RespirIT

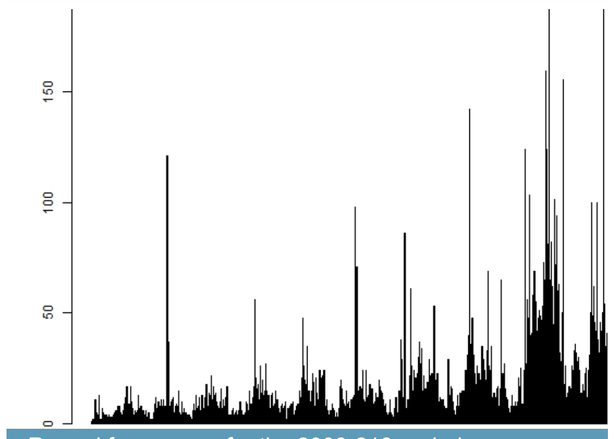
RESPIRIT

ASSESSING SPATIO-TEMPORAL RELATIONSHIPS
BETWEEN RESPIRATORY HEALTH AND BIODIVERSITY
USING INDIVIDUAL WEARABLE TECHNOLOGY

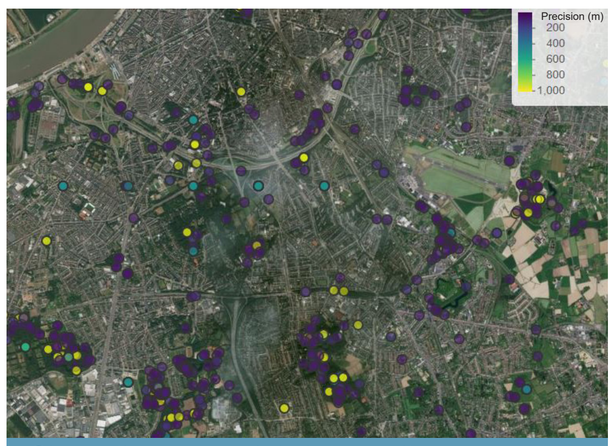
ILE
Institute of Life, Earth and Environment

Citizen science data for mapping allergenic tree species

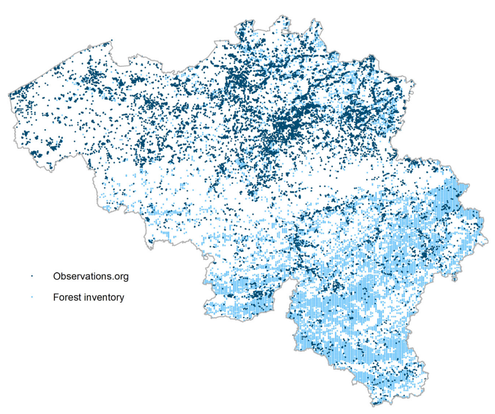
Targeted allergenic tree species: *Alnus, Betula, Corylus*



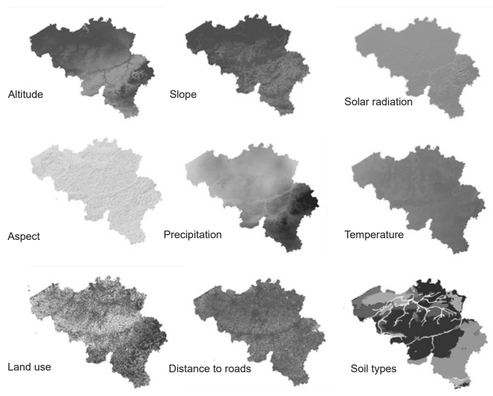
Record frequencey for the 2008-218 period



Observation.org records in Antwerp city



Complementarity with forest inventory dataset



Environmental covariates

Context

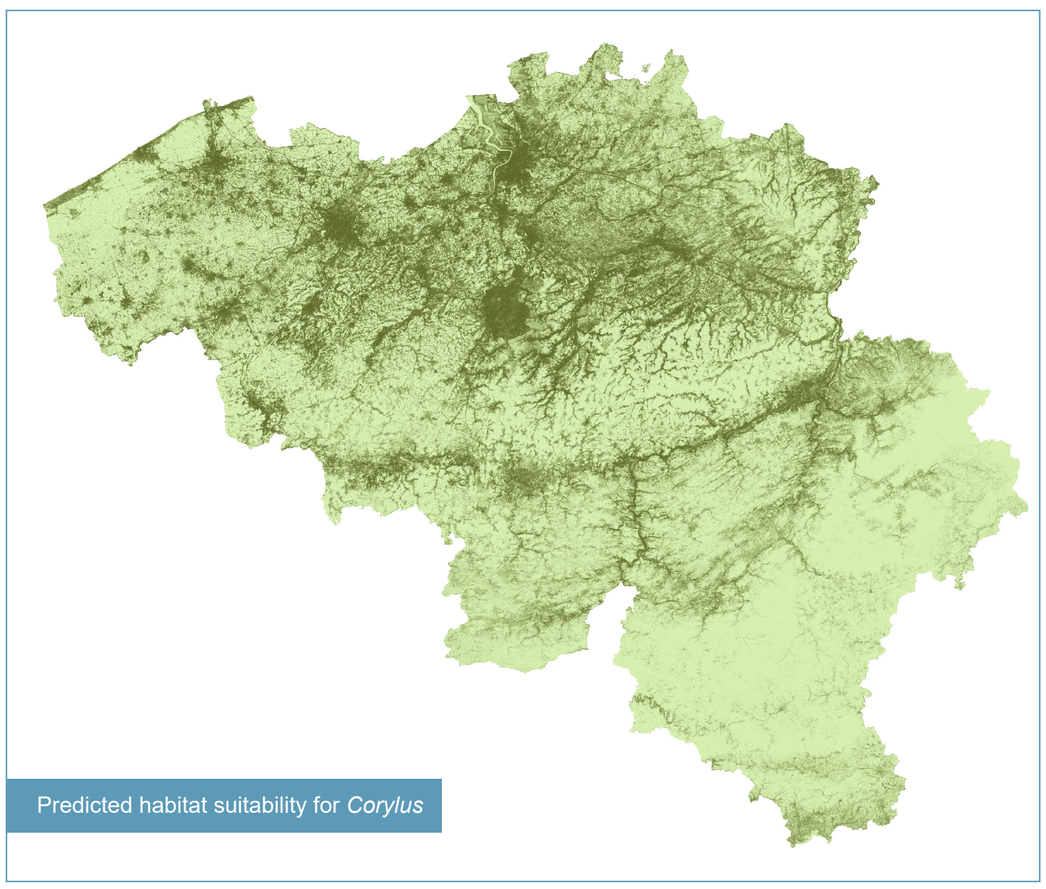
High quality data about the location of tree species is central for predicting distribution and abundance. An increasing number of citizen science initiatives offers open electronic access to vast sets of occurrence records. However, little effective guidance exist on how to best combine this information with traditional forest inventory data.

Objective

Producing reliable spatial models that can predict abundance – with good resolution over large areas – by combining structured, systematic surveys with opportunistic, incidental records from citizen science initiatives.

Methods

- Compared and combined the Walloon and Flemish forest inventories with the *Observation.org* initiative database.
- Used Species Distribution Models (SDMs) to predict species habitat suitability, using environmental data as predictors (climatic, biophysical, and land use variables)
- Produced detailed maps of distribution of allergenic tree species across Belgium at the spatial resolution of 1 ha.



Predicted habitat suitability for *Corylus*

Opportunities and challenges

- The greater spatial distribution of citizens science data brings more accurate predictions of species distributions within urban environments.
- No structured absence data available requires inference based on search effort.
- The high percentage of uncertain data (no attribute entry, non-validated points) calls for trade-offs between sample size and model performance.

Applications

Maps will be used to assess the spatio-temporal effects of plant diversity on respiratory health in general and the acute effect of trees on allergenic symptom severity more specifically.

RespirIT project

Dujardin, S., Stas, M., Aerts, R., Hendrickx M., Van Nieuwenhuys, A., Nawrot, T. S., Delcloo, A., Hamdi, R., Van Orshoven, J., Aerts J.-M., Somers, B., Dendoncker N., Linard C.

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