Kingdom of Tonga

National Invasive Species Strategy and Action Plan 2013-2020

Prepared by:

Ministry of Lands, Environment, Climate Change and Natural Resources For the Kingdom of Tonga.

Ministry of Lands, Environment, Climate Change and Natural Resources

SPREP PROE

gef

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Pacific INVASIVES INITIATIVE

ISSG Invasive Species Specialist Group

National Invasive Species Strategy and Action Plan 2013 – 2020

Kingdom Of Tonga

Cover photo: Primary kids' Cultural item with Tonga's IAS and endemic species.

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FOREWARD

It gives me great pleasure, on behalf of the Government of Tonga, to endorse this Strategy and Action Plan for the management of invasive species in the Kingdom of Tonga. The National Invasive Species Strategy and Action Plan (NISSAP) address much of the issue towards invasive species in Tonga.

The NISSAP were aligned with the Guidelines *for Invasive Species Management in the Pacific*. It identifies the key strategy and action that need to be undertaken and effectively manage in order to reduce the impacts of invasive species in Tonga. The Strategy and Action have been prioritized, with timeframes and identification of the lead agency/group and relevant partners that will be involved in implementation.

The development of this NISSAP was led by Ministry of Land, Environment, Climate change and Natural Resources. Facilitation by Pacific Invasives Initiative through a multi-sectoral consultative process involving representatives of a number of in-country governmental and non-governmental organizations as well as national and international experts from SPREP. We are very thankful for the assistance of all the institutions and individuals who contributed to the development of this Plan.

The Ministry is very happy to present this NISSAP to you, in the hope that the key to its success is in the hands of the each and every Tongan.

Sincerely

MINISTER FOR LANDS TONGA

Lord Ma'afu Tukui'aulahi
Hon. Minister for Lands Environment Climate Change and Natural Resources.

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EXECUTIVE SUMMARY

This National Invasive Species Strategy and Action Plan 2013-2020 will guide Tonga's efforts to protect its natural heritage and people's livelihoods from the negative impacts of invasive species. The two-pronged strategy tackles the issue by:

- *Preventing new invasive, or potentially invasive, species from arriving and establishing.*
- *Taking action against existing priority invasive species at priority sites.*

The Strategy and Action Plan is prepared for the Ministry of Lands, Environment, Climate Change and Natural Resources of the Kingdom of Tonga. The Pacific Invasives Initiative was contracted by Tonga to assist with the planning and development of the NISSAP. Development of the NISSAP is one of the key outputs under the UNEP-GEF SPREP executed regional IAS project.

This document prioritizes the invasive species component in the Tonga's National Biodiversity Strategy and Action Plan. It also assists with meeting the country's Convention on Biodiversity requirements by addressing the Aichi Biodiversity Targets, in particular Target of the Convention on Biodiversity Strategic Plan for Biodiversity2011-2020.

The Strategy and Action Plan is aligned with the Guidelines for Invasive Species Management in the Pacific and contains activities that address invasive species under the Thematic Areas of the Guidelines. Preparation of the Plan was funded as one of the priority activities of Tonga's Global Environment Facility Project which is "UNEP- GEFPAS implemented and SPREP executed Prevention, Control and Management of Invasive Alien Species in the Pacific" project.

Development of this National Invasive Species Strategy and Action Plan was a team effort and required full engagement in the process from all of those involved; Government agencies, civil society organisations and advisers. A desktop review of reliable, existing public domain information was used as the starting point, questionnaires were used to collect further information and two consultation workshops with government and non-government stakeholders provided discussion and agreement on priorities.

KEY TERMS AND CONCEPTS

Aichi Biodiversity Targets	Targets from the CBD Strategic Plan for Biodiversity 2011–2020
Alien species	A species, subspecies or lower taxon, introduced outside its natural past or present distribution
Biodiversity	The variability amongst 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
Biocontrol (or biological control)	Controlling an invasive species by introducing a natural enemy, such as an insect or fungus, that specifically attacks the target species and does not attack other native or economically important species.
Biosecurity	Sometimes used to include all aspects of invasive species management, but used in the '*Guidelines for Invasive Species Management in the Pacific*' in the more restricted sense of preventing the spread of invasive species across international or internal borders, including between islands
Conservation	The safeguarding of ecosystems and natural habitats and the maintenance and recovery of viable populations of species in their natural surroundings and, in the case of domesticated or cultivated species, in the surroundings where they have developed their distinctive properties
Control	Action to reduce the population of an invasive species to a specified level - a long-term strategy
Endemic species	A species found only in a specific area of the world
Eradicate	Removal of the entire population of an invasive species from a country, or an area where the chance of re-invasion is low, in a specified time
Globally threatened	The conservation status of an organism when viewed globally
Introduced species (Alien, Exotic, Non-native)	Plants, animals and other organisms taken beyond their natural range by people, deliberately or unintentionally
Invasive alien species	An alien (Introduced, Exotic, Non-native) species whose introduction and/or spread threaten biological diversity
Invasive species	Introduced species that become destructive to the environment or human interests; can also include some native species that proliferate and become destructive following environmental changes caused by human activities
Invasive species management	Actions taken to prevent, eradicate or control invasive species
IUCN Red List of Threatened Species	The most comprehensive, objective global approach for evaluating the conservation status of plant and animal species
Locally threatened	The local conservation status of an organism
Monitoring	Programmes to detect change (e.g. in the distribution of invasive species, the success of management projects, etc.)
Native species	Plants, animals and other organisms that occur naturally on an island or in a specified area, having either evolved there or arrived there without human intervention
Pathway	The means by which an invasive species can be transported
Pest	Any species, strain or biotype of plant, animal or pathogenic agent injurious to plants or plant products
Post-border Biosecurity	Management of the risk of moving organisms from one part of

	a country to another
Pre-border Biosecurity	Managing the risk of new organisms entering a country by taking action before they leave a neighbouring or partner country
Prevention	The first, and most important, step in invasive species management is to prevent new species arriving
Quarantine	Activities designed to prevent the introduction and/or spread of quarantine pests or to ensure their official control
Risk assessment	Evaluation of the probability of the introduction and spread of a pest and of the associated potential economic consequences
Surveillance	In the '*Guidelines for Invasive Species Management in the Pacific*', defined as monitoring to detect the arrival of new incursions of invasive species
Threatened species	A species with a declining population

ACRONYMS

CABI	Commonwealth Agricultural Bureaux International
CBD	Convention on Biodiversity
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CSFT	Civil Society Forum Tonga
EDRR	Early Detection and Rapid Response
ERP	Emergency Response Plan
FS	Feasibility Study
GEF	The Global Environment Facility
GEF-PAS	The Global Environment Facility Pacific Alliance for Sustainability
GEF-PAS Biodiversity	The Global Environment Facility Pacific Alliance for Sustainability. United Nations Environment Programme: *Implementing the Island Biodiversity Programme of Work by integrating the conservation management of island biodiversity*
GEF-PAS Invasives	The Global Environment Facility Pacific Alliance for Sustainability. United Nations Environment Programme: *Prevention, Control and Management of Invasive Alien Species in the Pacific Islands*
GISD	Global Invasive Species Database (maintained by ISSG)
GISIN	Global Invasive Species Information Network
HPWRA	Hawai`i-Pacific Ecosystems at Risk
IBPoW	Island Biodiversity Programme of Work
IAS	Invasive Alien Species
IS	Invasive Species
ISSG	Invasive Species Specialist Group of the Species Survival Commission of the International Union for Conservation of Nature
IUCN	International Union for Conservation of Nature
IUCN Oceania	International Union for Conservation of Nature – Oceania Regional Office
MAFFF	Ministry of Agriculture, Forestry, Food and Fisheries, Kingdom of Tonga
MLECCNR	Ministry of Lands, Environment, Climate Change and Natural Resources, Kingdom of Tonga
MCTL	Ministry of Commerce, Tourism and Labour
MOE	Ministry of Education, Kingdom of Tonga
MOI	Ministry of Infrastructure, Kingdom of Tonga
NBSAP	National Biodiversity Strategy and Action Plan
NECC	National Environment Coordinating Committee, Kingdom of Tonga
NISSAP	National Invasive Species Strategy and Action Plan
Pest List (PLD)	Pacific Islands Pest List Database

PIER	Pacific Island Ecosystems at Risk – for plant risk assessment information
PII	Pacific Invasives Initiative
PILN	Pacific Invasives Learning Network
PIP	Pacific Invasives Partnership
PIRNC	Pacific Islands Roundtable for Nature Conservation
Plant Pono	Hawai`i-Pacific Ecosystems at Risk website for plant risk assessment information
PoWPA	Programme of Work on Protected Areas
SPC	Secretariat of the Pacific Commission
SPREP	Secretariat of the Pacific Regional Environment Programme
SSC	Species Survival Commission of IUCN
TOR	Terms of Reference
TCDT	Tonga Community Development Trust
TOII	Technical Officer Level 2

THE STRATEGY

1. The need for a strategy

What are Invasive Alien Species?

Invasive species are organisms taken, usually as a result of human activities, outside of their native range and introduced into an area where they do not occur naturally. For an introduced species to become invasive, it must; arrive, establish, reproduce and spread through its new environment, and successfully out-compete native species and harm ecosystems in its introduced range.

Native species and ecosystems on islands have evolved in isolation and have not developed the ability to defend themselves. Ecosystems that have been invaded may not have the natural predators and competitors that are present in the native environment of the invasive species and that would normally control its population.

Only a small percentage of organisms transported to new environments become invasive, but the negative impacts can be extensive and, over time, can become substantial threats to the natural heritage and livelihoods of people. Islands are especially vulnerable and invasive species are a leading cause of native species extinctions on islands and are implicated in the decline of hundreds of native species in the Pacific region[1].

How big is the Invasive Alien Species threat in our Kingdom?

Tonga's National Biodiversity Strategy and Action Plan[2] (NBSAP)identifies, agricultural expansion, over-exploitation of resources and invasive species as the primary threats to biodiversity, Species conservation, including protection of priority species, is one of the five themes of the NBSAP.

Thirty-one introduced plant species that are invasive in Tonga and elsewhere and another 135 plant species that are in Tonga and considered invasive in other countries are summarised in the NBSAP. The NBSAP is silent on invasive animals.

The NBSAP describes most of the remaining forest ecosystems in Tonga, particularly on Tongatapu, as secondary, relatively disturbed and often hosting a variety of invasive tree species. Threats to marine biodiversity and agro-biodiversity from invasive species are also mentioned in the NBSAP.

A desktop review (ISSG[3]) found reports of 394 introduced species in Tonga, from both plant and animal kingdoms, and in terrestrial, marine and freshwater ecosystems. Of those 394 species, 149 have been reported as invasive (141 plants, 8 animals). However, a number of species known to be invasive elsewhere have been recorded in Tonga, but have not been identified as invasive by those reporting them. So the actual number of invasive species is probably higher.

[1]GEF-PAS Invasives. 2011. Prevention, Control and Management of Invasive Alien Species in the Pacific Islands. The Global Environment Facility Pacific Alliance for Sustainability. United Nations Environment Programme.

[2] Kingdom of Tonga: National Biodiversity Strategy & Action Plan. 2006.

[3]ISSG. 2013. Comprehensive Desk-top Review of Biodiversity, Conservation and Invasive Species Information for the Kingdom of Tonga. Compiled for SPREP. Invasive Species Specialist Group of the Species Survival Commission of the International Union for Conservation of Nature (IN PRESS).

There are many invasive species threats in neighbouring countries, in countries that trade with Tonga and in countries that supply many of Tonga's visitors. Some of the possible pathways that those threats could use to reach Tonga are identified in the ISSG review (see Appendix 1). Those pathways must be closed to prevent new invasive species arriving and establishing in Tonga.

Saving our native species and ecosystems

Tonga's biodiversity includes several species that are endemic and found nowhere else on the planet(e.g. langakali vao (*Aglaia heterotricha*), hengehenga (*Pachycephala jacquinoti*), malau(*Megapodius pritchardii*));share endemism between Tonga and other Pacific Islands (e.g. pekepeka (*Emballonura semicaudata*), fonu tu`akula(*Chelonia mydas*), fokai (*Brachylophus fasciatus*), Phoenix petrel (*Pterodroma alba*)); are considered globally significant (e.g. whales (*Megaptera novaeangliae*), hawksbill turtle(*Eretmochelys imbricate*),giant wrasse (*Cheilinus undulatus*)). A recent survey of rare plants of Tonga[4]listed six species as endemic to Tonga.The NBSAP reports that other plant species that are important for cultural reasons, either for traditional medicinal purposes or associated with traditional ceremonies, are now rare and possibly endangered.

The endemic species represent Tonga's contribution to global biodiversity and are an important component of the natural heritage of Tonga. Many of these species are under threat from several pressures, including from invasive species, and are on the IUCN Red List of Threatened Species[5] as Critically Endangered or Endangered.

Priority species identified for conservation action by NISSAP Workshop stakeholders (Appendix 1) from the 68 threatened species and 118 species of concern, are listed in Table 1. None of the priority threatened species are solely marine or freshwater species. Stakeholders identified giant clams, coral species, fin-fish species and tuna as important native marine species, but much work also needs to be done for other marine and freshwater species.

Table 1: The priority threatened species of Tonga (identified in June, 2013, at a stakeholder workshop to develop a National Invasive Species Strategy and Action Plan) and their IUCN Red List category.

Scientific name		**Common name**	**Biome**
Critically Endangered			
Aglaia heterotricha	Endemic	Langakali vao	Terrestrial
Endangered			
Chelonia mydas		Fonu tu'akula	Terrestrial/Marine
Emballonura semicaudata		Pekepeka	Terrestrial
Megapodius pritchardii	Endemic	Malau	Terrestrial/Freshwater
Vulnerable			
Aglaia saltatorum		Langakali	Terrestrial
Cycas seemannii		Longolongo	Terrestrial
Podocarpus pallidus	Endemic	Uhiuhi	Terrestrial
Near Threatened			
Pachycephala jacquinoti	Endemic	Hengehenga	Terrestrial
Rhizophora samoensis		Tongolei	Terrestrial/Marine
Data Deficient			
Birgus latro		'U'u	Terrestrial/Marine

[4]Whistler, A. 2011. The Rare Plants Of Tonga – a Report prepared for the Tongan Community Development Trust. Isle Botanica, Honolulu, Hawai'i.

[5]IUCN. 2013. The IUCN Red List of Threatened Species. Version 2013.1.<http://www.iucnredlist.org>.

Tonga has as many as 41 Protected Areas/Conservation Areas/Valued sites[6].Some sites have particular designations and others are areas of high biodiversity value (e.g. Key Biodiversity Area, Endemic Bird Area, Important Bird Area, etc.). Priority sites identified for conservation action by NISSAP Workshop stakeholders are listed in Table 2.The Kingdom of Tonga is also in two eco regions (Tongan Tropical Moist Forest and South Pacific Islands Forests (a Global 200 eco region)) that are classified by the World Wildlife Fund for Nature[7] as "Critical/Endangered" globally.

Table 2: Priority Protected Areas/Conservation Areas/Valued sites in Tonga identified by stakeholders at a workshop to develop a National Invasive Species Strategy and Action Plan in Tonga, June, 2013.

Site Name	Area	Biodiversity value(s)
`Eua National Park(`Eua Island)	450ha	Important plant species (see ISSG)
Late (Vava`u group)		Endemic and endangered bird species (see ISSG)
Mt Talau(Vava`u group)	~20ha	Important bird and lizard species (see ISSG)
Twin Sisters Islands (Vava`u group)		Tongan whistler Turtle breeding site Combines marine and terrestrial biomes
Tofua Island(Ha'apai group)	4600ha	Rare species of orchids on the CITES list

Meeting our commitments

While it is important for CBD parties to meet their obligations under the convention through NBSAPs and other interventions, is equally important to also link these to national priorities particularly those that are contained and outlined in the National Sustainable Development Plans. In this regard, to show this linkage in the NISSAP especially where there are socio-economic implications which need to be strengthened and addressed at the policy and implementation levels

The Kingdom of Tonga is a Party to a number of international agreements that require conservation of its biodiversity and the sustainable use of its natural resources to meet the needs of the present population of Tonga without risking the ability of future generations to meet their own needs. The primary agreement is the Convention on Biological Diversity (CBD) to which the Government of Tonga acceded in May 1998.

The principal instrument for implementing the Articles of the CBD at the national level is a National Biodiversity Strategy and Action Plan (NBSAP - mandatory for all Parties). A number of cross-cutting issues that are relevant to many of the international biodiversity agreements also need to be addressed in an NBSAP, or related country documents. Tonga has already developed a Plan of Work for Protected Areas[8] for that cross-cutting issue and the preparation of this National Invasive Species Strategy and Action Plan (NISSAP) addresses the Invasive Alien Species cross-cutting issue.

[6]ISSG. 2013. Comprehensive Desk-top Review of Biodiversity, Conservation and Invasive Species Information for the Kingdom of Tonga. Compiled for SPREP. Invasive Species Specialist Group of the Species Survival Commission of the International Union for Conservation of Nature (IN PRESS).

[7]World Wildlife Fund <http://worldwildlife.org/ecoregions/oc0114,http://wwf.panda.org/about_our_earth/ecoregions/southpacific_islands_forests.cfm>

[8]PoWPA. 2011. Action Plan for Implementing the Convention on Biological Diversity's Programme of Work on Protected Areas. Kingdom of Tonga.

2. The process for preparing the strategy and action plan

The Pacific Invasives Initiative (PII) was contracted by Ministry of Lands, Environment, Climate Change and Natural Resources (MLECCNR) to prepare and facilitate the process of developing the NISSAP from the desktop survey was undertaken, stakeholder meetings were held, in order to form a draft. Finally, the NISSAP is finalized by Tonga.

The NISSAP is based on:

- The NBSAP for the Kingdom of Tonga,
- The findings of the comprehensive ISSG desktop review of reliable, existing public domain information,
- The findings from a questionnaire that was used to collect further information from key stakeholders,
- Discussions and agreements on priority threatened species and priority Protected Areas/Conservation Areas/Valued sites from two workshops with key stakeholders,
- Guidelines for Invasive Species Management in the Pacific[9]– a NISSAP blueprint.

3. Audience for the strategy and action plan

MLECCNR identified the development of a NISSAP as a priority activity. It will assist the work of government, business, and civil society to work in a coordinated manner in protecting the natural heritage and livelihoods of the people of the Kingdom of Tonga from the negative effects of priority invasive species.

4. Scope of the strategy

The NISSAP is one stage in the process of preventing the arrival and establishment of new invasive species and taking action to manage existing priority invasive species. It provides for the protection of people's livelihoods and for the conservation of biodiversity. To maximise the benefits of available resources, the focus of the NISSAP is on managing the invasive species threats to priority species and priority sites.

The NISSAP addresses threats to terrestrial, marine and freshwater ecosystems. The marine and freshwater components will be expanded as information becomes available.

The NISSAP is for the period 2013-2020, but the document is meant to be dynamic and one that will be updated as more information becomes available.

5. Strategic aims

The strategy will guide Tonga's efforts to effectively address the issue of invasive species to protect our natural heritage and our people's livelihoods by:

- Preventing new invasive, or potentially invasive species, from arriving and establishing,
- Taking action against existing priority invasive species at priority sites.

6. Objectives

The objectives and sub-objectives below follow the Thematic Areas and Themes of the Guidelines for Invasive Species Management in the Pacific.

[9]SPREP and SPC. 2009. Guidelines for Invasive Species Management in the Pacific: a Pacific strategy for managing pests, weeds and other invasive species. Secretariat of the Pacific Regional Environment Programme.

6.1 Generating Support

Raising awareness of the negative impacts of invasive species on our natural heritage, economy and people is necessary so that government, business and community can work together to reduce those risks.

6.1.1 All activities maximise community involvement in planning, implementation and monitoring as appropriate.

6.1.2 Government support for invasive species management is improved and the importance of invasive species environmental, social and economic impacts is more widely understood.

6.2 Building capacity

Invasive species management is a relatively new programme area for Tonga and we need to develop the institutions, skills, infrastructure, technical support, information management systems, networks and exchanges required.

6.2.1 A national invasive Species Coordinator is appointed and a multi-sectoral national invasive species committee formed and operated with ongoing support from PILN.

6.2.2. A high quality National Invasive Species Strategy and Action Plan is established.

6.2.3 Training/capacity needs are identified and training programmes for key Invasives management issues are developed and implemented.

6.2.4 Tonga's invasive species management facilities and equipment are reviewed, development plans are produced and facilities improved.

6.2.5 National and regional identification, management and information tools for Invasives are improved to reflect country needs; e.g. PESTLIST[10], GISIN[11], GISD[12].

6.2.6 Regional Invasives services are used to strengthen the capacity of Tonga for planning, implementing, monitoring and evaluating its invasive species activities.

6.3 Developing Legislation, Policy and Protocols

The legislative framework in Tonga (Appendix 2) needs to be reviewed to deal with increasing trade and tourism. It must be coherent, comprehensive and effective and help government, community and business to work together to address invasive species issues.

6.3.1. Invasive species legislation, regulations or protocols are consolidated, harmonised and rationalised to improve invasive species management effectiveness.

6.4 Establish baselines and monitoring

An effective system for monitoring, reporting and recording invasive species will help track the threats posed by new and established invasive species and guide the management response.

6.4.1. Surveys or monitoring systems are implemented to document the status and/or impact of Invasives and native biodiversity in marine and terrestrial sites (including protected areas) of Tonga. Results are included in databases.

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10 Pacific Islands Pest List Database <http://www.spc.int/pld/>.

11 Global Invasive Species Information Network <http://www.gisin.org/cwis438/Websites/GISINDirectory/Country_Info.php?Country_AreaID=314826&CallingPage=%2Fcwis438%2Fwebsites%2FGISINDirectory%2FCountry_List.php%3FTakeAction%3DReturned%26CurrentRow%3D200%26OrderByField%3DTBL_Areas.AreaName%26DescendingFlag%3D0%26SearchString%3D%26FirstNameLetter%3DT&CallingLabel=To%20Country%20List&WebSiteID=4v>

12 Global Invasive Species Database <http://www.issg.org/database/species/search.asp?sts=sss&st=sss&fr=1&x=0&y=0&sn=&rn=tonga&hci=-1&ei=-1&lang=EN>.

6.5 Prioritise invasive species for management

It will be very difficult and costly (or completely impossible), for Tonga to manage all known invasive species. Risk Assessment is a tool that can be used to: identify invasive or potentially invasive species before they are introduced to our country; help with prioritizing the most serious invasive species for action.

6.5.1 Establish national risk assessment systems for invasive terrestrial, freshwater and marine species.

6.6 Research on priorities

Reliable information is necessary for good decision-making. A strategic and coherent effort is needed to make research available to inform management decisions.

6.6.1. Investigate the biology, ecology and control methods of priority invasive species in order to support effective management.

6.7 Establish Biosecurity

Preventing new species arriving and establishing, or existing species getting to new areas, is the most cost-effective way to manage invasive species. Early detection and rapid response makes better use of existing resources in order to reduce future ecological, economic and financial pressures.

6.7.1. Inspection and treatment procedures are improved to reduce the risk of new invasive species threats to Tonga and between islands in Tonga.

6.7.2. Early detection and rapid response (EDRR) procedures are established for priority potential invaders (e.g. snakes, ants, mongoose, plants, etc.).

6.8 Manage established invasive species

Once those invasive species which are having the most serious effects are identified and prioritised, action can be taken to eradicate small populations of recently-arrived Invasives, or reduce the impacts of others by controlling them to a specified density.

6.8.1. Best practices are determined and implemented for invasive species management.

6.8.2 Priority invasive species are eradicated (completely removed) from priority islands where feasible.

6.8.3. Biocontrol agents are developed and released for appropriate target Invasives.

6.8.4. Invasive species are contained within limited areas or controlled at high biodiversity sites.

6.9 Restore threatened species and ecosystems

Eradicating or reducing the numbers of invasive predators, such as cats and rats, often means that a species or ecosystem can recover by itself. Alternatively, replanting of native plants and translocation of animal species may be necessary if the site is degraded.

6.9.1. Restore sites and biodiversity after invasive species management is carried out.

7. Governance of the Strategy and Action Plan

The Ministry of Lands, Environment, Climate Change and Natural Resources (MLECCNR) will administer and coordinate actions under this NISSAP. Several other Government Ministries will be involved and the National Environment Coordinating Committee (NECC) will oversee all environment projects (Table 3). The NECC will be advised by a Technical Working Group consisting of staff involved at an operational level.

Table 3: A summary of the roles of some government and civil society agencies in the implementation of the National Invasive Species Strategy and Action Plan 2013-2020for the Kingdom of Tonga.

Agency	Role in implementing the NISSAP*
Ministry of Lands, Environment, Climate Change and Natural Resources (MLECCNR)	The national executing agency for the GEF PAS Invasive Species Project and the GEF-PAS Integrated Island Biodiversity Project. Established in 2009 in recognition of the growing importance of the environment and sustainable management of natural resources as the basis for the economic, social and cultural development.
Ministry of Agriculture, Forestry, Food and Fisheries (MAFFF)	Plays an important role in ensuring the sustainability and profitability of agricultural lands.
Quarantine and Quality Management Division of MAFFF	Biosecurity is a key area of responsibility relevant to the conservation of native biodiversity.
Department of Forestry of MAFFF	Provides assistance in managing forest resources in a sustainable manner.
Department of Fisheries of MAFFF	Has responsibility for the conservation, management and development of fisheries and the authority to conserve endangered inshore marine resources.
Ministry of Infrastructure	Responsible for the rules, regulations and enforcement, consistent with Tongan law and international standards, to guide the safe and secure operations of maritime services and ports. Particular concerns are ballast water and hull pathways of invasion.**
Tonga Community Development Trust	Has a major programme in the sector of environment and natural resources with strong involvement in community forestry. Run multipurpose nurseries in Vava'u, Ha'apai and 'Eua.
Civil Society Forum of Tonga	An umbrella organisation which aims to support all NGOs by providing opportunity for capacity building and leadership development.

**(Adapted from -Tonga Institutions, Sections 121-127; Annex 1; Project Document, Implementing the Island Biodiversity Programme of Work by integrating the conservation management of island biodiversity.)
** (From <http://www.infrastructure.gov.to/marine-ports/our-role>)

8. Sources of specialist input

There are several regional organisations that can provide assistance, and most are members of the Pacific Invasives Partnership[13].The type of assistance available ranges from writing proposals to arranging training courses, and includes on-the-ground technical assistance. For details and list see Appendix3.

9. Funding

Several of the activities in this NISSAP will be funded from a GEF-PAS[14] grant. Other funding sources will be required for other priorities and a funding strategy will be prepared to follow the timeline in the plan. Synergies between invasive species management projects and others such as the PoWPA and GEF-PAS Biodiversity[15]projects could provide funding opportunities for implementation of this NISSAP (Appendix4).

[13]Pacific Invasives Partnership<http://www.sprep.org/Pacific-Invasives-Partnership/invasive-partnerships>
[14]GEF-PAS Invasives. 2011. Prevention, Control and Management of Invasive Alien Species in the Pacific Islands. The Global Environment Facility Pacific Alliance for Sustainability. United Nations Environment Programme.
[15]GEF-PAS Biodiversity. 2011. Implementing the Island Biodiversity Programme of Work by integrating the conservation management of island biodiversity. The Global Environment Facility Pacific Alliance for Sustainability. United Nations Environment Programme.

10. Monitoring

A monitoring plan will be prepared to track progress in meeting the objectives and activities in this NISSAP. The NISSAP will be reviewed in 2016, by which time many of the activities will be completed or underway.

THE ACTION PLAN

Actions necessary to prevent new invasive species arriving and establishing, and to reduce the impact of existing invasive species on the natural heritage and livelihoods of the people of the Kingdom of Tonga, are described in the Action Plan below. Key activities are centred around actions, based on best practice, in priority sites to:

- Strengthen Biosecurity efforts;
- Eradicate existing populations that are newly arrived (Early Detection and Rapid Response (EDRR)), or in small areas, or on isolated islands.
- Control existing populations that are not possible to eradicate by using containment, control to a specified density, biocontrol, or a combination of methods.

Annual work plans based on the Action Plan will be developed as projects proceed and will address:

- Governance
- Coordination
- Emergency Response Planning
- Funding
- Capacity needs
- Training programmes
- Specialist input

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- The participation and contribution of government and civil society stakeholders at the planning workshops.

IMAGES

Thank you to the following people for permission to use their images:

Pachycephala jacquinoti -a bird endemic to the Vava'u group of islands. (Image: ©R.J. Watling)

Podocarpus pallidus -a rare and endemic Tongan plant. (Photo: ©W.A. Whistler)

Tridacna tevoroa - a clam that is endemic to Tonga waters. (Photo: ©Thierry Baboulenne - Babou Cote Ocean)

Primary School kids cultural event. (Photo: ©S.Katoa)

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KINGDOM OF TONGA ACTION PLAN
National Invasive Species Strategy and Action Plan

Relationship with Guidelines for ISM in Pacific	Activities	Output	Milestones	Review date	Responsibility	Finance *Co-finance*
GUIDELINES – THEMATIC AREA A: FOUNDATIONS						
A1.Generating Support **OUTCOME 1.1: The impacts of priority invasive species on biodiversity, economies, livelihoods and health, are widely understood and actions to manage and reduce them are supported.**						
1.1.1 All activities maximise community involvement in planning, implementation and monitoring as appropriate.	Train the community for implementation of a project to be selected after biodiversity surveys are completed [possibly Mt Talau National Park Project on 'Utu Vava'u]	Training programme Report of training and implementation	Community group/network established Community group maintaining invasive species project	2014	MLECCNR	TBC
	Incorporate invasive species content into the biodiversity curriculum of schools	School Curriculum with invasive species content	Agreement with MOE to include invasive species in curriculum Biodiversity curriculum contains invasive species content	2015	MLECCNR (Environment Division, Biodiversity Section) MOE	TBC
1.1.2 Government support for invasive species management is improved and the importance of IS environmental, social and economic impacts is more widely understood.	Develop mechanisms to factor invasive species management into national and regional decision-making processes	Mainstreaming plan	Mechanisms developed to include IS in decision-making processes in Tonga Mechanisms tested and working Mainstreaming plan written and effectiveness documented	2015	MLECCNR	**$3,000** *$0*
	Raise awareness and carry out outreach on the impacts of IS	Report on IS impacts in Tonga Awareness material(s) Report on outreach campaign effectiveness	IS impacts in Tonga included in outreach materials Outreach materials distributed to key partners	2015	MLECCNR MAFFF MOI MOE MCTL	**$18,000** *$5,000*

A2. Building Capacity **OUTCOME 1.2: The institutions, skills, infrastructure, technical support, information management, networks and exchanges required to manage invasive species effectively are developed.**						
1.2.1 A national invasive Species Coordinator is appointed and a multi-sectoral national invasive species committee is formed and operating with ongoing support from PILN.	Establish position to coordinate activities under Tonga's GEF-PAS invasive species project	Job description	Job description approved Coordinator position filled Coordinator effectively coordinating project activities	2012	MLECCNR	**$60,000** *$200,000*
	Fund an Invasive Species Coordinator as a core position of the Government Ministry charged with the management of the Environment following completion of Tonga's GEF-PAS invasive species project	Job description	Job description approved Coordinator position filled Coordinator effectively coordinating invasive species activities	2015	MLECCNR	
	Form a national multi-sectoral invasive species PILN team	TOR for membership Formal agreement with PILN	Appropriate team members identified PILN Team operating	2013	MLECCNR	
1.2.2. A high quality National Invasive Species Strategy and Action Plan is established.	Prepare a National Invasive Species Strategy and Action Plan (NISSAP)	NISSAP harmonised with the Guidelines for Invasive Species Management in the Pacific.	NISSAP stakeholder meetings NISSAP completed NISSAP endorsed by Government	2013	MLECCNR	**$10,000** *$10,000*
	Develop a plan to monitor the effectiveness of the NISSAP	Monitoring Plan	Technical Working Group develop monitoring plan Monitoring processes in place and being implemented	2013	MLECCNR	
	Review and revise Tonga's National Invasive Species Strategy and Action Plan (NISSAP)	Revised NISSAP	NISSAP reviewed Revised NISSAP completed Revised NISSAP endorsed by Government	2016 (first quarter)	MLECCNR	TBC
1.2.3 Training/capacity needs are identified and training programs for key Invasives management issues are developed and implemented.	Identify gaps in the capacity currently available to implement the components of this NISSAP and strengthen capacity where needed	List of available and required skills Capacity Development Plan	Training needs analysis Training Plan	2013	MLECCNR	

	Identify skills existing within the technical working group, skills necessary to have in-country, and skills that need to be procured from outside					
1.2.4 Tonga's invasive species management facilities and equipment are reviewed, development plans are produced and facilities improved.	Prepare and review a list of existing equipment and facilities currently available, identify gaps and determine means of filling the gaps	List attached as appendices to the NISSAP	List completed and reviewed	Sep 2013 and annually	MLECCNR MAFFF	
	Prepare a list of registered chemicals (e.g. herbicides, rodenticides) available for invasive species management	List attached as appendices to the NISSAP	List completed and reviewed	Sep 2014 and annually	MLECCNR MAFFF	
1.2.5 National and regional identification, management and information tools for Invasives are improved to reflect country needs; e.g. PESTLIST, GISIN, GISD.	Disseminate and use the review completed by ISSG Provide update/correction of information to ISSG as necessary	Updated ISSG Review	ISSG Review disseminated to stakeholders New information sent to ISSG	2015	MLECCNR MAFFF MOI	
1.2.6 Regional Invasives services are used to strengthen the capacity of Tonga for planning, implementing, monitoring and evaluating its invasive species activities.	Engage regional Invasives organisations in Tonga's invasive species management activities (e.g. capacity development, surveys, project planning and implementation)	Records of regional Invasives organisations input into invasive species management in Tonga	Regional Invasives organisations engaged in invasive species management in Tonga	2015	MLECCNR	
A3.Legislation, Policy and Protocols **OUTCOME 1.3: Appropriate legislation, policies, protocols and procedures are in place and operating, to underpin the effective management of invasive species.**						
1.3.1. Invasive species legislation, regulations or protocols are consolidated, harmonised and rationalised to improve IS management effectiveness.	Propose a new bill for Biosecurity using the regionally harmonised Biosecurity Bill	Harmonised Bill	Bill proposed to government	2015	MAFFF MLECCNR	**$2,000** *$2,000*
	Review of laws to address their ability to address IS management	Legal review of Bills	Legal review completed Bill(s) developed to ensure established IS are addressed Bill(s) proposed to government	2015	MLECCNR	**$5,000** *$5,000*

GUIDELINES - THEMATIC AREA B: PROBLEM DEFINITION, PRIORITISATION AND DECISION-MAKING						
B1.Baseline and Monitoring **OUTCOME 2.1: Systems are in place to generate baseline information on the status and distribution of invasive species, detect changes, including range changes and emerging impacts.**						
2.1.1. Surveys or monitoring systems are implemented to document the status and/or impact of Invasives and native biodiversity in marine and terrestrial sites (including protected areas) of Tonga. Results are included in databases.	Collect, strengthen and store baseline information about the status and distribution of invasive species and establish a programme for detecting change	Survey reports Populated database(s) Updated ISSG review	Target sites and species identified Surveys completed Databases populated Reports written	2015	MLECCNR MAFFF MOI	**$89,000** *$20,000*
B2.Prioritisation **OUTCOME 2.2: Effective systems are established and implemented to assess risk and prioritise invasive species for management.**						
2.2.1 Establish national risk assessment systems for invasive terrestrial, freshwater and marine species.	Review existing risk assessment procedures. Identify and address gaps Use existing Weed Risk Assessments (e.g. PIER, Plant Pono) Use networks to find or develop risk assessments for other species	Risk assessment review	Existing information used for risk assessment (Online Risk Assessment databases e.g. GISD, PIER, CABI, …) SOP (Standard Operating Procedure) produced	2015	MAFFF (Quarantine Division)	
B3.Research on priorities **OUTCOME 2.3:Knowledge is updated for priority Invasives, including species biology and impacts, and development of effective management techniques.**						
2.3.1. Investigate the biology, ecology and control methods of priority invasive species in order to support effective management.	Collate relevant information on the biology and ecology of priority invasive species and best practice management methods	Information on IS collated and available	IS information available	2015	MAFFF (Quarantine Division) MLECCNR to work with MAFF-Research	

GUIDELINES - THEMATIC AREA C: MANAGEMENT ACTION						
C1.Biosecurity **OUTCOME 3.1: Mechanisms are established to prevent the spread of invasive species across international or internal borders and quickly detect and respond to those that arrive.**						
3.1.1. Inspection and treatment procedures are improved to reduce the risk of new invasive species threats to Tonga and between islands in Tonga.	Identify potential invasive species threats, based on pathway analysis and risk assessment(s), coming from other countries and develop appropriate pre-border and at-border interventions for priority invasive species Train quarantine staff in identification of potential new invasive species Prepare awareness material (e.g. posters) to help both frontline quarantine staff and business sectors (e.g. tourism, importers) Investigate ways to improve the enforcement of existing legislation to include invasive species Develop protocols to assist business and tourism operators with inter-island Biosecurity Identify and address issues associated with ballast water and hull-fouling of commercial and recreational vessels at all ports of entry and main vessel routes	List of threats from pathways section of the ISSG Review with their risk assessment and possible interventions Staff performance reports Posters and leaflets Review of enforcement of existing legislation and revision where necessary Protocols for inter-island Biosecurity Report of issues and solutions	List drafted List finalised Text agreed Design approved Material produced TOR for review prepared Review drafted Review finalised Protocol prepared Protocol drafted Protocol finalised Issues identified Report drafted Report finalised	2014	MAFFF (Quarantine Division) MLECCNR to work with MAFF-Research MOI Police	
3.1.2. Early detection and rapid response (EDRR) procedures are established for priority potential invaders (e.g. snakes, ants, mongoose, plants etc.).	Adapt the generic SPC Emergency Response Plan (ERP) to address threats to the natural heritage and livelihoods of the people of Tonga Investigate the possibility of having a store of equipment (traps, baits, etc.) ready for implementation of the ERP	ERP Scoping report for EDRR store	Inter-agency cooperation established ERP drafted ERP endorsed	2014	MAFFF (Quarantine Division)	
C2.Management of established Invasives **OUTCOME 3.2: The impacts of priority established invasive species are eliminated or reduced by eradicating or controlling the target species.**						
3.2.1. Best practices are determined and implemented	Begin pilot management projects for priority invasive species in priority sites to be	Prioritisation Report	Plans written	2014	MLECCNR	**$150,427** *$95,000*

for invasive species management.	selected after biodiversity surveys are completed and management plans have been prepared	Management plans for selected priority sites Funding Strategy Feasibility Studies Project Design Documents Operational Plans Progress reports	Plans implemented Progress reported			
3.2.2 Priority invasive species are eradicated (completely removed) from priority islands where feasible.	Conduct feasibility studies for two potential eradication projects to be selected after biodiversity surveys are completed [possibly Twin Sisters and Late Islands, Vava`u Group]	Prioritisation Report Feasibility Studies (FS) In-depth planning and implementation of eradications where feasible	Funding secured for FS team visit (including consultation) FS team established FS visit completed FS report completed Planning continues for implementation of feasible eradication project(s)	2016	MLECCNR	
3.2.3. Biocontrol agents are developed and released for appropriate target Invasives.	Identify existing biocontrol agents (from the 2010 Pacific Biocontrol Workshop Report) for priority invasive species in priority sites identified in the national action plan	Prioritisation Report Review of potential biocontrol options	Biocontrol agents identified for priority species	2017	MAFFF MLECCNR	
3.2.4. Invasive species are contained within limited areas or controlled at high biodiversity sites.	Control priority invasive species in priority sites to be selected after biodiversity surveys are completed [possibly `Eua National Park, Mt Talau National Park on 'Utu Vava'u]	Prioritisation Report Funding Strategy Feasibility Studies	All planning (including funding) completed Control operations underway	2020	MLECCNR	
C3.Restoration **OUTCOME 3.3: Following invasive species management the best methods are determined and implemented to facilitate effective restoration of native biodiversity or recovery of other values.**						
3.3.1. Restore sites and biodiversity after invasive species management is carried out.	Identify priority invasive species management actions and integrate these into the management plan for a project site to be selected after biodiversity surveys are completed [possibly Toloa Rain Forest	Management Plan includes invasive species management Funding Strategy	Permission to work in Toloa Baseline survey(s) completed All planning (including funding)	2013	MLECCNR	

	(Tongatapu)]		completed			
	School communities/sectors use a project, to be selected after biodiversity surveys are completed [possibly Toloa Rain Forest (Tongatapu)], as a field site for invasive species management training	Baseline surveys Training plan	Schools involved in restoration project	2015	MLECCNR	

APPENDIX 1

Pathways of Introduction and Spread

(From: ISSG. 2013. Comprehensive Desk-top Review of Biodiversity, Conservation and Invasive Species Information for the Kingdom of Tonga. Compiled for the Secretariat of the Pacific Region Environment Programme. Invasive Species Specialist Group of the Species Survival Commission of the International Union for Conservation of Nature.)

NOTE: data supporting this section can be found in the file "INF-4- Pathways" available from MLECCNR.

The agricultural, forestry and fisheries sector play a vital role in the Tongan economy contributing up-to 90% of the exports and over 19% of the Gross Domestic Product (GDP). The agriculture and forestry sector have shown positive growth. While the Fisheries sector has shown positive growth there are concerns of a slowdown. Re-opening of Tongan waters to foreign fishing vessels that are licensed to fish, proposed increase in the size of vessels, increased farming of marine species with economic potential, and the development of aquaculture are some of the areas targeted for improvement. Expansion of the tourism industry and reactivating fisheries are two of several gaps identified for action.

Activities in the agriculture, forestry and fisheries sector have implication on the conservation of biodiversity. These activities may even facilitate the introduction of alien species that have the potential to become invasive. Introduction of potentially invasive species for aquaculture is a concern. Increased entry of fishing vessels from foreign location as well as inter-island movement are a potential pathway for alien and invasive species introductions in ballast water and as hull fouling organisms. Over 2000 yachts are recorded to visit the Vava'u islands of Tonga each year. Over 46,000 visitors are recorded as having arrived by air to Tonga in 2011. With increased tourism and arrival of visitors Biosecurity at the borders both air and sea becomes critical.

A sortable list of species and corresponding pathways has been compiled from the GISD for the four major countries (Australia, New Zealand, Fiji and Hawaii (United States of America) that are the origin of much of the air and sea movement/links to Tonga. Both long distance pathway methods and short distance pathways (annotated as 'local') have been listed for each of the four countries (**see INF-4- Pathways**). Please note that this is not a comprehensive list of all known invasive or potentially invasive species and pathways in the selected four countries. This dataset has been compiled from the GISD. Also included is a list of known invasive species that are featured in the GISD and their corresponding pathways.

Pathways of introduction and spread have been recorded for a majority of introduced and invasive species present in Tonga listed in **INF 3.5**. While this information is a general listing of the known pathways of introduction and spread of these species; a conclusion cannot be drawn on which pathways are critical (to inform management) for Tonga. However, some observations can be made based on historical information. Species have been introduced to Tonga for food purposes and medicine, as ornamental species, as commensal animals with settlers, for the purpose of acclimatization (settlers bringing in species that reminded them of home).

APPENDIX 2

Table 4: NISSAP workshop stakeholders

First Name	Last Name	Post	Organisation	Email
Lupe	Matoto	Principal Environment Officer	Ministry of Land, Environment, Climate Change and Natural Resources (MLECCNR)	lupe.matoto@gmail.com
Ana	Fekau	GEF-PAS Biodiversity Coordinator	MLECCNR	anafekau@gmail.com
Eileen	Fonua	NBSAP Coordinator	MLECCNR	eileenfonua@gmail.com
Hoifua	Aholahi	Conservation Officer	MLECCNR	hbigday@gmail.com
Lesieli	Tuivai	Environment Officer	MLECCNR	tuivailh@gmail.com
Losana	Latu	GEF-PAS Invasives Administrator	MLECCNR	latulosana@gmail.com
Mafileo	Masi	Senior Environmentalist	MLECCNR	Mafileo.masi@gmail.com
Seini	Fotu	Conservation Officer	MLECCNR	Sfotu09@gmail.com
Sione	Tukia	Mangrove Ecosystems for Climate Change Adaption and Livelihood	MLECCNR	Makitala23@gmail.com
Uikelotu	Vunga	Ozone Depleting Substance	MLECCNR	vungauikelotu@gmail.com
Viliami	Hakaumotu	GEF-PAS Invasives Coordinator	MLECCNR	viliamihakau@gmail.com
V T Manu	Manu	Deputy Director	Ministry of Agriculture, Forestry, Fisheries and Food (MAFF)	mafsoils@kalianet.to
Poasi	Ngaluafe	Head of aquaculture	MAFF - Aquaculture	poasif@tongafish.gov.to
Semisi	Palei	TO II	MAFF - Extension	Spalei01@gmail.com
Huufi	Filiai	TO II	MAFF - Forestry Division	hfiliai@gmail.com
Tevita	Fakaosi	Head of Department – Forestry Division	MAFF - Forestry Division	
Graham	Malaefo'ou	Quarantine Officer	MAFF - Quarantine	grahamtonga@gmail.com
MeleLita	Akauola	Technical Officer Level 2	MAFF - Quarantine	alihoz@gmail.com
Siutoni	Tupou	Assistant Officer	MAFF - Quarantine	fruitfly@kalianet.to
Kelela	Tonga	Senior Ports Officer	Ministry of Infrastructure (MOI) - Marine Imports Division	ktonga@infrastructure.gov.to
Meliame	Kakala	Assistant marine environment officer	MOI	mkakala@infrastructure.gov.to
Pelenatita	Kara	Programme Manager	Civil Society Forum Tonga (CSFT)	Titakara1870@yahoo.com
Papiloa	Foliaki	Deputy Director	Tonga Community Development Trust (TCDT)	Papiloa@kalianet.to
Na'a	Taiala	Project Manager	TCDT	ntaiala@tcdt.to

APPENDIX 3

Table 5: Current legislation affecting the conservation of biodiversity in the Kingdom of Tonga.
(From: GEF-PAS Biodiversity. 2011. Implementing the Island Biodiversity Programme of Work by integrating the conservation management of island biodiversity. United Nations Environment Programme)

Date	**Legislation**
1912	Rhinoceros Beetle Act
1927	The Land Act
1949	Mineral Acts
1970	Quarantine Act
1970	The Continental Shelf Act of 1970
(amended in 1974)	Birds and Fish Preservation Act
1976	Parks & Reserve Act
1978	The Territorial Sea and Exclusive Economic Zone Act
1988	The Plant Quarantine Act, Vol. 4.
(amended in 1988)	Noxious Weeds Act
1989	Fisheries Act
1994	Terrestrial and Fisheries (Conservation and Management) Regulation
2002	Marine Pollution Act
2002	Fisheries Management Act
2002	The Pesticide Act and Regulations, Vol. 4.
2003	Environmental Impact Assessment Act
2005	Waste Management Act
2009	Forest Act Draft
2013	DRAFT Biosecurity Act

APPENDIX4

Table 6: Regional agencies that can provide assistance with invasive species management.

Hawai`i-Pacific Weed Risk Assessment
Hawai`i-Pacific Weed Risk Assessment (HPWRA) provides a free service. Professional botanists use published information to predict whether plants have a low-risk or high-risk of becoming invasive in Hawai`i or similar Pacific islands. The information is available on the Plant Pono website <http://plantpono.org/hpwra.php>. (HPWRA receives funding from the Hawai`i Invasive Species Council <http://www.hawaiiinvasivespecies.org/hisc/> and Plant Pono received funding for website development from the Kaulunani Urban and Community Forestry Program <http://www.kaulunani.org/>)

International Union for the Conservation of Nature (IUCN) - Oceania Regional Office
IUCN Oceania is working with like-minded organisations to contribute to the conservation of species and ecosystems in the Oceania region. Increasing awareness about the importance of species and the threats they are facing is crucial. The concept of "Investing in Nature" is central to this approach: too often, humans take other species and their day-to-day uses for granted. It is vital that investments in natural resources promote sustainable long-term use, management and conservation of the species we utilise in our everyday lives.
<http://www.iucn.org/about/union/secretariat/offices/oceania/priorities/>

International Union for the Conservation of Nature (IUCN), Species Survival Commission (SSC), Invasive Species Specialist Group (ISSG)
The Invasive Species Specialist Group (ISSG) aims to reduce threats to natural ecosystems and the native species they contain by increasing awareness of invasive alien species, and of ways to prevent, control or eradicate them. ISSG is a major source of information on invasive species either through the GISD or by direct contact.<http://www.issg.org/about.htm>

Pacific Islands Roundtable for Nature Conservation (PIRNC)
Formed in 1997 at the request of Pacific Island Countries and Territories, PIRNC serves as a forum whereby organisations working on nature conservation in the Pacific can improve their collaboration and coordination to increase effective conservation action. In particular it is the coordination mechanism for the implementation of the Action Strategy for Nature Conservation in the Pacific Island Region 2008-2012. The Action Strategy was endorsed by SPREP members, and highlights the priority concerns for conservation in the Pacific regional well as outlining a roadmap for achieving the key goals. It is to be reviewed in December, 2013.
<http://www.iucn.org/about/union/secretariat/offices/oceania/roundtable/>

PIRNC has a number of Working Groups, one of which addresses invasive species; the *Pacific Invasives Partnership (PIP)*. PIP is the umbrella regional coordinating body for agencies working on invasive species in more than one country of the Pacific and promotes coordinated planning and assistance from regional and international agencies to meet the invasive species management needs of the countries and territories of the Pacific.
<http://sprep.org/Pacific-Invasives-Partnership/invasive-partnerships>

Two regional programmes operate with the guidance and support of PIP:
Pacific Invasives Initiative (PII)
PII builds the invasive species management capacity of Pacific island countries and territories by providing technical support, training, assistance with proposal and project design, and links to expertise.<http://pacificinvasivesinitiative.org/pii/index.html>

Pacific Invasives Learning Network (PILN)

PILN is a professional network for invasive species workers in the Pacific and organises skills and learning exchanges, workshops and meetings, and facilitates multi-sector Invasives teams in countries.<http://sprep.org/Pacific-Invasives-Learning-Network-PILN/piln-welcome>

Secretariat of the Pacific Commission (SPC)

SPC helps Pacific Island people respond effectively to the challenges they face and make informed decisions about their future and the future they wish to leave for the generations that follow. Go to the website for a description of the core business of each of SPC's Divisions and more detailed information about how they can help.<http://www.spc.int/>

Secretariat of the Pacific Regional Environment Programme (SPREP)

SPREP works towards a Goal that, by 2015, all Members will have improved their sustainable management of island and ocean ecosystems and biodiversity, in support of communities, livelihoods, and national sustainable development objectives, through an improved understanding of ecosystem-based management and implementation of National Biodiversity Strategic Action Plans.
The SPREP Biodiversity and Ecosystem Management Strategic Priority will be delivered through four main priority thematic areas:

- Invasive Species
- Island and Oceanic Ecosystems
- Threatened and Migratory Species
- Regional and International Instruments

<http://sprep.org/Biodiversity-and-Ecosystems-Management/bem-overview>

APPENDIX5

Table 7: Activities funded in the GEF-PAS Invasives, GEF-PAS Biodiversity and PoWPA projects for the Kingdom of Tonga.

(GEF-PAS Biodiversity: *Implementing the Island Biodiversity Programme of Work by integrating the conservation management of island biodiversity and related activities Project.* PoWPA: *Action Plan for Implementing the Convention on Biological Diversity's Programme of Work on Protected Areas*).

GEF-PAS Invasives Activities	Related Programmes	
	GEF-PAS Biodiversity Outcomes	**PoWPA Key Actions**
ISM GUIDELINES - THEMATIC AREA A: FOUNDATIONS		
OUTCOME 1.1 The impacts of invasive species on biodiversity, economies, livelihoods and health, are widely understood and actions to manage and reduce them are supported.		
OUTPUT: 1.1.2 Government support for invasive species management is improved and the importance of IS environmental, social and economic impacts is more widely understood.		
Develop mechanisms to factor invasive species management into national and regional decision making processes.		Sustainable financing and mechanism *Develop a policy or regulation under an existing Legislation to enable the establishment of an Environment Trust Fund.* *Develop an independent board to manage the trust fund (voluntary)* *Develop guidelines for applications* *Develop rules and criteria for approval processes of applications* *Hold a Roundtable on Sustainable financing for Protected Areas*
Raise awareness and carry out outreach on the impacts of IAS.	OUTCOME 1.1 Improved conservation status of priority threatened species consistent with selected outcomes set out in the Island Biodiversity Programme of Work (IBPOW). *Community education programme undertaken on Niuafo'ou re: sustainable harvesting of eggs* OUTCOME 1.3 Improved conservation status of priority threatened marine ecosystems, consistent with selected outcomes set out in the Island Biodiversity Programme of Work (IBPOW). *Establish one or more pilot conservation areas in the Vava'u Group based on surveys and community consultations*	Develop site-level management plans *Baseline study of the protected area* *Identify specific realistic goals for management* *Develop targeted monitoring methodology* *Develop management plans (with community and relevant stakeholder input)* *Use monitoring results to update management plans* *Implementation of management plan (at least one)*
OUTCOME 1. 2. The institutions, skills, infrastructure, technical support, information management, networks and exchanges required to manage invasive species effectively are developed.		
OUTPUT: 1.2.1 A national invasive Species Coordinator is appointed and a multi-sectoral national invasive species committee is formed and operating with ongoing support from PILN.		
Establish a position to coordinate activities under Tonga's GEFPAS invasive species project	OUTCOME 2.2 Improved information systems and processes are planned or are in place in relevant agencies, to support implementation of the IBPOW. *National Project Coordinator position established and functioning*	
OUTPUT: 1.2.2. A high quality National Invasive Species Strategy and Action Plan is established.		
Prepare a National Invasive Species Strategy and Action Plan (NISSAP)		Sustainable financing and mechanism *Develop a policy or regulation under an existing Legislation to enable the establishment of an Environment Trust Fund.* *Develop an independent board to manage the trust fund (voluntary)* *Develop guidelines for applications*

GEF-PAS Invasives Activities	Related Programmes	
	GEF-PAS Biodiversity Outcomes	**PoWPA Key Actions**
		Develop rules and criteria for approval processes of applications *Hold a Roundtable on Sustainable financing for Protected Areas* Assessing the values of protected areas *Identify ecosystem service to value* *Valuation study of ecosystem service* *Communicate results to decision makers* Establishing an effective PA monitoring system *Management goals and objectives clearly identified* *Monitoring indicators identified to meet goals for the different PA system* *Financial mechanism* *Data management mechanism* *Reporting process* Developing a research programme for protected areas *Habitat modelling incorporating climate scenarios to evaluate different areas for habitat irreplaceability* *Feasibility study on rehabilitating Fanga'uta and Fangakakau Lagoon Marine Reserve* *Coral Reef Resilience*
OUTCOME 1.3 Appropriate legislation, policies, protocols and procedures are in place and operating, to underpin the effective management of invasive species.		
OUTPUT: 1.3.1. Invasive species legislation, regulations or protocols are consolidated, harmonised and rationalised to improve IS management effectiveness.		
Propose a new bill for Biosecurity using the regionally harmonised Biosecurity Bill		
Review of laws to address their ability to address IAS management		
ISM GUIDELINES - THEMATIC AREA B: PROBLEM DEFINITION, PRIORITISATION AND DECISION-MAKING		
OUTCOME 2.1 Systems are in place to generate baseline information on the status and distribution of invasive species, detect changes, including range changes and emerging impacts.		
OUTPUT: 2.1.1. Surveys or monitoring systems are implemented to document the status and/or impact of Invasives and native biodiversity in marine and terrestrial sites (including protected areas), include in databases.		
Surveys or monitoring systems are implemented to document the status and/or impact of Invasives and native biodiversity in marine and terrestrial sites (including protected areas) of Tonga. Results are included in databases.	OUTCOME 1.1 Improved conservation status of priority threatened species consistent with selected outcomes set out in the Island Biodiversity Programme of Work (IBPOW). *Surveys of Late and Fonualei Islands to assess fate of introduced populations of Tongan megapode* *Surveys of Niuafo'ou to obtain further information on status and habitat use of Tongan megapode* OUTCOME 1. 2 Improved conservation status of priority threatened terrestrial ecosystems, consistent with selected outcomes set out in the Island Biodiversity Programme of Work (IBPOW). *Complete vegetation plot establishment in Eua National Park*	Assessing gaps in the protected area network *Analyses of existing data* *Identify priorities* *Plot location of IUCN Red list species or nationally prioritised species* *Analysis of top priority sites (rare spp. Etc.)* *Report* Assessing management effectiveness for both government and communities *Management goals clearly identified* *Monitoring measures to inform the goals* *Assess whether communities can independently implement adaptive management* *Comparison of PA and controlled sites*

GEF-PAS Invasives Activities	Related Programmes	
	GEF-PAS Biodiversity Outcomes	**PoWPA Key Actions**
	OUTCOME 2.2 Improved information systems and processes are planned or are in place in relevant agencies, to support implementation of the IBPOW. *Undertake surveys of terrestrial ecosystems of Vava'u Group to identify sites for further conservation areas* *Review information, consult and carry out surveys of marine ecosystems of Vava'u Group to identify sites for conservation areas*	
ISM GUIDELINES - THEMATIC AREA C: MANAGEMENT ACTION		
OUTCOME 3.2. The impacts of established invasive species are reduced or eliminated by eradication, biological control, containment or physical-chemical control.		
OUTPUT: 3.2.1. Best practices are determined and implemented for invasive species management.		
Best practices are determined and implemented for invasive species management.	OUTCOME 1.1 Improved conservation status of priority threatened species consistent with selected outcomes set out in the Island Biodiversity Programme of Work (IBPOW). *Surveys of Late and Fonualei Islands to assess fate of introduced populations of Tongan megapode* *Surveys of Niuafo'ou to obtain further information on status and habitat use of Tongan megapode* *Recovery plan for Tongan Megapode revised as survey information obtained* OUTCOME 1. 2. Improved conservation status of priority threatened terrestrial ecosystems, consistent with selected outcomes set out in the Island Biodiversity Programme of Work (IBPOW). *Complete vegetation plot establishment in `Eua National Park* OUTCOME 1.3 Improved conservation status of priority threatened marine ecosystems, consistent with selected outcomes set out in the Island Biodiversity Programme of Work (IBPOW). *Establish one or more pilot conservation areas in the Vava'u Group based on surveys and community consultations* OUTCOME 2.2 Improved information systems and processes are planned or are in place in relevant agencies, to support implementation of the IBPOW. *Undertake surveys of terrestrial ecosystems of Vava'u Group to identify sites for further conservation areas*	Develop site-level management plans *Baseline study of the protected area* *Identify specific realistic goals for management* *Develop targeted monitoring methodology* *Develop management plans (with community and relevant stakeholder input)* *Use monitoring results to update management plans* *Implementation of management plan (at least one)* Assessing the values of protected areas *Identify ecosystem service to value* *Valuation study of ecosystem service* *Communicate results to decision makers*

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