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Globalization and pest invasions:
emerging risks and vulnerabilities



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(12) Semi-automatic prioritization of species for pest risk analysis using the CABI Horizon Scanning Tool

Alyssa J. Lowry^{1*}, Pablo González-Moreno², Tim Adriaens³, Tim Beale⁴, Laura Doughty⁵, Jodey Peyton¹, Helen E. Roy¹ & Norbert Maczey¹

¹CABI, Egham, UK

²Department of Forest Engineering, ERSAF, University of Cordoba, Cordoba, Spain

³CABI, Wallingford, UK

⁴Centre for Ecology & Hydrology, Natural Environment Research Council, Wallingford, Oxfordshire, UK

⁵Research Institute for Nature and Forest (INBO), Brussel; *presenting author

For more information, contact A.lowry@cabi.org

In 2018 CABI launched the Horizon Scanning Tool (HST), an online decision system to help identify potential invasive species threats to a given territory. Using information from CABI's Compendia the tool generates a list of invasive species absent from the selected "area at risk" but present in the "source area". The user can suggest source areas based on neighbouring countries, countries linked by trade or transport, or countries sharing similar climates. Currently the output from the HST are extensive species lists which provide a good first basis for identifying potential invasive species. To prioritize species for risk assessment and make the output of the HST more meaningful, CABI aims to implement a semi-automatic procedure that prioritizes invasive species that could be introduced and established in a given territory. This new approach is being developed and tested using St. Helena island, as a case study. Here, in 2018, an expert-based workshop, generated a list of priority species that could arrive on St. Helena and cause harm to biodiversity, economy, and human health. The HST output was compared with this expert list to determine how well the CABI HST could identify species that are a potential threat to St. Helena. Using data already available in the CABI Compendia, we aimed to model the probability that the species in the HST output would also be on the expert-based list. A boosted regression tree analysis, found the total number of records and the number of hosts a potential to be key indicators.

(13) Predictive propagule pressure reduction from biosecurity inspection

Raphael Trouve^{1*} & Andrew Robinson¹

¹The University of Melbourne, Centre of Excellence for Biosecurity and Risk Analysis (CEBRA), Parkville, 3010, VIC, Australia; *presenting author

For more information, contact raphael.trouve@unimelb.edu.au

The introduction of invasive plants with global trade is one of the most important socio-ecological challenge worldwide. One major option to reduce the introduction of invasion species is border inspection, i.e., reducing the risk at point of entry. Biosecurity inspection has most often been framed as an acceptance sampling problem at the consignment-level, i.e., inspecting each incoming consignment until we are confident that its infestation rate is below a chosen threshold. However, at the pathway-