Information contributing to invasive non-native species strategy

Helen Roy
and many more

Stakeholder Forum 2021
Non-Native (= alien) Species

...introduced (by humans) outside natural range

Invasive Non-Native (= alien) Species

...threaten biodiversity, ecosystems or the way we live
Documenting biological invasions

Comparing the latest period (2010 to 2019) with the previous one (2000 to 2009), the number of invasive non-native species established in or along 10% or more of Great Britain's land area or coastline has increased in freshwater environments (from 12 to 13 species) marine (from 24 to 29 species) and terrestrial environments (from 57 to 61 species).
The number of non-native species arriving in new places around the world is increasing

No saturation in the accumulation of alien species worldwide

Hanno Seebens, Tim M. Blackburn, [...] Franz Essl

*Nature Communications* 8, Article number: 14435 (2017) | *Cite this article*
Invasive non-native species and biodiversity change
Predicting biological invasions

Developing a list of invasive alien species likely to threaten biodiversity and ecosystems in the European Union

...prioritising species for risk assessment

COMMISSION IMPLEMENTING REGULATION (EU) 2016/1141
of 13 July 2016
adopting a list of invasive alien species of Union concern pursuant to Regulation (EU) No 1143/2014 of the European Parliament and of the Council

...expert-elicitation and volunteers
Predicting invasions through horizon scanning...

Systematic examination of potential threats and opportunities within a given context
Guiding principles...

Guiding principles for utilizing social influence within expert-elicitation to inform conservation decision-making

1. Clearly define the scope

2. Develop and share a structured approach, including a simple scoring system for prioritization

3. Review and adapt the approach if required but ensure everyone agrees and understands the changes

4. Ensure the number and diversity of experts reflect the needs of the scope

5. Acknowledge and document the knowledge limits of the experts

6. Acknowledge and document extent of gaps in evidence

7. Empower all experts and ensure engagement throughout the elicitation

8. Provide sufficient time for discussions while ensuring effective and fair facilitation

9. Encourage experts to interact and share experience and knowledge

10. Document all decisions, capture and communicate confidence

*Foreign and Commonwealth Office’s Conflict, Stability and Security Fund*

*Funded by UK Government*
Extending the scope...

Biodiversity and Ecosystem impacts

Human health

Economic impacts
Horizon scanning on the UKOTs

Funded by UK Government

Foreign and Commonwealth Office’s Conflict, Stability and Security Fund
Horizon scanning for invasive alien species with the potential to threaten biodiversity and human health on a Mediterranean island

Jodey Peyton • Angeliki F. Martinou • Oliver L. Pescott • Monica Demetriou
Defining the scope...

Geographic Scope: GB

Temporal scope: next 10 years

Impact:
Biodiversity and Ecosystems
Economic
Human health
## Horizon scanning 2019

<table>
<thead>
<tr>
<th>Rank</th>
<th>Species</th>
<th>Common name</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-15</td>
<td>Vespa velutina</td>
<td>Asian hornet</td>
</tr>
<tr>
<td>1-15</td>
<td>Anoplophora glabripennis</td>
<td>Asian longhorn beetle</td>
</tr>
<tr>
<td>1-15</td>
<td>Aedes japonicus</td>
<td>Asian bush mosquito</td>
</tr>
<tr>
<td>1-15</td>
<td>Mnemiopsis leidyi</td>
<td>Comb jelly</td>
</tr>
<tr>
<td>1-15</td>
<td>Gyrodactylus salaris</td>
<td>Salmon fluke</td>
</tr>
<tr>
<td>1-15</td>
<td>Bellamya chinensis</td>
<td>Chinese mystery snail</td>
</tr>
<tr>
<td>1-15</td>
<td>Myriophyllum heterophyllum</td>
<td>Twoleaf water milfoil</td>
</tr>
<tr>
<td>1-15</td>
<td>Baccharis halimifolia</td>
<td>Sea mrytle</td>
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<tr>
<td>1-15</td>
<td>Agrilus plannipennis</td>
<td>Emerald ash borer</td>
</tr>
<tr>
<td>1-15</td>
<td>Celtodoryx ciocalyptoides</td>
<td>Sponge</td>
</tr>
<tr>
<td>1-15</td>
<td>Aedes albopictus</td>
<td>Tiger mosquito</td>
</tr>
<tr>
<td>1-15</td>
<td>Hemigrapsus sanguineus</td>
<td>Asian shore crab</td>
</tr>
<tr>
<td>1-15</td>
<td>Corbicula fluminalis</td>
<td>Clam</td>
</tr>
<tr>
<td>1-15</td>
<td>Procyon lotor</td>
<td>Raccoon</td>
</tr>
<tr>
<td>1-15</td>
<td>Nyctereutes procyonoides</td>
<td>Raccoon dog</td>
</tr>
</tbody>
</table>
19 “Alert” Invasive Non-Native Species

- American bullfrog
- Black Bullhead
- American Lobster
- Monk parakeet
- Raccoon
- Raccoon dog
- Ruddy duck
- Sacred ibis
- Siberian chipmunk
- Topmouth Gudgeon
- Marbled Crayfish
- Chilean fanwort
- Purple pitcher plant
- Sea myrtle
- Water Primrose
- Various-leaved watermilfoil
- Asian hornet
Asian hornet alert

Number of reports

Jan    Feb    Mar    Apr    May    Jun    Jul    Aug    Sep    Oct    Nov    Dec

Allen arrival: Asian hornet

STIRRED BY HORNETS
The long, hot summer of 2018 has been a buzzworthy time of year for many species, especially for dedicated hornet watchers.

Asian Hornet Watch
Learn more about Asian hornet and help detect it by recording suspected sightings.

Species
Asian hornet
European hornet
Giant Woodwasp / Greater Hornet
Asian hornet – arrived September 2016

★ Eradicated in 2016, 2017, 2018, 2019
★ New records Autumn 2020
Predicting the spread of the Asian hornet

Coupling environmental suitability model with a spread model to predict the potential extent of invasion by the Asian hornet without early detection and eradication

Louise Barwell, Olaf Booy, Richard Hassall, Beth Purse, Steph Rorke
Summary

• Sharing information on non-native species
• Predictions to inform biosecurity and evaluate action
• Collaborations are critical
  • Working across borders
  • Engaging people in understanding biological invasions, action and decision-making
Thank you

Foreign and Commonwealth Office’s Conflict, Stability and Security Fund