SAMPLING EVENT ┃ **REGISTERED MAY 12, 2023**

Monitoring ground arthropods in maize and pasture fields of São Miguel and São Jorge Islands: IPM-Popillia Project

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2,226 OCCURRENCES   3 CITATIONS

DATASET   PROJECT   METRICS   ACTIVITY   ⬇ DOWNLOAD

The dataset presented here is the delivery of the European project "Integrated Pest Management of the Invasive Japanese Beetle, Popillia japonica (IPM-Popillia)". This project aims to address the challenge of a new risk to plant health in Europe, the invasion of the Japanese beetle, Popillia japonica, and to provide an environmentally friendly IPM-Toolbox to control the pest in infested areas, protecting the agricultural systems and control this pest populations current in expansion across Europ…   More

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2,226
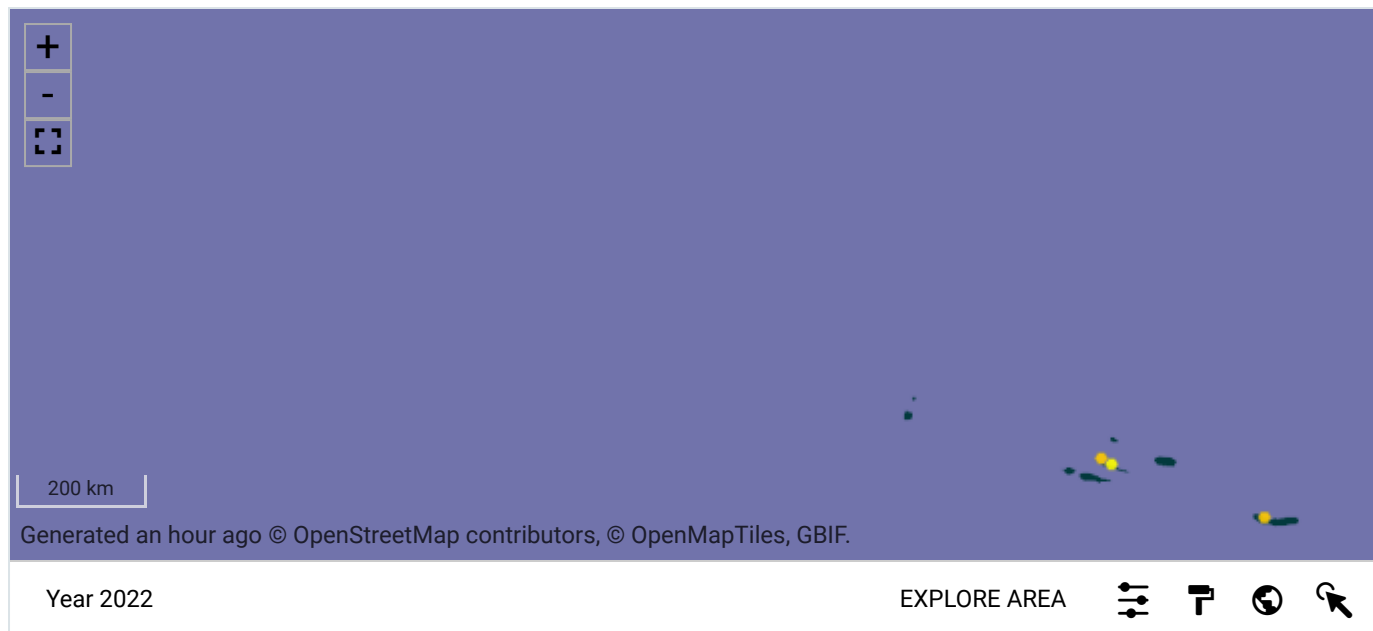Occurrences

4%
With taxon match

100%
With coordinates

100%
With year

2,226 GEOREFERENCED RECORDS

Year 2022　　　　　　　　　　　　　EXPLORE AREA

275 EVENTS

Event ID	Event date	Sampling protocol	Occurrence count
fr_sm_4	23 September 2022	Pitfall	17 (0 absent)
sg_sm_2	23 September 2022	Pitfall	17 (0 absent)
sg_sm_5	23 September 2022	Pitfall	17 (0 absent)
fr_sm_18	23 September 2022	Pitfall	16 (0 absent)
fr_sm_5	23 September 2022	Pitfall	16 (0 absent)
fr_sm_9	23 September 2022	Pitfall	16 (0 absent)
ac_sj_3	23 August 2022	Pitfall	15 (0 absent)
ms_sj_11	23 August 2022	Pitfall	15 (0 absent)
rc52_sm_13	23 September 2022	Pitfall	15 (0 absent)
rc53_sm_6	23 September 2022	Pitfall	15 (0 absent)

Description

The dataset presented here is the delivery of the European project "Integrated Pest Management of the Invasive Japanese Beetle, Popillia japonica (IPM-Popillia)". This project aims to address the challenge of a new risk to plant health in Europe, the invasion of the

Japanese beetle, Popillia japonica, and to provide an environmentally friendly IPM-Toolbox to control the pest in infested areas, protecting the agricultural systems and control this pest populations current in expansion across Europe. The present study targets to record, in maize and pasture fields of the Azores, ground arthropods with the potential to be used in futures Integrated Pest Management programs against P. japonica. A sampling program was conducted in two Islands (São Miguel and São Jorge) in the summer of 2022.

We provided an inventory of the arthropods recorded in two Azorean agroecosystems (maize and pasture fields) from São Miguel and S. Jorge Islands. A total of ten maize and ten pasture fields were sampled, and a total of 360 pitfall traps were installed, 216 in São Miguel and 144 in São Jorge, for seven consecutive days in August and September of 2022.
We collected 18559 specimens belonging to the phylum Arthropoda, four classes, twelve orders, twenty-six families, and forty morphospecies (two identified at the family level and 38 identified at the species level). We identified only 38 taxa at the species level (n = 18281). Of the 38 identified taxa, 18 species were predators, 15 were plant feeders, and 5 were omnivores. The 18 predators belong to the following families: 10 species were Carabidae, two Staphylinidae, one Anisolabididae, one Chrysopidae, one Leiobunidae, one Nabidae, one Phalangiidae and one Scathophagidae.

Temporal scope

- August 20, 2020 - September 20, 2022

Geographic scope

The study was conducted on São Miguel and São Jorge, two islands of the Archipelago of the Azores (North Atlantic). São Miguel Island is situated in the oriental group (37.780411, -25.497047) and is the largest island of the archipelago with 746.8 km² and a maximum altitude above sea level of 1103 meters. São Jorge Island is situated in the central group (38.627778, -28.017222) and is the fourth largest island of the archipelago with 245.8 km² and a maximum altitude above sea level of 1053 meters

Taxonomic scope

The following phylum, classes, and orders are covered in this study, although our scientific focus is the phylum of Arthropoda.
Phylum Arthropoda: Arachnida: Opiliones; Diplopoda: Julida, Polydesmida; Insecta: Archaeognatha, Coleoptera, Dermaptera, Diptera, Hemiptera, Neuroptera, Orthoptera; Malacostraca: Amphipoda, Isopoda.

Phylum Platyhelminthes

Phylum

Arthropoda Arthropods

Methodology

Study extent

The study was conducted in a total of 20 fields, twelve fields sampled in São Miguel, six in maize fields, and six in pasture fields. For São Jorge, we sampled eight fields, four maize fields, and four pasture fields. A total of 18 pitfall traps were installed along three transects from the point closest to the crop entrance. The transects were 25 meters long, spaced 20 meters between them, and each transect contained six pitfalls traps spaced by 5 meters each. Pitfall traps were set from one of the stone walls or side of the fields into the center of the field to capture insects from the edges to the center of the field.

Sampling

Pitfall traps were used to sample the taxonomic and functional arthropod biodiversity by collecting predatory spiders, true bugs, ants, beetles, worms, and other epigean insects, on two agricultural habitats, maize and pasture fields of São Miguel and São Jorge Islands. Pitfall traps used consisted of standard 390 ml plastic cups, partially filled with propylene glycol, and deployed for seven consecutive days. Specimens collected were then transferred to ethanol (96%) and stored at -20 °C. Paulo A.V. Borges and Mário Teixeira identified specimens based on the Azorean arthropods collection from "Portal da Biodiversidade dos Açores, University of the Azores" led by Professor Paulo A.V. Borges.

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The aim of the study was to record ground arthropods as potential predators of P. japonica. Pitfall traps used consisted of standard 390 ml plastic cups, about 12 cm deep, 8 cm diameter at the top, and partially filled with propylene glycol. Traps were protected from predation, inundation with rainwater, and unwanted vertebrate capture (i.e., reptiles) using plastic plates sitting on wooden skewers 2 cm above the ground surface. As the traps are sometimes fragile, two cups could be used per trap, one placed inside the other.

A total of 216 pitfall traps were installed on the 12 fields of São Miguel Island, 108 in maize fields and 108 in pasture fields. In São Jorge, a total of 144 pitfall traps were deployed, 72 in maize fields and 72 in pasture fields.

After the seven days of sampling for São Miguel, the number of pitfalls successfully recovered was 195 pitfalls, 102 in maize fields and 93 in pastures. For São Jorge, we recovered 80 pitfalls, 37 from maize fields and 43 from pasture fields.

Quality control

After collection, specimens were stored in alcohol (96%) before sorting at -20 ºC. Specimens, adults, and larvae were sorted in a laboratory by Mário Teixeira and Mar Calvet and organized the collection in a system of morphospecies.

Method steps

Final identification was done by Paulo A.V. Borges.

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Installation contacts: Rui Figueira

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http://ipt.gbif.pt/ipt/eml.do?r=ipm_popillia_azores (EML)

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Alternative identifiers: http://ipt.gbif.pt/ipt/resource?r=ipm_popillia_azores

See details in the GBIF Registry

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