

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

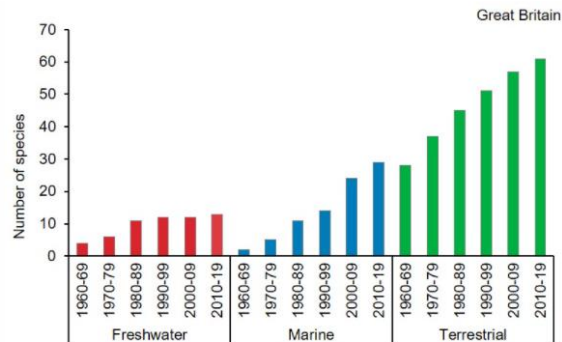


Invasive Non-Native (= alien) Species

...threaten biodiversity, ecosystems or the way we live

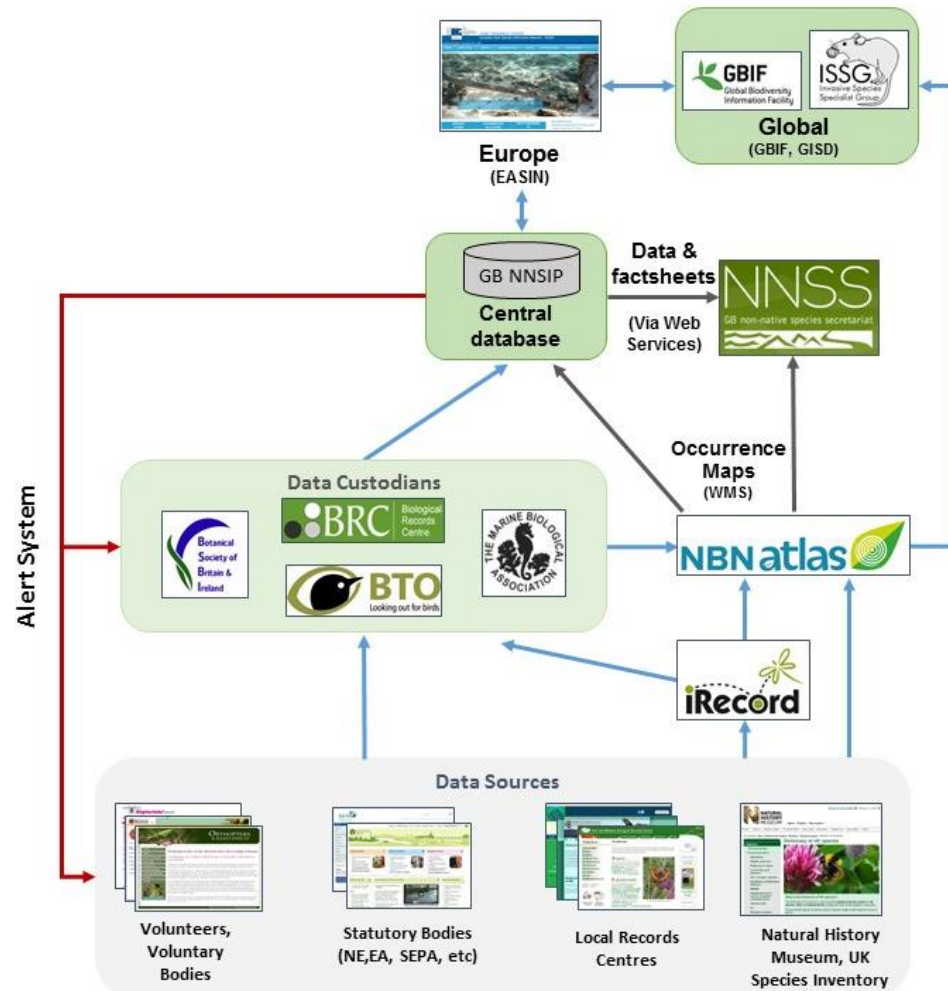


Documenting biological invasions

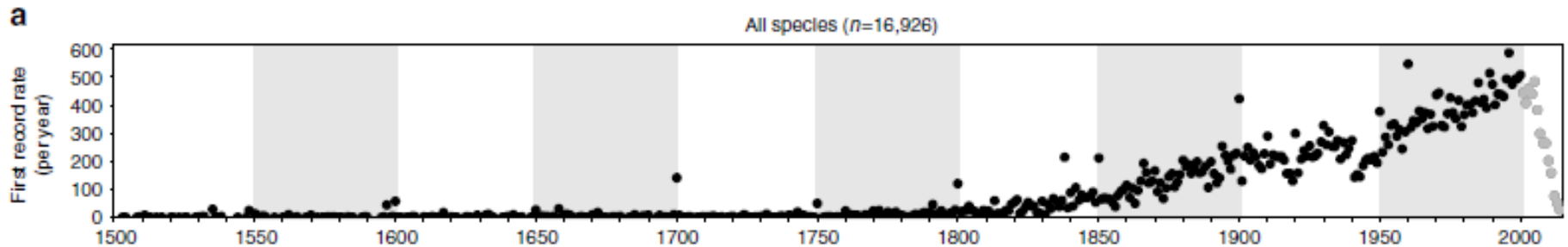


Source: Botanical Society of Britain & Ireland, British Trust for Ornithology, UK Centre for Ecology & Hydrology, Marine Biological Association, National Biodiversity Network.

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



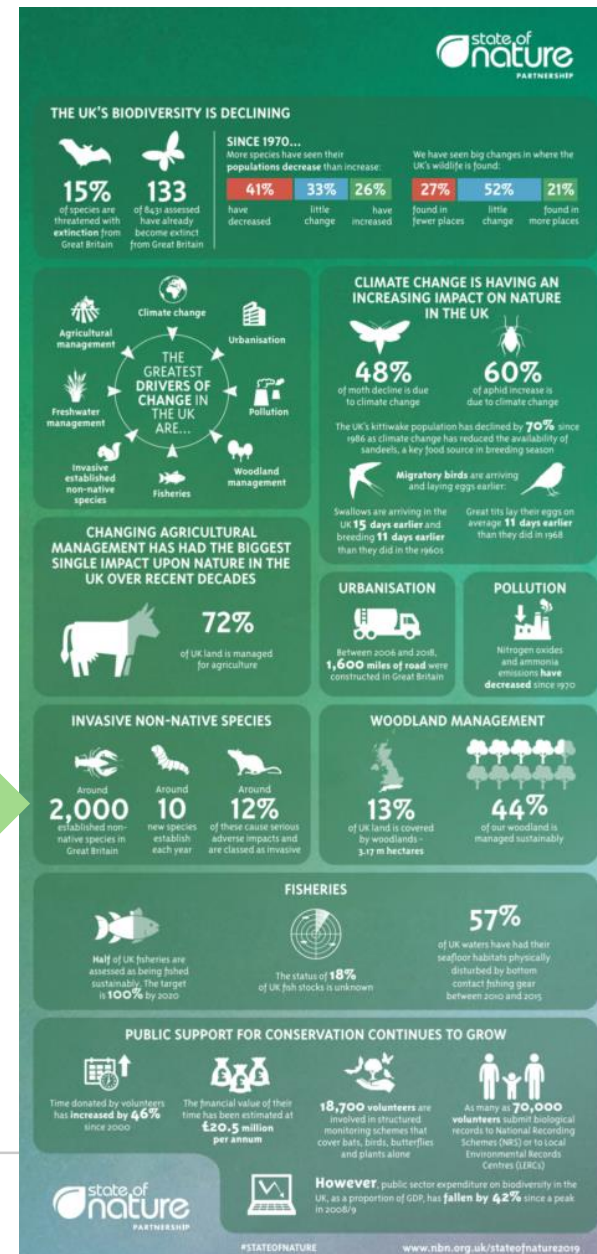
[Open Access](#) | Published: 15 February 2017

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

Global Change Biology

Global Change Biology

celebrating 20 years

Global Change Biology (2014) 20, 3859–3871, doi: 10.1111/gcb.12603

PRIMARY RESEARCH ARTICLE | [Open Access](#) |

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

Horizon scanning for invasive alien species with the potential to threaten biodiversity in Great Britain

...prioritising species for risk assessment

L 189/4

EN

Official Journal of the European Union

14.7.2016

COMMISSION IMPLEMENTING REGULATION (EU) 2016/1141

of 13 July 2016

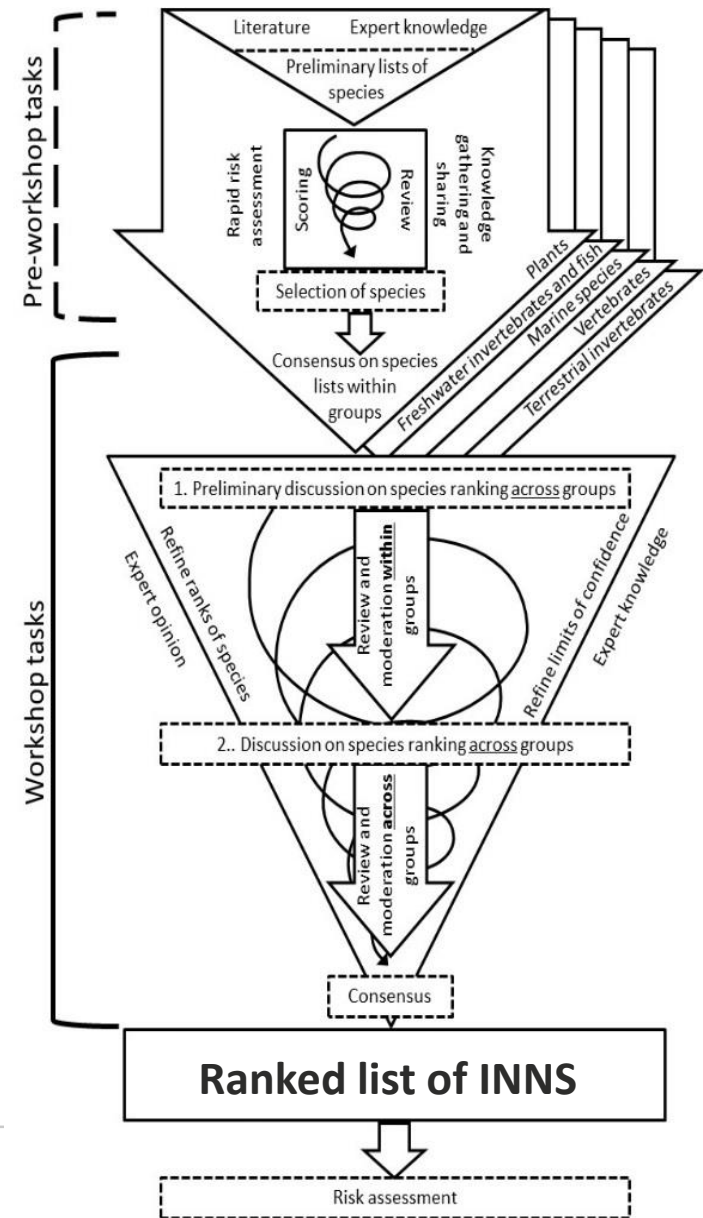
adopting a list of invasive alien species of Union concern pursuant to Regulation (EU) No 1143/2014 of the European Parliament and of the Council



...expert-elicitation and volunteers

Predicting invasions through horizon scanning...

Systematic examination of potential threats and opportunities within a given context



10. Document all decisions, capture and communicate confidence

Extending the scope...



Biodiversity and
Ecosystem impacts



Human health



Economic impacts

Horizon scanning on the UKOTs



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UK Government**



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





ORIGINAL PAPER

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 •

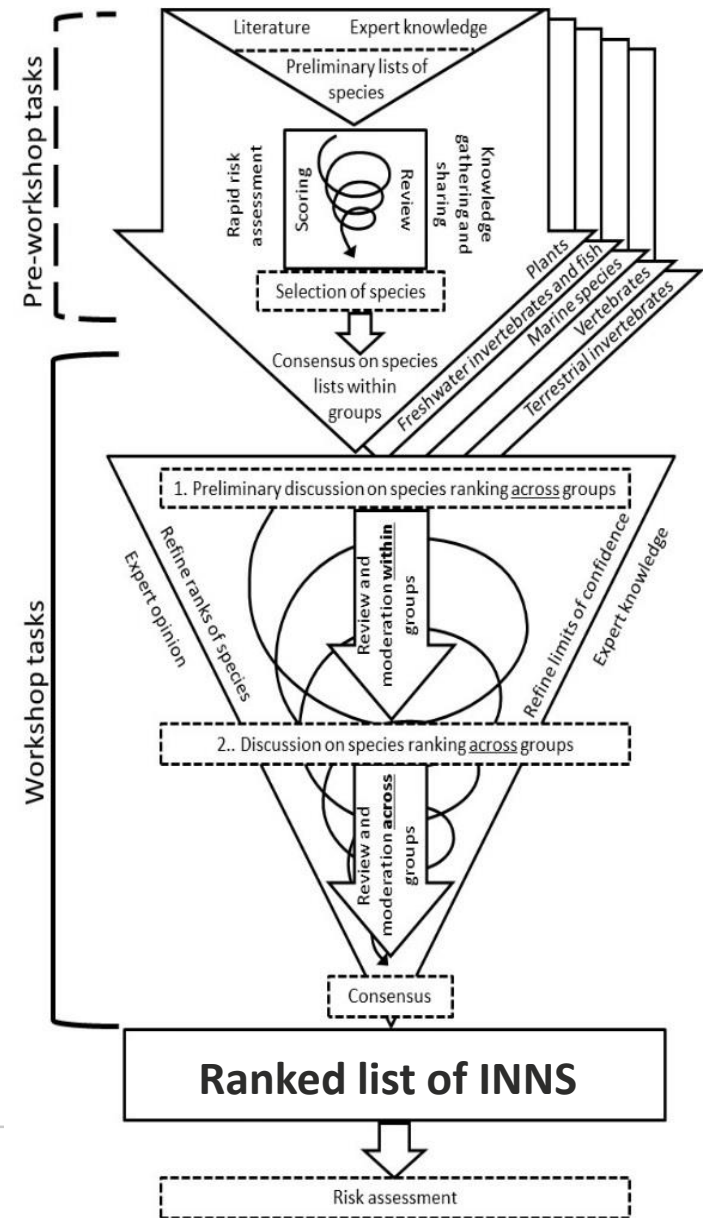


Defining the scope...

Geographic Scope: GB

Temporal scope: next 10 years

Impact:
Biodiversity and Ecosystems
Economic
Human health



Horizon scanning 2019

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

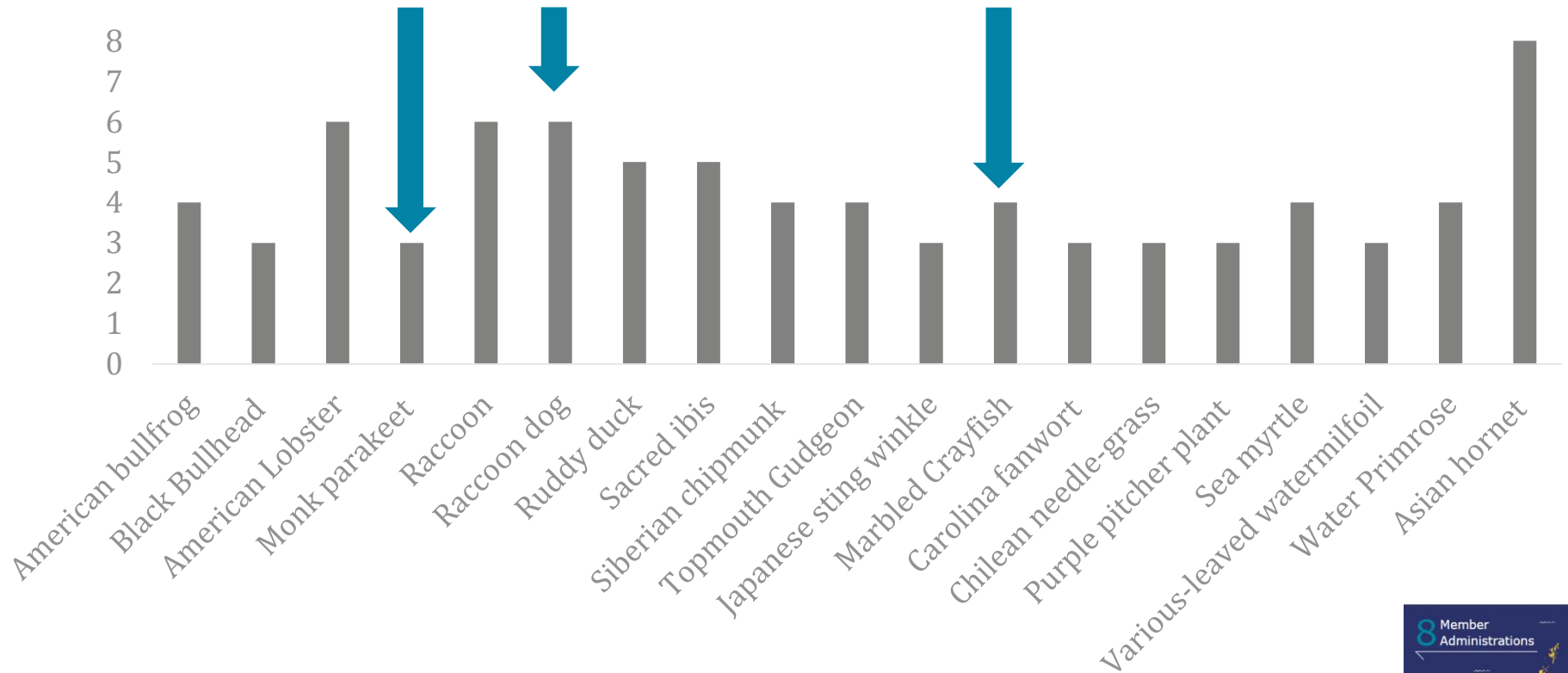


Department
for Environment
Food & Rural Affairs

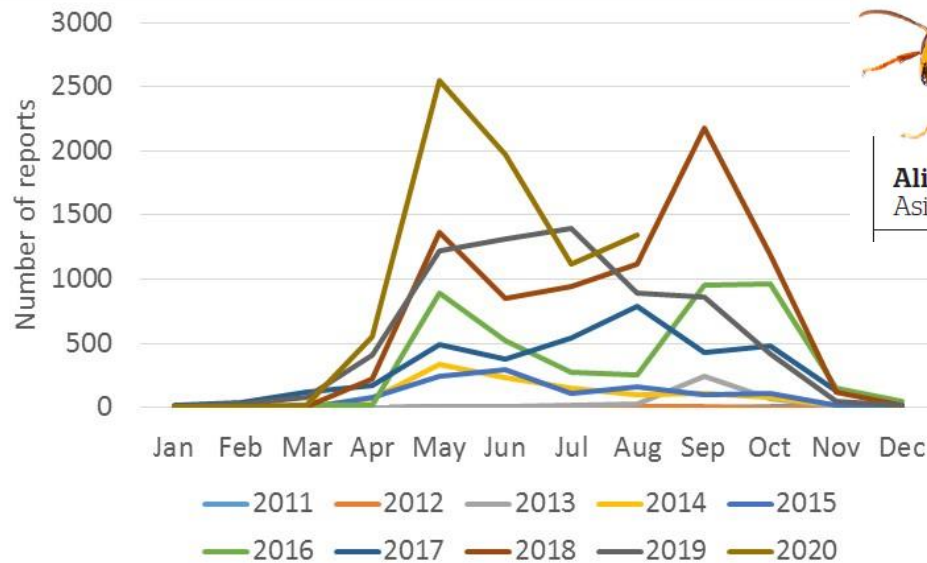


UK Centre for
Ecology & Hydrology

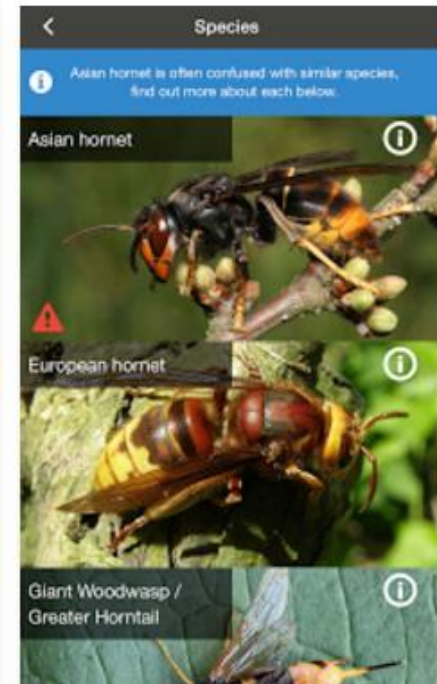
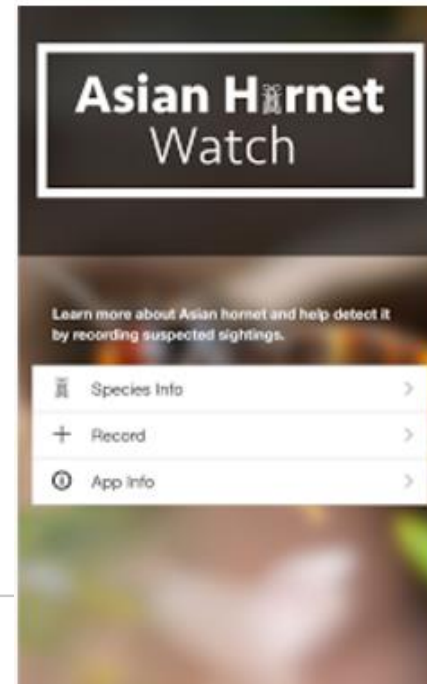
19 “Alert” Invasive Non-Native Species



Asian hornet alert



Alien arrival:
Asian hornet



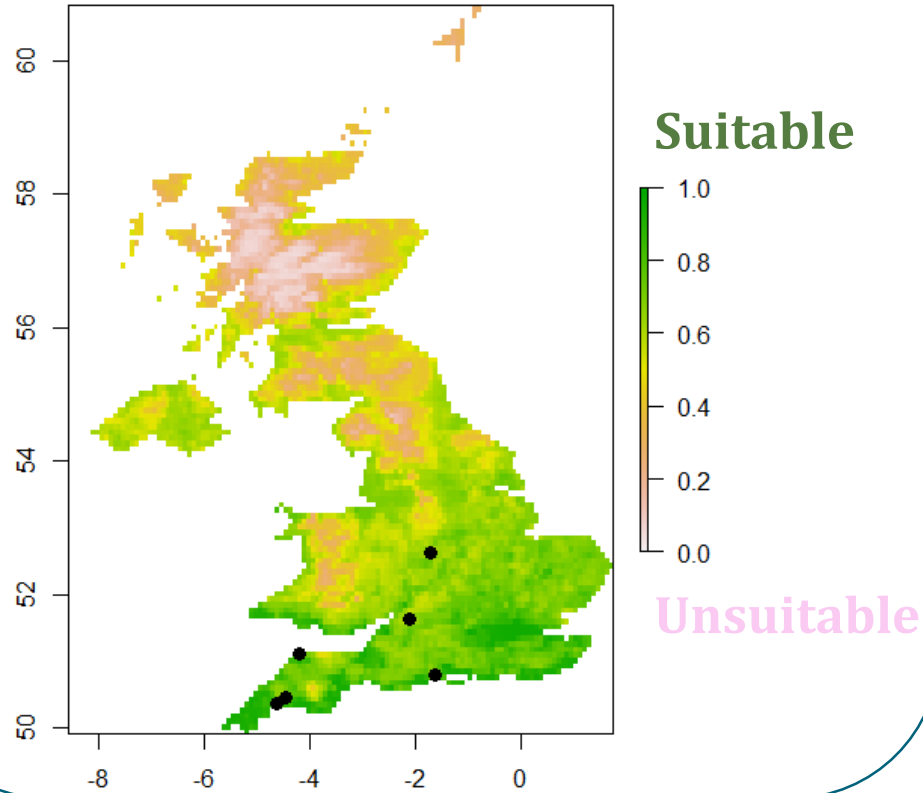
Asian hornet – arrived September 2016



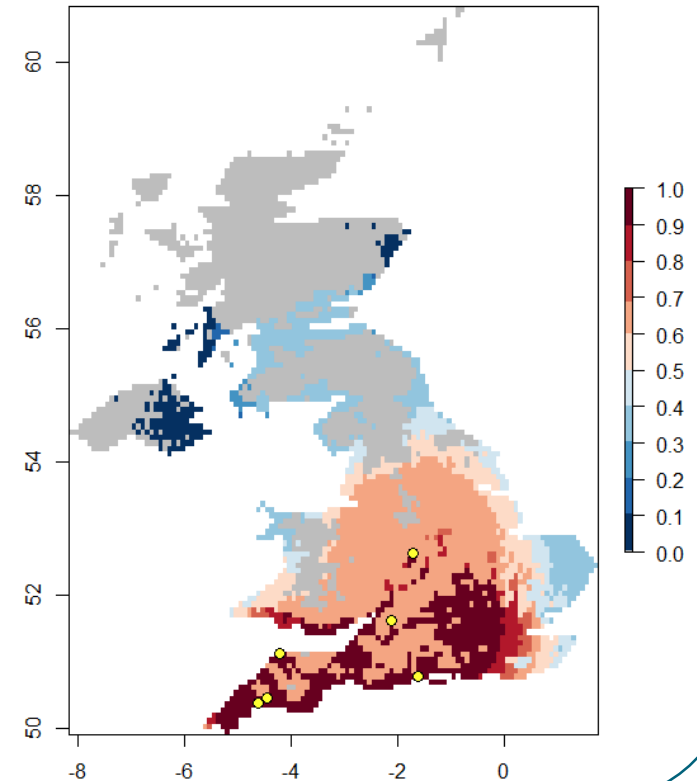
Eradicated in 2016, 2017, 2018, 2019
★ New records Autumn 2020

Predicting the spread of the Asian hornet

Environmental Suitability



Spread by 2026 without eradication



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



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for Environment
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Conflict, Stability and Security Fund