

New Bees on the Block: Assessing the Invasive Potential of Bumblebees on the Faroe Islands

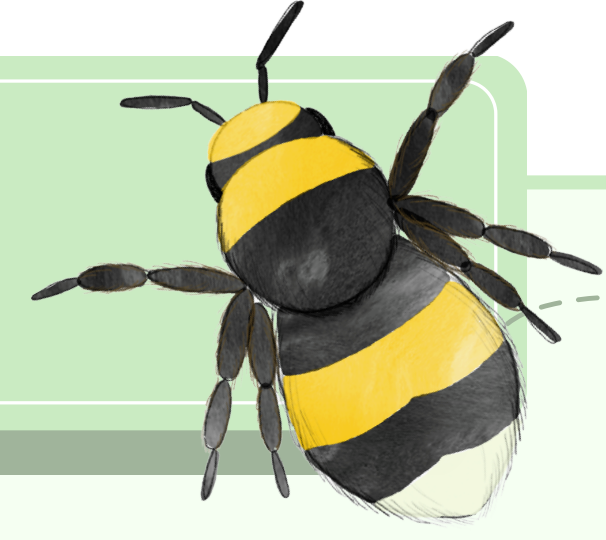
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Background



Bombus lucorum ♂

- Invasive species are described by IPBES (2023) as “accidental or deliberate introductions of species that spread... with negative implications to native biodiversity.”
- The Faroe Islands have had no established bees, until two bumblebee species were unintentionally introduced to the islands in 2007 and 2010. Three more species have since been recorded.
- The impact of the establishment and expanding distribution of these five species has not been studied previously.

AIMS OF THIS STUDY:

- (1) To update and explore the distributions and establishment of the five bumblebee species, (2) identify their impact to the native flora and fauna, and (3) determine their invasive potential to the Faroe Islands.

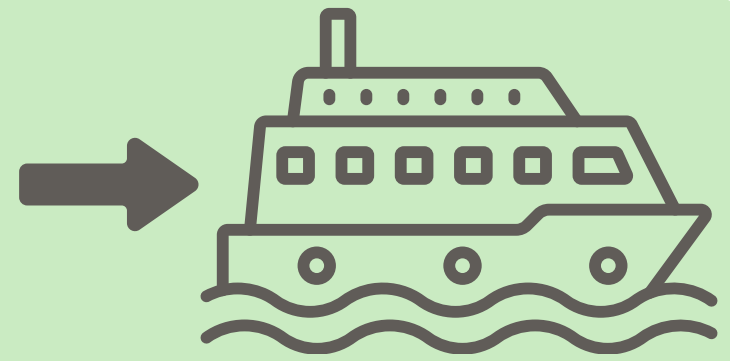
Introduction Timeline

- 2007 - *Bombus lucorum* is observed on Eysturoy near Skálabotnur's port.
- 2008 - *Bombus pratorum* is observed on Streymoy near Signabøur's port.
- 2017 - *Bombus terrestris* is observed on Suðuroy near Tvøroyri's port.
- 2021 - *Bombus hypnorum* is observed on Streymoy near Tórshavn's port.
- 2022 - *Bombus hortorum* is observed on Streymoy near Tórshavn's port.



Bombus hypnorum ♀ ♂

The common theme in each observation?



Methods



Bombus pratorum ♂

Traditional surveying - Aims 1, 2 and 3.

Transects are walked weekly along an urban to rural gradient between May and August, noting all interactions between flowers and pollinating insects.

Why?

To build a 'plant-pollinator' network that shows which insects forage on what, and where.

Environmental DNA - Aims 1, 2 and 3.

Small fragments of insect eDNA are collected from flowers, air and soil in both rural and urban areas.

Why?

As an addition to the plant-pollinator network, to ascertain how localised bumblebees are to towns, and to determine the extent of foraging on invasive plants such as *Rosa rugosa*.

Pollen Analysis - Aims 2 and 3

- Pollen is collected from the bodies and pollen sacks of bumblebees and identified.

Why?

As an addition to the plant-pollinator network and to determine the extent of foraging on invasive plants such as *Rosa rugosa*.

Citizen Science Surveys - Aim 1

Surveys are distributed, encouraging both the local Faroese people and tourists to record their observations of bumblebees around the islands.

Why?

To gain a broader picture of the extent of bumblebee introductions to all the islands.

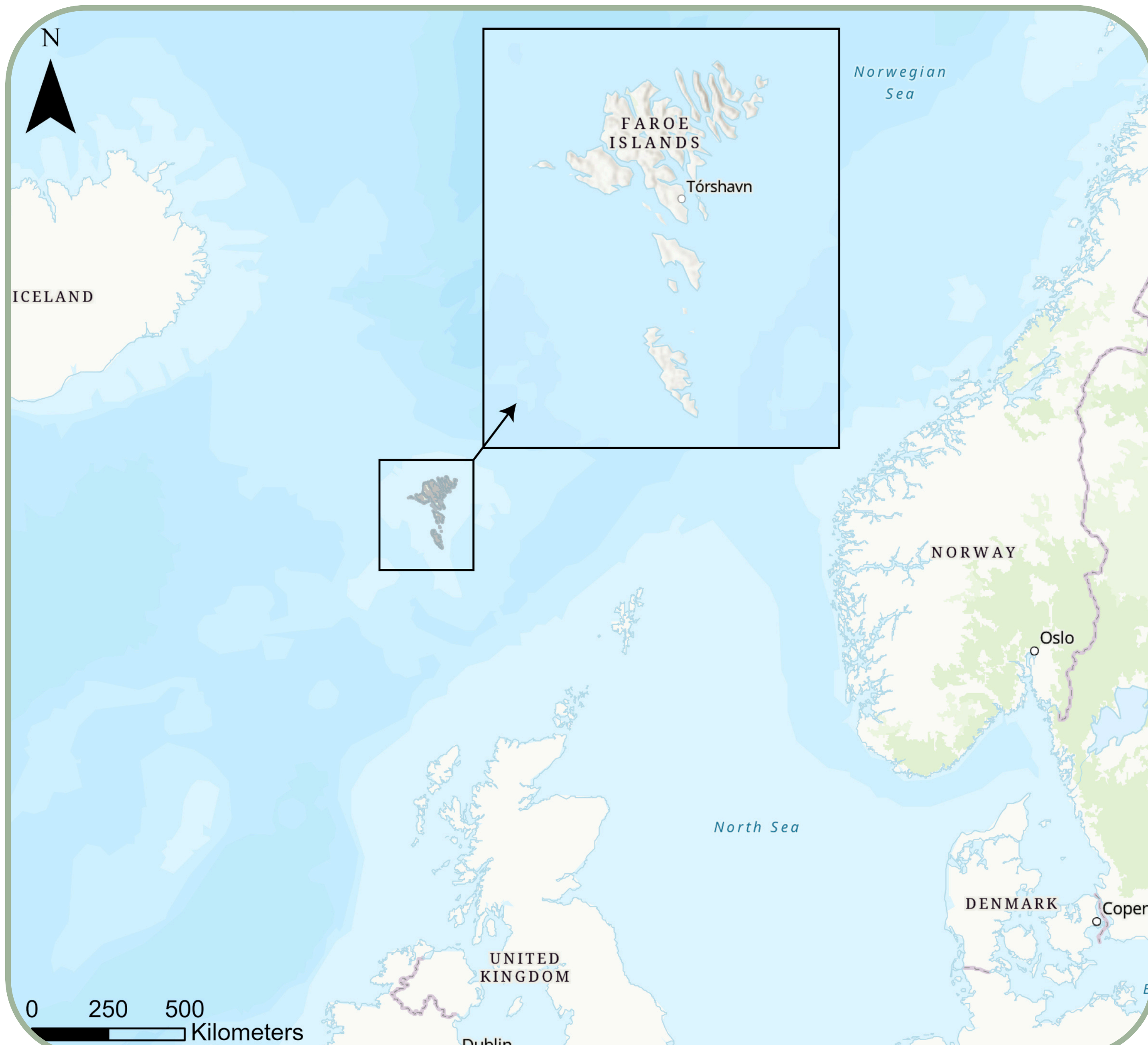


Bombus hortorum ♀ ♂

Field Site



Bombus terrestris ♀ ♂



Above (from left to right): Faroese *Bombus lucorum/terrestris* foraging on *Succisa pratensis*, *Rosa rugosa* and *Fuchsia* sp.

IPBES (2023). Summary for Policymakers of the Thematic Assessment Report on Invasive Alien Species and their Control of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. Roy, H. E., Pauchard, A., Stoett, P., Renard Truong, T., Bacher, S., Galil, B. S., Hulme, P. E., Ikeda, T., Sankaran, K. V., McGeoch, M. A., Meyerson, L. A., Nuñez, M. A., Ordóñez, A., Rahlao, S. J., Schwindt, E., Seebens, H., Sheppard, A. W., and Vandvik, V. (eds.). IPBES secretariat, Bonn, Germany. <https://doi.org/10.5281/zenodo.7430692>