



Republic of Namibia
Ministry of Environment & Tourism

A STRATEGIC COLLABORATIVE MANAGEMENT &
DEVELOPMENT PLAN FOR
GREATER FISH RIVER CANYON LANDSCAPE
2013 - 2018



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ASSESSMENT DONE BY:



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AUTHORITY OF THE CO-MANAGEMENT & DEVELOPMENT PLAN

This co-management & development plan for the “Greater Fish River Canyon Landscape” sets out the vision, objectives and underlying principles for the key issues which the partners wish to address in the co-management and development of the Landscape. It also lists suggested “actions” under each of the issues, to facilitate the effective implementation of the plan. As such, this plan represents the wishes and intentions of the partners. The co-management & development plan is accepted as the guiding authority for the Landscape. All subscribing to this co-management and development plan must strive to ensure that any actions and decisions relating to the Landscape or to any areas and activities within the Landscape, are in accordance with this document.

The partners have also established an Association for the Greater Fish River Canyon Landscape, under a Constitution, making the Association a legal entity. The Constitution contains the Vision, Objectives and Principles of the Association, and sets out other parameters of a technical and procedural nature. This co-management and development plan and the Constitution should be read together as mutually supporting and enabling documents.

This co-management & development plan will be reviewed by the partners and, if necessary, revised, every five years. The next review should be done in 2018. Any changes that must be made in the interim must be recommended by the Landscape Steering Committee, reflected in the minutes, and approved by the stakeholders by means of a signed and dated amendment, as set out in the Constitution of the Greater Fish River Canyon Landscape Association. These approved changes must be appended to the master copies of the co-management plan, one held by each of the partners.

The co-management & development plan should be viewed as a valuable and central document by all land owners, administrators, management personnel and subcontractors of all partners involved in the Landscape. They should be familiar with its contents, and should make use of it to familiarize existing and new staff with the vision, objectives and policies of the Landscape, as well as the agreed plan of action.

It is part of every partner’s responsibility to help implement this co-management & development plan. It is also every partner’s responsibility to propose improvements to the plan, as well as improvements in how the plan may be implemented. Co-management is a team effort. The future well-being and development of the Landscape depends on this team approach.

SOME PRINCIPLES OF CO-MANAGEMENT

There has been some confusion around the term “co-management”, with concern being expressed that it allows people to become involved in the management and micro-management of others people’s land, or land that falls under the jurisdiction of other organisations.

Firstly, co-management does **not** imply that people will be managing other people’s areas or enterprises. Rather, it involves agreed higher-level consensus on developing an overall vision, objectives and targets that will be to the greater good of all stakeholders, and working to achieve these by means of an agreed Action Plan (Management & Development Plan).

Second, co-management does not involve small local issues that are best managed at local level. Rather, it focuses on things that require collaboration and partnership for actions to be effective and desired objectives to be achieved. It asks the fundamental question – “what are the things that we can do better by working together rather than working in isolation?” Only those aspects that can be done better by working together are considered for the co-management and development plan.

Third, co-management needs to have a geographic focus that involves enough of the stakeholders to be effective, but not too large an area so as to lose focus and become too general. In the case of this Greater Fish River Canyon initiative, for example, the focus needs to be on and around the Fish River Canyon area with a focus on its topographic, environmental and socio-economic landscapes. In this context, its biophysical characteristics (topography, landscapes, arid environment, biodiversity and cultures) and its marketability, thereby releasing its inherent value, come together as the core themes. By extending the area of involvement too wide, the core theme is diluted and stakeholders are so far away from one another that institutional interactions become limited and ineffectual.

Fourth, stakeholders have to be sufficiently regularly in contact with one another, through meetings, institutional collaboration and other forms of communication that a unity of purpose and common vision is retained and evolves constructively over time. If stakeholders are conceptually marginal or geographically distant to the focus of the core theme, then the endeavour is likely to fail or be disrupted by conflicting interests.

Fifth, stakeholders participate in co-management initiatives based on the positive aspects, vision / objectives / outcomes they have in common, not based on their differences. People see value in being part of the process, and this serves as an incentive. At the same time, stakeholders also need to contribute to the process – they cannot be net extractors of value, they need to put value into the co-management process.

PART 1

VISION, PURPOSE AND OBJECTIVES

1.1 Vision

To co-manage the Greater Fish River Canyon Landscape for enhanced ecological and biodiversity conservation and socio-economic development.

1.2 Purpose

To foster and enhance collaboration and cooperation by the members of the Landscape, and where relevant, to help harmonise their planning, management and development at a landscape level, to effectively implement the Vision, Objectives and Activities contained in this Co-Management and Development Plan, as may be revised and updated from time to time, within the area comprising the Greater Fish River Canyon Landscape, and to work effectively with its neighbours.

1.3 Objectives

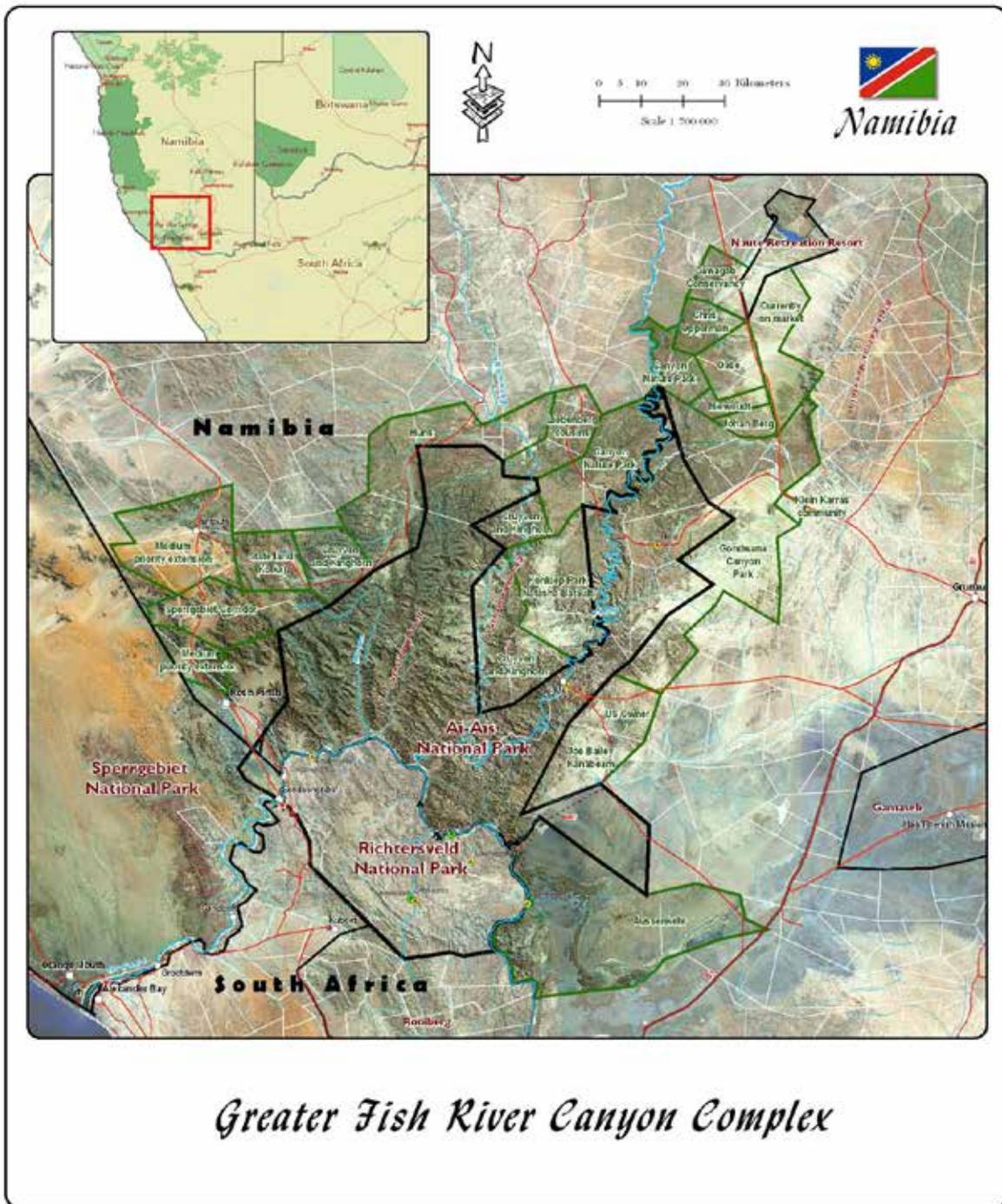
- To conserve and wisely manage the biomes, landscapes, ecosystems catchments and biological diversity of the Greater Fish River Canyon Landscape (GFRCL) and, where necessary and feasible, to restore and rehabilitate degraded systems to their natural, productive states.
- To manage wildlife populations and ecosystems to maintain optimal biological diversity and ecosystem stability under highly variable climatic conditions, and to reintroduce and rebuild populations of plants and animals indigenous to the area within historic times, as might be appropriate under current and changing conditions.
- To promote and support appropriate land and natural resource uses that are compatible with the above objectives, with emphasis on non-consumptive uses, sustainable land management practices, low impact tourism, environmental education, awareness and outreach initiatives and research, and to create strategic and focused economic opportunities without compromising on sound conservation principles and practices.
- To establish strong co-management partnerships and an appropriate institutional mechanism between the various land owners, holders and administrators within the Landscape, so as to enhance the management and ecological and socio-economic viability of the GFRCL to the mutual benefit of all partners.
- To harness the ecological, social and economic viability, sustainability and competitiveness of the GFRCL and find ways to realizing these values to create wealth, jobs and appropriate development of the Landscape.
- To explore ways of jointly marketing the GFRCL and create synergies between the individual economic and financial activities and initiatives of the partners to enhance the development of the overall Landscape to the mutual benefit of all partners.
- To explore the further expansion of the current GFRCL as new potential partners seek to join the Landscape and co-management Institution to manage the Landscape.
- To link and seamlessly collaborate with any similar co-management Landscape that may evolve around the adjacent Sperrgebiet National Park, for the benefit of biodiversity conservation and socio-economic development in the southern parts of Namibia.
- To use the GFRCL as an example of co-management between different partners and across state and private land, for the enhancement of both conservation and socio-economic goals.

PART 2

BACKGROUND

2.1 The Greater Fish River Canyon Landscape

The Greater Fish River Canyon Landscape (GFRCL) is made up of a mosaic of different land holdings around the Ai-Ais/Fish River Canyon/Huns Mountains National Park.



The area stretches from the Orange River in the south (where it borders onto the Richtersveld National Park in South Africa) to the Naute Recreational Resort in the north. In the west it borders onto the Sperrgebiet National Park, thereby creating a vital corridor of land between the Ai-Ais and Sperrgebiet National Parks, and in the east it reaches the top of the Klein Karas Mountains.

The GFRCL encompasses a vast diversity of landscapes, topographic features and habitats. The geology of the area ranges from relatively young rock formations of the Karoo and Nama Groups (200 and 550 million years old respectively, to rocks of the Namaqua Metamorphic Landscape (about 1,200 million years), to some of the oldest rocks known, along the Orange River valley, which are over 2,000 million years old. The geology is highly visible and accessible. The key topographic features including the Fish River Canyon, the Konkiep valley, the Orange River valley, the Huns Mountains and the Klein Karas Mountains. Between these are an array of rocky and sandy plains, rocky hillsides, plateaus, drainage lines, incised valleys and ephemeral river courses.

2.2 Bio-physical setting

The landscapes of the Greater Fish River Canyon Landscape (GFRCL) have evolved, together with the floral and faunal resources, to create a unique assemblage of species and geology. The area is in a transitional zone between the winter and summer rainfall regions. It experiences extremely low rainfall (from less than 120mm in the north to less than 50mm near the Orange River in the south) and varies considerably from year to year (coefficient of variation >70%). The little rain that does fall can occur at any time of the year, but with a tendency for the late summer months to receive slightly higher rainfall than other months. Maximum temperatures are exceptionally high (34-45°C), mainly from December to April, but can be experienced at any time of the year. Average temperatures are moderate (approx. 18°C) and there is a general temperature decline as one moves westwards towards the Sperrgebiet and coast. There are few frost days per year with an increasing occurrence towards the east (1-5 days per year). The high mountains, deep valleys, perennial Orange River and effects of coastal fog (in the extreme west) contribute to adding further habitat diversity to this area. Plants and animals have developed specific adaptations in response to these factors. The area incorporates some of the largest succulents (mega-succulents) including *Aloe dichotoma*, *A. ramosissima*, *A. pillansii* and *Pachypodium namaquanum*. The GFRCL extends across two biomes, the Nama Karoo and the Succulent Karoo, and the transition zone between them. Until such time as the proposed Sperrgebiet National Park is proclaimed, the GFRCL contains the largest single conserved area of the Succulent Karoo biome in Namibia. The Succulent Karoo ecosystem is recognised as one of the 25 biological 'hotspots' of the world. Four main vegetation types occur within the GFRCL, the Succulent Steppe in the south and south-west, the Desert - Dwarf Shrub Transition, the Dwarf Shrub Savanna and the Karas Dwarf Shrubland.

The landscapes and associated biological assets of the GFRCL are extremely important. It is critical that these are properly managed and conserved. Some areas, especially those in the northwest in the inaccessible Huns Mountains, have remained relatively undisturbed by human intervention. In contrast the areas adjacent to the Orange River and to the east and north of the Ai-Ais National Park have been severely impacted by mining, grazing and agriculture. It is especially along the Orange River that these impacts must be significantly reduced through improved management and control. Planning is critical for all new developments or extensions to existing developments and this must include the use of environmental assessments, strategic assessments and management plans, which will help identify problems and opportunities, and guide developments to achieve integrated socio-economic and bio-physical goals.

There may be small pockets of land where land uses other than conservation may deliver significantly higher economic benefits to the region and the country. In instances where the disturbance is limited and contained to a small area, this may be acceptable but it must be subjected to a thorough assessments and appropriate management planning.

There are still many issues, which are not understood about this area. It is very poorly collected (particularly plants and invertebrates) and the distribution of species is not well documented. The understanding of how the ecosystem functions, including rates of decay and nutrient cycling and the role of vertebrates and invertebrates is not well studied. There is a concern

amongst some that the long-term conservation of some species may be jeopardised by climate change. The area experiences extremely low and spatially erratic rainfall and local migration across vast distances is a survival strategy of a number of faunal species. Because of these issues, a low risk strategy is to ensure that sufficiently large areas are conserved, especially where the existing species knowledge is poor. This can be achieved through collaborating and aligning management practices between partners and neighbours.

2.2.1 Actions	Timing	Who	Record of progress
Prepare poster - for members, staff and visitors - on the GFRCL, its biomes, vegetation types, landforms, habitats and land uses, with photographs and sensitivity ratings			

2.3 Institutional setting

The GFRCL represents a “smart public-private sector partnership” of land owners, administrators and managers that share a common vision for the long-term management and development of the area. This long-term vision incorporates elements of:

- appropriate and sustainable land use
- economic development, improved livelihoods and poverty reduction
- social and cultural development and empowerment
- partnership and co-management to enhance the above

The focus is on the GFRCL, but within the context of contributing to sustainable development within the Karas Region, within southern Namibia and within the Richtersveld/Ai-Ais trans-frontier conservation area. An emphasis is placed on forming a “coalition of the like-minded and willing” to optimizing the opportunities and advantages that co-management and transboundary cooperation between different land units (local to international) can help generate, to the mutual advantage of all participants, the fragile desert environment and to biodiversity conservation.

In this regard, a group of interested land owners, managers and administrators met at the Gondwana Cañon Village, adjacent to the Fish River Canyon section of the Ai-Ais National Park, on 23rd May 2006, to discuss the development of a co-management and development plan for the Greater Fish River Canyon Landscape. A Vision was developed (see Part 1 of the Plan) and a series of indicative actions were listed and discussed (Part 3).

In addition, possible institutional mechanisms were considered. The development of an “Association” was considered to be an appropriate vehicle to facilitate co-management at this stage (see Constitution).

PART 3

MANAGEMENT PRINCIPLES

3.1 Landscape management through partnership

Principle: Open, contiguous landscapes of sufficient size are secured to ensure that ecosystem functioning is strengthened, through co-management of land owners, managers and administrators, to create linkages between the Ai-Ais National Park and the Sperrgebiet National Park to the west, across the escarpment, the Huns Mountains, the Fish River Canyon and to the Klein Karas mountains to the east.

Actions	Timing	Who	Record of progress
Initiate regular meetings between stakeholders and potential partners in the GFRCL to establish common interests and a common Vision for the co-management of the Landscape			
Undertake an intuitive (using maps & local knowledge) identification of potential partners (see map in 2.1) and then engage with these potential partners to gauge level of interest (Baseline survey)			
Using the regular meetings and other forms of communication, develop a co-management and development plan for the GFRCL, addressing biodiversity conservation and socio-economic issues in an integrated fashion (this Plan)			

3.2 Zonation plan

Principle: Landscapes and ecosystems are optimally managed and used within the GFRCL, by means of a zonation plan, taking into account the extreme aridity and climatic variability of the area, ecological fragility, biodiversity values, past land uses, new economic opportunities, harmonization across the boundaries of different land owners and managers, the potential for future partnerships to create further linkages and corridors, and developing the economic potential of the Landscape within the context of biodiversity and landscape conservation.

An agreed zonation map of the GFRCL will be created for enhanced landscape and biodiversity conservation management and appropriate utilization, to minimize potential conflicts between activities and partners, and to facilitate potential “bigger picture” socio-economic and sustainable development goals for the Landscape.

Zones: The following zones are internationally recognized, and the GFRCL will draw on these categories:

Zones		Activities
a)	Strict nature reserve within Wilderness area (IUCN category 1a)	Highly sensitive and high value conservation / biodiversity areas Set aside for sensitive and low non-intrusive scientific study No or minimal mechanized access No permanent structures
b)	Wilderness area (IUCN category 1b)	Sensitive ecosystems High value "sense of place" Low impact usage No or minimal mechanized access No permanent structures
c)	National park (IUCN category 2)	Managed for conservation and controlled tourism Mechanised access permitted
d)	Natural monument (IUCN category 3)	Conservation of specific outstanding features, including landscapes, geological and archaeological components, fossil deposits, areas of spiritual significance and areas of heritage value
e)	Habitat / species management areas (IUCN category 4)	Protected areas managed mainly for conservation through active management intervention To deliver benefits to people within the scope of sustainable practices
f)	Protected landscapes / seascapes (IUCN category 5)	Relatively open access for public enjoyment Generally higher intensity and lower regulatory areas Add to welfare of local communities
g)	Managed resource protected areas (IUCN category 6)	Managed mainly for the sustainable use of natural resources, and could include commercial fishing, mining, livestock production, agriculture, etc but with biodiversity and conservation high on agenda Managed to ensure long-term protection and maintenance of biological diversity while providing at same time a sustained flow of natural products and services to meet local and national development needs

Actions	Timing	Who	Record of progress
Prepare draft zonation map of GFRCL for discussion amongst partners, with list of allowable activities per zone			
Prepare poster of zonation map for all partners and other stakeholders, including allowable and disallowable activities per zone			

3.3 Biodiversity conservation

Principle: The comprehensive diversity of landscapes, habitats, plants and animals indigenous and endemic to the Nama Karoo and Succulent Karoo Ecosystems of the GFRCL are protected and that both ecosystem functioning and evolutionary processes take place effectively.

- Because of the large areas involved, and the intention to create corridors for west-east movement of wildlife, ecosystem management should be minimal, and indeed a minimalist and largely hands-off approach should be adopted.
- Should it become necessary to apply active management, interventions should aim to manage the arid ecosystems for long-term diversity, health and productivity by ensuring that they are not over utilized to the extent that long-term damage results.

- c. Allow and promote variability in management and “patchiness” in ecosystem expression in response to variable climatic conditions and ecosystem functioning.
- d. Build up a good monitoring record of ecological and bio-climatic information, including the diversity and abundance of various species in different taxa, including the less studied lower plants, invertebrates, etc.
- e. Monitor the health of populations of species high on the food chain (e.g. key predators and scavengers), and major herbivores – if these species prosper it follows that the base of the food chain is probably diverse and in good condition.
- f. No poisons or pesticides (or other toxic chemicals) will be used in the GFRCL under any circumstances.

Actions	Timing	Who	Record of progress
Carry out a baseline biodiversity information needs assessment			
Set up monitoring system for key climatic, biodiversity and ecosystem health indicators, including wildlife numbers, top-of-food-chain species, endemics, important plant communities, etc			
Ensure that monitoring protocols are established for uniform data collection, compilation and dissemination, and that the information is used for adaptive management within the GFRCL			
Establish a “field research centre” within the GFRCL to undertake both applied and academic research within the Nama and Succulent Karoo ecosystems			

3.4 Game population management

Principle: A rich diversity of indigenous wildlife prospers within open, dynamic and resilient ecosystems within the GFRCL.

Game population numbers will be encouraged to increase up to levels where biomass carrying capacity is considered conservatively appropriate and sustainable, per species and for the total wildlife population, under different rainfall and range conditions. Mass mortalities during droughts will be avoided – mainly by working to establish open systems, particularly west-east, and the numbers of a particular species will not be allowed to adversely affect long-term population stability of any other species. Minor population fluctuations due to good breeding and slow attrition during wet and dry cycles, and from predation, will not be cause for concern.

The emphasis will be on non-consumptive utilization of wildlife for tourism, although sustainable consumption will be considered where this is appropriate for ecological and economic purposes, and where agreed quotas, harvest areas and methods and benefit sharing procedures are in place.

- a. Every effort must be made to restore seasonal and opportunistic migratory movements of game as this is critical for their long-term survival.
- b. Population trends, health (age and sex structures and body condition) and distribution of populations will be monitored and decisions taken based on rainfall, veld condition and other variables.
- c. Game management decisions will be taken in an adaptive manner, with a minimalist intervention philosophy, and based on good monitoring and research information, as may be decided from time to time.

Actions	Timing	Who	Record of progress
Design & implement integrated monitoring systems for rainfall, veld condition and wildlife (numbers, age & sex classes and condition).			
Adaptively manage wildlife populations using minimalist intervention and most appropriate best available practices	As necessary		
Establish clear Protocols for sustainable off-takes, based on clear criteria, approaches and agreements			

3.5 Game introductions

Principle: The historic diversity of wildlife and their full suite of interactions are reinstated, as far as is practically possible under prevailing conditions.

- Be mindful that the GFRCL is near the western edge of a number of species' ranges. In higher rainfall years such species may/would have moved westwards into the GFRCL, and in lower rainfall years they would have retreated eastwards and northwards. Once large, open areas have been secured, reintroductions into the Greater Landscape will be viable for a number of species, but which would probably not be so if confined to any sub-part of the Landscape.
- Introduce game in phases as per the list of recommendations resulting from the analysis on "The Historic Distribution of Wildlife in the Fish River Canyon Area", and subject to rainfall and veld condition being adequate to enhance survival chances.
- Acquire game from similar habitats (e.g. Namib and Karoo Transition ecosystems) for genetic integrity and optimal chances of success.
- Introduce game in sufficient numbers to be viable, rather than having small token introductions.
- Where species are likely to recolonise or to augment existing populations by in-migration, allow this to happen rather than active reintroduction.
- No species exotic to the GFRCL will be introduced.
- No subspecies or components of populations from elsewhere will be introduced if there is any risk of genetic pollution to the indigenous populations' genetic integrity, and where suitable animals can be acquired from within the required gene pool.
- In the case of introductions that have a potential impact on neighbours (including transboundary implications, e.g. Hippo on the Orange River), full consultations will take place with stakeholders prior to any introductions.

Actions	Timing	Who	Record of progress
Based on the recommendations resulting from the analysis of historic distributions of wildlife in the GFRCL, develop an agreed list of priority species for introduction, and develop a phased reintroduction plan (numbers, timing, release sites, co-financing, monitoring, etc)			
Implement introduction plan, as a co-management team effort			
Monitor introduced and augmented populations – numbers, condition, breeding, sex and age ratios, distribution and movements, etc.			

3.6 Flora

Principle: Areas of exceptional plant diversity within the GFRCL, with high numbers of range-restricted endemic species within a biodiversity hotspot of global significance are afforded the highest levels of protection that legislative, zonation and management practices can provide.

- a. Extend the vegetation mapping to detailed assessments of important and little known areas within the GFRCL.
- b. Set up a monitoring programme for carefully selected plant populations and communities.
- c. Monitor areas at high risk to invasion by alien vegetation, such as drainage lines, roadsides, mining and prospecting areas and around human settlements, and implement control measures as required.
- d. Support and promote botanical surveys and research that will lead to a better understanding of the flora of the GFRCL, and the Nama Karoo and Succulent Karoo ecosystems.

Actions	Timing	Who	Record of progress
Map hotspots of plant diversity and endemism.			
Set up a monitoring programme for selected critical plant populations and communities.			
Monitor high risk areas for invasive alien plants, and implement effective control measures as appropriate.			

3.7 Alien plants and animals

Principle: The GFRCL is free of all invasive alien plants and animals, and non-invasive alien species are confined to, or based at, the Tourism and Infrastructure Development Areas and are clearly justifiable with there being no viable indigenous alternative.

No feral populations of alien plants and animals will be permitted within the GFRCL. Alien and domestic species will only be permitted where these are restricted, intensively managed and an integral part of the operation of the partner in the Landscape (e.g. horses for transport, farm-animals, vegetables, fruit for production, etc), and where they pose no threat to the integrity and conservation of indigenous species.

- a. Eradicate feral populations of alien plants and animals in the GFRCL, with priority placed on the most invasive species (e.g. *Prosopis*, *Opuntia*, “wonderboom”, syringa, etc) and species likely to pollute genetic integrity of wild populations (e.g. domestic cat).
- b. Develop guidelines for partners (land owners and residents) and staff on domestic pets, keeping both conservation objectives and tourist expectations in mind.
- c. Assess all alien species to be brought into the GFRCL for possible impact prior to import. The default position should be “no aliens”.

Actions	Timing	Who	Record of progress
1. Establish programme to map and eradicate all feral populations of alien species in the GFRCL, starting with most invasive species			

2. Establish a list of appropriate garden trees and shrubs, drawing from indigenous species occurring within or near to GFRCL, and use these for garden development (set up propagation nursery?)	Done and ongoing		
3. Follow up on cleared areas and remove regrowth/new seedlings	ongoing		
4. Assess all alien species before import into the GFRCL	ongoing		

3.8 Fencing

Principle: Open systems are maintained for the largest possible landscape integrity, across the GFRCL and, when possible, beyond.

Remove all internal fences excepting those fences that have strategic value (e.g. short-term holding areas for introduced game).

Remove/breach boundary fences where neighboring land-use is compatible and where agreements as part of this co-management and development plan have been secured.

Secure boundary fences where neighboring land use is a threat to wildlife or where secure fencing is essential for good neighbourliness (e.g. boundaries with small stock farmers where predators are a source of conflict).

Actions	Timing	Who	Record of progress
Remove all internal fences where this is appropriate (e.g. exclusive wildlife and tourism land uses)	Ongoing ..		
2. Breach or remove boundary fences where neighbours have reached mutual agreements in terms of this co-management and development plan	Phase this in as partners become secure in their partnerships within the GFRCL		
3. Remove road fences – but: (a) roll up and store all fencing materials, and (b) order and erect road signs informing motorists that there are no fences and wildlife may cross road	As appropriate		
Patrol & maintain fences as appropriate with incompatible neighbours	Ongoing		

3.9 Water management

Principle: A minimalist, ecologically appropriate and tourism friendly water management and development plan is harmonized and implemented across the GFRCL, taking into account water scarcity, high evaporation rates, demand management and the need to maintain water quality.

- a. Water point development and management will be on a critical needs basis only – the default setting is a minimalist approach to artificial water points.
- b. All natural water points will be carefully managed to avoid disturbance and degradation.
- c. Water use for domestic and tourism purposes will be kept to a minimum, in line with good eco-tourism practices, and used water will be processed to acceptable quality and recycled or returned to the ground water.

Actions	Timing	Who	Record of progress
Create a map and inventory of all natural water points as well as current boreholes / water infrastructure and other related attributes, such as yield & depth			
Look at rationalizing water provision for wildlife across the GFRCL and agree on a water plan once fence removal has occurred			
Ensure that all natural water points remain undisturbed			
4. Implement water monitoring gauges in all tourism establishments, including staff and kitchen use of water, and bring levels of use to below 100 litres per person per day.			
4. Implement water cleaning and recycling approaches to waste water			

3.10 Roads

Principle: A practical, ecologically and aesthetically appropriate road network through the GFRCL, linking all partners, will be agreed, and access rights will be ensured to all partners, for purposes of easy access to their properties, for management, law-enforcement and any other purposes that may be agreed by mutual consent between partners.

Actions	Timing	Who	Record of progress
Develop an accurate map of current roads & tracks			
Develop a road network plan of roads linking partners, and access rights protocol			
Carefully select any new borrow pit sites, with full EIA considerations, including decommissioning and full rehabilitation, and look at rehabilitation of existing borrow pits where possible	Ongoing		

3.11 Tourism management and development

Principle: Tourism is planned and managed to ensure that the character, beauty, diversity and integrity of the fragile GFRCL is maintained, and that visitors have a high quality experience that includes a sense of place, isolation and wilderness.

The GFRCL will strive to provide for the highest quality, eco-friendly tourism experience to visitors through good planning, guiding, interpretation and the application of best and most appropriate practices, and to help raise awareness and educate visitors about the Greater Fish River Canyon Landscape, the Nama and Succulent Karoo ecosystems, local conservation and

cultural issues and sustainable development within arid environments.

- a. Tourism management and development will be guided by a GFRCL “Tourism Plan”, which will build on the Zonation plan (3.2) and will include collaborative approaches to marketing the Landscape, look at adding diversity and value to tourism activities, holding tourists within the Landscape for longer, tourism impact monitoring, etc.
- b. Develop good local information and interpretative materials for tourists and the general public, including possibly open air museums at selected sites, e.g. geological features and/or outlook points, investigate the potential of developing special focus museums, a Karoo botanical garden and nursery with propagation facility, etc.
- c. Develop a strong website for the Landscape that provides (i) a marketing service, and (ii) an information storage and management platform.
- d. From time to time carry out “tourism satisfaction surveys” that assess tourist’s views on the quality of their experience within the GFRCL, and encourages them to suggest improvements.
- e. Ensure that all tour guides are well trained, motivated and well tuned to visitor’s needs.
- f. Collaborate with NTB, FENATA and its members, the Four Deserts Route Namibia and other entities to help raise the profile of southern Namibia and the GFRCL.

Actions	Timing	Who	Record of progress
Develop a detailed Tourism Plan			
Design phased implementation mechanisms for the Tourism Plan			
Develop and maintain a strong website for the Landscape			
Set standards for tour operators and guides			
Establish monitoring system to document impacts, numbers, levels of visitor satisfaction, etc.			
Explore the feasibility of developing information centre, special interest museums and succulents nursery within the GFRCL			

3.12 Law enforcement

Principle: Illegal use of wildlife, succulent plants and other natural resources within and adjacent to the GFRCL is controlled and kept to a minimum. A zero tolerance approach to poaching and illegal use of natural resources will be applied by all partners.

- a. Anti-poaching law-enforcement patrols will be planned, harmonised and conducted by partners as part of their co-management approach, at regular but unpredictable intervals, in high-risk areas (e.g. along main access routes and around urban and mining areas) and in a highly visible manner.
- b. An attractive reward system will be developed and highly publicized, for information leading to arrests and prosecutions.
- c. A radio network will be investigated, for all partners within the GFRCL.
- d. Close working relations will be established with neighbours to the GFRCL, the police, regional MET staff, customs officials and Namdeb Security.
- e. Rangers and other relevant management staff will be trained to preserve and collect evidence so that arrests result in convictions.

Actions	Timing	Who	Record of progress
Disseminate information on zero tolerance approach			
Build partnerships with relevant law-enforcement agencies (police, MET regional services, customs, neighbours, Namdeb security, etc.)			
Train staff in correct collection of evidence			
Explore radio network for all interested Landscape partners			
Set up monitoring system to share info and identify problem areas			

3.13 Natural resource monitoring

Principle: A limited number of carefully selected indicators are monitored to allow for timely and judicious adaptive management.

Minimum, regular monitoring of wildlife and plant resources will be conducted to determine change in populations and distributions. The information produced from the monitoring systems will feed into adaptive management decision-making.

Variables such as rainfall, harvesting (if any), introductions, water distribution, poaching activity, rare species sighted and other key information for management will also be recorded to keep track of those factors that may impact on animal and plant resources.

- Monitoring will focus on key indicator processes and species, with an emphasis on ensuring regular data collection at appropriate intervals, cost efficiency and sustainability.
- Monitoring data will have both spatial and temporal components.
- Monitoring systems will be adapted and expanded from existing systems being used in the Landscape and elsewhere in Namibia with a view to efficiency in development and ultimately regional and national integration of data.
- Plant resource monitoring will focus on regular estimates of rangeland condition, including veld biomass to serve as an early warning of forage restrictions, but long-term vegetation trends will also be monitored.
- Annual game counts will be undertaken in a systematic, efficient and repeatable manner.
- Monitoring systems will be balanced to ensure that the entire range of critical information needs is covered.
- A system for data storage, management and sharing will be built and linked to the website.
- Monitoring information will be used to make informed adaptive management decisions.

Actions	Timing	Who	Record of progress
Develop a monitoring plan			
Implement this plan with appropriate training			
Develop an information system to manage, store and share monitoring data			
Share and disseminate data and information between partners and use these for adaptive management			

3.14 Research

Principle: Management and development of the GFRCL will be information-based, drawing on good quality research and monitoring.

A supportive environment will be created for visiting scientists. Two levels of research are recognized:

- i. research in support of priority GFRCL information and management needs, and
- ii. interest research on aspects of the Nama and Succulent Karoo ecosystems (both biophysical and socio-economic) identified by outside researchers.

Preferential support will be given to former, while the latter will be supported when feasible.

- a. A prioritised and open-ended list of key research topics will be developed for the GFRCL and disseminated to appropriate research institutions.
- b. An appropriate support mechanism will be developed for visiting scientists, with emphasis on those addressing priority research topics relevant to the GFRCL.
- c. Where relevant, links will be established between research activities carried out in other institutions in Namibia and within the broader Karoo ecosystems in South Africa, and comparative studies between different southern African desert ecosystems will be encouraged.

Actions	Timing	Who	Record of progress
Develop an open-ended list of priority research topics based on information needs for the management and development of the GFRCL			
Design a "support package" for researchers addressing priority research topics, including investigation of a "field research centre" within the Landscape			
Participate actively in relevant and comparative long-term monitoring and research programmes in arid zones across southern Africa			

3.15 Information and education

Principle: The Nama and Succulent Karoo ecosystems within the GFRCL offer remarkable open-air classroom and laboratory experiences on the subjects of geology, geomorphology, climatology, hydrology, zoology, botany, arid-zone ecology, adaptive evolution, paleontology, archaeology, conservation and many other fields. The GFRCL thus has huge educational and awareness-raising potential, which will be exploited in the interests of ensuring that visitors and staff are well informed and enriched by associating with the Landscape.

The challenge that we face is to develop good, accessible and stimulating information on the key biophysical, socio-archaeological and economic aspects of the Karoo biomes that are represented within the GFRCL, and to share this information with guests, visitors, youth groups, decision-makers, specialist groups, staff and the general public in interesting and exciting ways so as to promote an understanding of, and commitment to, the conservation and sustainable development of the Landscape, the Karoo ecosystems and the arid and semi-arid regions of southern Africa.

- a. Establish an Information Centre in the GFRCL.

- b. Prepare good quality information in different forms (posters, brochures, displays, booklets, DVDs, website, etc., that is highly accessible to visitors and the general public.
- c. Ensure that research carried out in the GFRCL is translated into accessible and interesting information for the lay person and visitors.
- d. Ensure that tour guides are well trained at national and local levels, and that they create exceptional field experiences for tourists by sharing their knowledge in interesting and stimulating ways.

Actions	Timing	Who	Record of progress
Establish an information centre in the GFRCL			
Prepare good quality information on different aspects of the geology, biology, ecology, archaeology, etc of the Karoo ecosystems, as represented within the GFRCL			
Invest in tour guide training, at both the national and park levels.			

3.16 Development Guidelines

Principle: All management and development activities within the GFRCL shall be based upon the principle of sustainability, and be guided by the sensitivity of the environment and by the unique and unusual socio-economic opportunities that the environment offers for innovative landscape and biodiversity-based development.

In addition, such developments will be conducted in an environmentally sensitive manner according to best practice and applying the precautionary principle, as required by national policies and law, and high environmental ethics.

- a. The GFRCL shall strive to foster an environment in which all partners, stakeholders and visitors are required to be innovative and fully committed to the highest ideals of sustainable development and to creating the lightest possible environmental “footprint”.
- b. All new developments in the GFRCL that are likely to have a significant impact shall be subject to Namibia’s Environmental Assessment (EA) legislation and guidelines.
- c. Special attention shall be given to the following three issues within this Landscape, for which specific guidelines and action plans shall be developed:
 - i. Water use and management
 - ii. Energy use, and
 - iii. Waste management
- d. All tourism facilities in the Landscape shall be encouraged to adopt Namibia’s Eco-Awards guidelines and criteria, and to subject themselves to their assessment. This provides a neutral, outside assessment and audit system which will help the whole Landscape achieve high standards and also provide a marketing point.
- e. Ensure that all staff employed in the Landscape fully understand the environmental issues and are able to effectively implement appropriate management practices.
- f. Explore areas of potential cooperation between partners, e.g. in waste separation (glass, plastics, paper), storage and transport.
- g. Prior to any development or any action that may cause environmental damage (e.g. road developments, new lodge or other infrastructure developments), to present the proposed development to the GFRCL committee, with information on how impacts will be mitigated and to give partners the security of knowing that such development will not undermine the integrity of the GFRCL.

Actions	Timing	Who	Record of progress
Locate, be familiar with and use policies and guidelines from EIA and Eco-Awards materials			
Develop specific guidelines, policies and action plans for priority issues (water, energy and waste) and explore areas of potential cooperation			
Ensure staff are familiar with and implementing the guidelines to appropriate standards			
Encourage all tourism facilities in Landscape to undertake eco-award assessments			



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