Karoo

ecosystem management plan: western cape

Prepared for:

Western Cape Conservation Stewardship Association (WCCSA) & CapeNature

By:

The Nature Conservation Corporation

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This Ecosystem Management Plan forms part of a set of 7, with an EMP Guide Tool for the implementation of these, all available from C.A.P.E. at Kirstenbosch, Cape Town.

NCC Environmental Services (Pty) Ltd trading as
The Nature Conservation Corporation
Reg. No.: 2007/023691/07
P O Box 30223 Tokai 7966
Republic of South Africa
Tel: 021 702 2884
Fax: 021 701 5302
info@natureconservation.co.za
www.natureconservation.co.za

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Cover photograph: A colourful display of Robertson Karoo, near Robertson.

acknowledgements

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introduction

Arid ecosystems have evolved from harsh and unpredictable conditions, and yet they are fragile. It is assumed that because they exist in such a harsh environment, they must be tough and resilient – able to tolerate anything. Nothing could be further from the truth.

The arid ecosystem is a perfect outdoor classroom. The processes are not as discrete as they are in other vegetation types and can be readily observed. The effects of as simple an action as an aardwolf digging for food can spark an entire chain of events: seed blows into the hole, it rains, seeds germinate, a little clump of vegetation forms, a microclimate is created, mosses and lichens grow, the clump acts as a trap for dispersed seed, it rains, they germinate and so the cycle of life continues.

As simple as the concepts of ecology and good veld management may be they have often been cast aside. Thankfully, in many instances farms are now managed by more understanding and conscious land owners. A few landowners have acquired their properties from previous owners who sold to avoid complete financial ruin. They were no longer able to support economically viable herds of livestock. The vegetation had been denuded and biodiversity given way to stands of a few poisonous or unpalatable shrubs.

In the more well-watered areas of the Little Karoo viticulture poses the biggest threat to biodiversity, and yet the two can cohabit. Responsible use of arid ecosystems is indeed a possibility.

In this Ecosystem Management Plan, we hope to share critical management issues and illustrate that best management of arid ecosystems requires nothing more than understanding and patience. These are sensitive ecosystems and damage done far outlives our mortality.

ecosystem description

landscape features

The Succulent Karoo (SK) and Nama-Karoo Biomes together, cover a large area (of the country) and the SK is especially complex with its associated topography and geology. The SK is found to the west of the escarpment in the Western Cape Province and inland of the Fynbos Biome to the Little Karoo. A large portion of the terrain is flat to undulating for example, the western coastal platform, Knersvlakte and Tanqua Karoo. In Namaqualand, Robertson Karoo, Little Karoo and western escarpment the terrain is more hilly and rugged.

The Nama-Karoo occupies the central plateau of the western half of South Africa. It is a complex of extensive plains with a variety of episodic climate landforms – koppies, butts and mesas with dolerite dykes prominent in many areas.

vegetation description

The table below lists the vegetation units incorporated in this Karoo Ecosystem Management Plan. Vegetation units highlighted are those sampled during the biodiversity and management assessment programme.

Table 1 List of Karoo Vegetation Units in the Western Cape Province

Reference [1]	VEGETATION TYPES & UNITS	Status [2]	Target [3]
	Knersvlakte Bioregion		
SKk 1	Northern Knersvlakte Vygieveld	LT	28%
SKk 2	Central Knersvlakte Vygieveld	LT	28%
SKk 3	Knersvlakte Quartz Vygieveld	LT	28%
SKk 4	Knersvlakte Shale Vygieveld	-	28%
SKk 5	Vanrhynsdorp Gannabosveld	VU	28%
SKk 6	Knersvlakte Dolomite Vygieveld	LT	28%
SKk 7	Citrusdal Vygieveld	VU	-
SKk 8	Piketberg Quartz Succulent Shrubland	-	26%
	Namaqualand Hardeveld Bioregion		
SKn 1	Namaqualand Klipkoppe Shrubland	LT	28%

[1] Sourced from The Vegetation of South Africa, Lesotho and Swaziland (Mucina & Rutherford 2006)

[2] **Conservation Status of vegetation units defined as** LT = Least Threatened; VU = Vulnerable; EN = Endangered and CR = Critically Endangered

[3] The national target for securing representative vegetation for its conservation

Reference [1]	VEGETATION TYPES & UNITS	Status [2]	Target [3]
SKn 3	Namaqualand Blomveld	-	28%
	Namaqualand Sandveld		
SKs 7	Namaqualand Strandveld	-	26%
SKs 8	Namaqualand Coastal Duneveld	-	26%
SKs 12	Namaqualand Spinescent Grassland	LT	26%
SKs 13	Klawer Sandy Shrubland	LT	29%
	Trans-Escarpment Succulent Karoo		
SKt 1	Western Bushmanland Klipveld	LT	18%
SKt 2	Hantam Karoo	LT	18%
SKt 3	Roggeveld Karoo	LT	18%
	Rainshadow Valley Karoo		
SKv 1	Doring Rivier Quartzite Karoo	LT	19%
SKv 2	Swartruggens Quartzite Karoo	LT	19%
SKv 3	Agter-Sederberg Shrubland	LT	19%
SKv 4	Tanqua Escarpment Shrubland	LT	19%
SKv 5	Tanqua Karoo	LT	19%
SKv 6	Koedoesberge-Moordenaars Karoo	LT	19%
SKv 7	Robertson Karoo	LT	16%
SKv 8	Western Little Karoo	LT	16%
SKv 9	Western Gwarrieveld	LT	16%
SKv 10	Little Karoo Quartz Vygieveld	-	16%
SKv 11	Eastern Little Karoo	LT	16%
SKv 12	Willowmore Gwarrieveld	LT	16%
SKv 13	Prince Albert Succulent Karoo	LT	16%
	NAMA KAROO BIOME		
	Upper Karoo		
NKu 1	Western Upper Karoo	LT	21%
NKu 2	Upper Karoo Hardeveld	LT	21%
NKu 4	Eastern Upper Karoo	LT	21%
	Lower Karoo		
NKl 1	Gamka Karoo	LT	16%
NKl 2	Eastern Lower Karoo	LT	16%

succulent karoo biome

The Succulent Karoo Biome (SKB) vegetation units are characterised by the high frequency and usually dominance by succulent plants. They can generally be described as dwarf to low succulent shrublands with a matrix of succulent thicket of medium height and occasionally dotted with solitary trees and tall bush clumps. In some areas, particularly rain shadow mountain slopes the vegetation is akin to an arid asteraceous fynbos but has a high proportion of tall succulent shrubs. The heterogeneity of the topography lends itself to a diversity of growth forms and even where there are extensive plains they are often littered with rocks, pebbles or cobbles and provide unique habitat (e.g. Knersvlakte and Little Karoo Quartz Vygieveld).

Only in areas of extensive homogenous habitat, is the diversity low or allow for dominance by a single growth form or species (e.g. sheet washes of the Tanqua Karoo dominated by bushman grass *Stipagrostis ciliata*).

Due to the heterogeneity of the vegetation units in the SKB, brief structural descriptions will be given for those units actually visited during the course of this study.

SKv 6 Koedoesberge-Moordenaars Karoo

Laingsburg-Merweville area

Undulating to hilly area covered by low succulent scrub and dotted by taller shrubs with patches of sun bleached grass highly visible on the plains. The most conspicuous dominant species being *Pteronia* (Asteraceae), *Drosanthemum* and *Galenia* (both Aizoaceae).

SKv 7 Robertson Karoo

Breede River Valley: Worcester, Robertson & Ashton

Undulating flats and adjacent hills support dwarf succulent shrubland to succulent thicket of medium height, dominated by Euphorbiaceae, Crassulaceae and vygies such as *Drosanthemum* and *Ruschia*. Heuweltjies are an important element whilst in the east scattered taller woody shrubs (e.g. sandganna *Lebeckia cytisoides*) and low trees (e.g. gwarrie *Euclea crispa*) are prominent.

SKv 9 Western Gwarrieveld

Ladismith to Vanwyksdorp

This unit occurs on low hilly terrain covered with low succulent and small-leaved shrublands dotted with solitary trees and tall bush clumps. The succulent shrubland is typical of the Little Karoo with amongst others kraalbos *Galenia africana*, wild rosemary *Eriocephalus ericoides*, asbossie *Pteronia incana* and vingerkanna *Phyllobolus splendens*. The bush clumps consist of gwarrie *Euclea undulata* with taaibos *Rhus undulata* and various spinescent (e.g. *Lycium cinereum*) and succulent (e.g. *Pelargonium tetragonum*) shrubs. Boerboon *Schotia afra* and doppruim *Pappea capensis* are present as small solitary trees.

SKv 10 Little Karoo Quartz Vygieveld

Patches from around Barrydale to near Vanwyksdorp

This vegetation occurs on flat to undulating plains, occasionally slopes with the soil surface densely covered with quartz gravel and rubble from the weathered quartz veins. These quartz fields are covered by low open vegetation dominated by fruticose or dwarf compact leaf-succulent Aizoaceae (e.g. *Gibbaeum* spp.), Crassulaceae (e.g. *Crassula columnaris*) and Euphorbiaceae. This matrix is accompanied by succulent (e.g. asbos *Psilocaulon articulatum*) and non-succulent shrubs (e.g. bitterbos *Chrysocoma ciliata*).

SKv 13 Prince Albert Succulent Karoo

West of Prince Albert to Willowmore

Occurs on flat or slightly undulating terrain, covered with vygies and small-leaved shrubs with prominent clumps of larger non-succulent (e.g. bobbejaanarm *Cadaba aphylla*) shrubs and a sparse cover of low asteraceous shrubs (e.g. draaibos *Felicia fillifolia*).

nama karoo biome

NKl 1Gamka Karoo

Between the Nuweveld Mountains in the north and the Cape Fold Mountains in the south.

The extensive plains of the Nama Karoo Biome (NKB) are dominated by dwarf shrubs intermixed with grasses, succulents, geophytes and annuals. At face value it appears to consist of drab shrubs with sun bleached grass and occasional open patches with mat forming vygies. On closer inspection, it is soon realised that much of the floristic wealth of this biome is cryptic. Especially under the shrubs and amongst rocks a wealth of small succulents exist – *Pleiospilos compactus*, *Rhinephyllum luteum* and *Trichodiadema barbatum* (all Aizoaceae) as well as *Stapelia engleriana*, *Piaranthus comptus* and *Tridentea parvipuncta* (all Apocynaceae), *Haworthia venosa* ssp. *tesselata* (Asphodelaceae) and *Crassula corallina* being particularly striking and noteworthy.

NKu 2 Upper Karoo Hardeveld

Extending from Middelpos in the west to Nieu-Bethesda in the east.

This vegetation unit is found on slopes and ridges at an altitude of 1000 - 1900m. The elevated landforms are covered with large boulders and stones and support sparse scrub with grasses such as *Aristida*, *Eragrostis* and *Stipagrostis* as well as *Themeda triandra*. The boulders provide shelter for larger shrubs such as *Rhus burchellii* and *Diospyros austro-africana* whilst *Rhigozum obovatum* and/or *Cadaba aphylla* aggregate with various low shrubs such as *Eriocephalus ericoides* and *Euryops* spp. to form bush clumps. The surface is particularly rocky and one encounters unusual dwarf succulents such as *Haworthia marrumiana*, *Stapelia olivacea* and *Euphorbia clavaroides*. This is a particularly species rich flora compared to the other vegetation units in the Nama-Karoo Biome.

key issues

soil structure and disturbance

Soils in these biomes are easily eroded. In undisturbed natural veld there are two natural phenomena that protect the soil and enrich them – the biogenic crust and plant litter mulch.

The biogenic crust is a living crust consisting of lichens and mosses. These protect the fine-grained soil against splash erosion by acting as a mulch and provide the ideal conditions for seeds to germinate. Furthermore, they create the ideal environment for algal films to develop. These algae are nitrogen-fixing – they harvest nitrogen from the atmosphere and return it to the soil for use by plants. In over-utilised veld, reduced vegetation cover and trampling lead to destruction of the biogenic crust and lay the soil bare to erosion.

Plant litter, besides being a mulch, also creates barrages across run-off lines and rills. This slows the water flow down and allows for infiltration. It also traps seeds, and then provides favourable conditions for germination.

Aardwolf (*Proteles cristatus*), aardvark (*Orycteropus afer*) and other (often persecuted) animals (porcupine, bat-eared fox and Cape fox) dig in their efforts to find food and in doing so create sizable depressions in the soil. These depressions are mini-dams that fill during rain spells and enable water to infiltrate the soil. Seeds collect in these depressions and an ideal micro-climate is created for germination.

One of the most important issues in karoo veld management is water infiltration. This is most likely why the plant growth on heuweltjies (refer below) is more vigorous. Although heuweltjies have a higher nutrient status than surrounding soils, it is their improved soil structure and therefore infiltration efficiency that is more important.

nutrient cycling

Harvester termites (*Microhodotermes viator*) perform a valuable role in arid systems. Their often ancient colonies appear as raised mounds known as heuweltjies. Heuweltjies have higher concentrations of nutrients than the soils they occur on and the termite droppings or frass are also an important soil conditioner. These mounds and the peripheral soil are friable and the preferred site for Brants' whistling rat (*Parotomys brantsii*) colonies. These rats further enrich the soil and also turn the soil over thereby making nutrients available.

Termites are often viewed as competition for grazing and considered pests. They are in fact vital to the health of the arid ecosystem due to their efficient nutrient recycling, providing improved germination and growing conditions for plants. Furthermore, they provide food and habitat for other animals and are an integral part of the cycle of life.

species diversity and recruitment

Many species flower in response to rain and in drought years, there is little if any seed production. Under natural conditions, wildlife would have migrated to more favourable areas during these periods and therefore little or no grazing would take place. The species composition was therefore not altered. Unfortunately, livestock are still allowed to graze in the veld during these periods and this greatly affects the species composition and therefore recruitment following the drought.

Grazing at the wrong time of the year also has detrimental effects. If plants are utilised while they are in flower there will be little or no seed set.

A diversity of growth forms is also beneficial for recruitment and overall resilience of the veld. Plants create micro-habitats for germination e.g. thorny plants prevent browsing of young plants growing under them. These are known as nurse plants and even though they aren't utilised by many animals they perform a vital role. Without a diversity of species and growth forms, veld in arid areas cannot function naturally and the successional changes and dynamics are severely impacted or even halted.

fragmentation

In the more well-watered areas of the Little Karoo viticulture poses the biggest threat to biodiversity. In many cases natural vegetation survives as patches or fragments surrounded by cultivated lands. Many of these contain viable populations of threatened species. These remaining populations are further threatened by agricultural chemicals and mechanical damage by machinery.

These remnants are important in terms of biodiversity conservation and provide habitat not only for threatened plants but also animals that contribute towards pest control.

management objectives

"Sensitive, vulnerable, highly dynamic or stressed ecosystems require specific attention in management and planning procedures, especially where they are subject to significant human resource usage and development pressure" (National Environmental Management Act, 1998).

site environmental management plan

objective: *To have a site specific Environmental/Conservation Management Plan in place, to guide management actions required on a site scale.*

management actions:

- Commission a site specific EMP to be compiled;
- Use monitoring, observations and site specific requirements to inform further management actions required;
- Make recommendations for revision and highlight areas of under performance;
- Review site EMP as/when required, as defined in the EMP.

funding

objective: *To have an environmental management budget in place that allows for the implementation of this EMP and a site-specific EMP, through the development of a site Annual Plan of Operation (**APO**).*

management actions:

The landowner/manager is to prepare an APO. The APO will consist of the required operating and capital expenditure as well as planned funding sources through external agencies and programmes. The APO will consist of:

- A sustainable budget that is costed annually to allow for the implementation of the EMP.
- Complete an APO, using the template provided in the EMP Guide Tool, by year end of each year.

Opportunities for external funding and assistance do exist; see EMP Guide Tool for funding opportunities.

vegetation management

alien vegetation

objective: *To remove all invasive alien vegetation from the natural areas by the most cost-effective methods with the least amount of damage to the natural environment. Invasive alien vegetation transforms and replaces indigenous vegetation, adds to the fuel load, increasing the fire frequency and intensity, transforms the riparian zones, affects the functioning of aquatic ecosystems by altering water quality and flow and unnaturally supports an increase in rooikat* Felis caracal.

The **Best Practice Guideline: Alien Vegetation Management** provides the information required for control of the invasive alien flora.

Before any clearing of alien vegetation is initiated, it must be understood that when the programme starts, it must be implemented until completion. There is no value in *ad hoc* clearing, with no follow-up program.

management actions:

- Obtain an aerial photograph of the area whenever an official survey is undertaken, to assess plant growth and extent of alien infestation.
- Identify areas for clearing to ensure compliance with the Conservation of Agricultural Resources Act (CARA) regulations.
- Demarcate areas that will not be cleared of alien plant species initially (ensuring that the CARA regulations are complied with at all times).
- Removal of all invasive alien plant species from the natural areas, excluding those identified above.
- Regular assessment of invasive species control and intensity of invasion.

It may be necessary to contract certain tasks such as extensive alien vegetation clearing to private contractors if there is insufficient capacity within the staff establishment or if it is economically beneficial. All private contractors on site must however be strictly controlled.

natural vegetation

objective: *To ensure that the remaining areas of natural vegetation are best managed so as to contribute towards biodiversity conservation, retaining representative samples of our natural vegetation so as to allow for biodiversity and ecological processes to persist.*

management actions:

- Identify the vegetation type/s present on your property;
- Familiarise yourself with best conservation management practices for the particular vegetation type;
- Develop a plant species checklist;
- Contribute records of rare and threatened species and localities to SANBI;
- Map the location of rare and threatened plant species to inform management activities e.g. road/path placement;
- Make provision for seasonal monitoring, during spring and autumn months, of rare and threatened flora on site (where possible comment should be made on numbers of individuals and locality);
- A reintroduction plan must be prepared if areas are to be rehabilitated, stating species to be reintroduced and the source of material.

fauna management

objective: *To promote the conservation of indigenous fauna (the big and hairy and small and slimy alike), as an important component contributing to and maintaining ecosystem functioning.*

management actions:

- Develop faunal species lists including mammals, birds, reptiles, amphibians, arachnids and scorpions, and other invertebrates;
- Conduct at least *ad hoc* monitoring of faunal populations and maintain recordkeeping;
- Contribute significant records and localities of fauna to the Atlas databases at the Animal Demography Unit (**ADU**) at University of Cape Town (**UCT**);
- Ensure that management and recreational activities do not impact on sensitive species;
- Implement responsible problem animal management, where necessary, ensuring to be in possession of the relevant permits;
- Eradicate invasive exotic faunal species, where necessary, ensuring to be in possession of the relevant permits;
- Limit the impact (competition and predation) by domestic animals on indigenous species. Where residential estates abut natural areas, it may be necessary to compile a policy on pets. It is preferable to be proactive in this regard;
- Compile a policy on introduction (accidental or deliberate) of potentially invasive species (e.g. wildfowl) or wild animals previously kept as pets e.g. tortoises which could genetically pollute local races or harbour geographically isolated diseases;
- Commission a reintroduction policy and plan for species that used to occur in the area and the suitable carrying capacities. Investigate the potential for reintroductions, specifically small game, which may have previously occurred naturally in the area. Herbivores are essential for biodiversity and ecosystem processes to persist.

Before **reintroduction** the following points need to be considered:

- Was the desired species naturally resident in the area?
- Why did the animal become extinct in the area?
- Is that causal factor still a threat?
- Is the habitat still suitable for the species?

- What are the potential negative effects of the reintroduction?
- Where is the nearest existing population?

The careful reintroduction of species can enhance the conservation value of the area and increase the marketability of the site. All reintroductions must be based on sound ecological principles. CapeNature must be consulted on the translocation and reintroduction of all fauna.

access management

objective: *To inform the best placement and management of access points and pathways, avoiding sensitive process areas such as steep slopes and prevent excessive path braiding and consequent erosion.*

management actions:

- Conduct an audit of the siting and condition of existing access points and pathways;
- Identify suitable access points and pathways, and decommission those in sensitive process areas;
- Maintain pathways/boardwalks to ensure its use and not the making of alternative routes;
- Implement a rehabilitation programme, where this is required.

use of living resources

objective: *To ensure sustainable use of natural resources, minimising adverse effects on biodiversity and ecosystem processes.*

See the **Best Practice Guideline: Sustainable Utilisation of Natural Resources** for more detail.

recreation & tourism management

objective: *To ensure the appropriate use of natural areas for recreation and tourism, minimising detrimental impact on biodiversity and sensitive processes.*

See the **Best Practice Guideline: Recreation & Tourism Use** for more detail.

road maintenance & erosion control

objective: *To ensure that geomorphological processes and soils are adequately understood and impacts thereon duly minimised, avoiding the consequent loss of natural resources and habitat.*

management actions:

- Identify and understand erosion sources;
- Prioritise erosion problems requiring control efforts;
- Where dune systems have sustained damage due to excessive trampling and/or past access by vehicles, implement a rehabilitation programme. Have measures in place to prevent further erosion damage;
- Road and footpath erosion control must be monitored and managed on an ongoing basis;
- Records should be kept (preferably photographs) of previous erosion management, in order to measure effectivity.

See the **Best Practice Guideline: Sensitive Development** for more detail.

signage & awareness

objective: *To inform of the sensitivity and value of biodiversity features and ecosystem processes, and to facilitate the appropriate use thereof.*

management actions:

- In order to achieve the above, three types of signage need to be considered: **directional**, **informational** and **interpretational**. The first guides visitors to and around the area, while the second provides information on some aspects of the area and management (such as erosion control). Interpretation of the environment, the third form of signage, would focus on aspects such as functioning of the ecosystem in the natural areas, emphasising the unique biodiversity and ecological processes.
- Where necessary, a signage policy and manual should be compiled;
- Signs indicating the name of the site should be erected at all vehicular and pedestrian access points;
- Signage must be set up to inform of areas being rehabilitated;
- Awareness programmes must be initiated for the purpose of informing and educating residents and visitors regarding environmental sensitivity and

interaction (e.g. snake encounters, the value of biodiversity, biological monitoring and rehabilitation)

fencing

objective: *Where necessary, fence areas for access control and management.*

While a definite demarcation of the boundary of natural areas helps visually establish such areas as being of conservation value, rather than simply vacant open space, fencing also limits the natural transit of wildlife and therefore ecosystem processes. It is apparent that continuity of best practice conservation management is required across cadastral boundaries in order for the broader ecosystem to best benefit from holistic management.

management actions:

- Where possible, internal and common cadastral fencing should be removed to allow for connectivity;
- Appropriate fencing should be used, and where possible jackal-proof and electric fencing should be avoided;
- Public road-side boundaries should be well demarcated for access control and to prevent wildlife road kill;
- All roads not for public vehicular access must have locked gates;
- Stiles may be placed over fences to allow access along approved pedestrian paths;
- Where fencing hinders the natural transit of wildlife, provision must be made for thoroughfare e.g. bottom fence strand raised for tortoises;
- Fence line and access gates should be regularly inspected.

archaeological and heritage features

objective: *To ensure that the archaeological and heritage aspects of the site are protected as defined in the Natural Heritage Resources Act 25 of 1999.*

management actions:

- Inform SAHRA of potential heritage features on site and acquire advice on protection measures. These features may be of significant archaeological importance and damage to these features would lower their archaeological value and possibly their tourism value;

- Keep record of heritage features on site;
- Prevent any damage to these features.

monitoring and recordkeeping

objective: *To evaluate management actions of the site as well as monitor biodiversity components and ecological processes. Data can contribute towards regional conservation plans and initiatives and further highlight conservation priorities.*

management actions:

- It is critical that sites collect baseline information (rainfall and resource inventory) as a priority;
- Establish a plan of action/objective for monitoring of specific features, components and processes;
- Describe methods used and maintain these;
- Map fixed monitoring sites or features to be monitored, preferably with a GPS;
- Keep data safe and have duplicates;
- All research activities (external studies) are to be controlled i.e. written permission granted with the condition that a copy of the final research report is provided;
- Manager to compile monthly report, incorporating all incidents, significant events and findings and operations that have taken place.

staff training and skills development

objective: *To continually capacitate and train staff in environmental knowledge and a range of skills and enhance their capacity.*

management actions:

- Staff training should include the following:
  - Regular fire training and fire exercises
  - Use of appropriate machinery, tools and technology
  - Public relations and interactions
  - Ecosystem components
  - Management training
  - Waste management & recycling
  - Use of herbicide application
  - Methods for alien vegetation control

ecological connectivity

objective: *Identify suitable corridors or expansions for connecting natural and protected areas to improve the overall resilience of the protected area and allow processes to function at an appropriate scale and so allow for holistic management of the ecosystem.*

management actions:

- Liaise with CapeNature Regional Office regarding expansion and connectivity opportunities;
- Approach and liaise with neighbours in this regard;
- Draw up a Memorandum of Understanding or contractual agreement between neighbours detailing areas of responsibility amongst others.

voluntary conservation

objective: *Consider proclaiming natural areas for conservation in perpetuity, via the CapeNature Stewardship program.*

management actions:

- Familiarise with the three levels of **stewardship options** i.e. Voluntary Conservation Site, Biodiversity Agreement and Contract Nature Reserve;
- Landowner should contact local CapeNature stewardship coordinator to discuss options and benefits.