An amended EPPO prioritization process to select high priority plant species for risk assessment following the criteria of the EU Regulation 1143/2014

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Introduction

When faced with a large pool of invasive alien plants, species prioritization is an essential prerequisite to focus limited resources on species which inflict high impacts, have a high rate of spread and can be cost-effectively managed within the European Union. Under the LIFE project 'Mitigating the threat of invasive alien plants in the EU through pest risk analysis to support the EU Regulation 1143/2014', the EPPO prioritization process was amended to meet the requirements of the Regulation with the purpose of determining which alien plant species have the highest priority to perform a risk assessment at the EU level. Specifically, amendments included a focus on impacts on biodiversity and ecosystem services along with a risk management section that evaluates the effectiveness of prevention and management options .

Methods

- A workshop was initiated to amend the EPPO prioritization process by adding and amending questions to incorporate the requirements of the Regulation 1143/2014,
- Amendments included adding questions on taxonomic status, the quality of available information, impacts on biodiversity and ecosystem services, absence of invasiveness and rewording other questions to be compliant with the EU,
- The resulting prioritization process for EU invasive alien plants has two stages (1) preliminary risk assessment and (2) risk management (Fig.1),
- The output of Stage 1 is to categorise each species into one of four lists: Residual List of species, EU List of Minor Concern, EU Observation List and EU List of Invasive Alien Plants. Only those in the latter list proceed to Stage 2,
- The output of Stage 2 has two possible outcomes where either the species is included in a list of priority invasive alien plants for a EU level RA or the species is included in a list of invasive alien plants that are not a priority for a EU level risk assessment (RA) and national measures should be applied,
- 37 plant species from a recent horizon scanning exercise and the EPPO lists of invasive plants were prioritized using the new scheme,
- Information was gathered for each species in order to answer each question in the prioritization process,
- Maps and graphics were compiled detailing the current and potential occurrence of each species in Europe (Fig. 2).

Fig.2

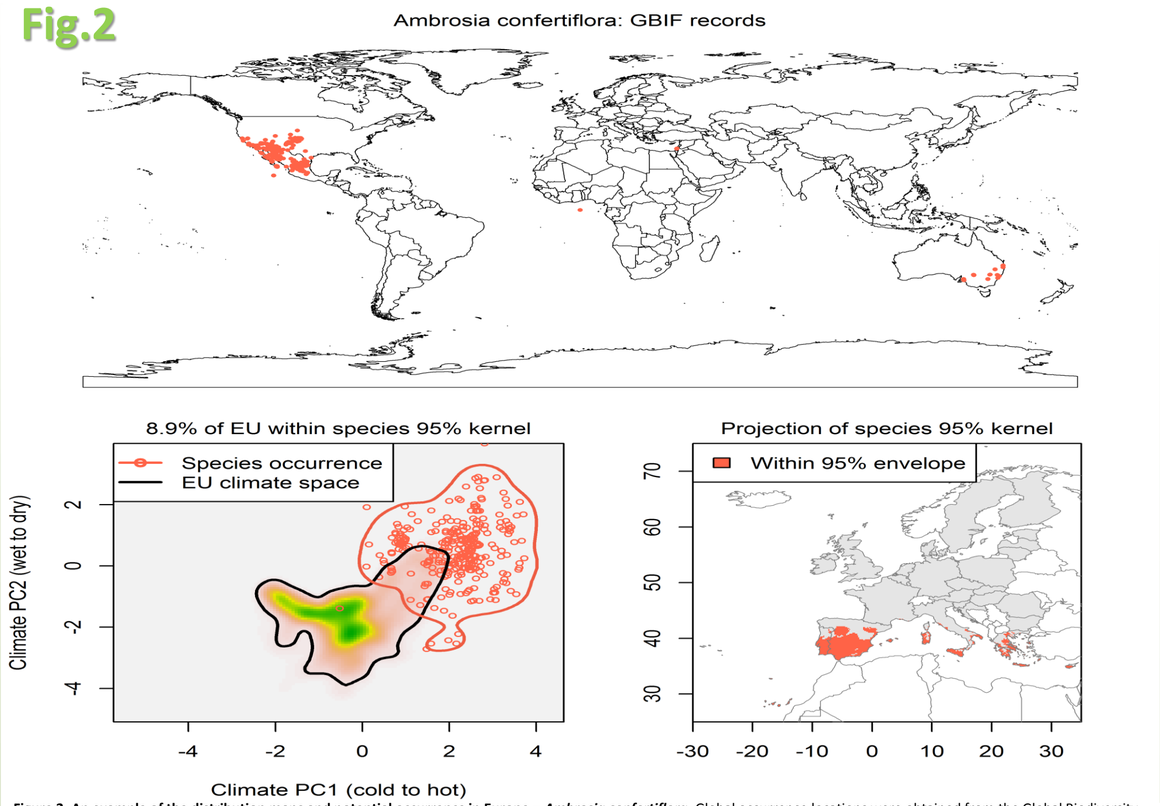

Figure 2. An example of the distribution maps and potential occurrence in Europe – *Ambrosia confertiflora*. Global occurrence locations were obtained from the Global Biodiversity Information Facility. The global climate was summarised as two principal components analysis (PCA) axes on the 19 WorldClim layers. Species occurrences were plotted in this climate space and a bivariate normal kernel density model was used to estimate 'climate envelopes' at different percentiles. These envelopes were then projected onto geographic space in the EU. Shading indicates these percentiles, with smaller numbers indicating higher density of occurrences. Species with regions inside the smaller kernel density percentiles without species occurrences may have a significant area for further spread and establishment in the EU.

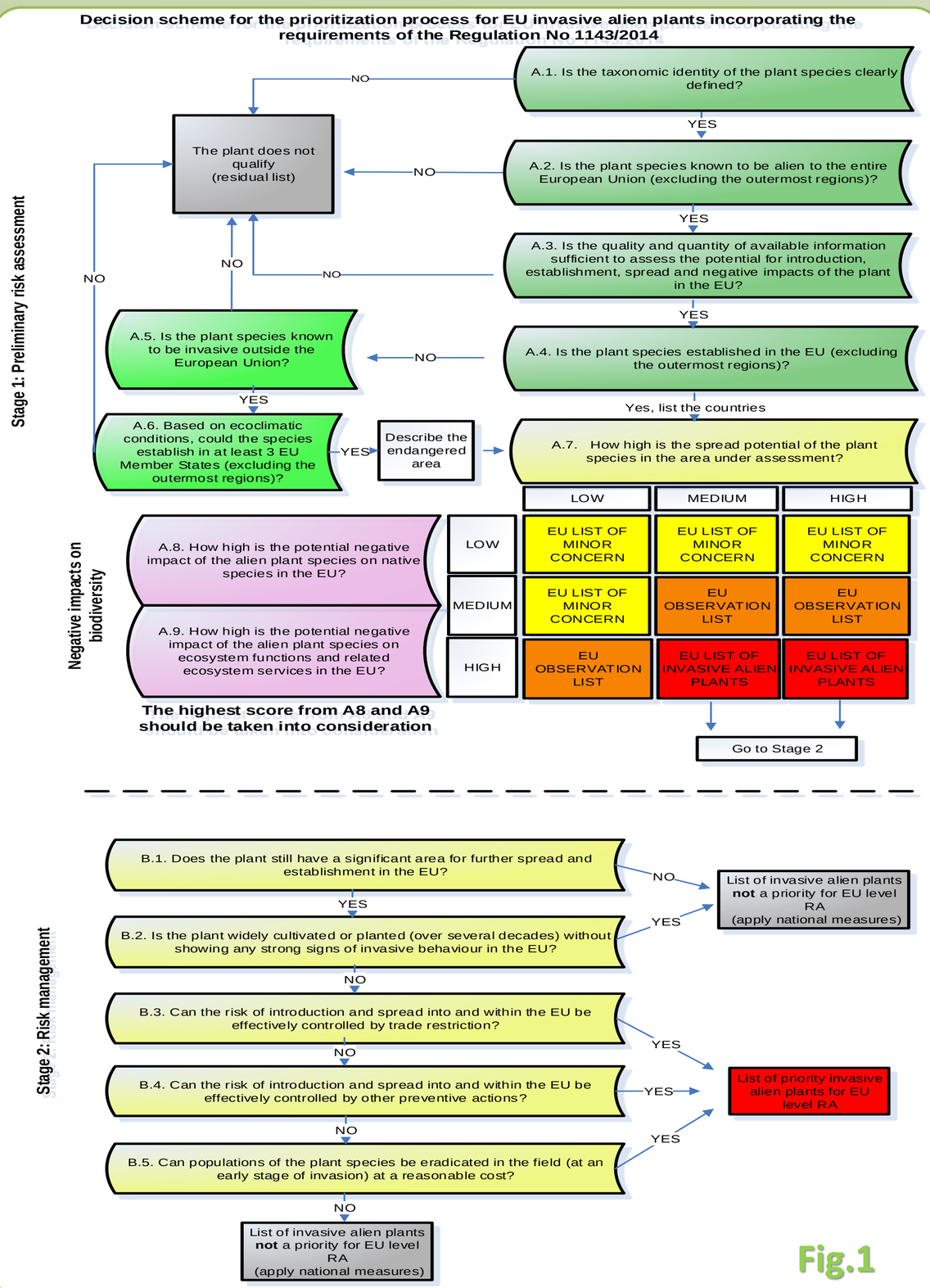

Fig.1

Results

Stage 1 Preliminary risk assessment: 15 species were filtered out of the process due to :

- Taxonomic status (A1) - *Cornus sericea,*
- Native range (A2) - *Hydrilla verticillata,*
- Low quality of information (A3) - *Albizia lebbeck*, *Clematis terniflora*, *Euonymus japonicus*, *Lonicera morrowii*, *Prunus campanulata*, *Rubus rosifolius*,
- Unlikely to establish (A6) - *Chromolaena odorata*, *Crypostegia grandiflora* and *Sphagneticola trilobata,*
- Low impacts or spread potential (A7,A8,A9) - *Ambrosia trifida*, *Egeria densa*, *Fallopia baldschuanica* and *Oxalis pes-caprae,*
- **22 species were included in the EU List of Invasive Alien Plants and proceeded to Stage 2.**

Stage 2 Risk management:

- 3 species were not considered a priority for EU level RA as all are widely cultivated without invasive tendencies - *Euonymus fortunei*, *Ligustrum sinense*, *Lonicera maackii,*
- 19 species were identified as having a high priority for RA
- Two species were excluded from the 19, as RAs are planned by other organisations - *Celastrus orbiculatus* and *Pennisetum setaceum,*
- *Acacia dealbata* was also excluded due to logistical reasons,
- **16 species will undergo RA in the project:** *Ambrosia confertiflora*, *Andropogon virginicus*, *Cardiospermum grandiflorum*, *Cinnamomum camphora, Cortaderia jubata, Ehrharta calycina, Gymnocoronis spilanthoides, Hakea sericea, Humulus scandens, Hygrophila polysperma, Lespedeza cuneata, Lygodium japonicum, Prosopis juliflora, Sapium sebiferum, Pistia stratiotes* & *Salvinia molesta.*

What's next?

- EPPO will convene expert working groups (EWG) to risk assess the 16 species. Datasheets will be published for each species detailing the outcome of the risk assessments. **If you are an expert on any of the listed species and would like to be involved in an EWG, get in touch!**

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