THEMATIC REPORT ON ALIEN SPECIES

Contracting Party	Republic of Mauritius
National Focal Point	
Full name of the institution:	Ministry of Environment
Name and title of contact officer:	Mr. Satyaved Seebaluck, Permanent Secretary.
Mailing address:	10th Floor, Ken Lee Tower Barracks Street Port Louis Mauritius.
Telephone:	+ (230) 212 7181
Fax:	+ (230) 212 8324
E-mail:	equal@bow.intnet.mu
Contact officer for national report (if different)	
Name and title of contact officer:	Mr. Yousoof Mungroo, Director, National Parks and Conservation Service, Ministry of Agriculture, Food Technology and NR.
Mailing address:	National Parks and Conservation Service, Ministry of Agriculture, Food Technology and Natural Resources Reduit, Mauritius.
Telephone:	+ (230) 464 2993; +(230) 464 4016
Fax:	+ (230) 465 1184
E-mail:	npcs.agr@intnet.mu
Submission	
Signature of officer responsible for submitting national report:	Mr. Yousoof Mungroo
Date of submission:	

S***ummary information on the process by which this report has been prepared, including information on the types of stakeholders who have been actively involved in its preparation and on material which was used as a basis for the report***

In the consultative process held with all stakeholders during the preparation of the National Biodiversity Strategy and Action Plan for the Republic of Mauritius (NBSAP), alien species was amongst the salient issues that were discussed under the forest, terrestrial and aquatic biodiversity thematic areas.

The stakeholders that were consulted include the Forestry Service, the National Parks and Conservation Service, and the Agricultural Services of the Ministry of Agriculture, Food Technology and Natural Resources, Mauritius Sugar Industry Research Institute, University of Mauritius, Ministry of Fisheries, NGO such as the Mauritian Wildlife Foundation, and private sector such as Bioculture Limited.

The Draft Final NBSAP and many other inputs in the form of information/ internal papers from the various above-mentioned organisations were used as the basis for the preparation of this thematic report. This thematic report is based on the input given by these agencies.

Article 8h Alien species

Prevent the introduction of, control or eradicate those alien species which threaten ecosystems, habitats or species.

1. What is the relative priority afforded to implementation of this Article and the associated decisions by your country?					
a) High	X	b) Medium		c) Low	
2. To what extent are the resources available adequate for meeting the obligations and recommendations made?					
a) Good		b) Adequate		c) Limiting	X
d) Severely limiting					

3. Has your country identified alien species introduced?	
a) no	
b) only major species of concern	X
c) a comprehensive system tracks introductions	
4. Has your country developed national policies for addressing issues related to alien invasive species?	
a) no	
b) yes – as part of a national biodiversity strategy	X
c) yes – as a separate strategy	
5. Has your country assessed the risks posed to ecosystems, habitats or species by the introduction of these alien species?	
a) no (very limited study for the marine aquatic sector)	X
b) only some alien species of concern have been assessed	
c) most alien species have been assessed (for terrestrial and forest biodiversity sector)	X
6. Has your country undertaken measures to prevent the introduction of, control or eradicate those alien species which threaten ecosystems, habitats or species?	
a) no measures	
b) some measures in place (such as quarantine measures, management of reserves and weeding and clearance of invaded forests areas, pest eradication/control on offshore islets	X
c) potential measures under review	
d) comprehensive measures in place	

Decision IV/1 Report and recommendations of the third meeting of SBSTTA

7. Is your country collaborating in the development of projects at national, regional, sub-regional and international levels to address the issue of alien species?	
a) little or no action	
b) discussion on potential projects under way	X
c) active development of new projects (subject to conclusive findings of pilot projects)	X

8. Does your national strategy and action plan address the issue of alien species?	
a) no	
b) yes – limited extent	
c) yes – significant extent	X

Case-studies

9. Has your country submitted case-studies on the prevention of introduction, control, and eradication of alien species that threaten ecosystems, habitats or species, in response to the call by the fourth meeting of SBSTTA?	
a) no – please indicate below whether this is due to a lack of available case-studies or for other reasons	X
b) yes – please give below any views you may have on the usefulness of the preparation of case-studies for developing a better biological understanding of the problem and/or better management responses.	
10. How many case-studies are available that could be used to gain a better understanding of the issues surrounding alien species in your country?	
a) none	
b) 1-2 – limited understanding	X
c) >2 – significant information available	

Transboundary issues

11. Are known alien invasive species in your country also a problem in neighbouring or biogeographically-similar countries?	
a) not known	
b) none	
c) a few – but in general alien invasive species problems are specific	
d) more than a few - in general we share common problems with other regional small islands developing countries	X
12. Is your country collaborating in the development of policies and programmes at regional, sub-regional or international levels to harmonise measures for prevention and control of alien invasive species?	
a) little or no action	X
b) discussion on potential collaboration underway	
c) development of collaborative approaches for a limited number of species	
d) consistent approach and strategy used for all common problems	

Further comments

Question 4

The present control methods that are being applied in the field are manual weeding and to some extent chemical control. The issue of biosecurity/ alien species was also discussed as part of the national biodiversity strategy for Mauritius. The present legislation in Mauritius deals mainly with the phytosanitary and pathological aspects while the biosecurity measures are inadequate. A national pest control strategy has been recommended in the National Environmental Strategies and this has been supported in the draft final National Biodiversity Strategy and Action Plan report. This activity requires the setting up of a national biosecurity committee to look into the management of alien invasive species and eventually develop the national pest control strategy for Mauritius.

Question 5

In sectors such as terrestrial and forest biodiversity, alien invasive species are perceived amongst the most serious/important threats facing these sectors. Certain measures have been devised to control certain species in some areas such as the Conservation Management Areas while significant amount of resources are being used in their management. However, in the marine sector, this issue is gaining growing attention.

Question 6

Some of the measures to prevent the introduction of, control or eradicate those alien species which threaten ecosystems, habitats or species include

- Setting up of nine "fenced" Conservation Management Areas;
- Weeding, uprooting and clearing of forest areas invaded by exotic/alien invasive species in particular those areas rich in endemic biodiversity;
- Pest control/eradication campaigns on Offshore Islets;
- Research and pilot project on new pest control techniques/technologies at the level of University of Mauritius and NGOs, and
- Sensitisation and awareness campaigns.

Question 7

One of the NGOs, namely, Mauritian Wildlife Foundation has received funding under the UNDP Small Grant Programme to test the suitability of "superfence from New Zealand" technology in Mauritius in collaboration with the National Parks and Conservation Service of the Ministry of Agriculture, Food Technology and Natural Resources. This project is being on a pilot basis and upon successful completion, it is envisaged to apply the technology for the creation of large conservation areas of the order of 250 Ha.

Question 9

The main reason that has been given is the acute shortage of technical staff in the competent governmental organisations.

Question 10

For the past years, alien invasive species has been amongst the most important threat to the native biodiversity. For the reasons given above (question 9), some case studies/ pilot phase as well as major projects have been carried out by the government in collaboration with a very active non government organisation, namely, Mauritian Wildlife Foundation and University of Mauritius among various other stakeholders.

To halt the decline in habitat loss, the Government of Mauritius established 16 nature reserves between 1951 and 1974, covering some 2% of the island cover. A further major step forward was the creation of 6,574 ha Black River Gorges National Park in 1994. Unfortunately, these measures are inadequate as these small, protected sites are under threat from invasive alien animals and plants, which do not respect reserve boundaries. Deer (*Cervus timorensis*) and pigs (*Sus scrofa*) are preventing regeneration of native plants and disturbing the ground. Monkeys (*Macaca fascicularis*) and rats (*Rattus rattus* and *Rattus norvegicus*) also damage native plants and are important predators of

native birds, reptiles and invertebrates. Introduced birds disperse the fruit of alien plants thus facilitating their invasion into remnant native vegetation. Many alien plant species displace and dominate the native flora and the worst of these are that they are capable of invading and destroying the last intact areas of canopy forest in the National Park. The current situation in the park is extremely serious, with at least 75% dominated by invasive alien weeds, and all the remaining patches of intact native forest being degraded with the exception of constantly weeded and fenced 'Conservation Management Areas' comprising a total area of 44 ha.

Intensively managed vegetation have been established in representative vegetation communities to conserve plant genetic resources. The first plot was established in the upland forest of Macchabee in the 1930's by Dr. Vaughan, the then Conservator of Forests. There are nine extensively managed plots, Conservation Management Areas (CMAs) as they are called, ranging from 1.75 to 19 ha and totalling an area of 44 ha within the National Park. These CMAs are fenced and a low stonewall built to keep the deer and the pigs out. Weedings (uprooting undertaken four times a year) are undertaken by private contractor and effected manually. The sporadic weeding of the CMAs, before the creation of the National Parks and Conservation Service, did slow down the degradation of the native forests by the invasive weeds.

The control of the alien invasive plant species in these CMAs has proved to be very promising. Many endangered plants have been found, the endemics are regenerating naturally and they are providing better habitat to the endemic birds. Only two known specimens of *Claoxylon linostachys* were known from Macchabee before the establishment of the plot at Mare Longue where a population of about 20 individuals has been discovered. The CMAs are being used by the endemic Pink pigeon (*Neseonas mayeri*) and the Echo parakeet (*Pstittacula eques* (*echo*)) for nesting and foraging.

Some chemical control have also been tried within the now extended Brise Fer CMA by volunteers from Raleigh International during six weeks in 1993. Chinese guava (*Psidium cattleianum*) and privet (*Ligustrum robustrum*) were cut with machetes at about waist height and herbicide was applied to the stump by small brush at a concentration of 10% (one part Garlon to 9 parts water) and a few drops of Rhodamine dye were added for identification purposes. The conditions were generally moist during this period and not ideal for application of Garlon. Other attempts at control of the two invasive plants by using Garlon at a concentration of 20% did not give positive results as the herbicide only retarded the formation of new shoots. Others in the past had tried the use of herbicides to control the invasive weeds, but there exists no record of control of alien species by chemicals in the native forest which have either not been carried out or the results have not been published.

In June 1996, the Mauritian Wildlife Foundation (NGO) executed a 3 year pilot phase project funded by UNDP/GEF to the tune of 200, 000 US $ in collaboration with the National Parks and Conservation Service and the University of Mauritius.

The purpose of this project, namely, "Restoration of highly degraded and threatened native forests in Mauritius" was to halt degradation of native forests caused by invasive exotic weeds and to restore to the extent possible the original structure and functions of forest ecosystem.

The objective of this project was to come up with a method to halt the degradation of the native forests caused by exotic weeds and animals and to restore to the extent possible the original structure and functions of the forest ecosystems. A 6 ha study plot has been fenced off in Brise Fer in December 1996 and consultants recruited under this project have carried out an inventory of biodiversity in the area.

A workshop was organised by the NPCS in 1997 on the "Restoration of highly degraded and threatened native forests in Mauritius". This workshop was organised with the aim of convening a group of pest control experts and restoration ecologists together in order to come up with recommendations for the control of alien invasive plants and restoration of the degraded forest habitat. The proceedings of the workshop have been published into a book (Ed. Mungroo, Mauremootoo & Bachraz, 1997).

Outcomes

1. Following an international consultative workshop of top ecologists and weed control experts in September 1997, organised by the National Parks and Conservation Service, the use of herbicides (on experimental

basis) to control exotic plants namely Chinese guava (*Psidium cattleianum*) and Privet (*Ligustrum robustrum*) was one among various recommendations made. The experiment was undertaken over an experimental plot of 0.6 Ha out of 6 Ha fenced. The final result indicated that growth was slowed down.

2. The proceeding of the Consultative workshop has been published.
3. Capacity building in biodiversity assessment and monitoring effected through a three one –week training workshop organised by the University of Mauritius for undergraduate students and representatives of other stakeholders.
4. Biodiversity assessment in the 6 Ha of the study plot.

Lessons

1. The time span of the project which was for a period of five at conception stage (before approval) was reduced to three years without any change in scope and objectives. As a result, the third component of the project that comprised of extending the outcomes of the filed experiment to the 6 Ha of the study plot could not materialised.
2. In the project write up, youth groups were given the role to carry out weeding in the experimental plots. It did not work as they were not available for continuous period of time and throughout the weeding exercise.
3. The weeding exercise was contracted out through funding provided by the Ministry of Agriculture, Food Technology and Natural Resources.
4. A full time Technical Officer had to be appointed by the executing agency to undertake the field experimentation.

This project has been completed (June 1999) and presently the National Parks and Conservation Service and the Mauritian Wildlife Foundation are working on a project proposal to create a series of large CMAs that would exclude most alien species through a total exclusion fence for submission to the GEF for funding.