

**A TOOLKIT**  
**to facilitate Parties to**  
**achieve Aichi Biodiversity**  
**Target 9 on invasive alien**  
**species**  
**(Prototype)**

[GIASI Partnership](#)  
[Secretariat of the](#)  
[Convention on Biological](#)  
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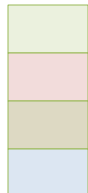


# To all users

- **Aim:** This toolkit is to explain on the international agreements related to invasive alien species, primarily stipulated in Article 8h of the Convention on Biological Diversity (CBD), as well as other multilateral agreements related to health of plants, animals and humans, for Parties to the CBD to achieve Aichi Biodiversity Target 9 with examples of implementation in different countries. This toolkit is not intended to be prescriptive .
- **How to use the toolkit:** Information covered in this toolkit contains links to the original information sources. Users of this toolkit are encouraged to access the original source for detailed information. Users can download the power point file to be used as a standalone kit, or you may use it on web browser.
- **Status of this toolkit:** This version is a prototype for review by Parties, organizations and other users. Should you find incorrect information or have requests on this toolkit, please inform to [secretariat@cbd.int](mailto:secretariat@cbd.int) with concrete information to be reflected in the toolkit.
- **Disclaimer:** The contents of this toolkit have been compiled with utmost care and to the best of knowledge by the Secretariat of the CBD in collaboration with the Global Invasive Species Information Partnership. The links to websites of third parties are not under our control. Neither the Secretariat of the CBD nor the GIASI Partnership can assume any liability for the external content.

# Purpose of this tool kit

- To explain CBD Article 8h, CBD COP decisions on invasive alien species and to outline existing international regulatory framework related to invasive alien species to assist and support Parties develop invasive alien species management policy, as well as National Biodiversity Strategies and Action Plans, national invasive species strategies and action plans and make progress in the achievement of Aichi Biodiversity Target 9. (→ Module 1 and 2)
- To update Parties and biodiversity stakeholders on existing tools to support achievement of Target 9. (→ Modules 2 and 3)
- To share information on case studies of national implementation as well as best practice in the management of invasive alien species (→ Module 3)
- Information on the CBD is marked green background with title
- Information on international guidance and tools is marked with pink
- Information on Parties practices and tools is marked with brown
- Information on GIASI Partnership tools is marked with blue
- Further to share information on opportunities for capacity development.
- This non-prescriptive toolkit is produced by the Secretariat of the CBD, in collaboration with relevant [organizations](#), in response to : [IX/4B](#), [X/28](#)



# Module 1

## **Introduction**

This module provides basic information on invasive alien species, its related terminology, the relevant articles of the Convention on Biological Diversity and decisions of the Conference of Partners related to invasive alien species.

# Invasive alien species definition

## Definition:

- Alien species refers to a species, subspecies or lower taxon, introduced outside its natural past or present distribution.
- Alien species includes any part, gametes, seeds, eggs, or propagules of such species that might survive and subsequently reproduce
- Invasive alien species means an alien species whose introduction and/or spread threaten biological diversity.

(Source :the [Guiding Principles](#))

# Invasive alien species issues

## Issues:

When alien species were introduced, some 10-15% of them were reportedly harmful to the ecosystems, habitats or species with their population growth and spread in the area, or preying on native species. **Invasive alien species has been known as a major and direct cause of biodiversity loss.**

Invasive alien species also impact on country's economy and development. The costs required to manage invasive alien species, to eradicate, reduce their rate of spread is enormous. The total documented [monetary impacts of invasive alien species in Europe amount to a total of 12.5 billion EURO / year](#). Invasive alien species that are with high risk on agriculture or environment can be rejected by importing countries. To access international markets more cost of inspection of biological (including agricultural) products would add to the management cost, above.

Invasive alien species are therefore serious hazard to biodiversity, ecosystem services, human health and sustainable development.

# Examples of invasive alien species known as hazard to biodiversity

[View 100 of the World's Worst Invasive Alien Species](#) , a selection of globally known invasive alien species that are impacting on biodiversity (IUCN-Invasive Species Specialists Group)

Invasive species have been recognized globally as a major threat to biodiversity (the collected wealth of the world's species of plants, animals and other organisms) as well as to agriculture and other human interests. It is very difficult to identify 100 invasive species from around the world that really are "worse" than any others. Species and their interactions with ecosystems are very complex. Some species may have invaded only a restricted region, but have a high probability of expanding and causing further great damage (e.g. see [Boiga irregularis](#): the brown tree snake). Other species may already be globally widespread, and causing cumulative but less visible damage. Many biological families or genera contain large numbers of invasive species, often with similar impacts. Species were selected for the list according to two criteria: their serious impact on biological diversity and/or human activities, and their illustration of important issues surrounding biological invasion. To ensure the inclusion of a wide variety of examples, only one species from each genus was selected. Absence from the list does not imply that a species poses a lesser threat.

(source: IUCN-ISSG)

[Booklet published in 2000 and updated in 2004 is also available](#)

# CBD Article 8h

- Article 8(h) of the CBD states that, 'Each contracting Party shall, as far as possible and as appropriate, prevent the introduction of, control or eradicate those alien species which threaten ecosystems, habitats or species'
- The CBD Articles are legally binding to Parties. Parties are expected to translate Article 8h into the national legislation to prevent the introduction of, control or eradicate alien species, directly or indirectly, depending on the national circumstances.

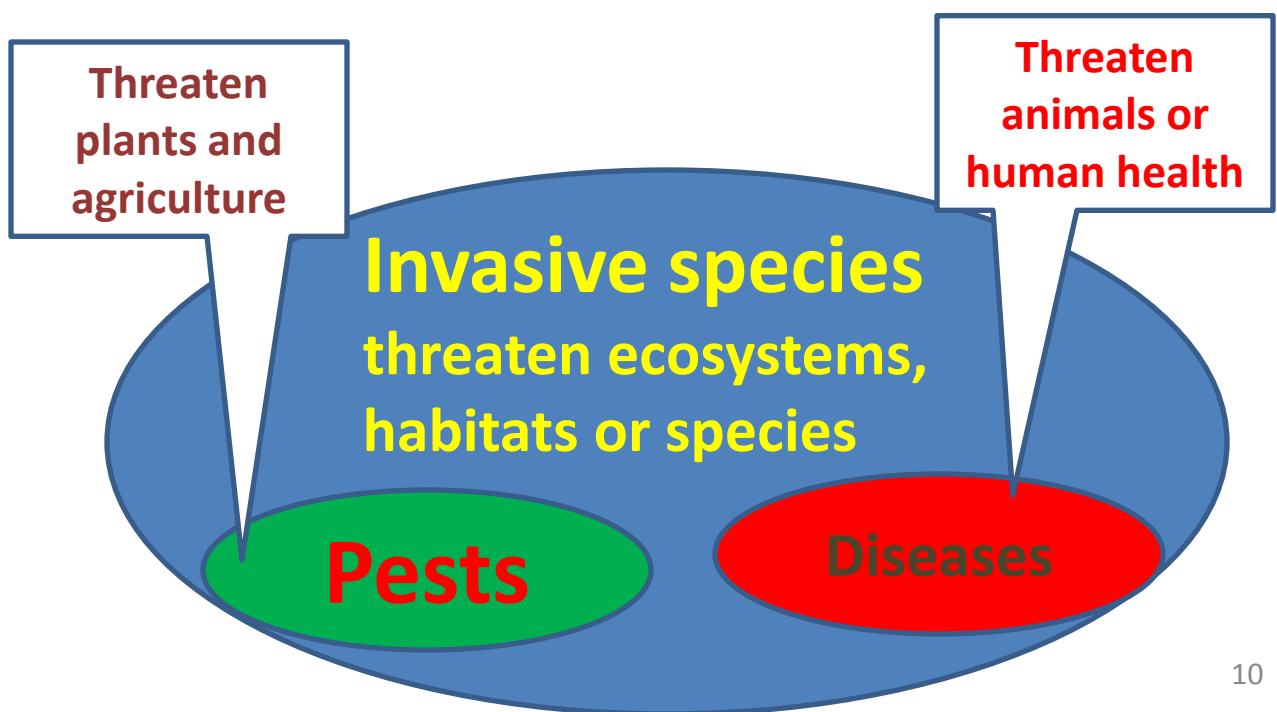


# Related text for the implementation of Article 8h

- ***There are related articles to consider to implement Article 8h, but not limited to the below:***
  - Article 3 on Principle :States have, in accordance with the Charter of the United Nations and the principles of international law, the sovereign right to exploit their own resources pursuant to their own environmental policies, and the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction.
  - Article 6 b on National Biodiversity Strategies and Action Plans: Integrate, as far as possible and as appropriate, the conservation and sustainable use of biological diversity into relevant sectoral or cross-sectoral plans, programmes and policies.
  - Article 14-1a on Impact Assessment and Minimizing Adverse Impacts : Introduce appropriate procedures requiring environmental impact assessment of its proposed projects (introduction of alien species could be considered) that are likely to have significant adverse effects on biological diversity with a view to avoiding or minimizing such effects and, where appropriate, allow for public participation in such procedures
  - Article 14-2 :The Conference of the Parties shall examine, on the basis of studies to be carried out, the issue of liability and redress, including restoration and compensation, for damage to biological diversity, except where such liability is a purely internal matter.

# Measures to manage pests and diseases are applicable to address invasive alien species

- In earlier time, pests and diseases (disease causative agents and their vectors) were recognized as harmful species to agricultural or live stocks production. They are also invasive to plants, animals or often harmful for human health (zoonosis and vectors for human disease causative agents).
- International community has developed measures to reduce risks of pests and diseases on plants, animals and their products.
- These measures to prevent entry, establishment and spread of pests and diseases have been agreed internationally as standards. They are applied to protect health of plants, animals or humans.
- Some of the standards are specifically targeted to particular pest species or organisms causing diseases.
- Many of the **standards** provide ways to analyze risks on plants or animals. The means to stop spread of pests and diseases are useful to addressing the issue of invasive alien species.



## The Guiding Principles for the Prevention, Introduction and Mitigation of Impacts of Alien Species that Threaten Ecosystems, Habitats or Species (the [Guiding Principles](#))

- In 2002 the COP noted the reports related to the Guiding Principles and urged Parties, other Governments and relevant organizations to promote and implement the Guiding Principles as a guidance to implement Article 8h.
- The Guiding Principles are not binding, which means that implementation is not obligation, but effort of implementation by Parties, other Governments and relevant organizations has been expected by the COP. For example, Parties are urged to reflect the Guiding Principles to develop national invasive alien species strategies and action plans as a part of National Biodiversity Strategies and Action Plans (NBSAPs)

# The Guiding Principle 1

## Precautionary approach

### ***Underlying concept:***

If an alien species has a suspected risk of causing harm to the ecosystem, habitat or native species, the proof of burden about “the introduction is NOT harmful” falls on those who introduce the alien species.

Principle 15 of [Rio Declaration on Environment and Development](#)

In order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.

### ***Examples of action:***

- Assess risks of alien species becoming invasive prior to moving the species beyond the area of its natural distribution.
- The precautionary approach is to be applied especially in cases of intentional introduction of alien species that are known to be invasive elsewhere
- Unless scientific proof that the alien species will not threaten biodiversity is demonstrated, no move of the alien species into a new biogeographic region should be made, even though it is within the States.

## The Guiding Principle 2

# Three-stage hierarchical approach

### ***Underlying concept:***

Response to invasive alien species based on prevention as the first line of defense, early detection and rapid action when prevention fails, eradication if feasible and, finally, management and containment of established invasions.

### ***Example of actions:***

Stage 1: Priority is to take preventive measures (risk analysis, import regulation, management of border areas)

Stage 2: Early detection and rapid response not to spread invasive alien species. Once established, eradication or control is needed

Stage 3: Mitigation of damage if ecosystems, habitats or species are threatened

## The Guiding Principle 3 Ecosystem approach

### ***Underlying concept:***

Management of invasive species is not solely based on removal or eradication of invading species but also considers the invaded ecosystem, involves communities and stakeholders and adopts a multi-sectoral approach. The integrated management of land, water and living resources will effectively support the implementation of the CBD and its Strategic Plan for Biodiversity 2011-2020.

### ***Examples of action:***

Reduce risks and minimize the impact of invasive alien species (including pests, diseases and suspected alien species) with relevant sectors (land, water, trade, transport, science...), civil society and business community, taking into account the totality of the ecosystems and their functions.

# The Guiding Principle 4

## State responsibility

### ***Underlying concept:***

Provision of measures that falls in each responsible authority on environment, agriculture, trade, transport, industry, science, health... can reduce risks and impact of invasive alien species, including pests and diseases.

### ***Examples of actions:***

- Ensure movement of known invasive species, including pests and diseases is regulated/monitored within the State and beyond State boundaries
- Implement required measures to reduce risks of invasion and minimize the impact of invasive species (incl. pests and diseases) as well as suspected alien species
- Develop list of invasive species and suspected alien species with high risk of invasion based on science and share the information with other States and the public.
- If necessary set a legislation to enforce appropriate actions

# The Guiding Principle 5

## State responsibility

### ***Underlying concept:***

Provision of measures that falls in responsible authority on environment, agriculture, trade, transport, industry, science, health... can reduce risks and impact of invasive alien species, including pests and diseases.

### ***Examples of actions:***

- Ensure movement of invasive species including pests and diseases is regulated within the State and beyond State boundaries
- Implement required measures to reduce risks and impact of suspected alien species, invasive species (incl. pests and diseases)
- Develop list of invasive species and suspected alien species with high risk of invasion based on science and share the information with other States and the public.
- If necessary set a legislation to enforce appropriate actions



## The Guiding Principle 6

# Education and public awareness

### ***Underlying concept:***

Citizens and stakeholders of biodiversity can take effective steps with sound information on invasive alien species, pests and diseases, collectively.

### ***Examples of actions:***

- Widely share information on invasive and suspected alien species and their impact on biodiversity
- Inform the public, relevant governmental and industry sectors on the negative impact of invasive alien species on biodiversity and the impact on economic loss
- Invite citizen scientists, recreation divers and tourists to early detection and rapid response, and other management programmes to address the issue of invasive alien species

# The Guiding Principle 7

## Border control and quarantine measures

### ***Underlying concept:***

International trade, transport and tourism are pathways of invasive alien species, including pests and diseases. Border controls and quarantine measures for pests and diseases can include invasive alien species in the work of border controls to stop entries of invasive alien species and suspected alien species.

### ***Examples of actions:***

- Ensure border control facility and quarantine capacity to be in place, if not yet exist
- Designate invasive alien species as regulated article to intercept at the borders with appropriate risk analysis (national legislation is required)
- Parties may use CITES framework if the known invasive species threatens endangered species in order to intercept its entry.

e.g. The CITES convention has been implemented in Europe by Commission Regulation (EC) No 338/97. This Regulation was amended by [Commission Regulation \(EC\) No 1497/2003](#) of 18 August 2003 amending Council Regulation (EC) No 338/97 on the protection of species of wild fauna and flora by regulating trade therein.

# The Guiding Principle 8 Exchange of information

## ***Underlying concept:***

Surveillance (monitoring and reporting on invasions) is fundamental mechanism to manage invasive alien species, including pests and diseases. Information on invasive species with correct taxonomic name and geographic reference is critical importance for prevention.

## ***Examples of actions:***

- Develop and update invasive alien species database or inventory with information on their taxa, ecological characteristics, distribution, risks on biodiversity
- Share the information, preferably on the Internet so that information will be widely known and it can alert neighboring countries to prevent further spread

## The Guiding Principle 9

# Cooperation, including capacity-building

### ***Underlying concept:***

Cooperation with neighboring countries where are sharing transport pathways reduce opportunities of introduction and spread of invasive alien species. Shared efforts can fill the gap of capacity if neighboring country has the needed expertise or build capacity in mutual interests.

### ***Examples of actions:***

- Develop regional invasive alien species strategies and action plans
- Develop regionally operating projects on prevention, eradication or control of priority invasive alien species

# The Guiding Principle 10 Intentional introduction

## ***Underlying concept:***

Intentional introduction of the known invasive species in a recipient/importing country could be intercepted by the national authority. Suspected alien species could be subjected to appropriate risk analysis process prior to importation/introduction (Note that burden of proof is with the proposer of the introduction or be assigned as appropriate by the recipient State)

## ***Examples of actions:***

- Develop capacity to assess risks of alien species impacting on biodiversity
- Establish national regulation on introduction /importation of invasive alien species and suspected alien species
- Apply codes of conducts relevant to invasive alien species (e.g. aquaculture species, horticulture)

# The Guiding Principle 11

## Unintentional introduction

### ***Underlying concept:***

Common pathways of unintentional introduction include: escape from confined condition; transport-stowaway (e.g. ballast water, biofouling, hitch-hikers); transport-contamination (e.g. wood packaging, contaminated timber, soil or media). Appropriate pathway management measures need to be in place

### ***Examples of actions:***

- Ensure confined condition for invasive alien species and suspected alien species with risks of becoming invasive
- Early ratification of the International Convention for the Control and Management of Ships' Ballast Water and Sediments
- Application of sanitary and phytosanitary measures on trade goods and commodity

# The Guiding Principle 12

## Mitigation of impacts

### ***Underlying concept:***

Once the establishment of an invasive alien species has been detected, States, individually and cooperatively, should take appropriate steps such as eradication, containment and control, to mitigate adverse effects.

### ***Examples of action:***

- Containment of invasive species with fence, nets or other means
- Early detection and rapid response in surrounding area
- Eradication or control with appropriate risk and cost-benefit analysis to select methods and duration
- Restoration of damaged biodiversity with native species to maintain ecosystem resilience

# The Guiding Principle 13

## Eradication

### ***Underlying concept:***

The best opportunity for eradicating invasive alien species is in the early stages of invasion, when populations are small and localized; hence, early detection systems focused on high-risk entry points can be critically useful while post-eradication monitoring may be necessary.

### ***Examples of actions:***

- Removal of targeted invasive species (for e.g. mammal predators) while considering impacts on non-target species, recipient ecosystem and restoration
- Early detection and rapid response - Destruction and eradication of ant nests- incursions discovered as a result of surveillance and monitoring



# The Guiding Principle 14

## Containment

### ***Underlying concept:***

When eradication is not feasible, limiting the spread (containment) of invasive alien species is an appropriate strategy in cases where the range of the organisms or of the population is small enough. Regular monitoring is essential and it needs to be linked with rapid response to eradicate in any new area of infestation.

### ***Examples of action:***

- Analyze feasibility of containment based on risk of impact vs needed tools and their cost to select target species
- Conduct continuous monitoring on the targeted species to ensure early detection and rapid response in case of the escapes

- [link to best practices]

# The Guiding Principle 15

## Control

### ***Underlying concept:***

When complete eradication nor containment is possible, reducing the damage caused, as well as reducing the number of the invasive alien species would be an option.

### ***Examples of action:***

- Analyze effectiveness of control vs doing nothing on the ecosystem, habitats or species. Control methods may include mechanical, physical, chemical or biological (with appropriate risk analysis on the bio-control agent, if applied). Effectiveness of cost vs control should be analyzed prior to selecting method bearing in mind that control cost can be large depending on the scale of operation.
- Conduct continuous monitoring on the targeted species to ensure that the invasive alien species remains lower than the acceptable level.

# Relevant COP decisions

## Implementation of the Guiding Principles

- Parties and other Governments were urged, in implementing the Guiding Principles, and when developing, revising and implementing national biodiversity strategies and action plans, to review relevant policies, legislation and institutions in light of the Guiding Principles to identify gaps, inconsistencies and conflicts, and, as appropriate, adjust or develop policies, legislation and institutions (paragraph 10 (c) of decision [VI/23](#)\*).

\* One representative entered a formal objection during the process leading to the adoption of this decision and underlined that he did not believe that the Conference of the Parties could legitimately adopt a motion or a text with a formal objection in place. A few representatives expressed reservations regarding the procedure leading to the adoption of this decision (see UNEP/CBD/COP/6/20, paras. 294-324).

# Relevant COP decisions

## Implementing the Guiding Principles in a broader context

The Conference of the Parties highlighted the relevance of the Guiding Principles to various aspects of work on invasive alien species in different decisions, for example to:

- Increase communication and public awareness about the environmental, social and economic impacts of the introduction of invasive alien species (decision [VIII/27](#), paragraph 13);
- Achieve the objectives of the Convention, its Strategic Plan and the 2010 biodiversity targets, and other global goals such as the Millennium Development Goals (decision [IX/4](#) B, paragraph 1);
- Apply the precautionary approach with regards to the introduction, establishment and spread of invasive alien species, for agricultural and biomass production, including biofuel feedstocks, and for carbon sequestration (decision [X/38](#), paragraph 6); and

# Aichi Biodiversity Target 9

By 2020, Parties are expected to achieve the target with following actions:

- **Identify and prioritize** invasive alien **species and pathways**;
- priority species are **controlled or eradicated**;
- Measures are in place to **manage pathways** to prevent their introduction and establishment

See also [CBD Quick guide for Aichi Biodiversity Target 9](#)

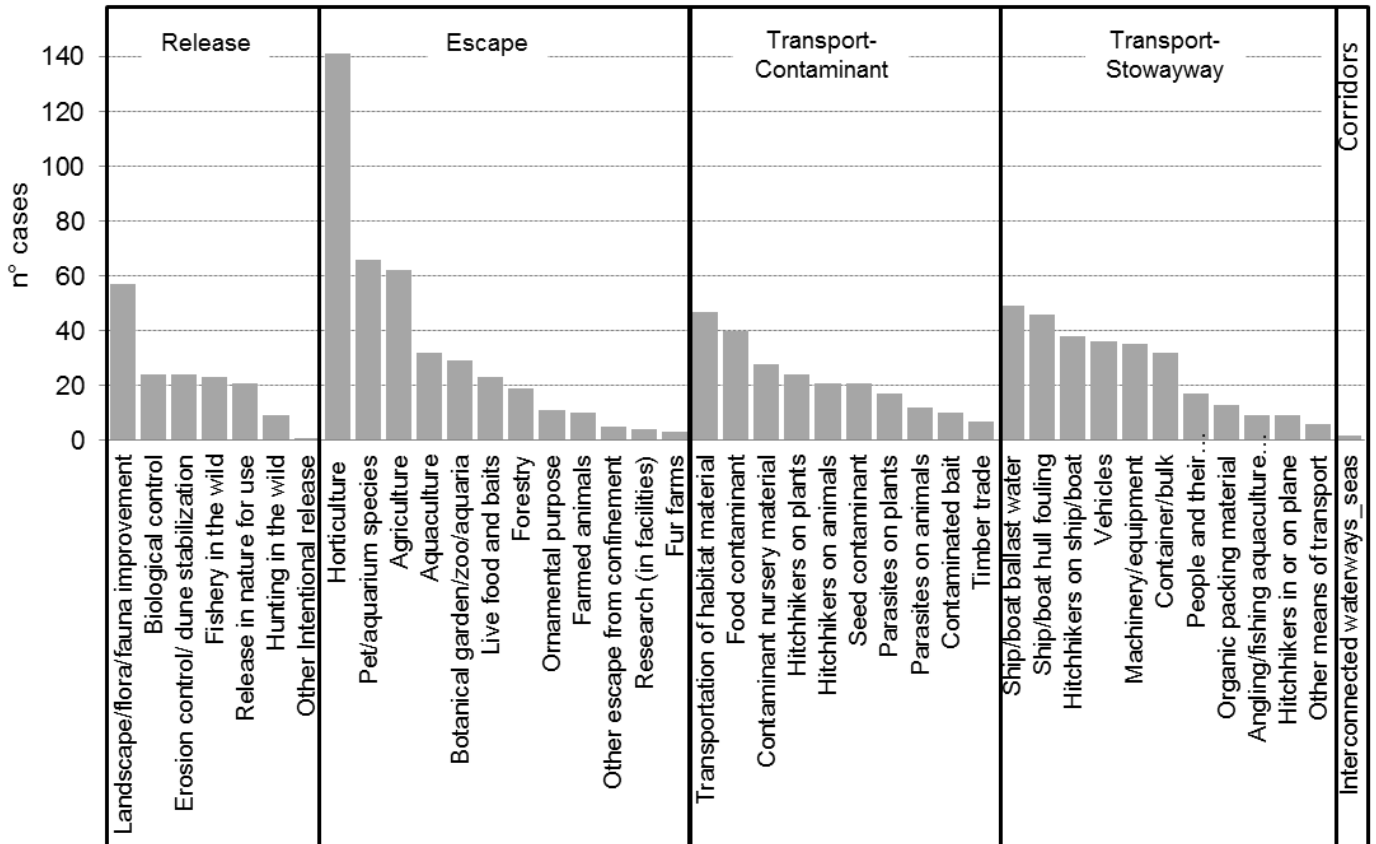
Target 9: By 2020, invasive alien species and pathways are identified and prioritized, priority species are controlled or eradicated and measures are in place to manage pathways to prevent their introduction and establishment.

(see also decision [X/2](#) on the Strategic Plan for Biodiversity 2011-2020)

# Priority invasive alien species to be controlled or eradicated

- Prioritization is a process. [The Invasive Non-Native Species Framework Strategy for Great Britain](#) explains the process of prioritization. Key actions in the strategy include:
  - agree, with the Risk Analysis Panel and key stakeholders, a set of guiding principles for assessing and identifying what action or range of actions is feasible in terms of containment,
  - control or eradication; use the risk analyses to identify priority invasive species and priority impacted habitats for mitigation and control action at GB and/or national levels, including consideration of the feasibility of eradication programmes;
  - designate lead bodies or working groups to draft management plans for the priority invasive species and impacted habitats, taking into account scope for integration with any relevant Invasive Species Action Plans (ISAPs) already created for prevention of introduction purposes;
  - develop and resource key GB level action programmes that are cost-effective, evidence-based and proportionate to the threat level;
  - establish mechanisms to embrace individual initiatives as contributions to coherent programmes of action on the high level priorities;
  - acknowledge priorities at different scales (GB, national, regional and local), and encourage effective partnerships;
  - draw together a database of projects to facilitate better information sharing and to make the best of opportunities for partnership working and other resource synergies; and,
  - look for further ways to support individuals in tackling the problems caused by invasive non-native species.

# Pathways of introduction of alien species



Level 2 categories

Common pathways were categorized by experts in six groups: **Release; Escape; Transport-Contaminants; Transport-Stowaway; Corridors; and Unaided** (natural dispersals).

The figure above shows that frequencies of each common pathway and in its subcategories of pathways.

[source: [UNEP/CBD/SBSTTA/18/9/Add.1](https://www.unep.org/cbd/sbstta/18/9/Add.1)]

# Pathways management

- Regulation of the deliberate **release** pathway often places responsibility on the *applicant* for release of an alien species who, in order to secure a permit for such release must demonstrate that the risk of invasiveness is minimized;
- Regulation of the **escape** from confinement pathway often places responsibility on the *importer* of an alien species who must demonstrate that the risk of escape is minimized or that the consequences of escape are not important (i.e., the species is not invasive). Management of the escape pathway also often requires cooperation of the industry (e.g., pet shops) and the general public (e.g., pet owners);
- Regulation of the **contaminant** pathway is very closely tied to international trade, and international standards play an important role in balancing the need for control with the need to avoid undue trade disruption. The *importing* country may use border controls and quarantine procedures. The *exporter* will often take measures to demonstrate that sanitary and phytosanitary standards are respected;
- The carrier plays a major role on managing the **stowaway** pathway to reduce the risks from transport vectors;
- For the, **corridors** and **natural spread from a neighbouring region**, monitoring for early detection and rapid response to evidence of species occurrence and spread are important.



# International guidance on pathways management

## Release

- [The Guiding Principles 7, 10](#). The COP to the CBD adopted the Guiding Principle 1 (Precautionary Approach) as a base of management of introduction of alien species.

See also [ISPM 3](#) and [Export, shipment, import and release of bio-control agents](#); FAO Technical Guidelines for Responsible Fisheries [No. 13 on recreational fisheries](#)

[source: [UNEP/CBD/SBSTTA/18/9/Add.1](#) Annex 1 with modifications]

# International guidance on pathways management

## Escape

- Regulation of the escape from confined condition often places responsibility on the importer of an alien species, who must demonstrate that the risk of escape is minimized. [The Guiding Principles 7, 10,11](#) on border controls, risk analysis on escapes and unintentional introduction provide basic principles regarding this pathway. [source: UNEP/CBD/SBSTTA/18/9 Annex 1 with modifications]

### Escapes of plants:

See [ISPM21](#) for reducing risks associated with plant imports (horticulture/agriculture), and [ISPM 25](#) for addressing risks of escapes from the consignment on transit.

### Escapes of animals:

See [“Ecological risk assessment and management of exotic organisms associated with aquaculture activities”](#)

[See also annex to COP12 decision on pets...live food]

### Best practice on plant introduction!

[Code of Conduct on Horticulture and Invasive Alien Plants](#) explains means to address the risk of escape of plants for planting from confined condition and their impacts on biodiversity.

# International guidance on pathways management

## Contaminant

- The following contaminants are considered as pathways of invasive alien species but not limited to them. The links to applicable international guidance for each subcategory of pathways include:
  - Contaminated bait → [FAO Tech Guidelines 13](#)
  - Contaminant on animals → OIE Animal Health Codes
  - Contaminant on plants/timber/nursery materials → [ISPM 36](#) and other ISPMs for regulated non-quarantine pests
  - Seed contaminant → [the OECD schemes for the varietal certification of seeds](#)
- To prevent contamination in the products for exporting materials establishment of pest free area is effective → [ISPM 10](#)

[source: [UNEP/CBD/SBSTTA/18/9/Add.1](#) Annex 1 with modifications]

# International guidance on pathways management

## Stowaway

- [The Guiding Principle No.11](#) indicates :
  - Common pathways leading to unintentional introductions need to be identified and appropriate provisions to minimize such introductions should be in place.
  - Sectoral activities, such as fisheries, agriculture, forestry, horticulture, shipping (including the discharge of ballast waters), ground and air transportation, construction projects, landscaping, aquaculture including ornamental aquaculture, tourism, the pet industry and game-farming, are often pathways for unintentional introductions.
  - Environmental impact assessment of such activities should address the risk of unintentional introduction of invasive alien species. Wherever appropriate, a risk analysis of the unintentional introduction of invasive alien species should be conducted for these pathways.
- A number of tools are available to manage or minimize the risks associated with ship/boat ballast water and ship/boat hull fouling.
  - [IMO Guidelines on: ballast water ; bio-fouling , bio-fouling](#)
- Organic packaging materials often provide pathway for stowaway
  - [ISPM 15](#)

[source: [UNEP/CBD/SBSTTA/18/9/Add.1](#) Annex 1 with modifications]

# International guidance relevant to pathways management

## Natural spread from a neighboring region

- [The Guiding Principle No.11](#) indicates :
  - Common pathways leading to unintentional introductions need to be identified and appropriate provisions to minimize such introductions should be in place.
  - Sectoral activities, such as fisheries, agriculture, forestry, horticulture, shipping (including the discharge of ballast waters), ground and air transportation, construction projects, landscaping, aquaculture including ornamental aquaculture, tourism, the pet industry and game-farming, are often pathways for unintentional introductions.
  - Environmental impact assessment of such activities should address the risk of unintentional introduction of invasive alien species. Wherever appropriate, a risk analysis of the unintentional introduction of invasive alien species should be conducted for these pathways.
- [ISPM 30](#) provides a useful guidance on surveillance and measures to maintain low prevalence levels of targeted species, fruit fly, which can be considered as a hint to manage natural spread of other small organisms, as appropriate. Close collaboration with national plant protection organization (contact point for the IPPC) is a good practice.

[source: [UNEP/CBD/SBSTTA/18/9 /Add.1](#) Annex 1 with modifications]

# Module 2

## International Guidance that are relevant to invasive alien species management

This module provides information on International regulatory framework relevant to invasive alien species and its guidance.

The guidance covered in this module are:

- The World Trade Organization Agreement on the Application of Sanitary and Phytosanitary Measures (SPS Agreement)
- The International Plant Protection Convention
- The OIE Animal Health Codes
- Guidelines on ballast water management (IMO)
- Guidelines on bio-fouling (IMO); and
- Other relevant guidance related to invasive alien species.

Tools that assist implement the international guidance developed by the above are also inserted at appropriate pages in this toolkit

# Separate international responses to invasive species

- **ANIMAL DISEASES AND ZOOONOSIS:** International agreement for the creation of an office international des epizooties (OIE) in Paris (1924-)
- **HUMAN COMMUNICABLE DISEASES:** International Health Regulations (1951)
- **PESTS:** International Plant Protection Convention (1952)
- **HEALTH ISSUE AND TRADE:**

GATT 1947 recognized the need to introduce trade restrictions to protect health. Exceptions from GATT rules were allowed for measures necessary to protect human, animal or plant life or health (Article XXb).

Among many other concerns, sanitary and phytosanitary measures were one of the areas addressed by the Uruguay Round of trade negotiations, which resulted in the creation of the WTO in 1995. The Marrakesh Agreement Establishing the World Trade Organization contains a number of trade agreements in its annexes, including the Agreement on the Application of Sanitary and Phytosanitary Measures (SPS Agreement).

- **INVASIVE ALIEN SPECIES:**
  - **Convention on Biological Diversity(1992)**
  - **The Guiding Principles (CBD) (2002)**
  - **International Convention for the Control and Management of Ships' Ballast Water and Sediments (2004)** not enacted yet
  - Relevant resolutions under CITES (2004)
  - Relevant resolutions under CMS (2014)

# Application of sanitary and phytosanitary measures

## ***What are sanitary or phytosanitary measures?***

- Sanitary or phytosanitary measures can take many forms, including laws, decrees, regulations, requirements; testing, inspection, certification and approval procedures; quarantine treatments; requirements associated with the transport of animals or plants; sampling procedures; and methods of risk assessment.
- The SPS Agreement defines sanitary and phytosanitary measures as any measure applied with one of the following objectives:
- To protect animal or plant life or health from risks arising from the entry, establishment or spread of pests, diseases, disease-carrying organisms or disease-causing organisms;
- To protect human or animal life or health from food- or feed-related risks;
- To protect human life or health from risks arising from diseases carried by animals, plants or their products, or from entry, establishment or spread of pests;
- To prevent or limit other damage from the entry, establishment or spread of pests.
- The definition of the term “sanitary or phytosanitary measure” is contained in the SPS Agreement, Annex A, paragraph 1. The SPS Agreement is available at [http://www.wto.org/english/docs\\_e/legal\\_e/15-sps.pdf](http://www.wto.org/english/docs_e/legal_e/15-sps.pdf).
- The definition provided in Annex A of the SPS Agreement clarifies that the word “animal” is intended to include fish and wild fauna, the word “plant” includes forests and wild flora, and “pests” include weeds.
- Most actions taken by Governments to address the risk of the introduction of alien species through trade would thus be considered to be SPS measures and covered by the SPS Agreement. Some of these actions could be considered to have the objective of protecting the health or life of native animal or plant species from negative effects of invasive alien species. Other actions would aim to prevent other damage from the entry, establishment or spread of pests, presumably including damage to infrastructure, landscapes or ecosystems.

• [source UNEP/CBD/SBSTTA/18/8 annex]



# The WTO Agreement on the Application of Sanitary and Phytosanitary Measures (SPS Agreement)

## ***What rights and obligations are contained in the SPS Agreement?***

- Members of the World Trade Organization have the right to take sanitary and phytosanitary measures that are necessary for the protection of human, animal or plant life or health, even if these measures result in trade restrictions. However, these SPS measures have to be consistent with the provisions of the SPS Agreement. This means, for example, that the measures must be based on scientific principles, must not be discriminatory in their effect on other WTO members' exports, and that must not be more trade-restrictive than is necessary to achieve the desired level of sanitary or phytosanitary protection.
- [source UNEP/CBD/SBSTTA/18/8 annex]

# SPS Agreement

## *Harmonization and international standards*

- The SPS Agreement encourages WTO members to harmonize their SPS measures on the basis of international standards, guidelines and recommendations, since harmonization reduces costs for producers and traders and generally facilitates trade. SPS measures that conform to international standards, guidelines or recommendations are deemed to be necessary to protect plant and animal health, and are presumed to be consistent with the SPS Agreement.
- This pages 29- of this module summarizes the provisions of the SPS Agreement contained mainly in Articles 2, 3 and 5. Of course, the SPS Agreement contains many other obligations, including with respect to recognition of equivalent measures, adaptation of measures to regional conditions, transparency etc. More information is available at [www.wto.org/sps](http://www.wto.org/sps).
- [source UNEP/CBD/SBSTTA/18/8 annex]

# Standard setting organizations under the WTO SPS Agreement

- The SPS Agreement explicitly recognizes the international standards, guidelines and recommendations developed by three organizations:
  - For plant health, those developed by the [International Plant Protection Convention](#).
  - For animal health and zoonoses, those developed by the [World Organisation for Animal Health](#) (OIE);
  - For protecting consumers' health and ensuring fair practices in the food trade, those developed by the [Codex Alimentarius Commission](#);
  - For matters not covered by these three organizations, there is a possibility that the SPS Committee could identify standards developed by other relevant international organizations, but so far there has never been a proposal to recognize another standard-setting body.

# SPS-Agreement

## ***Alternatives to harmonization - measures based on a risk assessment***

- If no relevant international standard exists, or when a WTO member wishes to deviate from an existing international standard, measures have to be based on a risk assessment. These risk assessments must take into account the risk assessment techniques developed by the relevant international organizations, which in the case of invasive alien species would refer mainly to the techniques developed by the International Plant Protection Convention and the World Organisation for Animal Health.
- A risk assessment is defined as the evaluation of the likelihood of entry, establishment or spread of a pest or disease within the territory of an importing member according to the sanitary or phytosanitary measures which may be applied, and of the potential impacts on biological diversity and socio-economic values. Risk assessments also have to take into account available scientific evidence; relevant processes and production methods; prevalence of specific diseases or pests; existence of pest- or disease-free areas; relevant ecological and environmental conditions; and quarantine or other treatment.
- The SPS Agreement does not require that each WTO member carry out its own risk assessment. Where a regional, academic or other body - or for instance a neighbouring country - has carried out a risk assessment that is appropriate to the circumstances of the importing member, nothing would stop that member from relying on such a risk assessment as a basis for a measure. Of course, the importing member has to make sure that the risk assessment fulfils the requirements for instance to take into account the techniques developed by International Plant Protection Convention and World Organisation for Animal Health.
- In situations where relevant scientific evidence is insufficient to carry out a risk assessment, the SPS Agreement allows members to adopt provisional SPS measures on the basis of the available pertinent information, including that from relevant international organizations and from measures applied by other members. When they adopt such provisional measures, members have to try to obtain additional information to allow them to carry out a risk assessment, and to review the provisional measure within a reasonable period of time.

# SPS-Agreement

## Phytosanitary Measures

- The International Plant Protection Convention (IPPC) promotes action to protect plants and plant products from the spread of pests, and sets out measures to control plant pests. To protect the world's cultivated and natural plant resources from the spread and introduction of plant pests while minimizing interference with the international movement of goods and people, the International Plant Protection Convention provides an international framework for plant protection that includes [International Standards for Phytosanitary Measures \(ISPMs\)](#).
- ISPMs provide guidance on phytosanitary principles for the protection of plants, and the application of phytosanitary measures in international trade, with specific standards covering : [pest risk analysis](#) ,import and export systems, post-border controls, and surveillance and reporting on pests and diseases (see also section III B of [UNEP/CBD/COP/11/INF/33](#))

[source [UNEP/CBD/SBSTTA/18/8](#) annex]

# Why pest risk analysis is important to address invasive alien species?

- [The ISPM 11, Pest Risk Analysis for Quarantine Pests](#), is an international standard to assess the risk of pests or alien plants becoming invasive, on which basis countries may decide whether to allow or prohibit the import of a pest, or which measures need to be undertaken in order to minimize the analysed risk.
- Training materials for Pest Risk Analysis based on ISPM11 is available at [Pest Risk Analysis on Phytosanitary Resources](#) web site
- [The ISPMs also provide measures for risk management](#). Appropriate measures should be chosen based on their effectiveness in reducing the probability of introduction of the pest with respect to the phytosanitary principles of [ISPM 1](#) and through appropriate risk communication. In accordance with these principles, phytosanitary measures need to be cost-effective and feasible; they must not be more trade-restrictive than necessary; and measures should be applied to the minimum area necessary for the effective protection of the endangered area and others.

# Why ISPMs are important to address invasive alien species?

- The ISPMs also provide measures for risk management. Appropriate measures should be chosen based on their effectiveness in reducing the probability of introduction of the pest (or suspected alien species) with respect to the phytosanitary principles of [ISPM 1](#) and through appropriate risk communication.
- In accordance with these principles, phytosanitary measures need to be cost-effective and feasible; they must not be more trade-restrictive than necessary; and measures should be applied to the minimum area necessary for the effective protection of the endangered area and others.

[source UNEP/CBD/SBSTTA/18/8 annex]

# SPS-Agreement

## Pest risk management

***When assessed risk is not acceptable for importing / receiving country what the country should do to reduce the risk?***

- According to ISPM 11, phytosanitary measures taken in relation to environmental hazards, such as invasive alien species, should, as appropriate, be notified to relevant competent authorities responsible for national biodiversity policies, strategies and action plans. It has been noted in this ISPM that the communication of risks associated with environmental hazards is of particular importance to promote awareness.
- The International Plant Protection Convention and the principle of “transparency” (ISPM 1) require that countries should, on request, make available the rationale for phytosanitary requirements (measures to reduce the identified risk, including prohibition of import)

[source [UNEP/CBD/SBSTTA/18/8](#) annex]



# When assessed risk is not acceptable for importing/receiving what should States do ?

- According to ISPM 11, phytosanitary measures taken in relation to environmental hazards, such as invasive alien species, should, as appropriate, be notified to relevant competent authorities responsible for national biodiversity policies, strategies and action plans. It has been noted in this ISPM that the communication of risks associated with environmental hazards is of particular importance to promote awareness.
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[source [UNEP/CBD/SBSTTA/18/8](#) annex]

# When a suspected alien species with pest risk would be imported what States should do?

- [ISPM 20, Guidelines for a Phytosanitary Import Regulatory System](#), provides guidance on a regulatory framework of phytosanitary legislation, phytosanitary regulations and phytosanitary procedures, which serves as a framework to undertake the measures referred to in previous paragraphs. It includes principles for drafting phytosanitary import requirements in accordance with the SPS Agreement.
- Legal authority (legal power) is required for virtually all aspects of the operational component of the import regulatory system. It must be sufficient to enable National Plant Protection Organization officers or other authorized personnel to function effectively and efficiently.
- See also a training module on WTO-SPS Agreement developed by UNCTAD regarding [the Rights, Obligations and Responsibilities of the IPPC, ISPMs and WTO-SPS Agreement with particular reference to the Import Regulatory System](#)

[source UNEP/CBD/SBSTTA/18/8 annex with modification]

# Measures to address animal diseases

- World Organisation for Animal Health (OIE) has set some strategic objectives and among others, the following two objectives are particularly relevant to the control of invasive alien species:
  - Develop scientifically based standards and guidelines for the international community on all matters concerning animal health, veterinary public health, and animal welfare;
  - Communicate timely and accurate animal disease information, including information on zoonoses, by making the best use of scientific data modelling, modern information technologies, and tracking systems for non-official information.
- The OIE standards, recognized by the SPS Agreement as the international standards for animal health including zoonoses, are published as the OIE Animal Health Codes (Terrestrial Animal Health Code and Aquatic Animal Health Code) and the OIE Manuals (Manual of Diagnostic Tests and Vaccines for Terrestrial Animals and Manual of Diagnostic Tests for Aquatic Animals). These international standards cover a wide range of animal health and veterinary public health matters. These standards include issuing notifications, undertaking import risk analyses, surveillance, disease prevention and control measures, establishing trade requirements for animals and animal products, and requiring the use of diagnostic tests and vaccines.

[source [UNEP/CBD/SBSTTA/18/8](#) annex]

# Measures to address animals disease vectors

- The World Organisation for Animal Health urges its Member Countries to apply the standards to prevent the spread of animal pathogens and facilitate safe trade of animals and animal products thereof. Animal pathogens considered to be invasive alien species are covered by the OIE standards. In particular, the World Organisation for Animal Health listed diseases such as foot and mouth disease and avian influenza under its disease-specific standards.
- In addition, animal health measures provided for in the OIE standards can be applied to invasive alien animals that are carriers of animal pathogens and, where relevant, pathogens for wild animals.
- Early detection and early response is key for tackling highly contagious animal diseases; the same applies for invasive alien species control. The World Organisation for Animal Health's animal disease information system (World Animal Health Information System: WAHIS) plays a central role in this regard. In addition, the World Organisation for Animal Health launched in January 2014 its new disease information system (WAHIS-Wild) dedicated to wild animals, in light of the growing importance of the role of wildlife in animal disease prevention and control at the human/animal/environment interface.

# Measures to address invasive animal species to ecosystem, habitats or species

- While there is an OIE standard on import risk analysis for animal pathogens, the OIE does not specifically address invasive alien species (IAS) animals that are not animal pathogens or potential carriers of animal pathogens. However, the principles of risk analysis are equally applicable for border control measures for both pathogens and IAS animals that are pathogens. The OIE developed [\*Guidelines for assessing the risk of non-native animals becoming invasive\*](#) as guidelines complementary to the OIE standards on import risk analysis, which can be applied to alien animals that are not pathogens nor carrier of pathogens.

[source UNEP/CBD/SBSTTA/18/8 annex]

# Technical assistance for developing countries

- WTO-SPS Members agree to facilitate the provision of technical assistance. [Article 9 of SPS-Agreement](#) indicates a mechanism set under the WTO for developing and particularly least-developed country Members to fulfill its SPS requirement to permit the developing country Member to maintain and expand its market access opportunities for the product involved. [Article 10 of SPS Agreement](#) contains provisions on “special and differential treatment” in SPS measures for developing countries, which include funding for capacity building in least-developed countries.
  - The Standards and Trade Development Facility ([STDF](#)) supports developing countries in building their capacity to implement international SPS standards, including ISPMs and OIE Animal Health Codes and Manuals to improve their human, animal, and plant health status and ability to gain or maintain access to markets.
- See also [STDF web site on invasive alien species](#)
- STDF publication on [International Trade and Invasive Alien Species](#)

# Tools for implementation of international regulatory framework related to invasive alien species

In the following slides tools that are developed for implementation of international regulatory framework (CBD, WTO-SPS Agreement, IPPC, OIE framework, guidelines on Aquaculture and guidelines under the International Maritime Organization) are briefly explained.

# What is Risk Analysis?

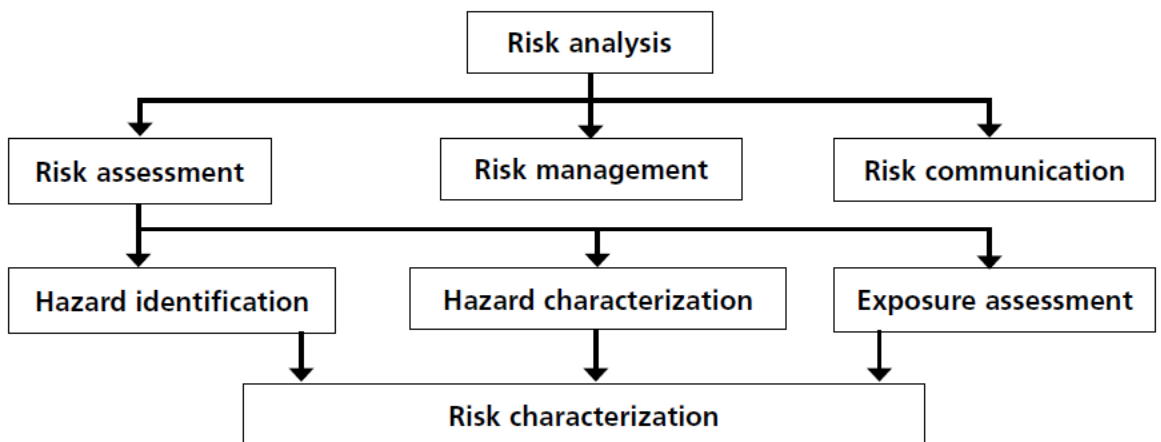
A risk analysis typically seeks to answer four questions:

- What can go wrong?
- How likely is it to go wrong?
- What would be the consequences of its going wrong?
- What can be done to reduce either the likelihood or the consequences of its going wrong?

The general framework for risk analysis typically consists of four major components:

- Hazard identification – the process of identifying hazards that could potentially produce consequences;
- Risk assessment – the process of evaluating the likelihood that a potential hazard will be realized and estimating the biological, social and/or economic consequences of its realization;
- Risk management – the seeking of means to reduce either the likelihood or the consequences of it going wrong; and
- Risk communication – the process by which stakeholders are consulted, information and opinions gathered and risk analysis results and management measures communicated.

The risk analysis process



[Source: [Understanding and applying risk analysis in aquaculture](#)]



# Pest Risk Analysis

- Pest risk analysis (PRA) has been developed and implemented in plant health community, primarily under the International Plant Protection Convention (IPPC).
- PRA can be applied to assess risk to agriculture, biodiversity, and environment posed by a pest, weed or an invasive alien plant. PRA standards developed by the IPPC consider the risks on biodiversity and the environment.
- To learn PRA access [pest risk analysis training materials](#) (the IPPC phytosanitary resources)



# The OIE guidelines for assessing the risk of non-native animals becoming invasive

## Scope of the guidelines:

- In the framework of the international movement of animals, it is important to analyse both the risk of a non-native animal becoming invasive and the risk of pathogens being introduced with the animal. These different risks should be assessed as separate, sequential and complementary processes.
- The OIE standard for import risk analysis covers the potential movement of pathogens. The guidelines developed in this document are intended to address the complementary process of assessing the risk of non-native animals becoming invasive.

→ [OIE guidelines for assessing risks of non-native animals becoming invasive](#)

# Import Risk Analysis in Australia

- Import risk analyses identify and classify potential quarantine risks and develop policies to manage the risks posed by importation or proposed importation of animals, plants or other goods. Suspected invasive alien species can be analyzed their risks prior to decision making on their importation.
- [Import risk analysis handbook 2011](#) developed by the Government of Australia explains:
  - Australia's biosecurity framework consistent with the WTO SPS Agreement
  - Managing import proposals
  - Import risk analysis process
  - Policy determination
  - Implementation of management measures

# Weed Risk Assessment System in Australia

The Weed Risk Assessment System (WRA system) is a question-based assessment of the weed potential of plants proposed for import.

Assessment involves answering up to 49 questions on specific characteristics of a plant. The answers generate a numerical score relating to the weed potential of that plant. The score is used to determine an outcome: accept the species for importation; reject the species for importation; or reject pending further evaluation of the species' weed potential.

Visit [WRA](#) web page provided by the Government of Australia and questions to assess weed risk is [downloadable](#) on the page.

# Guidelines on ballast water management

- [The International Convention for the Control and Management of Ships' Ballast Water and Sediments](#) (the Ballast Water Management Convention) was adopted by the Conference February 2004; Entry into force will be 12 months after ratification by 30 States, representing 35 per cent of world merchant shipping tonnage. As of August 2014 40 Parties ratified the BWM Convention representing 32.5 percent of the tonnage.
- Several articles and regulations of the Ballast Water Management Convention refer to guidelines to be developed by the Organization.
- It should be noted that due to the complexity and multi-disciplinary nature of the problem posed by the aquatic invasive species in ships ballast water, the work is in its pioneering phase and knowledge is only now gathering in this respect. The Guidelines are kept under review by the MEPC and will be updated as new technologies emerge and additional knowledge becomes available.
- [List of Guidelines for the uniform implementation of the Ballast Water Management Convention](#)

# Guidelines on bio-fouling set by the IMO

Biofouling is the accumulation of aquatic organisms such as microorganisms, plants and animals, on surfaces and structures immersed in or exposed to the aquatic environment. Biofouling may also be known as hull fouling .

- The IMO Marine Environment Protection Committee have set out [RESOLUTION MEPC.207\(62\) on Guidelines for the Control and Management of Ships' Biofouling to minimize the transfer of invasive aquatic species](#) (Adopted on 15 July 2011)
- Guidance for minimizing the transfer of invasive aquatic species as biofouling (hull fouling) for recreational craft [\(MEPC.1/Circ. 792\)](#) provides guidance to minimize biofouling for recreational craft less than 24 metres in length.
- Guidance for evaluating the 2011 guidelines for the control and management of ships' biofouling to minimize the transfer of invasive aquatic species [\(MEPC.1/Circ.811\)](#) identifies the types of performance measures that could help to assist in evaluating the different recommendations in the Guidelines.

# Economic Analysis

- Invasive species have many unique and unusual characteristics which set them apart from other environmental and land use issues, meaning that analysis does not lend itself easily to conventional economics models.
- Experts in biological invasion under the Global Invasive Species Programme published [A Toolkit for the Economic Analysis of Invasive Species](#) which provides information on: invasive species as biological entities ; to understand the economic reasons why alien species are introduced, and become invasive ; to establish the scope and level of the impacts of invasives and their management; to understand and define the economic costs and benefits of invasives; value the economic effects of invasives on ecosystems and human wellbeing ; and support and inform decision-making and identify economic and financial instruments which can be used to address invasives.

# Fact sheets on invasive alien species

Fact sheets developed by experts, Governments or networks provide useful information to understand the feature of invasive alien species, taxonomic information, ecology and how to address the issue.

The following shows accessible fact sheets on the Internet, but not limited to them, to learn on species that are recognized as invasive alien species at the regions.

- [Agricultural Research Council](#) (South Africa)
- [Asia Pacific Forest Invasive Species Network Fact sheet Archive](#) (APFSIN)
- [BioNET-EAFRINET Fact Sheets on Invasive Plants](#) (East Africa)
- [Invasive Species in Australia](#) (Australia)
- [NOBANIS Invasive alien species fact sheets](#) (Europe)
- [Identification sheet of GB non-native species secretariat](#) (UK)
- [USGS Non-indigenous Aquatic Species](#) (USA)



# Surveillance programme on invasive alien species

- There are voluntary web presenting sites on invasive alien species occurrences at the various levels as below, but not limited to them. No official obligation on invasive alien species monitoring, reporting or presenting systems currently exist under the CBD.

## **Global:**

The Global Invasive Alien Species Partnership – [GIASIP Information Gateway](#)

CABI Invasive Species Compendium - [ISC](#)

Global Invasive Species Database - [GISD](#)

Global Invasive Species Information Network - [GISIN](#)

## **Regional:**

ASEAN Center for Biodiversity – [Invasive species in the ASEAN](#) Region

Asia Pacific Forest Invasive Species Network – [APFI SN country reports](#)

Delivering Alien Invasive Species Inventories for Europe-[DAISIE](#)

East and South European Network for Invasive Alien Species -[ESENIAS Alert](#)

The IABIN Invasives Information Network - [I3N](#)

## **National :**

[Invasive Alien Plant Alert](#) – SANBI, South Africa

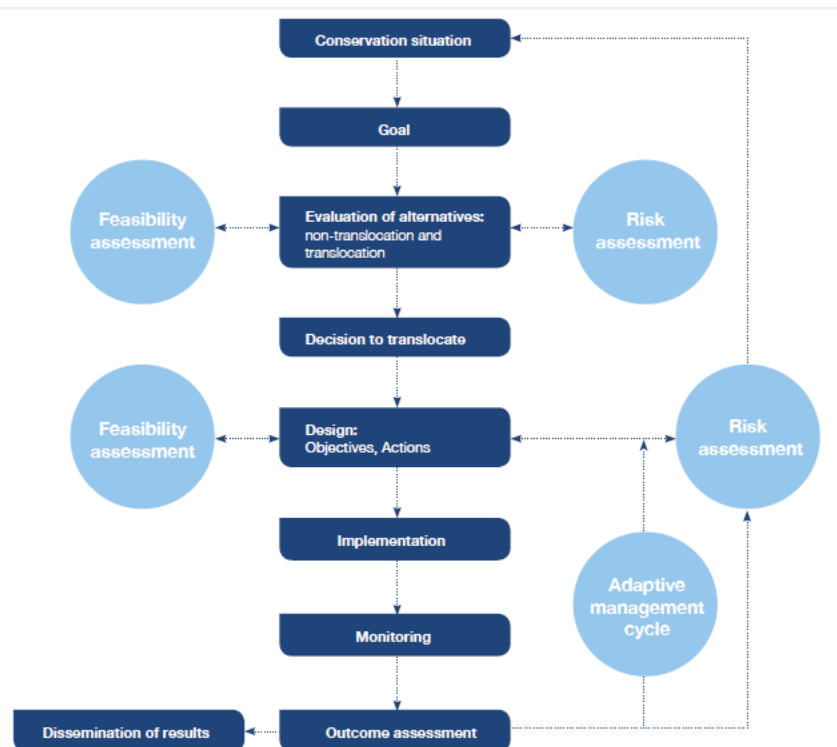
- Surveillance means official monitoring and reporting process on presence or absence of the targeted hazards under the IPPC and OIE.
- The IPPC guides its national or regional plant protection organizations to make information on regulated pests available to the contracting parties and present pest reporting, pest status and pest free area. See also [pest reporting](#) on the IPPC web site.
- The OIE provides [World Animal Health Information Database](#) (WAHID) on:
  - immediate notifications and follow-up reports submitted by Country / Territory
  - Members notifying exceptional epidemiological events current in their territory six-monthly reports stating the health status of OIE-listed diseases in each Country / Territory.
  - Annual reports providing health information and information on the veterinary staff, laboratories and vaccines, etc.
- The OIE [WAHIS-Wild](#) presents status of wild animal diseases that are not OIE-listed.

# Surveillance programme on pests and diseases

- Surveillance means official monitoring and reporting process on presence or absence of the targeted hazards under the IPPC and OIE.
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  - Annual reports providing health information and information on the veterinary staff, laboratories and vaccines, etc.
- The OIE [WAHIS-Wild](#) presents status of wild animal diseases that are not OIE-listed.

# Restoration and rehabilitation of ecosystems degraded by the presence of invasive alien species, including the socio-economic aspects

- Risks in the restoration and rehabilitation of ecosystems are multiple, affecting in many ways on the species used, their associated communities and ecosystem functions. It is intentional introduction and release pathway are involved.
- IUCN [Guidelines for Reintroductions and Other Conservation Translocations](#) provides principles for safe introduction of live plants and animals for conservation purposes based on the risks associated with their translocations.



# Overall guidance on prevention and management of invasive alien species (GISP)

- [A Toolkit of Best Prevention and Management Practices](#) developed by the Global Invasive Species Programme explains step by step process on management of invasive alien species at a national level with possible options.

# Eradication and management of invasive alien species on islands

Proceedings of the International Conference on Island Invasives held in Auckland, New Zealand 2010, [Island Invasives :Eradication and Management](#) provides up-to-date information on:

- Overviews on planned and attempted eradications on islands
- The technologies and approaches to eradications, such as dealing with multiple invasive species
- The results and outcomes of eradications, especially responses by native species
- The roles and approaches that involve people, policy and invasion prevention (biosecurity)

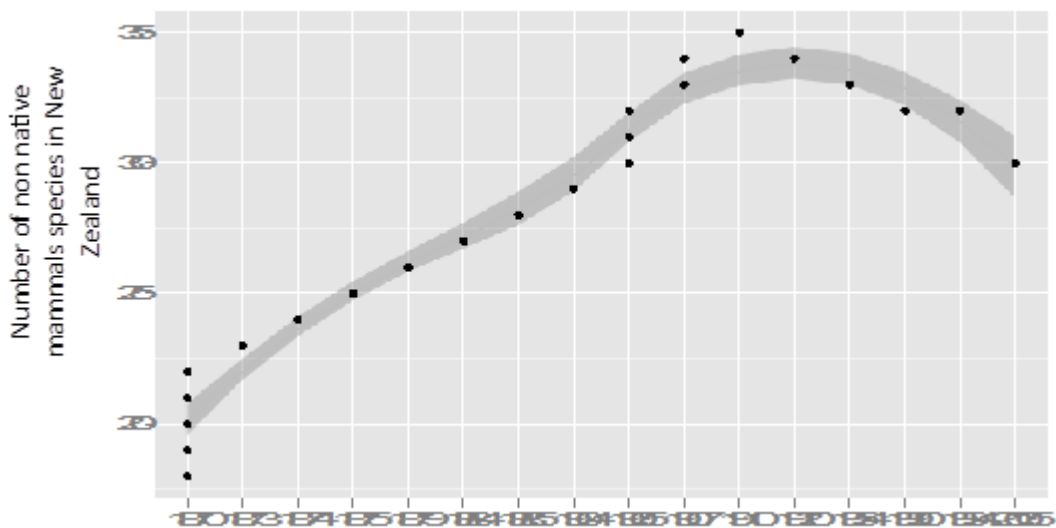
# Module 3

## **Examples of national implementation**

This module provides examples of national implementation to achieve Aichi Biodiversity Target 9 on invasive alien species – “By 2020, invasive alien species and pathways are identified and prioritized, priority species are controlled or eradicated and measures are in place to manage pathways to prevent their introduction and establishment”

# Biosecurity Act 1993 New Zealand legislation

[Biosecurity Act 1993](#) of New Zealand sets overarching policy on pests and unwanted organisms across ministries and relevant actors. Biosecurity measures in New Zealand are consistent with the WTO SPS Agreement and guard against threats to agriculture and biodiversity with strict border control measures, pathways and post-border managements being taken to prevent unwanted organisms (*i.e.* invasive species) from entering, establishing and spreading in the country.



Number of non-native mammal species in New Zealand between 1876 and 2005 (points), Grey line represents the fit with Loess fit, and the shade represents the 95% confidence interval. Data compiled by M. Clout, P. Genovesi from Simberloff et al. (2012), updated by J. Russell.

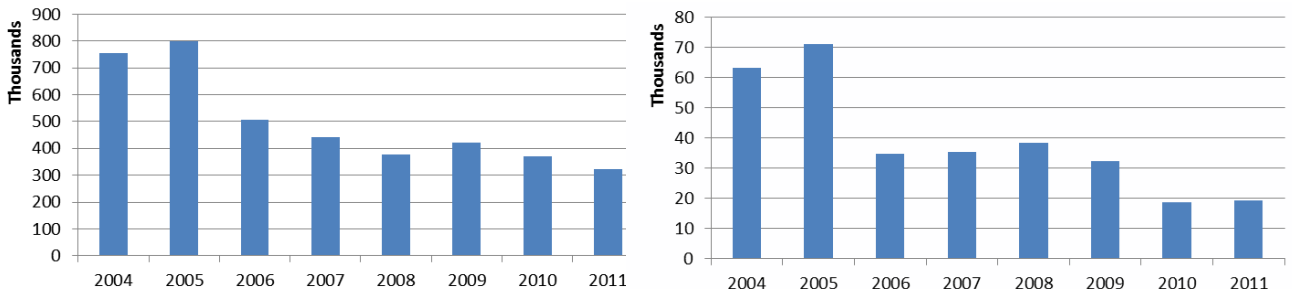
[source: Global Biodiversity Outlook 4ed. Technical document chapter 9]

# Invasive Alien Species Act 2004 Japan legislation

[Invasive species act 2004 law No. 78](#) (enacted in 2005) under the announcement of national policy by the Cabinet regarding implementation of relevant measures to prevent various damages caused by invasive alien species. The lists of (i) designated invasive alien species (IAS); (ii) Uncategorized Alien Species (UAS); and (iii) living organisms required to have a certificate attached (LORCA) are produced in consultation with an expert panel. The public was invited to provide comments on these lists, which were subsequently presented to WTO Members.

Measures to manage the listed invasive alien species are :

- Breeding, planting, keeping, and carrying of the listed invasive alien species are prohibited in Japan, unless permission from the competent authorities has been obtained. Specific cases can be exempted from this requirement.
- Import and transfer of the listed invasive alien species are also prohibited unless the appropriate permission has been granted by the competent authorities.
- Release of the listed species is prohibited under any condition.



Annual import of live reptiles (Left) and live birds (Right) 2004-2011 in Japan.  
The Invasive Alien Species Act was enacted in 2005.

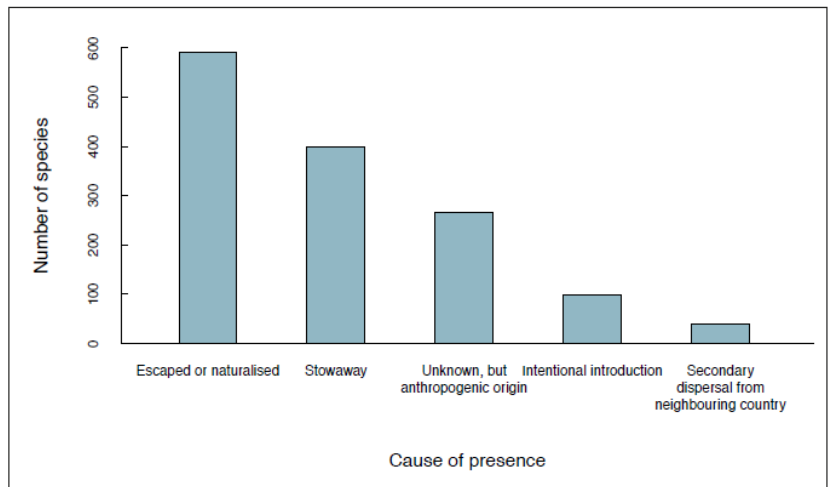
[source: UNEP/CBD/SBSTTA/18/8 with modification]



# Alien species in Norway

## with the Norwegian Black list 2012

[Alien species in Norway – with the Norwegian Black List 2012](#) published by the Norwegian Biodiversity Information Centre focuses exclusively on assessments of ecological impact on 2595 species. 1180 species which are considered alien species in Norway and reproduce or have the potential to reproduce in the wild in Norway within the next 50 years.



Causes of presence of alien species in Norway

## **REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on the prevention and management of the introduction and spread of invasive alien species (2014)**

- [The REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on the prevention and management of the introduction and spread of invasive alien species](#) lays down rules to prevent, minimise and mitigate the adverse impacts of the introduction and spread, both intentional and unintentional, of invasive alien species on biodiversity and the related ecosystem services, as well as other adverse impact on human health or the economy.
- The Commission will adopt an open list of invasive alien species of Union concern, which will be regularly updated and reviewed at least every six years. Species on this list may not be intentionally brought into the territory of the EU, nor may they be kept, bred, transported to, from or within the Union, placed on the market, grown or released into the environment.
- The new regulation also addresses invasive alien species of regional concern and of member state concern. It allows member states to identify, from their national list of invasive alien species of member state concern, species native or non-native to the Union that require enhanced regional cooperation. Such regional cooperation will be facilitated by the Commission.
- The regulation also establishes a surveillance system for early detection and measures for rapid eradication. Furthermore, member states must provide for penalties if the regulation is not correctly applied.
- The regulation also provides for a system of authorizations and permits to allow certain activities based on invasive alien species.

# Invasive alien plants and their management in Africa

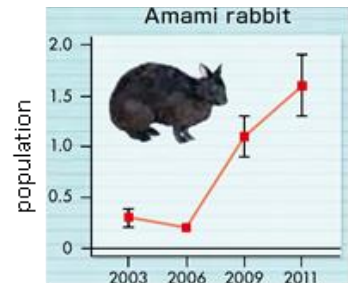
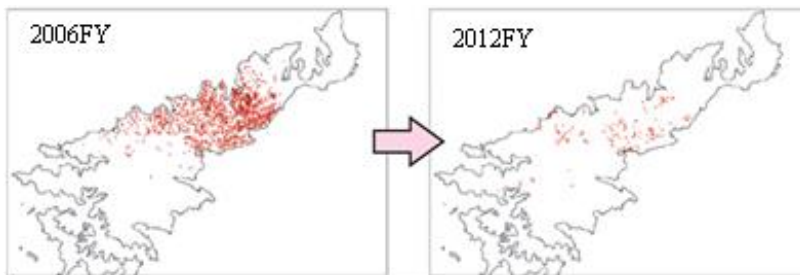
- The GEF funded project – ‘*Removing barriers to invasive Plant Management in Africa*’ conducted in Ethiopia, Ghana, Uganda and Zambia 2005-2008 improved level of awareness on invasive alien species and importance of preventive measures on blocking influx and dispersal of known plant invaders. Yet challenges were also identified after the four years project.
- The synthesis report ‘[Invasive Alien Plants and their management in Africa](#)’ describes that a national invasive species strategies and action plans has been developed in each country. Web sites on invasive alien species were developed in [Ethiopia](#) and others. Risk analysis procedures were strengthened with [Australian Weed Risk Assessment system](#) .
- Recommendations arising from the project in the synthesis report include:
  - Extended time for implementation is needed to attain the required capacity
  - Baseline information on occurrence of invasive alien plant species is urged to develop
  - Engagement of high level policy makers
  - Cost-benefit analysis and the link between biodiversity and socio economic welfare could facilitate implementation of preventive measures which is often conflict with immediate socio-economic impact
  - More emphasis need to be made on cost-effective management practices
  - More investment is needed from donor countries, aid agencies and NGOs

# Regionally harmonized strategies and action plans on invasive alien species in the Pacific island countries

- Island ecosystems are known to be the most vulnerable to invasive alien species. The National Biodiversity Strategies and Action Plans in the Pacific island countries included invasive species strategies and action plans in line of [Guidelines for Species Management in the Pacific](#).
- A [review of the national plans and current activities](#) describes the status of national implementation as of 2010 and recommended continued strengthening of biosecurity across all Pacific Island to reduce the spread of invasive species, including having in place appropriate legislation and policies, strengthening of facilities, development and implementation of control procedures, staff capacity development and adequate human and financial resources. It also highlighted the importance to determine the feasibility and cost of different management options and to ensure the efficient use of limited management resources available.
- Useful resource kits for management of invasive alien species in islands:
  - [Rodent and cat eradication](#) (the Pacific Invasives Initiative)
  - [Invasive plants management](#) (the Pacific Invasives Initiative)

# Successful invasive alien mongoose control and recovery of an endangered species *Pentalagus furnessi* in Japan

- Mongooses, *Herpestes javanicus* were introduced in Okinawa island and Amami-oshima island for the purpose of bio-control on poisonous snakes *Protobothrops flavoviridis*. In Okinawa, *Herpestes javanicus* expanded and preyed on endemic rabbit *Pentalagus furnessi*, which resulted in significant decrease in its population and distribution.
- [Eradication projects](#) included collaborative actions of:
  - Pest control programme initiated by the local government
  - Development of customized traps and eradication planning by experts
  - Public awareness raising campaign
  - Engagement of citizens (Mongoose busters) and trainings
  - Monitoring and analysis on cost and effectiveness by experts



The number of sites where mongooses were captured in the northern part of Amami island. The number of captured mongooses reached zero in 2012 (Left). The number of animals observed along a 41.1 km long forest road per survey at night (Right) showed significant recovery of the threatened species (*Pentalagus furnessi*).

# Formulation and implementation of the national strategy on invasive alien species in Argentina 2014-2018

The GEF funded project “*Strengthening of Governance for the Protection of Biodiversity through the Formulation and Implementation of the National Strategy on Invasive Alien Species (NSIAS)*” is designed with the components of mainstreaming biodiversity, application of payment mechanism for ecosystem services and corporate social responsibility, participatory approach, progress monitoring and information dissemination.

A network system of the institutions involved will be formed, allowing the exchange of information and application of appropriate management strategies in situations of risk, invasion and / or monitoring of introduction of invasive alien species.

See [Project identification Form](#) of the approved project

# Failure case of invasive alien species management

## **Biological control agent *Cactoblastis cactorum* extended range and impact on non-target native cacti**

*Cactoblastis cactorum* is a moth that preys specifically on cacti species. It has been introduced in various locations around the globe to provide biological control of invasive cacti species and has proved itself successful in Australia and some Caribbean islands. However, from the Caribbean it spread into Florida and has attacked non-target cacti species. It is feared that it will cause large scale losses of native cacti diversity in North America and possibly have a large economic, social and ecological impact in *Opuntia* rich areas of southwestern USA and Mexico.

[source: IUCN-ISSG]

# Acknowledgements

The Global Invasive Alien Species Information Partnership have disseminated information that may support Parties to achieve Aichi Biodiversity Target 9 on invasive alien species with generous financial support from the European Union. Some of the information were disseminated at the 17<sup>th</sup> meeting of SBSTTA and Capacity building workshops for Parties to achieve Aichi Biodiversity Target 9. The feedback from the users of earlier dissemination and suggested information by the GIASI Partnership were incorporated to this toolkit.

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