

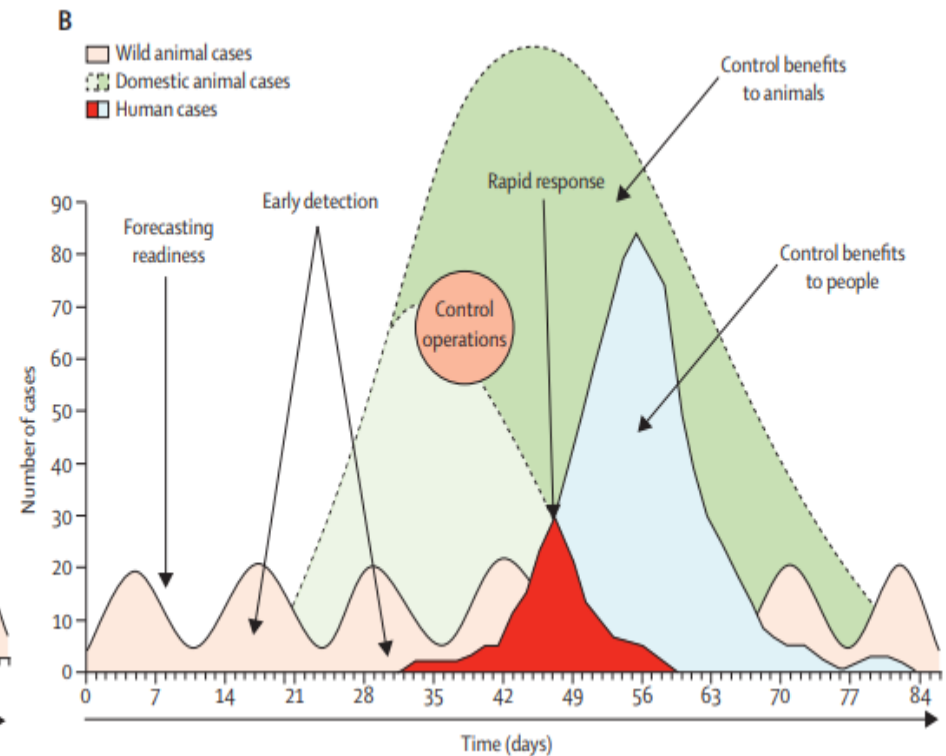
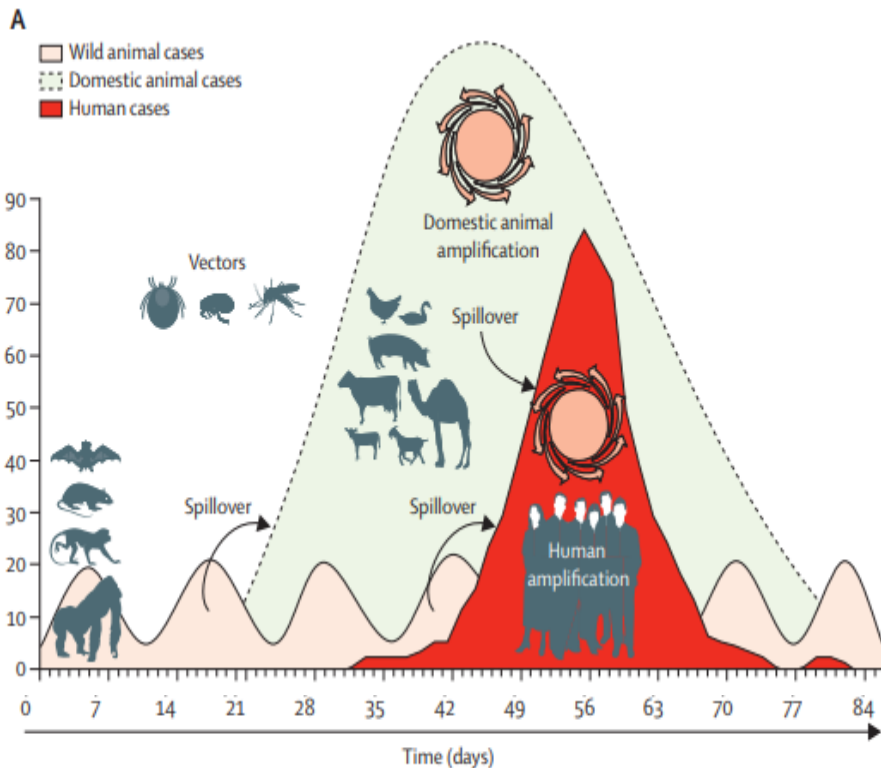
MONITORING OF ZOOONOTIC RISKS IN BELGIUM : SOME EXAMPLES

Biodiversity and Health Workshop, June 2023

T. Lernout, with input/slides from I. Deblauwe (ITG) and C. Barbezange (Sciensano)

Where it all starts....

Clinical relevance of disease ecology



Commonly reported barriers to implement multisectoral collaboration

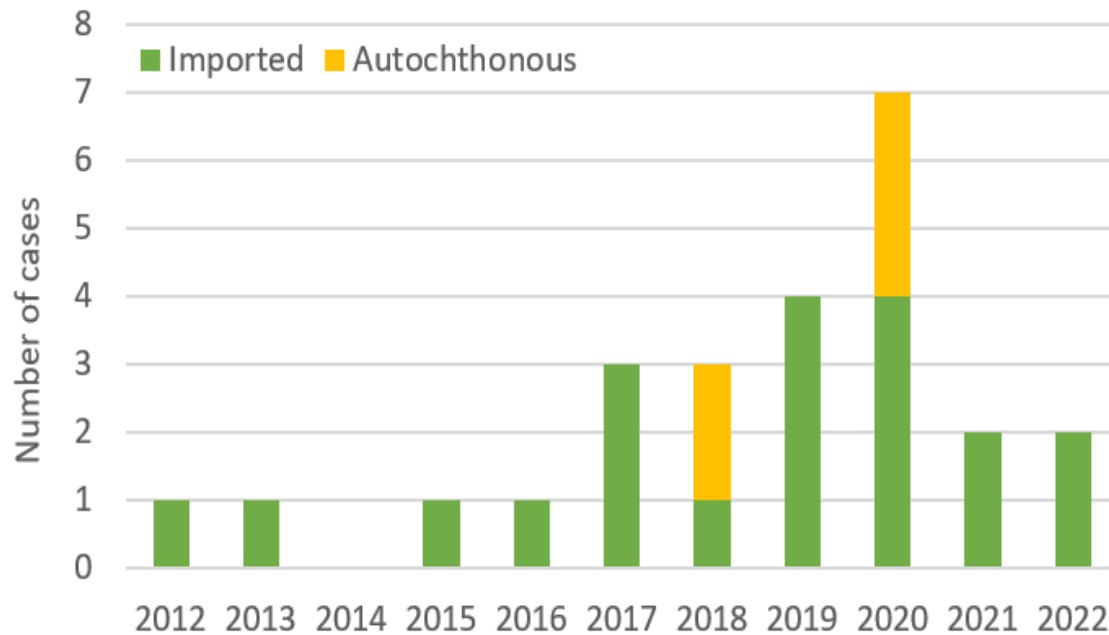
- Lack of information/knowledge/risk perception of stakeholders
- Difficult sustainability outside of outbreak situation
- Different professional cultures
- Complicated structures
- Lack of or complex financing sources

The example of tick-borne encephalitis

Surveillance in humans

Nb human cases of TBE and origin of infection,
Belgium, 2012-2022

Source: CNR arboviruses, ITM



Stoefs et al. Emerg Infect Dis 2021

Surveillance in animals

7 studies between 2009 and 2021 in dogs, cattle, wild boar, roe deer and sheep – prevalence between 0,11% to 9,27%. Indication increasing trend ?

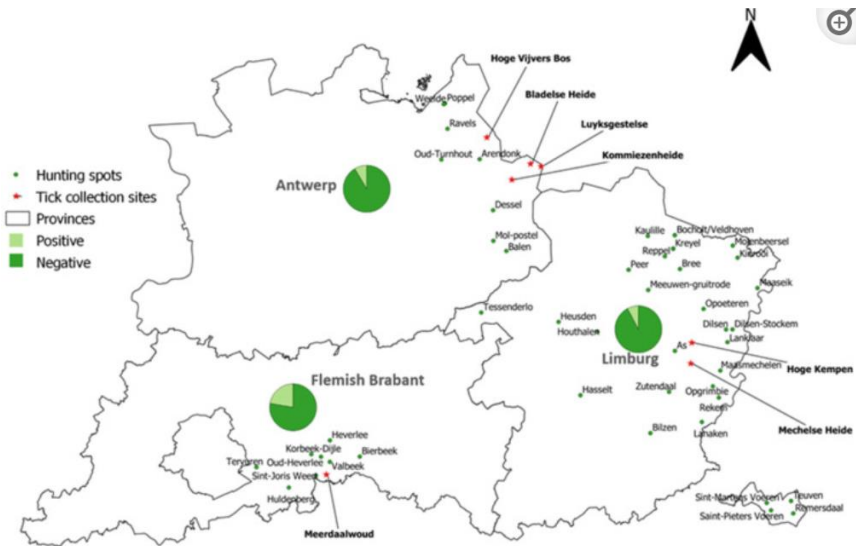
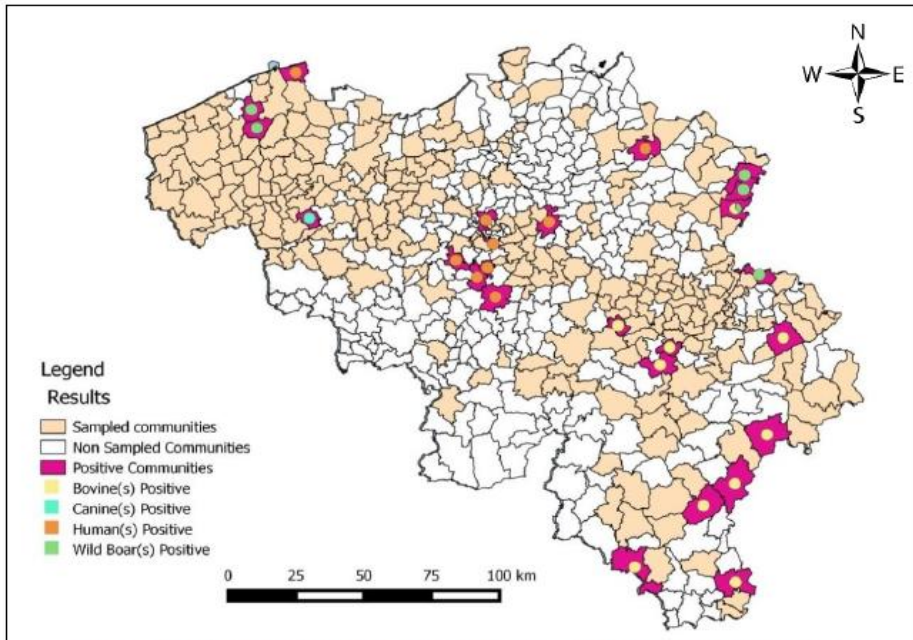
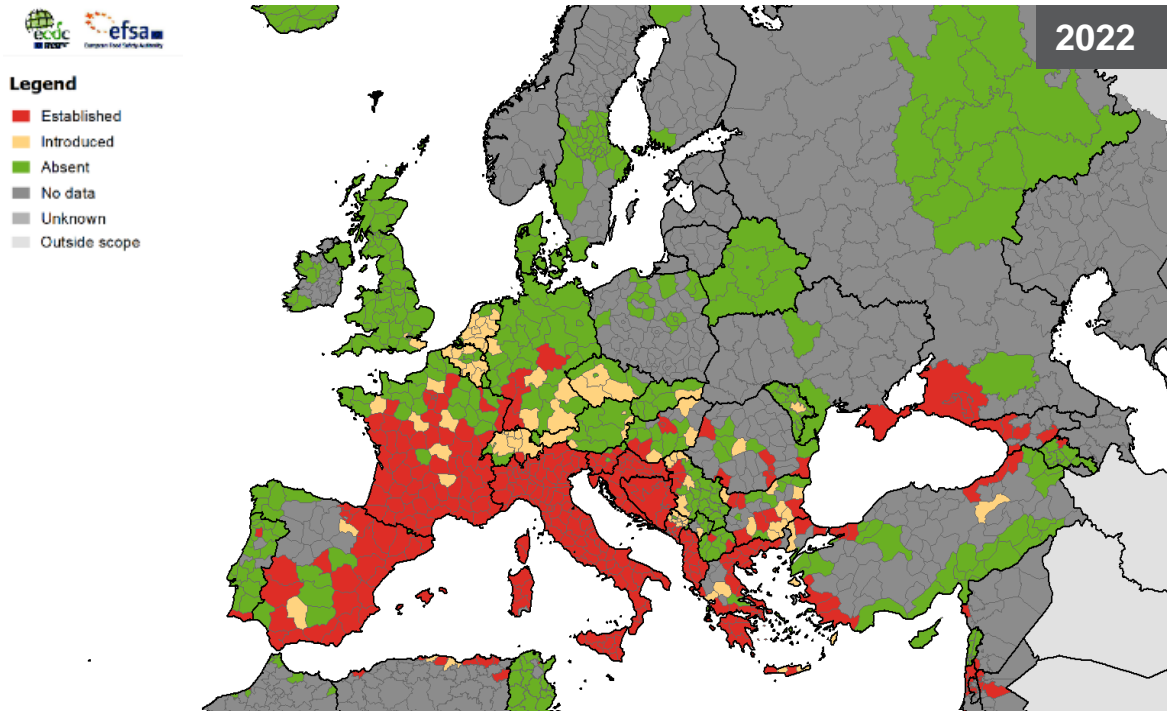


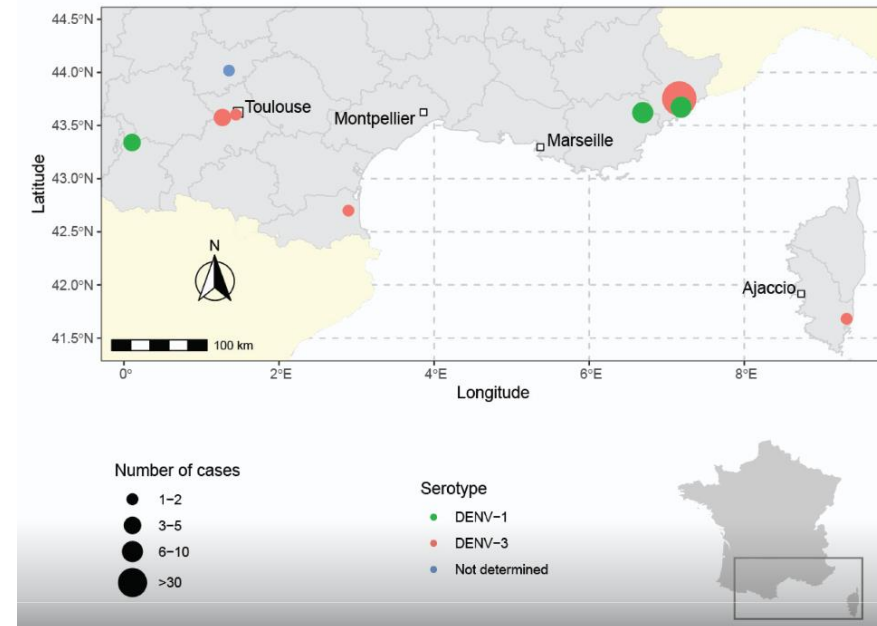
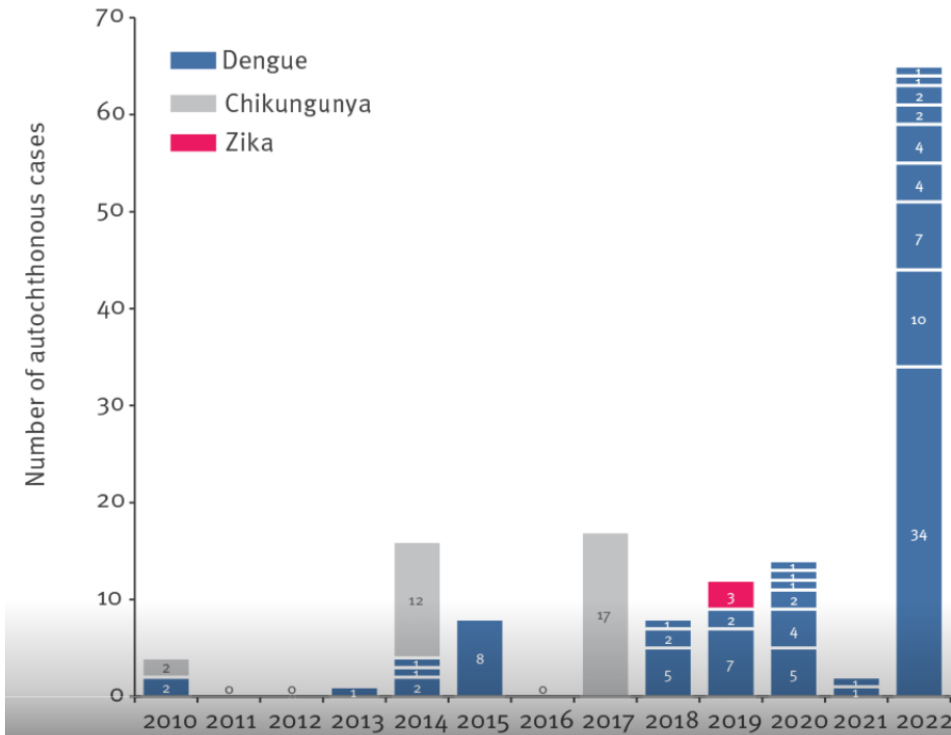
Figure VI-4. PhD Results: TBEV SNT-reactors in sampled Belgian communities.

Canine data (Roelandt et al., 2011; Chapter III), Bovine data (Roelandt et al., 2014; Chapter IV), Wild boar data: Roelandt et al., submitted; Chapter VI; Human data (source WIV-ISP 2009-2013)

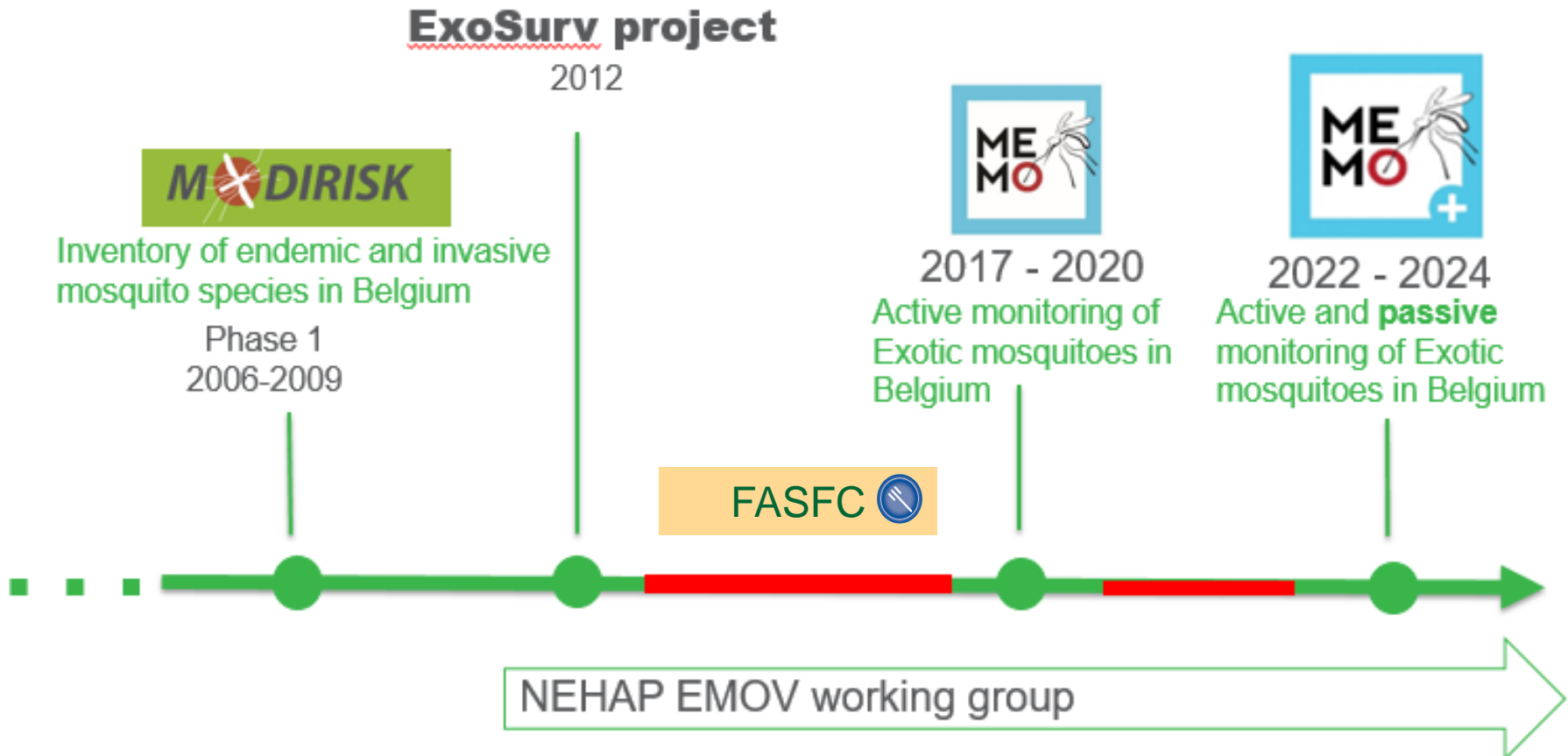
The example of mosquito-borne diseases



Autochthonous dengue in mainland France, 2022: geographical extension and incidence increase



Surveillance of (exotic) mosquitoes in Belgium



- Relies on two complementary parts:
 - passive surveillance based on citizen science (Sciensano)
 - active surveillance at 8 parking lots (Points of Entry) and field inspection where the presence of *Ae. albopictus* is suspected (ITM)
- Field inspections → door-to-door 100-500 m perimeter; larval sampling; oviposition traps; adult collection (optional)



Results of MEMO+

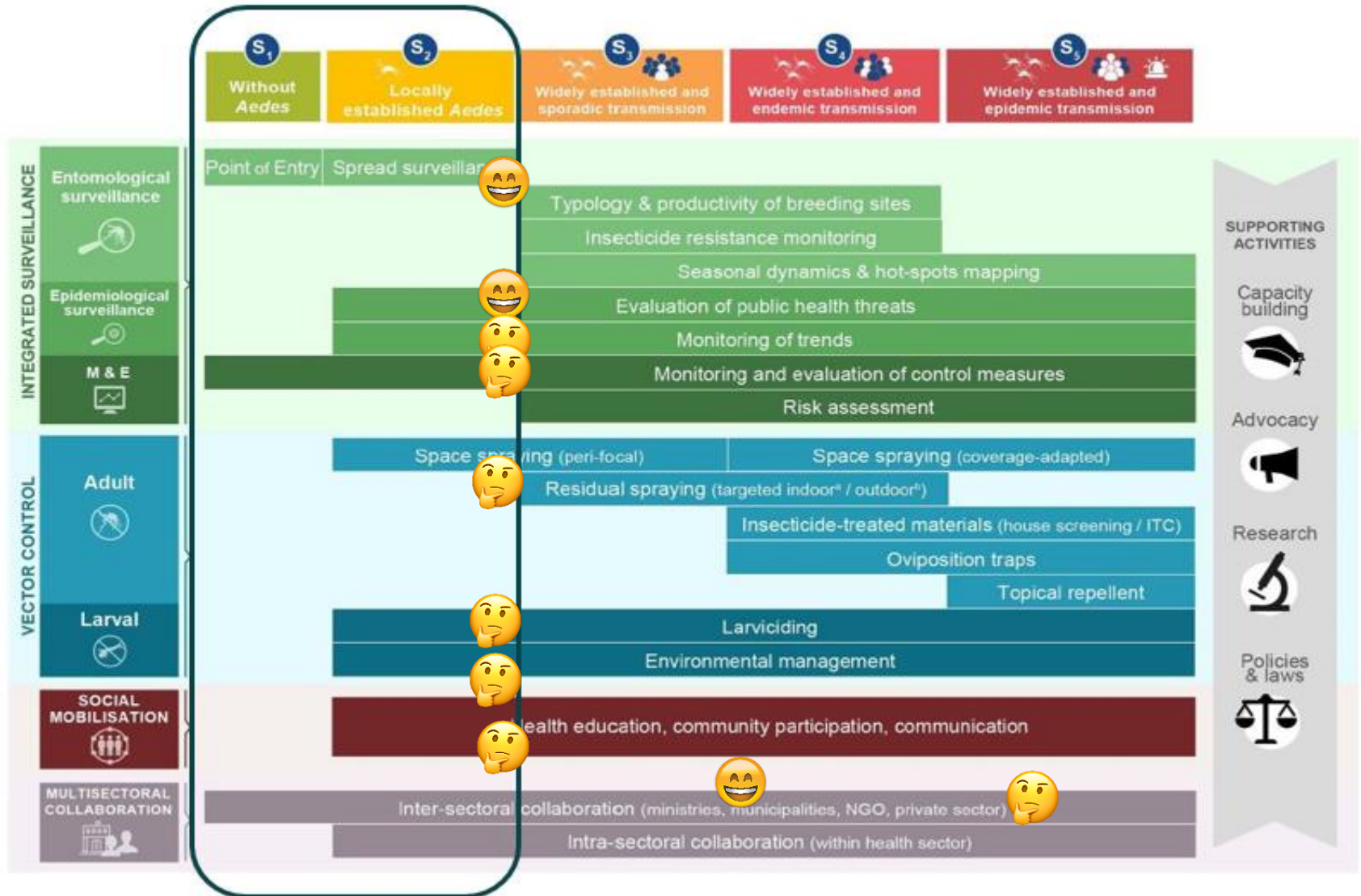
- **3 parking lots** through active monitoring
- **9 new locations** through passive monitoring

Overview of the tiger mosquito (*Aedes albopictus*) detections in 2022

The monitoring results of 2022 in Belgium indicate that the establishment of the tiger mosquito is in an early phase, most probably in a limited number of areas, and can still be eliminated. However, if no actions are taken, further expansion of these populations, to eventually the whole Belgian territory can be expected in the coming years. A structural surveillance, communication and control, is needed to slow down substantially the establishment and spread of *Ae. albopictus*. The extra time will help the country to prepare a national action plan by the time a local case of dengue, chikungunya or Zika is discovered.

 Detection through active monitoring on parking lot

Towards integrated *Aedes* management in Belgium



The example of influenza

Clade 2.3.4.4b HP H5Nx

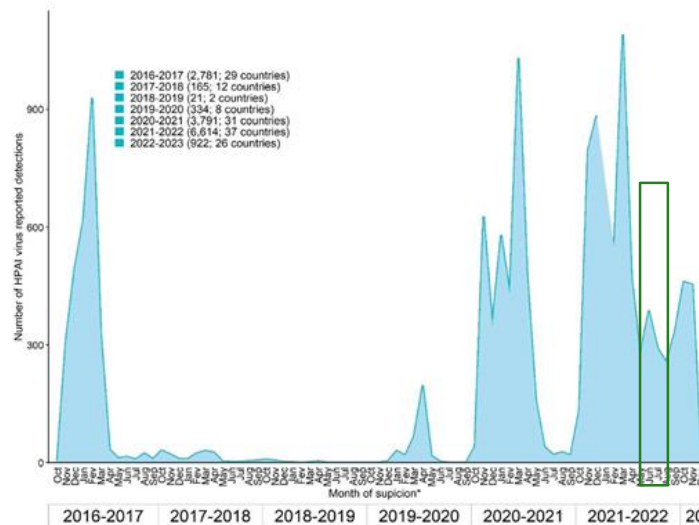
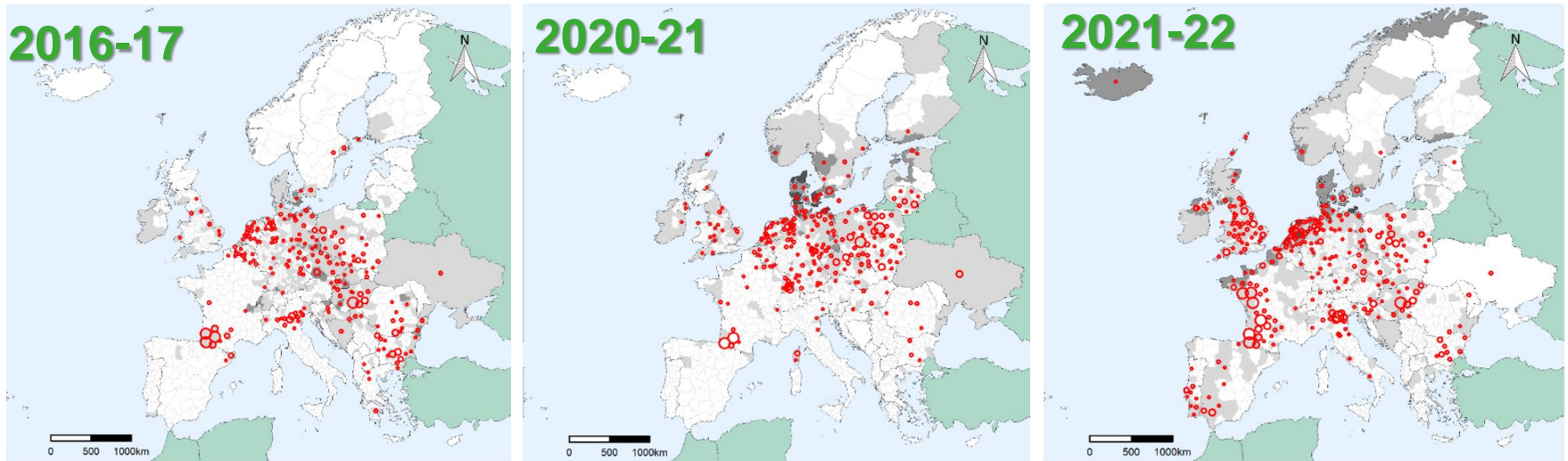
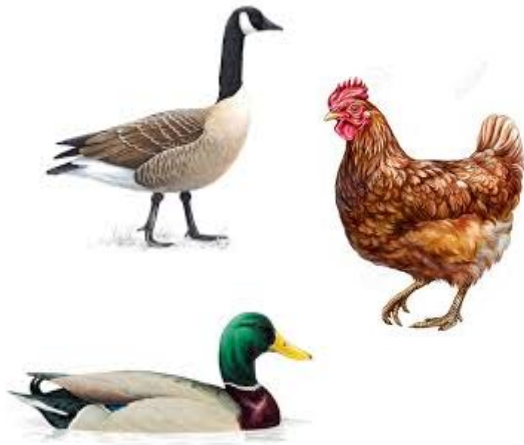


Figure 1: Geographical distribution of HPAI detections in Europe in seasons 2021–2022 in domestic birds (red circles) and wild birds (grey coloured area).

Existing surveillance systems

For avian influenza in birds



for poultry:

Active surveillance

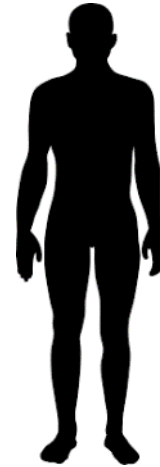
clinical (viro) & serology

for wild birds

Passive surveillance

cadavers

For seasonal influenza in humans

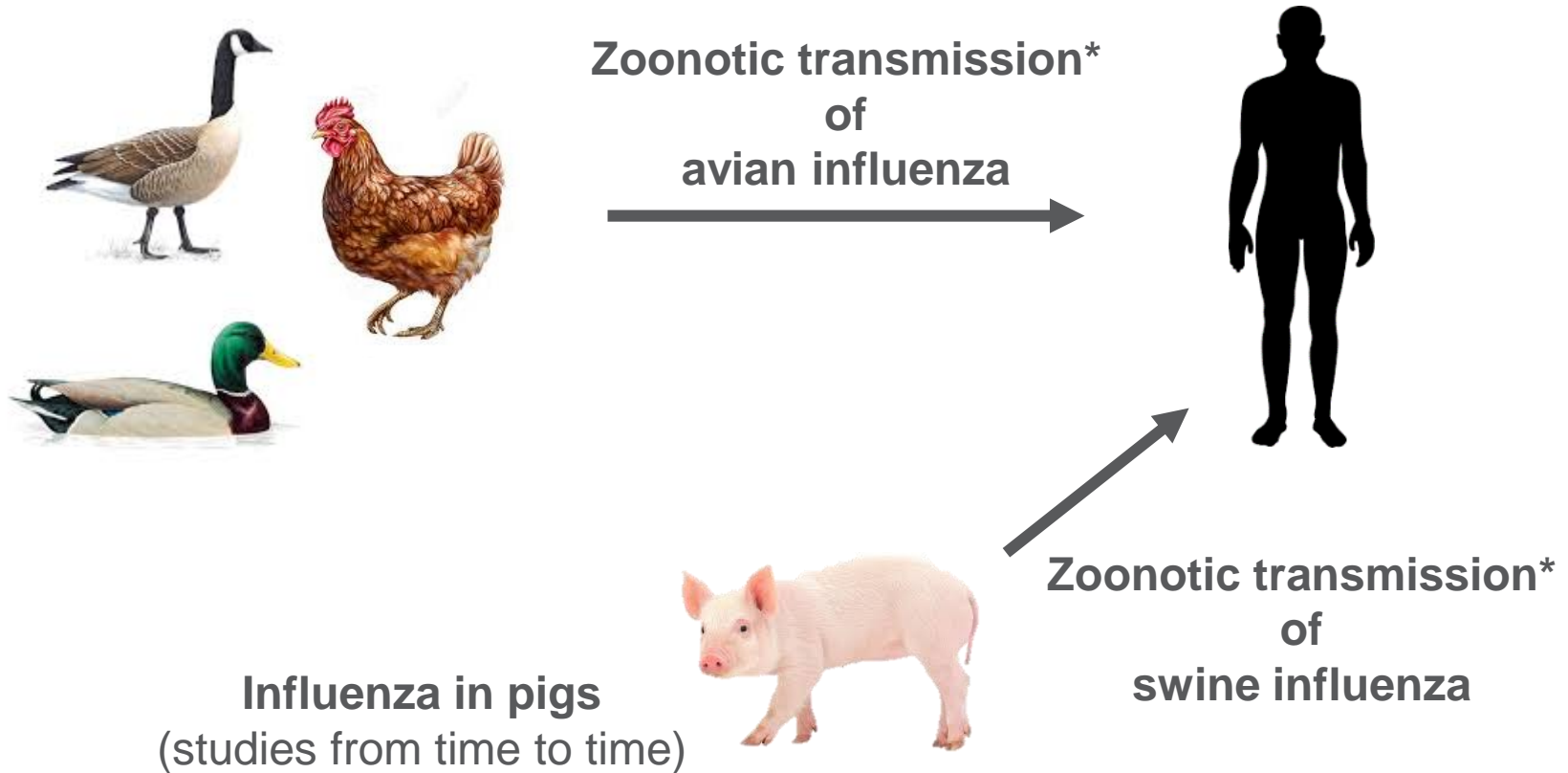


Sentinel surveillance:

ILI/ARI (GPs)

SARI (hospitals)

Gaps in surveillance



* Influenza of non-seasonal subtype in symptomatic human: notifiable

Given situation in birds...

March 2022:

Meeting with health authorities

- **Federal: FPS, FAFSC**
- **Regional: Flanders, Wallonia, Brussels**

both human and animal sides invited

Summer 2022:

**Passive surveillance for wild mammals
funded by regions**



November 2022:

**Flemish regional health authority: budget available for a Pilot project
ZOOIS, start sampling planned September 2023 – December 2024**

ZOOIS: sampling of humans

Sentinel:

nasopharyngeal swab every 2 weeks (self-swabbing)

Outbreak:

nasopharyngeal swab every 2 days (self-swabbing)

blood samples (before or early during event and 4 weeks after event)

Poultry farms

outbreak

unlimited

sentinel

5 sites x 3 people

**Wild bird
rehabilitation
centres**

sentinel

5 sites x 5 people

**Veterinarians
in
pig industry**

sentinel

15 vets

Contact

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