POLICY BRIEF

No. 2
FEB 2021

CABI Caribbean and Central America • Centre for Agriculture and Bioscience International

IMPROVING BIOSECURITY WILL SAFEGUARD OUR HEALTH, ECONOMY AND IRREPLACEABLE BIODIVERSITY

The movement and subsequent establishment of non-native or invasive alien species (IAS) outside of their natural geographic distribution threatens biodiversity, habitats and ecosystems. The adverse impact of these invasions includes the erosion of ecosystems and the loss of goods and services they provide, along with a decline or extirpation of native species through competition, predation, or transmission of diseases. IAS also have a negative socio-economic impact on key economic sectors such as agriculture, fisheries, forestry, tourism and trade.

The overarching goal of biosecurity is to manage the risks posed by IAS to the lives and health of animals and plants. Preventing breeches in biosecurity is therefore critical in all countries but even more so in Small Island Developing States (SIDS).

IAS pose a substantial threat to the Caribbean, one of the world's biodiversity "hotspots" where there is a significant reservoir of terrestrial and marine biodiversity.

Biosecurity is a strategic and integrated approach that includes the policy and regulatory frameworks for analysing and managing relevant risks to human, animal and plant life and health, and associated risks to biodiversity and the environment. Biosecurity covers food safety, zoonoses, the introduction of animal and plant diseases and pests, the introduction and release of living modified organisms (LMOs) and their products (e.g. genetically modified organisms or GMOs), and the introduction and management of Invasive Alien Species (IAS)

(FAO Biodiversity Tool Kit Part 1)

Adopting a declare, dispose or be fined policy at air and seaports can significantly improve biosecurity.

Impact

At a global level, the United Nations Environment Programme (UNEP) has estimated that IAS represent a major factor in the potential extinction of 30% of threatened bird species and 15% of threatened plant species. Overall, approximately two-thirds of species extinctions may involve competition with invasive species.

Although they only occupy 3% of the worlds land area, islands are home to 15% of bird, reptile and plant species, and 67% of marine endemics (i.e. species unique to a particular geographic location) in the surrounding oceans. Much of this incredible biodiversity has been lost, mainly due to IAS, with 64% of global extinctions occurring on islands while 45% of island species are critically endangered. At a global level, IAS have been responsible for 39% of animal extinctions, mainly on these diverse islands. At present, 67% of globally threatened birds inhabiting oceanic islands are threatened with extinction compared to only 30% on continents.

The impacts of invasive species are complex and difficult to quantify. Mack et al. (2000) estimated that the costs of IAS to the United States was US$138 billion/year. Pimentel et al (2001) estimated damage from invasive species worldwide at more than US$1.4 trillion – at the time that was close to 5% of global gross domestic product.

This policy brief highlights some actions that need to be urgently adopted by decision makers to enhance biosecurity in general and also to prevent the introduction of IAS into Barbados and the islands of the Organisation of Eastern Caribbean States (OECS).

POLICY BRIEF
No. 2 FEB 2021

Current State of Biosecurity in Barbados and the OECS

A survey of the current state of biosecurity at ports of entry in Barbados and the OECS by Roberts and Ramnanan (2019) found that none of these countries had a single agency with overall responsibility for biosecurity. Rather, the task was shared by several government ministries, units and departments, including those in charge of agriculture (plant and animal quarantine); finance (customs and excise); health (public health and food safety); and trade and transportation (air and seaport authorities). Poor communication among these entities has resulted in little to no coordination, contributing to an increased risk of invasions by IAS. Efforts at communication were also deficient at air and sea ports, with messages largely limited to communicating risks to passengers.

The national authorities responsible for biosecurity in the OECS are guided by the International Plant Protection Commission, the World Organization for Animal Health and the World Health Organization. Although there is a draft IAS strategy for the OECS that calls for improved biosecurity, it has not been implemented. Currently, risk analysis is limited to the introduction of certain crop pests and diseases, and restrictions on the movement of specific animal and human diseases.

The survey also found no comprehensive legislation or policy focusing on biosecurity. Although many aspects were addressed via multi-lateral agreements, implementation was challenged by poor staffing and infrastructure. This is summarized in the table below.

Invasive Species and Biosecurity Capacities in Barbados and the OECS

Legislation/Agreement/Regulation/ Licence Supporting Biosecurity/ Biosafety and Invasive Species Management/Control	Existing in Country						
	Antigua-Barbuda	Barbados	Dominica	Grenada, Carriacou, Petit Martinique	Saint Lucia	St. Kitts-Nevis	St. Vincent & The Grenadines
Access and benefits sharing agreement and oversight	Yes	Yes	Yes	Yes	Yes	Yes	?
Agricultural extension expertise/framework	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Biosafety/biosecurity oversight	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Endangered species trade oversight	No	?	Yes	?	Yes	No	Yes
Framework actively supporting invasive species and biosecurity measures	Yes	No	Yes	No	Yes	No	No
Internal border security/quarantine	Yes	No	No	No	No	No	No
International border security	Yes	Yes	Yes	Yes	Yes	Yes	Yes
International/regional trade oversight	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Invasive species control/oversight	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Multi-lateral agreements/regulation/licence overseeing biodiversity conservation	Yes	Yes	Yes	Yes	Yes	Yes	Yes
National health inspection framework/ oversight	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Plant/animal quarantine	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Plant/animal specimen collection and expertise	No	Yes	Yes	Yes	Yes	Yes	Yes
Regional agricultural expertise and cooperation frameworks	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Shipping management framework/oversight	Yes	Yes	Yes	Yes	Yes	Yes	Yes

? - Information not available at the time of the study

POLICY BRIEF
No. 2 FEB 2021

What is Needed

Strengthening existing national biosecurity systems:
Urgent action is needed to strengthen national biosecurity systems in Barbados and the OECS. In the first instance, support must be given to:

1. Enhancing policy and legal frameworks that give those in authority the power to take actions to minimize identified risks;
2. Conducting risk analysis to determine what new species are most likely to be introduced and develop plans to prevent their entry;
3. Communicating the risks to all stakeholders with a call for collective action to minimize the risks;
4. Strengthening competent authorities with the necessary tools, staff and infrastructure; and
5. Most importantly, improving national and regional cooperation and collaboration.

Policy and Legal Frameworks:
The global experience of managing the virulent and invasive novel corona virus, Covid19, has focused attention on the need to effectively protect borders from IAS. The pandemic clearly demonstrated the importance of having clear policies and legislation in place to effectively respond to unwanted breeches of the national biosecurity systems. Caribbean islands must ensure that national policies are up to date with the supporting legal framework to deal with all biosecurity threats. The Caribbean-wide enactment and implementation of harmonised legislation based on international standards, will enable Caribbean countries to meet the requirements of international conventions and also have the necessary precautions in place to limit the introduction of invasive species.

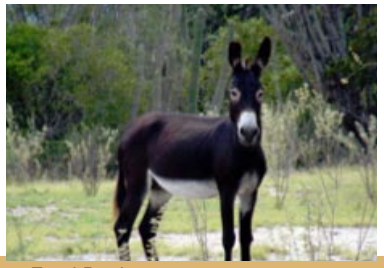
Conduct Risk Analysis:
The most cost-effective strategy for dealing with IAS is prevention. Risk assessments are necessary to identify threats (pest or disease); determine where they might come from; how they might enter; how they might spread; and their potential socio-economic, environmental and trade impacts. Economic considerations of the strategies for the exclusion and quarantine of IAS threats would then inform the selection of biosecurity measures. These measures are essential in preventing incursions of those species that have been determined to be at high-risk of becoming invasive, and developing emergency response plans to manage them if they do breach the borders. Ideally the biosecurity system would target known threats, but also adopt best practices for implementing early detection and a rapid response to combat any new incursions.

Communicate Risk:
Identified risks must be proactively communicated with key stakeholders, such as those engaged in surveillance at ports of entry as well as those responsible for border security, including customs and excise, the coast guard and other security services. The general public should also be informed of risks.

Strengthen Staff and Infrastructure:
An essential component of an effective biosecurity system is a cadre of trained staff that is aware of the key biosecurity risks faced by the country, supported by the tools and equipment necessary to conduct effective surveillance, detection and elimination of potential threats before they enter and spread within national borders.

Improve National and Regional Cooperation and Collaboration:
This will be guided by international instruments that formulate best practices for veterinary public health management *(through the OIE - World Organisation for Animal Health)* and for plant health *(through the NPPO - National Plant Protection Organization, which falls under the umbrella of the IPPC - International Plant Protection Convention Secretariat).*

Antigonon vine
Credit: Dr. Arne Witt, CABI



Feral Donkey
Credit: Mr. Carlos Rijo

Lionfish
Credit: Dr. Dayne Buddo

Green Vevet Monkey
Credit: Dr. Kerry Dore

gef GLOBAL ENVIRONMENT FACILITY INVESTING IN OUR PLANET
UN environment United Nations Environment Programme
CABI
PREVENT Invasives in the CARIBBEAN

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Key Messages

Effective national biosecurity is essential to prevent, control and manage the risks posed by Invasive Alien Species (IAS), particularly in island countries.

The support of the legal drafters and key decision makers is required to develop comprehensive policies, action plans and the supporting legal frameworks for biosecurity.

Biosecurity systems should target known threats and also be flexible enough to prevent or detect unexpected or even unknown threats.

Communication and public awareness of the risks posed to plant, animal and human health and the wider natural environment from biosecurity breeches needs to be significantly improved.

A strong well-resourced national biosecurity agency should be urgently established in every island to effectively coordinate national programmes to reduce biosecurity risks.

Each country should adopt practical measures in coordination with the other countries and within the framework of CARICOM and the Free Movement of Goods within the OECS.

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This policy brief is the second in a series providing information to decision makers on the actions needed to address the problem of invasive alien species. The briefs are produced by the Project, **'Preventing the Costs of IAS in Barbados and the OECS'**, which started in September 2018 and will run to July 2021.

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The project results will support the conservation of biodiversity in the Caribbean region and so contribute to the global efforts to safeguard biodiversity.

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Project : Caribbean Invasives