Infrastructure and Environment

Gouvèrnément d'Jèrri

Threat Score Analysis of Non-Native Species in the Channel Islands

Isabelle Duggan, Invasive Species Officer

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About me

- MSci in Zoology from the University of Sussex.
- Invasive Species Officer.

Royal Society of Biology

CIEEM Chartered Institute of Ecology and Environmental Management

It all started at the IIEM 2022…

- The hope for a Channel Island Record Centre
- Guernsey revealed the results of their horizon scan for invasive non-native species.
- Agreement amongst island representatives that collaboration is key – especially around how to limit the threat and impacts of invasive non-native species (INNS).

Introduction

Invasive non-native species (INNS) are cited by the Convention of Biological Diversity as the second largest contributor to biodiversity loss, globally.

Threat Score analysis has been identified as a tool to inform cost effective management of invasive non-native species.

Method

- The layout and style of the study was based off Prof. Helen Roy's Horizon Scan papers.
- The score criteria used was that proposed by Molnar *et al.* (2008).

- Three expert groups were formed, divided by taxons:
  - Invertebrates
  - Vertebrates
  - Plants

- Two main stages in the study:
    - Phase 1: Scoring
    - Phase 2: Consensus and culmination of scores

Data Resources

- Guernsey completed a horizon scan of invasive non-native species, which can be applied among the Channel Islands.
- But what about INNS that are already here?
- Species lists were collated from local record centres, Global Invasive Species Database (GISD), Botanical Society of Britain and Island (BSBI), NBN Atlas, CABI, and internal Government records of island.

Botanical Society of Britain & Ireland

GBRC

CABI

NBN atlas

THE JERSEY BIODIVERSITY CENTRE

ECOLOGICAL IMPACT - measures the severity of the impact of a species and natural biodiversity.

4 – Disrupts entire ecosystem processes with wider abiotic influences

3 – Disrupts multiple species, some wider ecosystem function, and/or keystone species or species of high conservation value (e.g., threatened species) -

2 – Disrupts single species with little or no wider ecosystem impact

1 – Little or no disruption

GEOGRAPHIC EXTENT - is a measure of the scale of each species' invasive range. This is defined by ecoregions, instead of absolute units, so freshwater, marine and terrestrial environments can be compared.

4 – Ecoregion

3 – Sub-ecoregion

2 – Local Ecosystem

1 – Single habitat

INVASIVE POTENTIAL - an estimate of the magnitude of the current or recent spread and potential for future spread after introduction to a new habitat.

4 – Currently/ recently spreading rapidly (doubling in < 10 years) and/or high potential for future rapid spread

3 – Currently/recently spreading less rapidly and/or potential for future less rapid spread

2 – Established/present, but not currently spreading and high potential for future spread

1 – Established/present, but not currently spreading and/or low potential for future spread

Scorer	Group	Species	Common name	Habitat type	Channel Island	Current extent	Number of populations	Suitable habitats	Ecological Impact			Geographic Extent				Invasive Potential			Overall risk			Protected habitat				
									Score	Confidence	Comment	Score	Confidence	What proportion	Comment	Score	Confidence	Comment	A*B*C	Confidence	Comment	Habitat susceptibility: Coastal Heathl-	Sand Dune	Woodland	Wet
	Invertebrate	*Pomacea sp.*	apple snail	Freshwater	Jersey																				
	Invertebrate	*Vespa velutina*	Asian hornet	Terrestrial	Jersey		50	2																	
	Invertebrate	*Australoplana sanguinea*	Australian flatworm	Terrestrial	Jersey		1																		
	Invertebrate	*Australoplana sanguinea*	Australian flatworm	Terrestrial	Guernsey																				
	Invertebrate	*Obama nungara*	Obama flatworm	Terrestrial	Jersey		1																		
	Invertebrate	*Obama nungara*	Obama flatworm	Terrestrial	Guernsey																				
	Invertebrate	*Kontikia ventrolineata*	Flatworm	Terrestrial	Jersey		1																		
	Invertebrate	*Kontikia ventrolineata*	Flatworm	Terrestrial	Guernsey																				
	Invertebrate	*Aculops fuchsiae*	fuchsia gall mite	Terrestrial	Jersey																				
	Invertebrate	*Harmonia axyridis*	harlequin ladybird	Terrestrial	Jersey		57																		
	Invertebrate	*Harmonia axyridis*	harlequin ladybird	Terrestrial	Guernsey																				
	Invertebrate	*Harmonia axyridis*	harlequin ladybird	Terrestrial	Alderney																				

Snapshot of spreadsheet

Following scoring…

- Additional species were added and omitted over the course of the scoring.
- Total number of species assessed:
    - Jersey, 186 species
    - Guernsey, 140 species

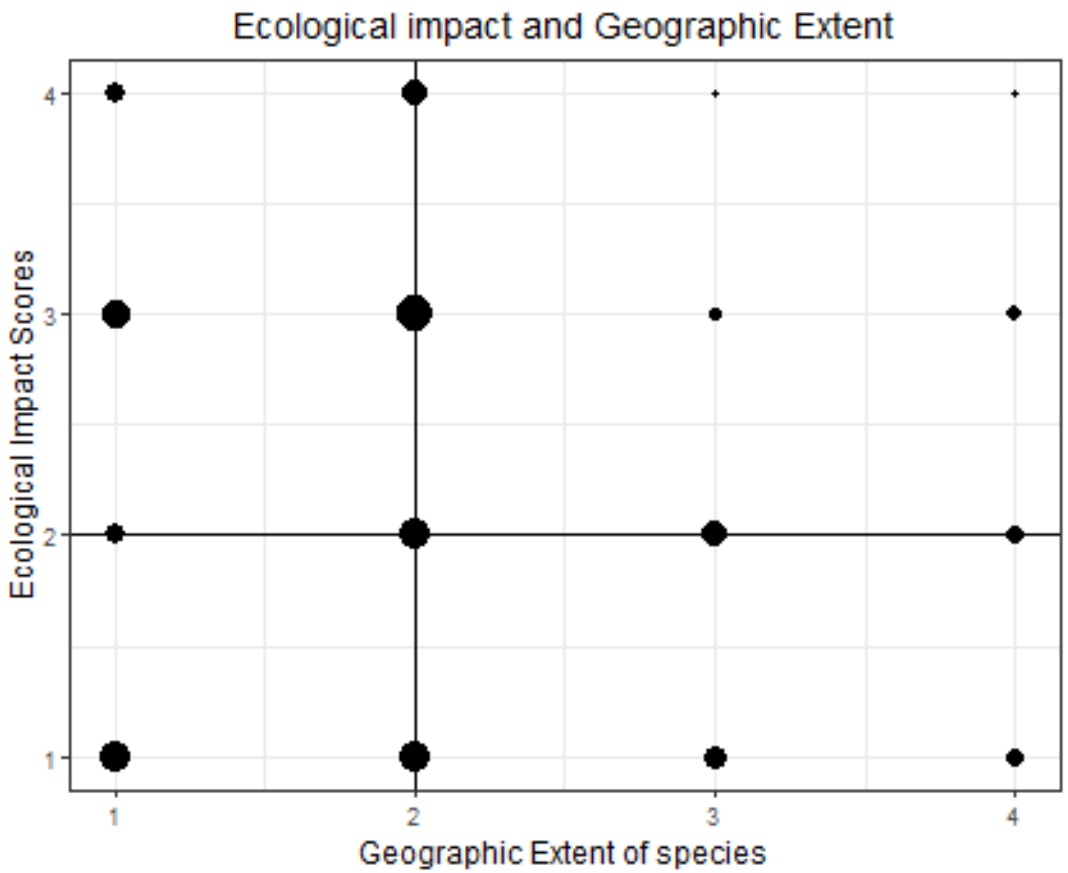
Phase 2:

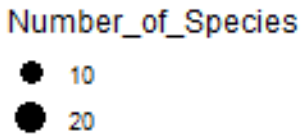
Consensus Building and Culmination of Scores

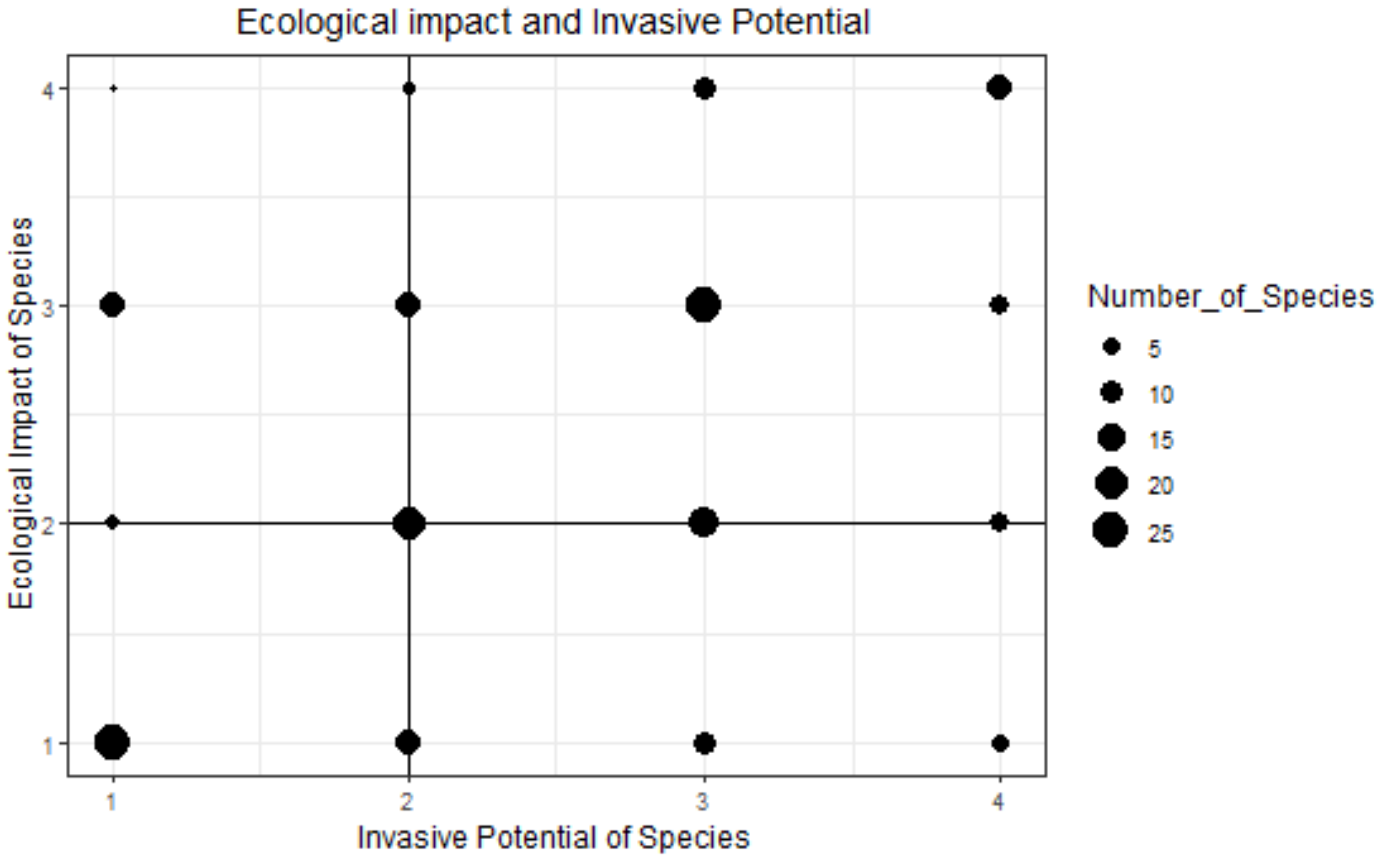
Top 10 species for Jersey and Guernsey

Group	Species	Common Name	Habitat	Channel Island
Plants	Allium triquetrum	three-cornered leek	Terrestrial	Guernsey
Plants	Carpobrotus spp.	sour fig	Terrestrial	Guernsey
Plants	Crassula helmsii	New Zealand pigmyweed	Freshwater	Guernsey
Plants	Delairea odorata	cape ivy	Terrestrial	Guernsey
Plants	Salpichroa organifolia	lily of the valley vine	Terrestrial	Guernsey
Plants	Azolla filiculoides	water fern	Freshwater	Guernsey
Plants	Lampranthus spp	lampranthus	Terrestrial	Guernsey
Plants	Pennisetum villosum	Fountain grass	Terrestrial	Guernsey
Plants	Rosa rugosa	Japanese rose	Terrestrial	Guernsey
Plants	Cortaderia selloana	pampas grass	Terrestrial	Guernsey

Group	Species	Common Name	Habitat	Channel Island
Plants	Allium triquetrum	three-cornered leek	Terrestrial	Jersey
Plants	Crassula helmsii	New Zealand pigmyweed	Freshwater	Jersey
Plants	Azolla filiculoides	water fern	Freshwater	Jersey
Plants	Carpobrotus spp.	sour fig	Terrestrial	Jersey
Plants	Delairea odorata	cape ivy	Terrestrial	Jersey
Plants	Disphyma crassifolium	purple dew plant	Terrestrial	Jersey
Vertebrates	Anser anser forma domesticus	greylag goose	Terrestrial	Jersey
Plants	Cortaderia selloana	pampas grass	Terrestrial	Jersey
Plants	Lupinus arboreus	tree lupin	Terrestrial	Jersey
Plants	Ailanthus altissima	tree of heaven	Terrestrial	Jersey


Ecological impact and Geographic Extent
Ecological Impact Scores
Geographic Extent of species
1
2
3
4

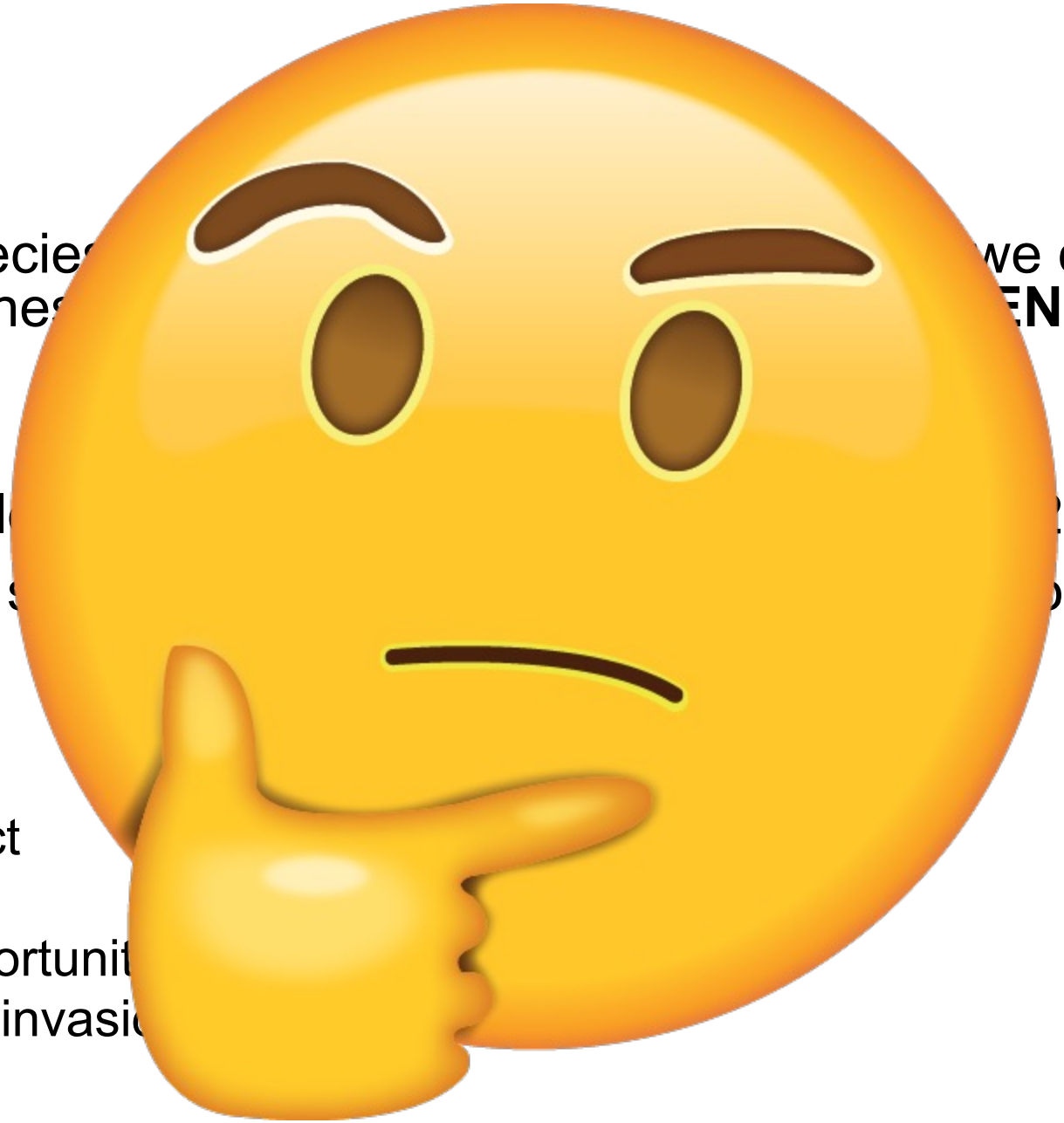

Number_of_Species
10
20


Ecological impact and Invasive Potential
Ecological Impact of Species
Invasive Potential of Species
1
2
3
4
Number_of_Species
5
10
15
20
25

What next?

- Now we have specie we can assess management of thes **ENT FEASIBILITY STRATEGY.**

- Use the methodol 20).
- It will assess and s llowing criteria:
  - Effectiveness
  - Practicality
  - Cost
  - Negative impact
  - Acceptability
  - Window of opportunit
  - Likelihood of reinvasi



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Thank you