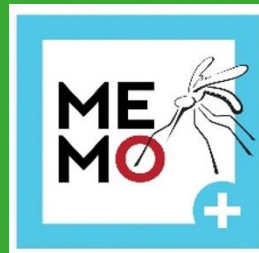


Monitoring of exotic mosquitoes in Belgium Results of 2022



EID Seminar 2023 - Brussels

Marie Hermy & Wim Van Bortel

Javiera Rebolledo (Sciensano), Isra Deblauwe (ITM), Anna Schneider (ITM), Tinne Lernout (Sciensano), Ruth Müller (ITM)

Background

Invasive mosquitoes in Europe

- *Aedes albopictus*

- *Ae. aegypti*

- *Ae. atropalpus*

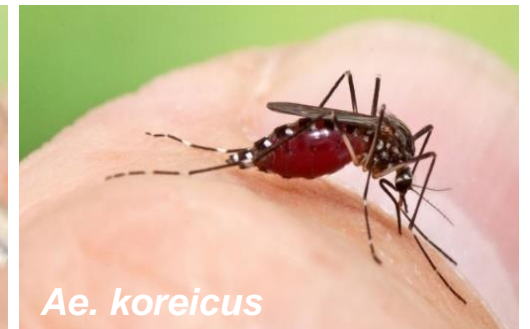
- *Ae. japonicus*

- *Ae. koreicus*

- *Ae. triseriatus*

Effective vectors of diseases

Have not yet been implicated as important vectors of diseases

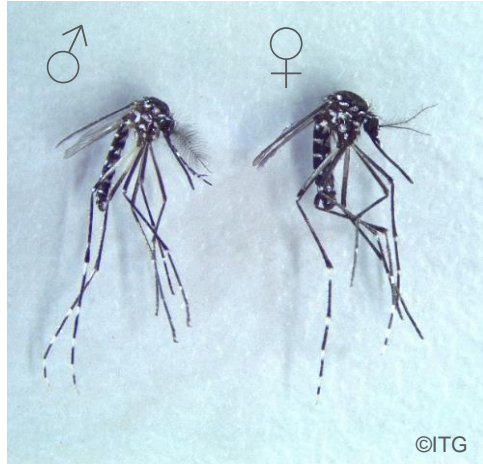


Background *Aedes albopictus*

Long distance



Short distance



©ITG

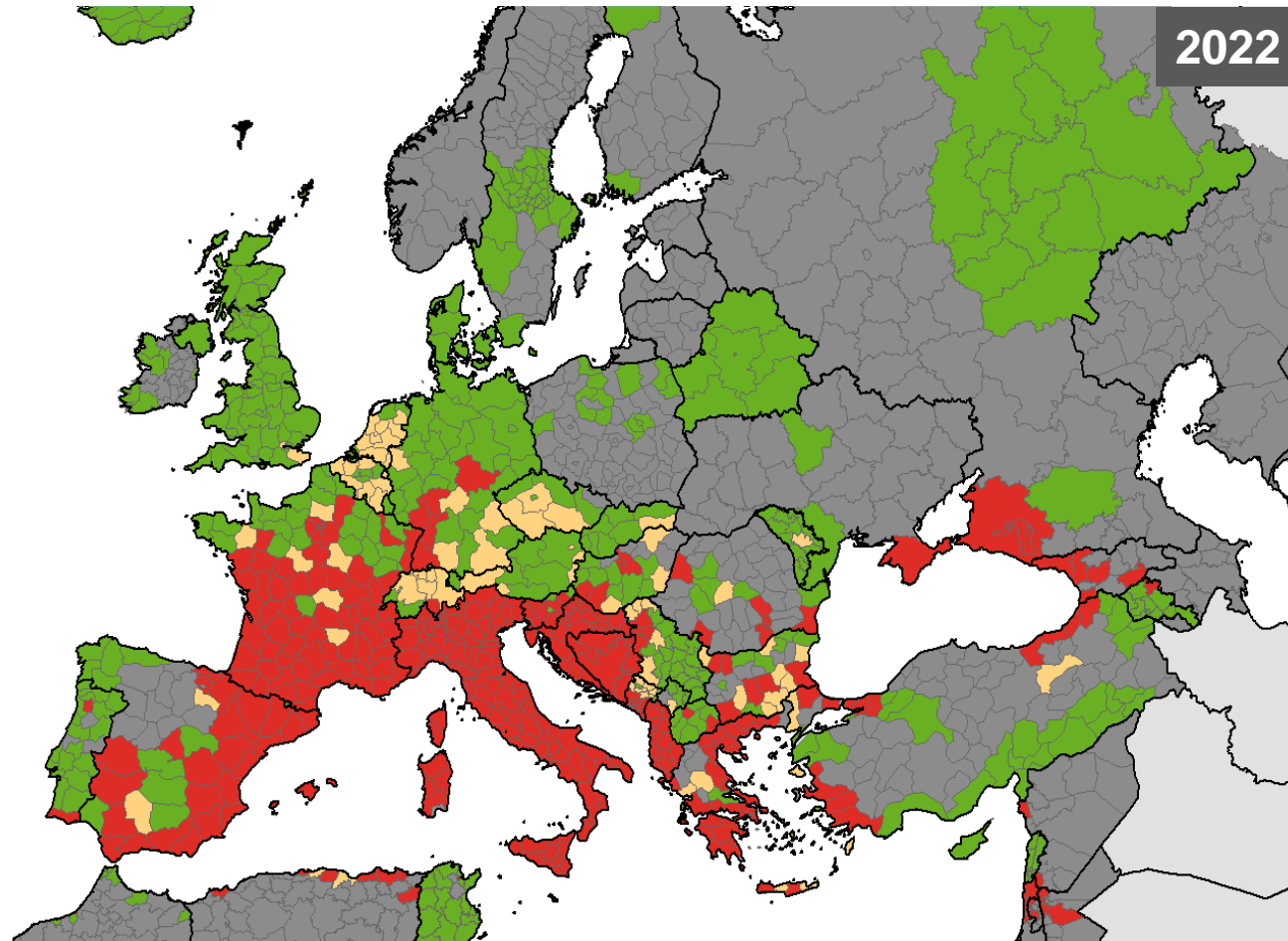
- Originated from South-East Asia
- Spread
 - Long distance
 - Short distance
- Threat to public health
 - chikungunya, dengue, Zika
 - Possible outbreaks (e.g. dengue in France in 2022)
- Aggressive mosquito
 - Causing nuisance

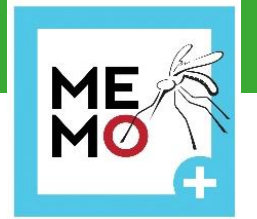
Spread in Europe



Legend

- Established
- Introduced
- Absent
- No data
- Unknown
- Outside scope





Main Objective

To Monitor the presence and spread of Exotic Aedes MOsquitoes beyond the points of entry by covering the whole Belgian territory in order:

- to early detect the introduction of *Aedes albopictus* and
- to prevent or delay their establishment.

Relies on two complementary parts:

1. **Passive surveillance** based on citizen science [Sciensano]
2. **Active surveillance** at eight Points of Entry and field inspection where the presence of *Ae. albopictus* is suspected [ITM]

Methods Passive Surveillance

- Launch of platform end of May 2022
 1. Information
 2. Notification of tiger mosquitoes
- Notification process



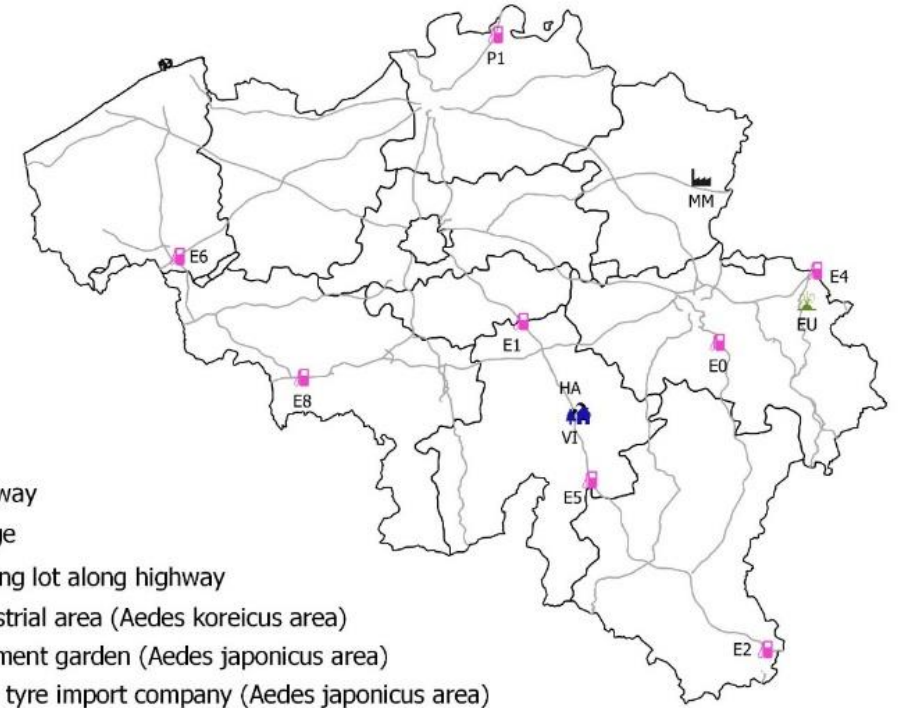
- Morphological identification



www.MuggenSurveillance.be/www.SurveillanceMoustiques.be

Methods Active Surveillance

- 8 parking lots along highway
- 10 oviposition traps
- Longitudinal follow-up
- Collaboration of local partners



Results Passive Surveillance (1)

Total 312 notifications
(30th May – 31st Dec 2022)



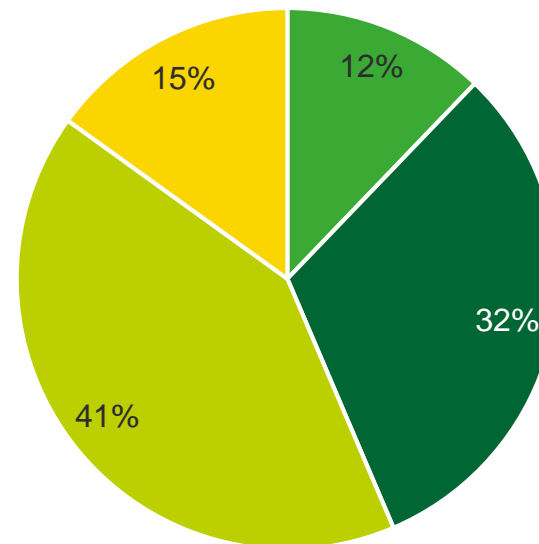
302 insects



143 mosquitoes
(47.4%) (Culicidae)



12 tiger mosquitoes
9 locations



- Brussels Region
- Flemish Region
- Walloon Region
- No Location

Genus	Count	Percentages
<i>Aedes</i>	41	28.7
<i>Culex</i>	13	9.1
<i>Culiseta</i>	86	60.1
No genus defined	3	2.1
TOTAL	143	100

Results Passive Surveillance (2)



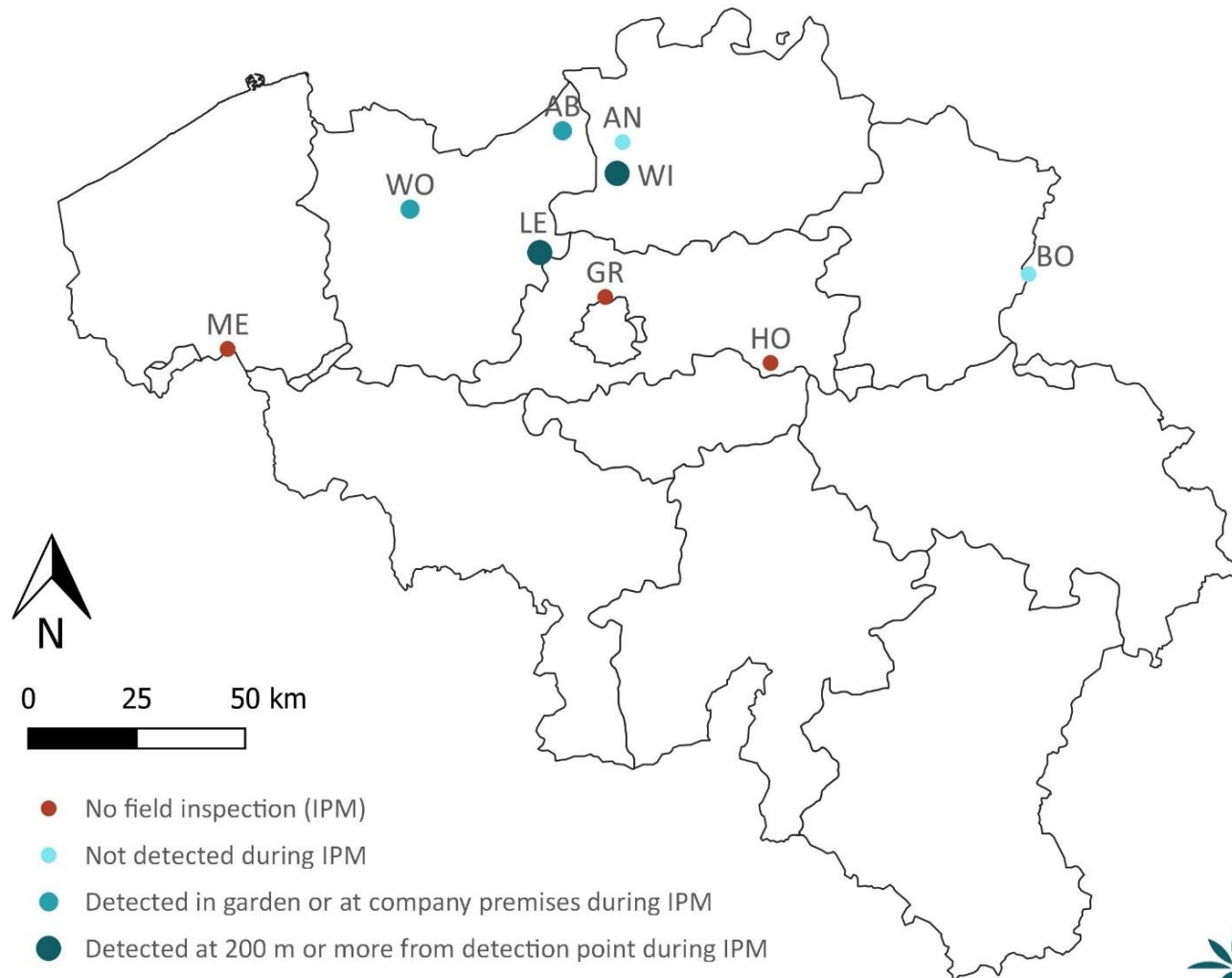
12 tiger mosquitoes
9 locations



Results Passive Surveillance (3)

9 nieuwe locaties

- Boorseme (BO)
- Antwerp (AN)
- Kallo (AB)
- Wondelgem (WO)
- Lebbeke (LE)
- Wilrijk (WI)
- Grimbergen (GR)
- Hoegaarden (HO)
- Menen (ME)



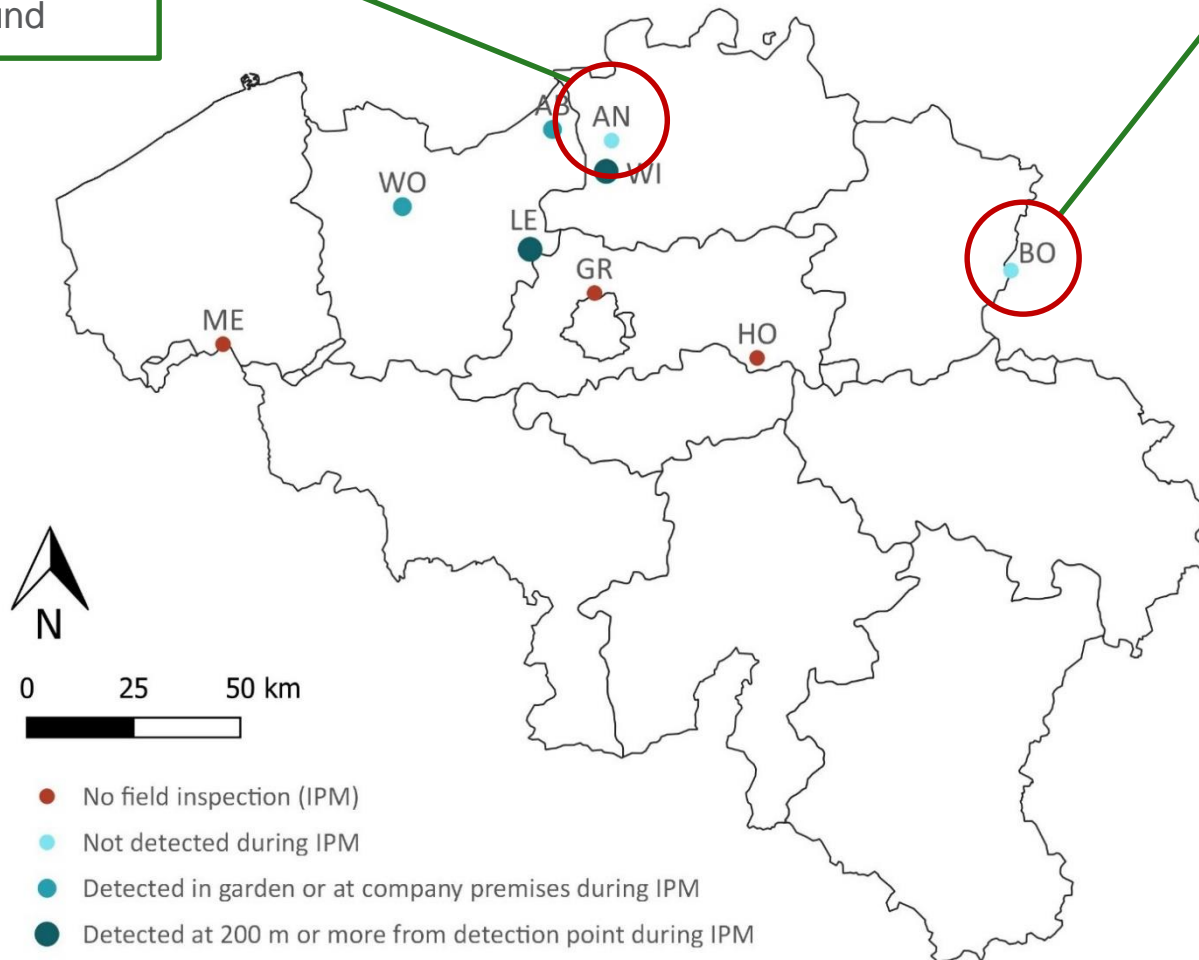
Results Field inspections (1)

August 2022

- Specimen of notifier: *Ae. albopictus*
- No additional *Ae. albopictus* found

June 2022

- No *Ae. albopictus* found
- Larvae of *Ae. japonicus*



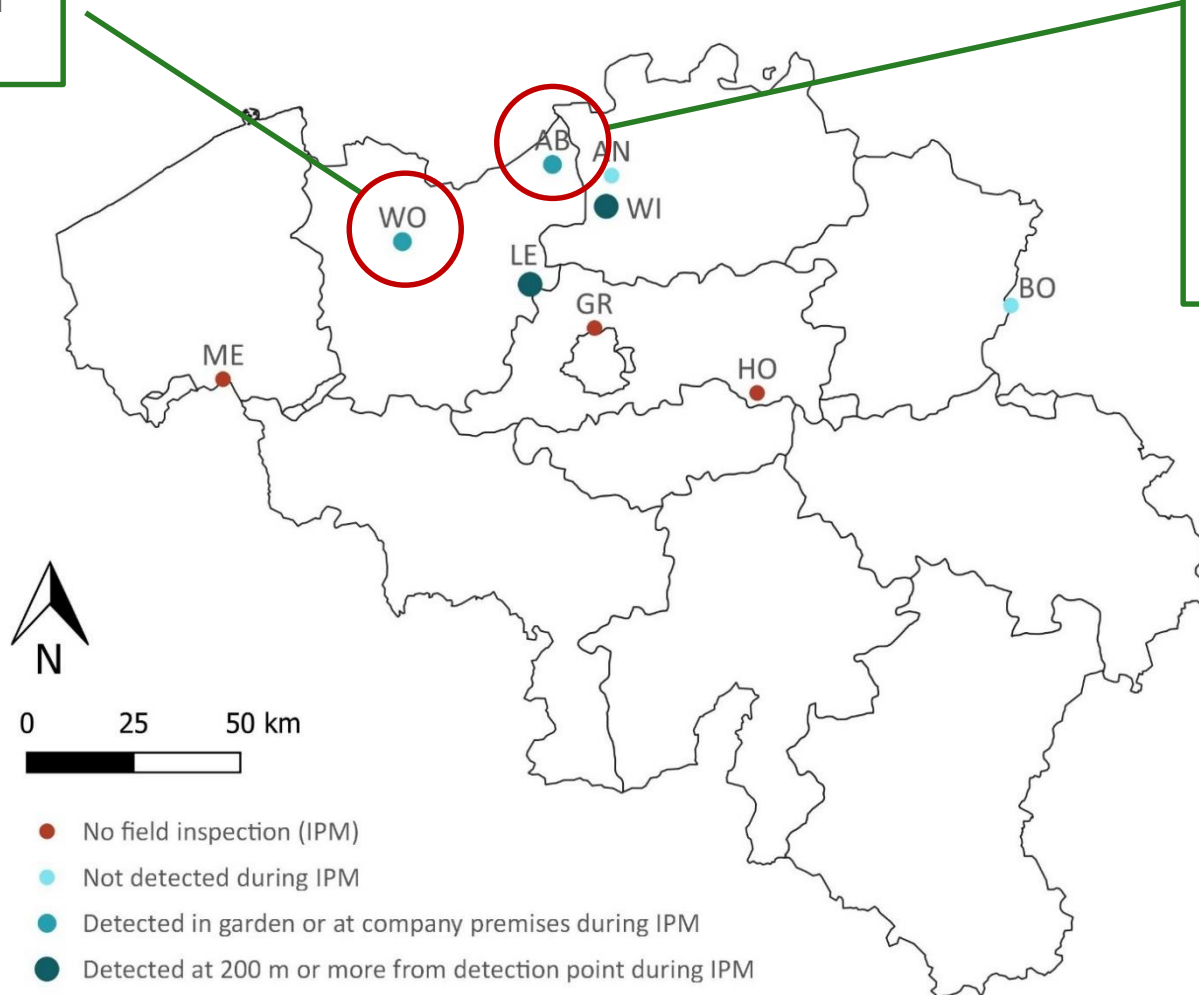
Results Field inspections (2)

September 2022

- 17 larvae *Ae. albopictus* garden notifier

August – September 2022

- 6 adult *Ae. albopictus*
- Follow-up until end September 2022
- Additional eggs and adults collected
- Known Point of Entry
- Control campaign



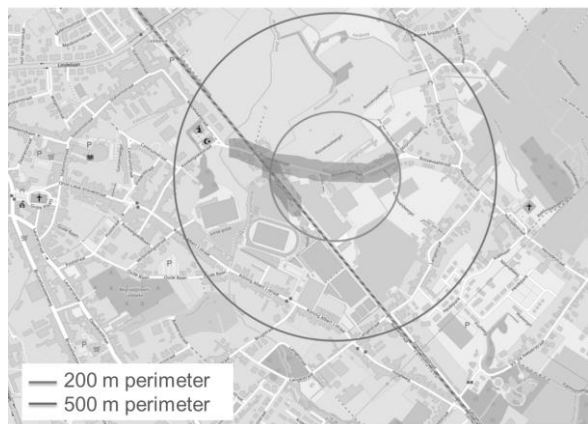
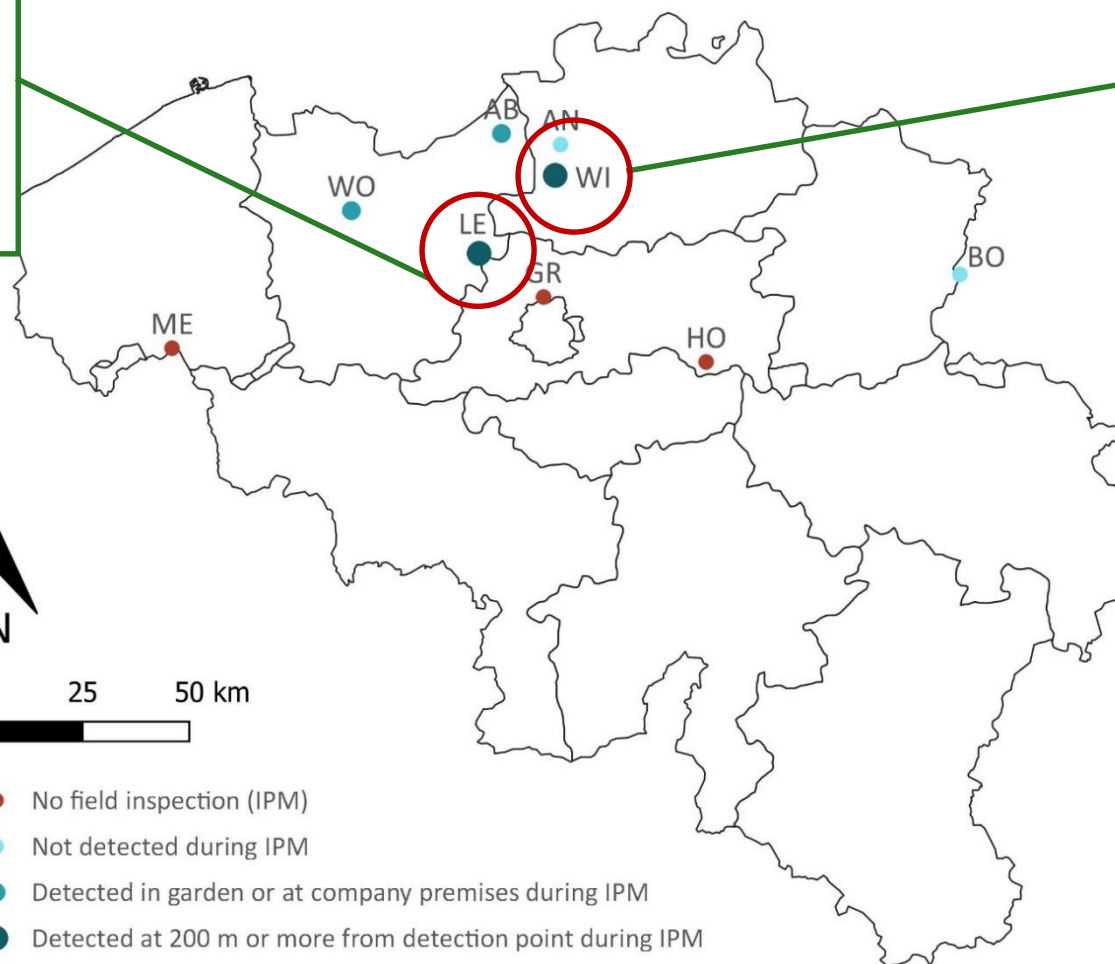
Results Field inspections (3)

August – October 2022

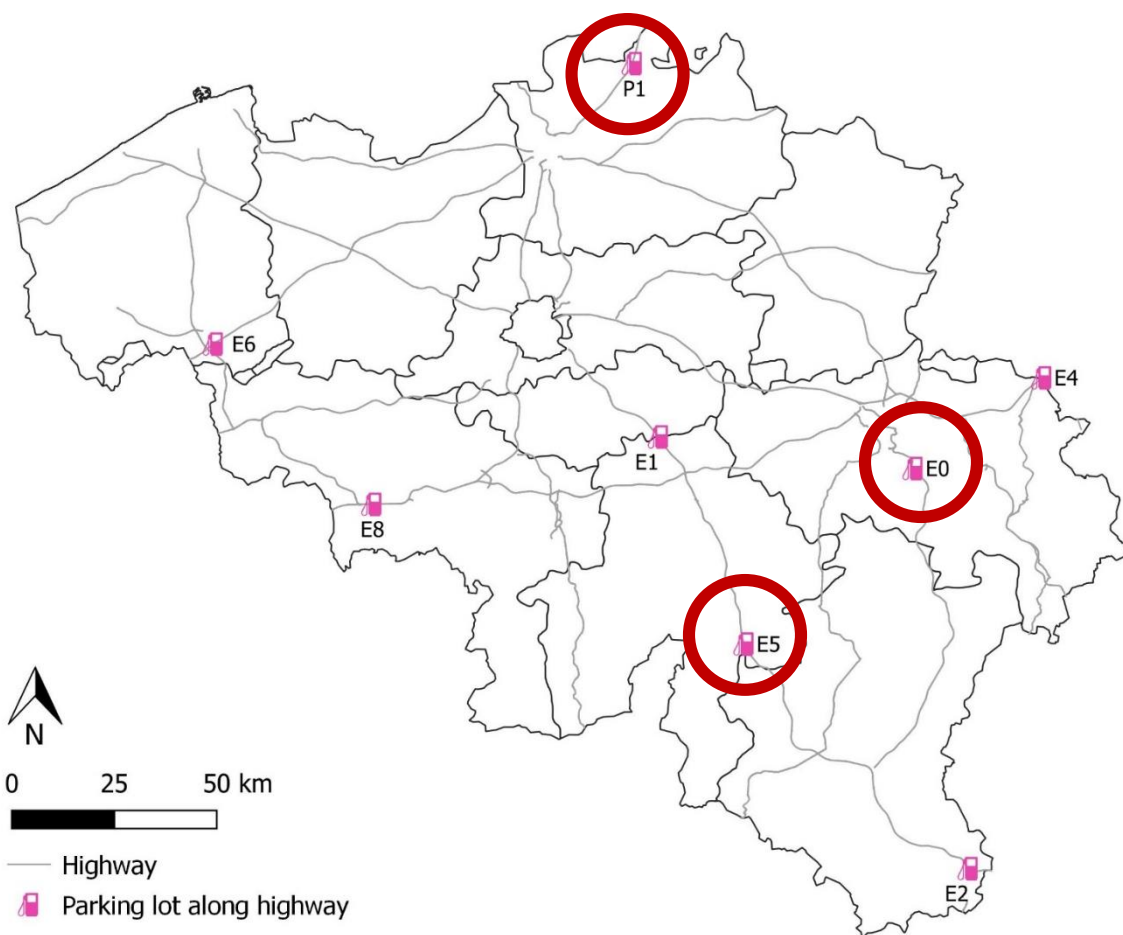
- All stages of *Ae. albopictus* found
- Up to 300 m from the notification
- Follow-up until end of October
- In total 75 eggs, 120 larvae, 23 pupae and 39 adults caught
- Introduction pathway = ?
- Control campaign (ANB)

August – October 2022

- All stages of *Ae. albopictus* found
- Follow-up until end September
- 78 larvae, 10 pupae, 14 females and 8 males of *Ae. albopictus* collected
- Introduction pathway = ?
- Control campaign (ANB)



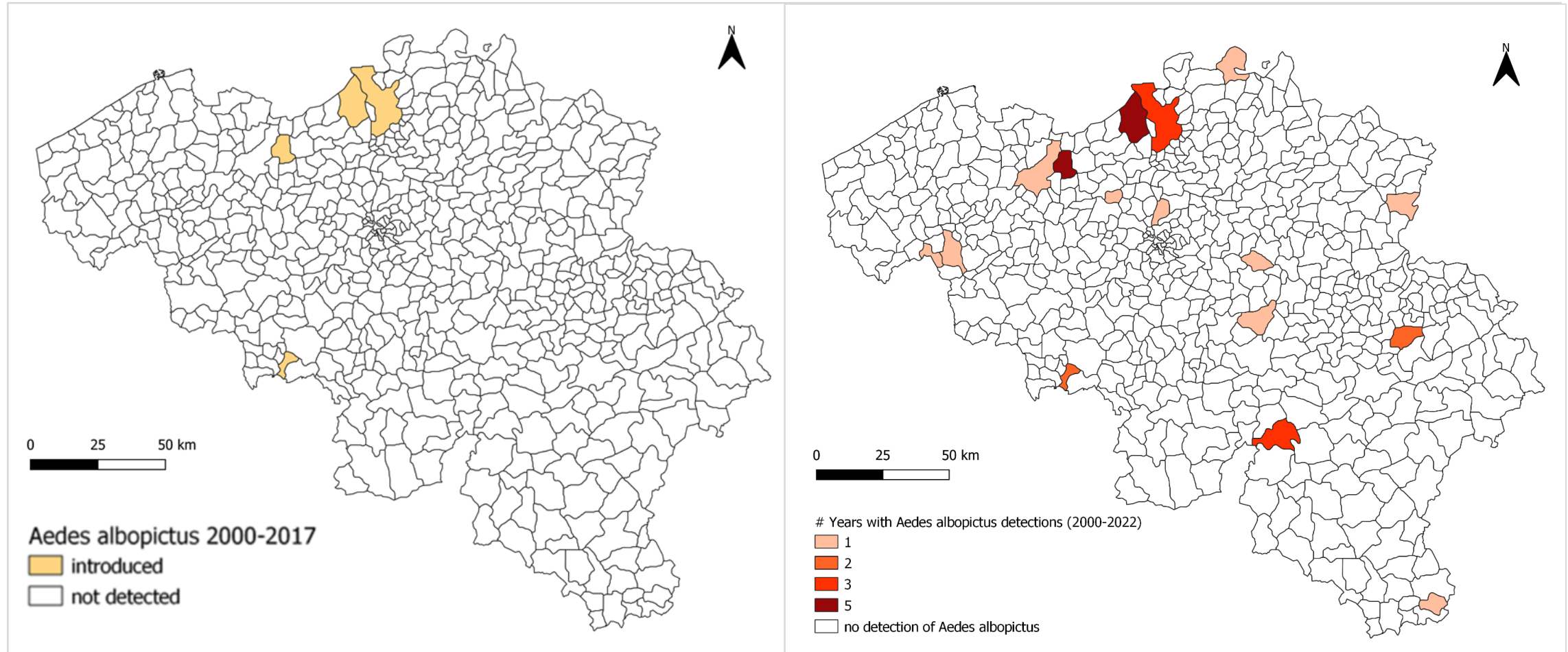
Results Active Surveillance



Parking lot	Location	2017	2018	2019	2020	2021	2022
E0	Sprimont						
E1	Aische-en-Refail						
E2	Hondelange						
E4	Raeren						
E5	Wanlin						
E6	Marke						
E8	Saint-Ghislain						
P1	Minderhout						

Surveillance done, not detected
 Aedes albopictus

Discussion



Conclusion

- **2022**
 - *Aedes albopictus* detected at 12 localities
 - Many more than in previous years !
 - Two locations with 'large' population
 - Important contribution of citizen science
- **Belgium at the invasion front of *Aedes albopictus***
 - Establishment can be expected in the coming years (if not already the case)
 - Integrated surveillance and control plan needed
- **Disease risk**
 - Integrated vector and disease surveillance needed in areas where the mosquito is established

Questions?

FUNDING

the FPS Health, Food Chain Safety and Environment within the framework of the National Environment and Health Action Plan (NEHAP)

the Flemish, Walloon and Brussels governments

ACKNOWLEDGMENTS

Javiera Rebolledo (Sciensano)

Valeska Laisnez (Sciensano)

Mara Kont (Imperial)

Tinne Lernout (Sciensano)

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