Framework for a Strategy and Action Plan for the Management of Invasive Alien Species in the City of Cape Town

Biodiversity Management Branch
Environmental Resource Management Department
City of Cape Town
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1. Introduction & Background

Due to the complexity and difficulties associated with managing Invasive Alien Species (IAS) in the greater Cape Town area, it has become evident that the Biodiversity Management Branch of the City of Cape Town is most appropriately situated to take the lead in the coordinating and streamlining the various efforts underway, as well as those yet to be developed. This Strategy provides the guidelines and approaches to be employed by the City in addressing these concerns, and will rely upon the greater network of local partners to help achieve its goals and objectives.

1.1 Defining Invasive Alien Species

For the purposes of this Strategy it is necessary to define Invasive Alien Species (IAS) in the manner appropriate for use by the City of Cape Town. An Alien Species is a species that has been intentionally or unintentionally introduced to a location, area, or region where it does not occur naturally. An Invasive Alien Species is an alien species that causes, or has the potential to cause, harm to the environment, economies, or human health (Global Invasive Species Programme).

This strategy also recognizes that not all alien species are invasive.

1.2 Challenge of IAS Management in Cape Town

Invasive Alien Species have become a menace throughout the world, with increasing impacts on natural resources, economies (e.g. agricultural pests, costs of control efforts etc.), public health (e.g. disease outbreaks, toxic algal blooms), and biodiversity. The challenges of managing IAS invasions are as diverse as the types of species that are invading. South Africa has undergone a long history of invasions, which continue to present difficult management scenarios. Fortunately, significant efforts have been launched nationally and locally to help raise awareness of and capacity for management of these impacts.

In the Cape Floristic Region (CFR), the problems associated with IAS have historically been related to invasions of woody plant species. Such species have threatened the Fynbos diversity, caused damaging fires, used up precious water resources, and in some cases provided shelter for criminal activity. In recent years animal invaders, including some marine species, have also become more problematic in the CFR. Invasive species is an important threat to the unique Biodiversity of the City of Cape Town.

Managing IAS in the city is complex and includes a wide range of landowners and stakeholders. There have been various historical and ongoing IAS control projects and efforts to manage IAS in the City of Cape Town, which have been largely ad hoc and opportunistic. Due to the previously fragmented nature of these activities, and the lack of a centralised coordination

mechanism, the City of Cape Town has developed this Strategy to clarify its role in structuring the way forward. Such coordination is essential to ensure effective IAS management as an integral part of the sustainable management of natural resources, and for the benefit of the economy, the environment, human health and well-being.

This Strategy further serves to clarify the approach to be taken throughout the various departments of the City of Cape Town with respect to IAS management. Sustainable IAS management will require a focussed approach, targeting areas of high priority, and seeking outcomes of maximum benefit to the City. A system of collaboration and consolidation of efforts within the City's jurisdiction is to be maintained through the implementation of a Strategic Action Plan, associated with this Strategy.

The Strategic Action Plan gives an immediate operational path for the Strategy, and shall be updated as necessary. As such, the actions under the Strategy shall continuously seek integration and collaboration with National, Provincial and local role-players.

1.3 Scope & Vision

The Strategy is concerned with terrestrial, freshwater and marine invasive species, including:

- All invasive alien plants and animals, both vertebrates and invertebrates,
- Feral animals of domestic species (cats, dogs, goats, etc.) in protected areas, and
- Indigenous invasive species

The vision of this Strategy, in accordance with the City of Cape Town Biodiversity Strategy, is "working towards minimising the impact of invasive alien species in the city."

2. Context

Invasive species management is continually changing and progressing. International best practices must be consulted, as the efforts made at national and local levels are related to this. The City of Cape Town is aiming to ensure that the activities and programmes that are to be developed through this strategy maintain alignment with the principles that exist to ensure effectiveness and standardisation in such efforts.

Three levels of legislation are described below, each having an influence on the approach to be taken towards IAS management in the City of Cape Town. The principles represented by these over-arching documents will be maintained, recognising the priorities within the City of Cape Town, and the limitations of resource availability.

This Strategy has been developed in consideration of the local, national and international developments influencing IAS management in the City of Cape Town. The legal, institutional and operational structures guiding this approach align the Strategy with the appropriate principles for its effective local implementation.

2.1 International Guiding Principles

The Convention on Biological Diversity (CBD) entered into force in 1993 as a product of the UN Conference on Environment and Development in Rio in 1992, and was ratified by South Africa in 2003. The convention calls on its parties to take actions to "prevent the introduction of, control or eradicate those alien species which threaten ecosystems, habitats, or species (Article 8h). As party to the Convention, South Africa has agreed to undertake this goal, as part of its approach to conserving biodiversity.

In order to assist with this, and more specifically for the implementation of Article 8(h), the "Guiding principles for the prevention, introduction and mitigation of impacts of alien species that threaten ecosystems, habitats or species" were developed. Furthermore, the Global Invasive Species Programme (GISP) was designed to support these aims of the CBD and seek international implementation of the guiding principles. These principles are to be maintained to the extent possible throughout the application of this document. Most relevant amongst these are:

- The precautionary approach
- The hierarchical approach
- The ecosystem approach
- Sharing of information
- User pays principle
- Cross-sectoral approach

These principles will act as over-arching guidelines to the implementation of this Strategy.

2.2 National Legal Structure

The City of Cape Town has the legal responsibility for protecting biodiversity and managing IAS, as do other municipalities of South Africa. Provincial and local government departments are hence required to align their policies in such a manner as to conform to national legislation.

The national process of ratification of the CBD involved the development of the National Biodiversity Act, which was adopted in South Africa in 2004. The Act was designed to give backing and force to the principles advocated by the CBD, and ultimately to help South Africa to maintain a sustainable appreciation for its unique and rich biodiversity.

The Biodiversity Act makes provisions for IAS management recognising the unique challenges facing the various habitats and resource constraints within South Africa, and tasking the appropriate administrations with the necessary responsibilities.

The Conservation of Agricultural Resources Act, No 43 of 1983 (CARA) regulates the control of declared invaders. The CARA regulations divide invasive plants into three categories. (These regulations are currently under revision). The legislation places restrictions on the growth, propagation and trade of listed species and is based on the 'polluter pays' principle, which places the responsibility of keeping land free of invasive plants firmly on the land-user (the owner or lessee). In line with IUCN guidelines these regulations recognize the social and economic value of some invasive alien plants; some commercially valuable, but invasive, species may be propagated in specially demarcated areas (category 2). In recognition of their cultural importance, established plants of invasive ornamental species may be retained, but such species may no longer be propagated or sold (category 3). Other species may not be grown at all, except in biological control reserves (areas designated for the breeding of biological control agents) (category 1).

2.3 Local Alignment

The approach being taken towards management of IAS issues in the City must be aligned to the degree possible with the appropriate local structures to increase its effective impact and encourage collaborative action. The implementation of this Strategy will seek to maximise synergy within the various departments of the City, as well as between partners (e.g. National WFW, SANP, DWAF, DoA, Landcare, WOF, WfWetlands, CapeNature).

City of Cape Town

In order to achieve alignment with the National Biodiversity Act the City of Cape Town adopted the Biodiversity Strategy in 2003, which stems from the Integrated Metro Environment Policy (IMEP) aiming to align environmental strategies city-wide. The City's strategy was subsequently used to produce the Performance Based Management System, which gives the Biodiversity Management Branch of the ERMD an adequate framework for implementing biodiversity management.

Under this system several strategic objectives are addressed each dealing with a different aspect of biodiversity management. The third strategic objective is "To coordinate the management and control of the city's policies, strategies and eradication programmes for the control of invasive species." It is under this objective that the following management initiatives are to be pursued:

CAPE Programme

The Cape Action for People and the Environment (CAPE) Programme has developed an Invasive Alien Species Strategy for the Cape Floristic Region (CFR). Alignment of the City's efforts with the goals and principles of the CAPE Strategy and actions is an important aspect of this Strategy.

This Strategy and Action Plan are designed to fulfil the needs detailed above, and to do so in consideration of the over-arching principles as well as the unique constraints of implementing such management in the City of Cape Town.

3. Goals & Objectives

3.1 Goals:

3.1.1 Significantly advance the management and control of invasive species within the city's jurisdiction in a manner that is sustainable and maximises the benefits to the communities involved

3.1.2 Provide clear and effective steps for the City of Cape Town to follow in conjunction and partnership with the other affected or implicated stakeholders.

3.2 Objectives:

3.2.1 Obtain high level buy-in and support for the implementation of the IAS strategy

3.2.2 Establish a management and coordination scenario for effective and integrated management of IAS within the city's boundaries

3.2.3 Develop an Invasive Alien Species education, communication and awareness strategy for the City of Cape Town

3.2.4 To develop and implement a legal and policy framework for IAS management

3.2.5 Develop Funding mechanisms to support IAS management

3.2.6 Establish priorities based on given resources and appropriate weighting of desired outcomes

3.2.7 Develop integrated control plans based on identified priorities, with clear timelines and required resources

3.2.8 Monitor effectiveness of the IAS management in the City of Cape Town

4. Achieving Strategic Goals & Objectives

The sections below describe the strategic approach to be taken for IAS management efforts within the various sectors of the City's jurisdiction. The City's Biodiversity Management Branch will be responsible for coordination of activities developed through this Strategy.

4.1 Invasive Alien Plant Management

Invasive Alien Plants include annual grasses, woody and herbaceous species which are already established or emerging. In most cases complete eradication is no longer possible, therefore the species must be controlled through laborious clearing efforts. The threats represented by these species in terms of biodiversity loss, fire hazard, water availability and shelter for criminal acts all constitute major concerns to the City administration. Systematic planning and prioritization of areas shall precede control operations to ensure the highest impact and long term success. Management interventions include a range of actions such as prevention, early detection rapid response, control eradication and containment depending on the nature of the site and the management objectives thereof. Areas are to be cleared systematically and not in an ad hoc fashion and requires synchronization of clearing operations amongst neighbouring landowners. Forward planning and prioritization ensures optimal utilization of resources through proactive, long term clearing of areas.

Before any clearing can be effective, an overall assessment of the current status should be conducted, including data capture and mapping and regular updates of the information is essential. Subsequently a general prioritisation must be achieved to rank areas for clearing based on the major issues and constraints facing the City. The ongoing work plan will stem from this prioritisation, which includes appropriate weightings a range of factors such as biodiversity conservation, fire, water, safety etc.

4.2 Invasive Alien Animal Management

The negative impacts of Invasive Alien Animal species on the biodiversity of the City of Cape Town should not be underestimated. Species specific control programmes are to be developed and implemented. Activities such as illegal pet trade and the introduction of Invasive Alien Animals shall be addressed in the species specific programmes.

4.3 Prevention, Early Detection and Rapid Response

Although much of the efforts under this Strategy will continue to focus on control projects, increasing attention on prevention issues is paramount to the future health of the region's biodiversity. Preventing the arrival or establishment of IAS can help avoid sustained control costs over future years.

Early detection and rapid response mechanisms must be in place, including adequate baseline information to inform ongoing surveillance and monitoring efforts. For individual species that are detected early enough to warrant eradication attempts, and also for species requiring specialised approaches to management, targeted species management plans will be developed as necessary. Prevention, early detection and rapid response programmes are to be linked with relevant national and provincial initiatives.

The first line of defence against emerging species is created through mechanisms designed to prevent species arrival and establishment. Natural, diverse ecosystems are more resistant to species invasion than disturbed one, therefore the promotion of natural biodiversity aids in the fight against IAS. As appropriate, the City will work with its partners in the region to investigate and develop necessary approaches to impeding further species introductions and settlement.

Monitoring of existing conditions is essential for detecting any new invasions. A rapid response, early in the invasion provides the second line of defence against IAS. Response actions will be determined on a case-by-case basis and through use of international best practices.

4.4 Communication, Education & Awareness

It is widely recognised that general awareness of the IAS issue is low, which therefore forms an obstacle in the way of effective management and project implementation. Communication with respect to the intent and purpose of City activities is vital for a broad understanding of the processes at work to combat IAS. Through such communication, as well as targeted campaigns, the raising of education and awareness levels on this issue will help to develop the necessary foundation for effective implementation of this strategy.

A Communication, Education & Awareness Plan is to be developed in partnership with City line functions and external partners, with activities to be implemented in the following areas:

- Communication within City departments, with external partners and with the public.
- Education of staff and public.
- Awareness-raising through the development of new initiatives as well as integration with existing campaigns.

A two-pronged approach will be taken as a guideline for activities under the communication, education and awareness plan. One prong, the City Greening Campaign, should focus on the renewal and generation of understanding and appreciation for the indigenous biodiversity in the Cape Town area. This will include households, businesses, schools, parks etc., and aim to facilitate change through key demonstration projects, which replace invasive with vegetation indigenous to Cape Town. Where possible linkages to ensure the appropriate attention to IAS issues should be established with parallel initiatives (e.g. preparation programmes or activities for the 2010 FIFA World Cup™).

The second area/prong will be climate change, and IAS Communications and Education initiatives will link closely with the City's Energy and Climate Change Communications & Education Campaign." This initiative will demonstrate the links between the environmental changes associated with

climate change and the threats being posed by IAS, with water availability, fire management and biodiversity conservation being the most obvious.

Where possible all activities conducted under the communication, education and awareness plan should be tied back to one of these two thematic areas in order to maintain consistency and advance the association of IAS management in a manner that is addressing the most pertinent concerns in an integrated way.

5. Funding the Strategy

This Strategy requires the support of all partners and stakeholders implicated in its approach to IAS management, and it also requires funding beyond that which can be directed through the City's internal departments. Therefore, funding for the Strategy shall be pursued and obtained through the following channels:

- ***Internal support***
  City of Cape Town funds from within various concerned departments to be directed at supporting IAS management activities.

- ***External support***
  Direct funding for IAS management projects, as detailed in the Strategic Action Plan from external sources.

- ***Partnerships & In-Kind Support***
  Collaboration on projects within the partnership network, through sharing of technical/management/logistic capacity, or through sharing of budgetary resources.

6. Social & Legal Issues

A broad spectrum of societal needs can be affected through integrated IAS management. The appropriate approach to implementing the legal aspects of the Strategy can also help ensure that adequate local-level realisation of its goals will be achieved.

6.1 Social Priorities

Fire management

The removal or clearing of woody IAP species, especially from developed areas, helps reduce the chance of damage or destruction from the more intense fires associated with these species. IAP clearing efforts must be linked and integrated with fire management programmes and associated activities.

Crime prevention

Larger, bushy IAPs can provide hiding opportunities for those engaged in criminal activities. Problems of this nature in urban and suburban areas of Cape Town have lead to vegetation clearing efforts by those involved in crime prevention. Highlighting the need and importance of these efforts in areas where crime has become a problem, can give extra incentive and focus to the IAS management activities.

Poverty alleviation

The involvement of poorer communities in the IAS management activities, especially clearing of woody species, can help ensure the provision of income development opportunities and technical labour skills. Similarly, transformation of habitats back to native status may require ongoing involvement from the local community and provide sustainable project opportunities. IAS management activities must provide some emphasis for integration with local communities where benefits such as these may be realised.

6.2 Legal and Policy Aspects

This strategy has been designed to meet the CoCT's legal mandates and commitments, and to assist landowners to become legally compliant. Legal issues such as assignment and delegations of legal mandates under CARA and NEMBA are current constraints in the management of IAS require clarification.

A legal and policy framework for implementation of the strategy will be developed and is listed as a strategic action in Appendix 1.

7. Turning the Strategy into Action

The following steps will be necessary to turn this strategy from a written document into a dynamic Invasive Alien Species programme for the City of Cape Town:

- Establish an IAS Co-ordinating Committee to oversee the implementation of this strategy
- Secure and maintain high level support for implementation
- Develop and maintain a comprehensive and flexible Strategic Action Plan, which details action points to achieve each of the Strategy's stated goals and objectives
- Develop a flow diagram to prioritise and link the various strategic actions
- Indicate a time frame for the implementation of each strategic action with the required resource requirements
- Secure funding for implementation including alignment of budgets

- Establish and maintain appropriate partnerships within the region
- Work extensively with the various stakeholders involved in IAS issues.

Appendix 1

Strategic Action Plan Framework

Goal 1: Significantly advance the management and control of invasive species within the city's jurisdiction in a manner that is sustainable and maximises the benefits to the communities involved.

Appropriate policy and legislation, backed up with adequate resourcing of awareness and enforcement measures, are essential for the regulation of IAS management in the city and for enforcing accountability.

Table 1: Objective 1 : High level support and buy-in

Objective	Strategic action	Outcome
Obtain high level buy-in and support for the implementation of the IAS strategy	Implement advocacy efforts to obtain political and stakeholder support for the implementation of the IAS Strategy	Political and stakeholder support for the implementation of the IAS strategy obtained
	Obtain high level buy-in and commitment from all the relevant CoCT role-players to implement the strategy	Managers at all levels bought into and support the implementation of the strategy

Table 2 : Objective 2 : IAS management and co-ordination

Objective	Strategic action	Outcome
Establish a management and coordination scenario for effective and integrated management of IAS within the city's boundaries	Investigate management and capacity requirements to effectively manage IAS within the city's area of jurisdiction	Clear understanding of management and capacity requirements
	Build institutional capacity in the CoCT to address IAS problems and improve IAS management	CoCT is appropriately capacitated to deal with a range of priority initiatives
	Ring-fence funding for capacity building w.r.t. IAS management in the CoCT	CoCT have allocated funding to build capacity in IAS management with the view to retain these skills
	Define roles, responsibilities and capacity requirements of a IAS coordination committee	A feasibility study indicating the roles, responsibilities and capacity requirements of an IAS coordination committee

	Establish a representative inter-departmental IAS working group with clear TOR endorsed by the executive mayor	Internal stakeholder integration, collaboration and implementation of the IAS strategy ensured
	Collaborate with other relevant institutions and partners to ensure effective coordination of IAS initiatives	Improved coordination prevents duplication and increase affectivity

Table 3 : Objective 3 : Education and awareness

Objective	Strategic Action	Outcome
Develop an Invasive Alien Species education, communication and awareness strategy for the City of Cape Town	Provide a framework for the human dimensions of IAS management to moderate and calibrate reactions through increased understanding of the potential negative impacts of IAS	Communities have gained the necessary insight about the bigger picture and have moderated and calibrated their reactions to interventions
	Develop and promote improved IAS prevention practices among industries, public agencies and communities	Industries, public agencies and communities adopt IAS prevention practices
	Develop a three pronged strategy to address the relation between IAS and the city greening project, climate change and biodiversity conservation.	Improve understanding of the relation between IAS the city greening project, climate change and biodiversity conservation
	Identify all stakeholders and target audiences, develop appropriate and harmonized messages; work with key stakeholders to disseminate information about IAS management	Stakeholder base is increased and stakeholder awareness of and action on IAS problems is improved

Table 4 : Objective 4 : IAS legal and policy framework

Objective	Strategic Outcome	Outcome
To develop and implement a legal framework for IAS management	Compile a legal and policy framework for IAS management in the CoCT	IAS in the CoCT is managed within the appropriate policy and legislative frameworks
	Implement incentives and disincentives where possible to help encourage compliance	Landowners within the city's area of jurisdiction are legally compliant
	Devise a rates rebate criteria, policy and strategy, implement and monitor	Rates rebate for IAS management
	Clarify assignment and/or delegation of legal mandates i.t.o. NEMBA & CARA.	Clear legal mandates and delegations improve IAS management and legal compliance.
	Develop IAS policy for the city taking cognisance of other relevant policies	IAS is managed according to clear policy guidelines

Table 5 : Objective 5 : Funding mechanisms to support IAS management

Objective	Strategic Action	Outcome
Develop Funding mechanisms to support IAS management	Develop and implement a IAS Funding strategy	Sustainable implementation of the IAS strategy and action plan
	Facilitate the incorporation of IAS management into CoCT Integrated Development Plan (IDP)	CoCT adopt and give effect to the IAS strategy in planning and management
	Encourage interventions that facilitate job creation to increase capacity in the field of IAS, while contributing to the economy and improvement of human livelihoods	CoCT incorporate job creation into IAS control plans where applicable

Goal 2: Provide clear and effective steps for the City of Cape Town to follow in conjunction and partnership with the other affected or implicated stakeholders.

A range of methods are implemented to eradicate and control already established IAS. These methods can be applied individually or in various combinations. Given the complexity of IAS management, control measures must be scientifically based as far as possible. Cost-benefit considerations, of effective restoration of ecosystems, must inform the choice of the control methods. (I.e. the goal must **not** be simply cheapest method of getting rid of invasive aliens). Coordination with Conservation and Parks and Forest vis-a-vie "restoration of biodiversity" versus "parkland restoration" procedures. Specifically some clearing protocols (e.g. herbicide spraying) may be appropriate in parkland, but inappropriate in restoration of biodiversity clearing. Thus land use zones must inform control strategy.

Table 6 : Objective 6 : IAS planning and prioritization

Objective	Strategic action	Outcome
Establish priorities based on given resources and appropriate weighting of desired outcomes	Determine the extent of IAS within the boundaries of the CoCT	Baseline data available informing planning and decision-making
	Implement protocol to inform prioritization decisions informed by biodiversity layers.	Effective and efficient IAS management
	Implement spatial decision support tool for prioritisation and scheduling of IAP control operations.	Improved planning and decision-making w.r.t. IAP management.
	Develop and implement a plan to deal with indigenous invasive species.	Prevent the introduction and establishment of indigenous invasive species and control the existing populations

Table 7 : Objective 7 : Integrated IAS management and control

Objective	Strategic action	Outcome
Develop integrated management and control plans based on identified priorities, with clear timelines and required resources	Implement a framework for a coherent action plan through the prioritization of IAS management at appropriate scales	Impact of existing IAS reduced through the implementation of integrated control measures
	Adopt and implement prevention , early detection and rapid response strategies in collaboration	The introduction or spread of IAS prevented and introduced species eradicated before

	with partners	establishing
	Develop and implement a pilot project integrating management from a terrestrial and aquatic perspective	Improved IAS management through a system approach
	Develop and implement best practice framework for mitigation including an integration of clearing methods such as biological control and fire	The cost effectiveness and standard of IAS interventions in the CoCT is improved through the implementation of best practice guidelines
	Implement Best Practice guidelines to ensure improvement of management practices based on lessons learnt and scientific research	CoCT implement adaptive management principles
	Develop and implement contingency plans and build in flexibility w.r.t. priorities and reallocation of resources enabling rapid response after fires	Managers able and allowed to reprioritise operations and reallocate funding to respond rapidly after fires in the most economic way possible
	Incorporate restoration into strategic IAS plans and implement Best Practice guidelines	IAP control is an integral part of restoration
	Facilitate the development of integrated control strategies including the promotion of the use of fire and bio-control as management tools	Integrated control strategies improve success and cost effectiveness of IAP control interventions
	Implement multi-stakeholder pilot projects on managing IAS	Improved IAS management in the City of Cape Town

Table 8 : Objective 8 : Monitoring and evaluation

Objective	Strategic action	Outcome
Monitor effectiveness of the IAS management in the City of Cape Town	Consolidate and regularly update IAS baseline information Including maps	Relevant baseline data and maps available for planning and tracking progress
	Develop IAS monitoring plan.	Monitoring results informs management decision-making
	Establish an IAS Monitoring and Evaluation framework for the CoCT	Monitoring and evaluation is conducted according to a recognized framework
	Monitor progress i.t.o. overall IAS management and evaluate the implementation of best practice guidelines	Effectiveness of current strategies and their implementation is known
	Establish a Monitoring process to ensure that the target infestation is successfully eradicated, and to minimize any secondary invasions that might occur as a result of the clearing of the primary target species	Information on IAS distribution, impacts and management is readily available and used to improve management practices
	Strengthen collaboration with research Institutions on IAS research issues.	Research findings inform IAS management.
	Support research to determine and develop an understanding of the impact of Climate Change on IAS and incorporate most recent findings into management plans.	Improved understanding of the impact of Climate Change on IAS enables appropriate responses.

Appendix 2

ACRONYMS

ARC	Agricultural Research Council
CARA	Conservation of Agricultural Resources Act, Act 43 of 1983
CAPE	Cape Action for People and the Environment
CoCT	City of Cape Town
CBD	Convention on Biological Diversity
CFR	Cape Floristic Region
CIB	Centre for Biological Invasions
DoA	Department of Agriculture
DWAF	Department of Water Affairs and Forestry
ERMD	Environmental Resource Management Department
GISP	Global Invasive Species Program
IAS	Invasive Alien Species
IMEP	Integrated Metro Environment Policy
IUCN	The International Union for Conservation of Nature
NEMBA	National Environmental Management: Biodiversity Act, Act 10 of 2004
PPRI	Plant Protection Research Council
SANP	South African National Parks
TMNP	Table Mountain National Parks
WESSA	Wildlife and Environment Society of South Africa
WFW	Working for Water
WfWetlands	Working for Wetlands
WOF	Working on Fire

DEFINITIONS

Alien – A species occurring in an area outside of its historically known natural range as a result of intentional or accidental dispersal by human activities. Also referred to as introduced species or exotic species[1]

Biodiversity – The variety and variability of life, including the diversity of genes within species, the diversity of species, the diversity of communities and ecosystems, it is the natural biological wealth that supports human life and well-being[2]

Emerging Species - Alien species with the potential to become important problems without timely intervention

Hybridize – Cross breeding between two species

[1] UNEP. 1995. Global Biodiversity Assessment. Annex 6, Glossary. Quoted by: Convention of Biological Diversity Secretariat.

[2] USAID, 2002

Indigenous – A species that occurs inside its historically known natural range

Indigenous aliens – A species indigenous to South Africa or the Western Cape, but not to the City of Cape Town with the potential to outcompete indigenous species or to hybridize with indigenous species

Invasive - A species that has been introduced in an area and become a pest in its new location