Fostering close encounters of the entomological kind with citizen science

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Pollinators need to be saved but how well do you know them ?

Despite massive worldwide support to "*Save the bees !*", there is a lack of basic knowledge on bee diversity in the general public (Wilson *et al.* 2017).

Such discrepancy may hinder conservation efforts : e.g. installing honey bee hives to "*save the bees*" will only diminish floral resources needed by the thousands of wild pollinator species.

Promoting knowledge of pollinator diversity in the general public is challenging given the thousands of species involved and the difficulty of identification.

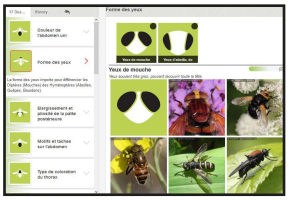
Spipoll : a standard protocol to monitor insects visiting flowers

The program

Observers photograph all flower-visitors on a freely chosen plant species for 20 minutes and then use an **identification tool** to name each photographed insects. No prior entomological knowledge is required. The observer has to choose from 593 non-overlapping insect taxa. Plant and insects photographs are shared on **www.spipoll.org**, with the possibility to **comment and update identifications**.

Methods

Using 65 456 photograph identifications from 1 019 observers and reviewed by entomological experts (OPIE), we assessed whether participation is associated with improved knowledge on flower-visitor diversity. We analysed separately the honey bee (*Apis mellifera* L.), the wild bee taxa (42 taxa), the non-bee hymenopteran taxa (51 taxa), the beetle taxa (136 taxa), the butterfly and moth taxa (231 taxa), and the fly taxa (91 taxa).

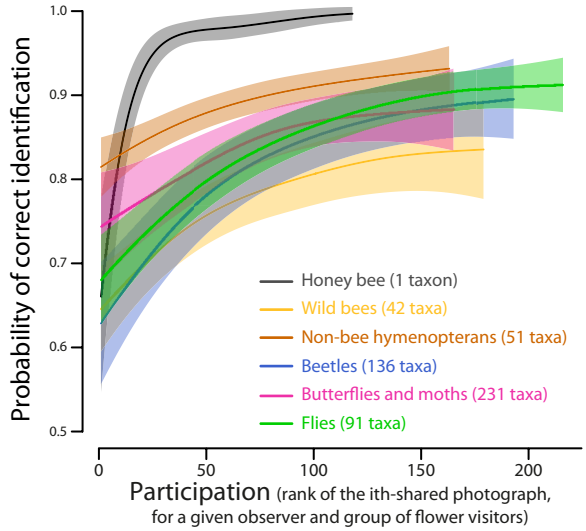


Can you name these insects ?






Participants to the Spipoll can !



Perspectives

A community of observers providing rapid feedback and advice on each other's contributions emerged.

Observers' progress in accuracy of photograph identification increased with observers' level of social integration in the community (see Deguines *et al.* 2018).

Next step is allowing for collaborative identifications through the development of appropriate online tools.

Wild bees and other flying insects are in critical need of conservation actions, and citizen science projects are a powerful tool for reaching educational, scientific and conservation outcomes.

References (and identity of the six insects)

- take a look at the Spipoll website: www.spipoll.org

- Deguines N, Flores M de, Loïs G, Julliard R, & Fontaine C. 2018. Fostering close encounters of the entomological kind. *Front Ecol Environ* 16: 202–3
- Wilson JS, Forister ML, & Carril OM. 2017. Interest exceeds understanding in public support of bee conservation. *Front Ecol Environ* 15: 460–6.

From left to right, the six insects are : the honey bee, a bee from the genus *Halictus*, a wasp from the Polistinae subfamily, a beetle from the *Oedemera* genus, a hoverfly species (*Rhingia campestris*), and the Orange tip (*Anthocharis cardamines*).