Invasive species in Anguilla

Authors Jill Key[1], Olaf Booy[1] and Rhon Connor[2]

1 Great Britain Non-native Species Secretariat, Animal and Plant Health Agency, UK

2 Department of Environment, Government of Anguilla

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Anguilla:

STOP THE SPREAD

Biodiversity wrapped in blue

Over 130 bird species are reported from Anguilla, at least half of which are dependent on wetlands and nearly 25% are regionally or globally threatened. There are two endemic reptiles, and 321 native and one endemic plant species.

Anguilla is the most northerly of the Leeward Islands, and comprises the main island and several smaller off-shore cays. The highest point is 213 feet above sea level, and the territory is important for wetlands which form myriad overlapping habitats.

The endemic black lizards are found only on Sombrero Island (*Ameiva corvina*) and Little Scrub Island (*Ameiva corax*). The endemic Anguilla bush (*Rondelitia anguillensis*) is found mainly on the main island. The critically endangered Lesser Antillean iguana (*Iguana delicatissima*) and the endangered Anguilla Racer snake (*Alsophis rijgersmaei*) also occur on Anguilla.

The offshore cays are particularly valuable for conservation. Dog Island is the second most important seabird island in the Caribbean, while Prickly Pear and Sombrero Islands are important for endemic reptiles, the Lesser Antillean iguana (which has been translocated from the mainland), seabirds and marine turtles. Rats were eradicated from Dog Island in 2014 and Prickly Pear Cays in 2018 in projects led by the Anguilla National Trust.

The cays are at particular risk from the spread of invasive species which pose threats to biodiversity, as well as to the agriculture, tourism and public health.

Image 01
Sombrero Island *Ameiva corvina*.
©Karl Questel

Image 02
Anguilla bush *Rondelitia anguillensis*.
©Calvin Samuel

Image 03
Lesser Antillean iguana *Iguana delicatissima*
©Farah Mukaida

Image 04
Little Scrub Black Lizard *Ameiva corax*.
©Calvin Samuel

threats

Predicting the next threat to Anguilla

A total of 24 species are identified as the top priority potentially invasive species most likely to arrive and establish in Anguilla over the next 10 years.

In 2018 local, regional and international experts scored and ranked a range of species on the likelihood of arrival, establishment and impact on biodiversity, the economy and public health. The top priority species for each OT were then agreed at a consensus workshop.

This prediction allows resources to be targeted most cost-effectively at those pathways posing most risk and for which risk management is most feasible.

Image: 03
Asian tiger mosquito *Aedes albopictus*.
©James Gathany/CDC

Image: 02
Rose ringed parakeet *Psittacula krameri*.
©Charles J. Sharp

Image: 01
Lionfish *Pterois miles*.
©Alex Mustard/Minden Pictures

Species arrival

List of the priority species most likely to arrive in Anguilla in the next 5 to 10 years.

Impact was assessed for biodiversity (bio), economy (eco) and human health (hlth).

		Impact		
Species	Common name	Bio	Eco	Hlth
Pterois miles	Devil Firefish (Lionfish)	X		
Perna viridis	Asian Green mussel	X		X
Magallana gigas	Pacific Oyster			X
Boa constrictor imperator	Common boa constrictor			X
Psittacula krameri	Rose-ringed parakeet		X	
Aratinga erythrogenys	Red-masked conure		X	
Molothrus bonariensis	Shiny cowbird	X		
Herpestes auropunctatus	Small Indian mongoose	X	X	X
Bos taurus	Feral cattle	X		
Diaphorina citri	Asiatic citrus psyllid		X	
Cactoblastis cactorum	Cactus moth	X		
Tuta absoluta	Tomato leaf miner		X	
Ceratitis capitata	Mediterranean fruit fly		X	
Aedes albopictus	Asian tiger mosquito			X
Anopheles gambiae	Mosquito			X
Coptotermes formosanus	Formosan subterranean termite		X	
Coptotermes gestroi	Asian subterranean termite		X	
Amblyomma cajennense	Cayenne tick			X
Euphorbia tirucalli	Pencil tree			X
Mimosa pigra	Cat's claw mimosa	X	X	
Prosopis juliflora	Mesquite	X		X
Scaevola taccada	Beach naupaka	X		
Schefflera arboricola	Dwarf umbrella tree	X		
Schinus terebinthifolius	Brazilian pepper tree	X		X

The most important pathways of entry into Anguilla for new invasive species are:

- **Shipping containers** harbour snakes, lizards, geckoes, spiders, fire ants, snails, termites & weed seeds
- **Sand, gravel & aggregate** can be contaminated by fire ants, Giant African snail & weed seeds
- **Landscape materials** harbour Giant African snail & termites
- **Live plants:**
  - May become a weed
  - May harbour new pest species
  - Potting medium & pots may harbour new pest species
- **Live animals** especially those smuggled in as pets:
  - Exotic species could escape and become pests
  - May carry parasites and diseases
- **Floating debris** carrying adult and juvenile marine species
- **Ballast water** harbours juvenile life stages

Eradication

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from Anguilla

There are 112 known invasive species established in Anguilla, and complete eradication is considered highly feasible for 9, with Brazilian jasmine being the most feasible.

Established invasive species were scored and ranked for the feasibility of cost-effective eradication in 2020.

Brazilian jasmine is a woody vine associated with the hotel industry that could be relatively easily eradicated from the limited populations known. All 9 species are thought to be established on the main island of Anguilla, with few established on other islands, so rapid eradication action would prevent more serious and intractable problems developing in future.

The window of opportunity for eradication is relatively short, suggesting swift action would be needed to prevent these species spreading to become more intractable problems. A high likelihood of reinvasion post-eradication was flagged as an issue for many species, and strengthened biosecurity measures would be needed as part of any eradication attempt.

Image. 01
Cuban tree frog, *Osteopilus septentrionalis.*
©Thomas Brown

Image. 02
Puncture vine *Tribulus cistoides.*
©Forest & Kim Starr - CC BY 4.0

Image. 03
Brazilian jasmine *Jasminum fluminense.*
©Forest & Kim Starr - CC BY 4.0

Image. 04
House sparrow *Passer domesticus.*
©Shutterstock

List of the species for which eradication is most feasible.

Scientific name	Common name	Possible eradication strategy	Overall feasibility
Jasminum fluminense	Brazilian Jasmine	Manual and herbicidal treatment	very high
Wasmannia auropunctata	Little Fire Ant	Chemical control	high
Plutella xylostella	Diamond-Back Moth	Chemical control	high
Cryptostegia madagascariensis	Madagascar Rubbervine	Manual and herbicidal treatment	high
Tribulus cistoides	False Puncture Vine	Manual removal	high
Passer domesticus	House Sparrow	Trapping and netting	high
Papilio demoleus	Lime Swallowtail	Chemical control	high
Diaphorina citri	Citrus Psyllid	Chemical control	high
Chlorocebus aethiops	Vervet Monkey	Trapping, shooting	high

In addition

Complete eradication from the territory is unlikely to be feasible for 4 species, but eradication from some islands could be a priority: brown rat, black rat, house mouse, and feral goat.

Long term management such as population control may be a priority for 4 species: feral dog, feral cat, coral vine, Cuban tree frog, green iguana, and the Giant African snail.

Spread:

Controlling spread within Anguilla

The number one threat within Anguilla is from the green iguana spreading to Prickly Pear Cays, which is considered very likely to happen within the next 10 years.

A total of 308 different species / island threats were assessed and ranked in 2020.

If the green iguana established in Prickly Pear Cays the impact on native species could be catastrophic, particularly to the endemic Lesser Antillean iguana which was recently reintroduced from mainland Anguilla to Prickly Pear Cays for conservation purposes.

Other threats were grouped into the top 25, 40 and 75 species by island combinations, with priorities including preventing rodents and some ant species spreading to Prickly Pear, Dog, Scrub and Sombrero Island, as well as false puncture-vine which could dramatically alter habitats.

Prickly Pear and Dog Island are especially at risk due to their conservation importance and because arrival is more likely for many species. Little Scrub, Scrub and Sombrero also stood out as important islands to protect.

Image.01
Green Iguana, *Iguana iguana*
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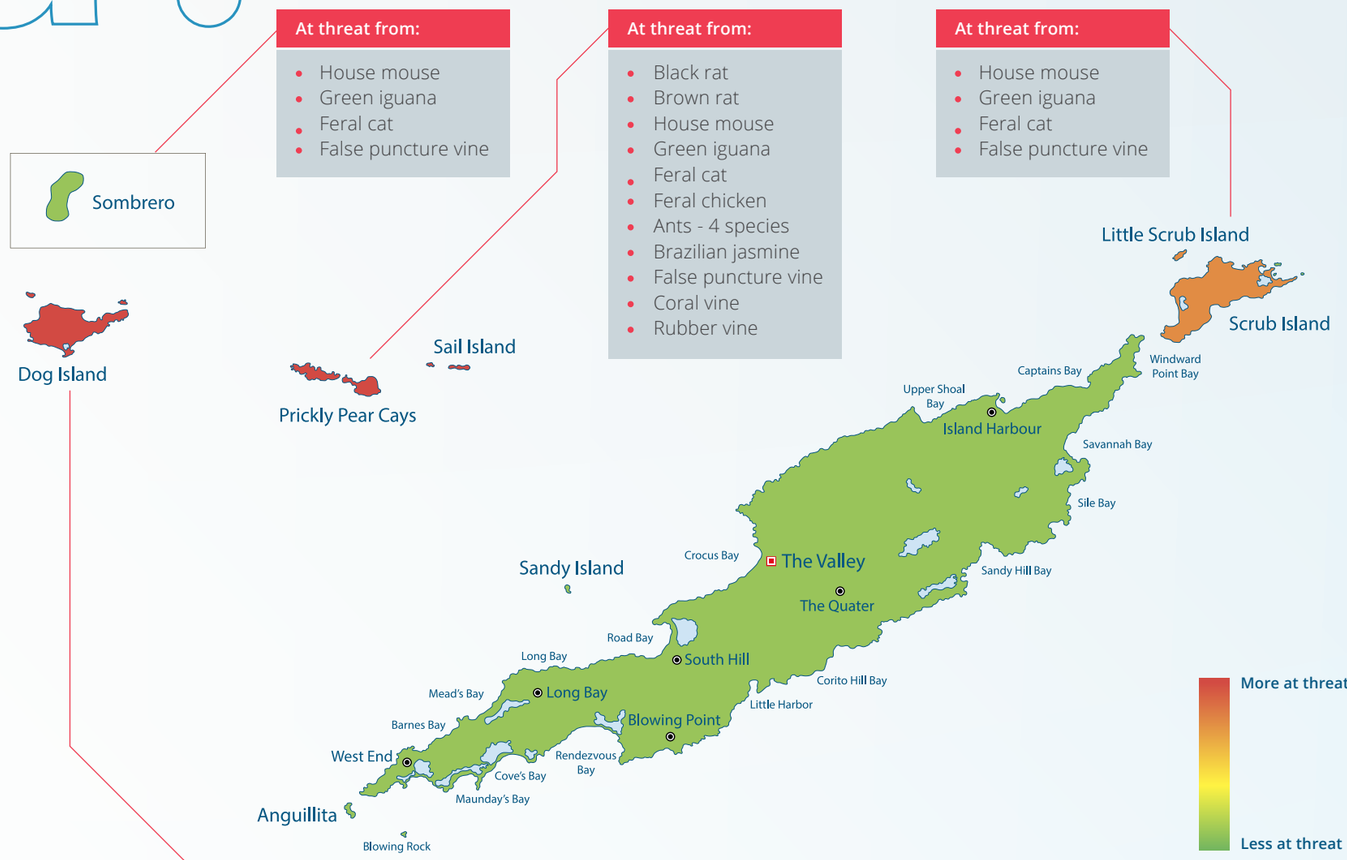
Heat map showing the vulnerability of the different islands in Anguilla to invasive species.



Pathways of spread for invasive species within Anguilla are:

- **Hitchhiking** on drift wood and wrack
- **Tourist** visits, via contaminated boats, boots or backpacks
- **Café / restaurant** pets, or goods could carry rodents, ants & seeds
- **Researchers** via contaminated vessels, equipment & gear
- **Natural dispersal** for example the green iguana can swim & plants seeds drift on ocean currents.

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Recommendations

In order to protect Anguilla's rich biodiversity, its agricultural future, tourism and public health from the threat of invasive non-native species, the following general recommendations are made:

1. **Biosecurity needs to be strengthened:**
    a. **At the border**, with adequately resourced and equipped biosecurity facilities
    b. **Biosecurity procedures and guidelines,** including controls on imported live plants
    c. **Internally** to reduce the risk of spread to the off-shore islands
2. **Biosecurity legislation** needs to provide comprehensive provisions, including for internal control of invasive non-native species.
3. **Communication and awareness** needs to be raised through social media, leaflets, signage, and posters:
    a. With **hoteliers**, working with them to reduce the risk of spread from their land, and of imported live plant material for landscaping
    b. With the **local community**
    c. **Internal advocacy** to raise awareness within the government
    d. With **international visitors**
4. Improve the **baseline information** on the distribution and abundance of the priority species among the offshore cays, particularly for species with small populations that are spreading rapidly, such as the vervet monkey and house sparrow

Further information

For more detailed reports on any of these activities click here

For more information on Anguilla's biodiversity and conservation go to click here

Acknowledgements

We gratefully acknowledge the contribution of all the Anguillans and visiting experts to the activities reported here.

Find out more about invasive plants and animals and how you can help to stop the spread at:

www.nonnativespecies.org/home/index.cfm

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