Briefing note: Impacts of Invasive Non-Native Species (INNS) are already widespread and likely to worsen with climate change on Anguilla

Key messages

Invasive Non-Native Species (INNS) are a major and growing threat to the people and biodiversity of Anguilla.

Some of the established INNS of most concern in Anguilla include common green iguanas (*Iguana iguana*), Green monkey (*Chlorocebus* sp.), Giant African land snail (*Achatina fulica*), fire ants (various species including *Solenopsis*) and Tropical bull nettle (*Cnidoscolus urens*).

Many INNS arrive through unintentional introduction including as stowaways in cargo but some species are introduced intentionally including release of exotic pets.

Prevention through effective biosecurity is the most effective and least costly approach to reducing the threat of invasive non-native species.

Climate change is expected to foster the spread of invasive non-native species and intensify their negative impacts.

Raising awareness and capacity-building and cross sectoral working are critical for the prevention and control of invasive non-native species.

Sustained and adequate resourcing and engagement by all stakeholders is needed to improve the effectiveness of actions for long-term management of biological invasions. Darwin Plus funding has been important to support work on INNS and the GB Non-Native Species Secretariat has an ongoing programme to improve biosecurity across all the UKOTs funded by Defra.

There are many exemplary successful invasive non-native species management programmes on Anguilla including projects to restore off islands and "mainland island" led by the Anguilla National Trust[1] and management of the Tropical Bull nettle by the Government of Anguilla (Department for Natural Resources)[2] which have been possible because of the dedicated and skilled teams within these organisations.

There are gaps in understanding the complex ways in which non-native species will respond to climate change in the unique context of Anguilla. Supporting ongoing research and monitoring[3][4] could provide the key knowledge for managing invasive non-native species, including through restoration of ecosystems, and limiting the impacts on people and society.

Managing INNS in Anguilla

Like many islands across the world, Anguilla harbours a large number of invasive non-native species and is at risk from many more. Invasive non-native species are a major and growing threat to biodiversity but also impact human health, food and water security, economies including tourism.

The magnitude of impacts of invasive non-native species on biodiversity and ecosystems can be massive. As an example, the common green iguana (*Iguana iguana*) has been introduced to many

[1] https://axanationaltrust.com/
[2] https://darwinplus.org.uk/project/DPLUS125/
[3] https://www.ceh.ac.uk/our-science/projects/enhancing-monitoring-and-prevention-invasive-non-native-species-across-ukots
[4] https://darwinplus.org.uk/project/DPLUS203

Caribbean Islands where they threatened native biodiversity. On Anguilla common green iguanas pose an extinction risk to the endemic Lesser Antillean iguana (*Iguana delicatissima*). To mitigate this risk surviving Lesser Antillean iguanas have been relocated and reintroduced to offshore islands, through a programme led by the Anguilla National Trust, where effective biosecurity limits the introduction of invasive non-native species. Management of common green iguanas in the Cayman Islands has cost over $10M since 2018, with annual costs of $0.8M required to sustain low population levels of common green iguana.

The GB Non-Native Species Secretariat alongside local partners, including the Department of Natural Resources and the Anguilla National Trust, supports strengthening of biosecurity and action against INNS. Current work includes a review of existing legislation to identify measures to improve biosecurity legislation and assistance with an options assessment for the management of invasive green monkeys.

Background Information

The Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) Thematic Assessment Report on Invasive Alien Species and their Control[5] provides a critical evaluation of knowledge on biological invasions from across the world. Many of the key messages are relevant for islands particularly the interactions between climate change and biological invasions:

- People and nature are threatened by invasive alien species in all regions of Earth {KM-A1}[6]. **On islands, invasive alien species are a major cause of biodiversity loss** {A3}. Some areas protected for nature conservation or remote areas are also vulnerable to the negative impacts of invasive alien species {A3}. For example, on more than a quarter of islands, the number of alien plants exceeds the total number of native plants {A3}. In addition, the majority of documented global extinctions attributed mainly to invasive alien species are reported from islands {A3}.
- **Islands are also disproportionately vulnerable to climate change**, which can increase the rate of establishment and spread of many invasive alien species{A3}.

Interactions between climate change and invasive non-native species may affect water security and promote more intense fires

Climate change can increase the magnitude of impacts of invasive alien species. Invasive alien plants, especially trees and grasses, can sometimes be highly flammable and therefore promote more intense and frequent fire regimes, causing increased risks to nature and people and increased carbon release into the atmosphere {B13}. Certain invasive alien plants, such as shrubs and trees, can reduce

[5] IPBES (2023). Summary for Policymakers of the Thematic Assessment of Invasive Alien Species and their Control of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. Roy, H.E., Pauchard, A., Stoett, P., Renard Truong, T., Bacher, S., Galil, B.S., Hulme, P.E., Ikeda, T., Kavileveettil, S., McGeoch, M.A., Meyerson, L.A., Nuñez, M.A., Ordonez, A., Rahlao, S.J., Schwindt, E., Seebens, H., Sheppard, A.W., Vandvik, V. (eds.). IPBES secretariat, Bonn, Germany. https://doi. org/10.5281/zenodo.7430692

[6] Key messages extracted from the Summary for Policymakers of the Thematic Assessment of Invasive Alien Species and their Control are given in grey text. The references enclosed in curly brackets (e.g., {KM-C1, B11}) are traceable accounts and refer to sections of the Summary for Policymakers of the IPBES Assessment of Invasive Alien Species and their Control. A traceable account is a guide to the section in the summary for policymakers and the chapters that contains the evidence supporting a given message and reflecting the evaluation of the type, amount, quality, and consistency of evidence and the degree of agreement for that statement or key finding.

water availability, especially in scenarios of increasing drought caused by climate change {Box SPM.4}.

On Anguilla there are some invasive non-native plants that are highly flammable including the African fountain grass.

Climate change may lead to increases in the establishment and spread of invasive non-native species

Climate change, along with the continued intensification and expansion of land-use change may lead to future increases in the establishment and spread of invasive alien species in disturbed habitats and in nearby natural habitats {B12}.

Governance options relevant to management of invasive non-native species on islands

Access to adequate and sustained financial and other resources underpins and improves the effectiveness of actions for long-term management of biological invasions, including eradication, control and ongoing monitoring, by, for example, providing access to modern tools and enhancing capacity to deploy them {C23}.

Public awareness, commitment and engagement, and capacity-building, are crucial for the prevention and control of invasive alien species {KM-D6}.

Engagement by all stakeholders, governments and the private sector helps to optimize management of biological invasions in terms of economic, environmental and social outcomes, particularly when resources are limited {C23}.

Enhancing research capacity in some regions and collaboration between biological invasion experts and across knowledge systems could improve data and information availability as well as understanding of the context-specific features of invasive alien species and their impacts {D32}.