

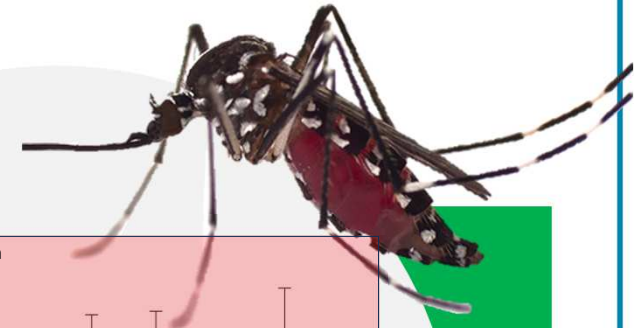
A predictive model of *Aedes albopictus* density in Emilia-Romagna region (Italy) based on ovitraps and meteorological data

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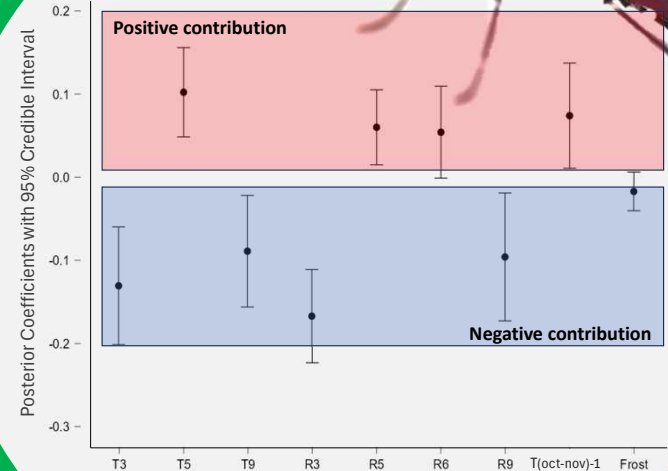
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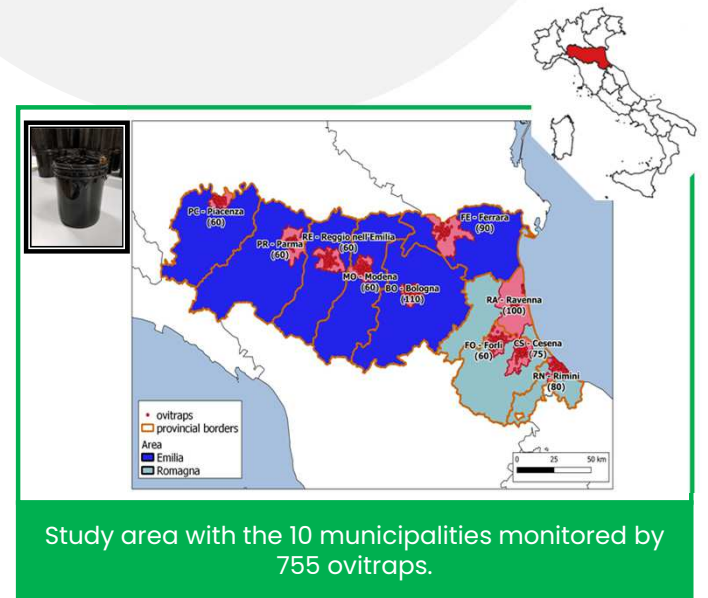


The findings show that the winter-spring period (January to May) plays a crucial role on the size of the first generation and the following seasonal dynamic.



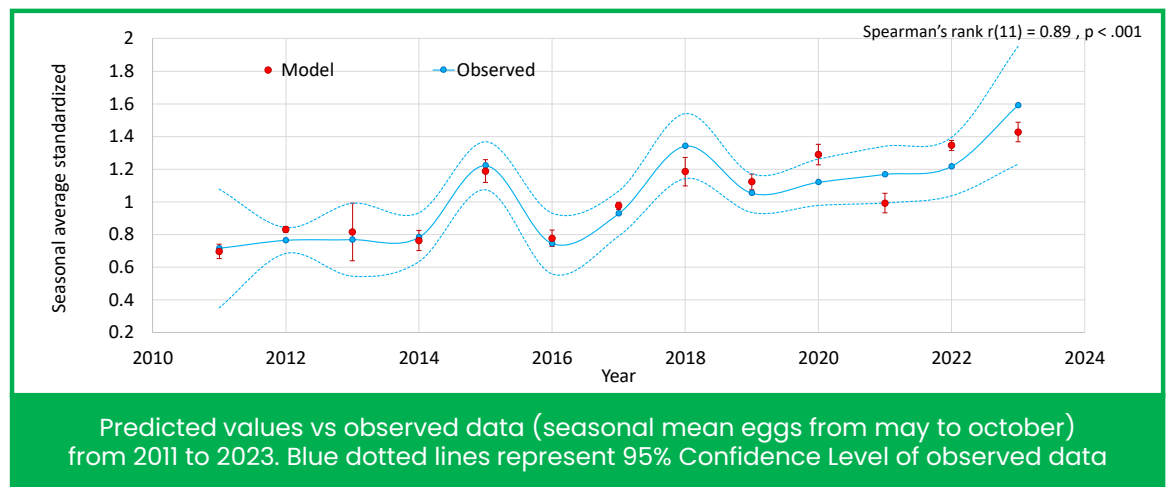
Introduction

- **Study area** in northern Italy of approximately **22,450 km²** with 9 provinces (two macroareas, Emilia and Romagna)
- About **4.5 million** inhabitants
- **80%** of the 308 municipalities are in plain area and low hills
- Continental temperate climate (mediterranean towards the coast)
- **Main *Aedes albopictus* breeding sites** in the cities are public and private road drains (90%)
- **Standardized mosquito control** (5-6 rounds of public larvicides between april and october)
- **755 ovitraps** activated every 14 days from may to october (www.zanzaratigreonline.it)



Methods (Carrieri et al. 2023)

- **Ovitraps validated data:** 305 ovitraps (4 municipalities) activated in the region every year from 2010 to 2023 (14 years)
- **Covariates:** meteorological data (ERG5 regional dataset – 5 km resolution):
 - Frost days (january-february-march)
 - Daily avg T
 - Daily avg RH
 - Daily cumulated precipitation (R)
 - Daily avg global radiation (RAD)
- **Method:** Bayesian multi-model linear regression



Results

- In 2024, in **the eastern area of the region** the model indicates climatic condition favorable to *Ae. albopictus* population increase compared to hystorial data
- In 2024 the seasonal standardized population is **higher than 1** (increase compared to hystorial data) in approximately all the region with an evident **difference between West and East**
- **Preliminary data validation** at regional level shows good accuracy of the 2024 seasonal prediction

