

Mapping plant-pollinator interactions across Europe

Abstract

Pollinators play a crucial role in maintaining Earth's terrestrial biodiversity and human food production by mediating sexual reproduction for most flowering plants. However, their diversity and role as pollinators are increasingly compromised by rapid human-induced environmental changes. One of the major challenges for pollinator conservation, is the lack of robust generalisable data across space and time to comprehend the conservation status and population trends among different pollinator species. Here, we present a dataset of plant-pollinator interactions at European level that consists of 50 studies distributed across 17 countries that comprise over a million of interactions between plants and pollinators. The dataset includes a total of 1925 pollinator and 1249 plant species that accounts approximately for 30% of each of the main pollinator groups (i.e., bees, syrphids and butterflies) and 5% of flowering plants that inhabit the European continent.

Introduction

1st paragraph

General introduction of how global change impacts plant-pollinator interactions

Maybe expand on some drivers? Climate change, habitat fragmentation, agricultural intensification, urbanization, pollution, pesticides and species' invasions

Highlight the relevance of large scale datasets

2nd paragraph

3rd paragraph

4paragraph

Introduce research questions

LIST THEM HERE (Main ideas so far)

Questions that we would like to answer:

- 1) What are the most common plant a pollinator species? Are those shared across networks? Most common interactions across Europe? Interaction fidelity
- 2) Is generalization the rule? Or specialization? How this impacts indirect interactions? Go in the direction of pollinator importance?

Methods

Dataset description

This European metaweb consist of datasets of plant-pollinator interactions compiled initially by a wide number of researchers and institutions within the European continent. This dataset consist of 50 independent published and unpublished studies conducted during the time period 2004 - 2021 on 17 different countries (mean studies by country = 3). The dataset contains a total of 1,130,022 distinct interactions, considering interaction as the contact of a given pollinator to the reproductive structure of a particular plant, from 1,925 pollinator and 1,249 plant species. These different studies differ in sampling effort and methodology, although most studies cover only a single year or flowering season (PERCENTAGE) with an average of XXX sampling days (range XXX to XXXX) over a time span of XXXX days, and documented interactions by using transects (66%).

Explain % of taxonomic ranks at order level that constitute the included pollinators.

(This needs some work to be summarised properly)

Shared species across studies (describe trend), added now in graph 1?

Update graph 1 (Add shared species of plants and pollinators?)

Species coverage

To calculate the completeness of the dataset

Results

Discussion

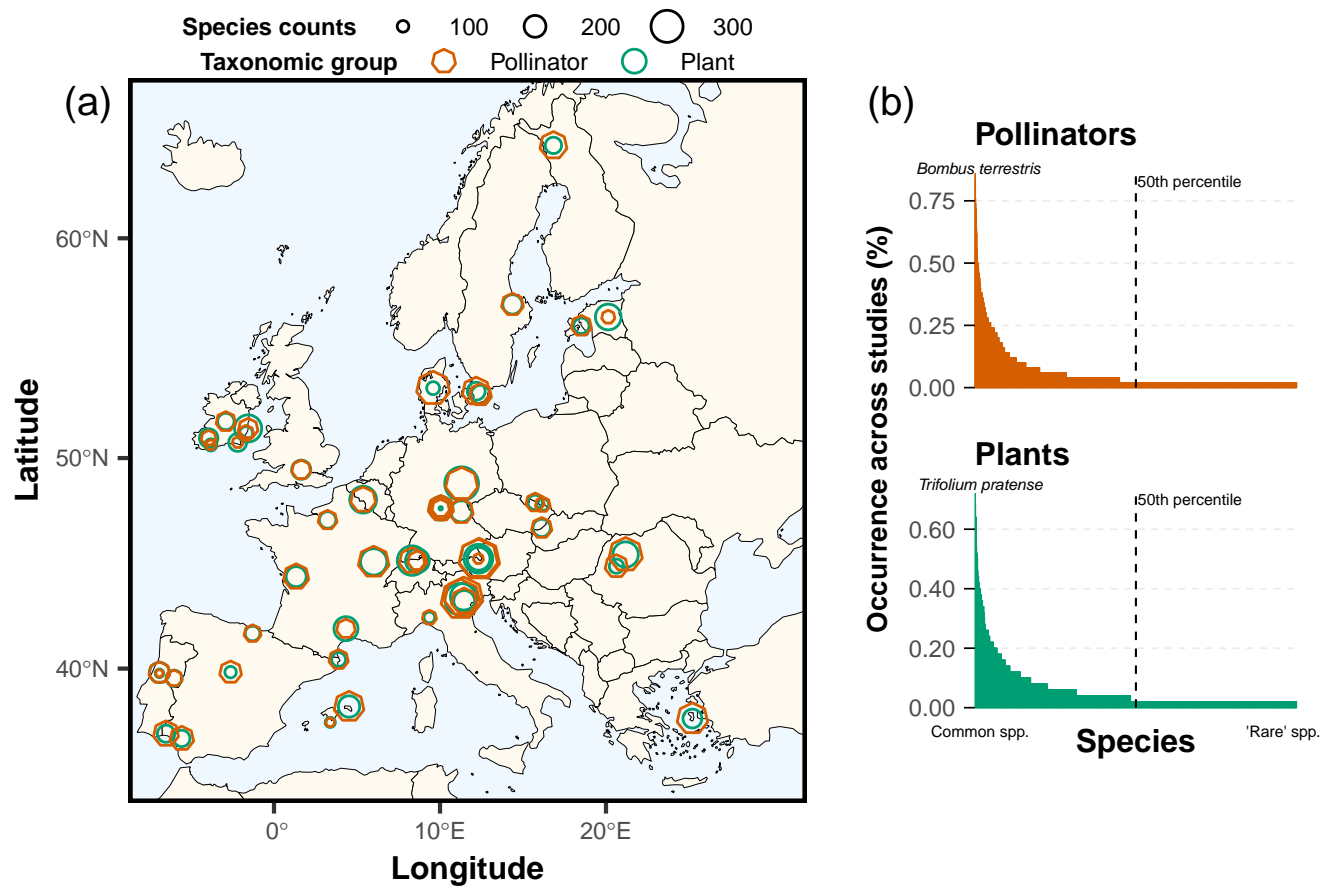


Figure 1: Figure 1