Prioritising the management of established invasive non-native species in the Turks and Caicos Islands: eradication and spread prevention

Author(s): Olaf Booy[1], Jill Key[1] with input from authors listed at Annex 2

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

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Photograph: From left to right: (standing) Helen Roy, Sarah Havery, Zatanya Handfield, Bryan Naqqi Manco, Dodly Prosper, Kathy Lockhart, Winema Sanders-Penn, Trevor Renals, Shelley Bridgewater, Peter Robertson, Tim Adriaens, Alan MacLeod, David Roy; (kneeling) Danielle Frohlich, Wolfgang Nentwig, Olaf Booy, Jill Key

Executive summary

- Invasive non-native species threaten the Turks & Caicos Island's (TCI) unique biodiversity, its economy and public health. Preventing new invasive non-native species (INNS) from establishing is a key priority that has been addressed by horizon scanning and pathway action planning. This report assesses potential priorities for species that are already established in TCI.

- There were two main objectives: (1) to assess the feasibility of eradicating established invasive species completely from TCI; and, (2) to rank the threat posed by established invasive species to islands in TCI that they have not yet invaded. Twenty-one experts from TCI worked in partnership with ten visiting experts to provide the assessment for both objectives, using expert elicitation and consensus building techniques.

- Thirteen established invasive species were rated high and very high feasibility of eradication from TCI, including three vertebrates (Green Iguana, Feral Cattle, Red-eared Slider), five plants (Mexican Fan Palm, Fountain Grass, Tamarisk, Dandelion, Henna) and five ant species (Fire Ant, Longhorn Crazy Ant, Big-Headed Ant, Little Fire Ant, Raspberry Crazy Ant). The Green Iguana was included in this study as a precaution, even though it is not yet thought to be established in TCI.

- Species that posed a threat of spreading to new islands were grouped into the top 1, 20, 41 and 81 threats. Number one was the threat of Malaysian Inkberry spreading to the Ambergris Cays. However, a further 19 species were considered particularly high risk including Black Rat, Brown Rat, Feral Dog, Feral Cat, Green Iguana, Fountain Grass, Casuarina, Cowbush and four ant species posing a threat primarily to the Ambergris Cays and the Leeward Cays, as well as the Southern Cays. The Ambergris Cay were most at risk from the spread of invasive species, with the Leeward Cays, Southern Cays and West Caicos also particularly threatened.

- Six species that posed a high risk of spreading to new islands and causing negative impacts were also rated as high or very high feasibility for complete eradication from TCI: Green Iguana, Fountain Grass, Longhorn Crazy Ant, Big-Headed Ant, Red-imported Fire Ant and Little Fire Ant. These species are a particularly high priority for eradication.

- It is recommended that:
    - Early detection and contingency plans are developed for the Green Iguana.
    - Detailed eradication feasibility assessments are undertaken for Fountain Grass and the four ant species considered particularly high priority. This includes assessing where these species occur in TCI.
    - Detailed feasibility assessments are considered for the remaining seven species where eradication feasibility was rated high or very high.
    - Internal biosecurity is strengthened, particularly for the Ambergris Cays, to reduce the risk of spread of the top 20 species.
    - Biosecurity measures include tackling introduction pathways and raising awareness of visitors, residents and particularly hoteliers of the need to avoid accidentally or deliberately moving species.

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1. Introduction

Invasive non-native species are one of the main threats to biodiversity world-wide and a serious threat to people and livelihoods (IPBES 2019). They disproportionately affect small islands, which are often exceptionally important biodiversity hotspots containing unique species found nowhere else in the world (Vitousek, 1988).

In the Turks & Caicos Islands (TCI), invasive non-native species (INNS) threaten endemic species and habitats which are not only important in their own right, but provide key ecosystem services and a source of income, with TCI's unique biodiversity encouraging tourism. INNS also cause direct impacts to people and livelihoods, for example fire ants can have impacts on tourists and residents alike, mosquitos can threaten human health and scale insects can damage crops and native forest. Unfortunately, without decisive action these problems are only likely to get worse as established species continue to spread and new species arrive.

With limited resources and numerous threats, it is important to prioritise how best to invest resources in order to limit the impacts of INNS. The UK Government has provided support for INNS prioritisation in all UK OTs, including TCI, through a biosecurity project funded by the Conflict, Security and Stability Fund. The main focus of this work has been to help identify and prevent the introduction of new INNS, through horizon scanning and pathway management (Key, 2018). However, it is also important to address INNS that are currently established on the islands.

This report details the results of an expert elicitation and consensus building exercise used to help experts in TCI review and identify potential management priorities for established invasive non-native species. The aim was both to help identify a short-list of potential management priorities as well as to provide and document evidence that could be used to support a case for action. Where management priorities for established species have already been studied (e.g. Dawson *et al.*, 2015), the aim of this work was to compliment these results.

1.1. Objectives

While there are many different potential management options for established INNS, this work focussed specifically on two strategically important objectives:

1. To assess the feasibility of eradicating established INNS entirely from the territory.

2. To rank established INNS based on the threat they pose to islands within TCI where they are not currently established.

1.2. Scope

Only established terrestrial non-native species in TCI were considered, i.e. those with self-sustaining populations somewhere on the territory. Marine and freshwater species were not included at this stage.

2. Methods

An expert elicitation approach was used to (i) assess feasibility of eradication using the method of Booy *et al.* (2017) and (ii) rank species based on their threat to islands following methods adapted from Roy *et al.* (2014). Such expert elicitation and consensus approaches are an important tool used worldwide to support prioritisation of INNS and are increasingly being used in the field of conservation biology. Local experts from TCI (Annex 1) and visiting experts from the UK, Europe and the USA (Annex 2) worked together using these methods to score species, following the steps briefly outlined below.

2.1. Initial list, screening and species data

A long list of all established non-native species (i.e. those with self-sustaining populations) in TCI (Churchyard *et al.*, 2014) was screened by TCI experts to produce a short-list of invasive, or potentially invasive species, to carry forward for assessment. The Green Iguana is not currently thought to be established in TCI; however, it was included as a precaution given recent sightings in Provo and Grand Turk. For each of the short-listed species data were compiled based on where they were established, the approximate number of separate populations and the approximate total area occupied by each species in TCI (see Annex 3 for further details).

To facilitate assessment the islands of TCI were divided into eight groups, based on their shared characteristics, proximity and pathways:

- Providenciales (“Provo”)
- Grand Caicos (North Caicos, Middle Caicos, East Caicos and South Caicos)
- West Caicos
- Leeward Cays (Water, Little Water, Parrot, Pine, Dellis, East Bay and Fort St. George Cays)
- Southern Cays (Big Sand, French, West Sand and Bush Cays)
- Ambergris Cays (Big and Little Ambergris)
- Grand Turk
- Salt Cay

2.2. Preliminary scoring

Using the short-list of invasive species established in TCI, experts remotely (by email) provided preliminary scores for both feasibility of eradication (Box 1) and the risk posed by species spreading to new islands within the territory (Box 2). Visiting experts provided the majority of the preliminary scores, with TCI experts providing scores for likelihood of arrival as part of the assessment of species threats to islands. Preliminary scores were produced as a starting point, but were expected to change considerably once more knowledge from TCI experts was taken into account and as discussions at the workshop progressed. Confidence in all scores was recorded (Annex 5).

Box 1. Brief overview of scheme to assess eradication feasibility (full details Annex 3)

Step 1. For each species the situation was defined. This was the current extent of the species in the territory to the best knowledge of the experts involved.

Step 2. An eradication strategy was then defined to attempt to completely eradicate the species from the territory, based on the defined context. This could be a combination of methods, such as manual and herbicidal removal for a plant.

Step 3. The eradication strategy was then assessed using five key criteria:

- *Effectiveness – would the strategy work if it could be used?*
- *Practicality – how difficult would it be to deploy the strategy?*
- *Cost – what is the direct cost of deploying the eradication strategy?*
- *Impact – would the strategy cause adverse impacts on people, environment or economy?*
- *Acceptability – would the public or stakeholders accept the use of the strategy?*

Step 4. Two more key variables were assessed:

- *Window of opportunity – how quickly would the strategy need to be deployed?*
- *Likelihood of re-invasion – if complete eradication were successful, how likely is the species to re-invade in the next 2 years?*

Step 5. Finally, an overall score for feasibility of eradication (very low to very high) was provided, taking all other information into account.

Box 2. Brief overview of scheme to rank species based on risk to islands (full details Annex 4)

Step 1. For each established invasive species in TCI, islands were listed that had not yet been invaded. This generated a list of invasive species that pose a threat to 'recipient' islands.

Step 2. Likelihood of arrival (A) on the recipient island was scored using a scale from very unlikely to very likely (1-5), taking into account potential pathways between islands within the territory.

Step 3. Likelihood of establishment (B) within 10 years was then assessed from very unlikely to very likely (1-5), assuming arrival and considering factors such as the ecological priorities of both the target species and the community being invaded.

Step 4. Finally, the potential biodiversity impact (C) of the species was scored, assuming arrival and establishment. Only biodiversity impacts were scored, using a five-point scale:

1. *Minimal*. None or negligible biodiversity impact.
2. *Minor*. Reductions in the fitness of individuals in the native biota, but no declines in native population sizes.
3. *Moderate*. Declines in the population size of at least one native taxon (not of conservation importance). Not extinction.
4. *Major*. Population extinction of at least one native taxon or population declines in a native taxon of particular conservation importance such as an endemic, rare or keystone species.
5. *Massive*. Irreversible population or global extinction of at least one native taxon.

The product of arrival, establishment and impact scores (A*B*C) was initially used to order species based on overall risk. The resulting position of species was then discussed and reviewed by the group, with species moved up or down in rank order by consensus. The final rank positions of species / island combinations were agreed by the group, along with appropriate cut-off points (such as top 10, top 20, etc).

2.3. Consensus workshop

The preliminary scores informed the consensus building within the workshops held over three days in TCI. During these workshops, visiting experts worked with TCI experts to review, refine, re-score and eventually agree the final scores for all species. In total, 21 TCI experts attended the workshop together with seven visiting experts (at least 2 for each taxonomic group), and three workshop facilitators (OB, HR, JK).

At the start of the workshops, the experts worked within three groups: vertebrates, invertebrates and plants. The aim of these break-out sessions was to review and update the preliminary list of species and provide initial data on establishment, number of populations and total area to ensure this reflected the best knowledge from the territory.

Breakout group modifying scores

Once the baseline information for the relevant INNS had been documented, both workshops followed a similar sequence, outlined below:

1. Introductory presentations to provide a common understanding of the guidance and background on native species and INNS in the territory.

All participants discussing scores in plenary

2. Breakout sessions with all experts divided into groups based on taxonomic expertise (plants, vertebrates and invertebrates) to review, refine and re-score preliminary scores. This was particularly important as preliminary scores provided a starting point but required considerable modification, particularly where basic data on number of populations, area and islands where established had been updated.

3. The final stage of the scoring process was to agree the refined scores by consensus with all participants. Collated scores were presented in plenary by two facilitators (OB and HR), with participants encouraged to discuss, challenge and finally agree on the scores collaboratively.

4. The outcome of these workshops was two lists of INNS, the first grouped by feasibility of eradication and the second ranked by the risk species pose to specific islands belonging to TCI.

3. Results

Of the long-list of 136 non-native species established in TCI, 59 were short-listed for assessment, divided between plants (n=30), vertebrates (n=17) and invertebrates (n=12). The majority of the short-listed species were thought to be established on Provo, Grand Caicos, Grand Turk and Salt Cay. Relatively few were established on West Caicos, the Leeward Cays, the Southern Cays and the Ambergris Cays (Table 1).

Table 1. Turks and Caicos Islands on which the short-listed invasive non-native species are established, based on expert knowledge.

Island (or island group)	Number of established species
Provo	43
Grand Caicos	23
West Caicos	4
Leeward Cays	10
Southern Cays	2
Ambergris	5
Grand Turk	22
Salt Cay	15

There was a range of species spread across different areas and with differing numbers of populations (Figure 1), although confidence in this assessment was low in many cases, particularly for invertebrates (Figure 2). Time constraints prevented confidence scoring for many of the plants.

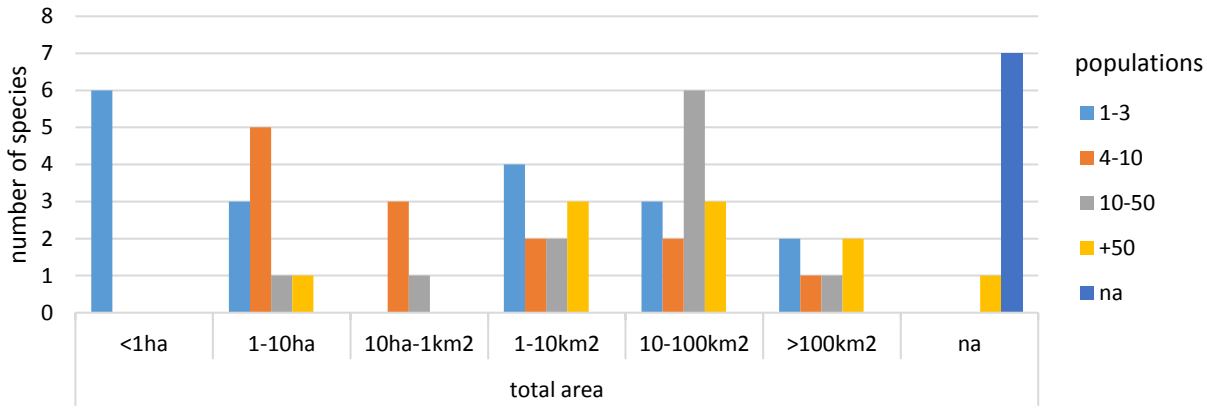

Figure 1. Total area and number of populations in TCI of species short listed for assessment

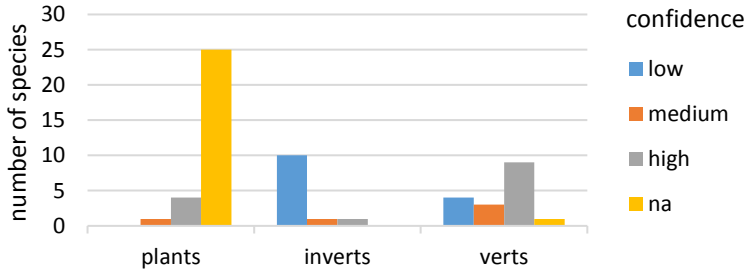

Figure 2. Confidence in situation (i.e. the number of populations and area invaded) assessment

3.1. Feasibility of eradication

Species were rated very high (n=1), high (n=12), medium (n=14), low (n=21) and very low (n=11) feasibility of eradication (Figure 3). Summary data is provided for those rated high or very high (Table 2).

The Green Iguana (*Iguana iguana*) was the only species rated very high for feasibility of eradication (Box 3), with eradication of a small population considered likely to be effective, practical, relatively inexpensive, unlikely to cause adverse impacts and acceptable to the public and other stakeholders. However, eradication action would have to be taken quickly (within 1 year) to prevent the situation escalating significantly. Re-invasion following eradication was also considered very likely and so multiple eradication attempts may be required as well as action to reduce the risk of re-invasion.

A further 12 species were rated as high feasibility of eradication: five plants (Mexican Fan Palm, (*Washingtonia robusta*); Fountain Grass (*Pennisetum setaceum*); Tamarisk (*Tamarix canariensis*); Dandelion (*Tribulus cistoides*); Henna (*Lawsonia inermis*)), five ants (Fire Ant (*Solenopsis Invicta*); Longhorn Crazy Ant (*Paratrechina longicornis*); Big-Headed Ant (*Pheidole megacephala*); Little Fire Ant (*Wasmannia auropunctata*); Raspberry Crazy Ant (*Nylanderia fulva*)) and two vertebrates (Feral Cattle, *Bos taurus*; Red-Eared Slider, *Trachemys scripta*) (see Boxes 4-7 for case studies of example species).

Where territory-wide eradication may not be feasible, it may still be possible to eradicate species from specific islands within the territory. This was not the primary focus of this work; however, a preliminary feasibility assessment of eradication scoring was undertaken for several vertebrate x island combinations. These identified scores for eradicating: feral cattle from Salt Cay (Very High), Black Rat from Cotton Cay (High), Feral Chicken from Ambergris (High), Feral goats from Cotton Cay, East Caicos and Salt Cay (High), Feral Horses from South Caicos (High), House Mouse from Ambergris and Middleton (High), Feral Donkey from Grand Turk, Salt Cay and South Caicos (Medium) and Cuban Tree Frog from Ambergris (Low). This assessment however was preliminary and not performed systematically for all species island combinations.

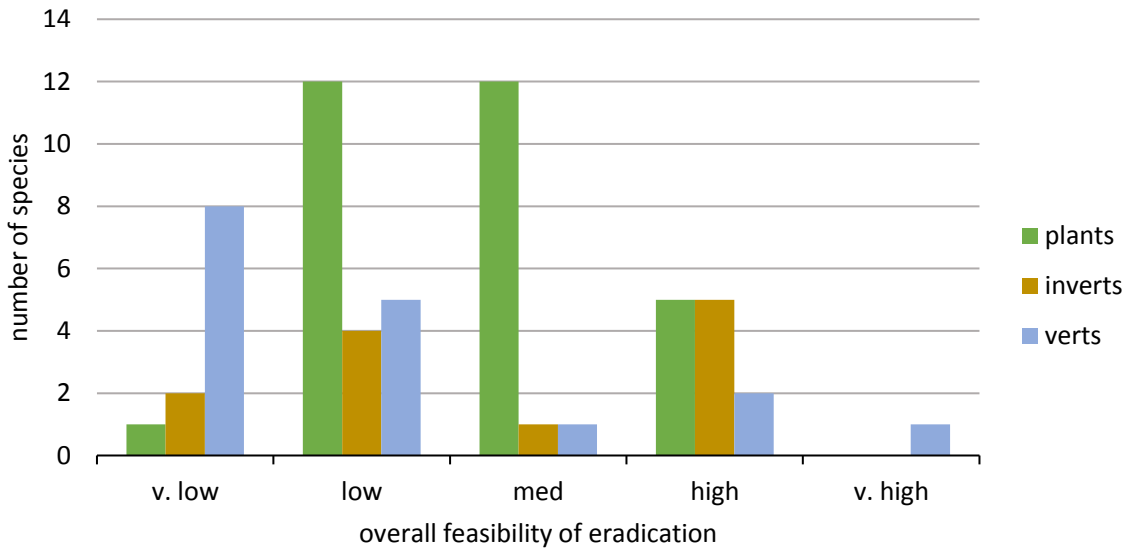

Figure 3. The number of species in each of the five overall feasibility of eradication categories.

Table 2. Summary of 13 established invasive non-native species in TCI rated 'high' and 'very high' for eradication (for all species refer to Annex 6). Summary information is presented for the seven assessment criteria, as well as the overall score and overall confidence. Expert group, V(ertebrate), I(nvertebrate) and P(lant), is indicated by column G. For full details, including all comments and confidence scores refer to the accompanying spreadsheet.

G	Scientific name	English name	Situation	Eradication strategy	Effect.	Pract.	Cost	Impact	Accept.	Window.	Reinv.	Overall	Conf.
V	*Iguana iguana*	Green Iguana	2 islands, 1-3 popns, 1-10ha	Multiple capture methods	high	high	<$50k	minimal	v. high	2mo-1year	v. high	v. high	med
P	*Washingtonia robusta*	Mexican Fan Palm	3 islands, 50+ popns, 1-10km^2	Mechanical and manual	high	high	<$50k	minimal	med	4-10 years	low	high	high
I	*Solenopsis invicta*	Fire Ant	1 island, 5-10 popns, 1-10ha	Formicidal bait	high	med	$50-200k	minor	v. high	1-3 years	high	high	med
I	*Paratrechina longicornis*	Longhorn Crazy Ant	1 island, 5-10 popns, 1-10ha	Formicidal bait	high	med	$50-200k	minor	high	1-3 years	high	high	med
I	*Pheidole megacephala*	Big-Headed Ant	1 island, 1-3 popns, <1ha	Formicidal bait	high	med	$50-200k	minor	high	1-3 years	high	high	med
I	*Wasmannia auropunctata*	Little Fire Ant	1 island, 1-3 popns, <1ha	Formicidal bait	high	med	$50-200k	minor	v. high	1-3 years	high	high	med
I	*Nylanderia fulva*	Raspberry Crazy Ant	1 island, 1-3 popns, <1ha	Formicidal bait	high	med	$50-200k	minor	high	1-3 years	high	high	med
P	*Pennisetum setaceum*	Fountain Grass	6 islands, 5-10 popns, 1-10ha	Herbicide	high	high	<$50k	minor	high	1-3 years	med	high	med
P	*Tamarix canariensis*	Tamarisk	3 islands, 10-50 popns, 1-10ha	Herbicide	high	high	<$50k	moderate	med	4-10 years	low	high	med
P	*Tribulus cistoides*	Dandelion	6 islands, 50+ popns, 1-10km2	Herbicide	high	high	$50-200k	minor	high	1-3 years	v. high	high	med
V	*Bos taurus*	Feral Cattle	3 islands, 1-3 popns, 10-100km^2	Capture and corralling	high	high	$50-200k	minor	med	4-10 years	high	high	low
V	*Trachemys scripta*	Red-Eared Slider	1 island, 1-3 popns, 1-10km^2	Trapping and pond draining	high	high	<$50k	moderate	high	4-10 years	high	high	low
P	*Lawsonia inermis*	Henna	1 island, 1-3 popns, <1ha	Cut, drill and stump treat	med	high	<$50k	moderate	high	4-10 years	low	high	high

Box 3. *Iguana iguana* (Green Iguana)

Overall feasibility of eradication = very high (medium confidence)

A highly invasive species in the Caribbean, which would threaten the existence of the endemic rock iguana (*Cyclura carinata*) in TCI through competition and hybridisation if it were to establish, as well as potentially impacting on the economy and peoplethrough damage to agriculture, damage to utility poles and power lines, impacts on traffic, aviation, and other infrastructure, fouling of cars and pools, defoliation of trees, and the spread of disease.

As popular pets and able to reach islands rafting on debris after hurricanes, Green Iguanas have become established in many areas outside of their native range in Central and South America, including the carribean (Vuillaume *et al.*, 2015). They are know to occur in very high densities near residential areas e.g. in Florida and on Grand Cayman where they are the subject of (expensive) culling programmes. Considering their widespread occurrence across the Caribbean including the Lesser Antilles, the probability of Green Iguana invading TCI is high.

Image: https://www.pets4homes.co.uk/

Situation: Green iguana was included as an established species in TCI in case recent reports of individuals being sighted were indicative of a putative populations (Reynolds & Niemiller, 2010); however, recent investigation suggests a population may not be present. This assessment is therefore based on a hypothetical invasion, with 1-3 populations covering an area 1-10ha.

Eradication strategy: Live capture by multiple methods could be used (trapping, hand capture or pole and noose), potentially supported by dog searches. Krauss *et al.* (2014) suggest detection is key to management, possibly using community based sightings and an alert system. Shooting is currently not possible because of existing regulations (anything with a trigger mechanism is banned).

Feasibility assessment (confidence in brackets):

- Effectiveness = high (medium)
- Practicality = high (high)
- Cost = <$50k (medium)
- Impact = minimal (high)
- Acceptability = very high (medium)
- Window of opportunity = 2months – 1year (medium)
- Likelihood of re-invasion = very high (medium)

Remarks: Eradication to prevent this species establishing and causing problems similar to those in the Cayman Islands should be very feasible; however, detection and surveillance will be essential. The species could spread quickly so early action following detection would be important. Pathways of re-invasion would need to be regulated to ensure the eradication was sustainable. It may not be possible to completely prevent re-invasion in the short term and so contingency planning should be prepared to deliver responses to multiple separate invasions. Meanwhile, awareness raising on the need to report sightings, for instance with resort and hotel owners in Provo, can increase the chances of new arrivals being picked up.

Box 4. *Pennisetum setaceum* (Fountain Grass)

Overall feasibility of eradication = high (medium confidence)

A clump-forming perennial grass favoured by gardeners and landscapers around the world. Highly invasive in many habitats, but particularly dry grassland and early successional habitats where it displaces native species and increases fire frequency and spread. It is a well-known problem in the US, particularly Hawaii where it is widespread, as well as the continent of Africa, Australia and parts of Europe. Produces large amounts of seeds.

Situation: Thought to be present on 6 islands (Provo, Grand Caicos, West Caicos, Leeward Cays, Grand Turk and Salt); however, with few established populations covering only a small total area.

Eradication strategy: Seed heads removal and herbicide application. It is important to bag or otherwise destroy the seed heads to prevent further seed dispersal (Halvorson and Guertin, 2003). Skin irritation can occur from the leaves and seed heads so gloves should be worn (Queensland Government, 2012). Glyphosate has proven to be effective elsehwere; however a range of herbicides may be used (FloraBase, 2012; Halvorson and Guertin, 2003). Repeated control and follow up monitoring would be required.

Feasibility assessment (confidence in brackets):

- Effectiveness = high (high)
- Practicality = high (high)
- Cost = <$50k (low)
- Impact = minor (high)
- Acceptability = high (medium)
- Window of opportunity = 1-3 years (medium)
- Likelihood of re-invasion = medium (medium)

Remarks: Mainly found alongside roadsides in TCI, which may make access to undertake control easier. Cooperation from landowners would be required to undertake control and to find alternative plants to use for landscaping. While eradication was considered likely to be feasible, further work is required to properly establish the distribution of this plant across TCI.

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Box 5. *Washingtonia robusta* (Mexican Fan Palm)

Overall feasibility of eradication = high (high confidence)

A tall, fast-growing, evergreen palm known to become invasive, creating monospecific stands. Dead fronds are a fire hazard, and the tall slender trunks are liable to topple during hurricanes, causing obstructions.

Situation: Mexican fan palms are popular ornamental trees, planted along streets and in gardens in Providenciales. Potentially they could spread out to the wider environment via bird-dispersed seed. Currently they are a problem in the urban area through fire risk from the dried fronds which form a skirt around the trunk, and fallen trees block roads and access after hurricanes.

Eradication strategy: Seedlings can be removed by hand, while larger plants can be easily cut at ground level, with no risk of re-growth as palms are monopodial and die when cut.

Feasibility assessment (confidence in brackets):

- Effectiveness = high (high)
- Practicality = high (high)
- Cost = <$50k (medium)
- Impact = minimal (high)
- Acceptability = medium (medium)
- Window of opportunity = 4-10 years (medium)
- Likelihood of re-invasion = low (high)

Remarks: Eradication is thought to be very feasible, given the current situation and relative ease and effectiveness of control methods. There is also a low risk of re-invasion post eradication. There are many alternative non-invasive and non-nuisance species which can be planted to replace the Mexican fan palm alongs streets and in gardens, such as the native palm *Sabal palmetto* which is popular in cultivation and promoted by nurseries.

Box 6. *Solenopsis invicta* (Red imported fire Ant)

Overall feasibility of eradication = high (medium confidence)

A highly invasive, aggressive ant which occurs in high densities. It breeds and spreads rapidly, and if disturbed can relocate quickly. It benefits from human disturbance, has a wide food range and is a serious nuisance to people through its ability to sting, impacting tourism and outdoor leisure activities.

Situation: The distribution and abundance of this ant in TCI is not well known. It is believed to be quite restricted in distribution at the moment, with 5 to 10 populations occupying less than 10ha overall.

Eradication strategy: Ants have been eradicated in similar situations (e.g. Santa Fe and Marchena, see ISC for more detail (Hoffmann *et al.*, 2016)). Formicidal chemicals can be used, but potential non-target impacts would need to be assessed.

Feasibility assessment (confidence in brackets):

- Effectiveness = high (low)
- Practicality = medium (low)
- Cost = $50 - $200k (low)
- Impact = minor (low)
- Acceptability = very high (medium)
- Window of opportunity = 1-3 years (medium)
- Likelihood of re-invasion = high (low)

Remarks: An eradication strategy would likely be based on one-year-treatment with subsequent monitoring and repeated treatments for at least four years. The effectiveness of formicidal bait poison can be site- and context-specific, and application in rural and touristic area could be difficult as the proximity of ant nests to beaches may interfere with tourists. However, the risk of its impact on tourism in the future if the species spreads is far greater. Synergies with eradication of other ants is possible, as the same formicidal baitsa are used.

The impact of treatment on native ant populations needs to be considered, particularly ants pollinating endemic plants. The risk of reintroduction is considerd to be high, and most likely in goods from Florida where this species is abundant. The current situation in TCI (including population size and area) needs be clarified before eradication is started.

Box 7. *Trachemys scripta* (Red-Eared Slider)

Overall feasibility of eradication = high (low confidence)

One of the most popular turtles in the pet trade which frequently get dumped into ponds and water courses when growing bigger. They are omnivorous and very adaptable, giving them great potential for impacting native species habitats. This species has been nominated one of the "World's Worst" invaders.

Situation: Distribution is believed to be restricted to ponds on the Providenciales golf course, resulting from dumped pets, although they are occasionally found at other locations in Providenciales. There exact distribution needs to be confirmed.

Eradication strategy: A range of methods are available and have been used to remove sliders from small enclosed water bodies, including hand capture, trapping and shooting. This may include the draining of smaller ponds to ensure all red-eared sliders are captured. If the species is found in large or open water systems then the practicality of the methods is much lower.

Feasibility assessment (confidence in brackets):

- Effectiveness = high (high)
- Practicality = high (low)
- Cost = <$50k (low)
- Impact = moderate (low)
- Acceptability = high (medium)
- Window of opportunity = 4-10 years (medium)
- Likelihood of re-invasion = high (high)

Remarks: The description provided suggests this species is confined to ponds on a single golf course in Providenciales. Costs will be highly dependent on the area of the waterbodies concerned and more information is required before a more confident assessment can be made. The impact of shooting, trapping or hand capture is likely to be low, but if draining the pond is required then the impact on other species will be considerably higher. There is likely to be little public concern, unless pond draining is involved in a public area.

There is a risk of further spread of the species as it is widely kept as a pet and further releases are quite likely unless restrictions are enforced. New introductions would jeopardize the success of eradication. Potentially, this species could be added to the list of restricted pets under new biosecurity legislation.

3.2. Risk of spread to new islands

In total, 297 different species / island threats were assessed and eventually ranked by consensus into the top 1, 20, 41 and 81 threats (Annex 7). All other combinations were generally considered lower risk. Despite being the largest group of species overall, relatively few plants were included within the top 81 threats (n=15), compared to invertebrates (n=30) and vertebrates (n=36). However, plants were well represented in the top 20 threats (Table 3). Summary data for the top 20 threats is provided (Table 4).

Table 3. Number of plants, invertebrate and vertebrates in each of the top 1, 20, 41 and 81 ranked threats to islands. Beyond the 81st position of species / island combinations were considered low risk.

	Plants	Invertebrates	Vertebrates	*Total*
Top 1	1	0	0	*1*
Top 20	5	5	9	*19*
Top 41	3	11	7	*21*
Top 81	6	14	20	*40*
Low	135	33	48	*216*
Total	*150*	*63*	*84*	

The number one threat was from Malaysian Inkberry (*Scaevola taccada*) spreading to the Ambergris Cays (Box 8). Within the remaining top 20 threats there were six vertebrates, three plants and four ants. The vertebrates included Black Rat, Brown Rat, Feral Dog, Feral Cat and Green Iguana (Box 9), all of which either posed a threat to the Ambergris Cays, the Leeward Cays, or both (note that rats have already been eradicated from some of the Leeward Cays). The plants included Fountain Grass (*Pennisetum setaceum*), Casuarina (*Casuarina equisetifolia*) and Cowbush (*Leucaena leucocephala*), in addition to Malaysian Inkberry, which posed threats to the Ambergris Cays, the Leeward Cays and the Southern Cays. All of the invertebrates were ants, four of which posed a threat to the Ambergris Cays (Box 10), with one also posing a threat to the Leeward Cays. Confidence in the assessment of the top 20 threats was generally high. The main area of low confidence related to the ability of the four ant species to establish and cause impacts, both on the Ambergris Cays and the Leeward Cays.

Some islands were more at risk from spreading invasive species than others (Figure 4). The Ambergris Cays were most at risk, with 13 species in the top 20 threatening this island group (Box 11). The next most at risk islands included the Leeward Cays, Southern Cays and West Caicos (Boxes 12-14). Provo was the least at risk, because the majority of species were already established here.

Table 4. Top 20 established invasive species in TCI that pose a biodiversity threat to islands where they are not currently established. Arrival (A) and establishment (B) scored very unlikely to very likely (1-5); biodiversity impact (C) scored from minimal to massive (1-5); with associated confidence scores.

G	Scientific name	English name	Island	Arr. (A)	Conf.	Est. (B)	Conf.	Imp. (C)	Conf.	A*B*C	Rank
P	*Scaevola taccada*	Malaysian Inkberry	Ambergris	5	high	5	high	5	high	125	Top 1
P	*Pennisetum setaceum*	Fountain Grass	Ambergris	5	high	5	high	5	high	125	Top 20
P	*Casuarina equisetifolia*	Casuarina	Ambergris	5	high	5	high	5	high	125	Top 20
P	*Leucaena leucocephala*	Cowbush	Ambergris	5	high	5	high	5	high	125	Top 20
P	*Scaevola taccada*	Malaysian Inkberry	Southern Cays	5	high	5	high	5	high	125	Top 20
V	*Rattus rattus*	Black Rat	Leeward Cays	5	high	5	high	5	high	125	Top 20
V	*Rattus rattus*	Black Rat	Ambergris	5	high	5	high	5	high	125	Top 20
V	*Iguana iguana*	Green Iguana	Leeward Cays	5	med	5	high	5	low	125	Top 20
V	*Canis lupus*	Feral Dog	Leeward Cays	5	high	5	high	5	high	125	Top 20
V	*Canis lupus*	Feral Dog	Ambergris	5	high	5	high	5	high	125	Top 20
V	*Felis catus*	Feral Cat	Ambergris	5	high	5	high	5	high	125	Top 20
V	*Felis catus*	Feral Cat	Leeward Cays	5	high	5	high	5	high	125	Top 20
P	*Casuarina equisetifolia*	Casuarina	Southern Cays	5	med	5	high	5	high	125	Top 20
V	*Iguana iguana*	Green Iguana	Ambergris	5	med	5	high	5	low	125	Top 20
I	*Paratrechina longicornis*	Longhorn Crazy Ant	Ambergris	5	med	4	low	5	low	100	Top 20
I	*Solenopsis invicta*	Red Imported Fire Ant	Ambergris	5	med	4	low	5	low	100	Top 20
I	*Pheidole megacephala*	Big-Headed Ant	Ambergris	5	med	4	low	5	low	100	Top 20
I	*Wasmannia auropunctata*	Little Fire Ant	Ambergris	5	med	4	low	5	low	100	Top 20
I	*Solenopsis invicta*	Red Imported Fire Ant	Leeward Cays	4	med	5	low	5	low	100	Top 20
V	*Rattus norvegicus*	Brown Rat	Ambergris	4	med	5	med	5	high	100	Top 20

Box 8. *Scaevola taccada* (Malaysian Inkberry) threat to the Ambergris Cays

Malaysian Inkberry is a dense, spreading shrub that forms rounded mounds from 1 to 3.5 m tall, displacing native vegetation and changing the habitat. It poses a threat to the endemic rock iguana which occurs on the Ambergris Cays by displacing the native plant which it depends on for food. It will also affect nesting seabirds by altering the habitat and potentially breeding turtles.

Inkberry is a popular ornamental species and there is a risk that it could be deliberately planted on Big Ambergris Cay, which is a private island. The owners need to be made aware of the risks of bringing in this plant.

Threat assessment (confidence in brackets):

- Arrival = very likely (high)
- Establishment = very likely (high)
- Biodiversity impact = massive (high)

The main pathways are through deliberate introduction, and by fruit and plant fragments dispersed on vegetation rafts by ocean currents. Fruit may float for up to one year.

Image: Pancrat - Own work, CC BY-SA 3.0, https://commons.wikimedia.org/w/index.php?curid=6327915

Box 9. *Iguana iguana* (Green Iguana) threat to Leeward Cays

The Green Iguana is thought not to be established in TCI, but there have been sightings on Providenciales and Grand Turk, see Box 3.

If Green Iguanas did establish, they would pose a threat to the critically endangered TCI rock iguana *Cyclura carinata*, found on Little Water Cay and Water Cay in the Leeward Cays group, the Ambergris Cays, and French Cay in the Southern Cays group.

Threat assessment (confidence in brackets):

- Arrival = very likely (medium)
- Establishment = very likely (high)
- Biodiversity impact = massive (low)

The main pathways are as hitchhikers on vessels and in supplies. Little Water Cay is very close to Providenciales and Green Iguana could swim across, in which case contingency plans supported by early detection is likely to be needed.

Image: https://www.pets4homes.co.uk/

Box 10. Invasive ant threat to the Ambergris Cays

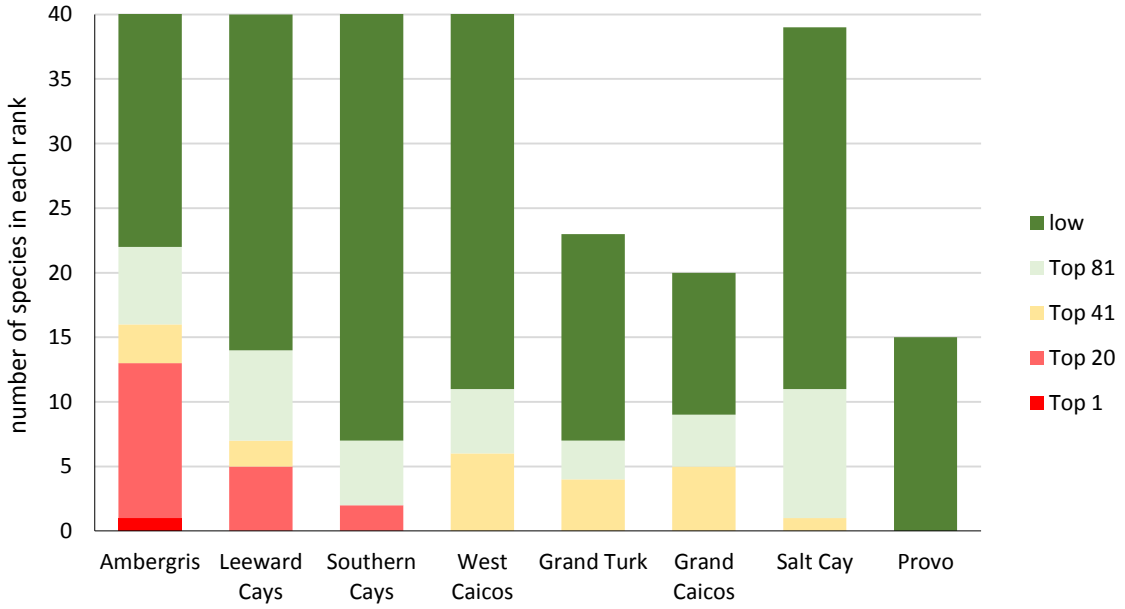
Invasive ants can cause massive declines in species diversity as well as becoming a nuisance for people. In TCI, ant species pose a particular threat of spreading from the main islands to Ambergris and the Leeward Cays Island, where they could cause serious impacts on the endemic rock iguana, endemic lizards, breeding birds and breeding turtles found there.

Threat assessment (confidence in brackets):

- Arrival = very unlikely to likely (medium)
- Establishment = likely to very likely (low)
- Biodiversity impact = massive (low)

Important pathways of spread from the main island to the outer Cays include as hitchhikers in the backpacks of visitors, with general supplies taken over to service restaurants, and in camping equipment and provisions by researchers and campers.

a. Heat map of islands at most threat from invasive species established elsewhere in TCI, red = most and green = least at threat (note island size and position is illustrative and not-to-scale).



b. Number of species in each rank position (top 1, 20, etc.) threatening different islands.

Figure 4. Threat posed to the islands of TCI by the spread of invasive non-native species established somewhere in the territory.

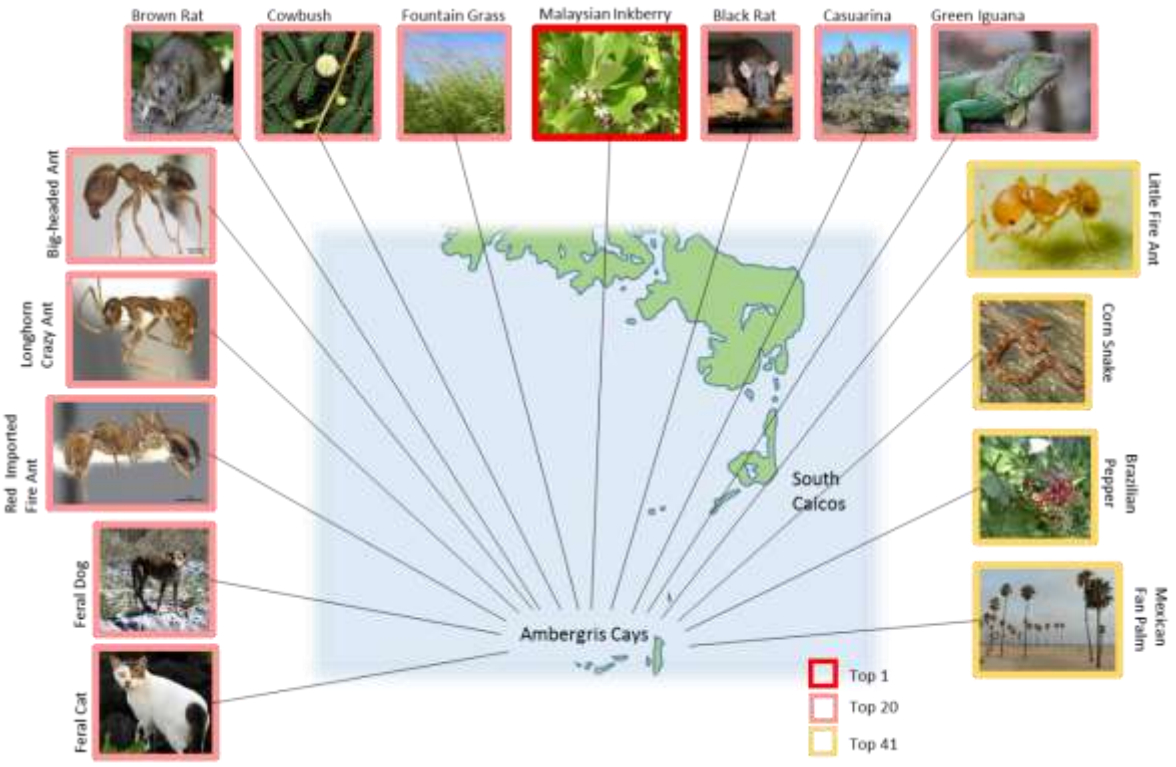
Box 11. Threat of species spreading to the Ambergris Cays

These islands are at particular threat from the spread of invasive species. Many species are very likely to arrive on the islands because they are regularly visited by people. Big Ambergris Cay is a private island, offering luxury tourist accommodation and access via an airstrip, with flights from Providenciales. Little Ambergris Cay is an uninhabited wetland cay, one mile (1.6km) to the west of Big Ambergris and is the largest completely protected island or cay in the Turks and Caicos.

If invasive species do arrive, many of them are likely to establish and cause serious biodiversity impacts. Conservation concern is high on the islands, particularly for breeding birds, endemic lizards including the TCI rock iguana.

The main pathways of likely introduction to these islands include:

- **Development**, including the importation of building materials, plants etc. from Provo.
- **Tourist** visits, including boats, contaminated footwear, etc.
- **Aircraft**, as hitchhikers or stowaways on or in aircraft
- **Tourist resort**, goods brought in could introduce species (e.g. rodents, ants), homeowners may also have an interest in keeping some animals (e.g. cats).
- **Researchers**, contaminants could accidentally be brought in with those studying / working on the islands (e.g. on footwear, equipment, vessels, etc.).
- **Hitchhiking on driftwood**, wrack, etc.
- **Natural dispersal**, a number of species, particularly the Malaysian Inkberry, could float to Ambergris Cays.



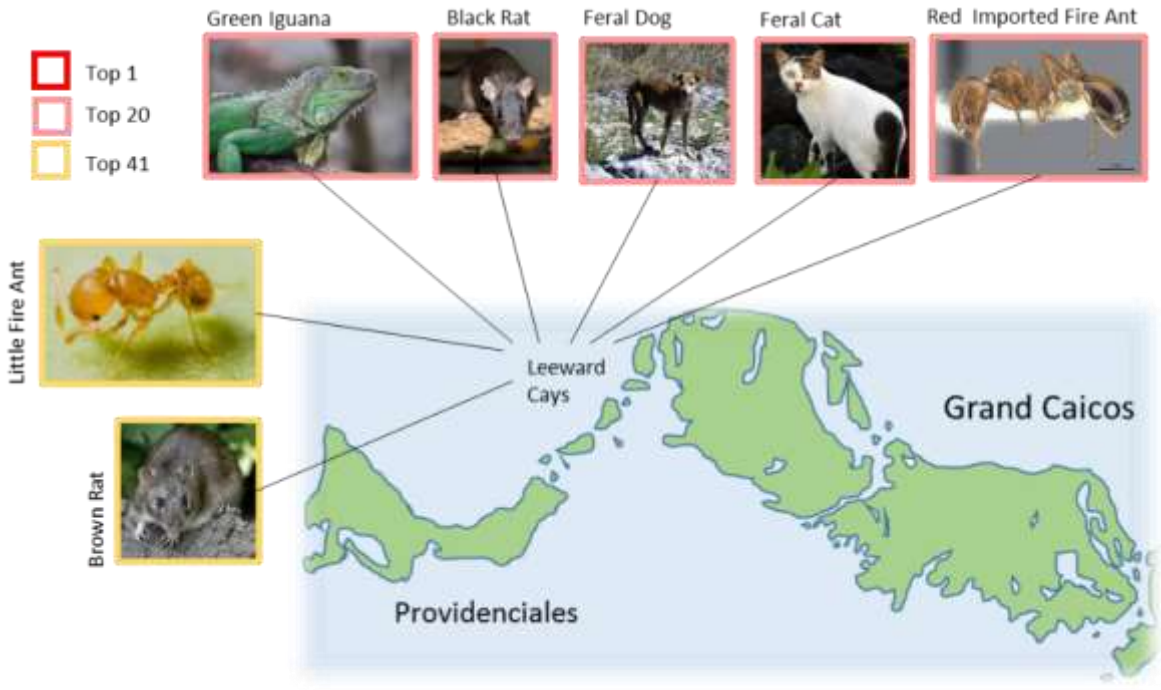
Box 12. Threat of species spreading to the Leeward Islands

The Leeward Islands consist of a group of small uninhabited islands spread between Providenciales and North Caicos, and include Little Water Cay and Water Cay, both home to the endemic rock iguana *Cyclura carinata.* Their close proximity to Provo and to each other put them at risk of easy spread of invasive species by swimming (such as the Green Iguana or rats), floating or rafting (such as fire ants) or water-/wind-dispersed seeds (many plant species).

These islands also receive high numbers of visitors on day trips, putting them at risk to hitchhiker species arriving on backpacks and shoes. This is particularly of concern on Little Water Cay due to the presence of the endemic rock iguana.

The main pathways of likely introduction to these islands include:

- **Hitchhiking on driftwood**, wrack, etc.
- **Development**, including the importation of building materials, plants etc. from Provo (e.g. potential development on Water and Dellis Cays).
- **Tourist** visits and resorts, including boats, contaminated footwear, as well as goods brought in to supply them.
- **Researchers**, contaminants could accidentally be brought in with those studying / working on the islands (e.g. on footwear, equipment, vessels, etc).
- **Natural dispersal**, a number of species, particularly the Malaysian Inkberry, could float to the Leeward Cays.



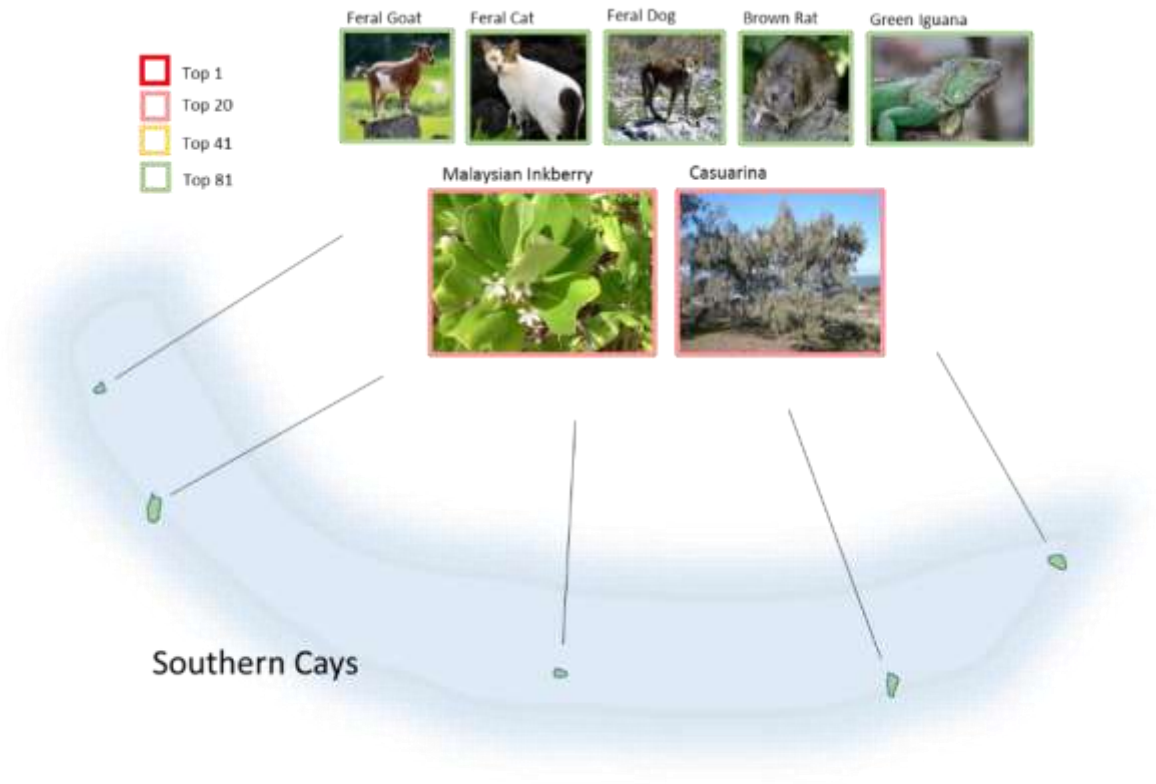
Box 13. Threat of species spreading to Southern Cays

The Southern Cays consist of scattered, small low-lying islands, important for seabirds such as the Roseate Tern, Bridled Tern, Sandwich Terns, Sooty Terns, and Brown Noddy. French, Bush and Seal Cays are statutory sanctuaries. French Cay is a small (8.9ha) sandy cay, home of the endemic TCI rock iguana *Cyclura carinata*.

The risk of species arriving is low compared to the Ambergris Cays due to the more remote location of these islands and relatively few visitors. Despite this, the risk of introduction of invasive species is still high, due to the high impact if they did arrive. Feral Cats, Feral Dogs and rats would devastate the seabird populations, the Green Iguana poses a threat to the endemic rock iguana, while Inkberry and Casuarina would change the habitats to the detriment of the native flora and fauna.

The main pathways of likely introduction to these islands include:

- **Hitchhiking on driftwood**, wrack, etc.
- **Tourist** visits, including boats, contaminated footwear, etc.
- **Researchers**, contaminants could accidentally be brought in with those studying / working on the islands (e.g. on footwear, equipment, vessels, etc).
- **Natural dispersal**, a number of species, particularly the Malaysian Inkberry.



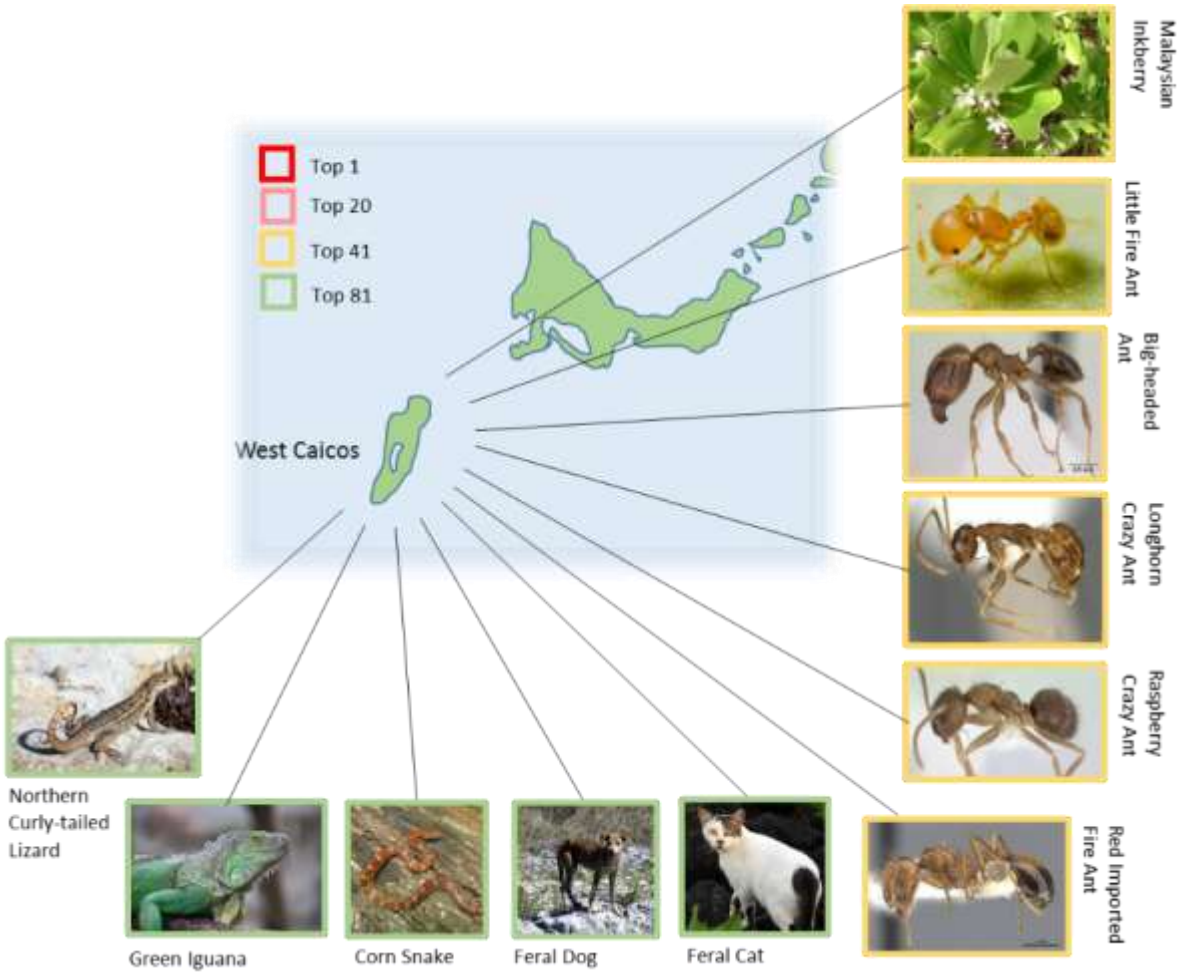
Box 14. Threat of species spreading to West Caicos

West Caicos is uninhabited, but was previously the site of intensive sisal farming, and currently being considered for redevelopment of an abandoned resort complex. The only access is by dive boats or private vessels.

West Caicos is home to a number of birds, including Caribbean flamingos. Invasive species would change the habitat and affect breeding seabirds and turtles. The ants would particularly threaten the proposed resort. If the resort was developed, biosecurity for construction materials and goods being taken to West Caicos would have to be considered.

The main pathways of likely introduction to these islands include:

- **Hitchhiking on driftwood**, wrack, etc.
- **Tourist** visits, including boats, contaminated footwear, etc.
- **Researchers**, contaminants could accidentally be brought in with those studying / working on the islands (e.g. on footwear, equipment, vessels, etc.).
- **Natural dispersal**, a number of species, particularly the Malaysian Inkberry.



3.3. Comparing eradication and spread

The results of both exercises were compared to explore how feasible it would be to eradicate species that pose a risk of spreading to new islands (Table 5).

Table 5. Comparing species risk of spreading to new islands within TCI (by rank position) and overall feasibility of eradication.

		Overall eradication feasibility					
		very low	low	medium	high	very high	*total*
Risk of spread (rank)	Top 1	1	0	0	0	0	*1*
	Top 20	8	3	0	6	2	*19*
	Top 41	2	3	1	13	2	*21*
	Top 81	10	11	4	13	2	*40*
	Low	18	87	74	37	0	*216*
	Total	*39*	*104*	*79*	*69*	*6*	

The species considered most likely to pose a threat by spreading to new islands (Malaysian Inkberry), was rated very low feasibility for complete eradication from TCI. However, six species in the top 20 threats were rated very high or high feasibility for eradication (Table 6).

Table 6. Species / island combinations in the top 20 spread threats for which feasibility of eradication was rated as high or very high. Note species can appear more than once in this table because they pose a threat to different islands, but always have the same eradication feasibility rating as this applies to the whole of the territory.

Scientific name	English name	Island	Spread threat	Feasibility of eradication
Iguana iguana	Green Iguana	Leeward Cays	Top 20	Very high
Iguana iguana	Green Iguana	Ambergris	Top 20	Very high
Pennisetum setaceum	Fountain Grass	Ambergris	Top 20	High
Paratrechina longicornis	Longhorn Crazy Ant	Ambergris	Top 20	High
Pheidole megacephala	Big-Headed Ant	Ambergris	Top 20	High
Solenopsis invicta	Red Imported Fire Ant	Ambergris	Top 20	High
Solenopsis invicta	Red Imported Fire Ant	Leeward Cays	Top 20	High
Wasmannia auropunctata	Little Fire Ant	Ambergris	Top 20	High

4. Discussion

There are many invasive species established in TCI and a wide range of possible management actions that could be taken. The purpose of this work was to rapidly screen these options to provide a more manageable short-list of potential priorities focussed on eradication and spread prevention. In doing so, the intention was to provide evidence to help justify management action as well as to support plans and bids for future work in TCI. Recommendations based on this prioritisation are provided (Section 4.4 below).

4.1. Eradication priorities

The Green Iguana was the only species rated as very high feasibility of eradication from TCI. This is a species for which eradication methods are available, effective and likely to be successful if deployed at the earliest stage of invasion. However, there are a number of barriers to successful eradication, including the rapid speed at which a response would need to be delivered (ideally within 1 year of detection) and the very high likelihood of re-invasion as a result of further introduction events. It would therefore be prudent to develop a contingency plan for this species to facilitate early action, raise awareness of the need to report any sightings as soon as possible and consider measures to reduce the risk of new introductions. It should be noted that the Green Iguana is not yet thought to be established in TCI and so the results here are based on a hypothetical scenario, assuming a small population is discovered on the island of Provo. This was considered the most likely scenario, given recent sightings in the area.

A further twelve species were rated as high feasibility for eradication. Should funds become available, it is recommended that these species be considered priorities for more detailed assessment and, ultimately, eradication. Five of these were not only rated as high feasibility for eradication, but were also ranked in the top 20 threats in terms of spread, including one plant (Fountain Grass) and four ant species (which can effectively be considered a single group for the purposes of eradication). These species should be considered particular priorities for eradication; however, it would be essential to improve the understanding of where these species are in TCI as their distribution was not well understood (particularly for the ant species).

Priority in this study was based on the feasibility of eradicating species that have already been identified as invasive (i.e. that cause, or have the potential to cause, negative impacts). However, this could be further refined using more detailed assessments of risk for each species (see Box 15). Taking a more detailed assessment of risk into account could affect the priority given to eradication, for example while Feral Cattle may be relatively easy to eradicate, they perhaps pose sufficiently low risk to mean they would not be a good candidate for eradication.

In terms of future funding requirements, the total cost of eradicating all 13 priority species from the entire territory was estimated to range from $650k to $1.7 million USD (over multiple years), based on the individual cost estimates for each species (the wide range here reflects the broad bands used to score potential cost, designed to help manage uncertainty in rapid assessment). However, cost savings may be possible by tackling multiple species at the same time, such as the many ant species or rodents that could be treated in the same campaign.

Before taking direct management action it would be essential to ground-truth the results of this rapid assessment by undertaking more detailed assessments. In particular, a clearer understanding of where species are established on the islands is important. This was not known with confidence for many species. Tools are available to support the management and capture of species occurrence

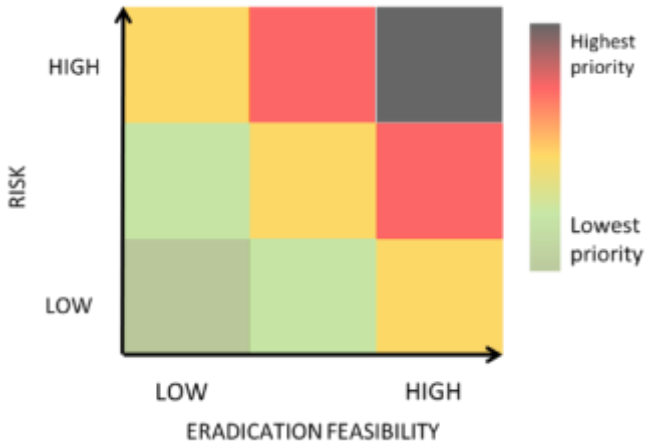
data (e.g. iNaturalist) and it may be useful to explore how these recording systems could be used in TCI. They can be particularly useful for capturing citizen reporting, which appears to be an important source of records for species at the early stages of invasion. While citizen science can be a useful source of records for some species, expert surveillance would also be needed for others, such as the ants which can be difficult to identify.

In many cases there was also a considerable risk of re-invasion following eradication. This would need to be carefully managed through regulation, biosecurity improvements and contingency planning to ensure the legacy of any eradication attempt.

While not the focus of this study, a brief assessment was made of species which could be important for eradication from specific islands rather than the whole territory. These included: feral cattle from Salt Cay (Very High), Black Rat from Cotton Cay (High), Feral Chicken from Ambergris (High), Feral goats from Cotton Cay, East Caicos and Salt Cay (High), Feral Horses from South Caicos (High) and House Mouse from Ambergris and Middleton (High). However, it should be noted that this assessment is preliminary and not performed systematically for all species island combinations.

Box 15. Combining risk assessment and eradication feasibility to prioritise species

Invasive non-native species can be prioritised based either on how much risk they pose to a territory or on how feasible it would be to eradicate them. However, these factors can also be combined to refine priorities for eradication. Here species that pose a high risk and for which eradication is highly feasible are given highest priority, with species that are lower risk or lower feasibility given lower priority.



4.2. Spread prevention priorities

A number of species that pose the highest risk in terms of spread were also rated as high or very high feasibility of eradication. Eradicating these species would protect islands within TCI from serious future impacts. However, there are many species that would continue to pose a serious threat, particularly to endemic species (such as the native rock iguana), important breeding bird colonies, other species (including turtles, plants, and invertebrates) and important habitats. It is important to consider enhanced biosecurity measures to reduce the risk from these species as well as awareness raising to help ensure they are detected as early as possible when they arrive.

While all of the off-shore islands are important and at risk, some were identified as of particular concern, primarily because of the ease with which invasive species could reach them from the main island. The Ambergris Cays and the Leeward Islands were particularly at threat, partly because of their proximity (particularly for the Leeward Cays), planned or ongoing development, the frequency of visitors and the importance of the species and habitats found there. Biosecurity associated with pathways to these islands was considered a priority, including day trips from both the main island and Little Water Cay, researchers that may be visiting the island and goods and equipment brought

in to supply the resort on Big Ambergris. Some species, including the rodents and Green Iguana, could reach the Leeward Cays on wrack or by swimming directly and so pathway management may not be enough to protect them. In these cases early detection and contingency planning will also be a high priority.

4.3. Cross-cutting issues

The importance of hotels became apparent when considering both eradication feasibility and pathways of spread with TCI. Many species that could be considered for eradication are present on land owned and managed by hoteliers. If hoteliers could be encouraged to take action to remove priority species from their land, this could make eradication considerably easier and cost effective in many cases. Hotels also import ornamental plants for landscaping which may be vectors for new pests as well as having the potential for becoming weeds. As a result, there is a risk not only of spreading species within TCI, but also re-introducing species after they have been eradicated. It is important to work with the hotels on this issue, and make them partners in protecting the unique natural treasures of TCI, for example in adoption of a voluntary Code of Practice, developing lists of acceptable species for importation, approved nurseries for sourcing, and clear biosecurity guidelines. Promotion of invasive species awareness as part of their "green" reputation should be done, equating it with recycling and plastic-use reduction.

4.4. Recommendations

The following general recommendations are made:

1. Establish early detection and contingency planning for the Green Iguana.
    a. It should be possible to eradicate this species if detected at an early stage of invasion. Improved surveillance and planning should help ensure this is effective and relatively inexpensive.
    b. Pathways of potential introduction to TCI should be identified and managed where possible to reduce the risk of invasion (and re-invasion).

2. Focus eradication effort on the remaining five priority species identified as both a risk of spreading to new islands and for which eradication feasibility was high or very high: Fountain Grass, Longhorn Crazy Ant, Big-Headed Ant, Red Imported Fire Ant and Little Fire Ant. If possible, also consider the remaining seven species that were rated high and very high feasibility of eradication: Mexican Fan Palm, Tamarisk, Dandelion, Henna, Raspberry Crazy Ant, Feral Cattle and Red-Eared Slider. It may also be useful to consider in more detail where eradication may be a priority on specific islands, even where territory wide eradication is unlikely to be feasible.

3. Improve distribution data for these priority species, before initiating eradication. It is particularly important to better understand the distribution of the five ant species and Fountain Grass, for which the current situation is not known with confidence.
    a. Specific surveys may be required for some species (e.g. baited traps can be used for ant surveillance).
    b. Citizen recording systems could be used (e.g. iNaturalist) to capture more local knowledge of species distribution, upscale surveillance for easily recognized invasive species and to improve awareness with the public.

4. Undertake detailed feasibility / cost benefit assessment of these priority species and explore opportunities to carry out eradication.

a. Improved distribution data should feed into the more detailed feasibility assessment for priority species.
b. The detailed assessment should be informed by the individual response and confidence scores for each species reported here, particularly those for which confidence was only low or medium.

5. Strengthen internal biosecurity to tackle species that pose a threat to islands within TCI:
    a. Island, species and pathway specific biosecurity measures should be considered, based on the case studies presented.
    b. In particular, biosecurity should focus on preventing species from Provo reaching the Ambergris Cays.
        i. This includes working with tourists visiting the island, residents and key stakeholder groups (particularly hoteliers and restaurant owners).
        ii. Awareness raising measures should be considered to promote good biosecurity when visiting the island and to promote early detection of INNS. In particular, residents and visitors should be aware of and encouraged to report invasive plants (such as Malaysian Inkberry and Fountain Grass), rats and non-native ants.
        iii. Contingency plans should be developed to make clear what action will be taken if high priority INNS are detected on the island.
    c. A similar approach should be considered for other at-risk island groups, particularly the Leeward Cays, West Caicos and Southern Cays.

6. Biosecurity legislation needs to be updated so that it provides comprehensive provisions for regulated articles, and includes provisions for internal control of INNS and addresses the issue of access to private land.

7. Communication and awareness need to be raised through social media, leaflets, signage, and posters:
    a. With the hotels, working with them to manage species on their land and reduce the biosecurity risk of importing live plant material for landscaping;
    b. With the local community visiting the off-shore islands or working in restaurants there;
    c. With boat owners and international visitors visiting or travelling between the different islands and off-shore Cays;
    d. The programme should include social media, the local press, targeted posters and leaflets (in English, Kreyòl, and Spanish), and internal advocacy to raise awareness with Ministers and government officers.

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Annex 1. List of expert participants from TCI

Name	**Position**	**Organisation**
Shelley Bridgewater	Director of Agriculture	Dept. Agriculture
Roneta Huntley-Thomas	Chief Plant Protection Officer	Dept. Agriculture
Mario Smith	Extension Officer	Dept. Agriculture
Kayla Murrell	Quarantine Officer	Dept. Agriculture
Bryan Naqqi Manco	Terrestrial Ecologist/ Environmental Officer	Dept. Environment and Coastal Resources
Kathy Lockhart	Scientific Officer	Dept. Environment and Coastal Resources
Dodly Prosper		Dept. Environment and Coastal Resources
Winema Sanders-Penn	Executive Director	TCI National Trust
Della Higgs	Education and Outreach Manager	TCI National Trust
Kenrick Neely	Director	Environmental Health Dept.
Zatanya Handfield	Environmental Health Officer	Environmental Health Dept.
Pierre Clerveaux	Port Supervisor	Port Authority
Sarah Havery	Senior Species Recovery Officer	RSPB

Annex 2. List of expert participants from UK, Europe and USA

Name	**Organisation**	**Role**	**Workshop attendee**
Olaf Booy	GB Non-native Species Secretariat, UK	Facilitator	Yes
Jill Key	GB Non-native Species Secretariat, UK	Facilitator	Yes
Helen Roy	Centre for Ecology and Hydrology, UK	Facilitator	Yes
Tim Adriaens	INBO, Belgium	Vertebrate group leader	Yes
Pete Robertson	Newcastle University, UK	Vertebrate group participant	Yes
Aileen Mill	Newcastle University, UK	Vertebrate group participant	No
Alan MacLeod	Defra, UK	Invertebrate group leader	Yes
David Roy	Centre for Ecology and Hydrology, UK	Invertebrate group participant / data manager	Yes
Wolfgang Rabitsch	Environment Agency, Austria	Invertebrate group participant	Yes
Trevor Renals	Environment Agency, UK	Plant group leader	Yes
Danielle Frohlich	SWCA Environmental Consultants, USA	Plant group participant	Yes
Wayne Dawson	Durham University, UK	Plant group participant	No
Zarah Pattison	Newcastle University, UK	Plant group participant	No
Rob Tanner	EPPO, France	Plant group participant	No

Annex 3. Guidance for assessing the feasibility of eradication

Step 1 – define the eradication strategy

Based on this information, a brief strategy should be described by the assessor the aim of which is to completely eradicate the species from the territory. This will be a single strategy, but could include multiple methods (e.g. trapping, chemical use and mechanical removal). The strategy that is most likely to be successful should be described, avoiding being too conservative (i.e. no eradication possible despite techniques being available) or unrealistic (i.e. cost / damage caused vastly outweighs potential benefits). If no realistic strategy can be envisaged then it can still be useful to quickly assess extreme strategies. If necessary, more than one eradication strategy can be assessed.

Step 2 – assess the eradication strategy

The eradication strategy should be assessed using the criteria defined under the headings below (steps 2a to 5). The response score is a 5-point scale from 1-5 (table below). In all cases 1 is the least favourable and 5 the most. For example, a very effective eradication strategy scores 5, a very ineffective strategy scores 1; whereas a very inexpensive strategy (i.e. the cost favours taking action) scores 5, a very expensive one scores 1.

Criteria	**Response Score**				
	1	**2**	**3**	**4**	**5**
Effectiveness	Very ineffective	Ineffective	Moderate effectiveness	Effective	Very effective
Practicality	Very impractical	Impractical	Moderate practicality	Practical	Very practical
Cost	>£10M	£1-10M	£200k-1M	£50-200k	<£50k
Negative impact	Massive	Major	Moderate	Minor	Minimal
Acceptability	Very unacceptable	Unacceptable	Moderate acceptability	Acceptable	Very acceptable
Window of opportunity	< 2 months	2 months - 1 year	1 – 3 years	4-10 years	>10 years
Likelihood of re-invasion	Very likely	Likely	Moderate likelihood	Unlikely	Very unlikely
Conclusion (overall feasibility of eradication)	Very low	Low	Medium	High	Very high

Step 2a - effectiveness

This part of the assessment scores how effective the defined eradication strategy would be regardless of other issues, such as the practicality of deploying methods, costs, acceptability of methods, etc. which are taken into account elsewhere. For example, the eradication strategy for a non-native fish in a river could be to flood it with the piscicide rotenone – this would likely score 'very effective' despite low scores associated with practicality, impact and acceptability.

Points to consider:

- How effective has this approach proven to be in the past or in an analogous situation?

- How effective is the approach despite the biology / behaviour of the target organism?

Step 2b - practicality

How practical is it to deploy the described strategy? In particular, consider barriers that might prevent the use of the strategy such as issues gaining access to relevant areas, obtaining appropriate equipment, skilled staff, chemicals, etc. If there are any legal barriers to undertaking the work these should be assessed here.

Points to consider:

- How available are the methods in the risk management area?
- How accessible are the areas required to deploy the eradication strategy?
- How easy would it be to obtain relevant licences or other approvals / permissions (e.g. access permission) to undertake the approach?
- How easy would it be to overcome legal barriers?
- How safe are the methods used in this approach (are there health and safety barriers)?

Step 2c - cost

Cost relates to the total direct cost of eradicating the species from the risk management area using the defined eradication strategy. Total cost includes the cost of staff, resources, materials, etc. over the entire time period involved in the eradication and any required post eradication surveillance and follow-up. Note indirect costs (e.g. loss of business) are considered an impact and not recorded here.

In your comment, indicate the period over which costs would be occurred (i.e. number of years) and, if possible, indicate whether the cost would be evenly spread, frontloaded or back loaded.

Step 2d - impact

Impact relates to the impact of the eradication strategy itself. It is important to note that any indirect economic impacts (i.e. economic consequences of the eradication strategy rather than the cost of the strategy itself) are recorded here and not under 'cost'.

Points to consider:

- How significant is the environmental harm caused by this approach?
- How significant is the economic harm caused by this approach?
- Examples of economic harm might include: reduction in the ability to trade or do business as a result of the management method; loss of earnings; reduction in tourism; reduction in house prices; etc.
- How significant is the social harm, including to human health, caused by this approach?
- Examples of social harm might be a reduction in a person's use or enjoyment (e.g. preventing them walking in a woodland or fishing in a river), disruptions of communities, etc.

Step 2e - acceptability

Acceptability relates to significant issues that could arise as a result of disapproval or resistance from individuals, groups or sectors. This does not include regulatory or legislative barriers which are considered under practicality.

- How acceptable is the approach likely to be based on environmental / animal welfare grounds?

- Note this question relates to likely criticism / resistance that the approach would meet based on environmental / animal welfare grounds.
- How acceptable is the approach likely to be to the general public?
- How acceptable is the approach likely to be to other stakeholders?

Step 3 – asses the window of opportunity

The window of opportunity relates to how quickly the species will spread beyond the point that eradication, using the defined strategy, would be effective. Assessors should consider how long it would take before the responses given to other steps (2a-2e) would no longer be valid.

Step 4 – assess the likelihood of re-invasion

Assuming the eradication is successful, i.e. there are no wild populations of the species left, how likely is it that re-invasion will occur? Note that unless the eradication strategy has deliberately targeted populations in containment or otherwise not in the wild (i.e. in gardens, zoos, etc.) introduction from these should be considered part of re-invasion.

Step 5 – determine the overall feasibility of eradication

This is the conclusion of the assessment. A score should be provided for the overall feasibility of eradication taking into account all other factors (i.e. steps 2a – 4). Assessors should provide a score they judge to be appropriate, taking other scores into account (but note the overall score is not necessarily the mean of other scores).

Annex 4. Guidance for assessing the threat of invasive species established in parts of TCI to islands where they are not current established

Step 1 – scoring likelihood of arrival (on recipient island)

Thinking of the different pathways by which species may move between islands, what is the likelihood of the target species arriving on the recipient island within the next 10 years? This could be as a result of intentional introduction (e.g. imported into the recipient island as a commodity), unintentional introduction (e.g. as a hitchhiker in produce or as hull fouling) or natural spread (for example a non-native insect flying from one island to another).

If possible, record the likely pathway of introduction and the donor island (where the species is most likely to arrive from) in the comments section.

Step 2 – scoring likelihood of establishment (on recipient island)

If the species were to arrive on the island, what is the likelihood of it being able to establish (i.e. form a self-sustaining population)? Take into account the ecological properties of both the species and community that it is invading. Scores should reflect life-history characteristics including reproductive rate and ecological features such as tolerance of a broad range of environmental conditions or availability of food supply in the introduced range.

Step 3 – scoring magnitude of impact (on recipient island)

If the species were to establish, how much impact could it have? The primary focus is on biodiversity impact, paying particular attention to rare or important native species (e.g. endemics and globally threatened species) that might be affected. Biodiversity impact is defined using a 5 point scale (table below – note these have been modified from categories used in the EICAT scheme of Blackburn et al. 2014). If there are also likely to be human health or economic impact please note this in the appropriate column of the scoring spreadsheet.

Score	Biodiversity impact	Example for OTs assessment
1 – minimal	None or negligible	NA
2 – minor	Reductions in the performance of individuals in the native biota, but no declines in native population sizes	A native species remains established in similar numbers and extent, but there are impacts on the fitness of individuals (e.g. through predation, competition, etc.)
3 – moderate	Declines in the population size of at least one native taxon (not of particular conservation importance). Not extinction.	A native species not of particular conservation concern remains established on the island, but is reduced in number and / or extent.
4 – major	Population extinction of at least one native taxon or population declines in a native taxon of particular conservation importance	A native species not of particular conservation concern is driven to extinction on one island, but survives as a native species in other areas within the territory or elsewhere. Or a decline in a population of particular conservation (e.g. of an endemic or globally threatened species).
5 – massive	Irreversible population or global extinction of at least one native taxon	A native species endemic to the island and no-where else is driven to extinction

Annex 5. Guidance for scoring confidence

For every score please record your confidence in that score. This should be based on your expert opinion, but the table below is provided as a guide to the different confidence levels.

Confidence Score	Examples
High	There is direct relevant evidence to support the assessment. The situation can easily be predicted. There are reliable/good quality data sources relevant to the assessment. The interpretation of data/information is straightforward. Data/information are not controversial, contradictory.
Medium	There is some evidence to support the assessment. Some information is indirect, e.g. data from phylogenetically or functionally similar species have been used as supporting evidence. The interpretation of the data is to some extent ambiguous or contradictory.
Low	There is no direct evidence to support the assessment, e.g. only data from other species have been used as supporting evidence. Evidence is poor and difficult to interpret, e.g. because it is strongly ambiguous.

Annex 6. Consensus scores for the feasibility of completely eradicating established non-native species from TCI.

Column G indicates the expert group: V(ertebrate), I(nvertebrate) and P(lant). Scores are given for the effectiveness, practicality, cost, impact, acceptability, window of opportunity and likelihood of re-invasion for the given eradication strategy (a brief summary of the strategy is given here, but is available in more detail). The eradication strategy is based on the situation in TCI and the overall feasibility of eradication is determined based on all criteria, with associated confidence in overall feasibility of eradication recorded. Species are ordered by overall score, within each group (e.g. high, medium) species are in no particular order. While not the focus of this work, species were flagged if long term management (*) or eradication from some islands but not the whole territory (#) were thought to be important options to consider.

G	Scientific name	English name	Situation	Eradication strategy	Effect.	Pract.	Cost	Impact	Accept.	Window.	Reinv.	Overall	Conf.
V	*Iguana iguana*	Green Iguana	2 islands 1-3 popns 1-10ha	Multiple capture methods	high	high	<$50k	minimal	v. high	2mo-1year	v. high	v. high	med
P	*Washingtonia robusta*	Mexican Fan Palm	3 islands 1-3 popns <1ha	Mechanical and manual	high	high	<$50k	minimal	med	4-10 years	low	high	high
I	*Solenopsis invicta*	Fire Ant	1 islands 5-10 popns 1-10ha	Formicidal bait	high	med	$50-200k	minor	v. high	1-3 years	high	high	med
I	*Paratrechina longicornis*	Longhorn Crazy Ant	1 islands 5-10 popns 1-10ha	Formicidal bait	high	med	$50-200k	minor	high	1-3 years	high	high	med
I	*Pheidole megacephala*	Big-Headed Ant	1 islands 1-3 popns <1ha	Formicidal bait	high	med	$50-200k	minor	high	1-3 years	high	high	med
I	*Wasmannia auropunctata*	Little Fire Ant	1 islands 1-3 popns <1ha	Formicidal bait	high	med	$50-200k	minor	v. high	1-3 years	high	high	med
I	*Nylanderia fulva*	Raspberry Crazy Ant	1 islands 1-3 popns <1ha	Formicidal bait	high	med	$50-200k	minor	high	1-3 years	high	high	med
P	*Pennisetum setaceum*	Fountain Grass	6 islands 5-10 popns 1-10ha	Herbicide	high	high	<$50k	minor	high	1-3 years	med	high	med

P	*Tamarix canariensis*	Tamarisk	2 islands 1-3 popns <1ha	Herbicide	high	high	<$50k	moderate	med	4-10 years	low	high	med
P	*Tribulus cistoides*	Dandelion (Puncture Vine)	6 islands 50+ popns 1-10km2	Herbicide	high	high	$50-200k	minor	high	1-3 years	v. high	high	med
V	*Bos taurus*	Feral Cattle	3 islands 1-3 popns 10-100km2	Capture and corralling	high	high	$50-200k	minor	med	4-10 years	high	high	low
V	*Trachemys scripta*	Red-Eared Slider	1 islands 1-3 popns 1-10km2	Trapping and pond draining	high	high	<$50k	moderate	high	4-10 years	high	high	low
P	*Lawsonia inermis*	Henna	1 islands 1-3 popns <1ha	Cut, drill and stump treat	med	high	<$50k	moderate	high	4-10 years	low	high	high
V	*Equus caballus**	Feral Horse	2 islands 1-3 popns 1-10km2	Corral and sterilise	high	low	$200k-1M	minor	med	4-10 years	high	med	med
I	*Tapinoma melanocephalum*	Ghost Ant	1 islands 5-10 popns 1-10ha	Formicidal bait	high	med	$50-200k	minor	high	1-3 years	high	med	med
P	*Schinus terebinthifolius*	Brazilian Pepper	3 islands 10-50 popns 1-10ha	Herbicide	med	med	$200k-1M	minor	med	1-3 years	med	med	med
P	*Bryophyllum spp.*	Mother Of Thousands	5 islands 50+ popns 1-10km2	Manual and herbicidal treatment	med	med	$200k-1M	moderate	high	4-10 years	low	med	med
P	*Calotropis procera*		5 islands 10-50 popns 1-10km2	Herbicide	med	low	$200k-1M	minor	high	4-10 years	high	med	med
P	*Indigofera tinctoria*		2 islands 1-3 popns 1-10ha	Manual and herbicidal treatment	med	med	$50-200k	minor	high	4-10 years	med	med	med
P	*Jasminum fluminense*		4 islands 5-10 popns 1-10km2	Manual and herbicidal treatment	med	med	$200k-1M	moderate	low	1-3 years	high	med	med

P	*Ageratina altissima*	Snakeroot	Not assessed	Manual and herbicidal treatment	med	med	$200k-1M	minor	med	4-10 years	med	med	low
P	*Amaranthus viridis*	Green Amaranth	Not assessed	Herbicide	med	low	$200k-1M	minor	low	4-10 years	med	med	low
P	*Cleome gynandra*		1 islands 10-50 popns 1-10km2	Manual and herbicidal treatment	med	med	$200k-1M	minor	med	1-3 years	high	med	low
P	*Cryptostegia grandiflora**	Rubbervine	3 islands 5-10 popns 1-10km2	Herbicide	med	med	$50-200k	major	med	1-3 years	med	med	low
P	*Cynodon dactylon*		3 islands 50+ popns 0	Smothering solarisation herbicides	med	low	$50-200k	moderate	med	1-3 years	high	med	low
P	*Tragus berteronianus*	Bur Grass	Not assessed	Herbicide	med	med	$50-200k	minor	med	1-3 years	med	med	low
P	*Megathyrsus maximus*	Guinea Grass	3 islands 50+ popns 10-100km2	Herbicide	low	low	$200k-1M	moderate	med	2mo-1year	high	med	low
V	*Anolis equestris*	Knight Anoles	1 islands 1-3 popns 1-10ha	Trapping and slingshot	low	low	$1-10M	minor	med	4-10 years	high	low	high
V	*Streptopelia decaocto*	Collared Dove	2 islands 1-3 popns 1-10km2	Shooting	high	v. low	$50-200k	minor	high	1-3 years	med	low	med
I	*Icerya purchasi**	Cottony Cushion Scale	1 islands 5-10 popns 1-10ha	Herbicide	high	low	$1-10M	moderate	high	1-3 years	low	low	med
I	*Phalacrococcus howertoni*	Large Green (Croton) Scale	1 islands 5-10 popns 10ha-1km2	Herbicide	high	low	$1-10M	major	high	4-10 years	med	low	med
P	*Agave sisalana*	Sisal	3 islands 10-50 popns 10-100km2	Manual and herbicidal treatment	med	low	$1-10M	moderate	med	4-10 years	med	low	med

P	*Dactyloctenium aegyptium*	Crowfoot Grass	3 islands 50+ popns 1-10ha	Cultural and herbicidal treatment	med	med	$50-200k	moderate	low	1-3 years	high	low	med
P	*Kalanchoe daigremontiana*		3 islands 50+ popns 1-10km2	Manual and herbicidal treatment	med	low	$200k-1M	moderate	med	1-3 years	high	low	med
P	*Leucaena leucocephala*	Cowbush	3 islands 50+ popns 10-100km2	Manual and herbicidal treatment	med	low	$1-10M	moderate	med	2mo-1year	high	low	med
V	*Pantherophis guttatus*	Corn Snake	2 islands 1-3 popns 10-100km2	Multiple capture methods	low	low	$200k-1M	moderate	high	4-10 years	high	low	med
I	*Paratachardina pseudolobata*	Lobate Lac Scale	3 islands 5-10 popns 10ha-1km2	Removal of plant hosts	low	low	$200k-1M	major	high	4-10 years	high	low	med
I	*Maconellicoccus hirsutus**	Pink Hibiscus Mealybug	1 islands 5-10 popns 10ha-1km2	Removal of plant hosts	low	low	$1-10M	moderate	high	1-3 years	low	low	med
P	*Achyranthes aspera*	Devils Horsewhip	3 islands 10-50 popns 10-100km2	Manual and herbicidal treatment	low	low	$200k-1M	moderate	med	1-3 years	v. high	low	med
V	*Capra hircus*#*	Feral Goat	2 islands 1-3 popns 1-10km2	Corral and sterilise	high	med	$1-10M	minor	low	4-10 years	med	low	low
V	*Equus asinus*#*	Feral Donkey	3 islands 1-3 popns 10-100km2	Corral and sterilise	high	med	$1-10M	minor	low	4-10 years	med	low	low
P	*Abutilon spp*		Not assessed	Herbicide	med	med	$200k-1M	minor	low	1-3 years	med	low	low
P	*Brassica nigra*	Black Mustard	Not assessed	Manual and herbicidal treatment	med	med	$200k-1M	minor	med	1-3 years	high	low	low
P	*Casuarina equisetifolia**	Casuarina	3 islands 50+ popns >100km2	Manual and herbicidal treatment	med	low	$1-10M	moderate	med	4-10 years	high	low	low

P	*Abrus precatorius*	Rosary Pea	3 islands 5-10 popns 10-100km2	Herbicide	low	low	$200k-1M	moderate	med	1-3 years	high	low	low
P	*Nerium oleander*	Oleander	Not assessed	Manual and herbicidal treatment	low	low	<$50k	minor	med	1-3 years	med	low	low
P	*Paspalidium geminatum*		Not assessed	Herbicide	low	low	$200k-1M	minor	med	1-3 years	low	low	low
P	*Sansevieria spp (e.g. hyacinthoides)*	African Bowstring Hemp	5 islands 10-50 popns 10ha-1km2	Manual and herbicidal treatment	low	low	$1-10M	major	med	1-3 years	med	low	low
I	*Toumeyella parvicornis**	Pine Tortoise Scale	1 islands 1-3 popns >100km2	Habitat management (controlled burning)	v. high	v. low	$10+M	massive	v. low	>10 years	v. low	v. low	high
V	*Rattus rattus#*	Black Rat	5 islands 10-50 popns >100km2	Poison bait and trapping	high	low	$10+M	major	v. high	>10 years	med	v. low	high
V	*Felis catus*#*	Feral Cat	6 islands 10-50 popns 10-100km2	Poison bait and trapping	med	low	$1-10M	moderate	v. low	4-10 years	high	v. low	high
V	*Osteopilus septentrionalis**	Cuban Tree Frog	3 islands 5-10 popns 10-100km2	Citric acid and trapping	low	low	$10+M	major	low	>10 years	med	v. low	high
V	*Canis lupus**	Feral Dog	4 islands 10-50 popns 10-100km2	Trapping	low	low	$1-10M	moderate	v. low	4-10 years	high	v. low	high
V	*Leiocephalus carinatus*	Northern Curly-Tailed Lizard	1 islands 5-10 popns >100km2	Multiple capture methods	low	v. low	$1-10M	minor	med	4-10 years	high	v. low	high
P	*Scaevola taccada*	Malaysian Inkberry	4 islands 50+ popns 10-100km2	Manual and herbicidal treatment	low	low	$1-10M	moderate	low	1-3 years	high	v. low	high
V	*Rattus norvegicus*	Brown Rat	2 islands 10-50 popns 10-100km2	Poison bait and trapping (or because of	high	v. low	$1-10M	major	v. high	2mo-1year	med	v. low	med

				the mangrove)?									
V	*Mus musculus#*	House Mouse	islands 1-3 popns >100km2	Poison bait and trapping	high	v. low	$10+M	moderate	v. high	4-10 years	high	v. low	med
V	*Gallus gallus#*	Feral Chicken	4 islands 10-50 popns 10-100km2	Trapping and netting	med	low	$1-10M	minor	low	>10 years	v. low	v. low	med
I	*Aedes aegypti*	Yellow Fever Mosquito	7 islands 50+ popns >100km2	Insecticide and habitat management	v. low	v. low	$1-10M	massive	v. low	>10 years	v. high	v. low	low

Annex 7. Established species in TCI ranked by the biodiversity threat that they pose to islands where they are not currently established.

Arrival (A) and establishment (B) were scored from very unlikely to very likely (1-5). Impact (C) was scored from minimal to massive (1-5). High, medium or low confidence was recorded for each of these scores (H, M, L). The product of scores (A*B*C) was used initially to order threats. Final rank was determined by discussion in plenary and consensus of the group. Species of the same rank are in no particular order (i.e. they are considered equally important). While not the focus of this work, species were flagged if long term management (*) or eradication from some islands but not the whole territory (#) were thought to be important options to consider.

G	Scientific name	English name	Island	Arr. (A)	Conf.	Est. (B)	Conf.	Imp. (C)	Conf.	A*B*C	Rank
P	*Scaevola taccada*	Malaysian Inkberry	Ambergris	5	high	5	high	5	high	125	Top 1
P	*Pennisetum setaceum*	Fountain Grass	Ambergris	5	high	5	high	5	high	125	Top 20
P	*Casuarina equisetifolia*	Casuarina	Ambergris	5	high	5	high	5	high	125	Top 20
P	*Leucaena leucocephala*	Cowbush	Ambergris	5	high	5	high	5	high	125	Top 20
P	*Scaevola taccada*	Malaysian Inkberry	Southern Cays	5	high	5	high	5	high	125	Top 20
V	*Rattus rattus#*	Black Rat	Leeward Cays	5	high	5	high	5	high	125	Top 20
V	*Rattus rattus#*	Black Rat	Ambergris	5	high	5	high	5	high	125	Top 20
V	*Iguana iguana*	Green Iguana	Leeward Cays	5	med	5	high	5	low	125	Top 20
V	*Canis lupus**	Feral Dog	Leeward Cays	5	high	5	high	5	high	125	Top 20
V	*Canis lupus**	Feral Dog	Ambergris	5	high	5	high	5	high	125	Top 20
V	*Felis catus*#*	Feral Cat	Ambergris	5	high	5	high	5	high	125	Top 20
V	*Felis catus*#*	Feral Cat	Leeward Cays	5	high	5	high	5	high	125	Top 20
P	*Casuarina equisetifolia*	Casuarina	Southern Cays	5	med	5	high	5	high	125	Top 20
V	*Iguana iguana*	Green Iguana	Ambergris	5	med	5	high	5	low	125	Top 20
I	*Paratrechina longicornis*	Longhorn Crazy Ant	Ambergris	5	med	4	low	5	low	100	Top 20
I	*Solenopsis invicta*	Red Imported Fire Ant	Ambergris	5	med	4	low	5	low	100	Top 20
I	*Pheidole megacephala*	Big-Headed Ant	Ambergris	5	med	4	low	5	low	100	Top 20
I	*Wasmannia auropunctata*	Little Fire Ant	Ambergris	5	med	4	low	5	low	100	Top 20
I	*Solenopsis invicta*	Red Imported Fire Ant	Leeward Cays	4	med	5	low	5	low	100	Top 20
V	*Rattus norvegicus*	Brown Rat	Ambergris	4	med	5	med	5	high	100	Top 20

V	*Rattus norvegicus*	Brown Rat	Leeward Cays	5	med	4	med	5	high	100	Top 41
I	*Paratrechina longicornis*	Longhorn Crazy Ant	West Caicos	4	med	5	low	5	low	100	Top 41
I	*Paratrechina longicornis*	Longhorn Crazy Ant	Grand Turk	4	med	5	med	5	low	100	Top 41
I	*Solenopsis invicta*	Red Imported Fire Ant	West Caicos	4	med	5	low	5	low	100	Top 41
I	*Solenopsis invicta*	Red Imported Fire Ant	Grand Turk	4	med	5	med	5	low	100	Top 41
I	*Pheidole megacephala*	Big-Headed Ant	West Caicos	4	med	5	low	5	low	100	Top 41
I	*Wasmannia auropunctata*	Little Fire Ant	West Caicos	4	med	5	low	5	low	100	Top 41
I	*Nylanderia fulva*	Raspberry Crazy Ant	West Caicos	4	low	5	low	5	low	100	Top 41
I	*Nylanderia fulva*	Raspberry Crazy Ant	Grand Turk	4	med	5	med	5	low	100	Top 41
P	*Schinus terebinthifolius*	Brazilian Pepper	Ambergris	3	med	5	high	5	high	100	Top 41
P	*Scaevola taccada*	Malaysian Inkberry	West Caicos	5		5	high	4	high	100	Top 41
V	*Iguana iguana*	Green Iguana	Grand Caicos	5	med	5	high	4	low	100	Top 41
V	*Iguana iguana*	Green Iguana	Salt Cay	5	high	5	high	4	low	100	Top 41
V	*Pantherophis guttatus*	Corn Snake	Ambergris	4	high	5	high	4	med	80	Top 41
V	*Capra hircus*#*	Feral Goat	Grand Caicos	4	high	5	high	4	med	80	Top 41
V	*Capra hircus*#*	Feral Goat	Grand Turk	4	high	5	high	4	med	80	Top 41
I	*Paratrechina longicornis*	Longhorn Crazy Ant	Grand Caicos	4	med	5	med	4	low	80	Top 41
I	*Solenopsis invicta*	Red Imported Fire Ant	Grand Caicos	4	med	5	med	4	low	80	Top 41
I	*Wasmannia auropunctata*	Little Fire Ant	Leeward Cays	3	med	4	low	5	low	75	Top 41
V	*Trachemys scripta*	Red-Eared Slider	Grand Caicos	5	high	3	med	5	high	75	Top 41
P	*Washingtonia robusta*	Mexican Fan Palm	Ambergris	4	med	4		4		64	Top 41
V	*Pantherophis guttatus*	Corn Snake	Salt Cay	5	high	5	high	4	low	100	Top 81
P	*Sansevieria hyacinthoides*	African Bowstring Hemp	Ambergris	5	high	5	high	4	high	100	Top 81
I	*Paratrechina longicornis*	Longhorn Crazy Ant	Leeward Cays	4	med	4	low	5	low	80	Top 81
V	*Pantherophis guttatus*	Corn Snake	West Caicos	4	high	5	high	4	low	80	Top 81
V	*Pantherophis guttatus*	Corn Snake	Grand Caicos	4	high	5	high	4	med	80	Top 81
V	*Pantherophis guttatus*	Corn Snake	Leeward Cays	4	high	5	high	4	low	80	Top 81
V	*Capra hircus*#*	Feral Goat	West Caicos	4	high	5	high	4	med	80	Top 81
V	*Canis lupus**	Feral Dog	West Caicos	4	high	5	high	4	high	80	Top 81

V	*Capra hircus*#*	Feral Goat	Ambergris	3	high	5	high	5	high	75	Top 81
I	*Pheidole megacephala*	Big-Headed Ant	Grand Turk	3	med	5	med	5	low	75	Top 81
I	*Wasmannia auropunctata*	Little Fire Ant	Grand Turk	3	med	5	med	5	low	75	Top 81
P	*Kalanchoe daigremontiana*		Salt Cay	5		5		3		75	Top 81
V	*Iguana iguana*	Green Iguana	West Caicos	5	med	5	high	3	low	75	Top 81
P	*Cryptostegia grandiflora*	Rubbervine	Ambergris	4	med	4	med	4	med	64	Top 81
V	*Felis catus*#*	Feral Cat	Southern Cays	4	high	3	high	5	high	60	Top 81
V	*Canis lupus**	Feral Dog	Southern Cays	4	med	3	high	5	high	60	Top 81
P	*Schinus terebinthifolius*	Brazilian Pepper	Salt Cay	4		3		5		60	Top 81
V	*Rattus norvegicus*	Brown Rat	Southern Cays	3	med	4	med	5	high	60	Top 81
V	*Iguana iguana*	Green Iguana	Southern Cays	3	high	4	high	5	low	60	Top 81
I	*Paratrechina longicornis*	Longhorn Crazy Ant	Salt Cay	4	med	3	low	5	low	60	Top 81
I	*Solenopsis invicta*	Red Imported Fire Ant	Salt Cay	4	med	3	low	5	low	60	Top 81
I	*Pheidole megacephala*	Big-Headed Ant	Leeward Cays	3	med	4	low	5	low	60	Top 81
I	*Tapinoma melanocephalum*	Ghost Ant	Salt Cay	4	med	3	low	5	low	60	Top 81
I	*Nylanderia fulva*	Raspberry Crazy Ant	Leeward Cays	3	low	4	low	5	low	60	Top 81
V	*Capra hircus*#*	Feral Goat	Leeward Cays	3	high	5	high	4	high	60	Top 81
V	*Capra hircus*#*	Feral Goat	Southern Cays	3	high	5	high	4	med	60	Top 81
I	*Pheidole megacephala*	Big-Headed Ant	Grand Caicos	3	med	5	med	4	low	60	Top 81
I	*Wasmannia auropunctata*	Little Fire Ant	Grand Caicos	3	med	5	med	4	low	60	Top 81
P	*Kalanchoe daigremontiana*		Ambergris	4		5		4		60	Top 81
P	*Schinus terebinthifolius*	Brazilian Pepper	Leeward Cays	4		5	med	3		60	Top 81
V	*Leiocephalus carinatus*	Northern Curly-Tailed Lizard	Grand Caicos	4	high	5	high	3	low	60	Top 81
V	*Leiocephalus carinatus*	Northern Curly-Tailed Lizard	West Caicos	4	high	5	high	3	low	60	Top 81
V	*Leiocephalus carinatus*	Northern Curly-Tailed Lizard	Leeward Cays	4	high	5	high	3	low	60	Top 81
V	*Leiocephalus carinatus*	Northern Curly-Tailed Lizard	Ambergris	4	high	5	high	3	low	60	Top 81

V	*Leiocephalus carinatus*	Northern Curly-Tailed Lizard	Grand Turk	4	high	5	high	3	low	60	Top 81
V	*Leiocephalus carinatus*	Northern Curly-Tailed Lizard	Salt Cay	4	high	5	high	3	low	60	Top 81
I	*Pheidole megacephala*	Big-Headed Ant	Salt Cay	3	med	3	low	5	low	45	Top 81
I	*Nylanderia fulva*	Raspberry Crazy Ant	Salt Cay	3	low	3	low	5	low	45	Top 81
I	*Nylanderia fulva*	Raspberry Crazy Ant	Ambergris	2	low	4	low	5	low	40	Top 81
I	*Wasmannia auropunctata*	Little Fire Ant	Salt Cay	3	med	2	med	5	low	30	Top 81
V	*Rattus rattus#*	Black Rat	West Caicos	5	high	5	high	5	high	125	low
V	*Rattus norvegicus*	Brown Rat	Grand Turk	5	med	4	med	5	high	100	low
V	*Rattus norvegicus*	Brown Rat	Salt Cay	5	med	4	med	5	high	100	low
V	*Rattus norvegicus*	Brown Rat	West Caicos	3		4	med	5	high	60	low
V	*Streptopelia decaocto*	Collared Dove	West Caicos	5	high	4	med	3	low	60	low
V	*Streptopelia decaocto*	Collared Dove	Leeward Cays	5	high	4	med	3	low	60	low
V	*Streptopelia decaocto*	Collared Dove	Ambergris	5	high	4	med	3	low	60	low
V	*Streptopelia decaocto*	Collared Dove	Salt Cay	5	high	4	med	3	low	60	low
I	*Tapinoma melanocephalum*	Ghost Ant	Grand Caicos	4	med	5	med	3	med	60	low
I	*Tapinoma melanocephalum*	Ghost Ant	West Caicos	4	med	5	low	3	med	60	low
I	*Tapinoma melanocephalum*	Ghost Ant	Grand Turk	4	med	5	med	3	med	60	low
I	*Nylanderia fulva*	Raspberry Crazy Ant	Provo	4	med	5	med	3	low	60	low
V	*Gallus gallus#*	Feral Chicken	West Caicos	3	high	4	med	4	med	48	low
V	*Gallus gallus#*	Feral Chicken	Leeward Cays	3	high	4	med	4	med	48	low
P	*Cryptostegia grandiflora*	Rubbervine	Leeward Cays	4	high	4	high	3		48	low
P	*Tribulus cistoides*	Dandelion	West Caicos	4		4		3		48	low
I	*Tapinoma melanocephalum*	Ghost Ant	Leeward Cays	4	med	4	low	3	med	48	low
I	*Tapinoma melanocephalum*	Ghost Ant	Ambergris	4	med	4	low	3	med	48	low
V	*Equus caballus*	Feral Horse	West Caicos	3	med	4	med	5	high	40	low
V	*Equus caballus*	Feral Horse	Ambergris	3	med	4	med	5	high	40	low
V	*Pantherophis guttatus*	Corn Snake	Southern Cays	2	high	5	high	4	low	40	low

V	*Anolis equestris*	Cuban Knight Anole	Grand Caicos	4	high	5	high	2	med	40	low
V	*Anolis equestris*	Cuban Knight Anole	Leeward Cays	4	high	5	med	2	med	40	low
V	*Anolis equestris*	Cuban Knight Anole	Ambergris	4	high	5	high	2	med	40	low
P	*Bryophyllum spp.*	Loveleaf	Ambergris	3	med	4		3	med	36	low
P	*Tribulus cistoides*	Dandelion	Southern Cays	4		3		3		36	low
V	*Osteopilus septentrionalis*	Cuban Tree Frog	Leeward Cays	4	high	3	low	3	low	36	low
V	*Equus caballus*	Feral Horse	Provo	2	med	4	med	4	med	32	low
V	*Equus caballus*	Feral Horse	Leeward Cays	2	med	4	med	4	med	32	low
V	*Equus caballus*	Feral Horse	Grand Turk	2	med	4	med	4	med	32	low
V	*Equus caballus*	Feral Horse	Salt Cay	2	med	4	med	4	med	32	low
V	*Anolis equestris*	Cuban Knight Anole	West Caicos	4	high	4	med	2	med	32	low
V	*Anolis equestris*	Cuban Knight Anole	Grand Turk	4	high	4	med	2	med	32	low
V	*Anolis equestris*	Cuban Knight Anole	Salt Cay	4	high	4	med	2	med	32	low
I	*Paratachardina pseudolobata*	Lobate Lac Scale	West Caicos	4	low	4	low	2	low	32	low
I	*Maconellicoccus hirsutus*	Pink Hibiscus Mealybug	West Caicos	4	low	4	low	2	low	32	low
I	*Icerya purchasi*	Cottony Cushion Scale	West Caicos	4	low	4	low	2	low	32	low
I	*Phalacrococcus howertoni*	Large Green (Croton) Scale	West Caicos	4	low	4	low	2	low	32	low
P	*Sansevieria hyacinthoides*	African Bowstring Hemp	West Caicos	2		5		3		30	low
P	*Kalanchoe daigremontiana*		West Caicos	2		5		3		30	low
V	*Leiocephalus carinatus*	Northern Curly-Tailed Lizard	Southern Cays	2	high	5	high	3	low	30	low
P	*Calotropis procera*	African Milkweed	Ambergris	3	high	5	high	2	med	30	low
P	*Schinus terebinthifolius*	Brazilian Pepper	West Caicos	3		3		3	med	27	low
P	*Cryptostegia grandiflora*	Rubbervine	West Caicos	2		4	high	3		24	low
P	*Leucaena leucocephala*	Cowbush	Southern Cays	2		4		3		24	low
V	*Streptopelia decaocto*	Collared Dove	Southern Cays	4	med	2	low	3	low	24	low
V	*Osteopilus septentrionalis*	Cuban Tree Frog	Southern Cays	4	high	2	low	3	low	24	low
V	*Osteopilus septentrionalis*	Cuban Tree Frog	Grand Turk	4	high	2	low	3	low	24	low
V	*Osteopilus septentrionalis*	Cuban Tree Frog	Salt Cay	4	high	2	low	3	low	24	low

P	*Tamarix canariensis*	Tamarisk	Salt Cay	4	high	3		2		24	low
I	*Paratachardina pseudolobata*	Lobate Lac Scale	Ambergris	3	low	4	med	2	low	24	low
I	*Maconellicoccus hirsutus*	Pink Hibiscus Mealybug	Ambergris	3	low	4	med	2	low	24	low
I	*Phalacrococcus howertoni*	Large Green (Croton) Scale	Ambergris	3	low	4	med	2	low	24	low
P	*Bryophyllum spp.*	Loveleaf	West Caicos	2	med	5	m	2	high	20	low
V	*Trachemys scripta*	Red-Eared Slider	West Caicos	5	high	2	med	2	low	20	low
V	*Trachemys scripta*	Red-Eared Slider	Leeward Cays	5	high	2	med	2	low	20	low
V	*Trachemys scripta*	Red-Eared Slider	Ambergris	5	high	2	med	2	low	20	low
V	*Trachemys scripta*	Red-Eared Slider	Grand Turk	5	high	2	med	2	low	20	low
V	*Trachemys scripta*	Red-Eared Slider	Salt Cay	5	high	2	med	2	low	20	low
P	*Tamarix canariensis*	Tamarisk	Ambergris	2	high	3	med	3	low	18	low
P	*Jasminum fluminense*	Jasmine	West Caicos	3	high	3		2		18	low
P	*Washingtonia robusta*	Mexican Fan Palm	Salt Cay	3		3		2		18	low
V	*Anolis equestris*	Cuban Knight Anole	Southern Cays	2	high	4	med	2	med	16	low
I	*Paratrechina longicornis*	Longhorn Crazy Ant	Southern Cays	1	low	3	low	5	med	15	low
I	*Solenopsis invicta*	Red Imported Fire Ant	Southern Cays	1	low	3	low	5	med	15	low
I	*Pheidole megacephala*	Big-Headed Ant	Southern Cays	1	low	3	low	5	med	15	low
I	*Nylanderia fulva*	Raspberry Crazy Ant	Southern Cays	1	low	3	low	5	med	15	low
P	*Kalanchoe daigremontiana*		Southern Cays	1		3		4		12	low
P	*Cryptostegia grandiflora*	Rubbervine	Southern Cays	2	med	2	high	3	med	12	low
P	*Pennisetum setaceum*	Fountain Grass	Southern Cays	2	high	2		3		12	low
P	*Sansevieria hyacinthoides*	African Bowstring Hemp	Southern Cays	2		2	high	3	med	12	low
V	*Osteopilus septentrionalis*	Cuban Tree Frog	West Caicos	2	med	2	low	3	low	12	low
I	*Paratachardina pseudolobata*	Lobate Lac Scale	Southern Cays	1	low	4	low	3	low	12	low
I	*Icerya purchasi*	Cottony Cushion Scale	Southern Cays	1	low	4	low	3	low	12	low
I	*Phalacrococcus howertoni*	Large Green (Croton) Scale	Southern Cays	1	low	4	low	3	low	12	low
P	*Calotropis procera*	African Milkweed	West Caicos	2	med	3	med	2		12	low
P	*Tamarix canariensis*	Tamarisk	Provo	2	high	3	med	2	low	12	low
P	*Tamarix canariensis*	Tamarisk	Grand Caicos	2	high	3	med	2	low	12	low

P	*Tamarix canariensis*	Tamarisk	West Caicos	2	high	3		2		12	low
P	*Tamarix canariensis*	Tamarisk	Leeward Cays	2	high	3		2		12	low
P	*Washingtonia robusta*	Mexican Fan Palm	West Caicos	2		3		2		12	low
V	*Trachemys scripta*	Red-Eared Slider	Southern Cays	3	high	2	med	2	low	12	low
I	*Paratachardina pseudolobata*	Lobate Lac Scale	Salt Cay	2	low	3	med	2	low	12	low
I	*Icerya purchasi*	Cottony Cushion Scale	Ambergris	3	low	2	med	2	low	12	low
I	*Icerya purchasi*	Cottony Cushion Scale	Salt Cay	2	low	3	med	2	low	12	low
I	*Phalacrococcus howertoni*	Large Green (Croton) Scale	Salt Cay	2	low	3	med	2	low	12	low
I	*Wasmannia auropunctata*	Little Fire Ant	Southern Cays	1	low	2	med	5	med	10	low
P	*Bryophyllum spp.*	Loveleaf	Southern Cays	1	high	3		3	med	9	low
V	*Equus caballus*	Feral Horse	Southern Cays	2	med	1	high	4	med	8	low
P	*Calotropis procera*	African Milkweed	Southern Cays	2	med	2	high	2	med	8	low
P	*Jasminum fluminense*	Jasmine	Ambergris	2	med	2		2		8	low
I	*Tapinoma melanocephalum*	Ghost Ant	Southern Cays	1	low	2	low	3	med	6	low
P	*Tamarix canariensis*	Tamarisk	Southern Cays	1	high	3		2		6	low
P	*Washingtonia robusta*	Mexican Fan Palm	Southern Cays	1		2		2		4	low
P	*Jasminum fluminense*	Jasmine	Salt Cay	4	high	1		1		4	low
I	*Maconellicoccus hirsutus*	Pink Hibiscus Mealybug	Southern Cays	1	low	1	med	3	low	3	low
P	*Schinus terebinthifolius*	Brazilian Pepper	Southern Cays	1		1		2		2	low
I	*Toumeyella parvicornis*	Pine Tortoise Scale	Salt Cay	2	low	1	high	1	high	2	low
I	*Toumeyella parvicornis*	Pine Tortoise Scale	Provo	1	low	1	high	1	high	1	low
I	*Toumeyella parvicornis*	Pine Tortoise Scale	West Caicos	1	med	1	high	1	high	1	low
I	*Toumeyella parvicornis*	Pine Tortoise Scale	Southern Cays	1	low	1	high	1	high	1	low
I	*Toumeyella parvicornis*	Pine Tortoise Scale	Ambergris	1	low	1	high	1	high	1	low
I	*Toumeyella parvicornis*	Pine Tortoise Scale	Grand Turk	1	low	1	high	1	high	1	low
P	*Abrus precatorius*	Rosary Pea	West Caicos	na	na	na	na	na	na	0	low
P	*Abrus precatorius*	Rosary Pea	Leeward Cays	na	na	na	na	na	na	0	low
P	*Abrus precatorius*	Rosary Pea	Southern Cays	na	na	na	na	na	na	0	low
P	*Abrus precatorius*	Rosary Pea	Ambergris	na	na	na	na	na	na	0	low

P	*Abrus precatorius*	Rosary Pea	Salt Cay	na	na	na	na	na	na	0	low
P	*Abutilon spp*		Provo	na	na	na	na	na	na	0	low
P	*Abutilon spp*		Grand Caicos	na	na	na	na	na	na	0	low
P	*Abutilon spp*		West Caicos	na	na	na	na	na	na	0	low
P	*Abutilon spp*		Leeward Cays	na	na	na	na	na	na	0	low
P	*Abutilon spp*		Southern Cays	na	na	na	na	na	na	0	low
P	*Abutilon spp*		Ambergris	na	na	na	na	na	na	0	low
P	*Abutilon spp*		Grand Turk	na	na	na	na	na	na	0	low
P	*Abutilon spp*		Salt Cay	na	na	na	na	na	na	0	low
P	*Achyranthes aspera*	Devils Horsewhip	West Caicos	na	na	na	na	na	na	0	low
P	*Achyranthes aspera*	Devils Horsewhip	Leeward Cays	na	na	na	na	na	na	0	low
P	*Achyranthes aspera*	Devils Horsewhip	Southern Cays	na	na	na	na	na	na	0	low
P	*Achyranthes aspera*	Devils Horsewhip	Ambergris	na	na	na	na	na	na	0	low
P	*Achyranthes aspera*	Devils Horsewhip	Salt Cay	na	na	na	na	na	na	0	low
P	*Agave sisalana*	Sisal	Southern Cays	na	na	na	na	na	na	0	low
P	*Agave sisalana*	Sisal	Ambergris	na	na	na	na	na	na	0	low
P	*Ageratina altissima*	Snakeroot	Provo	na	na	na	na	na	na	0	low
P	*Ageratina altissima*	Snakeroot	Grand Caicos	na	na	na	na	na	na	0	low
P	*Ageratina altissima*	Snakeroot	West Caicos	na	na	na	na	na	na	0	low
P	*Ageratina altissima*	Snakeroot	Leeward Cays	na	na	na	na	na	na	0	low
P	*Ageratina altissima*	Snakeroot	Southern Cays	na	na	na	na	na	na	0	low
P	*Ageratina altissima*	Snakeroot	Ambergris	na	na	na	na	na	na	0	low
P	*Ageratina altissima*	Snakeroot	Grand Turk	na	na	na	na	na	na	0	low
P	*Ageratina altissima*	Snakeroot	Salt Cay	na	na	na	na	na	na	0	low
P	*Amaranthus viridis*	Green Amaranth	Provo	na	na	na	na	na	na	0	low
P	*Amaranthus viridis*	Green Amaranth	Grand Caicos	na	na	na	na	na	na	0	low
P	*Amaranthus viridis*	Green Amaranth	West Caicos	na	na	na	na	na	na	0	low
P	*Amaranthus viridis*	Green Amaranth	Leeward Cays	na	na	na	na	na	na	0	low
P	*Amaranthus viridis*	Green Amaranth	Southern Cays	na	na	na	na	na	na	0	low

P	*Amaranthus viridis*	Green Amaranth	Ambergris	na	na	na	na	na	na	0	low
P	*Amaranthus viridis*	Green Amaranth	Grand Turk	na	na	na	na	na	na	0	low
P	*Amaranthus viridis*	Green Amaranth	Salt Cay	na	na	na	na	na	na	0	low
P	*Brassica nigra (black mustard)*		Provo	na	na	na	na	na	na	0	low
P	*Brassica nigra (black mustard)*		Grand Caicos	na	na	na	na	na	na	0	low
P	*Brassica nigra (black mustard)*		West Caicos	na	na	na	na	na	na	0	low
P	*Brassica nigra (black mustard)*		Leeward Cays	na	na	na	na	na	na	0	low
P	*Brassica nigra (black mustard)*		Southern Cays	na	na	na	na	na	na	0	low
P	*Brassica nigra (black mustard)*		Ambergris	na	na	na	na	na	na	0	low
P	*Brassica nigra (black mustard)*		Grand Turk	na	na	na	na	na	na	0	low
P	*Brassica nigra (black mustard)*		Salt Cay	na	na	na	na	na	na	0	low
P	*Cleome gynandra*		West Caicos	na	na	na	na	na	na	0	low
P	*Cleome gynandra*		Leeward Cays	na	na	na	na	na	na	0	low
P	*Cleome gynandra*		Southern Cays	na	na	na	na	na	na	0	low
P	*Cleome gynandra*		Ambergris	na	na	na	na	na	na	0	low
P	*Cleome gynandra*		Grand Turk	na	na	na	na	na	na	0	low
P	*Cleome gynandra*		Salt Cay	na	na	na	na	na	na	0	low
P	*Cynodon dactylon*		West Caicos	na	na	na	na	na	na	0	low
P	*Cynodon dactylon*		Leeward Cays	na	na	na	na	na	na	0	low
P	*Cynodon dactylon*		Southern Cays	na	na	na	na	na	na	0	low
P	*Cynodon dactylon*		Ambergris	na	na	na	na	na	na	0	low
P	*Cynodon dactylon*		Salt Cay	na	na	na	na	na	na	0	low
P	*Dactyloctenium aegyptium*	Crowfoot Grass	West Caicos	na	na	na	na	na	na	0	low
P	*Dactyloctenium aegyptium*	Crowfoot Grass	Leeward Cays	na	na	na	na	na	na	0	low
P	*Dactyloctenium aegyptium*	Crowfoot Grass	Southern Cays	na	na	na	na	na	na	0	low
P	*Dactyloctenium aegyptium*	Crowfoot Grass	Ambergris	na	na	na	na	na	na	0	low
P	*Dactyloctenium aegyptium*	Crowfoot Grass	Salt Cay	na	na	na	na	na	na	0	low
P	*Indigofera tinctoria*		Provo	na	na	na	na	na	na	0	low
P	*Indigofera tinctoria*		Grand Caicos	na	na	na	na	na	na	0	low

P	*Indigofera tinctoria*		West Caicos	na	na	na	na	na	na	0	low
P	*Indigofera tinctoria*		Leeward Cays	na	na	na	na	na	na	0	low
P	*Indigofera tinctoria*		Southern Cays	na	na	na	na	na	na	0	low
P	*Indigofera tinctoria*		Ambergris	na	na	na	na	na	na	0	low
P	*Indigofera tinctoria*		Salt Cay	na	na	na	na	na	na	0	low
P	*Lawsonia inermis*	Henna	Provo	na	na	na	na	na	na	0	low
P	*Lawsonia inermis*	Henna	West Caicos	na	na	na	na	na	na	0	low
P	*Lawsonia inermis*	Henna	Leeward Cays	na	na	na	na	na	na	0	low
P	*Lawsonia inermis*	Henna	Southern Cays	na	na	na	na	na	na	0	low
P	*Lawsonia inermis*	Henna	Ambergris	na	na	na	na	na	na	0	low
P	*Lawsonia inermis*	Henna	Grand Turk	na	na	na	na	na	na	0	low
P	*Lawsonia inermis*	Henna	Salt Cay	na	na	na	na	na	na	0	low
P	*Megathyrsus maximus*	Guinea Grass	West Caicos	na	na	na	na	na	na	0	low
P	*Megathyrsus maximus*	Guinea Grass	Leeward Cays	na	na	na	na	na	na	0	low
P	*Megathyrsus maximus*	Guinea Grass	Southern Cays	na	na	na	na	na	na	0	low
P	*Megathyrsus maximus*	Guinea Grass	Ambergris	na	na	na	na	na	na	0	low
P	*Megathyrsus maximus*	Guinea Grass	Salt Cay	na	na	na	na	na	na	0	low
P	*Nerium oleander*	Oleander	Provo	na	na	na	na	na	na	0	low
P	*Nerium oleander*	Oleander	Grand Caicos	na	na	na	na	na	na	0	low
P	*Nerium oleander*	Oleander	West Caicos	na	na	na	na	na	na	0	low
P	*Nerium oleander*	Oleander	Leeward Cays	na	na	na	na	na	na	0	low
P	*Nerium oleander*	Oleander	Southern Cays	na	na	na	na	na	na	0	low
P	*Nerium oleander*	Oleander	Ambergris	na	na	na	na	na	na	0	low
P	*Nerium oleander*	Oleander	Grand Turk	na	na	na	na	na	na	0	low
P	*Nerium oleander*	Oleander	Salt Cay	na	na	na	na	na	na	0	low
P	*Paspalidium geminatum*		Provo	na	na	na	na	na	na	0	low
P	*Paspalidium geminatum*		Grand Caicos	na	na	na	na	na	na	0	low
P	*Paspalidium geminatum*		West Caicos	na	na	na	na	na	na	0	low
P	*Paspalidium geminatum*		Leeward Cays	na	na	na	na	na	na	0	low

P	*Paspalidium geminatum*		Southern Cays	na	na	na	na	na	na	0	low
P	*Paspalidium geminatum*		Ambergris	na	na	na	na	na	na	0	low
P	*Paspalidium geminatum*		Grand Turk	na	na	na	na	na	na	0	low
P	*Paspalidium geminatum*		Salt Cay	na	na	na	na	na	na	0	low
P	*Tragus berteronianus*	Bur Grass	Provo	na	na	na	na	na	na	0	low
P	*Tragus berteronianus*	Bur Grass	Grand Caicos	na	na	na	na	na	na	0	low
P	*Tragus berteronianus*	Bur Grass	West Caicos	na	na	na	na	na	na	0	low
P	*Tragus berteronianus*	Bur Grass	Leeward Cays	na	na	na	na	na	na	0	low
P	*Tragus berteronianus*	Bur Grass	Southern Cays	na	na	na	na	na	na	0	low
P	*Tragus berteronianus*	Bur Grass	Ambergris	na	na	na	na	na	na	0	low
P	*Tragus berteronianus*	Bur Grass	Grand Turk	na	na	na	na	na	na	0	low
P	*Tragus berteronianus*	Bur Grass	Salt Cay	na	na	na	na	na	na	0	low
V	*Equus asinus**	Feral Donkey	Provo	1	high	n	na	n	na	0	low
V	*Equus asinus**	Feral Donkey	West Caicos	1	high	n	na	n	na	0	low
V	*Equus asinus**	Feral Donkey	Leeward Cays	1	high	n	na	n	na	0	low
V	*Equus asinus**	Feral Donkey	Southern Cays	1	high	n	na	n	na	0	low
V	*Equus asinus**	Feral Donkey	Ambergris	1	high	n	na	n	na	0	low
V	*Bos taurus*	Feral Cattle	Provo	2	high	n	na	n	na	0	low
V	*Bos taurus*	Feral Cattle	West Caicos	2	high	n	na	n	na	0	low
V	*Bos taurus*	Feral Cattle	Leeward Cays	2	high	n	na	n	na	0	low
V	*Bos taurus*	Feral Cattle	Southern Cays	2	high	n	na	n	na	0	low
V	*Bos taurus*	Feral Cattle	Ambergris	2	high	n	na	n	na	0	low