

Alien Impact Objective

To anticipate, prevent entry and where feasible and/or necessary control invasive alien species in an effort to minimize the impact on, and maintain the integrity of indigenous* biodiversity

*Indigenous: notion or understanding of indigenous to be developed in the regional KNP context

Note: Alien Impact objectives include all alien organisms and diseases (plants, diseases, fish, birds, insects etc.)

Preamble

The incorporation of the “Alien Impact Objectives” into the 1997 objectives was the first high level recognition of the seriousness invasive alien species in the KNP. This was a milestone in the KNP management’s history and a critical step to ensuring future developments on the invasive alien species front. It has also been stated that one of the main reasons that the issues of invasive species have been embraced by management is due to the fact that invasive species were streamlined into overall KNP management, in such a manner so as to demand attention from KNP managers, and not be considered as a sideline issue.

Although stated as “alien biota” objectives, they were largely interpreted as being alien plant orientated. The current objectives have incorporated all forms of biological invasions. The 1997 objectives were also quite far thinking in that they embodied, before widely discussed and appreciated, the wide range of issues necessary in a comprehensive invasive species plan (such as found in the Global Invasive Species Programme book: A toolkit of best prevention and management practices). The current objectives have strived to evaluate the 1997 objectives and couple those with the emerging strategies, to provide for a more holistic and complete approach to invasive species management.

The emergence of the basic philosophy that invasive species are undesirable in a national park as filtered through most of the KNP, even to non-conservation orientated persons. This has assisted management in control in a number of develop areas (notably residences such as Skukuza). Acknowledgement of the fact that invasive species are a part of the system and will remain so has also been accepted and allowed, in certain areas, efforts to concentrate on the most damaging species only, not taking a broad and costly approach to attempting to control everything. This is embodied in the changing of one of the higher level objectives from “eradication” to “control”, and acknowledges both long-term maintenance and rapid response control.

In the 1997 objectives, the “eradication”, “Prohibit/discourage” and “awareness” objectives were reasonably well engaged, with the “strategic” perhaps a bit less and the “research” somewhat less (until recently however, where much energy has been placed on this), and little done on the “prevention” objective.

Alien Impact Objective

To anticipate, prevent entry and where feasible and/or necessary control invasive alien species in an effort to minimize the impact on, and maintain the integrity of indigenous* biodiversity

*Indigenous: notion or understanding of indigenous to be developed in the regional KNP context

Note: Alien Impact objectives include all alien organisms and diseases (plants, diseases, fish, birds, insects etc.)

Strategy and Support Objective

To develop a long-term strategy for the management of IAS, by evaluating the current and projected future overall scale of threat, addressing organisational and infrastructural capacity, developing policy and building support for continued high level commitment

Long-term strategy

Contingency planning

Assessment and priority setting

Building support

Policy development

Prevention Objective

To anticipate and evaluate imminent or potential risks to the KNP, as well as pathways of invasion and develop effective mechanisms to monitor, manage or mitigate these

Identify Pathways

Exclude, prohibit, discourage

Early detection

Risk assessment

Control Objective

To ensure the effective and timely development and implementation of integrated control strategies, in such a manner that both rapid response and long-term maintenance goals are met

Implementation

Best management practices

Research Objective

To promote and develop a coordinated research programme in order to develop a clearer understanding of the dynamics and impacts of alien species invasions

Impacts

Efficacy of control

Ecology

Awareness Objective

To develop an awareness programme to inform and educate on especially the dangers and consequences of invasive alien species, in order to facilitate global invasive alien species initiatives

Activities

Training

Funding

Alien Impact Objective

Strategy and Support Objective

To develop a long-term strategy for the management of IAS, by evaluating the current and future overall scale of threat, addressing organisational and infrastructural capacity, developing policy, building support for continued high level commitment and by being informed by advances in invasion ecology

Long-term strategy

To develop, in consultation with other regional initiatives, a comprehensive long-term strategy to direct future work and funding requirements.

To develop, based on the over all long-term strategy, short- and medium-term strategies and annual plans of operation

To develop long-term strategies, awareness and communication programmes for diseases, especially those with no attention to date

Contingency planning

To develop contingency plans in order to address problems in the short-term and allow for maximizing long-term management responses and resources.

To acquire funding to support implementation of contingency plans at short notice

Assessment and priority setting

To assess and rank the risk probabilities of alien species outside the KNP invading.

To develop a risk assessment protocol and implement screening of species risk profiles. In terms of diseases, liaise with the state vet services

Building support

To develop a support network at national and local scales, including, governmental, private institutions, so as to further awareness of the problems associated with invasive species and the aims of management in the KNP and surrounding areas.

Institutions

To develop and maintain a network of specialist researchers from a range of institutions to provide advice and input into research and management issues

National and provincial government

To develop ties with government to support IAS issues inside and outside the KNP

Awareness committees

To develop appropriate awareness at all levels, including scientific and general public levels

Scientific Advisory groups

To develop, where necessary, groups of specialists to provide advice and support for KNP initiatives e.g. BTB; IAPs

General awareness committees

To ensure better co-ordination of existing fragmented groups and various disciplines relating to invasive species, and identify and appropriately address specific target groups

Policy development

To develop a policy framework to guide management of invasive species and diseases

XRef: global climate change

XRef: legal and statutory

Alien Impact Objective

Prevention Objective

To anticipate and evaluate imminent or potential risks to the KNP, as well as pathways of invasion and develop effective mechanisms to monitor, manage or mitigate these

Identify pathways

To identify those pathways that may lead to harmful invasions of animals, plants or their pathogens, and set up effective measures to manage the risk associated with these

Exclude, prohibit, discourage

To, where possible and/or feasible, prevent the entry of new potential alien invasive species into the KNP

To, utilize existing (State veterinary services) or develop effective entry/exit permit systems

To, wherever possible, prevent the entry (and exit) of new alien species into the KNP and manage these appropriately

To prohibit the use of alien species and discourage the use of other species in adjacent land uses or in the KNP in favor of more local species

To influence national legislation and policy in the development of preventative measures

Early detection

To detect through regular surveillance, monitoring and other means, non-indigenous species, to assess their risk and re-act appropriately

Risk assessment

To assess and rank the risks of invasive species already present in the KNP, or liaise with other institutions in order to prioritise them for management, where this is possible

Xref: Legal & statutory

Xref: rapid response and contingency planning

Xref: spp allowed- e.g. certain lawn species

Xref: water use in KNP- should be a move back to indigenous natural gardens in camps, not water intensive, lawns and flower beds

Alien Impact Objective

Control Objective

To ensure the effective and timely development and implementation of integrated control strategies, in such a manner that both rapid response and long-term maintenance goals are met

Implementation

To plan and implement appropriate control measures, in order to minimise the impact, distribution and density of invasive alien species

Best management practices

To observe, develop and ensure use of the best environmental management practices in alien control

To develop eradication strategies, where feasible and for specific cases, to prevent long-term future impacts and consequences

To determine the most efficient containment, control or eradication options through cost-benefit analysis of control vs. impacts on biodiversity.

To evaluate the invasion progress or spread of invasive alien species in and around the KNP

To ensure continuous clearing / control over a long-term period, with the aim of maintaining the distribution and density of invasive alien plant at minimum levels

To develop rapid response programmes and provide the necessary resources to support such initiatives

To rehabilitate, where necessary and feasible, sites after clearing or population control to facilitate colonization, re-introduction and succession

To ensure the integration of:

- Biocontrol
- Vaccination
- Chemical control
- Mechanical control
- Population manipulation
- Sound ecological principles

To develop economic incentives and benefits to preventing invasions and for control programmes e.g. WfW or compensation for controlled diseases

To develop and foster partnerships between socio-political needs and benefits, with the control of invasive alien species

To facilitate and enable WfW and State veterinary services, in partnership with SANParks to implement ongoing clearing, surveillance, detection and control in the KNP.

To actively source additional funding to further the IAS control programme

Alien Impact Objective

Research Objective

To promote and develop a coordinated research programme in order to develop a clearer understanding of the dynamics and impacts of alien species invasions

Impacts

To determine the impact of all invasive alien species in the KNP in terms of biodiversity: structure, composition and function

To evaluate the long-term impacts of invasive alien species

To evaluate the impact of knock-on effects of undesirable impacts of invasive species

To determine the effect of changing species composition on higher trophic levels (including those species not directly linked to the alien organism)

To evaluate the impacts of invasive alien species on ecosystem services

To determine the impacts of invasive alien species on specific threatened or valuable species and quantify the extent where required

To determine the impacts of invasive species on biodiversity structure, function and composition e.g. fish, insects, birds, mammals

To predict likely increases of invasive species (density and distribution) and their impacts through predictive modeling under varying scenarios such as global climate change, nutrient availabilities etc

Ecology

To promote an understanding and predictive capacity of the dynamics of invasive alien species and integrate short-term practical and strategic long-term research

Invasion dynamics

To develop an understanding of the dynamics of alien invasions

To investigate patterns, processes and rates of invasion in the KNP

To develop an understanding of large infrequent disturbances (e.g. floods, droughts etc) on and their impacts on invasive alien species and ecosystem recovery

To develop an understanding of modified disturbance regimes, and the impacts thereof on invasive alien species dynamics

To develop an understanding of dispersal and transmission

To develop and carry out risk analysis

To develop an understanding of reproduction, transmission and dispersal

To investigate competition (and allelopathy in the case of plants) and the interactions between invasive and indigenous species

To investigate changes in food web dynamics and the potential consequences thereof for ecosystem functioning

To investigate and quantify alien plant seed banks and seed dormancy

To evaluate and quantify age / time to seed production

To evaluate and quantify alien plant growth rates

To understand disease epidemiology of high priority exotic diseases

Autecology and disease epidemiology

To develop knowledge on specific species, invasion capabilities, and ultimately how to better manage them

Efficacy of control

To enhance the long-term implementation of control programmes through developing an understanding of the associated negative impacts of control and further developing techniques for improved control and rehabilitation

To evaluate and quantify the potential impacts of control on non-target (indigenous) species

To evaluate and quantify the efficacy of control measures

To carry out cost/benefit analysis of control options

To evaluate and quantify the impacts / effects of control on specific areas under control and after control

To develop rehabilitation strategies and monitor these to determine the long-term efficacy thereof

To evaluate the establishment and success of new biological control agents following their release

To determine the long-term impacts of biological control and quantify its contribution to integrated management

To develop detection, diagnostic and vaccination strategies that are safe and effective

Alien Impact Objective

Awareness Objective

To develop an awareness programme to inform and educate on especially the dangers and consequences of invasive alien species, in order to facilitate global invasive alien species initiatives

Activities

To develop and offer a range of information dissemination activities, that will provide an interesting and meaningful manner of providing relevant information

Displays

- Biocontrol center
- Nursery
- Out door classroom
- Letaba, Berg-en-Dal, etc

Video & talks

- Various talks and videos at rest camps

Pamphlets

Distribute to camps, gates, staff etc

Alien plant bush camp / walks

- Invited bush camps for target groups - link to acquiring funding
- Normal activities -increase alien awareness amongst KNP guides

Education & understanding

- Staff orientation and schools

Internet and intranet

Training

To develop training opportunities to provide relevant persons the necessary knowledge to effectively communicate the threats and problems posed by invasive alien species

Managers / implementation facilitators

Rangers - section, field and general workers

guides

Key persons

Honorary rangers

Appointed awareness person

Funding

To acquire funding to facilitate and maintain the various awareness initiatives

Alien Impact Objective

Postview

Although perhaps presented as a wide ranging list of objectives, resembling “remote aspirations”, if an overall invasive species plan is to be successful, the objectives will have to be engaged on all levels, incorporating all objectives. The “control” objectives are relatively well developed for invasive plant species and should not require as much energy to develop further. However, much needs to be done here on other invasive species. “Strategy and Support” is at varying levels of development and needs to be unified in its approach and across the various problems (e.g. invasive plants and diseases). Much energy is being placed on research across all fronts, although charismatic and animal related research are frequently disproportionately resourced. Much energy needs to be placed on developing the “prevention” objectives as this has been neglected almost completely to date (perhaps due to the complexity of the issue). There is also perhaps much disparity in this issue across fields (e.g. disease –state veterinary departments and red line corridors- compared to plants, where not much has been done).

Much energy will however have to be placed on the KNP in the regional context, as an “island” approach will not achieve much success. The objectives will only be achieved if there is commitment and support from all involved in the KNP. Further, invasive species management will need to be strongly embodied within the adaptive management framework of the KNP, if future learning and development is to take place.

Invasive species management in the KNP is widely recognised and efforts should be made to maintain and improve that status, due to the important position of the KNP as a public icon and role model.