

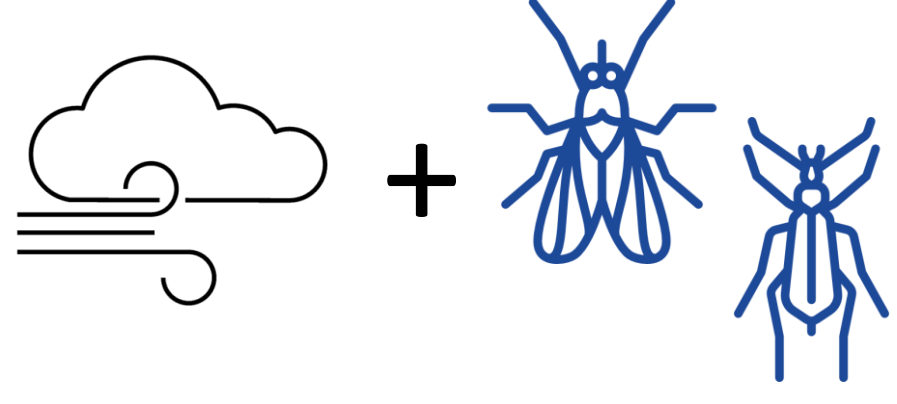
# INSECT POLLINATION IN CHESTNUT

Clément Larue<sup>1,2</sup>

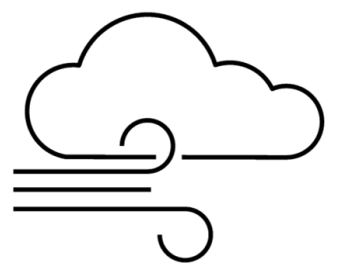
<sup>1</sup>Univ. Bordeaux, INRAE, BIOGECO, 33610 Cestas, France ; <sup>2</sup>INVENIO, Maison Jeannette, 24140 Douville, France

Are chestnuts pollinated by wind, insects, or both? For almost 150 years, this question has been in the air. To establish chestnut pollination mode on solid foundations, two types of experiences must be combined: pollinator exclusion, to test the dependence of chestnut pollination on insects, and insect monitoring during flowering, to identify the true pollinators of chestnut.

## ① Control

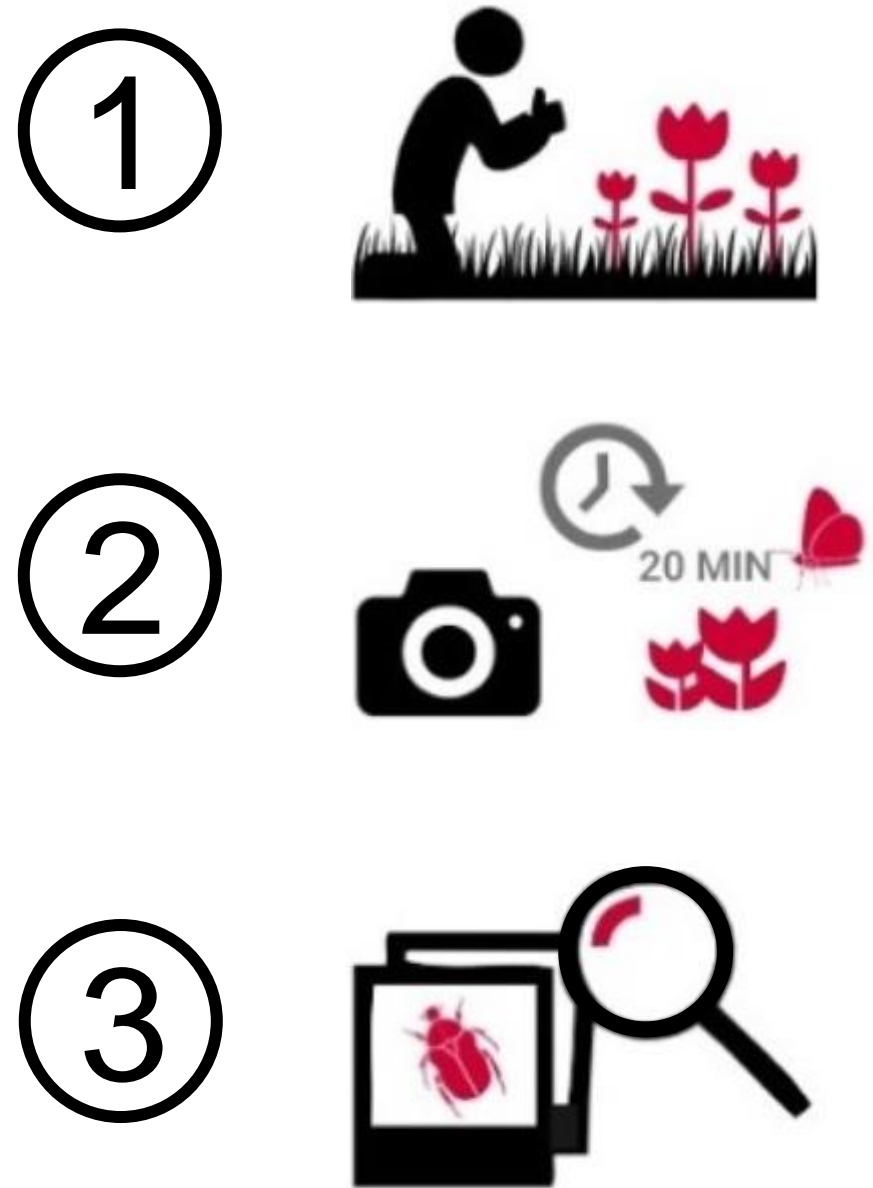


## ② Nets



Different modalities

3-step protocol



## POLLINATOR EXCLUSION EXPERIMENTS



Larue et al. (2021)



Petit & Larue (2022)



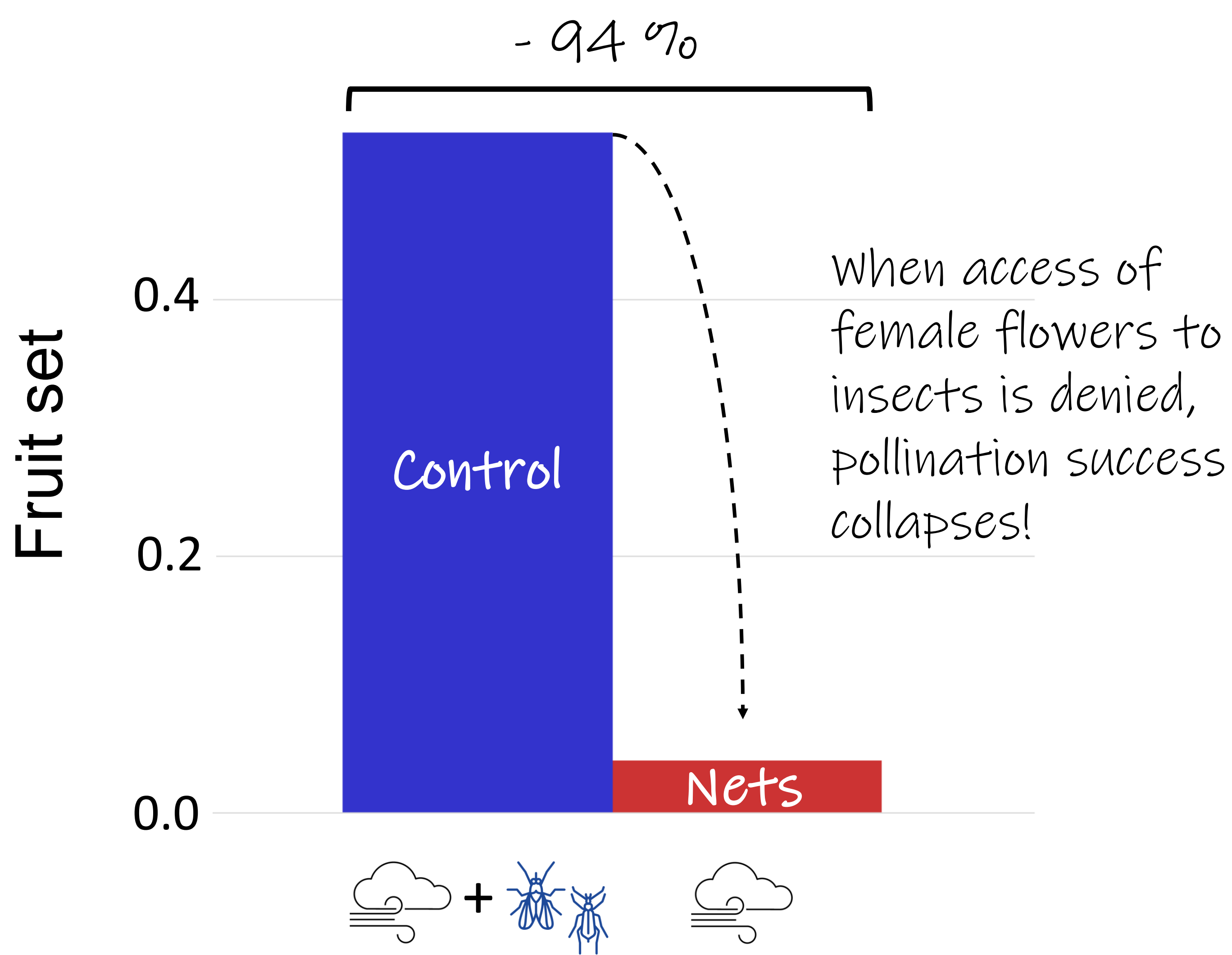
## PHOTOGRAPHIC MONITORING OF INSECTS



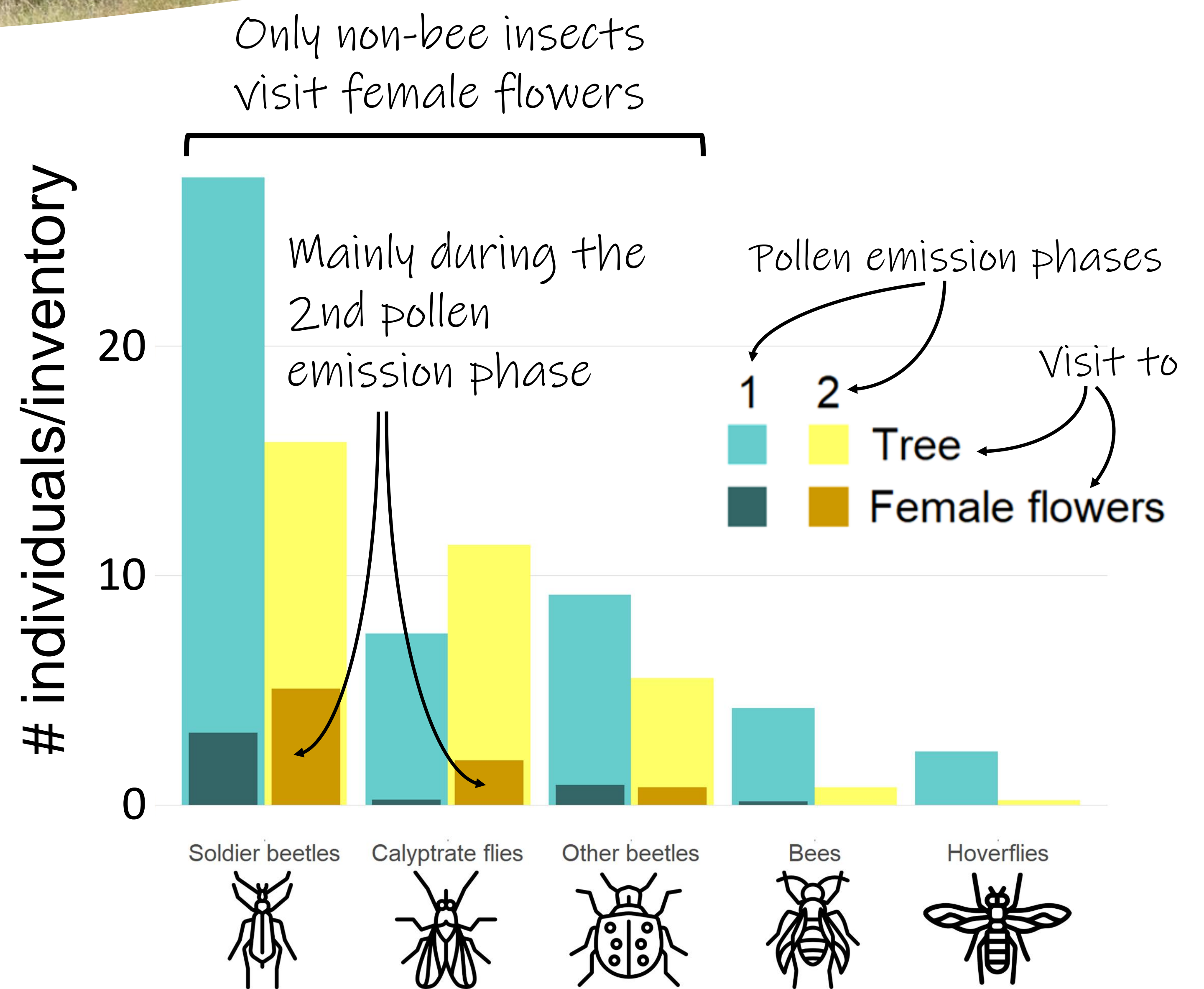
Larue et al. (2021)



Pauly et al. (2023)



✓ Chestnut is **strictly insect-pollinated**



✓ The main **pollinators** are **calyptrate flies** and beetles

Chestnut is neither entirely nor partly wind-pollinated. Instead, it is **entirely insect-pollinated**. The insects involved are **beetles** and especially **calyptrate flies**, **not bees**. We are starting to clarify the main mechanisms of chestnut pollination. Walking insects are attracted to rewardless female flowers by male catkins of bisexual inflorescences during the second pollen emission phase. They climb on the erect styles of female flowers and deposit pollen on the tiny stigmas. The preservation of non-bee pollinators is thus critical to the sustainable management of chestnut orchards.

