

Conference Abstract

iNaturalist is an Unexploited Source of Plant-Insect Interaction Data

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Received: 14 Jun 2019 | Published: 21 Jun 2019

Citation: Gazdic M, Groom Q (2019) iNaturalist is an Unexploited Source of Plant-Insect Interaction Data.

Biodiversity Information Science and Standards 3: e37303. <https://doi.org/10.3897/biss.3.37303>

Abstract

The aim of this study was to assess whether it is possible to extract useful interaction data between flowers and visiting insects using photographs from citizen science. Ultimately the longer-term aim is to understand possible impacts of invasive species on pollination networks.

We used data from iNaturalist (<https://www.inaturalist.org>), GBIF (<https://www.gbif.org>), and GLOBI (<https://www.globalbioticinteractions.org>). From iNaturalist, we used photographs to extract flower visitation interactions. GBIF data were used for plant and pollinator occurrences, and GLOBI was used for information about known interactions between plants and pollinators. For this study we selected four plant species: *Oxalis pes-caprae* (Bermuda buttercup), *Cirsium vulgare* (spear thistle) *Amorpha fruticosa* (false indigo) and *Lantana camara* (common lantana). These species are relatively common, frequently photographed and known to be attractive to insects. All of these species are also considered invasive in different parts of world.

We found that over 60% of all photographs identified as a picture of a bee (Apoidea) also showed a flower that the insect was visiting. Thirty-nine percent of butterflies (Papilionoidea) were photographed on a flower and 38% of Syrphidae. Currently, there are about 170,000 pictures of bees; 700,000 butterflies and 50,000 Syrphidae on iNaturalist

from all over the world. This means there is a vast untapped resource of insect-plant interaction data on iNaturalist just waiting for exploitation.

iNaturalist provides a standardized and cost-efficient enhancement to specimen collection, and it can be easily adapted for specific research goals. However, the relatively high rate of photographs without both species identifications (plant and visitor) highlights the importance of investing in resources to promote this approach and the importance of determining the identity of all species in a photograph.

Keywords

Citizen science, flowering, invasive species, pollinators, pollination network

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Presented at

Biodiversity_Next 2019

Acknowledgements

This study was supported by a STSM Grant from COST Action Alien CSI (CA17122), supported by COST (European Cooperation in Science and Technology).