THE GLOBAL INVASIVE SPECIES PROGRAMME

AND PROTECTED AREAS

By

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ABSTRACT: *Invasive alien species are now recognized as a major threat to biodiversity. One of the responses to this threat has been the establishment, by a range of international organizations, of the Global Invasive Species Programme. GISP has recently established a Secretariat in South Africa and offers information, technical support and capacity building/ training.*

1. INTRODUCTION

Invasive species are now widely recognized as one of the greatest threats to biodiversity generally and, in particular, to natural protected areas. Their impacts can be direct, for example, where they compete with and displace indigenous species, even leading to the loss of rare species. Or they can be indirect through their impacts on ecosystem functioning. For example, invasive species can reduce water availability, increase soil erosion, and alter fire regimes, nutrient cycling and community structure. They also affect the ability of the environment to deliver goods and services leading to the loss of products harvested from indigenous populations, loss of grazing, reduction of water for use in domestic and economic activities, and loss of amenities.

While all of these impacts occur both outside and within protected areas, they are of particular significance in protected areas given that the preservation of biodiversity is the central purpose of such areas. From a socio-economic perspective, such impacts reduce the ability of protected areas to support sustainable human livelihoods such as ecotourism.

2. CASE STUDIES

Examples of invasions into protected areas are numerous around the world and across all ecosystem types. The case studies below have been selected with a view to demonstrating this.

2.1 **Sour prickly pear (*Opuntia stricta*) in the Kruger National Park**[1]

The sour prickly pear was first introduced into Kruger Park as an ornamental plant in the Skukuza Rest Camp in the 1950's. From there it was distributed by

[1] Information provided by Llewellyn Foxcroft of SA National Parks

baboons and elephants and in recent years has dramatically increased its range from about 1,000 hectares in 1980, to 19,000 hectares in 1990, and an estimated 66,000 hectares at present. In the invaded areas, the sour prickly pear forms dense, impenetrable stands which excludes most mammals and insects as well as any habitat or species specific fauna. The dramatic expansion of its range has also led to a reduction in indigenous grass and tree species and has been pushing the system towards one dominated by a single species or a mixed assemblage of a few invasives. This has obvious implications for the biodiversity of the park as well as the associated socio-economic benefits from, for example, tourism.

Since 1980 a lot of effort has been put into developing appropriate management measures. Initially these were chemical controls, but have now evolved to a programme based primarily on a biocontrol agent, the cochineal – a scale insect. The female cochineal settles on the plant, injects her feeding parts into it and feeds on the sap. During the process, she releases a chemical into the plant which dries it out and kills it. These insects are actively reared in hot houses and then released into invade areas.

The park staff are now also working through all the gardens within the rest and staff camps of the park to remove all non-indigenous plants.

2.2 Feral goats in the Galapagos[2]

Feral goats were introduced to the islands in the 1980's since when the herds have multiplied dramatically, and have decimated the natural vegetation in certain areas. For example, on the Alcedo volcano on Isabela island. The loss of this vegetation is having a major impact on this sensitive island environment, and especially on the Giant Tortoises.

2.3 *Mimosa invisa* in Kasiranga National Park in Assam, India[3]

In 1999, representatives from CABI visited the Kasiranga National Park in Assam, India after it had been reported that there was an invasion of *Mimosa invisa* in its early stages. At the time, it was recommended that an eradication programme should be implemented. This was not done, and a recent follow-up visit found that the infestation now covers an area of some 5square km and is rapidly increasing to the point where there will no longer be a possibility for eradication (if not already passed).

Kasiranga is a World Heritage Site for the protection of the Indian single horned rhinoceros. The infestation of *Mimosa invisa* is affecting the grazing and movement of this animal – as well as other large herbivores, such as the buffalo, by overgrowing the grasses and sedges in the wetland areas.

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[2] Information provided by Jill Keys

[3] Information provided by Carol Ellison and Sean Murphy of CABI.

Mimosa invisa has been successfully brought under control in other areas – for example, in Papua New Guinea where it was a serious pest – through the use of a biocontrol agent, the Psyllid *Heteropsylla spinulosa*. It could be considered for use in Kasiranga.

2.4 *Maoricolpus roseus* in coastal marine protected areas around Australia[4]

The screwshell, *Maoricolpus roseus,* originates in New Zealand where it inhabits sediments of all types at depths of up to 200 metres. Since 1965 it has spread progressively to Tasmania and the South Australia coastline, being found as far north as Sydney in 1999. Its biology is not well known, but it is thought to have a planktonic larval stage which is distributed by prevailing currents.

The screwshell alters the substrate merely by being present in dense numbers – up to several hundred per square metre. The dead shells then also provide shelter for increased numbers of hermit crabs. The screwshell is a suspension feeder and as such competes with local species such as the scallop.

3. THE GLOBAL INVASIVE SPECIES PROGRAMME (GISP).

Concern at the international level over the threat posed by invasive species led, amongst other things to the establishment of GISP.

3.1 Brief history

3.1.1 In 1996 the Norway/UN Conference on Alien Species recognized IAS as one of the greatest threats to biodiversity and recommended the development of a global strategy and action plan to address the problem.

3.1.2 This led to the development of an MoU between IUCN, CABI and SCOPE to establish GISP, which happened in 1997 with financial support from UNEP, GEF, UNESCO and a range of other organizations.

3.1.3 GISP also entered into an MoU with the CBD to act as the Focal Point for IAS under the Clearing House Mechanism of the Convention.

3.2 Institutional Structures

Phase I: 1997 – 2000

The initial phase of GISP was managed out of Stanford University under the leadership of Prof. Hal Mooney. There was only 1 staff member, with the rest of the work being undertaken by volunteers – largely experts in the field from partner organizations and associated institutions. It culminated in a Synthesis Conference held in Cape Town in late 2000.

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[4] Information provided by Nic Bax of CSIRO.

Phase II: 2000 – 2006
The Synthesis Conference recommended the establishment of a more substantial Secretariat to support the voluntary efforts and to oversee the execution of a Phase II Implementation Plan. An initial office was set up in Washington DC and in June, 2003 a Secretariat was established in Kirstenbosch Gardens, Cape Town, with core funding from the World Bank. One of the first activities of Phase II was to run 7 Regional Workshops in developing regions, with a view to assessing their needs and priorities. Reports of these workshops will be published soon, and will inform future priority projects and actions of GISP.

GISP consists of an Executive Board, an Advisory Panel, a number of Working Groups and the Secretariat. The staff of the latter comprises a CEO, a Programme Coordinator, Communications Officer, Working Group Coordinators and Administrative Officers. The WG Coordinator Posts are yet to be filled.
The Working Groups as listed are each chaired by a Board member, and include a wide range of experts in their membership.

GISP is currently investigating options with a view to registering as an independent legal entity.

3.3 Mission

GISP's mission is : "To conserve biodiversity and sustain human livelihoods by minimizing the spread and impact of invasive alien species".

3.4 Objectives

- to promote implementation of Article 8 (h) of the Convention on Biological Diversity
- to improve the scientific basis for decision-making
- to examine and strengthen legal and institutional frameworks
- to reduce economic impacts
- to develop capacity for the management of invasive species
- to promote awareness of invasive species issues at all levels
- to promote access to information on invasive species.

4. WHAT GISP OFFERS

GISP aims to achieve its objectives by offering the following:

- Information
- Technical support
- Capacity building/training

4.1 Information

During Phase I, GISP produced a number of publications, many of which have been widely distributed. One of those products, ***Invasive Alien Species: A Toolkit of Best Prevention and Management Practices***, is now being actively promoted for use in demonstration projects. It includes case studies on all steps of IAS management and is being translated into a number of other languages (initially French and Spanish). The English version is now available on the GISP website.[5]

The Secretariat is currently in the process of commissioning the preparation of a number of other documents including:

- manuals on best prevention practices, early warning of invasions, inland waters and wetlands, and islands
- an assessment of the socio-economic costs of IAS
- a manual on best practices for funding agencies and aid organizations.

GISP will promote access to information through a Global Directory Service which will include an updated website, distribution of information on CD's, and a regular newsletter.

4.2 Technical support

GISP, through the expertise resident in its Working Groups and partner organizations can provide technical support to collaborative projects and programmes around the world. Existing partners include CABI, IUCN, SCOPE and the CBD, while partnerships are currently under discussion with TNC, IMO, UNEP – Regional Seas Programmes, CI, RAMSAR and others. GISP is already involved in projects in Africa, the South Pacific, India, China and the Galapagos.

4.3 Capacity building/ training

There is clearly a need for enhancing the capacity of all countries, but particularly developing countries, to manage invasive species. GISP therefore intends to promote the development of appropriate training and educational materials and to assist in the delivery of training courses – including courses aimed at managers of protected areas.

The GISP Secretariat welcomes all interested parties to contact us for further information on our planned activities.

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[5] The current web address is: http://globalecology.stanford.edu/DGE/Gisp. However, arrangements are currently being made to transfer the website to South Africa.