

# Palau National Invasive Species Strategy



Adopted by the National Environmental Protection Council  
December 1, 2004

## TABLE OF CONTENTS

1.0	ACRONYMS .....	1
2.0	MISSION STATEMENT .....	2
3.0	EXECUTIVE SUMMARY .....	2
4.0	PRINCIPLES .....	3
5.0	INTRODUCTION .....	3
6.0	GOALS AND OBJECTIVES .....	8
7.0	ROLES AND RESPONSIBILITIES .....	11
8.0	TIMEFRAME .....	13
9.0	ACKNOWLEDGMENTS .....	13
10.0	GLOSSARY OF TERMS .....	14
11.0	APPENDICES .....	15
I:	National Policy on Invasive Species .....	15
II:	Executive Order #219 .....	19
III:	NEPC Resolution #2 .....	20
IV:	Recommendations from SPREP Invasive Species Prevention Course, August 2003 .....	22
V:	List of Participants in SPREP Invasive Species Prevention Course, August 2003 .....	25
VI:	Codes of Conduct.....	25

## 1.0 ACRONYMS

BMR	Bureau of Marine Resources
BPW	Bureau of Public Works
CITES	Convention on International Trade in Endangered Species
DFWP	Division of Fish and Wildlife Protection
EEZ	Exclusive Economic Zone
EQPB	Environmental Quality Protection Board
NEPC	National Environmental Protection Council
NISC	National Invasive Species Committee
NISS	National Invasive Species Strategy
MoF	Ministry of Finance
MoH	Ministry of Health
MoJ	Ministry of Justice
MoS	Ministry of State
MRD	Ministry of Resources and Development
OEK	Olbiil Era Kelulau (National Congress)
OERC	Office of Environmental Response and Coordination
PCS	Palau Conservation Society
UN	United Nations
UNCBD	United Nations Convention on Biological Diversity
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme

## **2.0 MISSION STATEMENT**

The purpose of the National Invasive Species Strategy is to minimize the harmful effects of invasive species on the environment and society of Palau through coordination of efforts at all levels of Palauan society, and to facilitate cooperation with neighboring countries and the Pacific Islands region to prevent the movement of invasive species.

## **3.0 EXECUTIVE SUMMARY**

Invasive plants and animals have caused the extinction of countless species, the degradation of numerous ecosystems, the loss of biological diversity, and in some cases have irreversibly altered human cultures and traditions. Invasive species cause damage by preying upon or out-competing other creatures, by carrying or causing diseases, or by changing the environment so drastically that other plants or animals can no longer inhabit that area.

As a nation composed entirely of small tropical islands, the Republic of Palau is particularly vulnerable to attacks by land-based invasive species. Additionally, since the citizens depend on the bounty of the sea for food, and the economy of marine tourism for financial stability, we must work tirelessly to protect the surrounding lagoon and ocean areas from any aquatic threats.

Recognizing the serious dangers posed by invasive species, the President of the Republic of Palau issued Executive Order 219 (see Appendix II) on November 28, 2004, directing the National Environmental Protection Council (NEPC) to address the problem of invasive species. The NEPC created the National Invasive Species Committee (NISC) in February 2004 through Resolution 2 (see Appendix III) to carry out the President's directive. The NEPC then directed the NISC to draft a National Invasive Species Strategy within six months. The Committee first met in March, 2004, and submitted the first draft of the Strategy to the NEPC in September, 2004.

The NISC reviewed documents on invasive species management from Australia, the South Pacific Regional Environmental Program (SPREP), the Global Invasive Species Programme (GISP), the United Nations Convention on Biological Diversity (CBD) and the Bahamas National Invasive Species Strategy. Using the Bahamas Strategy as a starting point, the NISC drafted the Palau National Invasive Species Strategy.

The key sections of the Strategy are the sections on Goals and Objectives, and on Roles and Responsibilities. The Goals and Objectives section sets forth measurable targets for the NISC and other government agencies to achieve in the near future. Many of these targets are derived from the recommendations of the Invasive Species Prevention Training organized by SPREP, the Bureau of Agriculture, and the Office of Environmental Response and Coordination in Palau in August 2003 (see Appendices). The Roles and Responsibilities section describes what actions each community member, leader, and government agency must take in order to work towards and finally achieve the Goals and Objectives.

Originally, the Palau Invasive Species Policy was a part of the Strategy, but the NISC quickly saw that the Policy is what drives the process of establishing the NISC, assigning

responsibilities, and creating the National Invasive Species Strategy. The Policy was therefore separated from the Strategy to stand on its own. A copy of this draft Policy is included as one of the Appendices to this Strategy, along with Voluntary Codes of Conduct for community members and businesses to follow in support of invasive species prevention and management. The Strategy also includes references to key documents and other sources of invasive species management information.

## **4.0 PRINCIPLES**

The National Invasive Species Strategy is based on the recognition and acceptance of four principles (adapted from the Australian National Weeds Strategy):

1. Management of invasive species is an essential and integral part of the sustainable management of natural resources and the environment, and requires an integrated, multidisciplinary approach.
2. Prevention and early intervention are the most cost effective techniques that can be utilized against invasive species.
3. Successful management of invasive species will require a coordinated national approach which involves all levels of government in establishing appropriate legislative, educational, and coordination frameworks in partnership with private business, landholders, and communities.
4. The primary responsibility for management of invasive species lies with land owners and land managers, but collective action is necessary where the problem is beyond the capacity of the individual land owner/manager to address.

## **5.0 INTRODUCTION**

### **AN OVERVIEW OF INVASIVE SPECIES IN PALAU**

Monkeys, cockatoos, smothering vines, snails, aggressive fish, bottom-dwelling marine organisms, agricultural pests, and human disease-causing microorganisms: all of these and more have invaded Palau, and all are having impacts on the environment, the economy, human health, and even the traditional Palauan way of life.

Invasive species are living organisms, which, for various reasons, begin to grow and reproduce out of control and cause harm to the other living things around them. In some cases, invasive species have caused major alterations in ecosystems, and even extinctions of other species of living things. In most cases, invasive species become invasive when they are introduced into a new environment where they have no natural enemies. These are often referred to as Invasive Alien Species, or IAS.

Invasive Alien Species are one of the greatest threats to biological diversity worldwide, and in islands they are often the number one threat to biodiversity. Palau is no exception: invasive species of all types are a serious threat to Palau's numerous living things and the ecosystems in which they live. Additionally, invasive species threaten Palau's economy, human health, agriculture, even the unique Palauan way of life. Invasive species cause harm by eating animals or their eggs (monkeys, for example, eat bird eggs and nestlings), by eating plants (parrots and

cockatoos eat the hearts of two palm trees found only in Palau's rock islands, killing the trees), by growing over plants (several invasive vines), by increasing the likelihood of wildfires (several plants, most notably *Imperata cylindrica* and *Chromolaena odorata*) or by being more likely to survive fires (same, plus African Tulip), by carrying diseases (city pigeon, rats, mosquitoes), by causing diseases of humans, animals, and plants (micro-organisms), by making noise (coqui tree frog, cockatoo, and parrot), and in many other ways.

Many living things have adaptations which help them to move from place to place naturally. Most biological invasions, however, are the result of human activities. Humans move, or introduce, living things like ornamental and crop plants, and pet and livestock animals from place to place intentionally. Many introductions, however, are unintentional; ants, plant seeds, disease organisms, snail eggs, and many others can be hidden in cargo, attach to clothing, and find other ways to move in the things that people move. The brown tree snake, which has devastated the bird populations of Guam and which costs Guam's economy millions of dollars every year, is notorious for its ability to hide in very small places. Every car, box, refrigerator, and many other items which are imported to Palau from Guam must be thoroughly inspected to ensure that brown tree snakes do not enter our islands. Another example is the coqui, a tiny tree frog with a very loud voice. Hawai'i's tourist industry is now suffering because the loud call of the coqui disturbs the peace and quiet which many tourists are seeking. The coqui lays its eggs on vegetation, so every plant imported into Palau from Hawai'i, including cut flowers and nursery stock, must be thoroughly inspected for the tiny coqui eggs. Seeds of invasive weeds can be caught in radiators and other crevices of automobiles, trucks, and heavy equipment. Any mechanical equipment which has been used or driven overseas should be steam cleaned prior to entry into Palau, and even steam cleaning is not a complete guarantee that no seeds will survive. Weed seeds can even survive being eaten by livestock, and any livestock to be imported should be fed only weed-free feed for several days before importation into Palau.

In some cases, a naturally occurring species can become invasive when conditions change. A good example of this is the plant known in Palau as *kebeas* (scientific name *Merremia peltata*). This is a very vigorous and fast-growing vine which naturally grows in clearings in forests. As little as 20 years ago, kebeas was common, but not generally a problem. Now, land-clearing, road-building, and other human activities have created more opportunities for kebeas, while there are fewer human activities to control its growth, and kebeas is threatening forests and communities all over the islands of Koror and Babeldaob. Some communities are now taking action to control kebeas, and the results are very promising; kebeas can be brought back under control when communities take action to control it.

How can Palau deal with these invasions? Can some of the invaders be eradicated? If not, what actions can we take to minimize their impacts? How can future invasions be prevented? There are numerous plants, animals, and other organisms causing problems in other Pacific Islands, which have not yet been found in Palau. How can we keep them out?

This National Invasive Species Strategy was developed by the National Invasive Species Committee (NISC) for adoption by the National Environmental Protection Council (NEPC). On November 28, 2003, President Tommy E. Remengesau, Jr., through Executive Order 219 (see Appendix II), directed the NEPC to coordinate all national efforts to address the growing

problem of invasive species. The NEPC created the National Invasive Species Committee (NISC) in February 2004 through Resolution 2 (see Appendix III) to carry out the President's directive. The NEPC then directed the NISC to draft a National Invasive Species Strategy within six months. The Committee first met in March, 2004, and submitted the first draft of the Strategy to the NEPC in September, 2004. The Strategy was taken up at the regular meeting of the NEPC in October 2004, and minor revisions were recommended. The revised Strategy was submitted to the NEPC in November 2004. The Strategy was adopted by the NEPC at its regular meeting on December 1, 2004, and became effective upon adoption. The National Invasive Species Policy was adopted at the same meeting.

The National Invasive Species Strategy is intended to organize Palau's effort to combat and prevent biological invasions. It has four main goals: To provide a national framework for invasive species prevention and management; to prevent further invasions; to reduce the impacts of invasive species already present in the country; and to strengthen Palau's participation in regional and international efforts for invasive species prevention and management. All of these goals will require cooperation and support by the general public; awareness raising is therefore a crucial objective under all four goals.

We cannot do this alone: many invasive species can best be prevented with a regional approach. Palau will cooperate with other Pacific Island countries and territories. We will also participate in larger international initiatives, such as the Global Invasive Species Programme, the UN Convention on Biological Diversity, the Cooperative Islands Initiative for invasive species, and many others. This strategy encourages participation in regional and global initiatives for the prevention and management of invasive species.

In order to prevent and manage biological invasions, we need to know what our current situation is: what invasive species are already present in Palau, and what potential invaders should we be working to prevent? A survey of invasive weeds in Palau was conducted in December 2002. A preliminary evaluation of invasive animals was conducted at about the same time, and a similar survey of invasive aquatic organisms has also been completed. A survey of invasive insects and plant diseases is planned for late 2004. The results of all these surveys will be used in the formulation of action plans for prevention and management.

Another important need is the ability to detect invasions and to respond rapidly. If invasions are detected early, they often can be eradicated, but it is essential to respond quickly. Late detection or slow response can allow an invader spread to the point where eradication is either impossible or prohibitively expensive. An example is the introduction of the Philippine Fruit Fly to Palau: when the infestation was discovered in 1996, Palau was not prepared to respond. Now, it is estimated that eradication of the fruit flies will cost over \$2 million. However, if the Philippine Fruit Fly is not eradicated Palau will continue to be unable to export many fresh fruits and vegetables to neighboring countries. This prevents the development of an agricultural export industry, which could contribute greatly to the national economy.

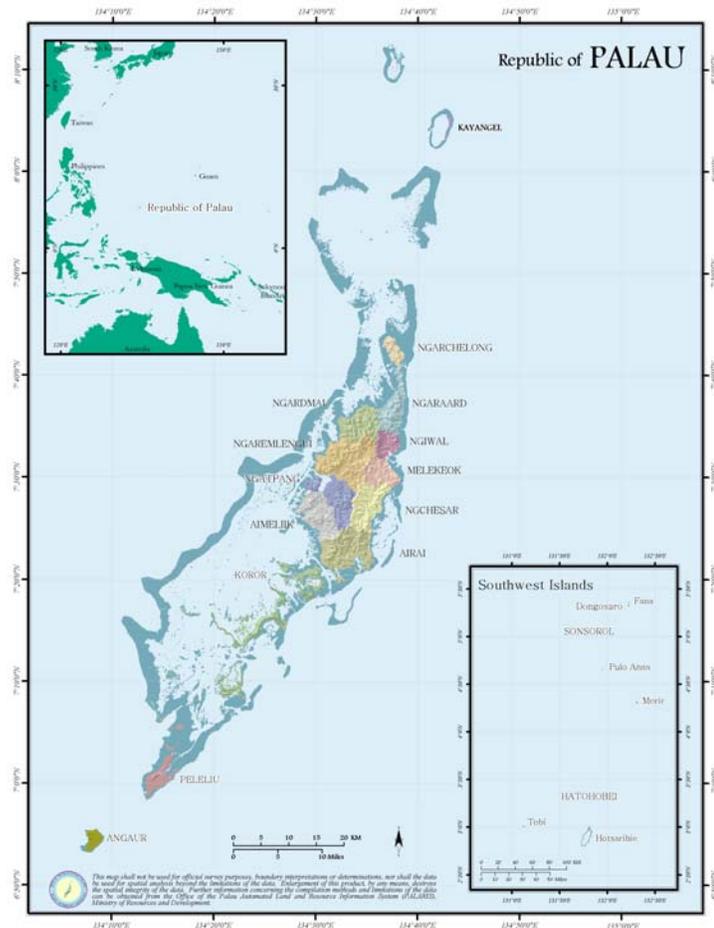
Much of the content of this Strategy is based on the recommendations of the participants in the SPREP Invasive Species Prevention Course held in August 2003. The participants in the course represented a wide range of government agencies, NGOs, private businesses, and the general

public. They developed a set of recommendations (see Appendix V) which were subsequently endorsed by the National Environmental Protection Council, and approved by President Tommy E. Remengesau, Jr. The National Invasive Species Strategy of the Bahamas (NISS) and the National Weeds Strategy (NWS) of Australia were used as models for this Strategy. We have also had assistance from several regional and international experts on invasive species prevention and management.

### Background on the Republic of Palau

The Republic of Palau is the westernmost archipelago in Oceania, located 741 km east of Mindanao in the southern Philippines and about 1,300-km southwest of Guam. The islands of Palau stretch 700 km from Ngeruangel atoll in the north to Helen atoll in the south. About 20 large and intermediate sized islands and over 700 small islands belong to the Republic of Palau. Politically, Palau is divided into 16 states, which have ownership of the natural resources within their boundaries.

Palau has the highest density of tropical marine habitats in a comparable geographic area found anywhere in the world. In addition to coral reefs, mangroves, and seagrass beds, Palau has deep algal beds, mud basins, current-swept lagoon bottoms, rich tidal channels, and marine lakes and anoxic basins within the rock islands. A barrier reef is well developed on the west coast of the main archipelago of Palau, extending for 144 km. There are also fringing reefs along several island coastlines, and numerous patch reefs scattered throughout the archipelago. Palau has numerous island types as well, including volcanic islands, atolls, raised limestone islands, and low coral islands.



Palau is warm and humid throughout the year, with temperatures averaging from 23 to 28 degrees Celsius (74-83°F); relative humidity averages 82 %. Average annual rainfall is approximately 3,810 cm, or 150 inches, per year under normal conditions.

The population of Palau as of 2000 was 19,129, with 13,209 resident Palauans and 5,920 non-Palauan foreign residents. Over the past 10 years, the annual growth rate has fluctuated between

2.3 to 2.6 percent, primarily due to immigration and not from an increase in birth rates within the Palauan community. Population growth is seen to have leveled off at about 2.3 percent in the past two years. Approximately 80 percent of the total population resides in Koror Island, the provisional capitol of Palau. However, a high percentage of the population is expected to shift to Palau's largest island, Babeldaob, once the circumferential "Compact Road" and the new National Capital are completed in 2005.

Palau's terrestrial and marine ecosystems have supported our people for thousands of years, and they are still productive today, thanks to our ancestors' wise use of these resources. However, as the country continues to develop, land and coral reefs and associated habitats of Palau will come under increasing threat of environmental degradation. The construction of a 53-mile circumferential road and the relocation of the national capitol to Palau's largest island, Babeldaob, are expected to bring development to the big island. Thus, developmental pressures will no longer be limited to the present national capitol, Koror, but will spread to most of Palau in the very near future. The increasing pace and scope of development in Palau makes this a critical time for effective measures to conserve Palau's unique environment.

Increased international travel and trade have made Palau more susceptible to introductions of invasive species from outside. In addition, increased internal movement of people and goods makes the internal spread of invasive species more likely as well. Measures have been taken to prevent both of these, but more remains to be done.

Palau is a small island country with limited human and financial resources. The tasks of preventing and managing invasive species often appear insurmountable. Yet, the people of Palau have shown time and time again that they are capable of uniting to overcome difficulties. We have no doubt that the effort to combat biological invasions will be another example of the indomitable will of the people of Palau, and we look forward to the successful implementation of this national strategy.

<b>The National Invasive Species Committee</b>		
<b>Office of Environmental Response and Coordination</b>	2 members	Dr. Joel Miles, Terrestrial Unit Chief Mr. Andrew Bauman, Marine Unit Chief
<b>Ministry of Resources and Development</b>	2 members	Mr. Fred Sengebau, Bureau of Agriculture Mr. Theo Isamu, Director, Bureau of Marine Resources
<b>Palau Environmental Quality Protection Board</b>	1 member	Mr. Groover "Ubei" Nakamoto, Pesticides Officer
<b>Ministry of Justice</b>	2 members	Mr. Kammen Chin, Chief, Division of Fish and Wildlife Protection Mr. Mark Melnyk, Legal Counsel, EQPB- Attorney General's Office
<b>Ministry of Health</b>	1 member	Mrs. Joanne Maireng Sengebau-Kingzio, Chief, Division of Environmental Health
<b>Ministry of Finance</b>	1 member	Mr. Williander Ngotel, Senior Custom Officer, Division of Customs
<b>Palau Conservation Society</b>	1 member	Mr. Yalap Yalap, Education Officer, Palau Conservation Society

## 6.0 GOALS AND OBJECTIVES

This Strategy proposes four goals. For the achievement of each goal, positive objectives for action are outlined and measurable outcomes defined. Specific action programs to be implemented under this Strategy will be detailed in action plans. Recommendations for initial government actions under the Strategy will be formulated for approval by the National Environmental Protection Council.

### **GOAL 1: To provide the framework and the capacity for ongoing management of invasive species in the Republic of Palau.**

**Objective 1.1:** Assign clear responsibilities to governmental bodies and agencies for the prevention, detection, rapid response, and long-term management of invasive species.

#### **OUTCOMES**

- Clear responsibilities will be assigned
- Lead agencies and organizations will be identified

**Objective 1.2:** Assist State governments, communities, NGOs, and private citizens to identify their own responsibilities for invasive species prevention and management.

#### **OUTCOMES**

- All sectors of society will cooperate with and support invasive species prevention and management

**Objective 1.3:** Strengthen national research, education, and enforcement capabilities to ensure ongoing cost effective, efficient, and sustainable management of invasive species.

#### **OUTCOMES**

- Agencies will have sufficient, trained staff, with adequate equipment

**Objective 1.4:** Encourage the development of strategic plans for management of invasive species at all levels.

#### **OUTCOMES**

- Guidelines for strategic plans will be provided to key agencies and organizations
- Lead agencies and organizations will be identified
- Strategic plans will be developed, adopted, and implemented

**Objective 1.5:** Raise public and government employee awareness of and involvement in management of invasive species at all levels.

#### **OUTCOMES**

- All sectors of society and government will support and cooperate with management and prevention of invasive species

**Objective 1.6:** Develop funding mechanisms to support the implementation of the Palau National Invasive Species Strategy.

**OUTCOMES**

- Funding from the ROP government
- Funding from regional and international donor agencies
- In-kind contributions and donations from government offices (national and state), communities, NGOs, private agencies and citizens.

**GOAL 2: To prevent the development of new problems with invasive species in the Republic of Palau.**

**Objective 2.1:** Prevent the introduction of new species with the potential to become invasive.

**OUTCOMES**

- Palau will have an adequate legal framework
- Palau will have sufficient trained Quarantine staff, with adequate equipment
- Palau will have clear procedures for inspection of all incoming vessels and cargo
- Palau will regularly conduct cross-training for Quarantine, Customs, Environmental, and Health officers and inspectors, and protected area managers in the prevention of new introductions
- Palau will regularly conduct cross-training for private companies involved in imports in the prevention and detection of new introductions

**Objective 2.2:** Ensure early detection of, and rapid action against, new introductions of potentially invasive species.

**OUTCOMES**

- Palau will have detection and monitoring procedures around all ports of entry
- Palau will regularly conduct cross-training for Quarantine, Customs, Environmental, and Health officers and inspectors, and protected area managers in the prevention and detection of new introductions
- Palau will regularly conduct cross-training for private companies involved in imports in the detection of new introductions
- Palau will have the capability to identify newly-introduced species
- Palau will have response plans and equipment for rapid response to new introductions of high-risk species such as the brown tree snake and red imported fire ant.

**Objective 2.3:** Prevent or reduce the spread of invasive species within Palau, especially from one island to another.

**OUTCOMES**

- State governments will initiate programs to prevent the spread of invasive species
- A national public awareness campaign will be conducted

- The national government will assist state governments to prevent the spread of invasive species
- There will be widespread adoption of prevention procedures by local governments, and by the public at large
- Protected area managers will have the knowledge, skills, and resources to prevent introduction of invasive species into protected areas

**Objective 2.4:** Raise public awareness of and involvement in preventing the introduction and spread of invasive species into and within the Republic of Palau.

#### **OUTCOMES**

- All sectors of society and government will support and cooperate in preventing the introduction and spread of invasive species into and within the Republic of Palau.

### **GOAL 3: To reduce the impact of existing invasive species in the Republic of Palau.**

**Objective 3.1:** Deal with established invasive species through integrated, cost-effective, and sustainable management.

#### **OUTCOMES**

- Agencies and organizations tasked with invasive species management will have adequate staff and resources for the task
- Agencies and organizations tasked with invasive species management will have management plans and procedures

**Objective 3.2:** Identify, assess, and prioritize existing invasive species for appropriate management action, including control and/or eradication.

#### **OUTCOMES**

- Palau will have sufficient identification capability, possibly utilizing the support of regional organizations, such as the Secretariat for the Pacific Community
- Palau will have the capability to assess the threats of specific invasive species
- Palau will have procedures to identify, assess, and prioritize invasive species for action

**Objective 3.3:** Raise public awareness of and involvement in reducing the impact of invasive species within the Republic of Palau.

#### **OUTCOMES**

- All sectors of society and government will support and cooperate in efforts to reduce the impacts of invasive species within the Republic of Palau.

### **GOAL 4: To strengthen cooperation with regional and international efforts and initiatives for invasive species prevention and management.**

**Objective 4.1:** Review and modify import and export laws and regulations to bring them into harmony with regional and international standards.

**OUTCOMES**

- A review of existing import and export laws and regulations, with regard to prevention of the movement of invasive species, will be completed.
- Laws and regulations will be modified as necessary to achieve Objective 4.1.

**Objective 4.2:** Join and participate actively in regional organizations working to prevent and manage invasive species, as appropriate and feasible.

**OUTCOMES**

- A listing of regional organizations will be compiled and assessed.
- Palau will join and participate in the appropriate regional organizations.

**Objective 4.3:** Endorse and comply with relevant international bodies, agreements, and conventions working to prevent and manage invasive species, as appropriate and feasible.

**OUTCOMES**

- Relevant international agreements will be reviewed.
- Appropriate agreements will be endorsed.

## **7.0 ROLES AND RESPONSIBILITIES**

**INDIVIDUAL LANDOWNERS AND LAND USERS ARE RESPONSIBLE TO:**

- learn the laws and regulations of Palau and follow them;
- respect the land and environment, including privately owned land;
- understand the short term and long term consequences that invasive species have on Palau’s environment and people;
- help neighbors and the community regarding invasive species concerns;
- consider invasive species when planning what crops/plants to grow, what animals to raise, or where to buy materials; and
- follow Voluntary Codes of Conduct that may apply.

**COMMUNITIES ARE RESPONSIBLE TO:**

- organize local, cooperative efforts to mitigate the impact of invasive species;
- practice sustainable and responsible maintenance of land;
- support and organize educational efforts regarding invasive species; and
- stay updated on current invasive species concerns in Palau.

**COMMUNITY & INDUSTRY ORGANIZATIONS ARE RESPONSIBLE TO:**

- be aware of current invasive species issues and the laws that apply;
- share information on invasive species issues with members;

- participate in the development and implementation of codes and policies that will reduce the impact of invasive species; and
- represent members' interests on invasive species issues.

**TRADITIONAL LEADERS ARE RESPONSIBLE TO:**

- act as a community advocate on invasive species issues and their importance;
- remind community members about invasive species concerns at periodic meetings;
- encourage responsible invasive species management using traditional authority;
- ask for help from the State or national government if necessary; and
- manage invasive species on their own land responsibly, in cooperation with other landowners.
- Set a good example for the community to follow.

**STATE GOVERNMENTS ARE RESPONSIBLE TO:**

- Encourage responsible invasive species management by:
  - setting up and enforcing laws and regulations to protect the State against invasive species,
  - staying updated on invasive species issues through communication with national government, community members, and other agencies, and
  - supporting local and community efforts to control, manage or eradicate invasive species, including providing financial support if needed;
- respond to requests for help from community members or traditional leaders;
- ask for help with invasive species problems from the national government if necessary;
- provide leadership, coordination and resources for research, assessment, advisory services, education and public awareness programs on invasive species;
- encourage – and participate in – the development of effective invasive species management strategies at local, State, and national levels;
- enhance cooperation and coordination of invasive species management with local, State and national agencies, as well as non-governmental organizations; and
- manage weed problems on their own land responsibly, in cooperation with other landowners. Set a good example for the community to follow.

**THE NATIONAL GOVERNMENT IS RESPONSIBLE TO:**

- manage invasive species problems on its own land responsibly, in cooperation with other landowners and in cooperation with the States. Set a good example for State governments and communities to follow;
- facilitate the development of an economic, social and cultural framework that encourages invasive species management as an integral part of sustainable land management;
- provide and enforce an appropriate legislative framework, including quarantine and environmental legislation, necessary to prevent the introduction or reduce the impact of invasive species and prevent them from spreading;
- provide leadership, coordination and resources for research, assessment and eradication of invasive species of national significance;

- take a leading role in public education and community awareness regarding invasive species, working with State and traditional leaders when possible;
- encourage the development and integration of effective invasive species management strategies at local, State, and national levels;
- respond to all requests for help with invasive species from State governments;
- develop with all stakeholders a balanced program of incentives, standards and penalties to ensure effective action to address invasive species problems;
- form partnerships with international agencies and other nations in order to benefit from their experiences and technical expertise, and to share our experiences with overseas invasive species managers; and
- learn the invasive species concerns of our neighboring nations – especially those with which we regularly trade cargo and passengers – and take steps to protect our neighbors from invasive species from Palau.

## 8.0 TIMEFRAME

- The Palau National Invasive Species Strategy will take effect upon adoption of the NISS by the National Environmental Protection Council.
- The National Invasive Species Committee shall submit an annual progress report to the NEPC.
- The NISC will review and update the NISS at three-year intervals after adoption, or anytime upon recommendation by the NEPC.

## 9.0 ACKNOWLEDGMENTS

Numerous organizations and individuals assisted us in the preparation of this Strategy. We cannot name all of them, but we do gratefully acknowledge their assistance and support. We would like to specifically acknowledge the assistance of the following:

**Secretariat for the Pacific Regional Environment Programme (SPREP)** – for the Invasive Species Prevention Training, which produced the Participant Recommendations that eventually resulted in the formation of the National Invasive Species Committee and the formulation of this Strategy;

**Participants in the SPREP Training Course** – for their dedication, their excellent recommendations, and their continuing support;

**The Government of Australia** – for making their National Weeds Strategy available on the Worldwide Web;

**The Government of the Bahamas** – for sharing their National Invasive Species Strategy with us, and especially to:

**Ms. Stacey Wells-Moultrie**, Project Coordinator for the Bahamas NISS, for her support and encouragement.

## 10.0 GLOSSARY OF TERMS

**Aggressive species** – Those species (plants, animals, micro-organisms) that overwhelm the landscape whether they are native or introduced.

**Alien species** – non-native, non-indigenous, foreign, exotic species occurring outside of their natural range and dispersal potential, and includes any part, such as seeds and larvae, that might survive and subsequently reproduce.

**Biodiversity** – The variability among living organisms from all sources including, *inter alia*, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems. Short for biological diversity.

**Conservation of biodiversity** - The management of human interactions with genes, species, and ecosystems so as to provide the maximum benefit to the present generation while maintaining their potential to meet the needs and aspirations of future generations; encompasses elements of saving, studying, and using biodiversity.

**Domesticated or cultivated species** - Species in which the evolutionary process has been influenced by humans to meet their needs.

**Ecology** - A branch of science concerned with the interrelationship of organisms and their environment.

**Ecosystem** - A dynamic complex of plant, animal, fungal, and microorganism communities and their associated non- living environment interacting as an ecological unit.

**Endemic species** – A species restricted to a specified region or locality.

**Eradicate** – Eliminate, destroy or remove the entire population

**Harmful or dangerous** – Plants and animals that sting, prickle, cause allergies, are poisonous to humans or other organisms or exclude other organisms from an ecosystem or habitat.

**Feral animals** – Formerly domesticated animals that are untamed or wild, e.g., cats, dogs, pigs.

**Intentional introduction** – An introduction made deliberately by humans, involving the purposeful movement of a species outside of its natural range and dispersal potential. Such introductions may be done legally or illegally.

**Introduction** – The movement by human agency of a species, subspecies or lower taxon outside its natural range. This movement can be either within a country or between countries.

**Invasive alien species** - Alien species that become established in a new environment, then proliferate and spread in ways that are destructive to native ecosystems, human health, and ultimately human welfare.

**Micro-organism** – Very small living organisms not visible to the naked eye. An organism of microscopic size, i.e. algae or bacteria.

**Native species** – A species occurring within its natural range and dispersal potential, i.e. within the range it occupies naturally or could occupy without direct or indirect introduction or by care of humans.

**Naturalized** – Plants and animals that have been introduced and now reproduce on their own.

**Unintentional introduction** – An unintended introduction made as a result of a species utilizing humans or human delivery systems as vectors for dispersal outside its natural range.

## 11.0 APPENDICES

### I: National Policy on Invasive Species

# NATIONAL POLICY ON INVASIVE SPECIES

Adopted by the National Environmental Protection Council  
December 1, 2004

### *The Government of the Republic of Palau,*

*Recognizing* its obligation as a Party under Article 8(h) of the Convention on Biological Diversity to “prevent the introduction of, to control or to eradicate those alien species, which threaten ecosystems, habitats or species”,

*Acknowledging* that scientists and governments throughout the world recognize invasive species pose the most serious threats to biological diversity,

*Noting* that invasive species can be either native or alien to the Republic of Palau, and are found in all taxonomic groups: plants, animals and microorganisms,

*Noting* that invasive species are as damaging to native species and biological diversity as the loss and degradation of habitat, and the effects of over-harvesting,

*Recognizing* that numerous species extinctions have already resulted from invasive species introductions across the globe,

*Noting* that the oceans protecting the Republic of Palau from invasive species – and providing the isolation essential for the evolution of unique and endemic species – have become increasingly ineffective barriers,

*Acknowledging* that globalization, the increase in tourist visitations, and the emphasis on free trade provide even greater opportunities for species to be introduced, either deliberately or accidentally, to new habitats in the Republic of Palau, with the opportunity to become invasive,

*Aware* that the Republic of Palau is particularly vulnerable to the impacts of invasions because of our many small islands, and relatively small populations of native species,

*Aware* that the impacts of invasive species are immense and often irreversible, and that the cost of mitigating their impacts (if possible) will certainly be greater than the cost of preventing their introduction and/or spread,

*Recognizing* that the precious, unique living resources of the Republic of Palau have great cultural significance, as well as providing the basis for our tourist economy,

*Recognizing* that the cost of allowing the introduction of invasive alien species is the irretrievable loss of endemic species and our ecosystems,

*Noting* that introduced alien diseases and parasites of humankind not only result in suffering, and perhaps death, but also have economic costs of medical treatments and the loss of productivity,

*Noting* that global climate change is also a significant factor in facilitating the establishment of many invasive species, and

*Determined* to conserve and sustainably manage the biological diversity of the Republic of Palau for the benefit of present and future Palauans,

***Has decided to adopt the following Policy:***

- To periodically review existing legal and regulatory framework regarding the importation of invasive species to the Republic of Palau, the exportation of invasive species from the Republic of Palau, and the movement of invasive species within the Republic of Palau;
- To enact the necessary legislation and promulgate the necessary regulations to prevent the introduction of, to control and to eradicate those alien invasive species which threaten the ecosystems, habitats, endemic species and the human health and welfare of visitors to and residents of the Republic of Palau;
- To prepare a National Invasive Species Strategy for the Republic of Palau, to provide clear direction for prevention and management of invasive species;
- To conduct a thorough initial survey of the lands and waters of the Republic of Palau to confirm as well as possible the current condition of the nation with respect to invasive

species, including a list of all invasive species present and the locations of populations thereof;

- To prepare Strategic Management Plans for individual species of high priority as identified under the National Invasive Species Strategy;
- To facilitate surveys of the Republic of Palau to determine the presence, distribution and impacts of invasive species, placing particular emphasis on areas that are most likely to be afflicted by invasive species, and those areas that are most vulnerable to the affects of invasive species;
- To prevent – by legislative, regulatory and other effective means – the introduction of invasive alien species into the Republic of Palau;
- To develop and periodically update Identification Guides for use by border inspectors, land and aquatic surveyors, and other personnel to help them rapidly and accurately identify invasive species;
- To monitor known invasive species populations in the Republic of Palau by the conduct of regular surveys and risk assessments, with consideration for potential “blind spots” in the current invasive species border controls and land surveys (e.g., ships landing without passing through immigration or quarantine);
- To monitor potentially invasive alien species not yet established in the Republic of Palau;
- To undertake control and management activities in an environmentally sound and cost-effective manner, in accordance with Response Plans developed for the purpose of controlling and mitigating any newly discovered occurrence of an invasive species;
- To consider non-lethal and non-destructive methods of conducting invasive species management or eradication operations whenever possible and feasible;
- To promote, undertake and facilitate the reestablishment of native species, where appropriate, and the restoration of invaded and damaged habitats;
- To conduct and facilitate research into the best management and control practices for individual species, including plants, animals and microorganisms, using chemical, physical and biological methods that are environmentally sound, and to include the results of that research into the Response Plans;
- To promote public education and outreach on invasive species at all levels of society – including citizens, residents, tourists and visitors – by appropriate, effective and efficient methods;
- To promote international and regional cooperation by sharing information and policies with neighboring nations that export to the Republic of Palau, and by working diligently

to ensure that exports from the Republic of Palau do not contain invasive species that could be harmful to our neighbors;

- To mandate and foster cooperation between government agencies and other organizations, including non-governmental organizations and the private sector, as necessary, to implement the National Invasive Species Strategy;
- To develop voluntary codes of conduct for government agencies, other organizations, businesses, citizens, residents, visitors and tourists as guidance for how they may help protect the Republic of Palau from invasive species;
- To promote and facilitate infrastructure development as necessary to enable government agencies and other organizations to implement the National Invasive Species Strategy; and
- To strictly enforce Quarantine and other necessary control and mitigation measures in order to ensure that invasive species are not inadvertently or purposefully introduced into the Republic of Palau.

II: Executive Order #219



Tommy E. Remengesau, Jr.  
*President*

**Republic of Palau**  
*Office of the President*

PO Box 6051, Palau, PW 96941  
tel (680) 488-2403/2828, fax (680) 488-2424/166;  
email-IN:rop.president@palaunet.com

**Executive Order No. 219**

*Rescinding Executive Order No. 207*

**WHEREAS**, Executive Order 207 established a National Task Force on Invasive Animal Species; and

**WHEREAS**, Executive Order No. 205 established the National Environmental Protection Council; and

**WHEREAS**, the National Environmental Protection Council has established an ad hoc committee to oversee issues related to invasive plant species; and

**WHEREAS**, the issues of plant and animal invasive species should be given equal and parallel treatment and priority by the National Government and should therefore be administrated through the same process and organization;

**NOW THEREFORE**, by virtue of the authority vested in me as the President of the Republic of Palau, it is ordered that Executive Order No. 207 is hereby rescinded in order that the National Task Force on Invasive Animal Species established therein may be reconstituted as an ad hoc committee under the direction of the NEPC.

**IN WITNESS WHEREOF**, I have hereunto set my hand and affixed my official seal this 28<sup>th</sup> day of NOVEMBER, 2003, at the State of Koror, Republic of Palau.

A handwritten signature in black ink, appearing to read "Tommy E. Remengesau, Jr.", written over a horizontal line.

Tommy E. Remengesau, Jr.  
President of the Republic of Palau

### III: NEPC Resolution #2



#### **National Environmental Protection Council**

**P.O. Box 7086  
Koror, PW 96940  
Ph: (680) 488-6950 ext. 235, 243, 249, 250  
Fax: (680) 488-8638  
Email: [nepc@palau-oerc.net](mailto:nepc@palau-oerc.net)**

### **NEPC Resolution #2**

#### *Establishing the Invasive Species Committee*

**WHEREAS**, NEPC Resolution No. 1 confirmed the official creation, by the NEPC, of a number of Committees and initiatives, as well as the Invasive Animal Species Taskforce; and

**WHEREAS**, Presidential Executive Order 219 rescinded Executive Order No. 207, which had established a National Task Force on Invasive Animal Species in order that the functions of the Task Force could be reconstituted, as a Committee within the NEPC; and

**WHEREAS**, Executive Order No. 219 stressed that issues of plant and animal invasive species should be given equal and parallel treatment and priority by the National Government and should therefore be administrated through the same process and organization;

**NOW THEREFORE**, the NEPC hereby incorporates into a single Committee, "the Invasive Species Committee" (ISC), the issues of all invasive species, which Committee shall replace the existing 'Invasive Animal Species Taskforce'. Membership of the Committee shall be representative of public and private sector agencies and organizations that are involved with invasive species issues.

**Section 1. Duties and Responsibilities.** The Invasive Species Committee shall have the following duties and responsibilities:

- Within six months, establish a comprehensive national invasive species strategy;
- Identify responsible agencies for the management of invasive species introduced into the Republic of Palau;
- Coordinate the development and implementation of response plans for invasive species;
- Coordinate public awareness and education regarding invasive species;
- Review and enhance and/or develop regulations governing the importation and inter/intra-state movement of invasive species;
- Coordinate appropriate responses and actions to address the possible introduction of invasive species into the Republic, with special attention being given to special events, which increase exposure to alien species;

**NEPC Resolution #2**  
***Establishing the Invasive Species Committee***

- Conduct an inventory of the invasive species present in Palau. The inventory shall identify each invasive species and, for each, estimate the scope (either in terms of estimated populations or in terms of estimated area of the territory invaded) of the invasion. To the extent practicable, the inventory shall also specify how each species was introduced to Palau; and
- Investigate methods to reduce and contain or eradicate each invasive species existing in Palau. In doing so, the ISC shall consult with knowledgeable individuals in the private sector and officials of the State and National Governments. The ISC may also consult appropriate representatives of foreign governments or international organizations. The ISC will evaluate the various responses to invasive species in terms of effectiveness, cost, potential collateral impacts on plant and animal species indigenous to Palau, and potential impacts on the environmental integrity of Palau.

**Section 2. Sub-Committees.** The Invasive Species Committee may establish sub-committees to focus on specific issues and programs related to invasive species.

**Section 3. Coordination with Existing Bodies.** The Invasive Species Committee shall coordinate its efforts with existing public and private bodies to accomplish the above duties and responsibilities.

**Section 4. Reference to Stakeholder Recommendations.** The Invasive Species Committee shall utilize stakeholder recommendations as a guide in its efforts to address the growing hazards of invasive species in Palau.



---

Mr. Casmir E. Remengesau  
Chairman, National Environmental Protection Council

0 - 07 - 04

---

Date

#### IV: Recommendations from SPREP Invasive Species Prevention Course, August 2003

##### SPREP Invasive Species Prevention Course Palau 4 – 8 August 2003 RECOMMENDATIONS

**KEY RECOMMENDATIONS** The Participants of the Invasive Species Prevention Course, representing a diverse range of departments and organizations in Palau (see attached list), respectfully make the following **key recommendations** to the decision-makers of Palau. We recommend that you:

- Clarify who is responsible for the response to incursions of all types of invasive species into Palau. This should be made clear to the responsible agencies and to the public.
- Build up border Quarantine human, financial, and equipment resources.
- Put in place response plans, teams and equipment to rapidly and effectively respond to biological invasions. We note that there is a Brown Tree Snake response plan, team, and training in place and one invasive weed officer.
- Request that visiting military transportation be asked to comply with Quarantine regulations, including prior notification of arrival.
- Note that increased imports through a free trade zone will increase the risk of invasive species. It should therefore be made clear that all imports must comply with Quarantine rules and regulations. Quarantine will need additional resources to meet with the increased imports a free trade zone will cause.
- Note that the Festival of Pacific Arts in 2004, the Mini South Pacific Games in 2005, and similar large events will increase the risk of invasive species. The organizers of such events should communicate with all delegations from outside Palau and consult with Palau Quarantine to ensure full compliance with Quarantine laws and regulations.
- Note that community involvement is essential for prevention of invasive species, because even the best-staffed and equipped Quarantine service cannot intercept all intentional and accidental introductions. Support and funds for ongoing community awareness-raising are critical. High risk groups should be identified and awareness-raising be conducted with these groups in their own languages.
- Note that invasive species recorded from Palau are not found on all islands in Palau. Inter-island movements increase the risk of spread between the islands. Quarantine should be tasked to assist the States to minimize the chance of

movement of invasive species between islands. A public awareness campaign should be conducted to assure community cooperation in the prevention of spread of invasive species from island to island within Palau.

**URGENT INVASIVE SPECIES ISSUES** In addition to the above broad policy recommendations, the Participants would also like to make the following recommendations in relation to specific urgent existing invasive species issues in Palau:

- We understand that the invasive fish, Tilapia, is still present in Koror. This species poses a serious threat to the environment and the economy. We therefore recommend that eradication be completed as soon as possible. A lead organization or agency should be designated to coordinate the eradication campaign.
- We recommend that the existing macaque monkey restriction law be strictly and equitably enforced, as they pose a serious threat to the environment and economies of the islands that are currently free of this species.
- We recommend that Palau continue to seek resources to implement the eradication plan for fruit-flies that has already been developed, and to ensure that the fruit flies are not re-introduced following their eradication.
- Make an urgent assessment of the threat posed to Palau by the invasive hydroid, shrew, and monitor lizard, and if necessary take urgent action to eradicate or contain these species.
- Continue the existing impressive and encouraging eradication efforts for Mikania vine and Imperata grass, and control efforts for papaya mealybug, rats, and rhinoceros beetle. Eradication for some of these latter species is possible and very desirable from small islands with community participation.

**QUARANTINE RECOMMENDATIONS** More specific recommendations were made to strengthen border control effectiveness. We recommend the following changes to improve Palau's defenses against invasive species:

- Quarantine officers should be authorized to issue instant fines "on the spot" when a violation of quarantine law is discovered.
- Laws against mislabelling of medicine and other products should be enforced if they exist. If there are no existing laws against mislabelling, then such laws should be created.
- More quarantine officers should be hired, especially female officers (for body searches). A minimum of 5 additional quarantine officers are needed immediately simply to end the practice of forced overtime.

- Cross-train existing port of entry officers (Customs, Quarantine, and Environmental Health) so they understand each other's needs and refer people to each other.
- Develop and maintain a register of translators that could be called upon to assist if passenger does not understand Palauan or English. The person requesting translation services should pay for the service.
- Improve the passenger arrival form to ensure that all necessary information is obtained. The form should be offered in languages of identified high-risk groups.
- Posters – there should be more quarantine posters – both informational and warning - at the airport, and they should not all be in one location.
- Amnesty bins, where incoming passengers can discard prohibited items, should be prominently available in the airport passenger arrival area. There should be a separate receptacle for betel nut spit, so that discarded items will not be contaminated with saliva.
- Multi-departmental training should be conducted to increase awareness among all government employees working with the natural environment – Forestry, Environment, Quarantine, Immigration, Customs, Marine Resources, and others. (All course materials are currently being finalized by SPREP for delivery to member countries. Palau has the necessary expertise to offer this course again, once the course materials are provided.)
- A brief video on quarantine awareness, similar to that used on flights into Hawai'i, should be made and shown to arriving passengers on all incoming flights.
- Decision makers need to be trained before they can supervise ground staff.
- At the seaport, containers should be kept away from fencing. Containers should be at least 20 feet away from the fence, and the space should be well-lighted at night, to make it possible to detect escaping invaders, such as rats and snakes.
- A snake-proof fence or barrier, such as those being constructed at the Guam airport, should be built around the seaport to prevent escape of snakes which may enter with shipments of goods.
- Grounds maintenance staff/ mowers at the seaport and airport (and neighboring areas) should be trained to recognize and report invasives .
- Yachts, fishing boats, cargo vessels, and other vessels may carry invasive species on their hulls, but Quarantine lacks the resources to inspect hulls underwater. Quarantine should work with dive tour companies to ask dive tourists to check hulls as a “novelty dive” as a public service to help preserve Palau's marine environment.
- There is a need to improve surveillance around ports of entry. Human and physical resources should be allocated to survey for invasive species. For example, we have a fruit fly trapping program already in place. Similar programs should be developed for other key invasive species which have not yet entered Palau.
- Advanced or refresher training should be provided for senior quarantine officers to keep them up to date. This will be different from the awareness training for different departments.

- Funding will be needed for programs. It should be remembered that prevention is always cheaper than cure. Investment in Quarantine will save the Republic money in the long term.

**V: List of Participants in SPREP Invasive Species Prevention Course, August 2003**

**SPREP Invasive Species Prevention Course  
Palau 4 – 8 August 2003  
Participants**

Mike	Aulerio	Palau Automated Land and Resource Information System
Teri	Brugh	Dept Fish and Wildlife Protection/PICRC
Galbraith	Gabriel	Palau Automated Land and Resource Information System
Anna	Hideo	Community Service Agent Palau Visitors Authority
Tarita	Holm	Workshop Coordinator, Palau
Laura	Ierago	Governor, Sonsorol state
Bernie	Keldermans	Community Outreach Officer Palau Conservation Society
Ann	Kitalong	The Environment Inc
Rengiil	Medalarak	Palau Conservation Society
Joel	Miles	Office of Environmental Response and Coordination
Burt	Mobel	Ministry of Health, Division of Environmental Health
Ucherderar	Ngiraibab	Belau Transfer and Terminal Company
Remoket	Ngiriou	Quarantine, Bureau Agriculture
Jane	Olkeriil	Environmental Quality Protection Board
Margarita	Rehuher	Peleliu Women's Group, Peleliu State
Alma	Ridep-Morris	MPA Program, Bureau Marine Resources
Felix	Sengebau	Palau Community College/Cooperative Research and Extension
Umiich	Sengebau	The Nature Conservancy
Alexander	Sumor	Ministry of Health, Division of Environmental Health
Trebkul	Tellei	Bureau of Agriculture
Villiany	Thomas	Ministry of Education
Joe	Tiobech	Bureau of Agriculture
Thomas	Tutii	Division of Marine Law Enforcement
Ben	Ueda	Palau Community College/Cooperative Research and Extension
Jon	Vogt	USA Corps Of Engineers
John	Wong	Palau International Coral Reef Centre

**VI: Codes of Conduct**

**Voluntary Code of Conduct for Botanical Gardens**

Conduct an internal review examining all activities that provide an opportunity to prevent the spread of invasive species and to inform visitors on this issue.

Avoid introducing invasive plants by establishing an invasive plant assessment procedure. This procedure should involve responsible and regular monitoring of the garden site.

Remove invasive species from plant collections. If for any reason the decision is made to retain an invasive species, ensure its control and provide strong interpretation to the public explaining the risk of the species and its function in the garden.

Seek to control harmful invasive species in natural areas managed by the garden and assist others in controlling them on their property, whenever possible.

Promote non-invasive alternative plants or help develop non-invasive alternatives through plant selection or breeding.

If your institution participates in seed or plant distribution, do not distribute known invasive plants except for bona fide research purposes and consider the consequences of distribution outside your biogeographic region. Consider attaching a statement of caution to species that appear to be potentially invasive but have not been fully evaluated.

Increase public awareness about invasive plants. Provide information on why they are a problem, their origin, mechanisms of harm and need for prevention and control. Work with local nurseries and seed industries to assist the public in environmentally safe gardening and sales.

Participate in developing, implementing or supporting regional, national or local early warning systems for immediate reporting and control.

Participate in the creation of regional lists of concern.

Become informed about the invasiveness of species within your institution in other biogeographic regions. Compile and share this information in a manner accessible to all.

Become partners with other organizations in the management of harmful invasive species.

Follow all laws on importation, exportation, quarantine and distribution of plant materials across political boundaries. Be sensitive to conventions and treaties that deal with this issue and encourage affiliated organizations to do the same.

### **Voluntary Code of Conduct for Landscape Architects**

Work with local plant ecologists, horticulturists, nurseries, conservation organizations (TNC, PCS, PCC), Bureau of Agriculture, and others to determine what species are currently highly invasive or show aggressive potential.

Increase interaction with other professionals and non-professionals to identify alternative plant material and other solutions to problems caused by harmful invasive plants.

Take advantage of continuing education opportunities to learn more about the invasive species issue.

Identify and specify non-invasive species that are aesthetically and horticulturally suitable alternatives to invasive species in your region.

Eliminate specification of species that are invasive in your region.

Be aware of potential environmental impacts beyond the designed and managed area of the landscape plan (for example, plants may spread to adjacent natural areas or cropland).

Encourage nurseries and other suppliers to provide landscape contractors and the public with non-invasive plants.

Collaborate with other local experts and agencies in the development and revision of local landscape ordinances. Promote inclusion of invasive species issues in these ordinances.

### **Voluntary Code of Conduct for the Gardening Public**

Ask for only non-invasive species when you purchase plants. Plant only environmentally safe species in your gardens. Work towards and promote new landscape design that is friendly to local ecosystems.

Seek the best information on which species are invasive in your area. Sources could include botanical gardens, nurseries, horticulturists, conservationists and Government agencies.

Remove invasive species from your property and replace them with non-invasive species suited to your site and needs.

Do not trade plants with other gardeners if you know they are species with invasive characteristics.

Request that botanical gardens and nurseries promote, display and sell only non-invasive species.

Help educate your community and other gardeners in your area through personal contact and in such settings as garden clubs and other civic groups.

Ask garden writers and other media to emphasize the problem of invasive species and provide information. Request that garden writers promote only non-invasive species.

Invite speakers knowledgeable on the invasive species issue to speak to garden clubs, schools and other community groups.

Seek the best information on control of invasive plant species and organize neighbourhood work groups to remove invasive plant species under the guidance of knowledgeable professionals.

Volunteer at botanical gardens and natural areas to assist ongoing efforts to diminish the threat of invasive plants.

Participate in early warning systems by reporting invasive species you observe in your area to the relevant authority, i.e. Bureau of Agriculture.

Assist garden clubs to create policies regarding the use of invasive species not only in horticulture, but in activities such as flower shows.

Urge florists and other to eliminate the use of invasive plant material.

### **Voluntary Code of Conduct for Nursery Professionals**

Ensure that the invasive potential of plants is assessed prior to introducing and marketing a plant species new to The Republic of Palau. Invasive potential should be assessed by the introducer or qualified experts using risk assessment methods that consider plant characteristics and prior observations or experience with the plant elsewhere in the world.

Additional insights may be gained through extensive monitoring on the nursery site prior to distribution.

Work with local experts and stakeholders to determine which species are either currently invasive or will become invasive. Identify plants that could be suitable alternatives in your area.

Develop and promote alternative plant material through plant selection and breeding.

Where agreement has been reached among nursery associations, Government, academia and ecology and conservation organizations, phase out existing stocks of invasive species in areas where they are considered to be a threat.

Follow all laws on importation and quarantine of plant materials across political boundaries.

Encourage customers to use non-invasive plants.

### **Voluntary Code of Conduct for Zoos and Aquaria**

Conduct an internal review examining all activities that provide an opportunity to prevent the spread of invasive species and to inform visitors on the issue.

Avoid introducing invasive animals by establishing an invasive animal assessment procedure. This procedure should involve responsible and regular monitoring of the facility.

Take due care to prevent the release or escape of animals that are known to cause damage as invasives or may be potential invasives.

Remove invasive species from exhibits or displays. If the decision is made to retain an invasive species, ensure its control and containment and provide strong interpretation to the public explaining the risk associated with the species and its function in the facility.

If your institution participates in breed stock exchange, do not distribute known invasive animals except for bona fide research purposes and consider the consequence of distribution outside your biogeographic region. Consider attaching a statement of caution to species that appear to be potentially invasive but have not been fully evaluated.

Increase public awareness about invasive animals. Provide information on why they are a problem, their origin, mechanisms of harm and need for prevention and control.

Participate in developing, implementing or supporting regional, national or local early warning systems for immediate reporting and control.

Participate in the creation of regional lists of concern.

Become informed about the invasiveness of species within your facility in other biogeographic regions. Compile and share this information in a manner accessible to all.

Become partners with other organizations in the management of harmful invasive species.

Follow all laws on importation, exportation, quarantine and distribution of animals across political boundaries. Be sensitive to conventions and treaties that deal with this issue and encourage affiliated organizations to do the same.

### **Voluntary Code of Conduct for Farms (Agricultural and Aquacultural)**

Ask for only non-invasive species when you purchase livestock or fish stock. If for any reason, the decision is taken to farm invasive species, ensure that they are controlled and contained through appropriate mechanisms, e.g. fencing to prevent escape or breeding with native species.

Take due care to prevent the release or escape of domestic animals that are known to cause damage as feral animals, e.g. pigs and goats.

Take due care to prevent the release or escape of livestock or fish stock that are known to cause damage due to their invasive characteristics or potential.

Seek information on which species are invasive in your area. Sources could include breeders, veterinarians, conservation organizations (TNC, PCS, PCC), and Government agencies.

Do not trade stock with other farmers if you know that they are species with invasive characteristics.

Request that breeders and dealers promote and sell non-invasive species.

Help educate your community and other farmers in your area through personal contact and in such settings as farmers' association meetings.

Ask writers and other media to emphasize the problem of invasive species and be willing to provide information.

Invite speakers knowledgeable on the invasive species issue to speak to farmers' association meetings, schools and other community groups.

Seek the best information on control of invasive animal species.

Participate in early warning systems by reporting invasive species you observe in your area to the relevant authority, i.e. Bureau of Agriculture.

Assist farmers' associations to create policies regarding the use of invasive species in agriculture and aquaculture.

### **Voluntary Code of Conduct for Pet Stores, Breeders and Dealers**

Ensure that the invasive potential of animals is assessed prior to introducing and marketing an animal species new to The Bahamas. Invasive potential should be assessed by the introducer or qualified experts using risk assessment methods that consider animal characteristics and prior observations or experience with the animal elsewhere in the world.

Additional insights may be gained through extensive monitoring at your facility prior to distribution.

Work with local experts and stakeholders to determine which species are either currently invasive or will become invasive. Identify animals that could be suitable alternatives in your area.

Where agreement has been reached among associations, Government, academia and ecology and conservation organizations, phase out existing stocks of invasive species in areas where they are considered to be a threat.

Follow all laws on importation and quarantine of animals across political boundaries.

Encourage customers to purchase non-invasive pets or livestock.

### **Voluntary Code of Conduct for Pet Owners**

Ask for non-invasive species when you purchase pets. If the decision is taken to own an invasive species, ensure that it is contained and controlled through confinement to your property and reproductive control (e.g. spaying and neutering).

Seek information on which species are invasive in your country. Sources could include conservation organizations (TNC, PCS, PCC) and Government agencies.

Do not trade pets with other pet owners if you know they are species with invasive characteristics.

Request that pet stores and breeders promote, display and sell non-invasive species.

Help educate your community and other pet owners in your area through personal contact and in such settings as pet shows, training sessions, visits to the vet and other gatherings involving activities with pets.

Ask writers and other media to emphasize the problem of invasive species and provide information.

Invite speakers knowledgeable on the invasive species issue to speak to associations, clubs, schools and other community groups.

Seek the best information on control of invasive animal species and work with other like-minded individuals to remove these species from your area in an ethical and humane manner under the guidance of knowledgeable professionals.

Volunteer at zoos, aquaria, national parks and other natural areas to assist ongoing efforts to diminish the threat of invasive animals.

Participate in early warning systems by reporting invasive species you observe in your area to the relevant authority, i.e. Bureau of Agriculture.

### **Voluntary Code of Conduct for Veterinarians**

Work with local ecologists, breeders, pet stores, conservation organizations and others to determine what species in your region either are currently highly invasive or show aggressive potential.

Increase interaction with other professionals and non-professionals to identify non-invasive animals and other solutions to problems caused by harmful invasive animals.

Take advantage of continuing education opportunities to learn more about the invasive species issue.

Identify and specify non-invasive species that are aesthetically and ecologically suitable alternatives to invasive species in your region.

Eliminate specification of species that are invasive in your region.

Encourage breeders and pet stores to provide farmers, private firms and the public with non-invasive animals.

### **Voluntary Code of Conduct for Baitfish Ponds**

Ask for only non-invasive species when you purchase fish stock.

Request that breeders and dealers promote and sell non-invasive species.

Do not trade stock with other ponds if you know that they are species with invasive characteristics.

Work with local experts and stakeholders to determine which species are either currently invasive or will become invasive. Identify fish that could be suitable alternatives in your area.

Participate in early warning systems by reporting invasive species you observe in your area to the relevant authority, i.e. Bureau of Agriculture.

Increase interaction with other professionals and non-professionals to identify non-invasive animals and other solutions to problems caused by harmful invasive animals.

Take advantage of continuing education opportunities to learn more about the invasive species issue.