, forming the Great Escarpment, which receded from the coast after the break-up event. Today, the Great Escarpment separates the elevated interior plateau of southern Africa from the coastal lowlands. Regional geology consists of basement granites, gneisses and schists, various sedimentary deposits, lavas (basalt and dolerite intrusions) and Cretaceous, Cenozoic and Recent marine sediments (Steenkamp *et al*. 2004). The topographical and geological variation plays an important role in the complexity of biodiversity in the region and offers challenges and opportunities for range shifts as the climate changes.

The climate of the hotspot ranges from subtropical/tropical in the low-lying northern coastal areas, to more temperate with frost in winter on the higher ground away from the coast. In the north the climate is hot and humid (humidity approximately 90 percent) during the summer (September to April), with temperatures between 25°C and 35°C, and colder and drier (humidity approximately 55 percent) during winter, with temperatures approximately between 11°C and 23°C (these temperatures decrease toward the south of Maputaland-Pondoland-Albany). The high escarpment, which borders the inland reaches of the hotspot, leads to lower temperatures and topographically induced rainfall away from the coastline. Along the coast the warm, southward flowing Agulhas current keeps temperatures and humidity high and stable, with few or no frosts. In the far south the inland region of Maputaland-Pondoland-Albany encompasses parts of the eastern Karoo, which typically has a more semi-arid type of climate. The wide range of climatic zones n the hotspot has important implications for conservation strategies in the region.

Ecosystem Diversity and Status

Floristically Maputaland-Pondoland-Albany is very complex, with endemic plants and areas of high diversity throughout the region. Six of South Africa's eight terrestrial biomes and three of South Africa's six marine bioregions occur in the hotspot. The hotspot contains an eclectic mix of vegetation types with an unusually high level of endemism: one type of forest, three types of thicket, six types of bushveld and five types of grassland are endemic to the hotspot. Maputaland-Pondoland-Albany also boasts a unique succulent flora and its forests have the highest species richness of any temperate forests on the planet. The region's freshwater systems are some of the most diverse in Southern Africa, with species richness ranking near that of the Okavango Delta. Finally, the adjacent marine environment is equally diverse with a range of unique reef types in the sub tidal and the shelf supporting a poorly known soft sediment benthos (inhabiting mud, sands and authigenic sediments) and shifting submarine dunes, whereas the shelf edge is incised by submarine canyons.

The terrestrial diversity of the hotspot is generally categorized according to three main centers of endemism each known in their own right for their special and unique ecosystems. In the north, the largest of the three, the Maputaland Center, is typified by lush riverine and estuary habitats, diverse savannah and foothill grasslands, and highly specialized and threatened dune forests and extends from the border of KwaZulu-Natal to the Limpopo River in Mozambique, including small portions of that country. The Drakensberg Mountains make up the eastern boundary of Maputaland and extends through the Swaziland lowveld, including about 40 percent of that country. Evolutionarily, this region has strong floristic and faunistic connections with the Coastal

Forests of Eastern Africa Hotspot to the north. South of the Umtavuna River (roughly correlating with the South African provincial boundary between KwaZulu-Natal and the Eastern Cape), the renowned matrix of forest and grasslands of the Pondoland Center of endemism emerges. River valleys are typified by extensive waterfalls and pools that provide important habitats for freshwater and marine fish spawning. The Pondoland region lies completely in the Eastern Cape Province of South Africa and extends and blends into the more extensive and southernmost center of the Albany Center, which is also exclusively within the Eastern Cape Provincial boundary of South Africa and is typified by subtropical thicket habitats dominated by spekboom (*Portulacaria afra*), a small shrub that has adapted to the high-browsing pressure of elephants and other herbivores in the region and now, due to its high carbon sequestration capacity, provides one of South Africa's few opportunities to capitalize on emerging carbon markets. The Albany Center also is characterized by ecotones between the thicket, fynbos (from the Cape Floristic Region Hotspot) and the Succulent and Nama Karoo habitats, demonstrating the importance of this region as an area where climatic impacts on habitat shifts are most likely to be evidenced.

The forests of the hotspot, despite their naturally fragmented distribution in river valleys and gorges, are of special interest. About 80 percent of South Africa's remaining forests fall within this hotspot. In the less than 30,000 km² of forest vegetation cover in the hotspot, at least 598 tree species occur. This richness in tree species is exceeded only in the forests of East Asia, where 876 species grow in a much larger area (Steenkamp *et al.* 2004). Degradation of forests, especially in riverine areas, can lead to erosion and sedimentation threats downstream and in the inshore marine zone of the hotspot.

The thicket biome of southern Africa, the largest part of which occurs within the Albany Center of the hotspot, is thought to be the most species-rich formation of woody plants within South Africa. It is characterized by a unique suite of plant forms: evergreen shrubs (predominantly), tall succulents, a wealth of climbers, and—intriguingly—very little grass. Thicket is most extensive in the southeast of the country, principally along the coastal parts of the Gouritz, Gamtoos, Sundays and Great Fish River valleys (Knight and Cowling 2006). By 1981, 9 percent of this biome had been permanently transformed. Since then, these figures have probably increased significantly. Only 5 percent of the thicket biome is formally protected in South Africa. It has been suggested that the thickets are extremely ancient and include many elements basal to the Cape and Succulent Karoo flora (Steenkamp *et al*. 2004).

In addition to forest and thicket, grassland is also important in this hotspot, especially as it is the most threatened and least protected of all the biome types in southern Africa. Approximately 30 percent of South Africa's grasslands are irreversibly transformed and only 2 percent are formally conserved. For example, the endemic Pondoland coastal plateau sourveld grassland type is critically endangered and is threatened by sugar-cane production, commercial timber plantations and overgrazing (Steenkamp *et al*. 2004).

The region's highly diverse freshwater systems fall into two broad ecoregions, the Zambezian Lowveld Freshwater ecoregion and the Southern Temperate Highveld that both extend beyond the boundary of the hotspot, and the Amatolo-Winterberg Freshwater Ecoregion that lies entirely within the hotspot. The Southern Temperate Highveld Ecoregion, equivalent to the majority of the grassland regions within the hotspot, has been assessed as Endangered as a result of the impacts of overgrazing and overextraction while the other two ecoregions are recognized as Vulnerable due to loss of habitat and unsustainable levels of water extraction. For example, by the mid-1980s, more than 58 percent of the Mfolozi river catchment in the KwaZulu-Natal region of Maputaland had been lost to development and agriculture (Dawell *et al*, 2009.)

Maputaland-Pondoland-Albany also has a remarkable succulent flora that is mainly concentrated in the Albany region. The succulent riches of southern Africa are well known; especially that of the Succulent Karoo Hotspot. More than 46 percent (4,674 taxa in 58 families) of the world's succulents grow naturally in southern Africa. Whereas leaf succulents predominate in the western, mainly winter-rainfall parts of southern Africa, the succulents of Maputaland-Pondoland-Albany are predominantly stem succulents (Steenkamp *et al.* 2004).

Two countries in the hotspot, Mozambique and South Africa, host lengthy and diverse coastlines that harbor extensive marine diversity, as well as a variety of coastal habitats, ranging from dunes, coastal lagoons and mangroves.

Species Diversity and Status

There are 1,900 endemic plant species in the hotspot with key endemics being asteraceae (266), apocynaceae in a broad sense (including asclepiadaceae and periplocaceae) (203), fabaceae (200), asphodelaceae (155), iridaceae (110), euphorbiaceae (96), scrophulariaceae (81), lamiaceae (77), and mesembryanthemaceae (76). Of the 243 families represented in the hotspot, one endemic family occurs within the hotspot, the monotypic Rhynchocalycaceae. In all there are 1,524 vascular plant genera in the Maputaland-Pondoland-Albany Hotspot, of which 39 are endemic (Steenkamp *et al.* 2004). Eighty-three plant species are Critically Endangered, 128 Endangered and 323 Vulnerable.

Vertebrate diversity and endemism are lower than that recorded for plant diversity and endemism. Birds are the most diverse group of vertebrates in the hotspot. Fourteen (2.2 percent) of the 631 bird species (belonging to 317 genera in 57 families) that occur in the hotspot are endemic. Twenty-five globally threatened southern African bird species occur within Maputaland-Pondoland-Albany. Four of these are endemic to the region. Also, of the 33 southern African restricted-range species, 11 (33 percent) occur within the hotspot, of which five are endemic, including bush blackcap (*Lioptilus nigricapillus*), Rudd's apalis (*Apalis ruddi*), pink-throated twinspot (*Hypargos margaritatus*), lemon-breasted canary (*Serinus citrinipectus*) and forest canary (*Serinus scotops*). The hotspot forms part of the Southeast African Coast Endemic Bird Area recognized by Birdlife International (Steenkamp *et al.* 2004). Four bird species are Critically Endangered, four are Endangered and 26 are Vulnerable.

The reptiles are the second most diverse vertebrate group in the hotspot. Of the 225 species (68 genera and 21 families), 63 (28 percent) are endemic, including at least seven species of dwarf chameleon. All have very restricted distributions within the region (Steenkamp *et al.* 2004). Four reptiles are Endangered and 14 Vulnerable.

There are a total of 202 species of mammals, of which at least eight species are endemic, including giant golden mole (*Chrysospalax trevelyani*) and Natal red rock rabbit (*Pronolagus crassicaudatus*). Of the 126 genera and 38 families represented in the hotspot, none are endemic (Steenkamp *et al.* 2004). Five mammal species are Critically Endangered, including black rhino (*Diceros bicornis*); six are Endangered; and six are Vulnerable.

The frogs number 73 species, of which 24 (33 percent) are endemic. Two out of 26 genera are endemic, namely Natalobatrachus and Anhydrophryne. Boneberg's frog (*N. bonebergi*) is the only species in the genus, and is restricted to forests along the coasts of the hotspot where recent housing developments and sugar-cane plantations have destroyed much of its habitat. Anhydrophryne is also a monotypic genus, with Rattray's or Hogsback frog (*A. rattrayi*), the only species. This species is only known from the Amathole and Katberg Mountains in the Eastern

Cape Province where it occurs along streams in thick vegetation. Commercial timber plantations are the main threat to this frog's continued existence. There are nine frog families represented in the hotspot (Steenkamp *et al*. 2004). Two amphibian species are Critically Endangered, six are Endangered and three are Vulnerable.

Of the 73 indigenous species of freshwater fish occurring within the Maputaland-Pondoland-Albany region, 20 (27 percent) are endemic (Steenkamp *et al.* 2004). Three freshwater fish species are Critically Endangered, 12 are Endangered and one is Vulnerable.

The hotspot also harbors an exceptionally rich and diverse invertebrate fauna. Among the better-studied groups, the insects comprise the bulk of the described species, many of which are endemic to the region, including several higher taxa. The region is also a significant center of diversity and endemism for spiders, mites, millipedes, terrestrial molluscs and many other invertebrate groups (Steenkamp *et al*. 2004). Five invertebrates are Endangered and three are Vulnerable.

Maputaland-Pondoland-Albany is significant at the global level of marine biodiversity conservation because it supports many endemic species. The Agulhas and Natal marine bioregions support a high diversity of seaweeds, intertidal and subtidal invertebrates and fishes (Tietz and Robinson 1974, Bolton and Anderson 1990, Branch *et al*. 1994, Bustamante and Branch 1996, Turpie *et al*. 2000, Lombard *et al*. 2004). Endemic sponges, gorgonians (seafans), cold water corals, flatworms, lobsters, spidercrabs, lace animals, mussels, scallops, chitons, limpets, topshells, cowries, whelks, marginellas, cone shells, nudibranchs, starfish, basket stars, urchins and ascidians occur in the area. Endemism for molluscs in the Agulhas bioregion is particularly high (70 to 90 percent) (Dai 1998).

Southern Africa has a total of 227 endemic coastal fish species, with the number of endemics reaching a peak in the Eastern Cape Province generally and the Pondoland North Coast specifically. In a recent visual survey of shallow reefs between Port Edward and Port St Johns, 137 species fish species from 49 different families were identified, with a high proportion of endemic species (26 percent) (Mann and Celliers, 2004). Importantly, the Pondoland North Coast represents the center of distribution for a number of over-exploited endemic line fish. The most important endemic fish species are in the three families the Clinidae (klipfishes), the Gobidae (gobies) and the Sparidae (sea breams). Nearly 80 percent of the world's sea bream species occur in South African waters, half of them endemics. The Wild Coast is central to their distribution, but recent findings place most of them in the critically over-exploited category. Among marine invertebrates and algae there is also a unique transition zone along the Pondoland North Coast. In a recent survey of a 150-kilometer length of the Pondoland North Coast, 10 species of seaweeds (representing 35 percent of South African "restricted endemics" and including two undescribed genera) were described as appearing to be locally endemic.

Furthermore, subequatorial African waters are a center of diversity for sharks, rays and skates (the elasmobranch fishes), and contain a large endemic fauna. Mozambique also has the highest latitude coral reefs with more than 400 species identified. Mozambican waters contain approximately 137 elasmobranch species, ranging from deep-water skates to the whale shark (*Rhincodon typus*), the largest fish in the world. Other species include dugongs (*Dugong dugon*) and sea turtles, including loggerhead (*Caretta caretta*) and leatherback (*Dermochelys coriacea*).

CONSERVATION OUTCOMES

This ecosystem profile includes a commitment and emphasis on using conservation outcomes—targets against which the success of investments can be measured—as the scientific underpinning

for determining conservation priorities. Conservation outcomes are the full set of quantitative and justifiable conservation targets in a hotspot that need to be achieved to prevent biodiversity loss.

Conservation outcomes can be defined at three scales – species, site and landscape –reflecting a simplification of a complex hierarchical continuum of ecological scales. The three scales interlock geographically through the presence of species in sites and of sites in landscapes. They are also logically connected. If species are to be conserved, the sites on which they live must be protected and the landscapes or seascapes must continue to sustain the ecological services on which the sites and the species depend. As conservation in the field succeeds in achieving these targets, they become demonstrable results or outcomes: “Extinctions Avoided” (species level), “Areas Protected” (site level) and “Corridors Consolidated” (landscape level).

While CEPF cannot achieve all of the outcomes identified for a region on its own, identifying important species, sites and corridors for biodiversity conservation can guide long-term conservation efforts and provide a baseline upon which not only CEPF investments but also efforts by other donors and programs can be monitored and measured in terms of their conservation impact. Therefore, the targets (hereafter “outcomes”) provide the scientific underpinning for CEPF’s geographic and thematic focus for investment.

The process for determining the conservation outcomes for the Maputaland-Pondoland-Albany Hotspot built on and consolidated a significant body of underlying conservation planning that exists for much of the region. Where there were gaps in existing assessments, rapid systematic assessments were conducted.

Species Outcomes

Defining conservation outcomes includes a definition of species-level targets, from which the definition of site-level targets can be confirmed. The process requires detailed knowledge of the conservation status of individual species. Although this information has been accumulating in global Red Lists produced by IUCN-The World Conservation Union and partners for nearly 50 years, knowledge of the population status of some threatened species, particularly in Mozambique, is highly deficient.

The IUCN Red List is based on quantitative criteria under which the probability of extinction is estimated for each species. Species classified as “threatened” on the Red List have a high probability of extinction in the medium-term future. These include the three IUCN categories Critically Endangered (CR), Endangered (EN) and Vulnerable (VU). Species outcomes are met when a species' global threat status improves or, ideally, when it is removed from the Red List.

Species outcomes include all of the 615 terrestrial species of conservation concern within the hotspot listed on the IUCN Red List of Threatened Species as Critically Endangered (89), Endangered (162) and Vulnerable (364). Clearly, given that it is a hotspot, the importance of the area for flora conservation is overwhelmingly evident when one considers that 87 percent of the 615 total threatened species are plants. Reptiles, birds and fish only comprise roughly 3 percent (16-18 species) in each group. Table 1 provides an overview of the threatened terrestrial species per taxa.

Table 1. Globally Threatened Species in the Maputaland-Pondoland-Albany Hotspot

	Critically Endangered	Endangered	Vulnerable	Total	% of Total
Amphibians	2	6	2	10	2%
Birds		4	12	16	3%
Fish	3	12	1	16	3%
Invertebrates		5	3	8	1%
Mammals	1	3	9	13	2%
Plants	83	128	323	534	87%
Reptiles		4	14	18	3%
Grand Total	**89**	**162**	**364**	**615**	
% of Total	14%	26%	59%		

In terms of numbers, plants dominate the list of Critically Endangered species for the hotspot, with 83 species. These include five aloe species (e.g. *Aloe bowiea*, *Aloe reitzii var. vernalis, Aloe simii*), three barleria species, 10 encephalartos cycad species (e.g. *Encephalartos cerinus, Encephalartos cupidus*), three erica species, three haworthias, four kniphofia species (e.g. *Kniphofia leucocephala*, *Kniphofia pauciflora*) and four protea species.

Black rhinoceros is the only Critically Endangered mammal species found in the hotspot. It occurs in Albany, Amathole-Sneeuberg Montane Belt, Escarpment Lowveld Links, Limpopo, Swaziland and Zululand as well as other areas outside of the hotspot. Although present in other areas in sub-Saharan Africa, the hotspot (and reserves that extend into the hotspot such as Kruger National Park) is an important area internationally where black rhinoceros has a viable hope of *in situ* persistence. Notable Endangered mammal species in the hotspot include giant golden mole and wild dog (*Lycaon pictus*), which is found most notably in conservation areas of Zululand and the Escarpment Lowveld Links within the hotspot, but also exists outside the hotspot.

The Critically Endangered amphibians Ngoni moss frog (*Arthroleptella ngongoniensis*) and Hewitt's ghost frog (*Heleophryne hewitti*) are found in the hotspot, and notable Endangered amphibians are the Hogsback frog (*Anhydrophryne rattrayi*) and Amatola toad (*Bufo amatolicus*). The latter are both endemics with very limited distributions within the Amathole-Sneeuberg Montane Belt.

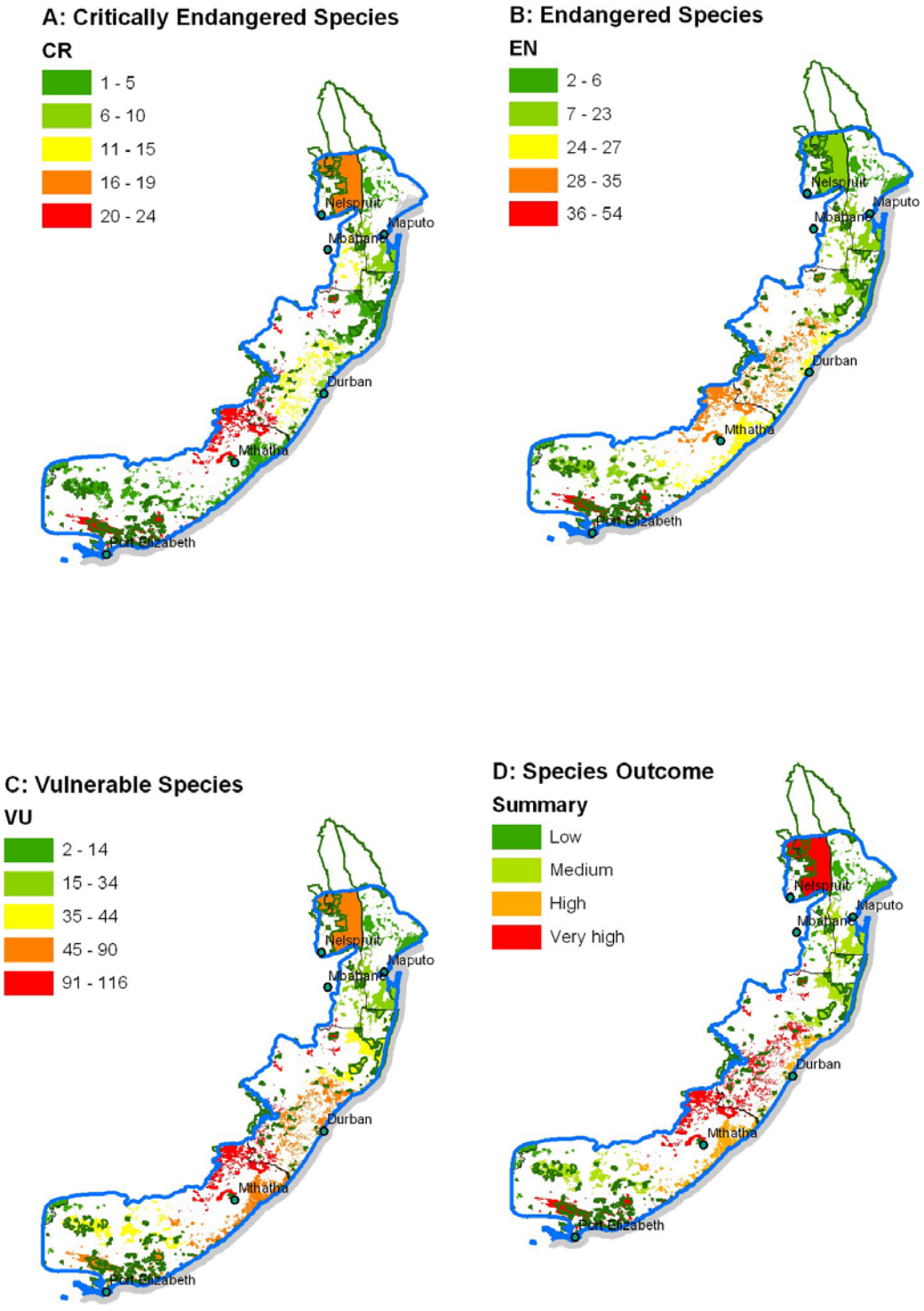
There are no less than three Critically Endangered and 12 Endangered freshwater fish species, including a number of *Barbus* and *Pseudobarbus* species, as well as the East Cape rocky (*Sandelia bainsii*). The Critically Endangered estuarine pipefish (*Syngnathus watermeyeri*) is now restricted to the small East Kleinemonde estuary in the Albany region, caused by loss of water flow due to the construction of numerous small farm dams on its catchments and loss of eelgrass habitat in estuaries. Overall fish species are generally most threatened by the introduction of invasive alien fish, the change in flow regimes to rivers and estuaries and destruction of riparian and in-stream habitat.

Endangered bird species found in the hotspot include the white winged flufftail (*Sarothrura ayresi*) and spotted ground-thrush (*Zoothera guttata*). Endangered invertebrates include *Aloeides barbarae* and the Coega copper butterfly (*Aloeides clarki*). Known threatened invertebrates are generally found in highly fragmented landscapes threatened by urban, industrial and agricultural transformation of habitat. These threats certainly also apply to numerous other species in this less well-known category of species.

It must be stressed therefore that there are significant deficiencies in the Red List for portions of the hotspot with respect to both the taxonomic representation and the geographic distribution of globally threatened species. The taxonomic deficiencies are especially serious with respect to invertebrates, fish and plants, while the geographic deficiency is especially acute in Mozambique and to a lesser extent in Swaziland.

Figure 2 shows the distribution of globally threatened terrestrial species across the hotspot. Full lists of the terrestrial species and their distribution in key biodiversity areas and corridors are available on www.cepf.net.

Figure 2. Distribution of Globally Threatened Terrestrial Species in the Maputaland-Pondoland-Albany Hotspot



A detailed analysis of marine species was not possible during the profile process and thus the species outcomes for the Maputaland-Pondoland-Albany Hotspot marine environment will extend to all IUCN Red-Listed species known within the inshore environment. Among the 137 elasmobranch species in Mozambican waters, around 17 percent are globally threatened such as the Critically Endangered freshwater sawfish (*Pristis microdon*) and Vulnerable whale shark. Endangered blue (*Balaenoptera musculus*), sei (*Balaenoptera borealis*), fin (*Balaenoptera physalus*) and sperm whales (*Physeter macrocephalus*) are all known to occur in the Mozambique Channel. Vulnerable dugongs (*Dugong dugon*) and sea turtles, including Critically Endangered hawksbill (*Eretmochelys imbricate*) and leatherback (*Dermochelys coriacea*), as well as Endangered loggerhead (*Caretta caretta*) turtles, are examples of other globally threatened marine species found in the region.

Site Outcomes

Recognizing that most species are best conserved through the protection of the sites in which they occur, key biodiversity areas are defined as targets for achieving site-level conservation outcomes. Key biodiversity areas are physically and/or socioeconomically discrete areas of land that harbor species of global conservation concern including globally threatened species, but also of restricted-range species and globally significant congregations. Sites are scale-independent, in other words they can be small or large, but a major criterion for their selection is that they should be, as far as possible, manageable as a single unit (i.e. a unit with a single type of land tenure). These sites need careful management to conserve the species within their boundaries.

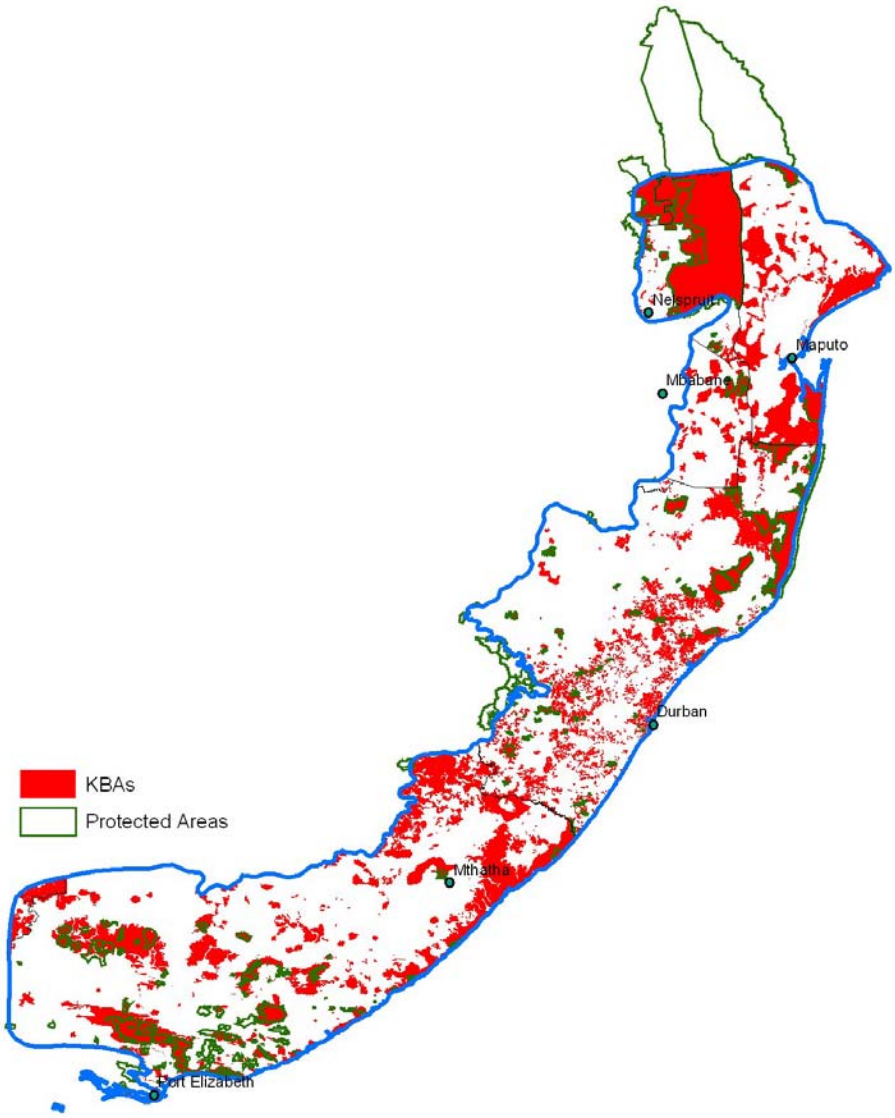
Site outcomes are met when a key biodiversity area is protected, through improved management or expansion of an existing conservation area, or creation of a new conservation area. Improved management will involve changing management practices to improve the long-term conservation of species' populations and the ecosystem as a whole. Expansion of an existing conservation area will involve increasing the proportion of a key biodiversity area under conservation management to meet species' area requirements or include other previously excluded species or habitats. Creation of a new conservation area will involve designating all or part of a key biodiversity area as a conservation area, and initiating effective long-term management. Conservation areas are not limited to formal protected areas but also include sites that could potentially be managed for conservation by local communities, private landowners or other stakeholders.

A systematic conservation planning process was undertaken to identify priority sites for conservation action. The process undertaken to determine terrestrial site outcomes conceptually paralleled the key biodiversity area approach in that it is quantitative and target driven, and integrates issues of irreplaceability and vulnerability. The systematic planning allowed for the integration of site information from fine-scale scientifically rigorous plans with areas of low data availability. There is an extensive history of identifying priority areas for conservation in the hotspot, and a number of systematic conservation planning processes have been undertaken. These include the systematic conservation plans for the South African provinces of the Eastern Cape, Mpumalanga and KwaZulu-Natal, the National Protected Areas Expansion Strategy for South Africa and assessments for the Lebombo transboundary region between Mozambique and South Africa and Swaziland. In addition, a rigorous prioritization exercise funded by the Global Environment Facility identified protection-worthy sites in Swaziland, including a major focus on threatened species.

Capitalizing on this foundation, the ecosystem profile assessment included compiling the existing information in as consistent a format as possible and filled gaps where needed by applying systematic criteria to identify other sites where globally threatened species occur. Because of the highly fragmented nature of the hotspot’s landscape, and the fine-scale understanding available

from prior conservation planning efforts in the region, there are a large number of individual land parcels in Maputaland-Pondoland-Albany that meet the key biodiversity area criteria. Figure 3 shows the results of this analysis, which resulted in key biodiversity areas being identified for 6,438,140 hectares, or approximately 24 percent, of the total hotspot.

Figure 3. Key Biodiversity Areas in the Maputaland-Pondoland-Albany Hotspot



Notes:
* The key biodiversity areas were compiled from underlying conservation plans. In addition, priorities within missing areas (especially the coastal sections of Mozambique, minor areas of the Northern Cape, Western Cape and Limpopo) were filled in using compatible systematic planning methods and/or inclusion of conservation priorities from national-level conservation plans.
* The hotspot boundary is in blue. The protected areas outlined in green extending to the north of the hotspot are parts of South Africa and Mozambique's Kruger and Limpopo national parks that fall outside the hotspot. The outline of these other areas of the parks is shown on this and other maps in this document because of these parks' importance within the context of the two countries' protected area systems.

Given the extensive coverage and fragmentation, the fragments were then grouped into a smaller set of key biodiversity areas based on management units, bio-geographic similarity, considerations for species persistence, and adjacency and location with secondary river catchments (especially for species movement). A total of 72 key biodiversity areas emerged from this final prioritization. Of these, 57 priority sites (79 percent) fall exclusively within South Africa, eight (11 percent) fall exclusively within Mozambique and three (4 percent) fall exclusively within Swazililand. Additionally, there are three sites within the Lebombo Mountain region that are trans-boundary and extend into all three countries while two other sites are shared only between Mozambique and Swaziland. Seven of these key biodiversity areas contain a marine protected area and therefore contribute to marine conservation outcomes.

The characteristics of the key biodiversity areas vary greatly based on the criteria of a reasonable management unit. In terms of size, the East Cape St Francis Key Biodiversity Area is the smallest priority area at only 502 hectares, whereas the largest is Orpen/Kruger, at 756,987 hectares. Fifty-one (51) of the key biodiversity areas are less than 100,000 hectares, however, several that are more than 200,000 hectares and important for conservation of biodiversity within healthy ecosystems are found in Table 2. The majority of these large key biodiversity areas include significant, existing conservation areas within their borders. These include, for example, Orpen/Kruger, Bushbuckridge, Mountain Zebra National Park Complex, Greater Addo Complex, Hluhluwe-Mhkuze Lowveld, Licuati Forests and Eastern Swazi Lebombo. Planned conservation areas include Ponto d'Ouro and Magude/Muomba. The notable exception of limited protection within large key biodiversity areas is the lowland foothills of the Northern Eastern Cape. Protection levels are discussed below.

Table 2. Key Biodiversity Areas with High Potential to Maintain Functional Ecosystems

Key Biodiversity Area	Size (ha)
Mountain Zebra National Park complex	215,212
Hazyview	221,055
Licuati Forests and Eastern Swazi Lebombo	231,521
Greater Addo complex	233,165
Magude/Muomba	235,234
Ponto d'Ouro	254,143
Bushbuckridge	340,582
Hluhluwe-Mkhuze Lowveld	420,647
Northern Eastern Cape (Upper Mzimvubu/Matatiele)	658,480
Orpen/Kruger	756,987

The key biodiversity areas also widely vary in terms of number of threatened species, with the highest numbers being found in the Port Elizabeth Mosaic that is home to 16 Critically Endangered species and 173 globally threatened species. The reason for this high presence of threatened species is due to rapid urban, industrial and agricultural development around Port Elizabeth and Algoa Bay. Other key biodiversity areas that support large numbers of threatened species include the Northern Drakensberg Foothills (98), Pondoland North Coast (97) and Hazyview (94). The detailed analysis of the distribution of the species for each key biodiversity area is available on www.cepf.net.

A further prioritization of this large set of important areas sought to identify key biodiversity areas most important from the perspective of increasing representation of biodiversity under conservation management and ensuring the persistence of that biodiversity. An analysis of the level of protection of the sites, the amount/occurrence of threatened habitat and climate change resilience and impact was therefore also conducted. This prioritization led to a final ranking of the key biodiversity areas, the full list of which and the results for this additional analysis are summarized in Table 3.

Table 3. Summary of Key Biodiversity Areas

Combined Environmental Ranking	Key Biodiversity Area	Size	Species in Key Biodiversity Area				Threatened Habitat in Key Biodiversity Area			Climate Evaluation		Protected Areas			Protection Levels of Habitats in Key Biodiversity Areas					Ecosystem Services
	Common Name	Total area of site (ha)	Number of Critically Endangered species	Number of Endangered species	Number of Vulnerable species	Species Summary Score	Area Critically Endangered Habitat	Area Endangered Habitat	Area Vulnerable habitat	Climate Impact Score	Climate Resilience Score	Formal Protected Areas (ha)	Informal Protected Areas (ha)	% of Site Protected	Completely Unprotected Habitat (ha)	Very Poorly Protected Habitat (ha)	Poorly Protected Habitat (ha)	Partially Protected Habitat (ha)	Habitats with targets met (ha)	
1	Port Elizabeth Mosaic	37,197	16	39	47	173	0	8698	1754	7.3	1.0	3485	1359	13.0	0	0	4888	24289	8010	Medium
2	Vernon Crooks Corridor	20,615	4	14	39	79	15894	250	2194	7.3	1.7	2230	0	10.8	0	18745	0	1559	311	Very High
3	Pondoland North Coast (Flagstaff-Lusikisiki)	172,710	1	20	54	97	2082	8310	51574	6.9	2.7	10103	0	5.8	0	59575	13028	99117	385	Very High
4	Greater Itala Complex	91,477	3	15	46	85	0	14130	23625	10.3	1.4	30180	0	33.0	0	19127	27598	44521	231	Medium
5	Northern Drakensburg Foothills	87,471	7	12	53	98	0	1810	47485	10.5	0.8	22827	0	26.1	0	9659	75232	3	2577	Medium
6	Hazyview	221,055	11	9	43	94	0	0	16934	9.8	2.0	198834	0	89.9	0	0	0	12839	208215	Medium

Combined Environmental Ranking	Key Biodiversity Area	Size	Species in Key Biodiversity Area				Threatened Habitat in Key Biodiversity Area			Climate Evaluation		Protected Areas			Protection Levels of Habitats in Key Biodiversity Areas					Ecosystem Services
	Common Name	Total area of site (ha)	Number of Critically Endangered species	Number of Endangered species	Number of Vulnerable species	Species Summary Score	Area Critically Endangered Habitat	Area Endangered Habitat	Area Vulnerable habitat	Climate Impact Score	Climate Resilience Score	Formal Protected Areas (ha)	Informal Protected Areas (ha)	% of Site Protected	Completely Unprotected Habitat (ha)	Very Poorly Protected Habitat (ha)	Poorly Protected Habitat (ha)	Partially Protected Habitat (ha)	Habitats with targets met (ha)	
7	Southern Drakensburg Foothills (Weza-Kokstad-Franklin-Himeville-Underburg)	145,029	2	11	41	69	0	19838	45549	11.9	1.3	31460	0	21.7	0	44473	76358	24136	61	Medium
8	Ethekwini South	28,032	3	9	23	50	21154	1235	5131	6.6	1.1	297	0	1.1	0	27167	0	231	630	Very High
9	Mountain Zebra National Park Complex	215,212	1	4	10	21	0	0	0	11.5	3.2	25717	34467	28.0	0	44549	154549	16114	0	Very High
10	Umdloti	50,594	3	7	32	55	34867	1293	14215	7.8	1.1	35	0	0.1	0	49774	0	501	317	High
11	Hogsback/Stutterheim	108,699	2	15	25	61	0	0	3	10.0	2.2	10479	0	9.6	0	14735	3901	90063	0	Very High
12	Lower Mzimbvubu (Tabankulu/Port. St John Forests)	195,152	1	3	4	13	0	3764	46824	8.0	3.6	140	0	0.1	0	164981	20697	9285	173	Very High
13	Oribi Gorge-Mbumbazi Complex	32,436	1	9	21	42	10278	14489	3129	7.7	2.6	4335	0	13.4	0	17820	0	13460	1038	High

Combined Environmental Ranking	Key Biodiversity Area	Size	Species in Key Biodiversity Area				Threatened Habitat in Key Biodiversity Area			Climate Evaluation		Protected Areas			Protection Levels of Habitats in Key Biodiversity Areas					Ecosystem Services
	Common Name	Total area of site (ha)	Number of Critically Endangered species	Number of Endangered species	Number of Vulnerable species	Species Summary Score	Area Critically Endangered Habitat	Area Endangered Habitat	Area Vulnerable habitat	Climate Impact Score	Climate Resilience Score	Formal Protected Areas (ha)	Informal Protected Areas (ha)	% of Site Protected	Completely Unprotected Habitat (ha)	Very Poorly Protected Habitat (ha)	Poorly Protected Habitat (ha)	Partially Protected Habitat (ha)	Habitats with targets met (ha)	
14	Umzimkulu Complex	43,293	1	4	12	23	0	161	41359	9.5	2.1	0	0	0.0	0	41989	0	1304	0	Very High
15	Lower Tugela River Valley	44,230	1	5	17	30	13557	26	23352	7.5	2.1	102	0	0.2	760	42419	0	0	1049	Very High
16	Greater Greytown Complex	53,664	2	4	12	26	0	6172	40901	10.1	1.6	737	0	1.4	4231	47570	1389	474	0	Very High
17	Northern Eastern Cape (Upper Mzimvubu/Matatiele)	658,480	2	6	28	46	0	37	52480	11.7	1.9	3678	0	0.6	0	487640	109391	61448	0	Medium
18	Mistbelt Grasslands	80,165	1	4	13	24	6375	5727	55965	11.1	1.8	497	0	0.6	2726	52312	6035	19092	0	Very High
19	Boston	23,384	2	6	15	33	0	15879	7341	11.0	0.8	0	1514	6.5	113	19026	2622	1623	0	Very High
20	Port St John's Forests	101,891	0	6	6	18	0	87	24279	9.6	2.9	161	0	0.2	0	55995	37104	8339	438	Very High
21	Middle Kei - Cathcart	48,912	0	0	6	6	0	0	0	10.0	2.7	0	0	0.0	6311	35064	2885	4652	0	Very High
22	Katberg Complex	148,636	1	6	12	27	0	0	33	9.6	3.0	19487	1416	14.1	13105	8212	17067	110254	0	Very High
23	Midlands	131,601	0	4	10	18	10900	14339	81941	11.2	1.2	6149	580	5.1	13747	85379	18641	13834	0	Very High

Combined Environmental Ranking	Key Biodiversity Area	Size	Species in Key Biodiversity Area				Threatened Habitat in Key Biodiversity Area			Climate Evaluation		Protected Areas			Protection Levels of Habitats in Key Biodiversity Areas					Ecosystem Services
	Common Name	Total area of site (ha)	Number of Critically Endangered species	Number of Endangered species	Number of Vulnerable species	Species Summary Score	Area Critically Endangered Habitat	Area Endangered Habitat	Area Vulnerable habitat	Climate Impact Score	Climate Resilience Score	Formal Protected Areas (ha)	Informal Protected Areas (ha)	% of Site Protected	Completely Unprotected Habitat (ha)	Very Poorly Protected Habitat (ha)	Poorly Protected Habitat (ha)	Partially Protected Habitat (ha)	Habitats with targets met (ha)	
24	Camdeboo Complex	125,879	1	3	5	14	0	0	0	11.3	2.9	18972	19828	30.8	0	17259	65463	43157	0	Very High
25	Bathurst	46,523	7	13	25	72	0	0	0	9.6	1.9	475	414	1.9	0	2588	18501	19102	6266	Medium
26	Nkomati Valley	13,004	8	18	25	85	0	0	0	10.0	1.8	0	0	0.0	0	0	0	4207	8797	Medium
27	Pearston Escarpment	75,399	0	2	9	13	0	0	75	11.0	2.7	1837	2580	5.9	9295	185	59104	6815	0	Very High
28	Lower Kei	37,410	0	0	8	8	0	0	2425	8.4	2.6	889	399	3.4	2	31281	5204	678	241	Very High
29	Mbashe River/Coffee Bay	99,204	0	8	21	37	0	87	5803	7.5	1.8	5254	0	5.3	0	53098	37962	7321	623	Very High
30	Mvoti Estuary Complex	21,691	2	3	13	25	10347	0	11194	7.0	0.9	0	0	0.0	67	21420	0	108	92	Very High
31	Bushbuckridge	340,582	3	12	39	72	0	71	12890	10.1	1.5	250637	64943	92.7	1	0	0	21798	318783	Medium
32	Ethekwini North	18,491	1	3	5	14	16352	672	1276	7.3	1.5	60	0	0.3	0	18376	0	56	60	High
33	Fort Fordyce Reserve Complex	120,109	0	0	5	5	0	0	0	11.0	2.0	5815	0	4.8	0	73412	34102	12596	0	Very High
34	Bisho	54,576	1	6	14	29	0	0	0	8.4	1.6	527	0	1.0	0	31274	20746	1508	944	Very High
35	Kei Mouth/Haven	48,384	1	3	7	16	0	0	2807	10.0	2.0	67	0	0.1	0	19677	25189	3387	121	Very High
36	Hluhluwe-Mkhuze Lowveld	420,647	2	12	36	66	0	1503	141284	8.5	1.4	224712	0	53.4	41	0	190	201380	213789	High

Combined Environmental Ranking	Key Biodiversity Area	Size	Species in Key Biodiversity Area				Threatened Habitat in Key Biodiversity Area			Climate Evaluation		Protected Areas			Protection Levels of Habitats in Key Biodiversity Areas					Ecosystem Services
	Common Name	Total area of site (ha)	Number of Critically Endangered species	Number of Endangered species	Number of Vulnerable species	Species Summary Score	Area Critically Endangered Habitat	Area Endangered Habitat	Area Vulnerable habitat	Climate Impact Score	Climate Resilience Score	Formal Protected Areas (ha)	Informal Protected Areas (ha)	% of Site Protected	Completely Unprotected Habitat (ha)	Very Poorly Protected Habitat (ha)	Poorly Protected Habitat (ha)	Partially Protected Habitat (ha)	Habitats with targets met (ha)	
37	Manhica District	77,343	0	2	1	5	0	0	77338	10.0	1.2	0	0	0.0	77343	0	0	0	0	High
38	Queenstown Highlands	74,318	0	2	10	14	0	0	0	10.7	1.2	7895	0	10.6	7369	47569	11800	7580	0	Very High
39	Licuati Forests and Eastern Swazi Lebombo	231,521	3	5	10	29	1007	0	1289	9.9	2.4	9782	0	4.2	62821	0	728	37069	130532	High
40	Crocodile River	25,009	2	4	10	24	0	9182	0	10.9	1.3	2	0	0.0	15820	0	0	9186	0	Medium
41	Big Bend/Manzini/Hlathikulu	82,589	6	13	21	65	1024	0	0	9.9	1.6	0	0	0.0	0	0	2129	37666	42794	Medium
42	Pongola - Magudu	71,953	1	3	11	20	0	0	44209	10.0	2.8	16293	0	22.6	0	0	643	66212	5099	High
43	Ngoye Coastal Complex	119,089	1	2	9	16	87188	16	15342	7.9	0.7	10706	0	9.0	0	88191	0	6007	24687	Very High
44	Hlane-Mlawula Complex	82,757	6	11	11	51	1996	3001	28452	10.0	1.5	18718	11463	36.5	2832	0	236	37762	41927	High
45	Namaacha District	132,113	1	3	9	18	0	24977	11	10.0	1.2	10327	0	7.8	85297	0	549	26612	19113	High
46	Magude/Muomba	235,234	2	2	9	19	0	10091	26688	10.2	0.9	4	0	0.0	182702	42383	0	10094	56	Medium
47	Ncomati Plain	37,825	1	3	6	15	0	8852	724	10.5	1.2	0	0	0.0	28965	0	0	8857	0	Medium
48	Nkandla Complex	98,350	0	0	3	3	0	5094	52633	8.4	2.7	5723	0	5.8	540	77945	2121	17745	0	Low

Combined Environmental Ranking	Key Biodiversity Area	Size	Species in Key Biodiversity Area				Threatened Habitat in Key Biodiversity Area			Climate Evaluation		Protected Areas			Protection Levels of Habitats in Key Biodiversity Areas					Ecosystem Services
	Common Name	Total area of site (ha)	Number of Critically Endangered species	Number of Endangered species	Number of Vulnerable species	Species Summary Score	Area Critically Endangered Habitat	Area Endangered Habitat	Area Vulnerable habitat	Climate Impact Score	Climate Resilience Score	Formal Protected Areas (ha)	Informal Protected Areas (ha)	% of Site Protected	Completely Unprotected Habitat (ha)	Very Poorly Protected Habitat (ha)	Poorly Protected Habitat (ha)	Partially Protected Habitat (ha)	Habitats with targets met (ha)	
49	Indwe-Cala-Ngcobo-Elliot-Ugie	74,348	0	2	14	18	0	0	3468	11.5	1.9	0	0	0.0	10991	3418	43638	16301	0	Medium
50	Xai-xai and Limpopo Floodplain	142,646	0	0	0	0	0	0	142644	9.9	0.7	0	0	0.0	142646	0	0	0	0	High
51	Eston Complex	17,833	0	1	2	4	0	5386	10616	8.4	2.1	0	0	0.0	1303	16091	0	439	0	Low
52	Great Fish	99,772	2	7	16	36	0	0	0	9.0	2.1	44390	9474	54.0	3905	9276	2426	82487	1675	Medium
53	Maputo North	13,873	0	0	1	1	0	5981	7888	9.0	0.6	0	0	0.0	13871	0	0	0	0	High
54	Mthatha-Tsolo	78,929	1	3	7	16	0	0	25840	12.0	1.1	8611	0	10.9	0	34583	40361	3985	0	Medium
55	Greater Grahamstown	33,783	3	3	8	23	0	0	0	9.3	1.9	265	13939	42.0	0	13575	0	7658	12550	Medium
56	Melmoth Grasslands	52,247	1	2	4	11	103	0	37256	8.0	1.9	0	0	0.0	0	38554	1	13692	0	Low
57	Opathe Imfolozi Link	143,459	1	4	18	29	0	0	41707	8.3	1.6	68048	0	47.4	0	7142	6508	129536	273	High
58	Greater Addo Complex	233,165	3	14	21	58	0	7836	0	7.0	1.5	99809	8265	46.4	2218	425	7927	116438	106156	Medium
59	Palaborwa	33,329	5	6	27	54	0	0	2878	10.0	1.0	2570	20127	68.1	0	0	0	5359	27970	Medium

Combined Environmental Ranking	Key Biodiversity Area	Size	Species in Key Biodiversity Area				Threatened Habitat in Key Biodiversity Area			Climate Evaluation		Protected Areas			Protection Levels of Habitats in Key Biodiversity Areas					Ecosystem Services
	Common Name	Total area of site (ha)	Number of Critically Endangered species	Number of Endangered species	Number of Vulnerable species	Species Summary Score	Area Critically Endangered Habitat	Area Endangered Habitat	Area Vulnerable habitat	Climate Impact Score	Climate Resilience Score	Formal Protected Areas (ha)	Informal Protected Areas (ha)	% of Site Protected	Completely Unprotected Habitat (ha)	Very Poorly Protected Habitat (ha)	Poorly Protected Habitat (ha)	Partially Protected Habitat (ha)	Habitats with targets met (ha)	
60	Ingwavuma	60,363	2	3	15	27	0	0	3601	9.9	1.7	5332	0	8.8	0	0	2099	37656	20608	High
61	High Flats Area	37,017	0	2	4	8	506	10522	23959	7.5	1.1	0	0	0.0	189	36487	21	320	0	Low
62	Melmoth	53,359	0	0	6	6	0	0	39006	8.1	1.7	748	0	1.4	0	22243	179	30937	0	High
63	Massingr District/Limpopo National Park	58,713	0	0	2	2	0	14402	0	9.6	1.1	39689	0	67.6	11205	3281	0	17505	26723	Medium
64	Lower Mooi River Valley	31,077	0	0	4	4	0	127	13188	10.9	0.8	0	0	0.0	0	18584	12446	47	0	Low
65	East London and South	46,689	4	4	10	30	0	0	0	8.4	1.0	2136	0	4.6	0	478	39870	3828	2265	Medium
66	Kenton-Alexandria-Paterson	42,748	1	2	7	14	0	0	0	7.1	2.0	9430	1858	26.4	0	765	18878	8304	14799	Medium
67	Waterford-Jansenville	170,038	2	1	7	15	0	0	0	8.5	1.9	41690	6521	28.4	5106	0	9375	44805	110752	Medium
68	Ponto d'Ouro	254,143	0	3	12	18	0	0	198	9.9	1.3	108430	0	42.7	211	0	0	10433	242995	High
69	East Cape St Francis Complex	502	1	1	4	9	0	0	485	8.0	1.2	0	0	0.0	0	0	271	231	0	Medium
70	Orpen	756,987	3	3	10	25	0	0	0	9.6	1.1	504824	249431	99.6	171	0	0	67	756748	Medium
71	Sibaya - Kosi Bay	69,677	0	5	9	19	0	1428	2766	9.2	0.8	41260	0	59.2	0	0	0	150	65729	High

Combined Environmental Ranking	Key Biodiversity Area	Size	Species in Key Biodiversity Area				Threatened Habitat in Key Biodiversity Area			Climate Evaluation		Protected Areas			Protection Levels of Habitats in Key Biodiversity Areas					Ecosystem Services
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72	Tshaneni	43,708	3	2	2	15	562	0	0	10.0	0.6	0	0	0.0	0	0	0	816	42892	Medium

Protection of Habitats

A more meaningful insight is provided by examining the levels of protection of the habitats found within the key biodiversity areas rather than the key biodiversity areas themselves. The analysis found that the diversity of the hotspot is underrepresented in protected areas for nearly all key habitats. This analysis provides information on the success/failure of the current protected area network in securing a representative portfolio of habitats and their associated species under formal conservation.

The least protected habitats are within the Mozambique Coastal Belt, which has no formal protection, and the Limpopo region key biodiversity areas, which consists of 74 percent unprotected habitats. A proposed Greater Limpopo Park will help address this, even though the majority of this new park would lie outside the hotspot.

Some key biodiversity areas are also two-thirds poorly protected, very poorly protected or unprotected habitats and thus important for expansion of conservation management. Many of these areas are grassland and critical wetland and coastal habitats, for example, the Mvoti Estuary Complex, Lower Tugela River Valley, Mistbelt Grasslands, Midlands, and Middle Kei-Catchart.. The Northern Eastern Cape Foothills has 98 threatened species and 99 percent of the habitats in the site are poorly protected or have no formal protection. This finding is in line with the larger Southern African Freshwater analysis which indicates that the inland freshwater systems are poorly represented in protected areas (Darwell et al, 2009.) Albany key biodiversity areas (with major reserves such as Addo Elephant National Park and Great Fish River Nature Reserve), Zululand key biodiversity areas (with Hluhluwe Umfolozi and Mkuzi nature reserves), and key biodiversity areas in the Lebombo Transfrontier region have a reasonable level of protection and are only seen as a medium priority. More than 90 percent of key biodiversity areas within the Mpumalanga and Swaziland lowveld regions consist of habitats where conservation targets have been met and are generally considered to be well protected (see Table 3 for more detail). Thus, for example, although the Hazyview Key Biodiversity Area has a high number of threatened species, it is known that these species are present in nearby protected areas and thus a lesser priority for immediate conservation efforts.

Ecosystem Status

For South Africa, the status of ecosystems within sites is based on the threatened status assessment for ecosystems. This rigorous process applied national standard criteria for vulnerability of habitats in terms of transformation, degradation and representation within the protected area system (see www.sanbi.org.za for more detail). Although no such system exists for habitats in Swaziland or Mozambique, a rapid assessment was conducted with experts who know the ecosystems and applied the analysis. Due to the high overlap and similarity at the habitat scale, such a rapid assessment is justifiably robust in its validity, although further analysis should be considered a priority for future work.

Overall, threatened sites and associated threatened species are concentrated within the South African KwaZulu-Natal area of the hotspot, where there is also a high degree of species endemism. In Ethekweni North, a key biodiversity area within the Durban metrapole, for example, 88 percent of the key biodiversity area is listed as Critically Endangered Habitat; in Ethweni South, similar threats of urban pressures and coastal development have resulted in 75 percent of the key biodiversity area being listed as Critically Endangered. All other KwaZulu-Natal coastal key biodiversity areas have between 30 and 50 percent of their total area in habitats that are Critically Endangered, and Umdloti priority in South Africa has the unfortunate distinction of being the only key biodiversity area with 100 percent of its area listed as threatened.

Although different pressures face the KZN Midland Key Biodiversity Area, the resulting threat is the same and all key biodiversity areas in these regions have more than 70 percent of their total area listed as threatened. Although less area is categorized in the Critically Endangered category, 99 percent of the Boston Key Biodiversity Area, and 96 percent of the Umzikulu Complex Key Biodiversity Area are listed as threatened ecosystems. Both of these areas have extensive habitat fragmentation due to mono-crop agriculture or timber and peri-urban expansion and their freshwater systems are severely degraded by alien invasions, pollution, and sedimentation. Key biodiversity areas within Mozambique have unique habitats that are under pressure, particularly riverine areas, with Xai-Xia Limpopo Floodplain, Manhica District and Maputo North having 100 percent of their habitats rated as vulnerable or threatened as a result of rapid agricultural expansion plans. This analysis forms an important complement to the direct species analysis in key biodiversity areas as it has highlighted a number of areas that are very poorly covered by the species datasets.

Areas of Potential High Climate Change Impact and Resilience

Climate change impacts will not be evenly felt across the globe. Even at a hotspot level, it is likely that there will be quite distinct geographical patterns in the magnitude of the actual level of biophysical disturbance (e.g. areas with greater predicted change in precipitation or temperature). Climate change is addressed more fully later in this profile, however the outcomes analysis also included modeling climate change predictions and assessing climate change resilience at the landscape scale.

The modeled climate change predictions for changes in maximum temperature; minimum temperature, precipitation; potential evapotranspiration and potential moisture availability were spatially extrapolated to the entire hotspot. The predicted changes for each parameter were then divided into three quantiles (low, medium and highest impact areas) that were scored. Scores were aggregated for each area to identify key biodiversity areas with highest and lowest predicted physical climate change impacts (Figure 4).

Figure 5 summarizes the climate change resilience analysis. This analysis identifies areas that, given their ability to regulate climate variance, are likely to contribute to supporting the ecological resilience important for biodiversity. The assessment combines existing identified corridors from underlying conservation plans with additional corridors in the missing areas to produce a combined corridors analysis. Areas important for promoting climate change resilience were identified as locations with high levels of topographic variability (associated with altitude, temperature and precipitation gradients and refuge habitats) and riverine kloofs and south facing slopes (areas of refuge from temperature and moisture impacts) were modeled for the final assessment. Figure 5 highlights areas that should be proactively protected as they are important for ecological processes that will enhance the resilience of the hotspot to climate change impacts. It is important to note that while river corridors are important for resilience for many terrestrial species, freshwater species are highly vulnerable to climate change impacts as many are dependent on flow levels for breeding and are sensitive to temperature differences.

Figure 4. Level of Physical Climate Change Impact in Key Biodiversity Areas

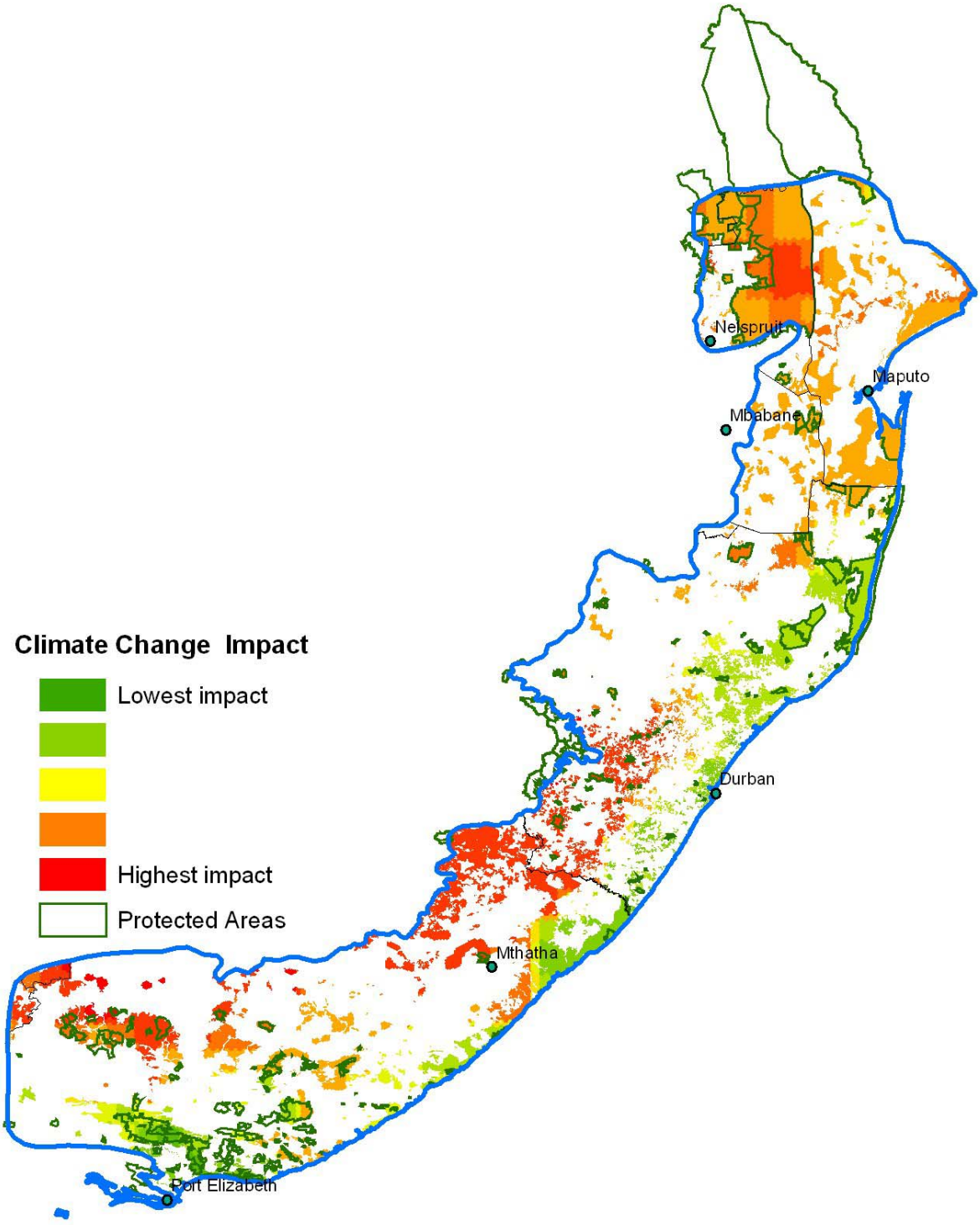
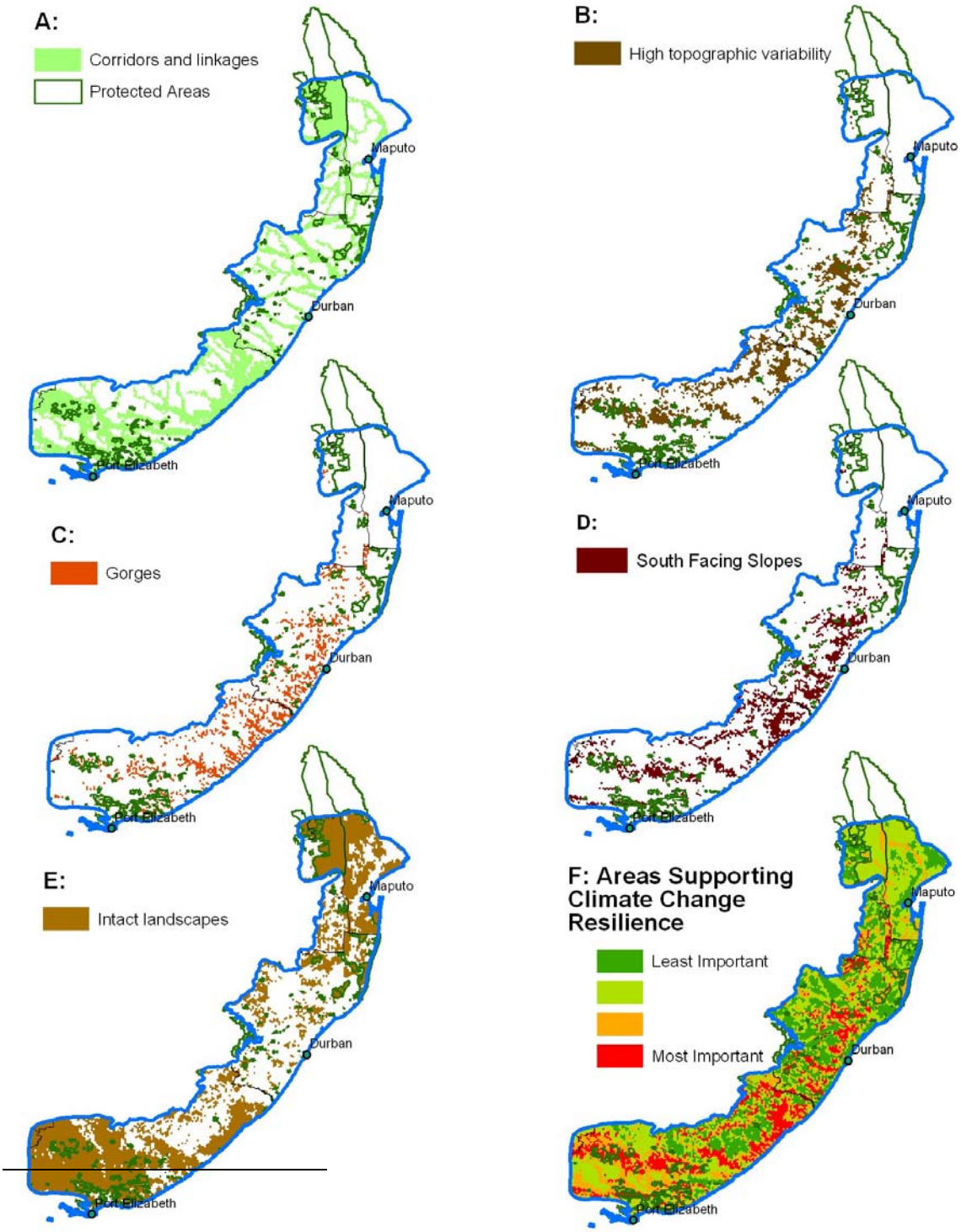


Figure 5. Areas Important for Climate Change Resilience[1]

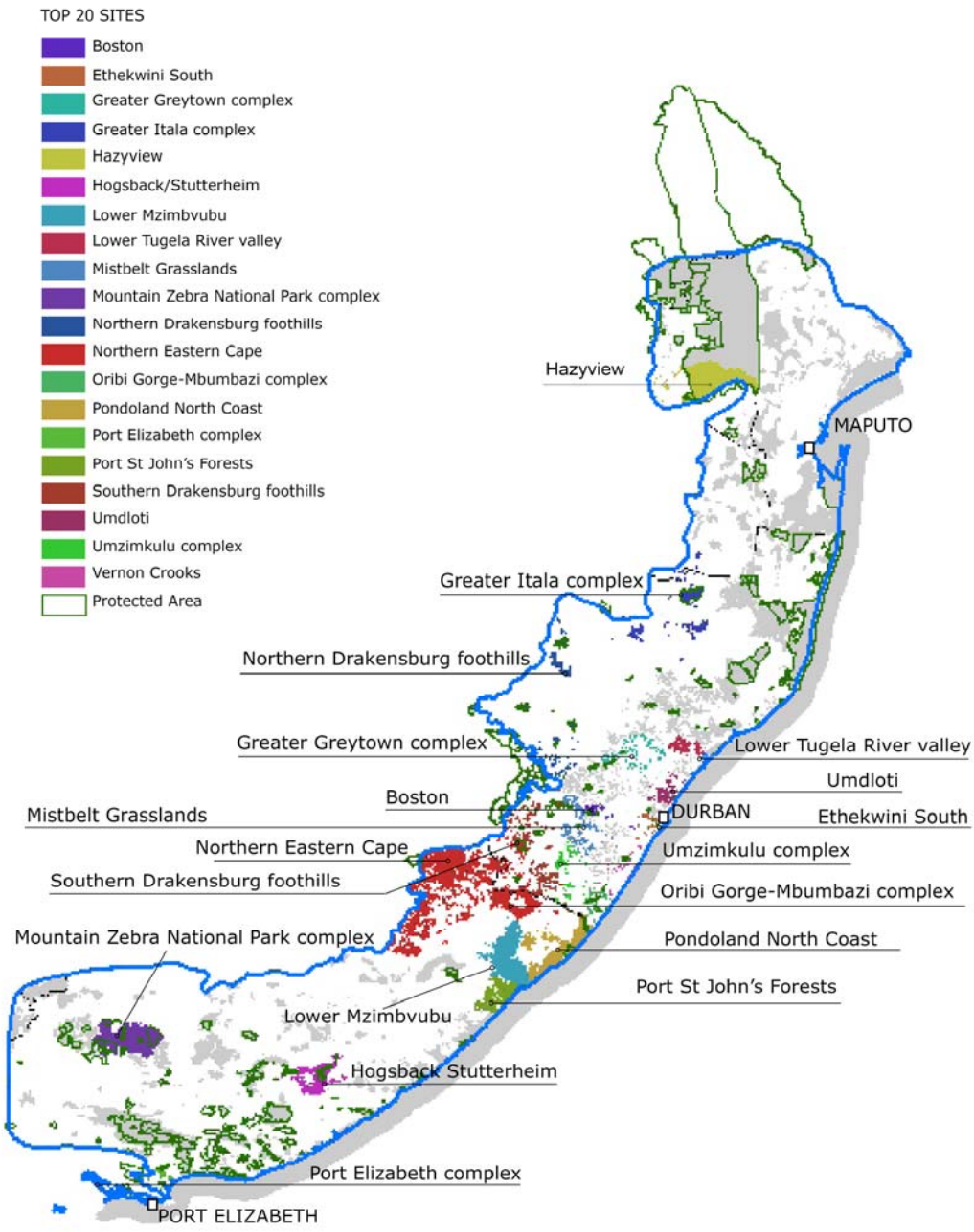


[1] A: Key corridors and linkages; B: Landscapes of high topographical diversity; C: Gorges and steep valleys; D: South-facing slopes; E: Intact connected landscapes; F: Summary of aggregated importance for climate change resilience

Overall Conservation Value Ranking

The spatial priorities shown in Figure 3 were therefore ultimately evaluated in terms of their importance for each level of biodiversity: *species outcomes*—the contribution of a key biodiversity area to conserving populations of globally threatened species, with a particular focus on those that are endemic to the hotspot; *sites outcome*—the contribution of a key biodiversity area for protecting habitats required to conserve representation of the ecosystem diversity; and *corridor outcomes*—the contribution of a key biodiversity area for protecting the processes and linkages required to support threatened species particularly in terms of long term adaptation to climate change. This prioritization led to a final ranking of sites, and Figure 6 provides a map of the 20 most important key biodiversity area sites in terms of value for biodiversity conservation.

Figure 6. Highest Conservation Value Site Outcomes



Corridor Outcomes

Twelve biodiversity conservation corridors were identified as the areas most important for protecting the processes and linkages required to support threatened species, particularly in terms of long-term adaptation to climate change. Four of these fall primarily within the Eastern Cape Province, four within the KwaZulu-Natal Province, and one within the Mpumalanga Provicne within SA. Two other fall within Mozambique and one lies exclusively within Swaziland. The final corridor ecologically extends into all three countries and the transfrontier efforts underway in the region have given the corridor its name. Given the growing importance of ensuring resilience of ecosystem f unctioning for essential services to natural and human communities, the corridor outcomes are the most important for achieving long-term conservation results.

While the protection key biodiversity areas may be sufficient to conserve elements of biodiversity in the medium term, the long-term conservation of all elements of biodiversity requires the protection of inter-connected landscapes of key biodiversity areas or conservation corridors. This is particularly important for the conservation of broad-scale ecological and evolutionary processes, and also for the conservation of species with wide home ranges, low natural densities, migratory behavior or other characteristics that make them unlikely to be conserved by site-based interventions alone. Such species are termed landscape species. In addition, conservation corridors can support the integration of habitat management consistent with conservation objectives (ranging from strict protection to sustainable use) into local, regional and national land-use planning processes. Consequently, corridor outcomes are defined based on landscape level processes and specifically in relation to site and species outcomes.

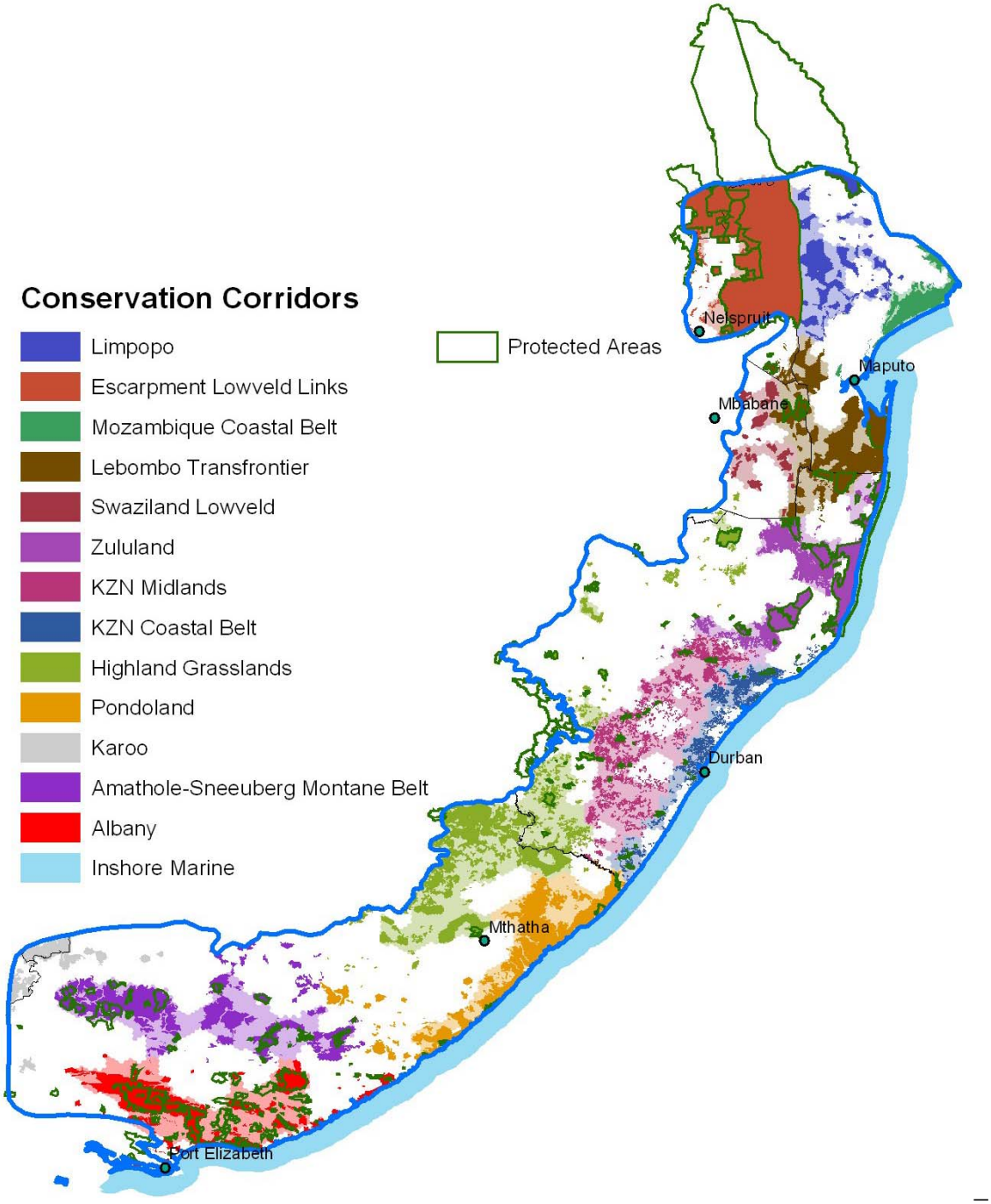
Corridors are inter-connected landscapes of sites, anchored on core areas embedded in a matrix of natural and/or anthropogenic habitats. Conservation corridors are, therefore, anchored on key biodiversity areas, with the rest of the conservation corridor comprising either areas that have the potential to become part of an existing key biodiversity area (through management or restoration) or areas that contribute to the ability of the conservation corridor to support all elements of biodiversity in the long term. Emphasis is placed on maintaining continuums of natural habitat across environmental gradients, particularly altitudinal gradients, to maintain ecological processes and safeguard against the potential impacts of climate change.

The identification of the areas most important for the climate change and process elements of the *corridor outcomes* is based on mapping two key concepts spatially, namely high impact areas and high resilience areas. As described in Site Outcomes, the former identifies the areas (and hence their associated threatened species and sites) which are likely to come under increased threat due to climate change (and hence where remaining intact areas important for ecological processes will be critical). The latter looks at areas that should be proactively protected as they are the most important for the ecological processes supporting species and sites, and would contribute most to supporting the ecological resilience of the hotspot to climate change and other impacts.

Thus, the *sites* plus their associated landscape matrix, where conservation-based land use is important for ecosystem functioning and long-term resilience in the face of global climate change, were grouped into 12 *corridors* (Figure 7). The corridors were determined by a Marxan-based systematic planning process where least-cost options were explored that linked at least 90 percent of the sites. The identified linkages are largely natural areas, and avoid completely transformed landscapes (e.g. urban areas, intensive crop agriculture zones, timber plantations, etc.) where possible.

Due to a lack of a spatially explicit data layer at the scale of the hotspot, the inshore marine zone was not included in the analyses of corridors. However, important areas for marine conservation are adjacent to all coastal key biodiversity areas and several marine protected areas are under development adjacent to the Greater Addo Complex, Pondoland North Coast, Sibaya-Kosi Bay and Ponto d'Ouro key biodiversity areas. Information related to the conservation of the inshore marine zone is provided in the descriptions of relevant corridors.

Figure 7. Conservation Corridors Listed from North to South
These consist of a group of biogeographically similar key biodiversity areas (darker shade) with their linking matrix landscape (lighter shade). The linking matrix areas are designed to contain at least 90 percent of the key biodiversity areas.



Although species and sites are important, there are pressures that can be mitigated and opportunities that can be capitalized on at the corridor scale. Additionally, it is increasingly recognized that conservation action that aims to build corridors and maintain ecosystem function are likely to be more successful and sustainable in the long term, especially under changing climate. As such, a summary of the ratings for number of threatened species, vulnerability status for habitats in sites, level of protection for sites, climate change considerations and ecosystem value was determined. A summary of each corridor is provided below from north to south:

Limpopo

The Limpopo Corridor is situated east of the southern half of Kruger National Park on the coastal shelf of Mozambique, south of the Limpopo River. Altitude is low, mostly below 200 meters, but approaching 350 meters in the west. The corridor consists entirely of savanna habitats and is found is at the northern extremity of the Maputaland Center of Endemism.

Knowledge of threatened species is poor, especially for plants, but it is known that Endangered fish such as *Chetia brevis* and *Chiloglanis bifurcus* occur here. Although the area has great potential to support large numbers of threatened charismatic mammal species such as black rhino, these are currently extinct in the country as a legacy of the civil war. Significant opportunities exist for re-establishment and are being pursued in the creation of the Limpopo National Park just north of the hotspot boundary.

The bulk of the Limpopo Corridor is not threatened. However, alluvial and riparian habitats suitable for subsistence agriculture are all either Endangered or Vulnerable. Despite being south of, and adjacent to, the Limpopo National Park and east of the Kruger National Park, the habitats found within the Limpopo Corridor are largely not represented within these parks. According to this analysis, almost 75 percent of the area consists of completely unprotected habitats. This may be an artifact of different mapping of vegetation on each side of the South African-Mozambique border, but where true habitat differences exist, the extension of existing transfrontier and other conservation initiatives needs to be encouraged into these poorly conserved habitats and is again an effort already being explored by the existing Limpopo Transfrontier Park initiative supported by the French government.

Escarpment Lowveld Link

The Escarpment Lowveld Links Corridor is situated in the extreme northwest corner of the Maputaland-Pondoland-Albany Hotspot, between Phalaborwa in the north, extending just south of Nelspruit in the south. The western boundary is marked by the escarpment, and rarely reaches 1000 meters, dropping to 200 meters near the Lubombo Mountains. The corridor falls almost entirely within the savannah biome and is within the Maputland Centre of Endemism. Kruger National Park is the dominant formal protected area and contains the most important key biodiversity area in this corridor, Hazyview, as well as the largest key biodiversity area in the hotspot, Orpen/Kruger. Although there are other smaller state nature reserves, and larger established private game reserves such as Sabi Sands and Klaserie in the area west of Kruger National Park. Key threatened species include Abel Eramus Pass flat gecko, Haacke's flat gecko and Treur River barb (*Barbus treurensis*), which is now limited to a single natural population.

The Escarpment Lowveld Link largely avoids the highly threatened escarpment grasslands of Mpumalanga as these are extralimital to the definition of the hotspot, however small areas of the endangered Blyde Quartzite Grasslands are within the borders of the Hotspot. Significant areas of the vulnerable Croc Gorge Granite Mountainlands and the Legogote Sour Bushveld are found within the focus area. These vegetation types are important because they are the major habitats of

the link between the Escarpment grasslands and the Lowveld savanna. The habitats within the Escarpment Lowveld Link Corridor are nevertheless overall well protected with all vegetation types being either partially protected or having their targets met. Conservation actions need to focus on ensuring protected areas are sufficiently well connected to all biodiversity persistence especially in the light of ongoing climate change.

Mozambique Coastal Belt

The Mozambique Coastal Belt Corridor is the most easterly of all the corridors. It is restricted to the coastal plain and forms a triangle stretching from Maputo in the south along to coast to Chonguene in the northeast, and inland to Chibuto in the north. Altitude of the Mozambique Coastal Belt Area is mostly below 70 meters. The area consists largely of savanna and alluvial flood plains and is considered the northern boundary of Maputaland. It also contains important marine biodiversity, including coral reefs and shallow marine shelves important for manta rays and whale sharks.

Similar to other areas of Mozambique, knowledge of threatened taxa and even at the ecosystem level is poor. The Mozambique Coastal Belt consists almost entirely of vulnerable vegetation types, and consists of a mix of coastal forest, savannas and some potentially high-value wetlands and coastal lagoons. The Mozambique Coastal Belt is completely unprotected. The Manhica District is the most important key biodiversity area in this corridor, with an environmental ranking of 37 of the 72 key biodiversity areas. This moderate ranking, however, may be due to data limitations and the importance of this corridor for adjacent marine conservation should not be underestimated.

Lebombo Transfrontier

The Lebombo Tranfrontier Corridor is focused on the Lubombo Mountains and includes portions of Swaziland, Mozambique, Mpumalanga and KwaZulu-Natal. It extends northward from the Pongolapoort Dam in the south to Maputo in the north. Apart from in the Lubombo Mountains where altitudes may reach nearly 800 meters, the eastern coastal plains rarely exceed 130 meters. The corridor consists almost entirely of savannah and is central in the Maputaland Centre of Endemism. A number of important protected areas are found in the area including Tembe Elephant Park, Ndumo Game Reserve, Mlawula Nature Reserve, and Hlane Game Sanctuary. Less protected, the Licuati Forest and Eastern Swazi Lebombos are important for conserving the hotspot's only endemic forest type, the sand forests, which have the highest diversity of any of the world's temperate forests. The coastal and marine ecosystems are also significant, being home to the southernmost extent of the coral communities. The coastal areas within the Ponto d'Ouro Key Biodiversity Area provide critical nesting habitat for the leatherback (Critically Endangered) and loggerhead turtles (Endangered).

Notable threatened species in the corridor include Vulnerable Lubombo girdled lizard (*Cordylus warreni*) and the Endangered fish *Sihouettea sibayi*. Just over 10 percent of the Lubombo Transfrontier consists of threatened habitat, with the bulk of this made up of the Endangered Mananga-Lebombo Thornveld. A number of other vegetation types such as Eastern Scarp Forest, Lebombo Summit Sourveld, Lowveld Riverine Forest, Maputaland Wooded Grassland and Swamp Forest are Vulnerable. The Lubombo Transfrontier is reasonably well protected by formal reserves with more than 75 percent of the area consisting of partially protected habitats or habitats with their targets full met. However, it is notable, that the remaining 24 percent of the habitats by area are completely unprotected. Therefore there is a need to both ensure that the existing GEF-supported transfrontier conservation initiatives improve the management of existing protected

areas, but also that these protected areas are extended into the adjacent unprotected sand forest and marine habitats.

Swaziland Lowveld

The Swaziland Lowveld Corridor is situated in Maputaland in the lower eastern portion of Swaziland, ranging from 200 meters altitude in the extreme east to just over 1150 meters in the extreme west. Savannah habitats and their species occupy 98 percent of the Swaziland Lowveld though it does also contain a small area of Critically Endangered Lowveld Riverine Forest in the Nkomati Valley Key Biodiversity Area. The habitats of the Swaziland Lowveld are generally well protected with 98 percent of the area consisting of vegetation types that are either partially protected or where the targets are met (either in Swaziland itself or where the same habitat is found in formal reserves in South Africa). Protected area actions should focus on formalizing and improving the conservation tenure and management of areas, and expanding and linking the reserves to ensure long term persistence.

Zululand

The Zululand Corridor is situated in the most northeasterly coastal area of South Africa, bordered by the KZN Midlands Area and KZN Coastal Belt Area in the south, and Lubombo Area to the north. St Lucia marks the southern coastal boundary of the Zululand Area, which extends north to the Mozambique border. The Zululand Corridor extends inland to Pongola in the northwest, and to beyond Ulundi in the southwest. Although occupying coastal areas, inland topography averages 500 meters, while in the southwest near Ulundi altitudes may exceed 1300 meters. Savannah habitats cover 80 percent of the Corridor and it is part of Maputaland. The Greater St Lucia Wetland Park and the Hluhluwe-Imfolozi Game Reserves are the main protected areas in the Zululand Area.

The Zululand Corridor contains a small portion (<1 percent) of Endangered habitats consisting of Dukuduku/St Lucia Grasslands and Forests and KwaZulu-Natal Coastal Forest. The bulk of the focus area consists of the Vulnerable Eastern Scarp Forest, Hluhluwe Scarp Forest, Imfolosi Savanna and Sourveld, Lubombo Scarp Forest, Lebombo Summit Sourveld, Maputaland Wooded Grassland, Midlands Mistbelt Grassland, Ngongoni Veld, Northern Qudeni Mistbelt Grasslands, Swamp Forest, and a large area of Black Rhino Habitat. The Zululand focus area is generally well protected with a number of large, well run reserves such as Mkuze and Umfolozi nature reserves ensuring that under 8 percent of the focus area remains poorly protected or worse. Conservation actions should be focused on linking reserves and expanding range for Critically Endangered species such as Black Rhino and elephant, particularly in the Pongola-Magadu and Hluhluwe-Mkhuze key biodiversity areas. The region also provides some of the best opportunities in the hotspot to achieve substantial benefits from conservation efforts through tourism and game ranching for local people in South Africa, particularly land reform beneficiaries.

KZN Midlands

The KZN Midlands are sandwiched between the Highland Grasslands and the KZN Coastal Belt areas, stretching from Harding in the South to Melmoth in the North, with altitude varying between 500 and 1,500 meters. The corridor consists of an almost equal split between grasslands and sub-escarpment savanna and is one of the more diverse corridors in Maputaland. Very few protected areas exist in the KZN Midlands with the reserves both being very small and isolated, for example, Midmar and Karkloof nature reserves. Sites within the corridor are very poorly protected and generally small. The fragmentation of the KZN Midlands through arable agriculture (both commercial and subsistence), plantation forestry and peri-urban sprawl has left the mistbelt grasslands, forests and sub-escarpment savanna habitats as well as the freshwater systems of the

corridor severely threatened. Natural habitat is found in small patches within this corridor's important key biodiversity areas of Greater Greytown Complex, Midlands, Boston, Mistbelt Grasslands and Umzikulu Complex. The Mgeni is particularly threatened by overextraction that would have a direct impact on the water supply for the people of Durban, providing an opportunity to develop innovative payment for ecosystem service schemes within the KBAs in this corridor. Threatened species include a large number of frogs such as *Arthroleptella ngongoniensis, Hyperolius pickersgilli, Leptotelis xenodactylus, Natalobatrachus bonebergi, Afrixalus spinifrons* and *Hemisus guttatus*. The region requires extensive stewardship efforts, particularly addressing water and indigenous forest management. Improved enforcement of existing regulations would also encourage better land use for biodiversity persistence in this corridor.

KZN Coast

As the name suggests, the KZN Coast is situated on the KwaZulu-Natal coast, in the eastern central region of Maputaland. The KZN Coast Corridor extends from Port Edward in the south to the Mfolozi River in the north. The KZN Coastal Belt abuts the KZN Midlands area inland, at around 600 meters altitude, and is mostly low altitude. The Indian Ocean Coastal Belt Biome occupies 87 percent of the KZN Coast. Protected areas are mostly small and scattered throughout the KZN Coast Corridor, and include the Oribi Gorge Nature Reserve, Mbumbazi Nature Reserve, Ngoya Forest Reserve and other smaller reserves. Threatened species include Sclater's forest shrew (*Myosorex sclateri*), spotted ground-thrush (*Zoothera guttata*), a number of plant species and the amphibians *Hyperolius pickersgilli, Natalobatrachus bonebergi, Afrixalus spinifrons* and *Hemisus guttatus*.

The KZN Coast Corridor contains by far the highest portion (66 percent) of Critically Endangered habitat of any of the Maputaland-Pondoland-Albany Hotspot focus areas. Extensive expansion of urban agriculture (both through the expansion of the Durban Metropole as well as coastal resort sprawl) and arable agriculture (especially sugar cane and bananas) in the area has left numerous grassland and coastal forest vegetation types such as the Durban Metropole North Coast Grassland, Eshowe Mtunzini Hilly Grasslands and the Kwambonambi Dune Forest, all Critically Endangered. The KZN Coastal Belt contains a number of very small and isolated protected areas. At the level of national vegetation types, almost 90 percent of this corridor consists of very poorly protected habitat types. Important key biodiversity areas include Umdloti, Vernon Crooks Corridor, Ethekweni South, Oribi Gorge-Mumbazi Complex, and the Lower Tuguela River Valley. Where stewardship projects can result in improved conservation of key biodiversity areas these should be undertaken as a priority.

Highland Grasslands

The Highland Grasslands Corridor is situated in the central portion of the Maputaland-Pondoland-Albany Hotspot, along the western boundary. It extends from Indwe in the south to Himeville in the north, with outliers further north as far as southwest Swaziland. The western boundary is defined by the escarpment, and generally remains under 2000 meters. Over 90 percent of the corridor is grassland habitats, 20 percent of which consist of vulnerable grassland, wetland and small forest patch vegetation types such as Bushmans Nek/Garden Castle Lowlands, Chelmsford Grasslands, Louwsberg Mistbelt Grassland, Mthatha Moist Grassland and the Pudsey/Otterburn Wetlands. Less than 4 percent of the area, a number of small endangered grassland and forest patch vegetation types are found within the corridor, including the Bazini Forest Complex, Fort Metcalf Grasslands, Hlabeni State Forest, Impendle Highlands, Ngome Mistbelt Grassland and Forest, Sihleza and Southern Weza State Forest. The Highland Grasslands are very poorly represented within the protected area network. Only 11 percent of the area consists of partially

protected habitat, and Protected Area targets are not fully met for any habitat type. Reserves outside of the alpine areas (which are not in the Hotspot) are small and isolated. Poor grazing management has led to extensive degradation throughout the corridor. Key biodiversity areas for this corridor include Northern Drakensberg Foothills, Southern Drakensberg Foothills and Greater Itala Complex. The Upper Umzimvubu Catchment in the North Eastern Cape is also a priority water catchment for the hotspot. Threatened species include wetland associated birds, such as Critically Endangered whitewinged flufftail and wattled crane (*Grus carunculatus*).

As a significant area of this corridor is the former homelands under apartheid, some of the greatest poverty levels are found within this corridor. People rely directly on healthy freshwater and wetland systems and species for their livelihoods, especially water purification, building materials, and medicines. Conservation of biodiversity in these areas must deliver benefits to local people and be aimed at the maintenance of the ecosystem services upon which communities in this corridor depend.

Pondoland

The Pondoland Corridor occupies the coastal strip of the Pondoland Center of Endemism between East London and Port Edward. Although coastal, the Pondoland Area consists of rolling hills, and is largely above 200 meters in altitude. The Corridor includes savanna, forest, thicket and grasslands. The area is also very important from a marine biodiversity perspective and includes an existing but poorly managed marine protected area and several unprotected critical marine habitats. The area is unique in that it is the tail end of Agulhas Bank, a transition zone, where many endemic species occur. The inshore zone includes critical habitat for species anticipated to be threatened, such as the spawning areas for the severely overexploited endemic fish, red steenbras (*Petrus rupestris*). There are rich cultural links between the local people and the marine biodiversity of the rocky shores and the region's wetland systems provide an important protein source for many. However, subsistence gathering of food and medicine as well as high stocking levels on communal lands in this corridor are putting significant pressure on its natural resources.

The land in this corridor is mainly under communal tenure and includes both arable and grazing subsistence agriculture, as well as extensive rural settlements. A number of small state protected areas are found in the focus area including Umtamvuna Nature Reserve, Mkambati Nature Reserve, Dwesa-Cwebe Nature Reserve, Kei Mouth State Reserve, and a few other smaller protected areas. The Pondoland key biodiversity areas contain Critically Endangered grassland types (e.g. Interior South Coast Grasslands and Southern Coastal Grasslands) and a slightly larger area of Endangered grassland and forest types (e.g. Mount Thesiger Forest Complex and Oribi-Port Edward Pondoland-Ugu Sourveld). A larger portion (approximately 18 percent) of the corridor sites consist of Vulnerable grasslands (Mthatha Moist Grassland), sub-escarpment savanna (Ngongoni Veld) and forest (Pondoland Scarp Forest and Transkei Coastal Forest). The Pondoland Corridor is very poorly protected, with reserves being small, isolated and mainly restricted to the coast, particularly in the Pondoland North Coast Key Biodiversity Area. Other important key biodiversity areas include the Port St John's Forests, Lower Umzimvubu and Middle Kei-Cathcart, which contain significant stretches of important rivers in the corridor. Key threatened species include giant golden mole, the chameleons *Bradypodian caffer* and *Bradypodian kentanicum*, and spotted thrush. Pondo palm (*Jubeaopsis caffra)* is an endemic species found in the Mtentu River in the Pondoland North Coast that now lines the streets of southern California, USA and other Mediterranean urban centers. The Umtavuna, Mtentu and Mtata rivers are some of the more important rivers for conservation of the biodiversity of the corridor. Maintenance of the catchment function of these rivers is extremely important.

Amathole-Sneeuberg Montane Belt

The Amathole-Sneeuberg Montane Belt Corridor is located just north of the Albany Corridor, and together with Albany constitutes the most westerly focus areas within the Albany Center within the Hotspot. The Amathole-Sneeuberg Montane Belt Area extends from Graaff-Reinet in the west then along the escarpment to King William's Town in the east; with outliers to the north as far as Sterkstroom. The Amathole-Sneeuberg Montane Belt Area is generally high altitude, reaching altitudes of almost 2500 meters in the Sneeuberg, and down to 600 meters on the plains below the escarpment. Principal mountain ranges include the Sneeuberg, Coetzeesberg, Baviaansberge and Amathole Mountains. The area contains the recently identified Sneeuberg centre of endemism. Grasslands cover 73 percent of the Amathole-Sneeuberg Montane Belt Corridor. Principle Protected Areas include the Camdeboo National Park, Mountain Zebra National Park, Commando Drift Nature Reserve, Tsolwana Nature Reserve, as well as a number of smaller nature reserves, state forests and private game farms. Threatened species found within the area include charismatic large mammals such as the Cape Mountain zebra and the black rhino, a number of gecko species and the Endangered frogs *Vandijkophrynus amatolicus*, *Bufo amatolicus* and *Anhydrophryne rattrayi*, all of which are limited to the Hogsback area.

The upland mountain grassland habitats of the Amathole-Sneeuberg Montane Belt are not generally very threatened by transformation, but are potentially impacted by poor management practices such as overgrazing and especially poor burning regimes. The only listed threatened ecosystem is the Eastern Temperate Freshwater Wetlands, which are Vulnerable. As a Vulnerable Freshwater Ecoregion, the corridor contains important freshwater biodiversity. The catchment region in the Hogsback-Stutterheim key biodiversity area also is important for the water supply for the Eastern Cape capital city of Bisho and larger regional city of East London, providing opportunities for innovative payment for ecosystem service schemes to support conservation efforts.

Despite containing a number of protected areas such as the Mountain Zebra National Park and the Hogsback State Forest, the Amathole-Sneeuberg Montane Belt remains poorly protected. Reserves are small and not well linked. Because of this more than two-thirds of the focus area habitats remain poorly, very poorly or completely unprotected. Significant opportunities exist in the Mountain Zebra National Park Complex to link reserves via stewardship and to initiate conservation management in Hogsback/Stutterheim to significantly improve both climate change resilience and the outlook for a number of threatened species.

Albany

The Albany Corridor is located in the extreme south of the hotspot and is the core portion of the Albany Center of Endemism. The corridor stretches between the cities of Port Elizabeth to East London along the coast, and inland to Jansenville in Karoo and the Great Fish River Nature Reserve in the former Ciskei, with outliers in the Gamtoos River Valley. The area definition stops short of the escarpment and is generally of low altitude, ranging from sea level to nearly 1000 meters in the Zuurberg Mountain Range. The Corridor contains the Albany centre of endemism, and consists largely of Albany Thicket, with some smaller areas of forest and fynbos. The area contains a number of large formal protected areas such as the Addo Elephant National Park and the Great Fish River Nature Reserve, as well as numerous well-known private conservation areas such as Shamwari and Kwandwe. A number of threatened species are found including black rhino, Duthie's golden mole, the very restricted distribution Albany adder, the Critically Endangered estuarine pipefish that is now only found in a single minor estuary, Kleinemonde, and the Endangered fish *Sandelia bainsii*.

Habitats in Albany focus are not generally severely threatened, with under 3 percent of the focus area consisting of threatened habitats. However, the presence of a high concentration of threatened species along the coast and near urban areas has resulted in a high number of threatened species. Where there are arable and irrigation water is available, the valley bottoms are severely transformed, with the result that Albany Alluvial Vegetation (which makes up the majority by area of the threatened ecosystems in the focus area) is Endangered. The remaining threatened habitats are Vulnerable, and consist largely of Algoa Sandstone Fynbos which is threatened by urban expansion of Port Elizabeth, and minor areas of other fynbos types such as Eastern Coastal Shale Band Vegetation and Garden Route Shale Fynbos. Habitats and their associated species found within the Albany Corridors are reasonably well protected with 80 percent of the area consisting of vegetation types that are partially protected or already have their targets met within formal reserves. However, the Port Elizabeth Mosaic Key Biodiversity Area is the most important site, particularly for species conservation in the hotspot and efforts to secure the remaining natural habitat before it is lost to rapid urban developments are critical.

Corridors Important for Species

To provide a spatial summary of the relative importance of each corridor for threatened species a scoring system was applied to the known distributions within the hotspot: Critically Endangered species scored three times the base value, Endangered species twice the base value and Vulnerable were scored at base value (Table 5). This scoring highlights the importance of the Albany, Escarpment Lowveld Links, the Highland Grasslands and the KZN Midlands as key corridors containing the highest concentrations of globally threatened species with 69 percent of the total species being found in these areas. At the other end of the spectrum, Limpopo and the Mozambique Coastal belt have relatively smaller significance for threatened species. However, it is important to note that knowledge of threatened species is far better developed for most areas of South Africa, especially in comparison to Mozambique where data deficiencies are extensive. Nevertheless, despite different levels of data, experts generally agree that the species diversity and endemism drop off in sites at the northernmost regions of the hotspot. A full listing of the species found within each of the corridors is available on www.cepf.net.

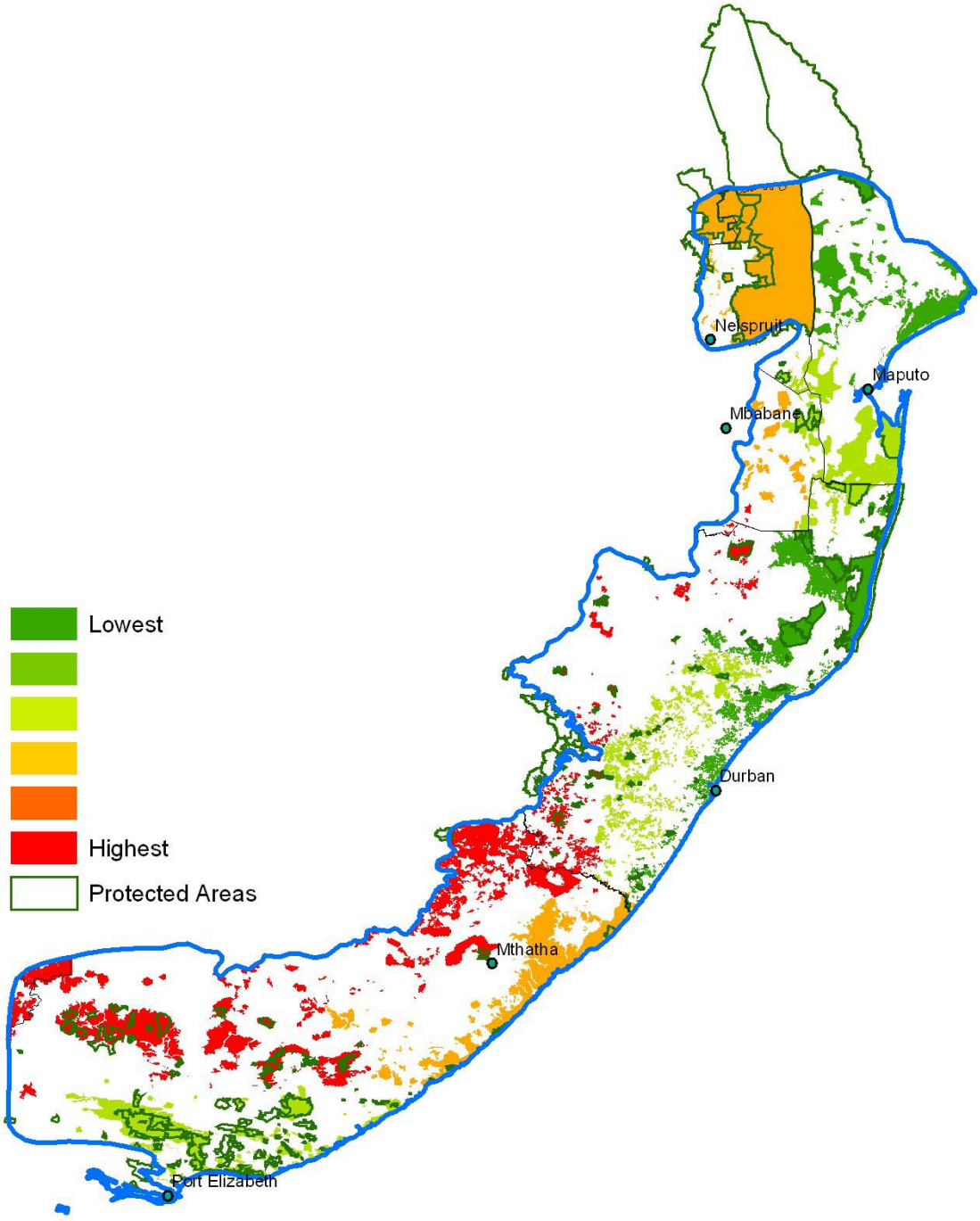
Table 5. Distribution of Globally Threatened Species in Each of the Conservation Corridors

Corridor	Critically Endangered	Endangered	Vulnerable	Total species	% of hotspot total	Summary
Albany	24	53	88	165	27	Very High
Highland Grasslands	15	34	113	162	26	Very High
KZN Midlands	12	27	74	113	18	Very High
Escarpment Lowveld Links	14	21	71	106	17	Very High
KZN Coastal Belt	9	25	69	103		High
Pondoland	3	26	71	100	16	High
Swaziland Lowveld	11	22	36	69	11	Medium
Zululand	3	18	45	66	11	Medium
Amathole Sneeuberg Montane Belt	3	20	39	62	10	Medium
Lebombo Transfrontier	9	16	32	57	9	Medium
Limpopo	2	6	13	21	3	Low
Mozambique Coastal Belt	0	2	2	4	1	Low

Corridors Important for Climate Change

The identification of the areas most important for *corridor outcomes* was undertaken using a ranking summary of the analyses of high-impact areas and high resilience areas (Figure 8). The Amathole-Sneeuberg Montane Belt is highlighted as a key area where corridor-level interventions aimed at improving climate change response through protection of key linkages and refugia could significantly assist the protection of threatened species and sites. Potential exists for corridor creation that spans significant altitudinal and climatic gradients (both temperature and precipitation) from arid high altitude grasslands with adjacent xeric Nama-Karoo habitats, through to far moister grasslands supporting the important Afromontane Forests of the Amatole and Hogsback site. The Highland Grassland Corridor is also of critical importance from a corridor outcomes perspective, as it covers the important gradient between the true montane habitats of the Great Escarpment and Drakensberg and the lower altitude midland plateau areas. Linkages between the Highland Grasslands and the Pondoland Corridor and the KZN Midlands would expand this gradient, but also provide north-south gradients between the more temperate south sections of the hotspot and the Sub-Tropical northern sections and is therefore also a priority for corridor-focused interventions. The Umtavuna, Umzimvubu and Umtata rivers that run through these three corridors provide good natural features for the focus of corridor interventions. Least important from a corridor and climate change perspective are the low, largely topographically undifferentiated bushveld areas of Limpopo, the Mozambique Coastal Belt and Zululand.

Figure 8. Combined Assessment of the Importance of the Identified Focus Areas for Adaptation to Climate Change Impacts and Improving Long-Term Climate Change Resilience

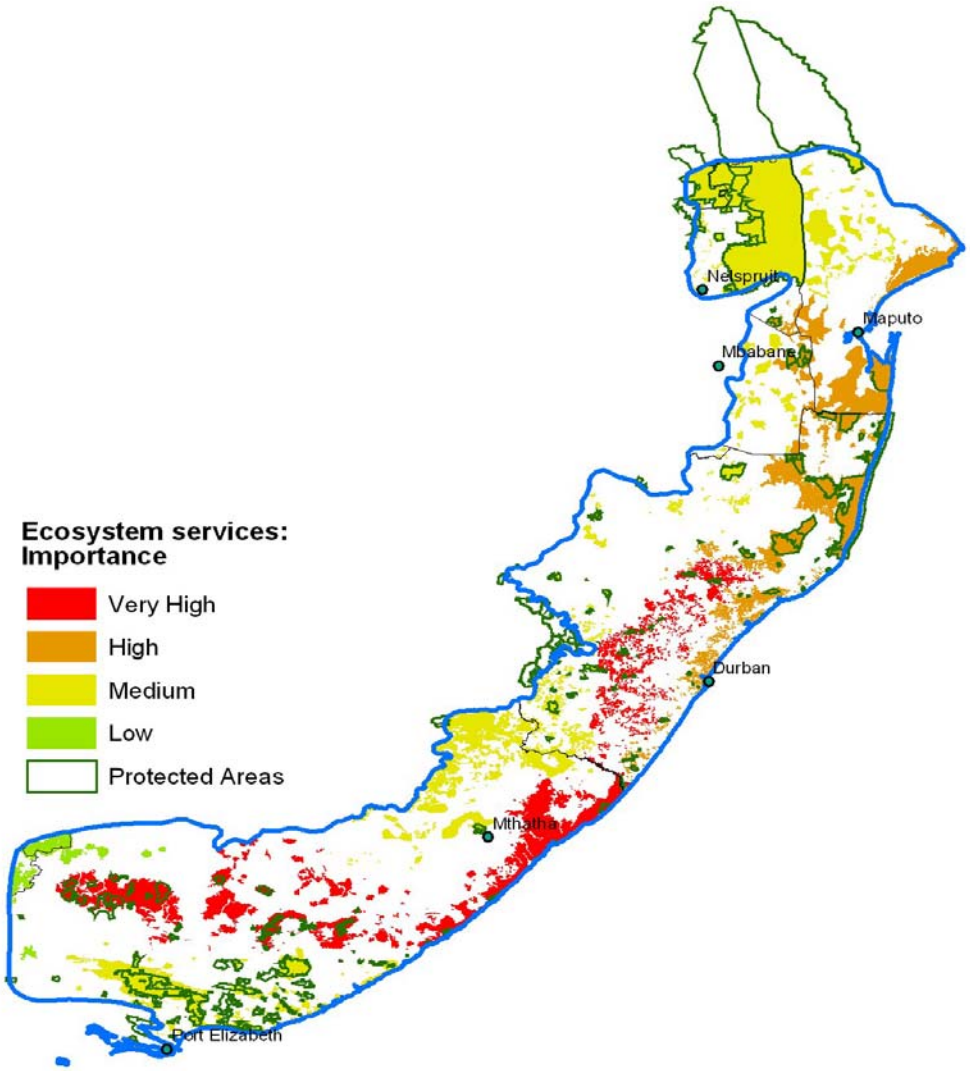


Corridors Important for Ecosystem Goods and Services

The final step in the environmental prioritization process of was the integration of an assessment of spatially explicit ecosystem goods and services (EGS). A study for this profile demonstrated that that the Maputaland-Pondoland-Albany Hotspot area is of high relative value for EGS in southern Africa (see Appendix 2)

Mapped areas of EGS (surface water provision, water catchment, soil stability, soil augmentation and carbon sequestration) were used as the basis of discussion for expert roundtables to provide input. From this process, a ranking of conservation corridors most important for the delivery of ecosystem goods and services resulted. KZN Midlands, Pondoland and Amathole-Sneeuberg Mountain Belt corridors ranked very high in terms of the EGS productivity and the number of people dependent on the services provided. The Lebombo Transfrontier and two coastal corridors also had a high EGS ranking, primarily as a result of floodplain and estuary maintenance, forest resource and tourism service values (see Figure 9).

Figure 9. Summary of Importance of Conservation Corridors for Ecosystem Services



Overall Priority Ranking of Corridors

Although species and sites are important, there are incredible pressures that can be mitigated and opportunities that can be capitalized on at the corridor scale. Additionally, it is increasingly recognized that conservation action that aims to build corridors and maintain ecosystem function are likely to be more successful and sustainable in the long term, especially under changing climate. As such, a summary of the ratings for number of threatened species, vulnerability status for habitats in sites, level of protection for sites, climate change considerations and ecosystem value is provided in Table 6. The number of Low, Medium, High and Very High scores were tallied for each corridor, and then these were scored (10 points for each Very High value, 7 points for each High, 5 points for each Medium score and 0 for Low values).

Table 6. Overall Prioritization of Conservation Value of Corridor Outcomes for the Maputaland-Pondoland-Albany Hotspot

	Criteria					Category Summary				Combined Prioritization		
	Species	**Site Status**	**Protection Level**	**Climate Change**	**Ecosystem Services**	**Low**	**Medium**	**High**	**Very High**	**Scoring Summary**	**Ranking**	**Overall Priority Tier**
KZN Midlands	Very High	Very High	High	Medium	Very High		1	1	3	42	1	One
Highlands Grasslands	Very High	Very High	High	Very High	Medium		1	2	2	39	2	One
Pondoland	High	Medium	High	High	Very High		1	3	1	36	3	One
Amathole-Sneeuberg Montane Belt	Medium	Low	High	Very High	Very High	1	1	1	2	32	4	Two
KZN Coastal Belt	High	Very High	High	Low	High	1		3	1	31	5	Two
Albany	Very High	Medium	Medium	Medium	Medium		4		1	30	6	Two
Lebombo Transfrontier	Medium	Medium	Medium	Medium	High		4	1		27	7	Two
Escarpment Lowveld Links	Very High	Medium	Low	Medium	Medium	1	3	0	1	25	8	Three
Mozambique Coastal Belt	Low	High	Very High	Low	High	2		2	1	24	9	Three
Zululand	Medium	High	Medium	Low	High	1	2	2		24	9	Three
Limpopo	Low	Medium	Very High	Low	Medium	2	2		1	20	11	Three
Swaziland Lowveld	Low	Low	Low	Medium	Medium	3	2			10	12	Four

SOCIOECONOMIC, POLICY AND INSTITUTIONAL CONTEXT

Historical Context

The Maputaland-Pondoland-Albany environment has been shaped by human habitation since prehistory. The current extent of environmental transformation is the result of human activities over the past few centuries, characterized by sustained periods of external domination, war and displacement. Early contact with European and Asian traders around the present-day Maputo is widely accepted by historians to have initiated a process of nation-state formation in southeast Africa that cascaded southward and led to the consolidation of the Nguni empires. This in turn started an era of war and displacement known locally as the *mfecane* that reorganized the sociopolitical landscape. The British colonized the present-day areas of the hotspot that fall within Swaziland and South Africa while the Portuguese colonization of Mozambique was consolidated in 1875. An Indian population was brought to the region during the 19th century by the British as forced laborers for the expanding local sugar industry. Swaziland and South Africa gained independence in the 1960s. Apartheid, which had significant impacts on the rural landscape and ecology of the regions within the hotspot due to the location of the largest homelands here, continued in South Africa until 1994 when the first democratic elections were held. Swaziland became a constitutional monarchy headed by a king, presently King Mswati III, who ascended to the throne in 1986. Mozambique gained independence in 1975 after a war of independence, but this was soon followed by another war fuelled by South Africa's destabilization policy that lasted until 1992 when the Rome Peace Accords were signed and elections were held in 1994.

It is only in the last 15 years, since the end of apartheid in South Africa and conflicts in Mozambique, that the region has experienced political, social and economic cooperation. The region's history has shaped land-use trends in the hotspot and continues to influence current demography and socioeconomic conditions, land tenure and land reform, policy, law and institutional environments, and economic trends. These issues are discussed in relation to the three biologically defined regions within the hotspot: Maputaland Center of Endemism, which is the region that extends through Mozambique, Swaziland and South Africa; and, Pondolandand and Albany Centers, both of which are located entirely within South Africa.

Demography and Socioeconomy

Population

A rough estimate of the total population for Maputaland-Pondoland-Albany is 18.4 million people[2], 10 million of whom live in the KwaZulu-Natal Province, 6.9 million of whom live in the Eastern Cape and the remainder of whom live in the rural areas of Swaziland and southern Mozambique. In the Gaza Province in Mozambique the population density is a mere 18 people per square kilometer, while in the Eastern Cape, the average is 41 people per km^2 and in KwaZulu-Natal the population density is 137/people per km^2.

Of the South African population, 6.3 million reside in urban areas. Rural densities are highest in the former homeland areas of South Africa, particularly in areas such as Bushbuckridge in Mpumalanga (where densities exceed 500/km^2), parts of the former homeland areas of KwaZulu-

2 The accuracy of the estimate is limited by different census dates, a lack of recent census data in some areas and non-alignment of the census district boundaries with the hotspot boundaries. The estimate does not take changes since the census into account: the population has not been growing everywhere – indeed, recent partial estimates suggest population declines in some areas.

Natal and the area around Mtata in the Eastern Cape. Rural densities are below 60/km^2 in the private land areas of KwaZulu-Natal and the more arid portions of the Eastern Cape. Swaziland is small and relatively densely populated while the level of urbanization is low, with 80 percent of the population living in rural areas. Swaziland has a low total population of around 1.1 million and it is likely that at least 50 percent of this number live within the hotspot. The population estimate for the Mozambican portion of the hotspot is approximately 3.2 million people (2007 census data), although more than 50 percent (approximately 1.8 million) live in urban areas and primarily the aggregation in and surrounding Maputo city. These population density differences reflect the percentage of the population in urban areas, where services, education, and employment are higher (e.g. within the Eastern Cape, the urban district around Port Elizabeth in the Albany Center has a literacy rate of 91 percent as compared to 49.2 percent in the poor, rural OR Tambo district in Pondoland.)

Growth rates in Maputaland-Pondoland-Albany have been generally high in the past decades, particularly in urban areas due to urbanization (for example, 4 percent in Maputo), but this has changed in recent years. For example, KwaZulu-Natal had a population of 12.7 million in the 2001 census, with a growth rate of 2.4 percent per year, but the mid-2009 estimate is 10.44 million (SSA 2009), indicating a sharp reversal from a positive to a negative growth rate. Similarly, Swaziland has a negative population growth rate. This is due to HIV/AIDS that occurs at a high rate across the entire hotspot. Indeed, HIV prevalence in the national populations aged between 15 and 49 is very high (13 percent in Mozambique, 18 percent in South Africa (with rates as high as 39 percent in KwaZulu Natal, the highest of all South African Provinces, and 26 percent in Swaziland, (WB 2009); an estimated 34.5 percent of child-bearing women in the KwaZulu-Natal had HIV/AIDS in 2002, Dorrington *et al*. 2002). AIDS-related deaths accounted for 47 percent of all deaths in South Africa in 2007, leaving an estimated 1.9 million orphans nationwide (SSA 2009). This represents a significant threat to capacity in the hotspot, and exacerbates poverty.

The mortality rate of under-5-year-olds in all three countries is very high but particularly in Mozambique (17 percent, compared to 6 percent in South Africa and 9 percent in Swaziland). Life expectancies at birth in these countries are 42, 50 and 40 years respectively (WB 2009). Aside from HIV/AIDS, other key health problems in the hotspot are environmental health issues, including malaria (particularly in the northern areas), tuberculosis and schistosomiasis (bilharzia), as well as waterborne illnesses such as cholera (with an average of 6,000 cases of cholera per year in Maputo City, Mozambique) and diarrhea.

Poverty and Unemployment

Poverty is high across the hotspot and there is a high degree of unequal distribution of wealth in terms of household income and consumption figures. In the Swaziland portion of the hotspot, 81 percent of the population is living on less than $2 per day and the Human Poverty Index (HPI-1)[3] is 36 percent. For Mozambique the figures are 90 percent and 48 percent respectively (HDRO 2008). In the Eastern Cape, the poverty rate in 2008 was 58 percent of the total population and in KwaZulu-Natal the figures are at 61 percent.

In the Pondoland and Albany centers in the Eastern Cape, poverty has increased from 55.3 percent in 2006 to 58.3 percent by 2008 with an increasing total population from 3,422,513 to 3,889,673. As is often the case, poverty and employment go hand and hand in the region. In the Eastern Cape unemployment has increased from 25 percent in 2006 to 32 percent in 2008

[3] The HPI-1 is derived from: Probability of not surviving to age 40; adult illiteracy rate; percentage of population not using and improved water source; percentage of children under weight for age.

(Eastern Cape Socio-Economic Consultative Council, 2009) and 10 of the 25 poorest local municipalities in South Africa are in the Eastern Cape. Employment in Maputo Province is 58 percent whilst in Maputo City it is only 48 percent and has a significant gender bias, with women having a higher employment rate by 10 percent over men in 2004. Additionally, the self-employment rates in Mozambique are very high: 36 percent, 48 percent and 67 percent in Maputo City, Maputo Province and Gaza respectively (INE 2009). In KwaZulu-Natal and the Ehlanzeni municipality of Mpumalanga, between 71 percent and 74 percent of the work force has no income at all.

Literacy

Education in the hotspot area is a critical challenge, particularly in rural populations. Although increasing each year since 1995, functional literacy for adults above 20 years old in the Eastern Cape Province is 66 percent (Eastern Cape Socio-Economic Consultative Council, 2009) equivalent to literacy in KwaZulu-Natal which is 65 percent. Public education in Mozambique is very limited, with a very high drop-out rate at primary level. Maputo Province's illiteracy rate in 2007 was 22 percent, with a high level of gender bias: the rate was 12.1 percent in men as opposed to 30.5 percent in women. The illiteracy rate in Maputo City is much lower, at 10 percent (INE 2009). The situation in Swaziland is much better, with illiteracy rates of 18 percent overall and only a 2 percent difference between the sexes (CIA 2009). High illiteracy rates are often associated with high fertility rates as well as limiting income earning opportunities, and seriously exacerbate poverty and population problems, and hence environmental problems, in the hotspot.

Table 7. Key Well-Being Indicators

	South Africa	Swaziland	Mozambique
GINI Index	58	61	40
GNI per capita, PPP (current international $)	9087	4705	739
Extreme Poverty (% of pop. living on <$1.25 per day)	26	63	74
Poverty (% of pop. living on <$2 per day)	43	81	90
Employment to population ratio, 15+, total (%)	41	51	77
Prevalence of undernourishment (% of population)	5	18	38
Population without access to improved water source (%)	7	40	58

Sources: HDRO 2008, World Bank World Development Indicators Database, April 2009

Services tend to be poor in the rural parts of Mozambique and Swaziland, and the former homeland areas of South Africa, as well as in peri-urban areas; contributing to pressures on the environment. Thus, only 28 percent of households in KwaZulu-Natal have piped water to the dwelling or yard, and 59 percent have weekly refuse removal – much higher than the 21 percent in Ehlanzeni municipality in the Mpumalanga Province in north of the hotspot (SSA 2001). Poor services, infrastructure and economic development in the Eastern Cape have resulted in large numbers of people migrating to urban centers outside of the hotspot (particularly Cape Town). This has further reduced an already low rural population in the Eastern Cape, and the population growth rate in 2001 was only 0.43 percent per year (SSA 2001). Similarly, only half the Swazi

population has access to improved sanitation services and only 60 percent of the population has access to an improved water source.

Natural Resource Use

Rural households throughout the Maputaland-Pondoland-Albany Hotspot use a wide variety of natural resources to meet basic living requirements, to trade in internal and external markets and as a coping strategy in periods of stress. This is particularly the case in the Mozambique and Swaziland portions of the hotspot, where the people primarily regard themselves as agriculturalists but tend to have a diverse natural resource-dependent livelihood base. In contrast, in the two South African provinces in the Hotspot, rural households are primarily dependent on cash received from urban areas (through remittances or migrant labor), as well as from government pensions and grants. Thus, although natural resource use does provide them with additional livelihood sources and fulfills an important safety net function, it is not as important as in Mozambique and Swaziland.

Where there are people whose livelihoods are dependent on natural resources, in addition to water and grazing for livestock, the most commonly used resources include indigenous wood for fuel, construction materials and utility items; wild fruits, herbs and vegetables; medicinal plants; grass, reeds and sedges for thatching, construction, mats and crafts; and clay and sand for building and pottery. Factors that affect the degree of use of natural resources by households include resource availability, accessibility and rules of access, household income, availability of substitutes and cultural factors (such as dwelling design), as well as population density. Poorer communities without electricity are usually more dependent on natural resources, as are households that have suffered shocks such as retrenchment or death of a breadwinner.

The different livelihood strategies undertaken at the household level interact in complex ways and the resulting effects on natural resources are not always straightforward or predictable. Although there are only a handful of studies from the hotspot area on the contribution of natural resources to rural livelihoods, a more detailed analysis is underway for the Pondoland North Coast and it is known that rural households throughout the hotspot trade in one or more type of natural resources as a source of cash income. This is partly because agricultural surpluses are often difficult to achieve due to labor and land shortages, and because there are few alternative opportunities to meet household cash income needs. Natural resources play an important role in the drought coping strategies in Mozambique, when households turn to gathering of wild fruits and production of charcoal (Eriksen & Silva 2009). Urban demand for medicinal plants and charcoal (particularly in the areas surrounding Maputo city) provides an incentive for the harvesting and production of these resources in rural areas, and trading in natural resources can be profitable relative to other income generating activities about which the people might not know or have the current skill set to exploit (Shackleton & Shackleton 2000, Shackleton *et al*. 2001).

The deepening poverty that is being brought about in the hotspot area by HIV/AIDS and the current economic downturn is also increasing household reliance on natural resources in rural areas (Jones 2006). The high rate of job losses in urban and rural areas results in people returning to rural home bases to seek livelihood opportunities (e.g. Hoffman *et al*. 1999.) In this regard, the natural resources present in the rural areas act as a safety net to a much wider sector of society than those currently present in the rural areas. This dependence is likely to continue to increase in the medium term until economic development reduces the level of poverty.

Land Tenure and Land Reform Context

Across the region, the history of colonial occupation and land dispossession resulted in great inequalities in land ownership. Under apartheid in South Africa, the whites took ownership of the majority of land. The remaining land was designated "communal" land – a term which has historical derivations and differences across the three hotspot countries. In general, on communal land, the community group has use rights. The issues of rights of use, access and control are more complex than on land owned by an individual. In some cases traditional institutions determine these rights, while in other cases there is little effective administration and control over the land resulting in the classic problem of open access and the "tragedy of the commons." Thus, for investment in the hotspot to be effective, it is important to understand land tenure, land reform and natural resource use in these areas.

Mozambique

Land tenure and the control of natural resources has, throughout its history, been a complex issue in Mozambique (Clark & Vaz 2006). Before independence, small-scale farmers relied upon customary forms of land tenure. The practices and human densities were so low that the impacts were minimal. In contrast, commercial farmers (mostly Portuguese) had long leases that were almost equivalent to freehold ownership and significant transformation took place. After independence, all land became state-owned. Abandoned commercial farms were reorganized into large state farms, while small farmers were expected to join cooperatives or communal villages. During the civil war, many of the state farms reverted to subsistence level agriculture, and there was large-scale displacement of the population mainly to urban centers. After the end of the civil war, displaced families and others tried to return to their former lands, which led to conflict with those who had taken over their land. In addition, local and expatriate investors were seeking to gain control over land that was claimed to be "unoccupied" or "abandoned." Conflict escalated between subsistence farmers wishing to assert their traditional land use rights and those who had submitted legal claims or acquired leases over the same land. These conflicts were addressed through the introduction of land reforms in the 1997 Land Law, followed by the secondary legislation passed in 2000. Under this law, land is still vested in the state, but it has become easier for private enterprises to obtain land rights for up to 50 years, which allows for sub-lease agreements as well (Eriksen & Silva 2009).

While this system of land management has been successful in many respects, such as protecting traditional land use rights of subsistence farmers because the tenure is relatively short, there is no long-term incentive for holders of land to protect or conserve the land. The result is that many problems are being experienced, including land degradation; the pursuit of short-term profits over long-term investments; constraints on the expansion of commercial agriculture; land speculation (individuals acquire land not for the purpose of developing it but rather for profiting from the sale of the "infrastructure" on the land at a later stage); and opportunities for corrupt officials to enrich themselves through allocation of land. With investment, NGO partners could have significant impacts working with local communities to improve the management of communal areas (for example, the Lebombo Hills in the transfrontier conservation area.)

South Africa

As in Mozambique, history has had a profound impact on land tenure and consequent land management in the hotspot area in South Africa. Before 1994, apartheid was implemented at every level of society and at its most fundamental level it involved control of the land. In some cases in the hotspot, people were moved off land that was then proclaimed a protected area; occasionally, this was used strategically as part of the apartheid government's strategy to secure its border with Mozambique. Consequently, conservation was seen as benefiting only white

people and dispossessing others. More generally, apartheid policies have had some of their greatest impacts on land use and distribution in the hotspot, with the majority of designated homeland areas (areas where black South Africans were forced to live in high-population densities) falling within the hotspot while the remainder of the country was under white freehold title or owned by the state.

Communal Lands

Three former homeland areas fall within the boundary of the hotspot and make up the majority of the current communal land holdings within it: KaNgwane in Mpumalanga Province, KwaZulu in KwaZulu-Natal Province, and the Transkei and Ciskei in the Eastern Cape Province. The run-up to the 1994 elections and the end of the Homeland/Bantustan system impacted the current status of communal land. In the Mpumalanga Province, the KaNgwane Homeland was incorporated into South Africa between 1990 and 1994. KwaZulu-Natal is the only province in which provision of a king is also recognized in the constitution. Land in the province is administered by traditional leaders (chiefs), but the chiefs do not hold title to the land and cannot dispose of it, as the land is still owned by the state. Women as well as men are also granted land through this process, particularly for farming plots.

Similarly, in the Eastern Cape Province, the Ciskei and Transkei homelands were incorporated into South Africa between 1990 and 1994 and are administered by chiefs through Traditional Councils that do not hold title to the land. In KwaZulu-Natal, a different scenario played out in the run-up to the 1994 elections. In a final bid to appease the Inkhata Freedom Party that was set to boycott the elections of 1994 and clung to the KwaZulu Homeland, the Ingonyama (Kings) Trust was established. The Ingonyama Trust holds title on all land in the province that used to form part of the KwaZulu Homeland. The land is also administered by chiefs through Traditional Councils, but the main difference is that the land is not owned by the state, but by the trust. The KwaZulu-Natal homeland is the only province where the rights of traditional rulers are guaranteed in the Constitution. In these traditional communal lands, conservation efforts will require working within this traditional system.

Land Claims and Land Reform

A national land reform program in South Africa involves restituting land to those who were subject to forced removals. The program has been implemented with three elements – restitution, tenure reform and redistribution. By the end of 2008, about 5.1 million hectares (just over 5 percent of commercial farm land) had been transferred to historically disadvantaged South Africans, falling far short of the progress needed toward the target of 24.9 million hectares (30 percent of commercial agricultural lands) by 2014. Of the land that has been transferred, very little is being used profitably, leading to a call for increased rural development by President Zuma in 2009. Land claims on conservation areas by previously dispossessed communities have also been a major issue in nearly all of the key biodiversity areas in the South African provinces and 26 land claims exist in South Africa's 21 national parks, and claims exist for the majority of conservation areas within the hotspot. High-profile success stories such as the Zulu Rhino Reserve in the Pongola Key Biodiversity Area where the community structure established after a land claim has also been supported by WWF-South Africa to obtain black rhinoceros as an attraction for ecotourism development are found simultaneously with stories where conservation has not yet met the needs/expectations of land claimants such as at the Mkambati Reserve, in the Pondoland North Coast. Thus, government understands that conservation as a land use can drive economic growth, but remains wary of conservation efforts due to the historical disenfranchisement of local people for the creation of protected areas and the lack of successful models of conservation-based economic development on land-reform land within or beyond protected areas. As a national priority and strongly emotive issue in the country, conservation

efforts must align and support this national effort and a number of pilots are taking place that are making progress and generating models that can be replicated and lessons that can be built upon.

Swaziland

There are two types of land tenure in Swaziland: Swazi Nation land, based on customary law and held in trust by the king, and title deed land, which is held under freehold title and covers about a quarter of the country. Swazi Nation land is mostly under customary tenure (covering 55 percent of the land area) and is allocated to households by chiefs (van der Waveren 2008). Thus, households obtain access to land for housing, agriculture, grazing and collection of raw materials by professing allegiance to a chief. The system thus has an important social security function, especially with slow economic growth and rising unemployment, although, important for long-term environmental management, tenure security for individuals can be tenuous because chiefs are able to take land away and re-allocate it. About 12 percent of customary tenure land is cultivated, the remainder used for grazing, collection of natural materials and hunting. Farming systems are small scale and mixed. Some 92 percent of homesteads have land for cropping. Maize and cotton are the main staple and cash crops grown, but yields are low, and there is very little irrigation.

In 1997, noting that rapid population growth, industrialization, urbanization, increasing agricultural demands and a declining economy were fast degrading the natural resource base, the Swaziland Environment Action Plan (SEAP) was approved, with agro-ecological zoning being one of its major strategies. SEAP promotes clearly defined, enforceable and transferable property rights as fundamental to production efficiency and agricultural development. Government recently adopted a Rural Resettlement Policy to improve land use on customary tenure land, by re-arranging land within rural communities (fitting within customary land tenure arrangements). It is not clear when and how the SEAP and Rural Resettlement Policy will unfold into implementation and a watching brief approach should be adopted.

Economic Trends

The economic statistics of the socio-political regions making up the hotspot are consistent with those of developing countries. Within the Maputaland area, Swaziland and Mozambique's economy is based on agriculture and agro-industry. High-value crops (sugar and timber) make up most of the agricultural contribution to the regional (only 7 percent of the regional GDP), while industry (largely textiles, mineral and sugar-related processing and export) accounts for about half the GDP. Small-scale farming is the predominant economic activity although in some areas – usually alluvial floodplains – large-scale sugar cane production is increasing. Infrastructure projects in the Maputo Province have been one of the main drivers in recent years, particularly with foreign donor funding and remain a key economic focus to improve the domestic business environment. Some of the significant infrastructure developments have been aimed at the development of ecotourism and efforts by both donor and private sector funding have expanded opportunities for this sector to grow in the Mozambique and Swaziland regions of the hotspot in the future.

Within the South African region of the hotpot, the rural areas dominated by communal lands have the weakest local economies, especially in the Highland Grassland and Pondoland corridors in the Eastern Cape. Government services, including education and health as well as public administration, create the bulk of employment in the two provinces in the hotspot and are likely to continue to do so in the near future. While increasing manufacturing and urban retail and finance services are the second largest contributors to GDP, agriculture plays a significant employment role in both provinces. In KwaZulu-Natal, the main economic drivers have historically been

mining, timber, agriculture, manufacturing and financial services. Sugar cane production in the province is well established and has led to significant fragmentation of the landscape particularly along the coast. Durban and Richard's Bay are major port cities in the province. However, since 1994, there has been a massive increase in tourism and related leisure/lifestyle estates leading to residential, resort and other developments that have contributed to the construction and retail sector growth in the economy.

In the Eastern Cape, people in the former Transkei region are dependent on cattle, maize and sorghum-farming. An olive nursery has been developed in collaboration with the University of Fort Hare in the region to form a nucleus of olive production in the province and there is much talk of the potential for expansion of small-scale forestry in this area. The Alexandria-Grahamstown area produces pineapples, chicory and dairy products, while coffee and tea are cultivated at Magwa. The fertile Langkloof Valley in the southwest has enormous deciduous fruit orchards, while sheep farming predominates in the Karoo. Two major industrial centers exist within Port Elizabeth and East London and both of these cities also operate ports contributing to the GDP of the region.

The recent global economic recession has affected the region, resulting in negative growth rates during the past year in all areas. In the South African provinces, growth dropped to 3.1 percent in 2008, and was expected to slow to 1.1 percent in 2009 with the nascent automotive industry in the Eastern Cape expected to take the greatest hit. Although Mozambique was less affected than South Africa, the International Monetary Fund lowered the forecast for economic growth in Mozambique from 6.2 percent in 2008 to 5.5 percent in 2009 as a result of the recession (UNDP 2009). Swaziland's real economic growth declined to 2.6 percent in 2008. This has and will deepen poverty in the region, and will make poverty alleviation measures more challenging over the next few years. Selected economic indicators at the national scale are provided in Table 8.

Table 8. Economic Indicators for 2007

Economic Indicators	South Africa	Swaziland	Mozambique
GDP (current US$) (billions)	283.01	2.89	7.79
GDP growth (annual %)*	5.1	3.5	7.3
Inflation, GDP deflator (annual %)	8.9	8.9	6.2
Exports of goods and services (% of GDP)	32	80	39
Imports of goods and services (% of GDP)	35	81	46
Gross capital formation (% of GDP)	21	13	19
Overseas development assistance received 2007 ($ millions) (% of GDP)	794 (0.28%)	63 (2.18%)	1777 (22.81%)

Payment for Ecosystem Goods and Services

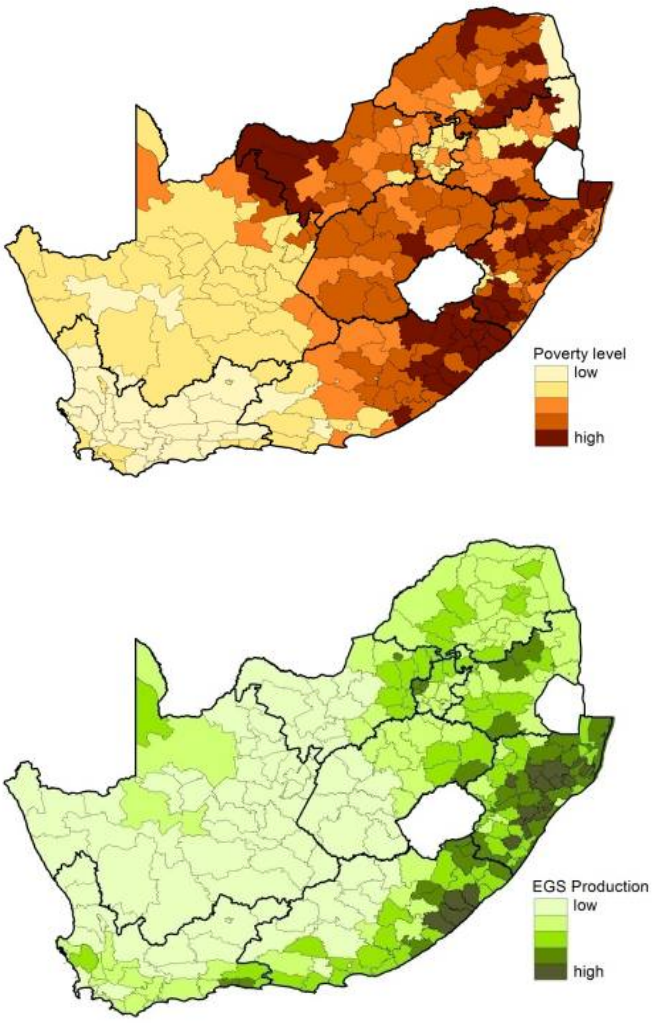
The recognition of the value of ecosystem services, first made popular by Costanza *et al*. (1997), has led to the realization that in some cases it is worth paying for the protection of areas that provide valuable services. Payments for ecosystem services first arose as unbrokered, private deals, where "downstream" users of services provided by "upstream" ecosystems undertook to pay upstream landowners to change their land use so as to improve service delivery. While the term only came into use later, developed world conservation agencies have long since pioneered the idea of paying landowners to withdraw from activities that threatened certain ecosystems or elements of biodiversity. More recently, hundreds of projects have been established around the

world, usually involving an arrangement where landowners are paid to reduce or cease their damaging activities by those that benefit from the services provided by the conserved ecosystems. A payments for ecosystem services system involves voluntary payments for well-defined ecosystem services (or land uses that are likely to secure those services) that are conditional on service delivery (Wunder, 2005). In South Africa, Working for Water provides a unique example of paying to restore ecosystem services while at the same time benefiting formerly unemployed people. This program also differs from the usual model in that those being paid are not the landowners, and the landowners also benefit from the restoration activity (Turpie *et al*. 2008).

Successful projects most commonly involve the provision of hydrological services, and to some extent carbon sequestration services. Some projects have also attempted to market services such as biodiversity conservation and scenic beauty. In the Maputaland-Pondoland-Albany Hotspot, payments for ecosystem services are seen as potentially playing a significant role in achieving conservation in the Highland Grassland areas, both as an incentive mechanism (for landowners to change to more conservation-friendly practices) and as a financing mechanism (for existing protected areas and catchment management). The most marketable service in this area is hydrological (specifically flow regulation), although other services will be protected in the process of protecting hydrological services. Water purification services by landscapes in general and wetlands in particular are also potentially marketable throughout the study area, given the crisis level of water quality in the region. Given the natural coverage of savanna and forests in the region, there are also plenty of opportunities for carbon sequestration projects and even biodiversity offsets that, if designed properly to capitalize on urban centers, could provide financial sustainability to conservation efforts throughout the region.

The areas that are most valuable in terms of provision of ecosystem services generally coincide with the areas of highest poverty within South Africa (Blignaut *et al*. 2008, Turpie *et al*. 2009). This is because the delivery of ecosystem services and the distribution of people are both highly correlated with the higher rainfall and more productive areas in the eastern half of the country. Despite recent trends in recognizing the value of ecosystems and their potential contribution to development and poverty alleviation (for example, Turpie *et al*. 2009 estimated that ecosystem services are currently worth in the order of 7 percent of GDP in South Africa), tension between areas of high-biodiversity value and extreme poverty within the hotspot remains high. Thus the imperative as well as the opportunity exists for innovative mechanisms for financial payments or other livelihood benefits that ensure the continued functioning of ecosystems and delivery of critical ecological goods and services as well as alleviate poverty. The conservation community and local government must urgently work together to combine science and policy and financing to support pilots and sustainable development in the areas of high overlap between ecosystem goods and services and poverty within the hotspot (Figure 10).

Figure 10. Maps Showing Poverty Level and "Production of Ecosystem Goods and Services" by Municipality in South Africa (a similar analysis is not available for Swaziland or Mozambique regions of the hotspot). High-poverty municipalities indicate areas where >40 percent of households are headed by an individual who earns <$650 per annum (Source: SANBI and TIPS 2nd Economy Report).



Government Policy, Law and Institutions

The policy and legislative context is different between the three countries. Although they all have relatively comprehensive environmental policy and legislation, there are profound differences in the effectiveness of its implementation. Due to the huge developmental challenges facing these countries, the environmental sector receives small budget allocations and is resource constrained, with this being a much more severe constraint in Mozambique than in South Africa or even Swaziland.

All three countries are signatories to the Convention on Biological Diversity (CBD) and have developed National Biodiversity Strategy and Action Plans. They are also signatories to the United Nations Framework Convention on Climate Change and are in the process of developing national climate change adaptation policies/frameworks.

The sections below describe the policy and legislative context and summarize the institutional responsibility for biodiversity conservation in each country.

Mozambique

There is a wide range of environmental legislation and policy in Mozambique, including the Environment Law; the Land Law; Regulation for Environmental Impact Assessments; Environment Policy; Forest and Wildlife Law and the Forestry and Wildlife Regulations; and the Forestry and Wildlife Policy and Strategy. However, these policies are poorly implemented or legislation poorly enforced for a number of reasons – for example, financial and human capacity is limited, and the policies are subject to different and sometimes conflicting interpretation.

An important development is the recently adopted Conservation Policy that proposes the streamlining of protected area management and legislation. The following sections are of particular relevance:

- The policy provides for the formation of an autonomous protected areas authority that should be governed by an independent board and should have independent financial processes; this autonomous body will fall under the auspices of the Ministry for the Coordination of Environmental Affairs (MICOA).
- There is an emphasis on partnerships, including non-state actors, as the key mechanism for effective protected area management and for achieving conservation outcomes within the country.
- Locally, protected area management will be vested into management committees constituted by relevant local stakeholders
- Protected area managers must be involved in municipal, district and provincial level planning processes; protected area planning and management should be harmonized with the district development plans.

The Ministry for the Coordination of Environmental Affairs is responsible for implementing national environmental legislation, policy and programs, and is also responsible for implementation of the CBD and the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). There is not a single directorate within MICOA that is responsible for conservation but there are five directorates that have influence over conservation: the Direcção Nacional Avaliação de Impacto Ambiental, which oversees EIA processes; Direcção Nacional de Gestão Ambiental, Direcção Nacional de Planeamento e Ordenamento Territorial, Direcção Nacional de Promoção Ambiental, and Direcção Nacional de Planificação. The Ministry of Tourism (MITUR) with its National Directorate for Conservation Areas has the mandate to manage conservation areas for tourism and is the principal government institution involved in the establishment and management of protected areas. The primary purpose of these protected areas is not biodiversity, ecosystem or ecological process conservation, but nature-based tourism.

The Ministry of Agriculture and Rural Development, through the Direcção Nacional Florestas e Terras (formerly the National Directorate for Forestry and Wildlife) has the responsibility for managing forestry, including forestry reserves, and wildlife resources, outside of those conservation areas currently managed for tourism by MITUR. For example, all turtle species are

protected under a Forest and Wildlife regulation (Decree 12/2002 of 6 June 2002) in that the killing of marine turtles and possession of their eggs is an offence.

The Ministry of Fisheries (Ministério das Pescas) has jurisdiction over the marine area and marine resources. The mandate of this ministry is primarily productive and includes both commercial and artisanal fishing. The ministry has been involved in the development of the recently declared marine reserve at Ponto d'Ouro.

These national level structures are mirrored at the provincial level; the entirety of Maputo Province and part of Gaza Province are included in the hotspot area. In addition and of note in the decentralization process, each district has people allocated in each of the key sectors. Finally, the police and judiciary are key institutions for law enforcement and civil society could catalyze strengthening their ability to carry out their functions.

South Africa

The South African environmental policy and legislation is strong and progressive. Indeed, the Constitution of South Africa provides for the right to a healthy environment and environmental protection while promoting justifiable economic and social development. The National Environmental Management Biodiversity Act is the key legislation governing biodiversity management, with the National Environmental Management Protected Areas Act being the key law used to declare protected areas. The Marine Living Resources Act governs the marine environment and is used to declare marine protected areas.

Implementation of environmental policy and law in South Africa is uneven, with certain areas being of high quality while others lack human and financial resources. In fact, the KwaZulu-Natal provincial government itself recognizes lack of capacity to enforce compliance as one of its primary challenges (www.kwazulunatal.gov.za).

The constitution gives concurrent legislative competence to national and provincial governments for most functions relevant to biodiversity conservation with the exception of national parks, botanical gardens and marine resources, the management of which rests with national government agencies. At the national level there are two key departments that report to one minister. The Department of Environmental Affairs is the primary custodian of the environment, and the Department of Water Affairs, the primary custodian of water. SANBI is the primary statutory entity devoted to the study, conservation, display and promotion of the country's biodiversity. At the national level the South African National Parks is the national statutory body mandated to manage South Africa's national parks. The Marine and Coastal Management branch funds marine management through annual grants to the conservation agencies and through special projects, lumped together under "Coast care."

Three of South Africa's nine provinces are located within the hotspot, namely Mpumalanga, KwaZulu-Natal and the Eastern Cape (technically, the hotspot boundary also includes small fragments of the Limpopo and Western Cape provinces, but these are insignificant in scale). Each province has a dedicated department dealing with environmental affairs (mostly coupled with tourism or agriculture), and a conservation authority which is established as a public entity with its own board reporting to the member of the Executive Committee (MEC, provincial level minister) responsible for conservation. This conservation authority is responsible for managing biodiversity within and outside protected areas (except in the case of the Eastern Cape, where the mandate is limited to on-reserve). The relevant institutions are: in the Mpumalanga Province, the Mpumalanga Tourism and Parks Agency (MTPA); in KwaZulu-Natal Province, Ezemvelo KZN Wildlife; and in the Eastern Cape Province, Eastern Cape Parks Board (ECPB). While MTPA and

Ezemvelo are known for their strong institutional capacity for conservation, the newly established ECPB still requires institutional development support to effectively manage its important reserves. The UNDP-GEF is supporting the ECPB to develop the basic capacities and support reserve co-management in the "Wild Coast" or Pondoland North Coast Key Biodiversity Area, although the institutional capacity will have positive implications for all key biodiversity areas in the province. The responsibility for managing biodiversity outside of protected areas in the Eastern Cape rests with Department of Economic Development and Environmental Affairs. The issue of which institution takes primary responsibility for stewardship needs to be resolved to enable the development of an effective unit to drive this important strategy.

At the local level, the various district and local municipalities also fulfill biodiversity management functions; particularly related to new developments, waste management and municipal nature reserves. However, provincial and municipal plans and priorities are often contradictory and integration of biodiversity plans into municipal ones is of strategic importance.

Swaziland

Swaziland has relatively robust environmental legislation but implementation is not always effective, partly due to conflicting responsibilities between various government ministries. The Swaziland National Trust Commission Act grants the Swaziland National Trust Commission (SNTC), a parastatal reporting to the Ministry of Tourism and Environmental Affairs, the powers to proclaim national parks, nature reserves and monuments. In addition, the Game Act and the Plant Protection Act have been promulgated to safeguard fauna and flora, while other relevant legislation includes the draft National Biodiversity Bill, the Protection of Fresh Water Fish Act, the Wild Birds Protection Act and the Environment Management Act.

The Ministry of Tourism and Environmental Affairs, which houses the Swaziland Environment Authority (SEA), SNTC and the Forestry Department, is the primary custodian of biodiversity in Swaziland and governs laws pertaining to environmental management, protected areas and plant resources in and outside of protected areas. Both the SNTC and SEA are parastatal organizations funded by government but operating under independent boards appointed by the Minister of Tourism and Environmental Affairs. The King's Office is also a key custodian of biodiversity and governs laws pertaining to game as well as CITES.

Approximately 70 percent of land in Swaziland is Swazi Nation Land communally settled and used under the control of traditional chiefs. As such, chiefs play a key role in the management and use of biodiversity outside of protected areas at the local level and they have a direct link to the king via traditional governance. In parallel to this, central government functions are carried out at the local level by regional administrators arranged into four regions, three of which are represented in the hotspot and each of which is further divided into smaller constituencies or wards called Tinkundla, each comprising several chiefdoms. Such a system is complex with potential conflicts in roles and responsibilities.

Big Game Parks, a not-for-profit perpetual trust, acts as the management authority for three of the six parks under formal conservation and nearly half of the total area under formal conservation. In addition and uniquely, the head of state through the King's Office delegated Big Game Parks to act as the CITES and Game Act authority for Swaziland.

Regional Agreements

The primary regional agreements between the three countries in the hotspot that pertain to conservation are the two Transfrontier Conservation Area (TFCA) agreements.

GREAT LIMPOPO TRANSFRONTIER PARK TREATY

The Great Limpopo Transfrontier Park Treaty signed in 2002, links the Kruger National Park in South Africa with the Limpopo National Park in Mozambique and the Gonarezhou National Park, Manjinji Pan Sanctuary and Malipati Safari Area in Zimbabwe. The Great Limpopo Joint Management Board developed a five-year integrated development and business plan that guides its work and provides a comprehensive package of business and investment opportunities. While the hotspot includes a portion of Kruger National Park and also Limpopo National Park, the rest of these areas lie out of the area and hence this treaty is of lesser importance here.

LUBOMBO TRANSFRONTIER CONSERVATION AREA PROTOCOL

The General Lubombo Transfrontier Conservation and Resource Area Protocol signed in 2000 created the Lubombo Transfrontier Conservation Area along the Lubombo Mountains, including various conservation areas in Mozambique, South Africa and Swaziland. Specific protocols were also signed to represent smaller transfrontier parks between the countries, namely the Nsubane-Pongola TFCA (Swaziland and South Africa), the Lubombo Conservancy-Goba TFCA (Mozambique and Swaziland), the Usuthu-Tembe-Futi TFCA (Mozambique, South Africa and Swaziland) and the Kosi Bay-Ponta do Ouro TFCA (Mozambique and South Africa). A Ministerial Committee and a commission comprised of heads of the conservation agencies responsible for protected area management in the various protocol areas were established.

The Lubombo Protocol is of particular relevance to Maputaland-Pondoland-Albany because the area covered by the protocol lies at the hub of a number of the key biodiversity areas. The investment can, therefore, build into the functional relationships that have already been established. In addition, the protocol facilitates cross-border movement, information/data sharing and skills transfer. In summary, there are good synergies between this protocol and conservation action in this corridor region of the hotspot.

International Conventions

All three countries in the hotspot are signatories to a number of international agreements promoting biodiversity conservation and sustainable natural resource use (see Table 9).

Table 9. Participation in International Agreements by the Three Countries in the Hotspot

Agreement	Swaziland	South Africa	Mozambique
CITES	X	X	X
CBD	X	X	X
The Convention on Wetlands		X	X
World Heritage Site Convention		X	X
Convention to Combat Desertification	X	X	X
Framework Convention on Climate Change	X	X	X

Civil Society Framework

Civil society has an important role to play in biodiversity conservation and the restoration of ecosystem health within the hotspot. Although the number, strength and effectiveness of civil society organizations differ across the three hotspot countries, efforts that expand their ability to complement and strengthen government initiatives are likely to have a tremendous impact on leveraging capacity and scaling up conservation results. Of the three countries, South Africa has the strongest and most active civil society. Thousands of organizations are involved in activities

related to biodiversity conservation, climate change, agricultural support, youth and gender issues, and health. New financing to South African civil society organizations is likely to promote innovative and pioneering approaches to conservation that will have the potential to influence global as well as national paradigms. Specifically, South African civil society is primed to catalyze and source co-financing for new biodiversity-based approaches to climate change mitigation and adaptation, the integration of terrestrial and marine conservation action in key biodiversity areas, payment for ecosystem services (including biodiversity and water), land reform and biodiversity stewardship, and for links between HIV and conservation.

With few exceptions, local civil society organizations in Swaziland and Mozambique are weak and are frequently limited in terms of capacity, political leverage and program development. As a result, international and regional organizations with access to greater resources and leverage play a much larger role in Swaziland and Mozambique. Expanding opportunities for civil society in Swaziland and Mozambique (especially support for local organizations that are focused on conservation or other land-use activities) could have a lasting legacy, not only within the hotspot but also throughout these countries, as capacity is built to integrate biodiversity concerns into their programs.

A key opportunity within Maputaland-Pondoland-Albany civil society framework is provided by conservation initiatives that already span two or all three of the hotspot countries. For example, the Lubombo Transfrontier Conservation and Resource Area presents a major opportunity for scaling up impacts. This TFCA initiative has attracted substantial resources and the Peace Parks Foundation reports that effectiveness of the initiative is demonstrated by animal numbers over the last five years. The TFCA is actively promoting conservation in four key transfrontier regions, three of which are in the hotspot:

1. Usuthu-Tembe-Futi (Swaziland-South Africa-Mozambique Eastern Licuati Forests and Swazi Lubombo and Ponto d'Ouro key biodiversity areas), an important region of swamp and other forest that support ancient elephant migration patterns.
2. The Ponto d'Ouro-Kosi Bay Marine and Coastal TFCA (Mozambique-South Africa; Ponto d'Ouro Key Biodiversity Area) which links the Ponto d'Ouro-Inhaca Coastline to South Africa's St. Lucia Wetland Reserve.
3. Nsubane-Pongola (South Africa/Swaziland; Pongola-Magudu and Licuati Forest and Eastern Swazi Lubombo key biodiversity areas).

Although the Lubombo TFCA program is well resourced, the primary focus has been on infrastructure development. The role of civil society in Swaziland and Mozambique to support/expand conservation efforts in the region could be strengthened. Another transfrontier initiative is located north of Lubombo, the Greater Limpopo. Although only 5 percent of the area falls within the hotspot, efforts in Limpopo can be scaled up to support civil society involvement in the Maputaland-Pondoland-Albany key biodiversity areas in Mozambique in particular.

Other southern African country initiatives involving all three hotspot countries, and where civil society's role to generate conservation benefits could be enhanced, include conservation initiatives, such as the Southern African Botanical Network, Endangered Wildlife Trust Working Groups and the South West Indian Ocean Fisheries Programme, as well as other regional initiatives focused on governance, health and food security.

Another current effort initiated in 2009 in which civil society currently collaborates with government but where collaboration affects conservation in the hotspot is the Land Reform, Communal Lands and Biodiversity Stewardship Initiative. The initiative is spearheaded by SANBI, the Department of Rural Development and Land Reform, and the Department of

Environmental Affairs and was catalyzed by Conservation International-South Africa. The key is to use stewardship, implemented by the relevant conservation authority in partnership with the landowners/users, civil society and all relevant government departments. The overarching goal is to demonstrate the successful delivery of both socioeconomic and conservation benefits at a project level by establishing a network of learning and community of practice linking land reform and biodiversity stewardship. The initiative has only been active for one year, and in the KwaZulu-Natal key biodiversity areas three land reform stewardship sites are being implemented and two others have been identified. Although a number of sites have been identified in the Eastern Cape key biodiversity areas, they are not yet active because it is currently unclear which conservation authority is responsible to drive stewardship. However, overall, the initiative has successfully created a network of conservation and land practitioners who are beginning to better understand the needs of both sectors and how to create viable land reform/communal lands stewardship and community-based livelihoods projects.

Areas in which there are significant gaps in civil society involvement are in freshwater and marine management in the hotspot. Freshwater systems are increasingly being recognized by the research community as a vital system for biodiversity and society, and civil society action to address the direct threats to these systems from over-abstraction, pollution, and catchment degradation would complement government efforts to improve water management. Similarly, the marine environment provides significant opportunities for civil society, especially in the fields of research and monitoring, but also in the development of new and innovative tourism products related to the non-consumptive use of the rich marine resources of the hotspot.

The sections below summarize the existing civil society environment in the hotspot regions of the three countries.

Mozambique-Maputaland

From a weak base in the late 1990s (as the government shifted from a centralized to a decentralized development strategy), civil society has slowly emerged as a development partner for government in Mozambique. This growth in civil society organizations is linked to the influx of foreign aid, particularly for emergency relief and rehabilitation programs, that has flooded into the country and the financial opportunity that this presents in a country where formal employment levels are very low. The majority of civil society organizations are funded either by their members, international NGOs, or bilateral donors. This may be a drawback for civil society in that it creates the impression in some government circles that civil society organizations are implementing directives from their funding entities. Another potential obstacle to civil society development is that registering an organization is complicated by a bureaucracy that involves all levels of government, and established organizations struggle to ensure compliance with existing laws and are ultimately marginalized in political processes. There are no explicit favorable tax laws in Mozambique but they are, in principle, exempt from paying value-added tax (IVA) and other fiscal charges. All organizations can receive funds from foreign investment. Nevertheless, civil society in Mozambique can and should be mobilized to play an important role for conservation in support of government objectives in the hotspot.

Two international conservation NGOs currently active in the hotspot region of Mozambique are the Peace Parks Foundation and IUCN. Peace Parks Foundation provides technical support and co-financing for the Transfrontier Conservation Area Project implemented in the Lubombo and Limpopo TFCAs, and also funds the park manager at the Limpopo National Park. The IUCN's program in Mozambique has been scaled down; however IUCN continues to work with local communities in the Licuati Forest as well as in the adjacent Djabula area, through its Livelihoods and Landscape Strategy (LLS) Programme. The aim in the Licuati/Djabula area is to work with

the local communities to collect sandalwood (*Spirotochys africana*), either the offcuts from charcoal producers or from the litter layer, and sell them to the artisans in Maputo. This yields three benefits: i) the community benefits from the income; ii) the artisans, who have been purchasing wood at an elevated price from the bread factories (that use sandalwood to fire their ovens), get wood at a lower cost; and iii) the demand for raw wood from the forests drop as the bread factories only buy what they need for baking. Also, IUCN together with the National Forestry and Land Directorate is working with the Mahel Locality in Magude District to assist with the establishment of a community game farm. This builds on a community-based natural resource management plan for the area that was produced by the FAO in 1999, and to alleviate the conflict and illegal killing of wildlife that takes place in the area. The idea is to create incentives through employment in the form of community wildlife guards. Thereafter, once wildlife is recognized and accepted as an income source, the plan is to fence the area, populate it with wildlife and provide water sources.

The African Wildlife Foundation (AWF) was previously active in the area developing a conservation program with the Massangir community. However, when people were re-settled into the area and some of the land allocated to large-scale sugar cane production, AWF withdrew from the project. This withdrawal was both due to the poor alignment of government programs with their conservation objectives and due to financial challenges from the recent recession. New resources might enable them to re-engage in what was a conceptually strong initiative.

National civil society organizations in Mozambique are few and tend to work at a community scale for specific development objectives (such as sanitation, education, HIV/AIDS, agricultural extension, etc.). These organizations could be supported to expand their efforts and geographic range, and integrate biodiversity concerns and outcomes into their work. Additionally, in recognition of the need to address the devastating poverty and associated challenges in the region, partnerships between these organizations and conservation entities could develop projects that have both ecological and social outcomes. The Umzi Yethu project of the Wilderness Foundation in South Africa, which supports HIV orphans to secure jobs in the conservation sector (for example in wilderness guiding or safari lodges), is an excellent example of an initiative that could be replicated in Mozambique.

Various research institutions currently exist within the Ministry of Agriculture and Rural Development (MADER, National Institution of Agronomy Research), the Ministry of Fisheries (Fisheries Research Institute) and in Eduardo Mondlane University (Department of Biological Sciences and Natural History Museum). Within the hotspot area in southern Mozambique there has been a recent conservation planning process in the Lubombo TFCA carried out by the Durrell Institute for Conservation and Ecology of the University of Kent at Canterbury, U.K., in partnership with the University of Eduardo Mondlane. This partnership is now also undertaking a conservation planning process for the Limpopo TFCA. Nongovernmental organizations have also been active in research in the area, with a focus on surveying and monitoring, particularly in marine ecosystems. Turtles have been the focus of much of the work, which culminated with the establishment of the Mozambique Marine Turtle Working Group (Grupo de Trabalho de Tartarugas Marinhas de Mocambique). It brought together many stakeholders including large, international NGOs (WWF-Mozambique), local communities, private sector operators (such as SCUBA operators) and, more recently, the Associação para Investigação Costeira e Marinha. Unfortunately, in the terrestrial realm the history of conflict has meant that these plans are based on thin research and there remains a huge need for expanding and making accessible the knowledge relevant for conservation planning.

Finally, Centro Terra Viva is a national environmental research and advocacy NGO established in 2002. This organization seeks specifically to strengthen civil society presence and participation in national decision-making processes – a process in which it has had some success and from which lessons may be learned. For example, the NGO has made good use of applied research on environmental law and policies, and on ecosystems and biodiversity, to create advocacy tools and to provide technical knowledge and information in the policy development processes. The research is also used to support environmental education and training.

There are more than 400 nongovernmental organizations listed in the 2008 edition of the Directory of Development Organizations for Mozambique, but it is not known how many of these are active in the Maputaland region specifically. Central to civil society organizations in Mozambique is the "G20" – The National Platform of Civil Society for Participation in the Poverty Observatory (which is well supported by bilateral donors). This is comprised of the strongest civil society organizations – peasant farmers' associations, NGOs, networks, trade unions, faith-based organizations, business sector, academics and investigation institutions, youth and women's organizations, professional associations and vulnerable groups (elderly, children and disabled organizations). As a percentage of registered civil society organizations, religious organizations are particularly prevalent (53 percent, 2007 data) with more than half the population claiming membership in a faith-based organization; advocacy and lobbying organizations are next (12 percent). Other organizations include cultural, recreational, educational (9 percent); community organizations (9 percent); health (<5 percent); social services (<5 percent); development and housing (<5 percent); donors and philanthropists (<5 percent); and professional associations (5 percent). When considering the broad gamut of civil society organizations across the country, environmental groups comprise a tiny proportion (<1 percent). Of all organizations and beyond the environmental/conservation organizations, farmers' associations and other community groups may provide the most obvious entry points as partners for investment. Because of their relative strength and prevalence, it may also be useful to engage with faith-based organizations that promote social development.

Swaziland-Maputaland

National biodiversity conservation NGOs in Swaziland are active at various levels, from awareness and lobbying to field-based conservation management. They include the following: All Out Africa Foundation (also active in Mozambique), which facilitates volunteer and financial support for conservation and development programs; the Swaziland Natural History Society, which supports conservation and education projects; and the Lubombo Conservancy and the Shewula Trust, a group established with support from the Peace Parks Foundation that undertakes conservation management and seeks to reintroduce species to a grouping of private and state conservation areas within the Lebombo Moutains. A national NGO active in more general environmental work is Yonge Nawe. Regional NGOs active in biodiversity conservation in Swaziland include the Peace Parks Foundation and Endangered Wildlife Trust (birds of prey working group). The international NGO, COSPE, is also active in more general environmental work and supports the Lubombo Conservancy in Maputaland.

Swaziland lacks broad capacity to carry out biodiversity monitoring and applied conservation research. However, the Endangered Wildlife Trust, All Out Africa Foundation, and University of Swaziland currently carry out some biodiversity monitoring and research on birds of prey and have the potential to expand their efforts to support long-term conservation in the Maputaland region of the hotspot.

Other civil society groups in Swaziland are summarized in Table 11.

South Africa-Maputaland, Pondoland, Albany

South Africa has the strongest civil society sector in the hotspot, both in terms of conservation and other social and natural resource issues. National conservation NGOs such as Wildlife and Environment Society of South Africa (WESSA), Botanical Society of South Africa, World Wide Fund for Nature-South Africa, Birdlife South Africa, Endangered Wildlife Trust, Peace Parks Foundation and the Wilderness Foundation have had a long history of working to promote and implement biodiversity conservation actions both in South Africa and the wider southern Africa region. Over time they have generated strong linkages with conservation authorities, academic institutions and agencies of government at local, provincial and national levels. Along with the relative new comers of the Wildlands Conservation Trust (WCT), Conservation International South Africa, the South African National Biodiversity Institute (a parastatal under the Department of Water and Environmental Affairs), and scores of other smaller organizations, NGOs have built a solid policy and implementation platform for biodiversity conservation in the country.

Within the hotspot, WESSA is active in all three centers and focuses on environmental education and influencing policy. The Botanical Society (BotSoc) maintains a wide membership that is regularly mobilized through the organization's magazine "Veld and Flora," which provides regular opportunities for members to get involved in conservation activities such as alien invasive plant clearing and monitoring of rare and endangered plants with SANBI's CREW program. BotSoc, however, no longer has an active implementation program for conservation activities in the region. WWF-South Africa supports stewardship activities in Maputaland and is particularly involved in black rhino conservation by private and community stewards, especially in the Zululand Corridor. WWF is also involved in engaging the sugar cane industry in best practices and is particularly involved in efforts to conserve coastal and marine resources off the KZN coast. Birdlife South Africa and the Endangered Wildlife Trust support extension staff in the region, also primarily in the Maputaland area, to raise awareness and participation by farmers and local government in the conservation of species of special concern. Specific efforts in the region have focused on cranes, blue swallows, vultures and wild dogs. Wildlands Conservation Trust (WCT) has a formal partnership with the provincial conservation agency in KZN, Ezemvelo KZN Wildlife, to support protected area management and also implements its own programs in the rural and urban areas of Maputaland that seek to integrate social upliftment with conservation outcomes. The signature project for WCT in the hotspot is its Indigenous Trees for Life project, which is described under the climate change section of this document.

The Wilderness Foundation has a long history of political awareness raising through its wilderness hikes with policymakers and has strong political influence as a result. The organization also works in the Albany thicket region of the hotspot on stewardship and ecosystem restoration, and has built a strong working demonstration of civil society-government partnerships within the Eastern Cape that has a major focus on Pondoland. Conservation International South Africa uses the CEPF ecosystem profile development process to determine gaps and its consequent activities in a hotspot, and as a result has not been directly active in the Maputaland-Pondoland-Albany Hotspot to date. However, Conservation International South Africa has provided financial assistance to stewardship efforts in all three centers, Maputaland, Pondoland and Albany, and is also indirectly involved in the region through the Climate Action Partnership, which is described in more detail later in this document.

In addition to these large NGOs, there are various smaller NGOs active in the South African region of the hotspot. The Resource Restoration Group is a science-focused organization that conducts research and advises on national and private restoration projects in Pondoland and Albany. The Landmark Foundation is focused on environmentally friendly predator management primarily in the Albany center in the Eastern Cape. Pondocrop supports smallholder agriculture in

Pondoland, and Sustaining the Wild Coast is a small but very active group that has played an important role in supporting environmentally friendly livelihoods in the Pondoland North Coast (in partnership with Endangered Wildlife Trust) and is a watchdog on developments in the fragile Wild Coast of the Eastern Cape. Finally, Space for Elephants seeks to create corridors in the Zululand Corridor, Maputaland, for elephant movement.

It is extremely easy to register a nonprofit organization or Section 21 company in South Africa – most are companies bought through "off the shelf" trading under different names. Many new NGOs are emerging as awareness about the conservation and development opportunities in the hotspot increases. There are no rules preventing NGOs from receiving foreign donor funding, however, being a nonprofit organization or Section 21 does not immediately exempt a company from paying taxes and another process is required to gain an exemption from the Revenue Service on donor funding. One example of a new NGO coming into the region is the Simasonke Institute for Science and Conservation. The institute will be based in rural Eastern Cape and will develop viable ways to manage land conservation and restoration and ecological monitoring and scientific inquiry, as well as education and community outreach initiatives in Pondoland. The organization will offer independent, scientific guidance, ensuring that the land and environment of rural investments are protected and healthy.

There are several other civil society actors in South Africa that are not currently involved in the conservation of the hotspot whose expertise could be useful in the region. Examples of such organizations include: TRAFFIC-South Africa, which works on building enforcement capacity around illegal plant and wildlife trade; the Green Connection, which works at a grassroots level to deliver appropriate energy and livelihood technologies to improve socioeconomic conditions and reduce negative impacts on the environment; and the Black Sash, which works extensively in the hotspot on food security issues.

South Africa has well-developed academic institutions, including universities and forums that underpin scientific grounds for conservation action and that also leverage large amounts of donor funding for projects, particularly with regards to charismatic megafauna conservation and ecosystem restoration. Nelson Mandela Metropole University Terrestrial Ecology Research Unit undertakes much critical ecological research in the region. Large research programs on agriculture and climate change, such as the work of the Centre for Environment, Agriculture and Development at the University of KZN on livestock production, and the University of Fort Hare's agriculture work provide crucial information for conservation planning activities and complement the scientific services sections of the conservation agencies in the region.

Finally, most small businesses in rural areas in the hotspot are registered as cooperatives or companies and can play an important role in conservation in the region. The South African Department of Trade and Industry actively promotes the establishment of cooperatives through the Companies and Intellectual Property Regulatory Office. Cooperatives consist of five or more people and most vegetable garden projects, craft projects, nguni cattle breeding projects, etc., are established as cooperatives. Cooperatives enjoy various tax exemptions, but are not fully exempt. Furthermore, cooperatives usually function well only for very small projects as the banking sector limits their ability to function as larger businesses. Other micro, small and medium enterprises are registered under the Companies Act as either closed corporations, partnerships, Pty (Ltd) or a variety of different formats.

A summary of the extensive number of civil society organizations in the region that could be mobilized to support conservation action in South Africa is provided in Table 11.

Table 10. Summary of Civil Society Groups in South Africa with Potential for Conservation Engagement

Sector	Status – law and description	Examples
Communal land holding associations	Communities can organize themselves into associations or trusts or other legal entities and can be apportioned land by the chief. Community trusts who have received land can act to improve management of their areas and to plan incorporation under formal conservation through stewardship.	The Shewula Community Trust has been formed to manage a community conservation area as part of the Lubombo Conservancy. Other examples include community agriculture associations. There are NGOs such as All Out Africa working with these community associations
Ethno-linguistic-based associations	Since Swaziland is comprised of basically one ethno-linguistic group, the Swazi people (other than a small minority of African immigrants, Europeans and Asians), there are not many ethno-linguistic-based associations of relevance.	No significant ethno-linguistic associations.
Fisherfolk associations	There is a fishing club of Swaziland. In areas where local subsistence fishing is practiced, this is regulated fairly loosely through traditional authorities.	The fishing club of Swaziland has links with conservation. People relying on subsistence fishing are not currently organized into specific associations. Access to all natural resources is usually regulated through established traditional authorities, apart from in areas where land is under formal conservation. In the latter case, there are usually agreements between the authorities on the use of these resources.
Agriculture and livestock producer cooperatives	The Ministry of Agriculture encourages people, especially in rural areas, to establish cooperatives. The focus is particularly in agriculture (sugar cane small-grower schemes, vegetable gardens). Cooperatives are established by the Ministry. Many small projects, especially those producing considerable profits, have	There are at least 50 sugar cane small-grower entities (companies and cooperatives). The vegetable and other food crop small-grower schemes are fewer in number. The main NGO currently working in the agricultural field with cooperatives is Swaziland Water and Agricultural Development Enterprises, which is well resourced by the International Fund for

Sector	Status – law and description	Examples
	moved away from co-ops and are registering companies as a way to ensure greater independence of government.	Agricultural Development.
Micro/small enterprise cooperatives (honey, oils, textiles, etc.)	There are large numbers of micro/small enterprises in Swaziland. These are often small businesses established as companies but sometimes are run as cooperatives.	Micro/small enterprises include craft businesses (grass mats, mohair, carvings, beadwork, etc.), food processing enterprises (honey, jams, etc.), beauty/pharmaceutical product enterprises (marula oils, creams, etc.). Phytotrade is an organization that works with many small producers.
HIV/AIDS	As a result of the number of people in southern Africa infected with HIV/AIDS, there are various civil society organizations active in this field. Although some work is focused on the scientific side of curing the pandemic, the larger role of these groups is in comforting and assisting people affected, such as orphans and child-headed families.	The HIV/AIDS campaign is led by the National Emergency Response Council for HIV and AIDS, which is a channel for large amounts of donor funding. Numerous NGOs are involved in HIV/AIDS work, and many tend to be geographically focused.

Table 11. Summary of Civil Society Groups in South Africa with Potential for Conservation Engagement

Sector	Status – law and description	Examples
Communal land holding associations	South African law provides for the creation of a legal entity defined as a Communal Property Association (CPAs) to hold land on behalf of a community. There are literally hundreds of these CPAs registered. In the KwaZulu-Natal Province communities established Trusts rather than CPAs, especially in cases where land restored was owned by government and administered by the Ingonyama Trust Board.	There are hundreds of small CPAs and community trusts. NGOs such as WCT at Somkhanda in the Pongola-Magudu Key Biodiversity Area and WWF-South Africa in the Zulu Rhino Reserve in Hwulhwe-Mkhuze Key Biodiversity Area are supporting them to reintroduce wildlife, particularly Black Rhino for tourism, to improve management of their areas, and to plan incorporation under formal conservation through stewardship.
Ethno-linguistic-based associations	The larger associations have been recently politicized (the Inkhata Freedom Party for example acting as a cultural movement for the Zulu people). The only significant ethno-linguistic minority in the area is the Tembe-Thonga people, who have not formed a specific association as this would indicate defiance of the Zulu Royal Household. However, they sought legal means to achieve independence via the so-called Nhlapo Commission.	No significant ethno-linguistic associations that are not politicized.
Fisherfolk associations	Not applicable, apart from large sport-fishing associations such as the Kayak Fishing Association and various Under Water and Flyfishing clubs. In areas where local subsistence fishing is practiced, this is regulated and championed through traditional authorities and councils.	People relying on subsistence fishing are not currently organized into specific associations. Access to all natural resources is usually regulated through established traditional authorities, apart from in areas where land is under formal conservation. In the latter case, there are usually agreements between the authorities on the use of these resources.
Agriculture and livestock producer cooperatives	The Department of Trade and Industry actively encourages people, especially in	The list of current cooperatives would be exhaustive. Below is a list of NGOs

Sector	Status – law and description	Examples
	rural areas, to establish cooperatives. The focus is particularly in agriculture (Nguni cattle breeding, vegetable gardens). Cooperatives are established by the South Africa's Companies and Intellectual Property Regulatory Office and need to consist of at least five people. Many small projects, especially those producing considerable profits, have moved away from co-ops and are registering as nonprofit organizations as a way to ensure continued support from donors.	currently working in the agricultural field with various cooperatives: SANGOCO, (SA National NGO Coalition), Africa Co-operative Action Trust, African Nation Building, AFRICARE, Agricultural and Rural Development Corporation, Agricultural and Rural Development Research Institute, University of Fort Hare, Albert Luthuli Development Trust, Association for Rural Advancement, Border Rural Committee, Business Advice Centre, Centre for Low Input Agricultural Research and Development, East Cape Agricultural Research Project, East Cape Land Committee, Ecolink Environmental Education Trust, Educate and Develop, Emandleni-Mtaleng Camp, Farmer Support Group, University of Natal, Insika Rural Development Association, KwaZulu-Natal Peace Committee Development Unit, Lima Rural Development Foundation, Microprojects Programme Trust, Midlands Community College, The Valley Trust, Transkei Land Service Organisation, Vulamehlo Development Council, Zisizeni Association for Development.
Micro/small enterprise cooperatives (honey, oils, textiles, etc.)	As stated above, there are literally thousands of cooperatives in South Africa. In the KwaZulu-Natal Province alone there are 1,020 registered cooperatives currently benefitting from a government finance scheme of some 220 million rands channeled through the Ithala Development Corporation.	The Daily Bread Project is a network initiative to help members of the communities in South Africa form cooperatives and open their own bakeries.
HIV/AIDS	As a result of the number of people in southern Africa infected with HIV/AIDS,	AIDS Consortium, AIDS Foundation of South Africa, AIDS Law Project, Centre for

Sector	Status – law and description	Examples
	there are various civil society organizations active on this field. Although some of the work is focused on the scientific side of curing the pandemic, the larger role of these groups is in comforting and assisting people affected by the pandemic, such as orphans and child-headed families.	AIDS Development, Research and Evaluation, Centre for the AIDS Programme of Research in South Africa, Centre for HIV/AIDS Networking, Children in Distress Network, HIV for South Africa, Homes for Kids in South Africa, National Association of People Living with HIV/AIDS – SA, Nurturing orphans of AIDS for Humanity and the Treatment Action Campaign.

SYNOPSIS OF CURRENT THREATS

With some of the highest human densities in sub-Saharan Africa, the Maputaland-Pondoland-Albany Hotspot is threatened by a number of activities. Land cover data derived from satellite imagery indicates that permanent and complete transformation of habitat has affected 19 percent of the region. This has been caused mainly by agricultural cultivation (12.7 percent), plantation forestry (3.4 percent) and urbanization (1.7 percent). A further 30 percent of the natural vegetation has been severely damaged and permanently degraded so that it now exists only in a secondary state, while about 27 percent is in a poor, non-pristine state. Transformation, fragmentation and degradation have resulted from a number of direct land uses that are still relevant threats to the hotspot today. Other, less measurable threats come from a variety of sources, including overharvesting of natural resources, the spread of invasive alien species, human-wildlife conflicts and climate change. Finally, several capacity and institutional barriers to effective conservation action can also be considered as significant threats to biodiversity as it is only with effective management, political support and public understanding that conservation outcomes will be realized and sustained. Below is a further description of some of these key threats, where they occur, and their impact on the region's biodiversity. Figure 11 provides a map that indicates the spatial nature of threats in the hotspot.

Habitat Loss and Degradation from Agriculture

Historically, the transformation of large areas of the hotspot into large-scale commercial agriculture was a principal threat to the biodiversity of the region. Nearly 15 percent of the hotspot has been transformed for irrigated or dryland crops, particularly in the Midlands and Highland Grassland corridors of KwaZulu-Natal. Most of the irrigated commercial agriculture in the area is sugar cane and 12 percent of the KwaZulu Natal Coast Corridor has been transformed for this crop. In Mozambique, only 1 percent of the region has been transformed for commercial crops; however, government economic growth policies are providing new incentives for the expansion of sugar cane (for both sugar and biofuel) and other biofuel crops into alluvial plains and other flat areas with access to water. Market and policy shifts may also lead to increased transformation for sugar cane and other biofuel crops in Swaziland and riverine areas of the Pondoland and KZN Coast corridors in South Africa. While most policies are looking to expand economic opportunities from crops to small-scale growers with small area transformation impacts, industrialized production techniques of over-abstraction of water resources and pesticide and fertilizer impacts can have disastrous impacts on ecosystem health. Nationally in South Africa, 84 percent of all increased water extraction since 1995 is attributed to irrigated agriculture and it can be assumed that this trend also applies to at least the South African and Swaziland regions of the hotspot. Other impacts related to commercially cultivated agriculture, such as the expansion of invasive weeds and erosion, can also have significant impacts on the region's biodiversity and particularly the region's freshwater diversity in its rivers and estuaries.

Most of the hotspot is arable and much is used for subsistence agriculture to sustain the region's significant numbers of rural poor. The expanse of land used for subsistence agriculture is greatest in the Mozambique Coastal Belt (33.5 percent), Limpopo (15.8 percent) and Zululand corridors (13.7 percent), and to a lesser extent in the Swaziland Lowveld (11.1 percent). Subsistence agriculture has less impact for any given plot relative to commercial farming, although the concentration of plots near water sources can lead to degradation and fragmentation of riverine systems. For example, much of the loss of the Mfolozi catchment in KwaZulu-Natal is due to subsistence plots.

In contrast to cultivated agriculture, rangeland agriculture in the hotspot has the potential to complement conservation practices. Unfortunately, historic policies and poor livestock

management practices have degraded ecosystems in 66 percent of the hotspot. Inappropriate grazing practices that have the greatest impacts on biodiversity include over-stocking, location of watering facilities in sensitive habitats, and too frequent application of burning to stimulate new growth. These practices usually result in a loss of floristic diversity and an increase in the unpalatable grass *Aristida junciformis*. Stock watering systems can also negatively impact streamflows into wetlands by impounding excessive amounts of water. Four corridors – Zululand, Highland Grasslands, Swaziland Lowveld and the Amathole-Sneeberg Mountain belt – experience the greatest levels of overgrazing, closely followed by the KwaZulu-Natal Midlands and Pondoland regions. Communally managed areas in these corridors often experience the greatest threats from overgrazing due to high stock densities and sustained grazing pressures. Only the Limpopo and Lebombo regions of southern Mozambique are relatively free of these impacts as livestock are still limited to small areas in the region and are usually associated with alluvial floodplains.

Agricultural practices need to be improved. Options include incentivizing conservation through stewardship agreements or other financial schemes, such as direct payment for ecosystem services. There is also the possibility of directing ongoing government public works programs toward environmental management.

Habitat Loss and Degradation from Timber Production

Commercial timber production has also had a significant historical impact on the biodiversity of the hotspot, transforming, degrading and fragmenting many of the landscapes. Despite a well-regulated industry in South Africa, where timber production occurs, its transformation of the landscape and associated loss of biodiversity is usually irreversible. Plantations have been found to use between 500 million and 1,500 million hectares per annum more water than the vegetation replaced, reducing measurable streamflow by between 50 millimeters to 150 millimeters per annum, the actual amount being dependent on area, species and rainfall regime (Gush et al, 2002). It also has a number of other impacts including altering the chemical and physical structure of the soils and contributing to aggressive weed invasions in surrounding areas.

Nearly 31 percent of the hotspot has been converted for timber and a significant reason for the fragmentation of the KwaZulu-Natal Midlands stems from timber, where 14 percent of the corridor matrix is in commercial plantations. Other corridors with significant areas under timber are the Highland Grassland and Zululand. Within South Africa, there are government plans to expand commercial timber production, especially small-scale growers, in various parts of the hotspot, including in Pondoland and KwaZulu-Natal Coast. However, these plans are not supported by the necessary resources (for example, water availability in catchments) and infrastructure requirements (access to road/rail) and have not yet resulted in the expected growth in commercial timber plantations.

SANBI's Grasslands Programme and WWF-South Africa have significant initiatives with the Forestry Sector and as a result, landscape planning is guiding new developments and set-aside opportunities. Additionally, in terms of practices, currently 80 percent of South Africa's timber is certified by the Forestry Stewardship Council (FSC). As small growers enter the market, it is hoped that they will be integrated into these larger programs. However, if this does not occur, timber will be another expanding pressure on the biodiversity of the hotspot.

Habitat Loss and Degradation from Development

Urban development in the Maputaland-Pondoland-Albany Hotspot is limited but has led to complete transformation of habitat, leaving only small isolated fragments and grossly disrupted

ecosystem functioning in the form of elevated soil erosion into freshwater systems, extreme loss of habitat and species, and expansion of invasive alien species. Cities in the Hotspot, particularly Durban, Port Elizabeth and Maputo have a high impact on natural habitats in and around them due to urban sprawl, pollutant run-off and poor waste management. In the informal areas surrounding cities, there is often high demand and dependency on products from natural systems such as fuel wood and charcoal, wildlife and plant products, and medicinal plants.
Lower density urban areas and peri-urban areas currently extend across more than 22 percent of the hotspot, with coastline areas (particularly the KwaZulu Natal and Albany coastlines) being the most affected. New urban and coastal development and other planned infrastructure continue to rapidly transform and degrade substantial areas within the hotspot. For example, in Mozambique there is a proposal to develop a substantial port and associated infrastructure south of Maputo in the Lebombo Transfrontier Corridor. This deepwater port development has been considered since the 1960s and is proposed to address Maputo's limited cargo-ship capacity. In addition to the transformation impacts from the 14,480-hectare development, there would be significant impacts from unplanned urbanization. Furthermore, roads and railways leading to and from the development would also create an effective barrier to links between the Futi River and the Maputo Special Reserve. Also in the Lebombo Transfrontier corridor, as well as the Mozambique Coastal Belt, "ribbon" coastline development is a significant threat, particularly to dune forests and other dune vegetation.

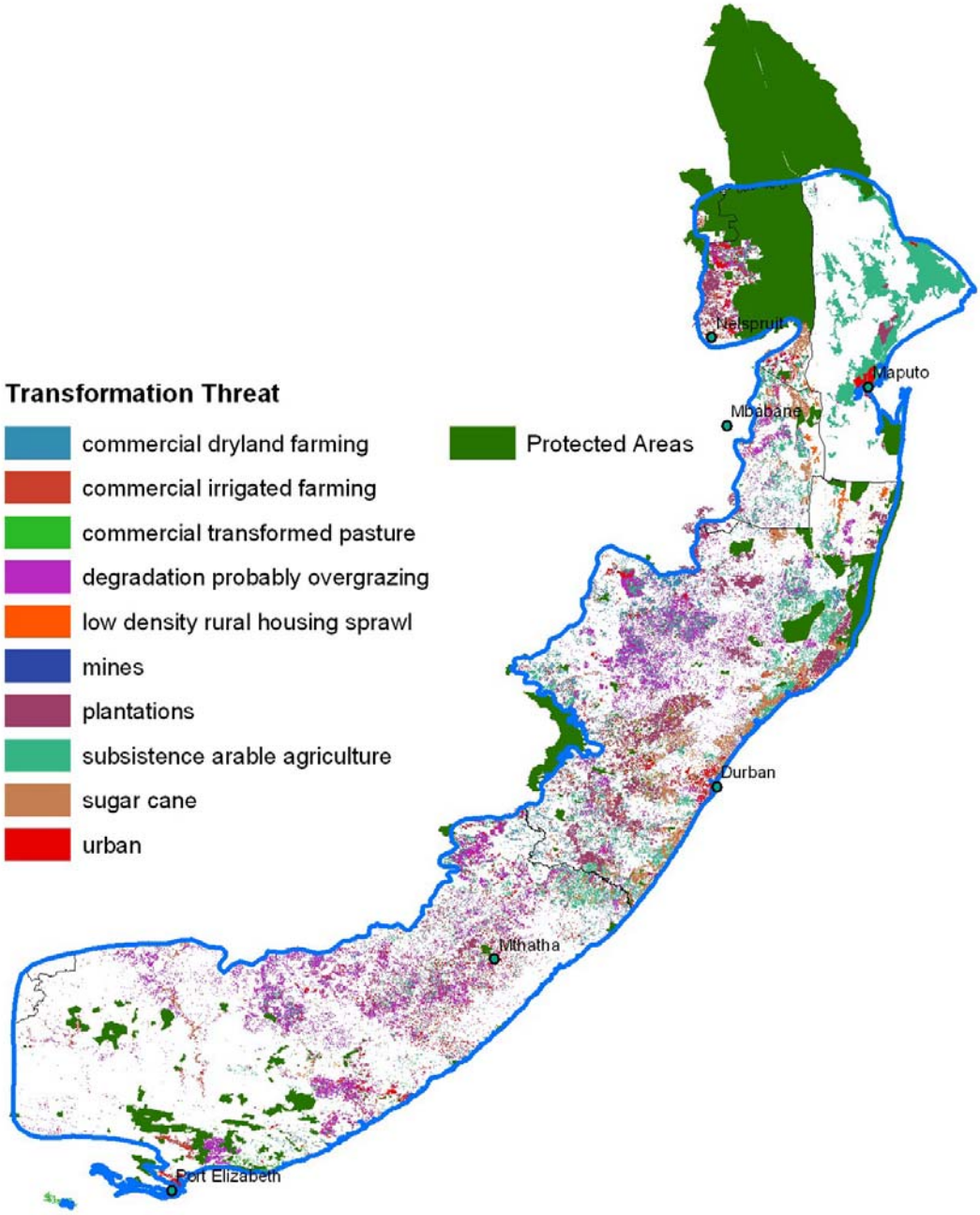
There are threats in South Africa as well. These include (1) the West Bank Industrial Zone in East London, part of a new national highway in the Pondoland Corridor; and (2) the Coega Industrial Development Zone and associated deepwater port at Ngqura, adjacent to Port Elizabeth in the Albany Corridor, representing the largest infrastructure development in post-apartheid South Africa. An even greater threat is planned and unplanned peri-urban sprawl in the Escarpment Lowveld Links, Swaziland Lowveld, Zululand, Highland Grasslands, Pondoland and Albany corridors. Strengthening planning and enforcement of environmental regulations is the primary approach for addressing this growing threat.

Habitat Loss and Degradation from Mining

Although mining is not extensive, its impact and concentration on coastal dune habitats threatens species dependent on these systems, many of which may not yet be understood in Mozambique. Mining currently affects less than 1 percent of the Maputaland-Pondoland-Albany Hotspot with the largest operation being a heavy mineral mining enterprise at Richard's Bay in the KwaZulu-Natal Coastal Corridor. However, new prospecting and mining applications for titanium from the coastal dunes of the KwaZulu-Natal Coast and Pondoland (Pondoland North Coast) may indicate an increasing threat from mining in the region. Similarly, although there are currently no mining operations in the Mozambique region of the hotspot, there is a known presence of heavy minerals that may result in future mining threats.

Strengthening regulatory frameworks and integrating biodiversity information into land-use planning and decision-making, as well as developing sustainable economic alternatives to mining, may be the best approach to stem this potentially significant threat.

Figure 11. Transformation Threats in the Maputaland-Pondoland-Albany Hotspot



Degradation of Marine and Estuarine Resources

Marine resources are exploited by a variety of users, including commercial, subsistence, illegal and recreational users, resulting in radical and often irreversible changes in community structure. Exploitation of marine resources in the intertidal and shallow subtidal areas has increased dramatically on the Maputaland-Pondoland-Albany coast since the early 1990s. Extensive mussel removal by local communities has, in certain areas, resulted in a coralline-dominated shoreline and reduced levels of parent mussel stock to the extent that mussel recruitment fails. Despite the paucity of long-term monitoring studies in the region, it is considered by marine scientists that all inter-tidal mollusks are over-utilized across the entire extent hotspot coast.

A number of marine fish species are under threat from over-exploitation. These species are important components of commercial, subsistence and recreational line fish catches in South Africa (Griffiths 2000, Mann 2000). Two families, the Sparidae (sea breams) and the Clinidae (klipfishes), dominate the endemic fish species of South Africa (Turpie *et al*. 2000). Other important marine resources in the region include intertidal resources (for example, mussels, clams, oysters and crabs) exploited by subsistence, recreational and small-scale commercial fisheries. The line fishery, large pelagic fisheries (catching tuna, swordfish and sharks) and crustacean trawl fisheries (targeting prawns and rock lobsters) are very important in both South Africa and Mozambique. In addition, several other commercial fisheries targeting demersal fish, squid, small pelagic fish and endemic deep water rock lobsters are confined to the southern portion of the hotspot. Many marine stocks are shared between Mozambique and South Africa, and impacts on resources and marine biodiversity in one country affect both as well as other neighboring countries.

Over-exploitation of estuaries has affected various species through change in population size or biomass, change in body size, sex ratios, age composition, change in community composition and structure and change in life-history strategies. It has also indirectly led to habitat alteration or loss through, for example, extensive bait digging. Among the invertebrates, species such as bloodworm and pencil bait appear to be optimally or over-utilized throughout their range. Over-exploitation of plants is also evident in some estuaries close to settlements. Mangroves have been completely removed from one estuary in the North Pondoland Coast – the Mnyameni – because of over-harvesting while in other systems, such as the Mngazana, there is a threat of over-exploitation due to ongoing harvesting pressure.

In Mozambique, marine turtles are under particular pressure. Despite national protection and relatively significant fines of MT 25,000 (approximately $1,000) for the illegal hunting of marine turtles, marine turtle populations in Mozambique are decreasing. The close proximity of coastal towns and villages to marine turtle habitats and burgeoning tourist development present threats to turtles and their habitats on shore and at sea. Threats include loss and degradation of nesting and foraging habitats, hunting for meat and carapaces for the manufacture of “tortoiseshell” and collection of eggs, as well as incidental capture in various fisheries.

The coastal tourism sector is specifically affecting marine biodiversity. The entire length of the Mozambican coast, particularly in the area encompassed by the hotspot, has seen extensive tourism infrastructure development in fragile coastal dune ecosystems, including destruction of dune forests. In Pondoland, similar resort development is encroaching on former pristine habitats. In addition to inappropriate tourism development, negative impacts on biodiversity occur when tour operators compete for open access resources and where the experience of the clientele (which, in turn, is closely coupled with the monetary incentives for the operator) is enhanced by the closeness of encounters. This open access competition can lead to aspects of the resource

being destroyed, such as at some dive sits in the hotspot. Corals are being destroyed as divers are compelled to go closer and closer, despite the “no touch, take or taste” policy purported by most operators. The policies are rarely enforced when the revenue is linked with the customer’s thrill.

Even designated marine protected areas struggle to prevent degradation and overharvesting within their borders due to insufficient financial and human resources, particularly new marine protected areas in both Mozambique and in the Pondoland Coast of South Africa. Despite proclamation, the marine protected area at Ponto d’Ouro risks becoming a paper park if resources for its development and management cannot be secured. In Pondoland, small numbers of Marine and Coastal Management officials (currently 10 staff for the 250 kilometers of coast) are responsible for compliance, monitoring and enforcement but are essentially limited to quota controls in the development and recreational nodes. The inter-tidal areas of the marine protected areas adjacent to Hluleka, Mkambati, and Dwesa-Cwebe are monitored by Eastern Cape Parks Board staff but they have limited training, equipment or operational support. Although steps are being taken to change this situation (e.g., through a managers training course funded by WWF-South Africa and developed in conjunction with Marine and Coastal Management), there is still a substantial role civil society can play to support management and enforcement activities in estuaries and marine protected areas.

Loss and Degradation of Freshwater Habitats

Loss and degradation of habitat is the greatest threat to freshwater diversity in the Maputaland-Pondoland-Albany Hotstpot and the ecosystem services it provides to society. Sedimentation from poor land use, particularly poor agricultural and forestry practices, as well as eutrophication from the same causes, are having the greatest impacts in the hotspot. Sedimentation affects flora and fauna in a wetland or river system by increased particulates in water decreasing visibility and, over time, increases evaporation within a system as areas become shallower. Unsustainable levels of water extraction and modification of flow for agricultural purposes are also having tremendous impacts on diversity in the region’s freshwater habitats. The intense use of water for the production of sugarcane and timber plantations in KwaZulu-Natal and Swaziland is of particular concern. Conservation of Maptuland-Pondonland Albany freshwater habitats will require an integrated catchment management approach that integrates actions to address soil erosion and health, maintenance and restoration of vegetation, and removes direct pressures on surface water systems such as overextraction, pollution, and alien species. Specific catchments of priority concern are the Great Fish, Kei, Umzimvubu, Umtavuna, Mgeni, Mtata, Tuguela, and Limpopo.

In South Africa, KwaZulu-Natal has the highest number of registered dams in the country. Dams, even with mitigating environmental infrastructure, alter water flow regimes and nutrient availability downstream. Suspended particles settle in the slow moving or captured water behind a weir or dam. When water is released from a dam, it sends a nutrient-poor rush into the downstream system, threatening several aquatic organisms (Snaddon, 2001). With increased severity of rainstorms under a changing climate regime, this phenomenon is likely to increase in the future, placing further pressure on already stressed water systems.

A wide variety of top down and bottom up approaches will be required to stem threats and develop and implement integrated catchment and water management schemes for the conservation of this critical resource and the biodiversity it supports.

Other Direct Threats

The unsustainable use of natural resources, the spread of invasive alien species and human-wildlife conflict are also placing pressure on the hotspot’s biodiversity and ecosystems.

Overharvesting of natural resources is eroding the base that underpins many aspects of the region's culture and livelihoods. Demand for certain grasses for thatching, charcoal, traditional medicinal products, horticultural (e.g. cycads) and cultural items are significant in rural, peri-urban, and urban centers and markets for these locally harvested natural resources are usually poorly regulated. Livelihoods are becoming increasingly vulnerable or are declining in welfare due to diminished access to ecosystem goods and services. This further entrenches poverty in the rural areas and fuels urban migration. Ensuring that these resources, including near shore marine resources, are managed wisely by community groups for the benefit of current and future generations is a critical Known areas and initiatives to address these threats exist in the Lebombo Transfrontier, Zululand and Pondoland corridors, but these initiatives are not at a scale to effectively address the growing threats.

Little is currently known of the full extent of invasions along the hotspot, but there is general consensus among the scientific community that it is increasing and key biodiversity areas such as Port St Johns, Umdloti, Pongola-Maguada and Hazyview already show extensive colonization of triffid weed (*Chromolaena odorata*) and Barbados gooseberry (*Pereskia aculeata*). There are significant government-funded programs to address the spread of invasive species, but inefficient application and lack of follow up is failing to stem the threat. For example, *Chromelina*, black and silver wattle trees, water hyacinth and *Hydrilla* are choking many of the region's rivers and water bodies and destroying fragile habitats that are home to numerous frog and fish species.

Human-wildlife conflict in the hotspot is a relatively minor threat in the region, particularly in South Africa and Swaziland where wildlife is generally constrained to fenced protected areas. However, certain predator species have been reduced to very small populations in grazing land areas, in part due to trapping and hunting. In Mozambique crop damage, resulting in food insecurity for poor households, does present challenges and negative attitudes toward conservation that can extend and impact other biodiversity in the region.

Unfortunately, conservation has also become a threat to itself. Although the network of conservation areas in the region is significant and, for the most part, well resourced and managed, the networks are biased toward habitat for charismatic megafauna and do not meet the current habitat needs. In addition, future scenarios under climate change are frightening. For example, many of the reserves in hotspot, including the Kruger National Park and Hlane Royal Park, are experiencing serious ecosystem decline as a result of the impact of elephants on the ecosystem. Trees in particular have been impacted with a knock on effect on bird and invertebrate populations. Expensive relocation and controversial elephant culling efforts is one of the main motivations behind the drive for TFCAs and the creation of larger habitat corridors in the hotspot.

ROOT CAUSES OF THREATS TO BIODIVERSITY

The root causes of the immediate threats, described above, and the barriers to effective environmental management and biodiversity conservation are briefly explored below on the premise that if the barriers are overcome and the root causes addressed, conservation activities in the hotspot will be effective. Many of these barriers and root causes are interlinked in complex ways; overcoming them requires a holistic vision and the engagement of a wide range of government and civil society stakeholders.

ECONOMIC COSTS OF ENVIRONMENTAL LOSS AND DEGRADATION EXTERNALIZED

The total economic value for biodiversity and ecosystem services, including hydrological, within the hotspot, are substantial but hugely undervalued. The thrust of major government investments

in the hotspot over the past decade has been driven by a development model that relies on economic growth and short-term economic benefits continues to drive coastal development, irrigated agriculture, and industry and urban expansion that will have a permanent negative effect on biodiversity and, in the longer term, social well-being and the economy. The social and economic development pressures of peri-urban centers also fragments habitats and disrupts ecosystem functioning, leading to permanent loss of biodiversity.

The biodiversity conservation sector has made some inroads to promoting environmental sustainability as an essential component of economic development, but data and vehicles for addressing the environmental aspects within the economy need to be further developed to convince and ensure governments integrate environmental costs and investments into their plans.

POOR KNOWLEDGE AND CAPACITY

The lack of institutional capacity and knowledge is a root cause to direct threats to biodiversity in the Maputaland-Pondoland-Albany Hotspot in many ways. Good planning and decisionmaking is dependent on having access to or recognizing and harnessing good knowledge. It is only when people understand and value what is being lost and what they can do to prevent that loss (in a way that does not negatively impact their livelihoods or economic development options) that conservation outcomes will be achieved or sustained. There are profound gaps in the formal, scientific knowledge that is available for conservation planning and implementation in the hotspot, but particularly within Mozambique and Swaziland. Addressing these gaps in a way that strategically contributes to conservation outcomes is an absolute priority in Mozambique, while monitoring the effectiveness of conservation actions in Swaziland is an equal priority for improving decisionmaking. Fortunately, due to environmental similarities and wealth of knowledge in the adjacent South African areas, knowledge exchanges and modeling extensions, can help to rapidly address some critical gaps, particularly in understanding impacts of climate change.

Simultaneously, many decisions that are leading to habitat loss and degradation in the hotspot are the result of a lack of technically trained people embedded in decisionmaking positions. Environmental technicians are growing in numbers in the region, but these individuals lack management and administration skills and therefore are not as effective as they could be in their positions. Overall planning capacity throughout the hotspot is weak and draws off dated protected area planning concepts, and there is an absence of business planning capacity. This results in projects that are not results-oriented and not cost-effective and which are not always sustainable. If biodiversity in the Maputaland-Pondoland-Albany Hotspot is to be protected, the capacity to develop, manage and implement conservation programs must be expanded rapidly through effective skills development and mentorship programs. This could be done by recruiting managers and providing them with background training in conservation or supporting the development of trained technicians who have the aptitude for management.

POOR GOVERNANCE

Conservation – as with all forms of environmental management – is wholly dependent on the implementation of regulations that are designed to protect biodiversity, ecosystems and ecological processes. The implementation of regulations can be broadly described as “governance.” The failure to implement regulations within the Maputaland-Pondoland-Albany Hotspot – poor governance – can be attributed to many factors:

1. Poorly formulated regulations
2. Lack of institutional capacity (human and financial) to implement the regulations
3. Poor linkages among organizations, including with law enforcement and judicial systems

4. Corruption undermines the implementation of regulations and can occur at any one of the many links necessary for good governance
5. Unequal understanding and interpretation of legislation and regulations among actors.

In the case of the Maputaland-Pondoland-Albany Hotspot, much legislation exists to support the integration of environmental issues into municipal plans and budgets, but poor understanding of the meaning and recommendations of regulations can lead to the ignoring of this legislation, particularly Environmental Impact Assessments. It is common practice in many South African local municipalities to grant exemptions to the EIA process, particularly for their own local economic development projects, simply due to a lack of understanding of the EIA process. Lack of resources can also be a huge barrier to effective prevention of habitat loss and degradation, and in the case of this hotspot, it is often knowledge and human resources that are the greatest immediate challenge.

Poor institutional linkages and coordination beleaguers effective planning and decisionmaking that would prevent habitat loss and degradation. In Mozambique the Organic Status of District Government (2006) Act in Mozambique requires local government plans to incorporate biodiversity and environmental concerns. However, the units and districts borders are not always designed in a way that optimizes effective environmental management. For example, whereas the Maputo Special Reserve is in the fortunate position to interact with only one district authority, many protected areas in the country have to work with more than one: the Quirimbas National Park entirely encompasses two districts and a further four partially; Niassa National Reserve encompasses two districts entirely and six partially. With each district producing its own development plan and with each protected area producing its own management plan, a further level of complexity is introduced. If there was a high degree of cooperation and collaboration through strong linkages, these parallel planning processes would offer strong advantages: the districts could assume responsibility for achieving the livelihood targets for the area while the protected area could focus with biodiversity and ecosystem management. Unfortunately, the linkages between the organizations are more often poor and the competition high. The result is that the protected area authority and the district authorities inhabit different space and the risk of conflict is high.

In South Africa, the Municipal Services Act also provides an excellent opportunity to mainstream biodiversity concerns into land-use planning and practice and efforts. In both KwaZulu-Natal and the Eastern Cape, the provincial conservation authorities are increasingly involved with municipal-level planning. In addition, civil society has been engaged in the Albany Centre of Endemism through the STEP Handbook and Training Programme that works to ensure integration of biodiversity information into plans and decisionmaking. However, large- and small-scale developments continue to transform critical areas along the coast because of lack of environmental integration at the local level, particularly in areas where traditional and municipal officials have responsibility murkiness. Nationally managed development project such as mining and road developments along the Pondoland and KwaZulu-Natal Coast as well as proposals for bio-fuel development in Pondoland and Highland Grasslands can also go against provincial level biodiversity and environmental service information for appropriate decisionmaking. These higher-level decisions are difficult to influence in a decentralized development.

To address these challenges of poor governance, major institutional overhauls to realign and build capacity of government conservation departments are required and some are already being supported by the international conservation community (see Synopsis of Current Investments for more detail.)

LAND TENURE SECURITY

People with secure land tenure have a much greater incentive to invest in their land. Land tenure in the hotspot – but particularly in South Africa and Mozambique – is fraught with issues as described earlier. In short, while the land tenure legislation may have improved, people still lack the tenure security. However, how they invest in their land is just as important for it is not every person who will invest in planting trees, protecting river banks, or even not completely clearing the land, particularly if economic circumstances dictate that short-term solutions be sought.

DEPENDENCE OF LOCAL COMMUNITIES ON NATURAL RESOURCES

As discussed above, natural resources form an integral part of the livelihood strategies of people living in communities in the rural areas of the hotspot. However, this creates dependence on natural resources and, without viable alternatives this dependence can lead to erosion of the resource base. The key to overcoming this root cause is to find viable alternatives that can sustain livelihoods and break the people's dependence.

CLIMATE CHANGE ASSESSMENT

Debate around the certainty of climate change no longer exists, with the most respected scientific bodies now unequivocally stating that our climate is changing and that human activities are responsible. Burning fossil fuels, agriculture, landfills, deforestation and land degradation are key contributors, releasing unsustainable levels of greenhouse gas (GHG) emissions, such as carbon dioxide (CO_2), into the earth's atmosphere. High levels of GHGs are causing global temperatures to rise, posing major environmental, social, economic, and political threats that, without action, will cause the extinction of species, disrupt the important functions of ecosystems, and significantly deteriorate human livelihoods, particularly the poor.

Predicted Climate Change Impacts on Biodiversity

At a global scale, the average air and ocean temperatures are expected to increase, global sea levels are predicted to rise, and widespread melting of ice and snow is anticipated. The effect of such changes and particularly changes in the frequency of extreme events such as floods, droughts and storms, are expected to have acute implications for human societies and biodiversity (IPCC 2007, Stern 2006). Predictions for Southern Africa include temperature increases of between 1°C and 3°C by 2050; 5-10 percent precipitation reduction in summer rainfall regions; increase in droughts and flooding events; and a 0.9 meter rise in sea level by 2100.

The climate predictions for Maputaland-Pondoland-Albany are derived from regional studies and reflect these trends. Currently the climate ranges from subtropical/tropical in the northern coastal plains of Mozambique to more temperate with frost in winter on higher grounds along the eastern boundary of the hotspot. Rainfall and average temperatures will increase across the region with the greatest anticipated changes towards the inland escarpment regions near Lesotho during the summer and autumn months. The increases in temperatures result in increases in evaporation, and so despite increases in precipitation, some areas will become drier and river flows will decrease and water temperatures increase.

The magnitude of the climate change impacts will show distinct geographical patterns across the hotspot. These patterns are the result of both variations in the actual level of biophysical disturbance (for example, areas with greater predicted change in precipitation) and reductions in the ability of systems to adapt as a result of human impacts on these landscapes (for example, fragmentation of landscapes due to transformation of land for arable agriculture or due to urbanization may result in reducing the ability of species to move across the landscape and

respond to changes in environmental conditions). Areas with highest predicted physical climate change impacts are described in the conservation outcomes section of this document.

The physical climate impacts present a threat to the highly diverse and endemic fauna and flora of the hotspot. Species, particularly plants and others with a limited capacity to move or a longer development period, will be at greater risk of negative impacts from these changes. The impacts on vertebrate taxa will depend on their relative mobility (Lawes *et al.* 2007). While birds can disperse between forest fragments relatively easily, other taxa such as mammals, frogs or dung beetles, for example, may be limited in their ability to find and colonize new suitable habitats (Gaston and Chown, 1999, Eeeley *et al.* 1999, Lawes *et al.* 2007 van Rensburg *et al.* 2000, Wilson *et al.* 2007). Floods and droughts as well as changes in temperatures of wetland systems can radically impact aquatic flora and fauna, particularly if extreme climatic events result in the spread of competitive alien species.

At the ecosystem level, lowland, swamp, riverine, dune and sand forests within the hotspot are likely to be the most negatively impacted by climate change. Although these temperate forests have a long, dynamic history of range expansion and contraction, current levels of transformation and fragmentation inhibit the range shifts required for long-term persistence (Eeley *et al.* 1999, Erasmus *et al.* 2002, van Rensburg *et al.* 2000, Lawes *et al.* 2007). Within the marine environment, the east coast coral reefs are bleaching and fish stocks are dwindling and intense storms are increasing pressure on already stressed coastline habitats. While there are no studies that can directly tie these observations to climate change, ocean currents are moving and micro-climates within the inshore marine environment are certainly impacted. Impacts on grasslands and river habitats are also likely to experience negative impacts from increases in natural fires, but inappropriate developments and water extraction are likely to threaten these ecosystems long before the impacts of climate change are felt.

Impacts on People

A range of impacts on human populations living in the hotspot can be expected – some of which are already being observed. Droughts or floods in the region that effect subsistence crops and the availability of fresh water can cause a range of negative impacts from economic insolvency to malnutrition and susceptibility to disease. Extreme storms can also deprive the poor of shelter and access to markets as a result of damaged infrastructure. In the longer term, traditional medicines that serve rural communities may be more difficult or expensive to obtain as a result of shrinking forests and wetlands. Decreasing levels of freshwater or marine fish could dramatically impact health and development from a decreased access to this source of protein. Climate change can also negatively impact the region's entire economy as transport routes, coastal developments and other infrastructure are destroyed. For example, estimates of a recent storm that hit the urban coastline around Durban in KwaZulu-Natal 2007 were $17 million.

Climate Change Adaptation and Mitigation

Conservation and restoration of intact habitats can be an important tool for climate mitigation and adaptation in the Maputaland-Pondoland-Albany region. Mitigation describes efforts that seek to limit the factors contributing to climate change. A significant proportion of GHGs come from methane from cattle, mining activities, coal deposits, and industrial areas, but equally important contributions come from the carbon released when forests and other ecosystems – such as grasslands, savannas, and subtropical thicket – are degraded. Improving farm and industrial management as well as active maintenance or restoration of natural systems not only reduces emissions, but also provides substantial development and job creation opportunities. Forest and thicket restoration programs are already established in the hotspot and are capable of expanding

significantly as the private sector looks for opportunities to offset their carbon footprint through the planting of trees.

Adaptation is used to describe actions undertaken to reduce the impacts of climate change on ecosystems and human populations. An important and widespread opportunity for adaption in the hotspot is the removal of alien vegetation and restoration of riparian vegetation, which increases stream flow and provides a buffer against flooding thereby building resilience of biodiversity and people to reduced rainfall.

Government Initiatives on Climate Change

All three countries represented within the hotspot have active government initiatives aimed at reducing the factors contributing to climate change as well as reducing the vulnerability of the country to the impacts of climate change. However, despite significant efforts, national legislation and programs show very little or no recognition of conservation and the restoration of ecosystems as part of their climate change response. As a result, development planning and financing for climate change mitigation and adaption take limited consideration of ecosystem-based approaches. A notable exception is South Africa's Public Works Programmes for water and wetlands. The benefits of these programs and potential Payment for Ecosystem Services initiatives for supporting biodiversity conservation and building resilience to climate change could be further optimized by improved planning and technical understanding of ecosystems.

Civil Society Initiatives on Climate Change

In response to the conservation challenges presented by climate change, civil society within the hotspot has been active in engaging at the policy level: promoting adaptation technologies; promoting ecosystem restoration; and supporting the uptake of sustainable land management in key corridors to reduce impacts on biodiversity and livelihoods from climate change. In South Africa, several dedicated civil society efforts by WWF-South Africa and the South African Climate Action Network are actively engaging government to improve climate mitigation policies. The Climate Action Partnership is a formal partnership created in 2008 that brings together all eight of South Africa's largest conservation NGOs (CI-South Africa, The Endangered Wildlife Trust, The Wilderness Foundation, The Botanical Society of South Africa, The Wildlife and Environment Society of South Africa, the Wildlands Conservation Trust, Birdlife South Arica and WWF-South Africa) to tackle the issues related to biodiversity and climate change. The alliance aims to reduce the impacts of climate change and increase the resilience of South Africa's biodiversity and communities to the predicted changes by promoting intact ecosystems that are connected at a landscape level. Through the Climate Action Partnership, innovative ecosystem-based restoration projects are underway and lessons learned from these pilots are being shared through national forums. Although not currently established, the potential exists to extend these learning and advocacy networks to Mozambique and Swaziland.

An overview of climate change interventions, organizations and implications for donors is provided in Table 12 below.

Table 12. Description of Climate Change Interventions, Organizations and Opportunities in the Maputaland-Pondoland-Albany Hotspot

Program	Description	Funders	Projects	Implications for Donors
Climate change and eco-schools	This project builds on the existing eco-schools program with the addition of a climate change curriculum to further knowledge and understanding of global climate change amongst school children.	International foundations		This project builds on existing work of civil society (WESSA and WWF-SA) in advocacy, environmental education and awareness in the hotspot.
Food and Trees for Africa	A South African-based social enterprise addressing greening, climate change action, food security, sustainable water and soil use and management, with a strong focus on environmental and global warming education and awareness.	Private and corporate donors	National tree distribution program, Arbor month, Trees for Homes, the Carbon Standard, Urban Greening and Community Food Gardens, Permaculture, Sustainable Food Gardening	Food and Trees for Africa is a national NGO but does not currently have a strong presence in the hotspot. It has the backing of some of the larger corporate and private donors and, should it pursue a more rigorous carbon and biodiversity standard, donor investment could be used to support the work of Food and Trees for Africa as it involves both mitigation (through urban and rural greening) and adaptation (through food security) strategies for dealing with climate change.
Indigenous Trees for Life	Indigenous Trees for Life is a forest restoration program with a strong focus on social development through a system of establishing community-based nurseries that barter their trees for consumables donated by corporate sponsors.	Private and corporate donors, international funding agencies	Kwajobe and Ongoya Forest restoration projects, greening of Ethekwini Municipality, Dube, Esikhaweni and Watloo urban greening projects	The project is focused in the priority KZN Midlands Corridor, as well as Zululand and Lubombo Transfrontier corridors. In addition to climate change efforts, this project supports and has the potential to partner with development and health-based civil society organizations.

Program	Description	Funders	Projects	Implications for Donors
KZN Biodiversity Stewardship Corridors for climate change adaptation	The program aims to bring areas with high biodiversity under formal conservation through a set of incentives (tax rebates and management assistance) to private and communal land owners.	International foundations	Dalton Private Nature Reserve (KZN Midlands), Umgano (KZN Midlands), Somkhanda (Zululand), Red desert (Pondoland) stewardship sites	This project supports the creation of corridors in the KZN Midlands, Highland Grasslands, Zululand, and the KZN Coast. It provides a unique opportunity for civil society partnerships with government and private land owners.
Subtropical Thicket Restoration Program	The project aims to rehabilitate and maintain sub-tropical thicket through public-private partnerships that create employment and skill development opportunities. The carbon sequestration potential of the Eastern Cape thicket is high, and in light of the rapid development of the carbon market there is potential for financial support of biodiversity restoration within the Eastern Cape through this market.	National government (through the Working for Woodlands Programme)		Well-established climate change mitigation and adaptation project with strong civil society involvement. The program is backed by long-standing and rigorous science and is a key opportunity for scaling up.
Caring for the planet with UG	Climate change advocacy and awareness campaign using the printed media to raise awareness of global warming.	International foundations	UG Cartoon on climate change	Small project that has only recently been launched that could be broadened across the hotspot to increase awareness and inform people about climate change.
Matiwane Forest Restoration Programme	The project aims to rehabilitate and maintain degraded Coastal Forest in the impoverished Transkei, through public-private partnerships that create employment and skill development opportunities. The carbon sequestration potential of the Transkei Coastal Forest is substantial, and in areas of excessive poverty and high levels of unemployment, investment needed.	National government (through the Working for Woodlands Programme)		A fledgling program with huge potential for poverty relief and conserving biodiversity.

SYNOPSIS OF CURRENT INVESTMENTS

Investments in biodiversity conservation within the hotspot are diverse and reflect the degree of economic development between the three countries. While significant government funding is available for conservation and development initiatives in South Africa, Mozambique's entire economy is still braced by substantial multi- and bilateral funding. Swaziland falls somewhere in between, with a balance between government and donor investment. Protected area development, particularly support for staff and infrastructure, are the traditional and principal form of biodiversity conservation investment across the hotspot. In South Africa recent investments have moved beyond protected areas into land stewardship and large-scale government green job programs, such as Working for Water, Working for Wetlands and Working for Fire. Private sector engagement is strongest in South Africa, which has a culture of corporate support for social causes promoted by government through tax incentives. Building on the existing investments is critical to consolidating the emerging successes of both government and donor funding in the region.

Significant investment is being made into conservation activities in the region, and capturing the investment in a comprehensive fashion would be exhaustive, yet it should be noted that funding for future conservation efforts in the region is uncertain in a time of global change. Global and bilateral funders have significantly scaled back their granting as a result of the global recession and the projected capacity for corporate social investment support from South African companies is less than half of previous years (see www.trialogue.co.za). Issues that address immediate human needs have been prioritized and longer-term investments that ensure healthy ecosystems for future generations have undergone significant decline.

As traditional funding sources for the environment scale back or shift, civil society can play an important role in providing the innovation and momentum to harmonize conservation and development, and to mainstream concerns for biodiversity and ecosystem health into the economy. Given the differing capacity levels, the opportunities for successful conservation and development innovations may be greatest in the KwaZulu-Natal Province in South Africa, where capacity to absorb and apply new resources is greatest. But, as has been demonstrated in other CEPF investment program, catalytic investments, coordination and shared learning in areas with little capacity can bring vital results as organizations are equipped to implement new ideas that they have been unable to act upon previously.

Within the hotspot's 72 key biodiversity areas, only five have major outside funding (i.e. more than $1 million): 1) Sibaya-Kosi Bay, the location of the Greater St. Lucia World Heritage Site; 2) Greater Addo Complex; 3) Pondoland North Coast; 4) Ponto d'Ouro; and 5) Licuati Forests and Eastern Swazi Lubombo. Two others, Orpen/Kruger and Limpopo National Park, also have budgets in excess of $1 millon, but the majority of the landscape supported by these budgets falls outside of the hotspot. Within the Zululand Corridor, the Pongola-Magudu and Hluhluwe-Mkhuze Lowveld are getting substantial funding for land reform and ecotourism development (from GTZ, and a WWF-Netherlands contribution to black rhino re-introduction). Due to their proximity to Kruger, the Escarpment Lowveld key biodiversity areas, particularly Hazyview and Bushbuckridge, have significant private sector tourism investment. Similarly, private game reserves play a significant financial investment role in conservation efforts in the Swaziland Lowveld key biodiversity areas (Big Bend/Manzini/Hlathikulu, Nkomati Valley and Tshaneni). The Port St. John's Forests and Ethekweni South key biodiversity areas have had significant support for alien removal and restoration efforts from the South African government.

All coastal and midland sites have received less significant investments in protected area management, extension of stewardship arrangements by the KZN provincial conservation authority, and alien management and wetland restoration through South Africa's "Working for…" programs. Conservation funding to the Hogsback-Stutterheim or any of the Highland Grasslands key biodiversity areas has been extremely limited, apart from minimal support for protected area management in some areas and some mainstreaming efforts through the SANBI National Grasslands Bioregional Programme. SanParks has been seeking significant funding for the extension of the Mountain Zebra National Park Complex and at Camdeboo, but it has not yet had success. The Eastern Cape Parks Board has been dedicating resources at improving conservation management at the Great Fish Key Biodiversity Area and the Fish and Kei River Mouths have also been priorities for Working for Wetlands. There is no conservation investment or civil society movement within the Mozambique Coastal Plain key biodiversity areas (Manhica, Maputo North, and Massinger/Limpopo Floodplain).

A summary of the key donors in the hotspot and their thematic areas of investment is provided below.

National Government Investment

Government funding for implementation of biodiversity conservation activities in Mozambique and Swaziland is low. In Mozambique, the majority of recurrent management costs for protected areas is covered by external donors, and those protected areas with limited external funding have consequently limited capacity and management action. The Maputo Special Reserve is relatively well funded (in Mozambican terms and from international donor funding) but the Licuati Forest Reserve receives negligible funding. Similarly, in Swaziland, the Swaziland National Conservation Trust has limited funds for management enforcement in the Mlawula Reserve.

In contrast, the South African government is the largest investor in biodiversity conservation in South Africa through annual grants to conservation agencies and to special projects aimed at achieving both conservation and public works-related poverty alleviation. Since 2004, the South African government has spent more than $5 million on park infrastructure upgrades and expansion through new community reserves for the objectives of the Lubombo TFCA within South Africa. Additionally, on average, the government provides significant contributions from the national budget to its national parks in the hotspot with annual allocations of approximately $13.3 million (Addo, Kruger, Mountain Zebra) and $5.7 million for the St. Lucia World Heritage Site. Relatively speaking, provincial reserves in KwaZulu-Natal are well resourced, with a budget of $34 million for KZN Provincial Reserves, although marine and stewardship programs are still underresourced for their mandates. In the Eastern Cape, the conservation authority - the Eastern Cape Parks Board - has an annual budget of $11 million, which is insufficient for the development phase that many of the reserves are in. In Swaziland, an annual budget of $550,000 is managed by the Swaziland National Trust for protected area management, with the bulk of funds channeled towards infrastructure and staff costs.

Both Swaziland and South Africa also have significant government allocations dedicated to the removal of alien species – with a significant focus on the removal of alien vegetation from the waterways in the Maputaland-Pondoland-Albany regions of these countries. In 2007/2008, approximately $10 million was spent on alien clearing efforts within South Africa's portion of the hotspot (see www.dwaf.gov.za for more detail) and $200,000 was spent in Swaziland. It is important to note that the South African national government also provides substantial support to agriculture, small enterprise and land reform cooperatives through a wide range of grants and vehicles in the different sectors that could be leveraged toward supporting conservation or

sustainable land-use outcomes. One example previously leveraged by a CEPF investment was a Development Bank of South Africa program aimed at rural development, which resulted in more than 50 small-grant conservation and livelihood projects as well as the creation of a long-term financing vehicle for the Succulent Karoo.

Bilateral and Multilateral Donors

The majority of international funding for biodiversity conservation in the hotspot comes from a significant number of GEF-funded projects in the region, implemented through either UNDP or the World Bank. Total GEF funding for projects currently implemented in the hotspot is in the region of $74.9 million, with about 80 percent of these funds committed and the relevant projects in the process of implementation. Other bilateral funding for conservation is primarily in Mozambique and South Africa, with more limited bilateral funding for the Swaziland parts of the hotspot.

Mozambique

Bi- and multi-lateral donors in Mozambique work with and fund civil society organizations as well as government agencies. With some donor organizations (e.g., DFID), this is done primarily through support to the G20 (The National Platform of Civil Society for Participation in the Poverty Observatory, explained in Civil Society Framework). Other donors, such as UNDP and the EU in particular, deal with sector-based NGOs directly. The majority of bilateral funding in the last decade has supported infrastructure and governance, which is inextricably linked to environmental managment and from which foundations can be built upon and lessons learned.

Mozambique also receives substantial funding in the environment sector from bi- and multi-lateral donors, including the GEF and the French, German, Danish, Dutch and Finnish governments. In the Mozambican part of the hotspot, the focus of investment has been on the Lubombo Transfrontier Region and much of this funding has been aimed at supporting public-private/civil society partnerships with the Government of Mozambique (DNAC or DNFT) for the management of protected areas. In turn, due to the focus on sustainable development outcomes, investment decisions have been based on tourism potential and not necessarily on the conservation value of protected areas. The result is that investment gaps exist in this corridor for areas with high biodiversity value but with little or no attention because their tourism potential is seen to be low or they fall under the jurisdiction of a different government organization. For example, the Licuati Forest Reserve has received little attention (both technical and financial) despite its value in protecting an important area of sand forest. It falls under the mandate of the DNFT, under the MADER which currently has limited civil society support. Another area that is a current gap in the corridor vision for the Lubombo Transfrontier area is Ponto do Ouro Partial Marine Reserve. The Reserve was proclaimed on 14 July 2009, but the three ministries involved in the establishment of the reserve are still clarifying their roles, responsibilities and financial commitments. One of the current needs of the marine reserve is to identify and adequately justify utilization zones within the reserve relative to current uses and livelihoods. Civil society involvement in this task would be beneficial, as would their involvement in other development and management activities within this new marine reserve.

- In 2005, the GEF/World Bank/Government of Japan provided $34 million for the development of tourism and administration infrastructure, and $10 million of additional GEF/World Bank support has been allocated until 2013 to build the management capacity of the National Department for Conservation Areas through further infrastructure developments and human resource capacity.

- The Rufford Maurice Lang Foundation and Dutch Lottery funding has been used to support the TFCA through the Peace Parks Foundation and $1 million has been spent since 2005 on developing small and medium enterprises in the region.

- The EU has contributed to the Lebombo Transfrontier Conservation Area's marine component through the TRANSMAP project, which has provided the mapping and zoning foundation for the Ponto d'Ouro Partial Marine Reserve. The Principality of Monaco has also supported turtle monitoring in the region by the Peace Parks Foundation-WWF Turtle Working Group.

- A further UNDP/GEF project is currently being planned to begin by the end of 2010 focused on the financial sustainability of the protected area system of Mozambique.

The government of Mozambique has also benefited from significant funding for health, education and rural finance in the region from nearly all major European and Asian bilaterals as well as USAID. Other bilaterals have provided support for disaster preparedness, food security and infrastructure development. In comparison, the money dedicated to conservation is insignificant. However, opportunities for partnerships to ensure that the environmental impacts of development are taken into consideration for major projects (such as a deep-water port in Maputo or a new forestry program) exist, and are a priority if conservation is to be viable.

South Africa

The South African regions of the hotspot have been the recipient of a significant amount of funding, particularly the Eastern Cape which is the poorest of the three provinces in the region. Hundreds of private and corporate foundations that provide grants from $1,000 to $1 million can be found supporting projects in the hotspot. For example, the following Foundations are active in the region: The DG Murray Trust, The Community Foundation for the National Capital Region, American Express Foundation, Delonne Anderson Family Foundation, The Annenberg Foundation, Banyan Tree Foundation, The Believers Foundation, Inc., The Bristol-Myers Squibb Foundation, Inc., Howard G. Buffett Foundation, Carnegie Corporation of New York, The Christensen Fund, The Coca-Cola Foundation, Inc., Compton Foundation, Inc., The Dana Foundation, The Ford Foundation, and the Fuller Family Foundation. These organizations provide support to conservation, education, governance or social projects in the hotspot. The list of organizations that support health and rural agriculture development is substantially greater. For this reason, a summary is provided of the major projects and gaps in investment not covered by any of the above entities are discussed.

Recent or ongoing major grants for conservation include:

- Between 1999 and 2004 a major planning grant was provided to prioritize conservation and land-use options for the sub-tropical thicket vegetation in the Albany Center of the Hotspot. The resulting Sub-tropical Thicket Ecosystem Plan has been gradually integrated into provincial and municipal land-use plans and has provided a strong foundation for protected area expansion in the region. This includes the expansion of the Addo Elephant Park in the Albany Centre, which has been implemented by South African National Parks with a combination of national funding and a $550,000 GEF grant that will conclude in 2010.

- The GEF provided a $6.5 million institutional strengthening grant to the Eastern Cape Parks in 2005, primarily for work within the reserves located in the Northern Pondoland Coast region, commonly referred to as "the Wild Coast." Due to high staff turnover in the

initial years, implementation of this grant is behind schedule. The EU also made significant investments in the Wild Coast for the development of ecotourism and other alternative livelihoods in early years of this decade, but is no longer a significant donor to this region.

- The GEF provided a $9.3 million grant to the St Lucia Wetland to conserve biodiversity and improve livelihoods in this declared World Heritage Site. The flow of funding from this allocation was initiated in 2008 and will conclude in 2013.

- The GEF granted the South African National Biodiversity Institute $8.6 million to support grassland conservation through mainstreaming biodiversity planning and concerns into agriculture, timber, mining and urbanization. The geographic focus of this grant is primarily outside of the hotspot, but the engagement activities are applicable and should be leveraged for conservation impacts in the hotspot grasslands. This project will end in 2012.

- GTZ has contributed $550,000 to the Wildlands Conservation Trust's efforts to establish a communal reserve, Somkhanda, in the Greater Ithala Complex. Somkhanda Game Reserve is a 16,000-hectares conservation area established by the Gumbi Community after a successful land claim on three separate game farms in northern KwaZulu-Natal. The community consolidated the conservation land into a larger area thus allowing for the introduction of black rhino. WWF included Somkhanda in its Black Rhino Range Expansion Programme and introduced black rhino to the reserve, marking the first time a community-owned and managed area was ever entrusted with this highly endangered animal. Management also plans to introduce endangered wild dogs into the area, as soon as prey species have multiplied sufficiently. Somkhanda already actively participates in the Provincial EWT Wild Dog Management Working Group, which has identified Somkhanda as a crucial area for wild dog expansion and the establishment of a meta-population in the area. Furthermore, the KZN leopard monitoring project, funded by the Wildlands Conservation Trust and the Global Nature Fund, has also recently been extended to Somkhanda, thus allowing for the better monitoring and management of these endangered animals. Moreover, with the Pongola Nature Reserve and the Pongola Game Reserve, Somkhanda forms one of the last refuge areas for threatened and endangered vultures who nest in these areas.

- CI and WWF have both secured catalytic resources to support stewardship pilots in the KZN and Eastern Cape provinces, particularly in the KZN Midland and Coast corridors, Pondoland North Coast Key Biodiversity Area and Greater Addo Complex Key Biodiversity Area.

- The DG Murray Trust is providing R9 million to a three-year project for the Climate Action Partneship to build its platform for policy and projects on ecosystem-based adaptation projects and supports the WCT Indigenous Trees for Life pilot projects at the Huwhluwe-Mkhuzi Key Biodiversity Area and Ethikweni North. Through CAP, the Trust is also supporting the development of spekboom restoration projects that fall just outside the hotspot, but have the potential to be scaled up throughout the Albany Corridor.

Swaziland

The Swaziland component of the hotspot has attracted a modest amount of funding from GEF and, in terms of the G-4 allocations, does not warrant a specific allocated amount but is instead

categorized in the group allocations with other smaller developing countries. A $2 million GEF project is currently focused on restoring the Usuthu River, with a focus on providing healthy ecosystems and sustainable irrigation to small-scale farms. A prior project undertook planning and implementation support for "conservation-worthy sites" and the planning outputs from this project were used in the development of this Ecosystem Profile. There are also smaller conservation projects funded by the EU and UNDP in Swaziland. However, in contrast, a major bilateral partnership with Taiwan is seeking to expand sugar cane, potentially for biofuel processing in the country. Addressing the environmental implications of this expansion is a conservation priority.

Civil Society Investment

The challenge with civil society investment is that it is often opportunistic and designed to achieve short-term objectives. While some excellent models have been generated with this funding, longer-term funding is required to scale up these successes.

Mozambique

With the exception of Peace Parks Foundation matching finance to the larger GEF projects, there is currently no significant civil society investment in conservation in the hotspot region of Mozambique. However, the Gates Foundation announced in October 2009 that Mozambique would be one of nine pilot countries to be supported through a $15 million fund to support small-holder agriculture. The focus of the funding will be on policy support, seed distribution, soil health, market access, land tenure and climate change. Although the specific geographic areas for this funding are yet to be determined, it could provide a significant leveraging opportunity as well as an opportunity to mainstream biodiversity into the production landscape with joint conservation investments to partnered projects.

South Africa

Within South Africa, various conservation organizations and foundations currently support conservation within the hotspot. Two National NGOs active in the hotspot, WWF-South Africa and the Wildlands Conservation Trust, fund projects and can be regarded as investors. From 2006 to 2009, WWF-Netherlands supported a Black Rhino Expansion Programme that has developed a model for community-based stewardship of this threatened species in KwaZulu-Natal. WWF-South Africa has also been a significant investor and implementer in coastal and marine conservation off the Maputaland Coast. Investments have been made in marine and coastal resource management training for local communities, conservation efforts for nesting sea turtles, and the development of a fine-scale conservation plan along the KwaZulu-Natal and southern Mozambique coasts. The Wildlife Conservation Trust, on the other hand, has focused its support on protected area management activities through the KwaZulu-Natal conservation authority Ezemvelo KZN Wildlife, including expensive elephant management activities and some moderate funding for its stewardship program.

Private sector corporate social investment (CSI; South African law requires that corporations donate 1 percent of their net profits to social causes) plays an important role for conservation efforts by NGOs active in the region, particularly the Wilderness Foundation, the Endangered Wildlife Trust, Wildlife Conservation Trust, WWF-South Africa and the Wildlife and Environment Society of South Africa. The Wilderness Foundation and Wildlife Conservation Trust are funded from the corporate sector (Rand Merchant Bank, Specsavers, and Scouts South Africa to name a few) for projects that link social upliftment, restoration of ecosystems and carbon sequestration. Foundations such as Newman's Own, the DG Murray Trust, and others contribute funding between $10,000 and $100,000 and again look to support the social elements

of conservation projects, mostly around protected areas in KwaZulu-Natal. WWF-South Africa has pioneered a Sustainable Sugar Initiative with industry that has secured a combination of private sector CSI and operational financing for better practices in production and a Better Barley Programme that is supported by South African Breweries Ltd. and their operations in Port Elizabeth. Although all of this private sector financing is notably smaller than the major multi- and bilateral funding, the more flexible and either business- or socially minded nature of the projects has resulted in innovative projects that can be scaled up for greater impact. The social focus of much of CSI funding also provides opportunities for partnerships with conservation funding streams to develop multi-benefit projects. The key funding gap within South Africa is to bring lessons and numerous site-based projects to scale to influence larger policies and markets, particularly land reform, payments for ecosystem services and corridor development.

Swaziland

The Lubombo Conservancy is the recipient of funding from the Peace Parks Foundation, but the group members of four established reserves (Hlane, Mbuluzi, Mlawula and Shewula), a livestock and game farm, and ancient hunting grounds also contribute their own resources toward conservation management and patrolling. This initiative has enticed several other private tourism operators to become interested in conservation and greater impact could be achieved through co-financed projects between these private sector operators and conservation financing.

Thematic Distribution of Investment

Investments into actions that contribute to conservation objectives in the hotspot are summarized thematically in Table 13.

Table 13. Thematic Distribution of Investment

Theme	Major investors	Example of projects	Challenges / opportunities
Protected area management	National government, bi-lateral and multi-lateral donors (GEF)	Park and reserve budgets, GEF Conservation and Sustainable Use of Wild Coast	Compared with investment in other thematic areas, protected area management is well funded in South Africa, but underfunded in Swaziland and Mozambique. Throughout the hotspot there is a need for institutional capacity building and alignment with other development initiatives to ensure improved management of the protected areas. Fortunately, this need appears to have been recognized by government and multilateral donors who are undertaking such efforts in the next budgeting and funding cycles
Protected area expansion	National government, bi-lateral and multi-lateral donors, international foundations, NGOs, private donors.	Lubombo Transfrontier Conservation Area Project, the Greater Addo Park and Albany Corridor projects and the Zululand conservation corridors.	Despite recent efforts and investments in this field, there is still a huge need for existing reserves to be expanded and conservation management to be extended in the landscape if biodiversity is to persist
Sustaining ecosystems outside protected areas	Bi-lateral and multi-lateral donors	South West Indian Ocean Fisheries Program	Previous projects have provided good foundations for work in sustaining ecosystem functions outside formal protected areas.
Ecosystem restoration	National government (South Africa and Swaziland) and private and corporate donors	South African government's Working for Water Program and the Swaziland government's invasive alien species program.	The development of a set of incentives and mechanisms that will ensure the continued delivery of ecological goods and services from restored ecosystems represents an area as important for further investment.
Monitoring and conservation of threatened and endemic species	International NGOs and foundations, national NGOs	Black Rhino Range Expansion Program (WWF-Netherlands)	Various civil society organizations are active in this field and would benefit from support
Conservation programs that	National government, bi-lateral and multi-lateral	The South African government's Expanded	The value of government's investment in this area could be substantially improved through strategic

Theme	Major investors	Example of projects	Challenges / opportunities
support livelihoods	donors, International and national NGOs	Public Works “Working for Wetlands, Water, Fire, Woodlands” Program	alignment of various investment streams. Civil society is well placed to aid government in a more strategic implementation of these projects to ensure maximum benefit for local communities and the environment
Environmental awareness and advocacy	National NGOs	Climate Action Partnership, Eco-schools	There is considerable space for investment in this thematic area particularly with regards to the promotion of ecosystem based approaches to climate change mitigation and adaptation in all three countries
Capacity building and training	National government, international foundations and NGOs	Southern African Wildlife College and the Southern African College of Tourism and Hospitality	Capacity building and training is relatively underfunded as a thematic area and is an essential area for addressing the underlying institutional cause of many threats
Renewable natural resource based enterprises	National government, development agencies and private individuals	Arts and craft, Nguni cattle farming, game ranching and hunting	Need exists for additional investment in this field as it promotes conservation as a land-use outside of formal protected areas
Nature-based ecotourism	Private individuals, national government	Growing investments in private game reserves	As it promotes conservation as a land use outside protected areas, additional investment would counteract landscape transformation
Food security	National government, international development agencies, national NGOs	Food and Trees for Africa, Indigenous Trees for Life	Investments in this field could potentially act as climate change mitigation and adaptation strategies
Rural infrastructure	National government	South African government’s Expanded Public Works Program	By creating job opportunities and development in the rural areas these projects counteract urbanization and urban sprawl. These projects leverage large-scale investment from government and ensuring their sustainable implementation provides a much needed role for civil society. In comparison to South Africa, government-funded rural infrastructure in Mozambique and Swaziland, while obviously important, is minor in scale.

CEPF NICHE FOR INVESTMENT

CEPF is designed to facilitate rapid and flexible funding to civil society to act in areas where globally significant biodiversity is under the greatest threat. Funds should add incremental value to existing initiatives, and should aim to ensure that the outcomes realized through investments are sustained. These criteria provide the basic framework for identifying the niche for CEPF in the Maputaland-Pondoland-Albany Hotspot.

While the Maputaland-Pondoland-Albany Hotspot is one of the most biologically important regions on the planet, the area is under serious threat. Changes in the political climate within the hotspot after 1992 led to increased investments in infrastructure development and tourism, and also in biodiversity conservation. Peace has allowed for regional cooperation in conservation, most notably in the form of transfrontier conservation initiatives, leading to capital, knowledge and skills transfer between Mozambique, South Africa and Swaziland. As the region has stabilized, donors have supported efforts to reduce landscape transformation and to save species, primarily through creating and improving management of protected areas.

Despite the considerable investments in conservation in the hotspot, many immediate and long-term threats to biodiversity persist primarily because of biodiversity-incompatible land use beyond protected area boundaries. Recent historical events, including apartheid, war and human displacement, have led to extensive degradation throughout the hotspot and this will take decades to redress. New economic development, driven partly by the urgent need to address high levels of poverty, is also placing pressure on natural resources. Coastal and peri-urban development, overexploitation of natural resources for commercial and subsistence purposes, and habitat degradation and loss from agriculture continue to degrade and destroy habitats at disturbing rates, making the entire region and its biodiversity more susceptible to negative impacts from anticipated climatic changes. Underlying these direct threats are poverty, population density, land tenure and reform conflicts, constraints to effective government response, poor knowledge and capacity, and changes in global climatic conditions. Better management of the hotspot's landscapes and seascapes is essential for sustainable growth and development in the region.

In this context, there is a great opportunity for CEPF to achieve biodiversity conservation in the region through support to targeted civil society initiatives. Current investment is already flowing to state conservation agencies, and governments are providing significant financing for protected area management. In Swaziland and South Africa, funds are also being directed toward restoration of habitats and removal of invasive alien species. However, government interests are understandably more focused on addressing the huge poverty challenges in the region and their work in conservation tends to focus on maintenance of existing protected areas. Corporations and organized business, globally, nationally and locally within the hotspot, are increasingly recognizing that their operations are dependent on natural resources and that their financial viability as well as their societal license to operate is dependent on their contribution to healthy ecological and social systems. Civil society is well placed to bring innovation and new approaches to address both immediate threats to biodiversity and their underlying causes. Civil society can strategically address top priorities, complement existing programs and leverage donor and government funds for innovative activities.

CEPF's niche in the Maputaland-Pondoland-Albany Hotspot will be to support civil society in applying innovative approaches to conservation in undercapacitated protected areas, key biodiversity areas and priority corridors, thereby enabling changes in policy and building resilience in the region's ecosystems and economy to sustain biodiversity in the long term.

Although the vision is bold, CEPF can achieve much within this niche. Data availability and civil society capacity are strong in the majority of the hotspot, and can be used to help less-capacitated areas transition more rapidly than would otherwise be possible. Significant government and donor funding present in the region provide a foundation upon which CEPF can build and also provides important opportunities for partnerships. By working alongside large investments, CEPF's strategic investments will create an impact that is greater than the sum of its parts and generate changes in the enabling environment that will have a long-term influence. Further, longstanding CEPF experience from the Cape Floristic Region and Succulent Karoo provide context for viable approaches in southern Africa.

CEPF INVESTMENT STRATEGY AND PROGRAM FOCUS

To maximize CEPF's contribution to the goal of global biodiversity conservation within the Maputaland-Pondoland-Albany Hotspot over a five-year investment period, the 72 key biodiversity areas and 12 conservation corridors identified for the hotspot were refined into a focused set of priority outcomes for CEPF investment.

The following criteria were used to refine the geographic focus for CEPF investment: (a) high-biodiversity priority and ability to contribute to building of corridors across landscapes/seascapes that include protected areas; (described in Conservation Outcomes); (b) significant threat (described in Synopsis of Current Threats and augmented by stakeholder input on future threat to provide a final score per corridor and site); (c) opportunity for civil society action; (d) opportunity to contribute to poverty alleviation outcomes; and (e) opportunity for innovation or scaling up innovative approaches/ mechanisms or existing initiatives. Opportunity ratings were generated for each corridor and key biodiversity area based on the information on the current government and civil society frameworks, current investment and socio-economic context and validated by the profile development team and other stakeholders with more detailed knowledge of specific areas.

The refinement process led to the selection of two corridors and 22 key biodiversity areas for CEPF investment. Investment in civil society actions in these corridors and key biodiversity areas will ensure conservation of the highest-priority areas across a range of climatic conditions in highland grasslands, forests, shrubland and coastal landscapes.

Priority Corridors

CEPF has selected two of the highest-priority corridors for investment – the Highland Grasslands, which extends along the Drakensberg Foothills from Swaziland through the Eastern Cape, and the forest-grassland mosaic corridor in Pondoland in the Eastern Cape. Both corridors have extraordinary conservation value as described in the Conservation Outcomes section and together provide an excellent opportunity for the CEPF investment to demonstrate innovative and replicable approaches to conservation at the landscape scale. With the corridors being adjacent to one another, conservation efforts focused along rivers and restoration activities to enable reconnection of fragmented habitat will increase flora and fauna resilience to climate change.

Highland Grasslands

The Highland Grasslands Corridor is located in the center of the hotspot along the western boundary, from Indwe in the south to Himeville in the north, with outliers further north as far as southwest Swaziland. More than 90 percent of the corridor is grassland habitat that is poorly represented within the protected area network. Only 11 percent of the area consists of partially protected habitat. Poor grazing management has led to extensive degradation throughout the corridor. Key biodiversity areas for this corridor include the Northern Drakensberg Foothills,

Southern Drakensberg Foothills and Greater Itala Complex. The Upper Umzimvubu and Mgeni Catchments in the North Eastern Cape are also a priority for investment.

Pondoland

The Pondoland Corridor occupies the coastal strip between East London and Port Edward. Although coastal, the Pondoland Corridor consists of rolling hills and includes savanna, forest, thicket and grasslands. The area is also very important from a marine biodiversity perspective and includes an existing but poorly managed marine protected area and several unprotected critical marine habitats. Priority key biodiversity areas for investment include Lower Mzimbvubu-Tabankulu; Pondoland North Coast (Flagstaff-Lusikisiki) and adjacent Pondoland Marine Protected Area and Port St John's Forests (Ngqeleni), all of which contain significant stretches of important rivers including the Umtavuna, Umzimkulu, Umzimvubu and Mtentu.

Priority Key Biodiversity Areas

The top 25 percent of key biodiversity area priorities, or 18 of the 72 total priority sites identified, were selected for CEPF investment based on combined environmental value, threat and opportunity. Also selected as priorities for investment are three key biodiversity areas in Mozambique and Swaziland (Manhica, Ponto d'Ouro and Licuati Forests and Eastern Swazi Lebombos) because these may have been underrated due to data deficiencies, as well as the Pongola-Magadu Key Biodiversity Area as it provides the greatest opportunity to deliver conservation and socio-economic benefits for land reform beneficiaries. In total, these areas cover slightly more than 2.8 million hectares, or approximately 10 percent of the total hotspot. As noted earlier, CEPF investment may include consideration of the marine environment as it relates to the conservation of these key biodiversity areas, and therefore the six coastal key biodiversity areas, including two within Mozambique, include nearshore and marine habitats within the 12-nautical-mile territorial sea measured seaward from the actual key biodiversity area. The full list of 22 key biodiversity areas for investment is provided in Table 14 and mapped in Figure 12.

The Maputaland key biodiversity areas in South Africa, particularly Vernon's Crook Corridor, Ethekweni South, and Lower Tuguela River Valley are some of the highest priority as a result of the high rates of past and current transformation from urban and coastal development, sugarcane and now alien invasions, particularly silver and black wattle infestations that have been documented as completely transforming new areas of pristine land to dense infestations within five years. These key biodiversity areas are also important from the perspective of coastal impacts on the adjacent marine environment and their conservation will contribute to conservation efforts of reef and rocky shore environments if inappropriate developments, pollutants and aliens can be controlled. The Hogsback-Stutterheim key biodiversity area in the Amathole Mountains is also a priority because of increasing transformation pressures from inappropriate grazing and fire practices, and its wetlands that are important frog and bird habitat. The Mountain Zebra National Park Complex is also a top priority because the expansion of the current protected area to allow species movement, particularly for Endangered Cape Mountain zebra, is essential for this species.

The key biodiversity areas selected as CEPF priorities within the KZN Midlands Corridor are important not only in their own right for their high number of Endangered species in Critically Endangered habitat fragments, including blue swallow and wattled crane and 97 species of globally threatened plant species, but because they play an important role in building a landscape corridor in this highly fragmented region. The Port Elizabeth Mosaic, as has been discussed in the Conservation Outcomes section, is critically important for species conservation with more than 100 threatened species in one site. Potential exists to leverage municipal support for long-term

conservation action. Another urban site outcome with similar leveraging potential is Ethekweni South which lies within the Durban metropolitan area.

In the rural Eastern Cape, the Pondoland North Coast Key Biodiversity Area is important from a terrestrial species conservation perspective, but its 122 estuaries play a crucial role in the lifecycle of numerous marine fish, including the highly valued king fish (*Caranx ignobilis*). Although this area is receiving national and international attention for its beauty and biodiversity importance, investment needs to be expanded to include civil society action to address increasing mining and development threats and extreme pressures from poverty-based overexploitation of natural resources.

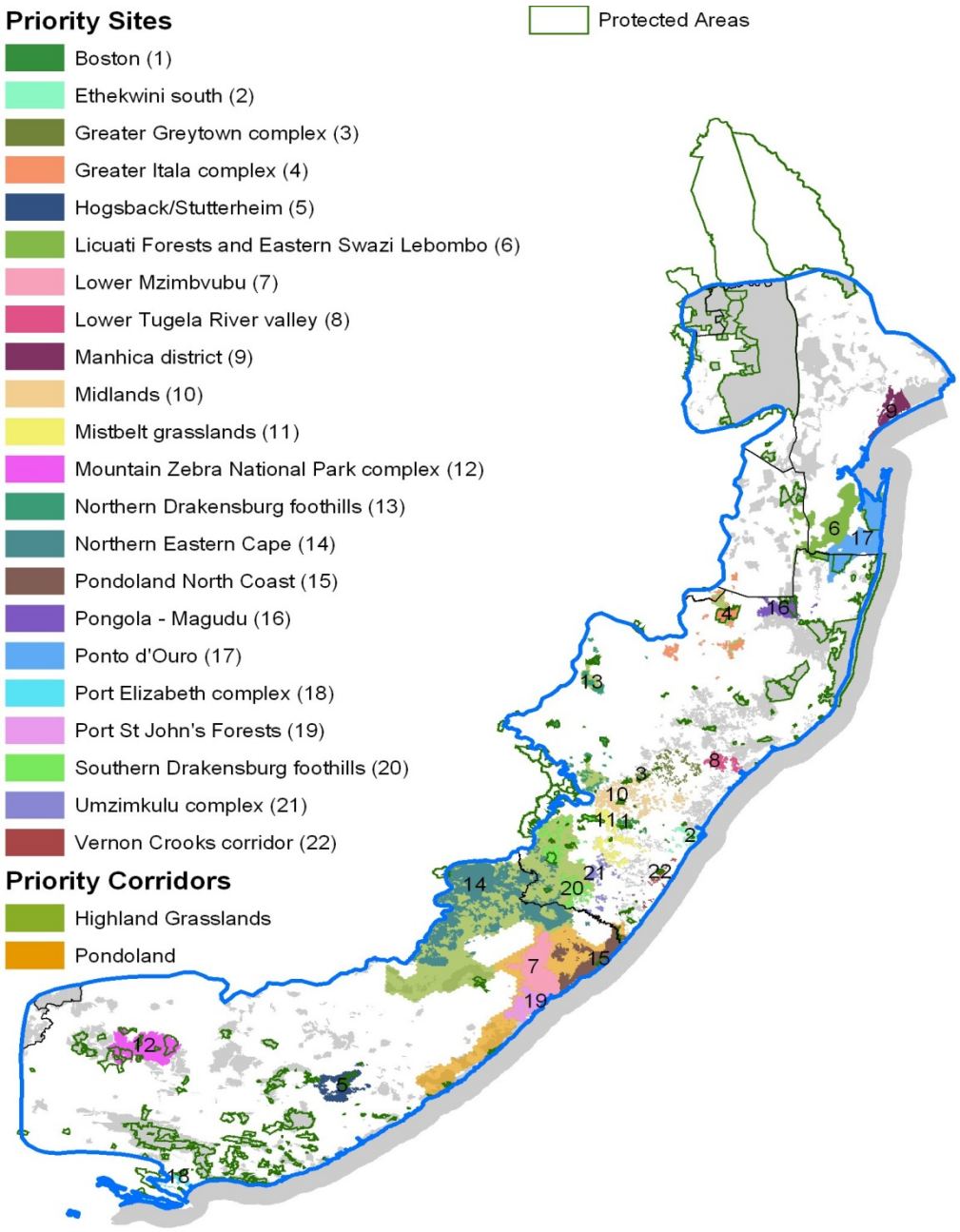
The Highland Grassland sites in the Drakensberg Foothills (North and South) and the Upper Umzimvubu Catchment are large key biodiversity areas with high endemism, yet under significant threat from inappropriate fire and grazing regimes. This region is also important for water security and these sites provide an important opportunity to bundle biodiversity and water services into innovative PES schemes.

In total, the 22 key biodiversity areas represent a spectrum of climatic conditions and topography. Conservation of these sites will contribute to the long-term stability of corridors that will create climate resilience by establishing core conservation nodes and attracting other investment.

Table 14. Key Biodiversity Areas for CEPF Investment: Key biodiversity areas presented in order of the summarized priority rating of environmental importance, threat to the biodiversity and opportunities for civil society involvement to support conservation in the region. Key biodiversity area sites listed in blue fall within Mozambique; the site in orange is a transbounday site between Mozambique and Swaziland; pink sites are within the fragmented KwaZulu-Natal Province of South Africa while green sites are in the extensive and diverse Eastern Cape Province.

Key Biodiversity Area	Area (ha)	Environmental Summary Rating	Threat	Opportunity	Summarised Priority
Vernon Crooks Corridor	20,615	Very High	Very High	Moderate	Very High
Boston	23,384	Very High	High	High	Very High
Ethekwini South	28,032	Very High	Very High	Moderate	Very High
Greater Greytown Complex	53,664	Very High	High	High	Very High
Lower Tugela River Valley	44,230	Very High	Very High	Moderate	Very High
Mistbelt Grasslands	80,165	Very High	High	High	Very High
Umzimkulu Complex	43,293	Very High	High	High	Very High
Hogsback/Stutterheim	108,699	Very High	Moderate	Very High	Very High
Mountain Zebra National Park Complex	215,212	Very High	Moderate	Very High	Very High
Greater Itala Complex	91,477	Very High	Moderate	High	High
Midlands (PMB-Howick-Nottingham Road)	131,601	High	High	High	High
Northern Drakensburg Foothills	87,471	Very High	Moderate	High	High
Southern Drakensburg foothills (Weza-Kokstad-Franklin-Himeville-Underburg)	145,029	Very High	Moderate	High	High
Northern Eastern Cape (Upper Mzimvubu/Matatiele)	658,480	Very High	Moderate	High	High
Pondoland North Coast (Flagstaff-Lusikisiki)	172,710	Very High	High	Moderate	High
Port St John's Forests (Ngqeleni)	101,891	Very High	High	Moderate	High
Lower Mzimbvubu-Tabankulu	195,152	Very High	High	Moderate	High
Port Elizabeth Mosaic	37,197	Very High	Moderate	Very High	High
Licuati Forests and Eastern Swazi Lebombo	231,521	Moderate	Very High	Moderate	Moderate
Pongola - Magudu	71,953	Moderate	High	Very High	Moderate
Manhica	77,343	High	High	Low	Moderate
Ponto d'Ouro/Futi Corridor	254,143	Low	Very High	Moderate	Moderate

Figure 12. Priority Corridors and Key Biodiversity Areas for CEPF Investment



Note: CEPF investment may include consideration of the marine environment as it relates to the conservation of the key biodiversity areas, and therefore interventions may take place in the coastal, nearshore and marine habitats within the 12-nautical-mile territorial sea measured seaward from the actual key biodiversity area.

Strategic Directions and Investment Priorities

Five strategic directions will guide the CEPF investment. Three strategic directions will focus investments at the scale of key biodiversity areas and corridors in the highest-priority geographies of the hotspot. A further two strategic directions aim to unblock barriers and lay the foundations for vital scaling up of conservation-based land use. These strategic directions address the key cross-cutting themes creating an enabling environment for conservation. Table 15 presents the CEPF investment strategy.

Table 15. Strategic Directions and Investment Priorities for CEPF in the Maputaland-Pondoland-Albany Hotspot

CEPF Strategic Directions	CEPF Investment Priorities
1. Strengthen protection and management in undercapacitated and emerging protected areas in 3 priority key biodiversity areas	1.1 Support public-private partnerships and civil society initiatives to enable effective management of marine protected areas in the Ponto d'Ouro Partial Marine Reserve in Mozambique and adjacent to the Mkambati and Dwesa-Cwebe reserves in the Pondoland North Coast Key Biodiversity Area in South Africa
	1.2 Promote innovative approaches to strengthen protection and management in the Licuati Forests and Eastern Swazi Lebombo Key Biodiversity Area in Mozambique and Swaziland
2 Expand conservation areas and improve land use in 19 key biodiversity areas through innovative approaches	2.1 Develop and implement innovative approaches to expand private and communal protected areas, particularly for habitats underrepresented in the current protected area network
	2.2 Integrate conservation practice into land-reform agreements to expand conservation management and sustain livelihood opportunities
3. Maintain and restore ecosystem function and integrity in the Highland Grasslands and Pondoland corridors	3.1 Develop and implement innovative projects that expand conservation management and benefit people in threatened catchment, freshwater and estuarine ecosystems
	3.2 Improve implementation of environmental regulations to maintain functional ecosystem corridors, particularly rivers and coastal zones
	3.3 Support community stewardship initiatives that will catalyze sustainable financing from local carbon markets.
	3.4 Improve effectiveness of government-sponsored large-scale natural resource management programs in the corridors by improving knowledge and support for implementation
4. Create an enabling environment to improve conservation and management of Maputaland-Pondoland-Albany priority sites	4.1 Expand and strengthen civil society by supporting training and further educational opportunities for the staff of civil society organizations in Mozambique and Swaziland
	4.2 Establish and strengthen institutional arrangements that will increase and coordinate civil society participation and facilitate lessons sharing to promote linkages that ensure effective conservation action at a broad scale

5. Provide strategic leadership and effective coordination of CEPF investment through a regional implementation team	5.1 Build a broad constituency of civil society groups working across institutional and political boundaries towards achieving the shared conservation goals described in the ecosystem profile

The strategic directions and associated investment priorities are elaborated below:

Strategic Direction 1. Strengthen protection and management in 3 undercapacitated and emerging protected areas in priority key biodiversity areas

In any corridor, protected areas provide core nodes and refugia for biodiversity and improving management of protected areas is an essential strategy for successful conservation investment. However, in the Maputaland-Pondoland-Albany Hotspot, protected area management is the traditional focus of government and large-scale donor (e.g. GEF) investments, and many aspects of management of protected areas in these regions is generally regarded as well developed and implemented. For this reason, this investment priority is limited to a few key protected areas within the corridors where civil society can play an important role in addressing resource challenges and complement and support larger donor and government investments.

1.1 Support public-private partnerships and civil society initiatives to enable effective management of marine protected areas in the Ponto d'Ouro Partial Marine Reserve in Mozambique and adjacent to the Mkambati and Dwesa-Cwebe reserves in the Pondoland North Coast Key Biodiversity Area in South Africa

In Mozambique, there has been significant recent investment in protected area development, particularly in the Limpopo and Lebombo transfrontier areas. CEPF funds will be used to build upon the capacity developed by that investment through supporting partnerships between civil society and conservation authorities in support of the new Ponto do Ouro Partial Marine Reserve. The 678-square-kilometer reserve was proclaimed in July 2009 but the relationships between the three government ministries involved in the establishment of the reserve is still to be negotiated and funding for the necessary planning and development of the reserve is unclear. CEPF will support civil society to assist in key elements of the development and management of the reserve, for example, identifying and adequately justifying utilization zones in the reserve relative to current uses and the livelihood needs of users. Additionally, civil society can play a critical catalytic role in creating, supporting or unblocking public-private partnerships for economic development activities within or surrounding the protected area, such as engaging the dive tourism business or coastal resorts or enabling community co-management activities in the relatively intact areas behind the dunes and dune forests adjacent to the reserve.

In the Pondoland North Coast Key Biodiversity Area, civil society is well-placed to assist in realizing co-management objectives for the estuary and marine areas of Mkambati and Dwesa-Cwebe reserves. This key biodiversity area contains nearly 60 percent (122) of the Eastern Cape's estuaries. Moreover, this section of coast contains the highest proportion of estuaries in good to excellent condition. The frequency of occurrence of South African endemics in these estuaries is particularly important due to its central geographic location in the country, and partly because the coast contains the transition zone between two of the country's three marine bio-geographical zones. The purpose of the investments will be to add civil society capacity to extend support of currently underresourced agencies and to develop innovation in marine protected area co-management strategies and land restitution agreements being developed by the Eastern Cape Parks Board.

1.2 Promote innovative approaches to strengthen protection and management in the Licuati Forests and Eastern Swazi Lebombo Key Biodiversity Area Mozambique and Swaziland
The 3,300-hectare Licuati Forest Reserve has received little attention (both technical and financial) despite its value in protecting an important area of sand forest. It falls under the mandate of the Direcção Nacional Florestas e Terras, under the Ministry of Agriculture and Rural Development. While it is of high-biodiversity value, it has received minimal attention because its tourism potential has been perceived to be low. In Swaziland, the focus will be on areas surrounding the Mlawula Reserve, which secures important water catchments from the Lebombo Mountains.

CEPF will promote innovative approaches to strengthen protection and management in these two areas. While such approaches include the use of conservation agreements, which have had success in South Africa, CEPF will not limit grants to only this measure. Nonetheless, conservation agreements and the concepts behind them do offer promise. In the Mlawula Reserve area, much land is owned by private individuals or companies that run nature-based tourism operations and practice various levels of conservation management. Biodiversity is afforded protection through policing efforts by the private owners enforcing laws that provide protection for various listed plants and animals. It is possible for private land owners to have their land formally proclaimed as protected areas under Swazi Law and this would afford greater and broader levels of protection for biodiversity within these areas. Swazi law also allows landowners to form partnerships with the government for conservation land management, including the management of its national parks and game laws.

In Mozambique, there is no formal conservation agreement program, but the concept can capitalize on several community-based conservation initiatives. CEPF will support adaptations of the stewardship concept in both Mozambique and Swaziland as appropriate to strengthen conservation management in these key biodiversity areas. Lessons on challenges and successes will be captured and shared and ideally used to influence national frameworks to accommodate such mechanisms for expanding and strengthening protected areas elsewhere**.**

Strategic Direction 2. Expand conservation areas and improve land use in 19 key biodiversity areas through innovative approaches
This Strategic Direction focuses on the 19 other priority key biodiversity areas not named in Strategic Direction 1. CEPF will promote all forms of innovative methods to expand conservation areas and improve land use, while recognizing the progress that has been made with conservation agreements. In South Africa, conservation agreements are designed within a formalized framework endorsed by the national government. In this framework, biodiversity stewardship agreements are voluntary and cannot be forced upon a landowner/user. Biodiversity conservation stewardship is about landowner/users voluntarily agreeing to secure and sustain the natural resources of their land. Formal agreements can be entered into to (i) protect important biodiversity; (ii) enable the more sustainable use of natural resources and (iii) effectively manage threats to natural systems and biodiversity. Biodiversity stewardship has been implemented in South Africa over the past few years and is proving a highly effective and flexible mechanism to secure priority biodiversity on privately/communally owned land where the landowner/user is willing to enter into an agreement. CEPF provided catalytic support for stewardship incentives in the Cape Action for People and the Environment (C.A.P.E) and Succulent Karoo Ecosystem Programme initiatives and has seen significant return on this investment.

In Swaziland conservation agreements take the form of strengthening, expanding and formalizing conservancies within key corridors. In Mozambique conservation agreements will build on community-based conservation areas and natural resource programs, akin to the South African

stewardship program. Given the high social and cultural diversity evident in the hotspot, a number of different approaches to incorporate private and communal land into a conservation estate are needed to accommodate different historical circumstances and social and economic landscapes. Development of a variety of innovative stewardship models to accommodate this diversity will be a priority under this strategic direction.

2.1 Develop and implement innovative approaches to expand private and communal protected areas, particularly for habitats underrepresented in the current protected area network
Conservation agreements are one tested strategy to expand conservation areas and improve land-use management practices outside formal protected areas. Through an agreement, an entity with a conservation interest (generally the state) provides a landowner/user benefits to offset the opportunity cost of practices that lead to transformation (cropping, residential development) or degradation (overgrazing, overharvesting) or species loss (trapping of predators or hunting of other wildlife) in exchange for a conservation benefit (a set-aside/easement of natural habitat or a species conservation benefit).

In key biodiversity areas within the KwaZulu-Natal Province (see Table 14) the CEPF investment will focus on providing support to the parties involved in securing stewardship agreements, with an emphasis on land reform stewardship within the CEPF priority key biodiversity areas. This is in recognition that the program is effective but underresourced in its activities.

A provincial stewardship program for the expansion of conservation areas on private and communal lands within key biodiversity areas in the Eastern Cape is not yet formally in place. As such, CEPF can play an important role in supporting civil society to facilitate the development of non-statutory stewardship agreements in these areas, especially with regard to the benefit packages, and by providing skills for negotiation and legal review of such agreements. CEPF support will seek to stem rapid transformation from urban, peri-urban and intensive agriculture in the most threatened key biodiversity area, the Port Elizabeth Mosaic, through stewardship. Within the southern Eastern Cape key biodiversity areas, the Mountain Zebra National Park Complex and the Hogsback-Stutterheim, CEPF will support civil society facilitation of landowner/user processes; increasing capacity for technical support; and raising awareness about stewardship and associated tax breaks to encourage conservation status for the few remaining fragments within these high-value lands. In the terrestrial areas of the Northern Drakensburg Foothills, Northern Eastern Cape (Upper Mzimvubu/Matatiele), Southern Drakensburg foothills (Weza-Kokstad-Franklin-Himeville-Underburg), Lower Mzimbvubu-Tabankulu, Pondoland North Coast (Flagstaff-Lusikisiki), and Port St John's Forests (Ngqeleni) key biodiversity areas, CEPF will prioritize projects for community-based stewardship initiatives that seek to improve livelihoods, promote community-based sustainable harvesting of natural resources,and conserve Eastern Cape wetlands, forests, grasslands and coastal environment.

CEPF-supported initiatives will also aim to provide lessons or build partnerships that will help result in institutional buy-in and long-term support for conservation agreements as well as opportunities to scale-up and strengthen existing agreements. For example, the threat of expanding sugarcane farming is particularly acute in Manhica Key Biodiversity Area on the Mozambique Coastal Plain and in the buffer region of the Licuati Forests and Eastern Swazi Lebombo Key Biodiversity Area. Conservation agreements that apply and expand the South African Sustainable Sugar Guidelines can help address threats of pollution, over-extraction of water and destruction of critically endangered habitats through regional industry bodies.

As appropriate and within the context of the 19 key biodiversity areas, CEPF will encourage further innovation that expands beyond conservation agreements. This could include promotion of sustainable use of natural resources, such as medicinal plants.

2.2 Integrate conservation practice into land-reform agreements to expand conservation management and sustain livelihood opportunities

The key difference between conservation agreements/stewardship projects on land subject to reform or on communal land and stewardship projects on privately owned land (often white commercially used land) is that land reform/communal projects require that developmental issues of socio-economic benefits and governance capacity be specifically addressed. Examples of potential socio-economic benefits for which civil society can be involved in include:

- Nature-based tourism: interventions can include small-scale, simple enterprises, such as a hiking trail. Benefits can range from job provision, equity shareholding and black economic empowerment, to associated enterprise development, brokering of private sector investment and skills development.
- Better land management and livelihoods: options include sustainable harvesting, improved grazing regimes and improved agricultural output. Benefits can range from negotiated improved infrastructure (e.g. water points, fencing) to training and extension support.
- Green job opportunities: Access to a range of government public works programs that focus on the environment (e.g. Working for Water, Working for Wetlands, Working on Fire). A new program in South Africa, the Community Works Programme, may also be able to create other green job opportunities for local communities, in particular for land restoration and rehabilitation.

CEPF support for integrating conservation management into land reform agreements will aim to develop projects with the highest conservation and socio-economic returns. For example, the Pongola-Magadu and Hluluwe-Mkhuze key biodiversity areas provide significant opportunity for engagements within the land reform process. Existing communal conservation areas of Somkhanda and the Zulu Rhino Reserve, supported by Wildlife Conservation Trust and WWF-South Africa respectively, are located within these key biodiversity areas. These conservation areas are already playing an important role in the region and at national level through the National Land Reform and Stewardship Initiative. This initiative aims to stimulate integration of biodiversity concerns into land reform activities. CEPF will support extending lessons through the Pongola-Magadu Key Biodiversity Area, providing further lessons for the well-resourced Hluluwe-Mkhuze Key Biodiversity Area. CEPF support will also strive to strengthen emerging governance structures.

Strategic Direction 3. Maintain and restore ecosystem function and integrity in the Highland Grasslands and Pondoland corridors

Achieving conservation at the corridor scale requires the application of a range of complementary tools and strategies in a holistic approach to a geographic area. CEPF-supported projects will seek to build linkages in between key biodiversity areas and along key rivers and climatic gradients, effectively creating a mega-corridor that will expand resilience for ecosystems to respond to future climate change within the hotspot.

3.1 Develop and implement innovative projects that expand conservation management and benefit people in threatened catchment, freshwater and estuarine ecosystems

Agriculture (cropping and livestock grazing) has a tremendous impact on the water resources within the Highland Grassland and Pondoland corridors. CEPF will support innovative projects that reduce negative impacts from erosion, river bank trampling, invasive species invasions, water

extraction, sand mining and other habitat loss along the numerous tributaries within these sites. CEPF will support civil society projects that assist farmers, particularly smallholders, to adapt their practices to minimize their environmental impacts and sustain the ecosystems upon which they depend. Experience and lessons learned from the activities supported could then be applied elsewhere in the region to smallholder agricultural projects such as the ones that may be supported by the new Gates Foundation investment in Mozambique. Opportunities for partnerships with this initiative will be encouraged.

Mainstreaming biodiversity conservation outcomes into business practices is a key strategy which has led to significant conservation impacts in the Cape Floristic Region and Succulent Karoo hotspots (see www.cepf.net for more detail). Efforts to engage the tourism and sugar industry in appropriate water management will be top priorities for investment due to their expanding nature. Similarly, CEPF will support engagement with the timber and mining sectors to reduce negative freshwater, coastal or marine impacts. Design of potential offsets within the corridor will also be supported where leverage and commitment from the industry can be demonstrated.

A range of opportunities to apply new policy and market mechanisms that result in the restoration and maintenance of ecosystem services can be developed by civil society to support biodiversity conservation outcomes within the Highland Grassland and Pondoland corridors. Payments for Ecosystem Service (PES) are voluntary, contingent transactions between at least one seller and one buyer over a well-defined environmental good or service, or a land use likely to secure that service. Environmental Goods and Services (EGS) are the conditions and processes through which natural ecosystems sustain and fulfill human and other forms of life. Examples include the delivery of fuel wood (goods), the provisioning of clean water, climate maintenance (carbon sequestration), crop pollination and fulfillment of human cultural, spiritual and intellectual needs (services). PES initiatives in the Highland Grasslands can be developed to explicitly compensate rural lands stewards for the losses imposed on them through choosing to set-aside land for conservation and/or sustainable land use that conserves freshwater resources for biodiversity and downstream users. A number of key reports and developments have emerged recently that have helped to create a favorable environment for PES schemes in the hotspot, including a study commissioned by the Office of the Presidency. Such high level interest and the economic demand by urban, often wealthier areas, for rural goods in the two corridors provide critical requisites for success that CEPF grantees can capitalize on.

CEPF investment will be used to promote the adoption of PES policy frameworks in biodiversity conservation and land use / watershed management practice in the corridors. Additionally, CEPF investment will catalyze a suite of PES projects in the priority key biodiversity areas within the North Eastern Cape, Southern Drakensberg Foothill and Northern Drakensberg Foothill catchments, drawing on links to the main urban centers of Durban and Port St John's. CEPF will not fund the actual payments, but rather support project design and information development that can be used to leverage additional donors, government funding and new policies to sustain conservation initiatives in these critical habitats and systems.

3.2 Improve implementation of environmental regulations to maintain functional ecosystem corridors, particularly rivers and coastal zones

While national, provincial and municipal environmental regulations certainly do exist, implementation of these regulations is often insufficient in the undercapacitated municipalities within the two priority corridors. For example, along the Pondoland coast, large- and small-scale developments continue to transform critical areas, destabilize coastal zones and interfere with spawning habitats of coastal fisheries. In the Highland Grasslands, activities such as over-stocking, illegal water extraction, plowing and prospecting are often practiced in violation of

existing regulations. In the urban and peri-urban areas of the corridor, protected indigenous forests are plagued by illegal development and overharvesting of medicinal resources for commercial use. Biofuel expansion is also a growing concern in the Highland Grasslands.

Improving the implementation of existing environmental regulations to address inappropriate developments and overharvesting will be a difficult, but important challenge. CEPF can support analysis and improvement of existing regulations and ordinances, and support advocacy and innovative programs that use civil society to enhance further strengthening and enforcement at the municipal level. CEPF can also support targeted awareness-raising activities for stakeholders and other parties whose actions come under the purview of these environmental regulations, for example property developers or municipal officials. Finally, CEPF can support monitoring to reduce the threat that violation of these regulations presents.

3.3 Support community stewardship initiatives that will catalyze sustainable financing from local carbon markets.

CEPF can take advantage of sustainable financing options for biodiversity conservation that are now emerging from climate change mitigation and adaptation markets. Particularly within the South African part of the hotspot, pilots are developing to utilize this long-term financing. Ecosystem-based carbon sequestration involves the use of biodiversity, particularly indigenous trees and other vegetation planting, in a way that also restores functional ecosystems. Ecosystem-based adaptation focuses on maintaining ecosystem integrity for the provision of goods and services to human communities that help build resilience to climate change. For example, protecting water catchments and restoring wetlands will reduce negative impacts of droughts and the risk of flooding under extreme climatic events.

CEPF will not support implementation or certification costs of climate change programs. Rather, CEPF will provide support for the extensive project development required to meet the Carbon, Community and Biodiversity Standards, an international certification scheme that requires biodiversity as well as carbon outcomes, or other relevant standards within the region. This support will be for projects that build links within the corridors. Examples include information gathering, location planning for maximum biodiversity and carbon outcomes, and optimal project conceptualization and documentation to meet applicable standards.

3.4 Improve effectiveness of government-sponsored large-scale natural resource management programs in the corridors by improving knowledge and support for implementation

The government of South Africa implements a large scale state program called the Extended Public Works Program (EPWP), which is used extensively in the conservation sector. This program, and similar, albeit nascent employment programs in Mozambique and Swaziland, offer the opportunity to link conservation and poverty alleviation outcomes while securing financial sustainability for both. The 2nd phase of the EPWP is starting with the environmental and cultural sectors having been identified as major beneficiaries and a new stream of funding to be implemented by civil society. Although this funding is significant it is not aligned and is not spent in focused biodiversity priority areas. Different provinces implement the programs in different ways and sometimes funding cannot be accessed at appropriate times for needed conservation actions.

While well-intentioned, these programs often do not address conservation priorities and struggle to achieve objectives due to lack of appropriate technical follow up. CEPF will support strategic interventions by civil society to design and engage these programs in a way that supports corridor outcomes. CEPF support will also guide long-term spending that aligns conservation and job creation objectives and allows for adaptive management that optimizes sustainable development

goals. This could include, for example, spatial plans that overlay the need for employment creation with the need for invasive species removal in a key biodiversity area. This intervention holds the possibility of CEPF investment leveraging significant state funding and supported projects should include this as one of their goals.

Strategic Direction 4. Create an enabling environment to improve conservation and management of Maputaland-Pondoland-Albany priority sites

One of CEPF's main objectives is to address institutional obstacles to achieving conservation outcomes. Within the Maputaland-Pondoland-Albany Hotspot, civil society capacity is weakest in Mozambique and Swaziland. This strategic direction will seek to redress this issue and develop new opportunities for civil society to participate in biodiversity conservation, in particular in the Mozambique and Swaziland parts of the hotspot.

4.1 Expand and strengthen civil society by supporting training and further educational opportunities for the staff of civil society organizations in Mozambique and Swaziland

The lack of an adequate force of professionals conversant in biodiversity issues is a major obstacle to effective conservation in the hotspot, particularly within Mozambique and Swaziland. CEPF will support training of individuals to increase the number of people working in conservation and ensure the sustainability of the other investment priorities described in this strategy. From prior experience with CEPF, funding of a coordinated program that has explicit targets for numbers of professionals trained as well as specific projects for the training focus is a crucial component for sustaining conservation. A coordinated program to build capacity ensures that investment is not wasted on short courses that do not result in tangible improvements. Instead, CEPF will support programs that tie professional training with mentorships and apprenticeships, in order to maximize the contribution of these NGOs and their staff to conservation in the hotspot. CEPF support will emphasize technical skills, such as those relating to negotiations with private landowners, GIS and project management.

While professional development is needed throughout the Maputaland-Pondoland-Albany Hotspot within Swaziland and Mozambique, particular emphasis will be placed on organizations involved within CEPF priority key biodiversity areas and working on priority needs identified in the profile development process. For example, in the Mozambican area of the hotspot there are specific information gaps that need to be filled. These include filling the spatial biodiversity (across selected ecosystems) planning gaps such that transfrontier conservation planning and comparisons may be made and carrying out biodiversity surveys in the sites in Mozambique where needed to expand the knowledge base. Secondly, knowledge within existing surveys and research that is critical for improved management needs to be extracted from archives and sources hidden during turbulent war times, collated and presented in an accessible form to the relevant implementation organizations.

In the Swaziland area of the hotspot there will be two areas of focus. Firstly there will be targeted field work to develop conservation management plans for priority areas. This will be the basis for developing contractual agreements with landowners in the Swaziland Lowveld and Lebombo sites. Secondly there will be field-based monitoring of key biodiversity indicators. This will be the basis for monitoring conservation management success. These will involve undertaking field work on a number of already identified high priority areas within the Swaziland sites to develop basic conservation management and tourism development plans and to ensure local community/landowner participation. By focusing on these outcomes for training and educational efforts, CEPF's investment in capacity building will also contribute to the achievement of investment priorities 1.2 and 2.1.

4.2 Establish and strengthen institutional arrangements that will increase and coordinate civil society participation and facilitate lessons sharing to promote linkages that ensure effective conservation action at a broad scale
Learning from CEPF investments in the Cape Floristic Region and Succulent Karoo, the creation of multi-sectoral coordination forums for stakeholder and project implementers to create and implement a common vision for a corridor can be valuable. For example, the creation of the Greater Cederberg Corridor Advisory Committee brought together representatives of the conservation, tourism, agricultural departments, NGOs, and organized agriculture, namely the South Africa Potato Board and Rooibos Council, and local residents on a quarterly basis to discuss regional developments and needs. This coordination resulted in large amounts of government resources being applied more effectively to address and sustain conservation objectives. The forum continued after the CEPF investment and supported the roll-out of a major GEF investment. Even today, with both investments complete, the forum continues to be a vehicle for coordinated responses to challenges and opportunities and has made an invaluable contribution to ensuring that the corridor vision was maintained and linkages for resilience at the corridor scale were optimized wherever possible. Working primarily in Mozambique and Swaziland, CEPF will support civil society efforts at such broad scales. Efforts will build on the lessons learned from South Africa, such as those from past business and biodiversity initiatives.

Strategic Direction 5. Provide strategic leadership and effective coordination of CEPF investment through a regional implementation team
An independent evaluation of the global CEPF program found that CEPF regional implementation teams are particularly effective with the support of the CEPF grant directors in linking the key elements of comprehensive, vertically integrated portfolios such as large anchor projects, smaller grassroots activities, policy initiatives, governmental collaboration, and sustainable financing. As recommended by the evaluators, the responsibilities of these teams, formerly known as coordination units, have now been standardized to capture the most important aspects of their function.

In every hotspot approved for investment as of July 2007, CEPF will support a regional implementation team to convert the plans in the ecosystem profile into a cohesive portfolio of grants that exceeds in impact the sum of their parts. Each regional implementation team will consist of one or more civil society organizations active in conservation in the region. For example, a team could be a partnership of civil society groups or could be a lead organization with a formal plan to engage others in overseeing implementation, such as through an inclusive advisory committee.

The regional implementation team will be selected by the CEPF Donor Council based on an approved terms of reference, competitive process and selection criteria available at www.cepf.net. The team will operate in a transparent and open manner, consistent with the CEPF mission and all provisions of the CEPF Operational Manual. Organizations that are members of the Regional Implementation Team will not be eligible to apply for other CEPF grants within the same hotspot. Applications from formal affiliates of those organizations that have an independent operating board of directors will be accepted, and will be subject to additional external review.

5.1 Build a broad constituency of civil society groups working across institutional and political boundaries toward achieving the shared conservation goals described in the ecosystem profile
The regional implementation team will provide strategic leadership and local knowledge to build a broad constituency of civil society groups working across institutional and political boundaries toward achieving the conservation goals described in the ecosystem profile. The team's major

functions and specific activities will be based on an approved terms of reference. Major functions of the team will be to:

- Act as an extension service to assist civil society groups in designing, implementing, and replicating successful conservation activities.
- Review all grant applications and manage external reviews with technical experts and advisory committees.
- Award grants up to $20,000 and decide jointly with the CEPF Secretariat on all other applications.
- Lead the monitoring and evaluation of individual projects using standard tools, site visits and meetings with grantees, and assist the CEPF Secretariat in portfolio-level monitoring and evaluation.
- Widely communicate CEPF objectives, opportunities to apply for grants, lessons learned and results.
- Involve the existing regional program of the regional implementation team, CEPF donor and implementing agency representatives, government officials and other sectors within the hotspot in implementation.
- Ensure effective coordination with the CEPF Secretariat on all aspects of implementation.

Specific activities and further details are available in the CEPF Regional Implementation Team Terms of Reference and Selection Process.

SUSTAINABILITY

CEPF seeks to conserve globally significant biodiversity and ensure that conservation gains realized through its investments are sustained. As such, the niche for CEPF for the hotspot was developed with this goal in mind and the strategic directions and investment priorities aim to achieve ecological, social, and financial sustainability. Through investments in this strategy, CEPF will build a foundation for scaling up and sustaining conservation gains achieved--empowering new partnerships and biodiversity stewards, and influencing emerging policies and markets for ecosystem goods and services.

Empowering new partnerships and biodiversity stewards

By facilitating new partnerships between civil society and the state, CEPF will strengthen action and expand the numbers of organizations involved in conservation. The focus on conservation agreements in the strategy expands the actors responsible for conservation in the Hotspot, effectively developing community, private, and industry agencies as stewards for biodiversity on their lands. This enhances the sustainability potential by increasing accountability for conservation beyond conservation authorities, integrating it into daily practice of those closest with the land. The models that are developed during CEPF investment will be designed such that their replication will be feasible.

Influencing emerging policies and markets

To ensure that site-level interventions supported by CEPF are sustained beyond the life of the CEPF investment, it is necessary to align them with emerging policies and markets. Specifically, the sustainability of CEPF investment will be achieved by the following:

- **Establishing Payment for Ecosystem Services policy frameworks and institutional arrangements:** The high value of healthy ecosystems for water and carbon markets and charismatic species for nature based tourism in the Maputaland-Pondoland-Albany Hotspot provides huge opportunities for large scale interventions and sustainability that have not been available in the Cape Floristic Region and Succulent Karoo hotspots. The

CEPF investment will be used to promote pilot PES frameworks for biodiversity conservation and land use/watershed management practice, which can help to position biodiversity conservation as a societal or public benefit activity that develops or gains societal support, and is politically relevant as it delivers services to people. Civil society can play a catalytic role within the conservation sector across the hotspot to develop an implementation framework and pilots at a provincial level. PES schemes recommended as the focus for CEPF investment in the hotspot have the potential to address poverty and support development, by channeling much needed income into marginalized communities and to secure critical ecosystem services. With growing regional water scarcity and the growing intensity of natural disasters through land transformation and climate warming, the demand for intact watersheds is growing daily. There is a good opportunity to package and sell biodiversity conservation as water security investments - as either cost savings exercises or as new markets for rural communities with natural assets - either degraded (which can be restored) and in good condition (which can be maintained). The areas identified within the Maputaland-Pondoland-Albany strategy for PES initiatives explicitly compensate rural lands stewards for the losses imposed on them through choosing to set-aside land for conservation and or sustainable land use. Such pro-poor PES schemes, linked to an urban market, will have political support and implementation and sustainability will be encouraged due to alignment with anti-poverty and water security goals.

- **Leveraging investment by aligning with government large scale natural resources and land reform programs:** CEPF's investment in the two priority corridors will ensure that adaptive management systems are developed to align spending of South Africa's Extended Public Works Program, enhancing the conservation and job creation outcomes of the programs. This intervention holds the possibility of CEPF investment leveraging significant state funding and although currently more applicable to South Africa, opportunities to develop similar linkages within the Swaziland and Mozambique job creation efforts will be facilitated through CEPF regional coordination, thus enhancing sustainability potential.

- **Capitalizing on carbon sequestration investments by the private sector and government:** Climate change is an issue that South African and global corporations can no longer ignore. Increasingly, corporations are under pressure to change their operations as well as direct significant corporate social investment (CSI) funding toward programs related to climate change. In response to the need for ecosystem-based approaches to climate change and mitigation, there is a significant role for civil society to influence government policies, capacity and budgets toward enabling these solutions. CEPF will enable the design of conservation initiatives that can tap into this ever-growing financing source, building long-term options for financial flows to biodiversity conservation. Additionally, within the three countries, civil society has and can continue to play an important role in influencing large corporations to commit to corporate climate change policies that uphold the CCBS standard, and in negotiating deals that will provide long-term financial support for ecosystem-based mitigation and adaptation projects that support the conservation outcomes for the hotspot. CEPF investment as part of project development will be available to build civil society capacity to negotiate and secure these significant deals, increasing the likelihood that CEPF investments will be sustained.

CONCLUSION

The Maputaland-Pondoland-Albany Hotspot is one of the biological wonders of the world, with globally significant levels of diversity and endemism and ecosystems that characterize the world's image of Africa. The threats to this unique region have compelled significant global, national and local commitment to make significant investments in its conservation. CEPF provides a source of funding in the hotspot that is designed to reach civil society in a way that complements funding going to government agencies and inspires innovative conservation activities. By aligning its focus with the conservation and sustainable development goals of prior investments and government priorities of poverty alleviation, 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 biodiversity hotspots around the world.

This ecosystem profile captures the context and conservation outcomes at the scale of the hotspot and identifies a wide range of opportunities for achieving conservation outcomes. It also points out that existing capacity and sustainable financing options in the region provide an exciting opportunity for CEPF to support priority actions and activities in the Maputaland-Pondoland-Albany Hotspot that will secure areas for conservation and build ecological, social and financial resilience required to mitigate/adapt to the impacts of climate change and conserve the biodiversity of the hotspot into perpetuity.

MAPUTALAND-PONDOLAND-ALBANY HOTSPOT LOGICAL FRAMEWORK

Objective	Targets	Means of Verification	Important Assumptions
Strengthening the involvement and effectiveness of civil society in conservation and management of globally important biodiversity	At least 40 civil society actors actively participate in conservation programs guided by the ecosystem profile 1,400,000 hectares of key biodiversity areas (5% of the hotspot) with strengthened protection and management, including at least 300,000 hectares of new protected areas 1,465,000 hectares in production landscapes managed for biodiversity conservation or sustainable use	Grantee and Regional Implementation Team performance reports Annual portfolio overview reports; portfolio midterm and final assessment	The CEPF grants portfolio will effectively guide and coordinate conservation action in the Maputaland-Pondoland-Albany Hotspot
Intermediate Outcomes	**Intermediate Indicators**	**Means of Verification**	**Important Assumptions**
Outcome 1: The conservation status of undercapacitated and emerging protected areas in 3 priority key biodiversity areas strengthened $800,000	At least 2 public-private partnerships and civil society initiatives supported that facilitate planning and implementation of the Ponto d'Ouro Partial Marine Reserve, Lebombo Transfrontier Corridor (both in Mozambique) and protection of the Mkambati and Dwesa-Cwebe reserves in Pondoland North Coast, South Africa At least 4 innovative approaches promoted and strengthened to	Protected Areas Tracking Tool (SP1 METT) Grantee and Regional Implementation Team performance reports Formal legal declarations or community agreements designating new protected areas Regional Implementation Team site visits and monitoring	Local stakeholders are willing to play an active role in site-based conservation Government policies permit the establishment of local, stakeholder-based conservation groups National governments maintain or increase human and financial resources for formal protected areas Protected area managers and

	safeguard threatened habitats in the Licuati Forests and Eastern Swazi Lebombo (in Mozambique and Swaziland)		enforcement staff are receptive to training initiatives Appropriate site-based monitoring protocols can be identified or developed Sufficient civil society capacity to implement site-based conservation exists or can be built
Outcome 2: Conservation areas expanded and land-use management improved in 19 priority key biodiversity areas through innovative approaches $3,000,000	At least 20 innovative approaches developed and implemented to expand protected areas on private and communal lands, particularly lands with threatened species and habitats underrepresented in the current protected area network 8 land reform agreements have integrated conservation practice to expand conservation management and sustain livelihood opportunities.	Protected Areas Tracking Tool (SP1 METT) Productive Landscape Tracking Tool (SP2 METT) Grantee and Regional Implementation Team performance reports Formal legal declarations or community agreements designating new protected areas Regional Implementation Team site visits and monitoring	Government policies permit the establishment of local, stakeholder-based conservation groups National governments maintain or increase human and financial resources for formal protected areas Protected area managers and enforcement staff are receptive to training initiatives Appropriate site-based monitoring protocols can be identified or developed Sufficient civil society capacity to implement site-based conservation exists or can be built
Outcome 3: Maintain and restore ecosystem function and integrity in the Highland Grasslands and	15 innovative projects developed and implemented that expand conservation management and	Grantee and Regional Implementation Team performance reports	Industry sectors are committed to environmentally sustainable development

Pondoland corridors $1,500,000	benefit people in threatened catchment, freshwater, and estuarine ecosystems Environmental regulations have improved implementation, leading to maintained functional ecosystem corridors, particularly rivers and coastal zones 3 projects instituted to enable restoration of degraded lands according to optimal carbon sequestration and stewardship plans Government-sponsored large-scale NRM programs have improved effectiveness in the Corridors through improved knowledge and support for implementation	Partnership agreements with industry sector Draft legal declarations (e.g., ordinances, implementing rules and regulations)	Governments and donors are willing to engage with civil society Ongoing and planned projects and programs have potential to support biodiversity conservation in the corridors
Outcome 4: The capacity for conservation and management of Maputaland-Pondoland-Albany priority sites increased $650,000	50 staff from civil society organizations in Mozambique and Swaziland receive training and educational opportunities At least one civil society network established to increase and coordinate civil society participation and facilitate lessons sharing to promote linkages that ensure effective conservation action at a broad scale	Grantee and Regional Implementation Team performance reports Regional Implementation Team site visits and monitoring	Governments and donors are committed to environmentally sustainable development Governments and donors are willing to engage with civil society Ongoing and planned projects and programs have potential to support biodiversity conservation in the corridors

			Increased environmental awareness will translate into increased support for conservation initiatives Sufficient civil society capacity to undertake biodiversity mainstreaming exists or can be built
Outcome 5: A regional implementation team provides strategic leadership and effectively coordinates CEPF investment in the Maputaland-Pondoland-Albany Hotspot $700,000	100% of groups receiving grants achieve a satisfactory score on final performance scorecard Regional Implementation Team performance in fulfilling the approved terms of reference At least two learning exchanges and/or participatory assessments hosted and documented	Grantee and Regional Implementation Team performance reports CEPF Secretariat site visits and monitoring	Qualified organizations will apply to serve as the regional implementation team in line with the approved terms of reference and the ecosystem profile The CEPF call for proposals will elicit appropriate proposals that advance the objectives of the ecosystem profile Civil society organizations will collaborate with each other, government agencies, and private sector actors in a coordinated regional conservation program in line with the ecosystem profile
Strategic Funding Summary	**Amount**		
Total Budget	$6,650,000		

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APPENDICES

Appendix 1: Protected Areas in the Maputaland-Pondoland-Albany Hotspot (listed by size, from largest to smallest)

Protected Area Name	NSBA_Category	Country	Area (ha)	Marine
Kruger National Park	National Park	South Africa	1,898,858	
Greater St Lucia Wetland Park	Provincial Nature Reserve	South Africa	312,124	Y
Selati Game Reserve	Game Farm	South Africa	201,657	
Addo Elephant National Park	National Park	South Africa	146,592	Y
Maputo	Nature Reserve	Mozambique	80,000	
Klaserie Private Nature Reserve	Private Nature Reserve	South Africa	58,842	
Sabie Sand Game Reserve	Private Nature Reserve	South Africa	56,727	
Motlatse Canyon National Park	National Park	South Africa	52,367	
Timbavati Game Reserve	Game Farm	South Africa	50,239	
Cobham State Forest	Provincial Nature Reserve	South Africa	46,663	
Imfolozi Game Reserve	Provincial Nature Reserve	South Africa	44,615	
Great Fish River Nature Reserve	Provincial Nature Reserve	South Africa	43,769	
Giants Castle Game Reserve	Provincial Nature Reserve	South Africa	42,350	
Garden Castle State Forest	Provincial Nature Reserve	South Africa	35,197	
Tembe Elephant Park	Provincial Nature Reserve	South Africa	30,011	
Ithala Game Reserve	Provincial Nature Reserve	South Africa	29,356	
Mkhomazi State Forest	Provincial Nature Reserve	South Africa	28,936	
Groendal Nature Reserve	Provincial Nature Reserve	South Africa	27,998	
Mountain Zebra National Park	National Park	South Africa	26,998	
Samara Private Game Reserve	Game Farm	South Africa	25,462	
Cathedral Peak State Forest	Provincial Nature Reserve	South Africa	25,351	
Corridor Game Reserve	Provincial Nature Reserve	South Africa	23,573	
Manyeleti Game Reserve	Game Farm	South Africa	22,154	

Protected Area Name	NSBA_Category	Country	Area (ha)	Marine
Hluhluwe Game Reserve	Provincial Nature Reserve	South Africa	21,825	
Umbabat Nature Reserve	Nature Reserve	South Africa	20,277	
Camdeboo National Park	National Park	South Africa	18,972	
Shamwari Game Reserve	Game Farm	South Africa	18,786	
Mlawula Nature Reserve	Nature Reserve	Swaziland	18,718	
Monks Cowl State Forest	Provincial Nature Reserve	South Africa	17,885	
AENP - Kuzuko Contractual Park	National Park	South Africa	15,162	
Highmoor State Forest	Provincial Nature Reserve	South Africa	15,093	
Phongolapoort Nature Reserve	Provincial Nature Reserve	South Africa	15,083	
Kwandwe Private Game Reserve	Game Farm	South Africa	13,970	
Malekgonyane (Ongeluksnek) Wildlife Reserve	Provincial Nature Reserve	South Africa	13,860	
Hlane Game Sanctuary	Game Sanctuary	Swaziland	12,450	
Rockdale Game Ranch	Game Farm	South Africa	12,191	
Buchanon Game Farm	Game Farm	South Africa	12,169	
Ndumo Game Reserve	Provincial Nature Reserve	South Africa	11,869	
Asanta Sana Game Reserve	Game Farm	South Africa	11,144	
Mpofu Nature Reserve	Provincial Nature Reserve	South Africa	10,943	
Frontier Safaris Game Farm	Game Farm	South Africa	10,052	
Rupert Game Farm	Game Farm	South Africa	9,413	
Ntsikeni Wildlife Reserve	Provincial Nature Reserve	South Africa	9,289	
Mawewe Cattle/Game Project	Joint mng comm /MPB	South Africa	9,189	
Impendle Nature Reserve	Provincial Nature Reserve	South Africa	8,752	
Nduli Luchaba Nature Reserve	Provincial Nature Reserve	South Africa	8,721	
Ophathe Game Reserve	Provincial Nature Reserve	South Africa	8,710	
East Cape Game Farm	Game Farm	South Africa	8,688	
Tsolwana Nature Reserve	Provincial Nature Reserve	South Africa	7,895	

Protected Area Name	NSBA_Category	Country	Area (ha)	Marine
Trumpeter's Drift Game Farm	Game Farm	South Africa	7,832	
Sabi Sabi Game Reserve	Private Nature Reserve	South Africa	7,711	
Mkambati Nature Reserve	Provincial Nature Reserve	South Africa	7,480	Y
Methethomusha Nature Reserve	Community Nature Reserve	South Africa	7,184	
Woodlands Game Reserve	Game Farm	South Africa	7,107	
Koedoeskop Game Ranch	Game Farm	South Africa	7,105	
Bosbokrand Nature Reserve	Nature Reserve	South Africa	6,871	
Kamberg Nature Reserve	Provincial Nature Reserve	South Africa	6,612	
Royal Natal National Park	Provincial Nature Reserve	South Africa	6,314	
Karoo Safaris Game Farm	Game Farm	South Africa	6,191	
Emlanjeni Private Game Reserve	Game Farm	South Africa	6,116	
Chelmsford Nature Reserve	Provincial Nature Reserve	South Africa	5,983	
Commando Drift Nature Reserve	Provincial Nature Reserve	South Africa	5,815	
Dwesa-Cwebe Wildlife Reserve & Marine Sanctuary	Provincial Nature Reserve	South Africa	5,689	Y
Spioenkop Nature Reserve	Provincial Nature Reserve	South Africa	5,439	
Phongola Nature Reserve	Provincial Nature Reserve	South Africa	5,333	
Lanka Safaris Game Farm	Game Farm	South Africa	5,228	
Waters Meeting Nature Reserve	Provincial Nature Reserve	South Africa	5,146	
Fourie Safaris Game Farm	Game Farm	South Africa	5,100	
Amakhala Game Reserve	Game Farm	South Africa	5,038	
Weenen Nature Reserve	Provincial Nature Reserve	South Africa	4,922	
Lotheni Nature Reserve	Provincial Nature Reserve	South Africa	4,866	
Aylesbury Nature Reserve	Game Farm	South Africa	4,591	
Thorny Bush Game Reserve	Game Farm	South Africa	4,125	
Hogsback State Forest	DWAF Forest Area	South Africa	4,086	
Longmore State Forest	DWAF Forest Area	South Africa	4,047	

Protected Area Name	NSBA_Category	Country	Area (ha)	Marine
Andover Game Reserve	Game Farm	South Africa	4,040	
Timbili Game Reserve	Game Farm	South Africa	4,040	
Ngoye Forest Reserve	Provincial Nature Reserve	South Africa	3,903	
Elephant Park Game Farm	Game Farm	South Africa	3,764	
Katberg State Forest	DWAF Forest Area	South Africa	3,474	
Glen Harry Game Reserve	Game Farm	South Africa	3,464	
Kologha Forest Reserve	DWAF Forest Area	South Africa	3,349	
East London Coast Nature Reserve	Provincial Nature Reserve	South Africa	3,286	
Andover Nature Reserve	Private Nature Reserve	South Africa	3,261	
Balele/Enlanzeni Valley Game Park	Private Nature Reserve	South Africa	3,072	
Hoeksfontien Game Farm	Game Farm	South Africa	3,070	
Minnawill Game Farm	Game Farm	South Africa	2,914	
Midmar Nature Reserve	Provincial Nature Reserve	South Africa	2,840	
Bosberg Local Authority Nature Reserve	LA Nature Reserve	South Africa	2,709	
Schuilpatdop Game Farm	Game Farm	South Africa	2,664	
Umtamvuna Nature Reserve	Provincial Nature Reserve	South Africa	2,632	
Fort Fordyce Nature Reserve	Provincial Nature Reserve	South Africa	2,631	
Oudekraal Game Farm	Game Farm	South Africa	2,580	
Emlwane Game Park	Private Nature Reserve	South Africa	2,578	
Brakkefontein Game Farm	Game Farm	South Africa	2,520	
Hopewell Game Reserve	Game Farm	South Africa	2,508	
Hillside Safaris Game Farm	Game Farm	South Africa	2,478	
Qudeni Forest Reserve	Provincial Nature Reserve	South Africa	2,356	
Kei Mouth State Reserve	Conservation Area	South Africa	2,350	
Isidenge State Forest	DWAF Forest Area	South Africa	2,317	
Kubusi Indigenous State Forest	DWAF Forest Area	South Africa	2,309	

Protected Area Name	NSBA_Category	Country	Area (ha)	Marine
Vernon Crookes Nature Reserve	Provincial Nature Reserve	South Africa	2,230	
Nkandla Forest Reserve	Provincial Nature Reserve	South Africa	2,221	
Sileza Nature Reserve	Provincial Nature Reserve	South Africa	2,124	
Tregathlyn Game Farm	Game Farm	South Africa	2,099	
Karkloof Nature Reserve	Provincial Nature Reserve	South Africa	2,082	
Mbumbazi Nature Reserve	Provincial Nature Reserve	South Africa	2,081	
Oribi Gorge Nature Reserve	Provincial Nature Reserve	South Africa	1,880	
Citruslandgoed Game Farm	Game Farm	South Africa	1,798	
Ubombo Mountain Nature Reserve	Provincial Nature Reserve	South Africa	1,791	
Mount Currie Nature Reserve	Provincial Nature Reserve	South Africa	1,770	
Scotia Safaris Game Farm	Game Farm	South Africa	1,770	
Amatikulu Nature Reserve	Provincial Nature Reserve	South Africa	1,702	
Bayeti Game Reserve	Game Farm	South Africa	1,694	
Kingsdale Game Farm	Game Farm	South Africa	1,549	
Vergelegen Nature Reserve	Provincial Nature Reserve	South Africa	1,542	
iGxalingenwa Nature Reserve	Provincial Nature Reserve	South Africa	1,517	
Inthaba Lodge Game Farm	Game Farm	South Africa	1,501	
Makasa Nature Reserve	Provincial Nature Reserve	South Africa	1,498	
Umlalazi Nature Reserve	Provincial Nature Reserve	South Africa	1,469	
Hunters Lodge Game Farm	Game Farm	South Africa	1,448	
AENP - Riverbend Contractual Park	National Park	South Africa	1,426	
Richards Bay Game Reserve	Provincial Nature Reserve	South Africa	1,339	
Grassridge Private Nature Reserve	Private Nature Reserve	South Africa	1,337	
Voetpadskloof Game Farm	Game Farm	South Africa	1,332	
Hamburg Nature Reserve	Provincial Nature Reserve	South Africa	1,332	
Thomas Baines Nature Reserve	Provincial Nature Reserve	South Africa	1,316	

Protected Area Name	NSBA_Category	Country	Area (ha)	Marine
Utrecht Town Park	Private Nature Reserve	South Africa	1,300	
Coleford Nature Reserve	Provincial Nature Reserve	South Africa	1,282	
Dorn Boom Game Farm	Game Farm	South Africa	1,257	
Poccolan/Robinson's Bush	Provincial Nature Reserve	South Africa	1,247	
Blaawbosch Game Farm	Game Farm	South Africa	1,236	
Coleridge Game Reserve	Game Farm	South Africa	1,211	
Hlatikulu Forest Reserve	Provincial Nature Reserve	South Africa	1,210	
Nhlabane Nature Reserve	Provincial Nature Reserve	South Africa	1,182	
Mahushe Shongwe NR	Joint mngment/comm NR	South Africa	1,140	
Hunts Hoek Safaris Game Farm	Game Farm	South Africa	1,123	
Witbad Nature Reserve	Provincial Nature Reserve	South Africa	1,078	
Swartkops Valley Local Authority Nature Reserve	LA Nature Reserve	South Africa	1,030	
AENP - Langevlakte Contractual Park	National Park	South Africa	1,022	
Minerva Nature Reserve	Private Nature Reserve	South Africa	1,018	
Aberdeen Local Authority Nature Reserve	LA Nature Reserve	South Africa	1,001	
Gamtoos River Mouth Local Nature Reserve	LA Nature Reserve	South Africa	975	
Springs Local Authority Nature Reserve	LA Nature Reserve	South Africa	931	
Isandlwana	Provincial Nature Reserve	South Africa	781	
Fundimvelo Nature Reserve	Provincial Nature Reserve	South Africa	748	
Ntinini Training Centre	Provincial Nature Reserve	South Africa	747	
Vryheid Mountain Nature Reserve	Provincial Nature Reserve	South Africa	744	
Wagendrift Nature Reserve	Provincial Nature Reserve	South Africa	734	
Mbona Mountain Estate	Private Nature Reserve	South Africa	732	
Mome Nature Reserve	Provincial Nature Reserve	South Africa	727	
Kwa Yili Nature Reserve	Provincial Nature Reserve	South Africa	696	
Blinkwater Nature Reserve	Provincial Nature Reserve	South Africa	685	

Protected Area Name	NSBA_Category	Country	Area (ha)	Marine
Paardekop Game Farm	Game Farm	South Africa	677	
Mount Coke State Forest	DWAF Forest Area	South Africa	649	
Krantzkloof Nature Reserve	Provincial Nature Reserve	South Africa	588	
Kap River Local Authority Nature Reserve	LA Nature Reserve	South Africa	580	
Zinti Valley	Private Nature Reserve	South Africa	575	
Entumeni Nature Reserve	Provincial Nature Reserve	South Africa	547	
Hluleka Wildlife Reserve & Marine Sanctuary	Provincial Nature Reserve	South Africa	522	Y
Matshitsholo Nature Reserve	Provincial Nature Reserve	South Africa	516	
Bridle Drift Local Authority Nature Reserve	LA Nature Reserve	South Africa	504	
Soada Forest Nature Reserve	Provincial Nature Reserve	South Africa	496	
Island Nature Reserve	Provincial Nature Reserve	South Africa	495	
Goodhope Game Farm	Game Farm	South Africa	492	
Cathcart State Forest	DWAF Forest Area	South Africa	471	
Umvoti Vlei Nature Reserve	Provincial Nature Reserve	South Africa	461	
Quacu Nature Reserve	LA Nature Reserve	South Africa	456	
Rugged Glen Nature Reserve	Provincial Nature Reserve	South Africa	420	
Nabakyu State Forest	DWAF Forest Area	South Africa	419	
Van Stadens Wild Flower Local Authority Nature Reserve	LA Nature Reserve	South Africa	412	
Bos Reserve	DWAF Forest Area	South Africa	373	
Marwaqa Nature Reserve	Provincial Nature Reserve	South Africa	357	
Andrews State Forest	DWAF Forest Area	South Africa	345	
Lake Eteza Nature Reserve	Provincial Nature Reserve	South Africa	342	
Ingelabantwana Nature Reserve	Provincial Nature Reserve	South Africa	342	
Needs Camp Forest Reserve	DWAF Forest Area	South Africa	308	
Enseleni Nature Reserve	Provincial Nature Reserve	South Africa	291	
Moor Park Nature Reserve	Provincial Nature Reserve	South Africa	289	

Protected Area Name	NSBA_Category	Country	Area (ha)	Marine
Lushington Crown Forest	DWAF Forest Area	South Africa	285	
Red Hill Nature Reserve	Provincial Nature Reserve	South Africa	283	
Unnamed Forest Reserve 1	DWAF Forest Area	South Africa	279	
Silaka Wildlife Reserve	Provincial Nature Reserve	South Africa	269	
Marutswa Nature Reserve	Provincial Nature Reserve	South Africa	268	
Great Kei River Private Nature Reserve	Private Nature Reserve	South Africa	234	
The Swamp Nature Reserve	Provincial Nature Reserve	South Africa	232	
Cycad Provincial Nature Reserve	Provincial Nature Reserve	South Africa	228	
Vungwini Nature Reserve	Provincial Nature Reserve	South Africa	225	
Lombardy Private Nature Reserve	Private Nature Reserve	South Africa	223	
Dlinza Forest Nature Reserve	Provincial Nature Reserve	South Africa	213	
Great Fish River Wetland Local Authority Nature Reserve	LA Nature Reserve	South Africa	211	
Kenneth Stainbank Nature Reserve	Provincial Nature Reserve	South Africa	211	
Kragga Kamma Game Park	Game Farm	South Africa	201	
Blaauwkrantz Local Authority Nature Reserve	LA Nature Reserve	South Africa	198	
Inyarha Forest Reserve	DWAF Forest Area	South Africa	198	
Terry Fitzgerald Private Nature Reserve	Private Nature Reserve	South Africa	194	
Roundhill Oribi Local Authority Nature Reserve	LA Nature Reserve	South Africa	185	
Trafalgar Marine Reserve	Provincial Nature Reserve	South Africa	185	Y
Manguzi Forest Reserve	Provincial Nature Reserve	South Africa	166	
Great Kei Game Reserve	Game Farm	South Africa	165	
Mehlomnyama Nature Reserve	Provincial Nature Reserve	South Africa	162	
Kowie Local Authority Nature Reserve	LA Nature Reserve	South Africa	143	
Graigmore State Forest	DWAF Forest Area	South Africa	131	
Fort Nottingham Nature Reserve	Provincial Nature Reserve	South Africa	130	
King William's Town Local Authority Nature Reserve	LA Nature Reserve	South Africa	127	

Protected Area Name	NSBA_Category	Country	Area (ha)	Marine
Impeleshu Forest Reserve	Provincial Nature Reserve	South Africa	125	
Tamacha State Forest	DWAF Forest Area	South Africa	116	
Maitland Local Authority Nature Reserve	LA Nature Reserve	South Africa	116	
Unnamed State Forest 2	DWAF Forest Area	South Africa	105	
Harold Johnson Nature Reserve	Provincial Nature Reserve	South Africa	102	
Xotsheyake Nature Reserve	Provincial Nature Reserve	South Africa	98	
Waterloo Bay Forest Reserve	DWAF Forest Area	South Africa	94	
Queen Elizabeth Park Nature Reserve	Provincial Nature Reserve	South Africa	93	
Fort Grey State Forest	DWAF Forest Area	South Africa	89	
Ecca Local Authority Nature Reserve	LA Nature Reserve	South Africa	78	
Dengweni Forest Reserve	Provincial Nature Reserve	South Africa	78	
Beachwood Mangroves Nature Reserve	Provincial Nature Reserve	South Africa	78	
Unnamed State Forest 1	DWAF Forest Area	South Africa	78	
Potters Pass Local Authority Nature Reserve	LA Nature Reserve	South Africa	77	
Mpenjati Nature Reserve	Provincial Nature Reserve	South Africa	74	
Sylvic Local Authority Nature Reserve	LA Nature Reserve	South Africa	73	Y
Mndunduzeli Nature Reserve	Provincial Nature Reserve	South Africa	66	
Sibudeni Nature Reserve	Provincial Nature Reserve	South Africa	63	
Ghio Wetland Local Authority Nature Reserve	LA Nature Reserve	South Africa	62	
Quenera Local Authority Nature Reserve	LA Nature Reserve	South Africa	58	
Brandis State Forest	DWAF Forest Area	South Africa	54	
Bluff Nature Reserve	Provincial Nature Reserve	South Africa	46	
Nahoon Local Authority Nature Reserve	LA Nature Reserve	South Africa	45	
Dhlabe Nature Reserve	Provincial Nature Reserve	South Africa	43	
Himeville Nature Reserve	Provincial Nature Reserve	South Africa	43	
North Park Nature Reserve	Provincial Nature Reserve	South Africa	42	

Protected Area Name	NSBA_Category	Country	Area (ha)	Marine
Ezigwayini Forest Reserve	Provincial Nature Reserve	South Africa	42	
Kowie State Forest	DWAF Forest Area	South Africa	39	
Umhlanga Lagoon Nature Reserve	Provincial Nature Reserve	South Africa	35	
Tugela Drift Nature Reserve	Provincial Nature Reserve	South Africa	35	
Seaview Game Park	Game Farm	South Africa	31	
Indhloveni Nature Reserve	Provincial Nature Reserve	South Africa	30	
Umfulane State Forest	DWAF Forest Area	South Africa	29	
Yellowwoods Local Authority Nature Reserve	LA Nature Reserve	South Africa	26	
Skyline Nature Reserve	Provincial Nature Reserve	South Africa	21	
Edodweni Nature Reserve	Provincial Nature Reserve	South Africa	20	
Driebos State Forest	DWAF Forest Area	South Africa	16	
Patchwood State Forest	DWAF Forest Area	South Africa	10	
Gonubie Mouth Bird Sanctuary	LA Nature Reserve	South Africa	9	
Doreen Clark Nature Reserve	Provincial Nature Reserve	South Africa	8	
Driebos State Forest	DWAF Forest Area	South Africa	7	
The Penhurst Rly State Reserve	Conservation Area	South Africa	7	

Appendix 2: Demand for Maputaland-Pondoland-Albany Ecosystem Services

MAPUTALAND CENTER ECOSYSTEM SERVICES	DEMAND FOR SERVICES				
	Local demand	Catchment demand	Provincial demand	Regional / National demand	International demand
Global climate change mangement via sequestration	1	1	1	1	1
Soil stability	1	1	1	1	0
Soil formation and fertility in pastures	1	0	1	1	0
Water supply regulation	1	1	1	1	1
Water distribution	1	1	1	1	1
Waste assimilation	1	1	0	0	0
Groundwater recharge	1	1	0	1	0
Waste dilution	1	1	1	0	0
Flood attenuation	1	1	1	1	1
Pest (plants and animals) control	1	1	1	1	1
Fire damage control	1	1	1	0	0
Coastal storm damage control	1	0	1	1	0
Water supply	1	1	1	1	1
Building fibres	1	0	1	1	1
Wood fuel energy	1	0	1	1	1
Medicinal supply	1	0	1	1	1
Fodder supply	1	0	1	0	0
Refugia or nursery for biodiversity	1	1	1	1	1
Recreation	1	1	1	1	1
Hunting and fishing	1	1	1	1	1
Natural heritage	1	1	1	1	1
Cultural places	1	0	1	1	0
Knowledge generation and learning sites	1	1	1	1	1
Marketing icons	1	0	1	1	0

ALBANY CENTER ECOSYSTEM SERVICES	DEMAND FOR SERVICES				
	Local demand	Catchment demand	Provincial demand	Regional / National demand	International demand
Global climate management via sequestration	1	1	0	1	1
Micro climate management	1	0	0	0	0
Soil stability	1	1	1	1	0
Sediment supply	0	1	1	0	0
Soil formation and fertility	1	0	1	0	0
Water supply regulation	1	1	1	1	0
Groundwater recharge	1	1	1	1	0
Waste dilution	1	1	0	0	0
Flood attenuation	1	1	1	1	0
Salinity control	1	1	0	0	0
Pollination	1	0	1	0	1
Pest control - alien and native plants and animals	1	1	1	1	0
Wind damage control	1	0	0	0	0
Fire damage control	1	1	1	0	0
Coastal storm damage control	1	1	1	0	0

Water supply	1	1	1	1	1
Building fibres	1	0	1	0	0
Wood fuel energy	1	0	1	1	0
Biochemical supply	1	0	1	1	1
Food supply - land and marine	1	0	1	1	1
Fodder / grazingsupply	1	0	1	0	1
Refugia or nursery for biodiversity	1	1	1	1	0
Seed dispersal	1	1	1	0	0
Ornamental plants resources	1	0	1	1	1
Tourism	1	1	1	1	1
Angling	1	1	1	1	0
Bait harvesting	1	1	0	0	0
Hunting	1	0	1	1	1
Spiritual places	1	0	1	0	0
Natural heritage	1	1	1	1	1
Cultural places	1	1	1	1	1
Knowledge generation and learning sites	1	1	1	1	1
Marketing icons	1	0	1	1	1

PONDOLAND CENTER ECOSYSTEM SERVICES	**DEMAND FOR SERVICES**				
	Local demand	**Catchment demand**	**Provincial demand**	**Regional / National demand**	**International demand**
Global climate management	1	1	1	1	1
Soil stability	1	1	1	1	0
Sediment supply	1	1	1	0	0
Soil formation and fertility	1	0	1	1	0
Water supply regulation	1	1	1	1	0
Waste assimilation	1	1	1	1	0
Groundwater recharge	1	1	1	1	0
Waste dilution	1	1	1	1	0
Flood attenuation	1	1	1	1	0
Disease control	1	1	1	1	0
Pollination	1	0	1	0	0
Pest control	1	1	1	1	0
Wind damage control	1	0	1	0	0
Fire damage control	1	0	0	0	0
Water supply	1	1	1	1	0
Building fibres	1	0	1	0	0
Wood fuel energy	1	0	1	1	0
Hydro energy	1	0	1	1	0
Biochemical supply	1	0	1	1	1
Marine food	1	0	1	1	1
Bush plants and meat	1	1	1	0	0
Fodder supply	1	0	1	0	0
Refugia or nursery for biodiversity	1	1	1	1	1
Seed dispersal	1	0	1	0	0
Ornamental plants resources	1	0	1	1	1
Tourism	1	1	1	1	1

4x4 trails	0	0	1	1	0
Angling	1	1	1	1	1
Bait harvesting	1	0	1	1	0
Birding	1	0	1	1	1
Boat launching	1	0	1	1	0
Canoeing	1	1	1	1	1
Hiking	1	1	1	1	1
Horse riding	1	1	1	1	1
Mountain biking	1	1	1	1	1
Scuba	0	0	1	1	1
Snorkeling	0	0	1	1	1
Swimming	1	1	1	1	1
Surfing	1	1	1	1	1
Sardine run	1	0	1	1	1
Film sets	1	0	0	1	1
Spiritual places	1	0	0	0	0
Inspiration places	1	0	1	1	1
Natural heritage	1	1	1	1	1
Cultural places	1	1	1	1	0
Bench marks in a changing environment	1	1	1	1	1
Knowledge generation and learning sites	1	1	1	1	1
Marketing icons	1	0	1	1	0