

Designing risk-based detection surveys for quarantine species in Belgium - Multi-species framework illustrated with *Agrilus planipennis*

Statistically sound approaches for EU quarantine insect pest monitoring in forests & public green spaces

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1 Introduction

In Belgium, annual detection surveys for EU quarantine pests in forests and public green spaces are conducted by the FASFC (Federal Agency for the Safety of the Food Chain). These campaigns must follow risk-based, scientifically sound approaches as required by Plant Health Regulation (EU) 2016/2031. However, number of inspections, traps or the sampling effort are currently determined on pragmatic basis rather than statistically.

The SURQUAPUB project addresses this gap by developing risk-based detection surveys for 12 EU quarantine insect pests, including *Agrilus planipennis* and *A. anxius*, integrating introduction pathways, host plant distribution, climatic suitability, and the EFSA RiBESS+ tool.

First results for *A. planipennis* are presented here.

Agrilus planipennis Emerald ash borer (EAB)

Phytosanitary categorization
 ▶ EU A1

Host plants : Ash species and *Chionanthus virginicus*

Origin : China, Japan, North Korea, South Korea and Eastern Russia

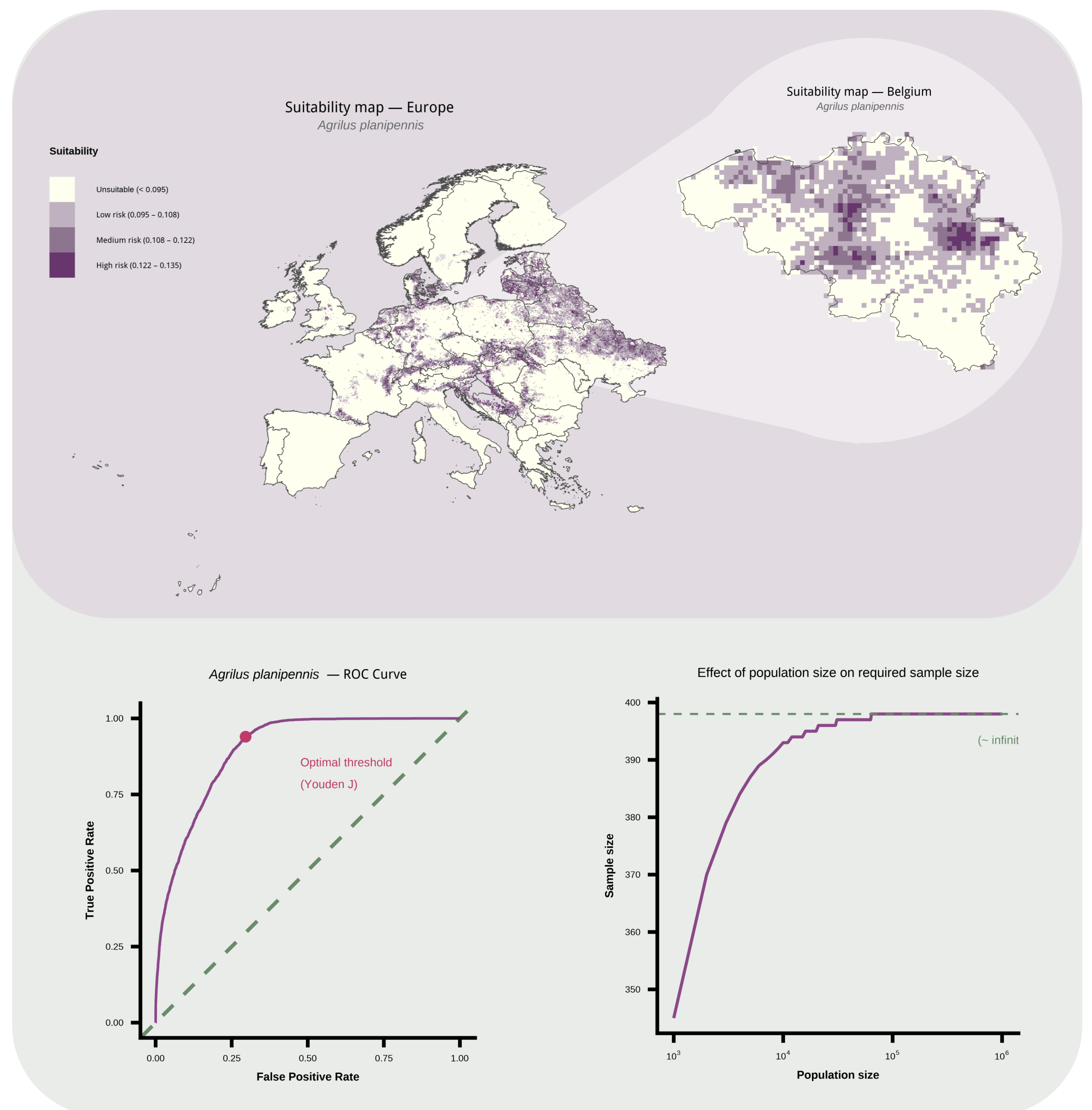
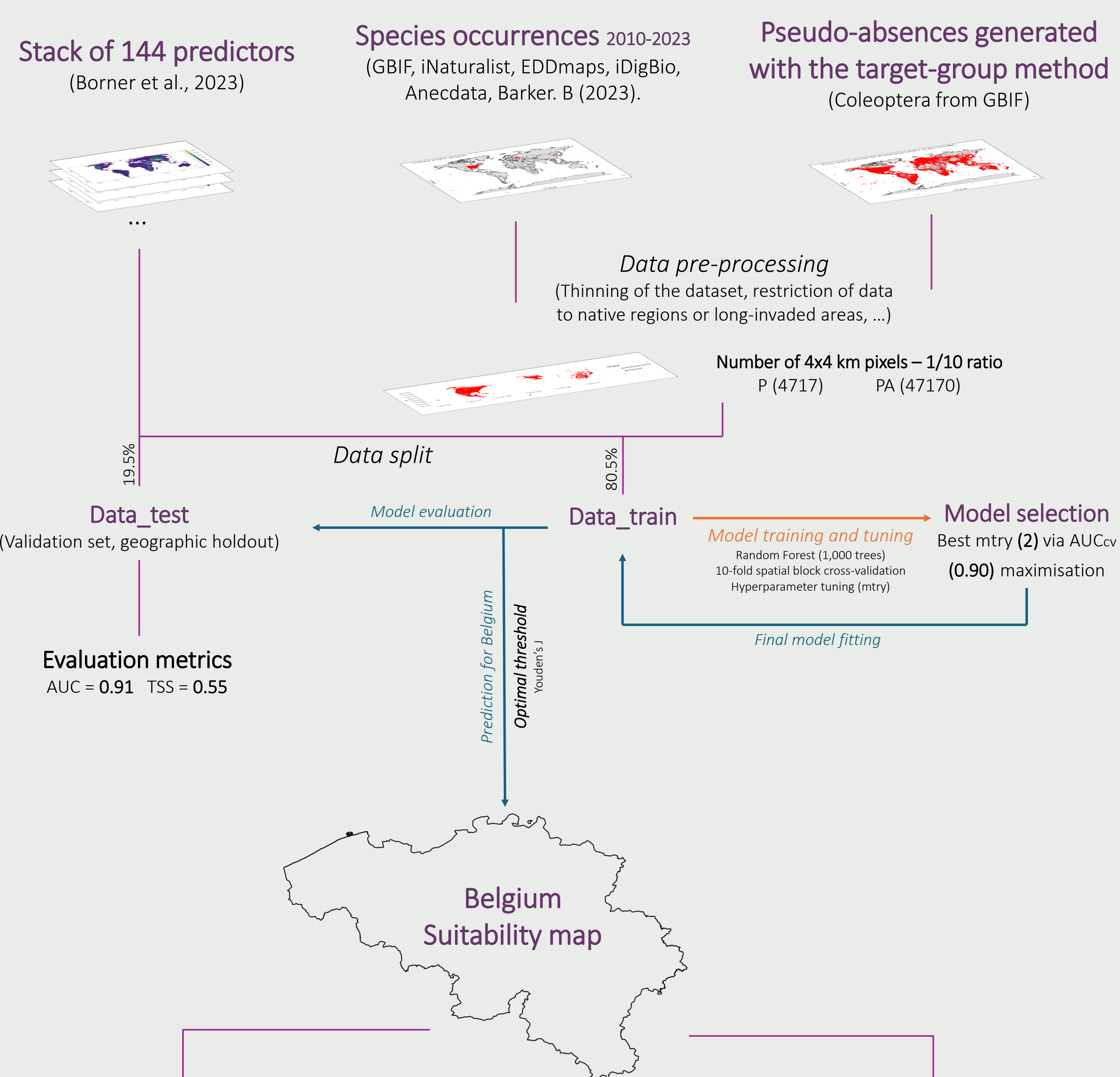
Spread vector : infested plants, timber trade, solid wood packing material, wood chips, firewood and an additional dispersal is generated by human movement

Status in Belgium : No pest record

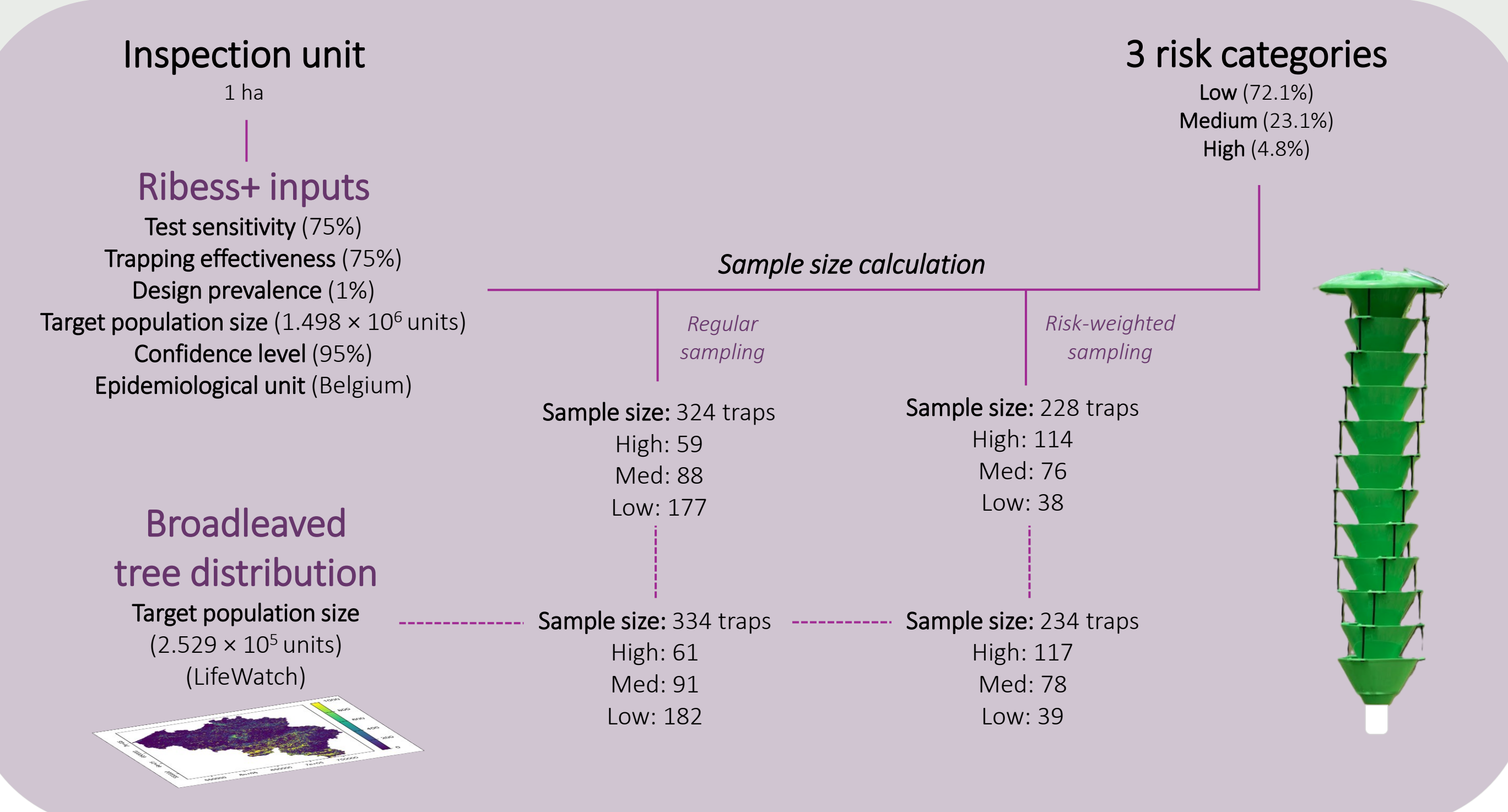


2 Methods and results

Species Distribution modelling



Ribess+



3 Key Findings & Perspectives

- **Suitability:** Belgium is generally suitable (mainly low-risk) while Northern and Southern Europe remain largely unsuitable. Central Europe shows fragmented high-suitability hotspots, whereas Eastern Europe exhibits much more extensive areas of baseline suitability.
- **Ribess+:** Our findings suggest that conducting yearly surveillance of *A. planipennis* to verify pest-free status in Belgium within areas identified as suitable by the SDM would require a minimum of 228 traps.
- **Outlook:** This study serves as a promising first draft for a risk-based surveillance strategy, with further refinements to follow.

References

Barker, B. (2023). Occurrence records used to develop a climatic suitability model for emerald ash borer in DDIP (Version 1) [Data set]. Zenodo. <https://doi.org/10.5281/zenodo.7483142>
 Leyli Borner, Davide Martinetti, Sylvain Poggi. A new chapter of the Japanese beetle invasions saga: predicting suitability from long-invaded areas to inform surveillance strategies in Europe. Entomologia Generalis, 2023. Entomologia Generalis, 43 (3), pp.951-960. (10.1127/entomologia/2023/2073)

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