STOP VESPA ASIATICA

DISAFA Università degli studi di Torino

POLITECNICO DI TORINO

Associazione Produttori Miele Piemonte

The LIFE STOPVESPA project: establishment of an Early Warning and Rapid Response System and spatial containment of Vespa velutina's populations in Italy

Lioy S[1], Bertolino S[2], Manino A[1], Laurino D[1], Porporato M[1]

[1]DISAFA & [2]DBIOS, University of Turin

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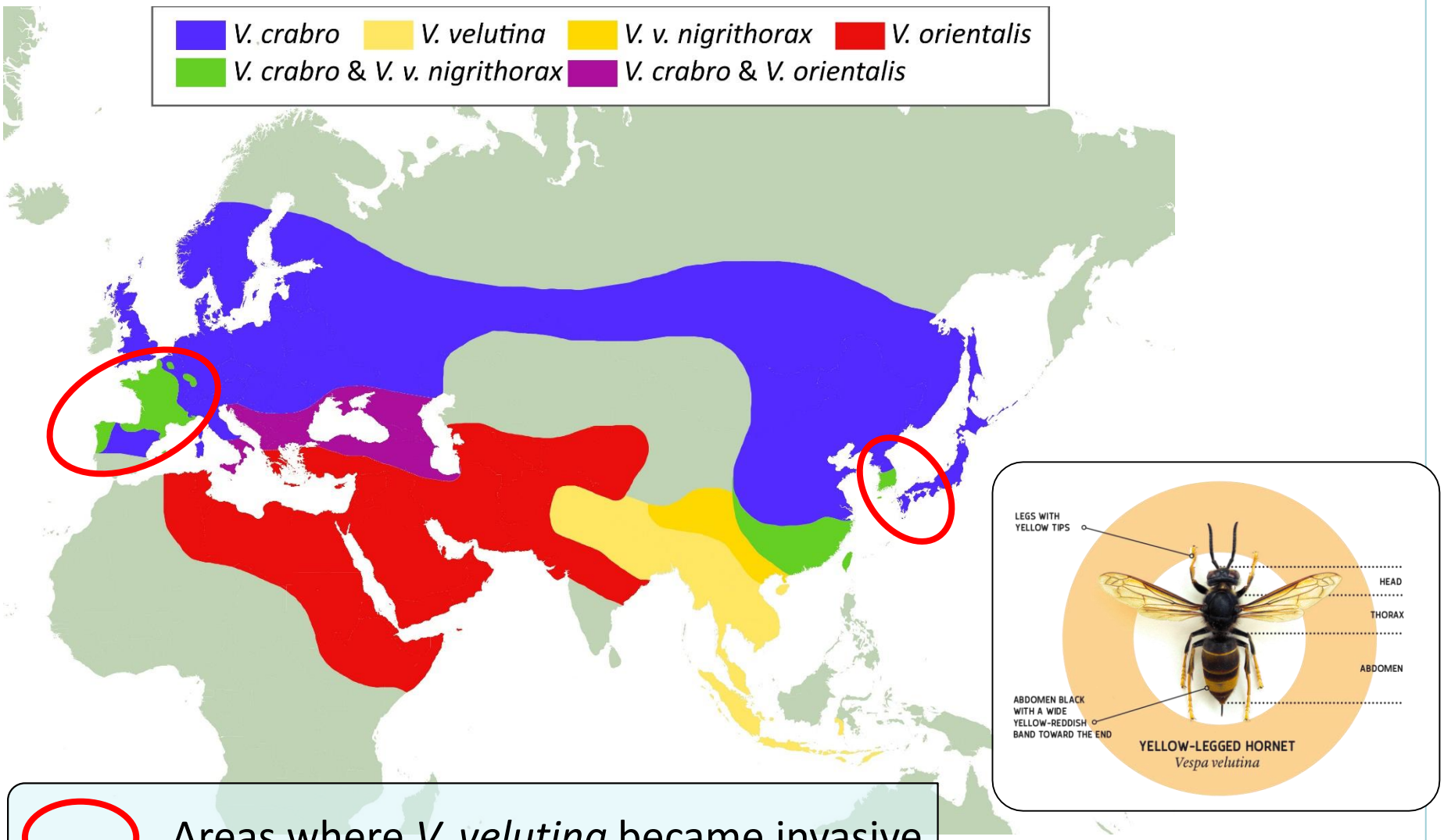
Alien squirrels and other IAS (Invasive Alien Species): impacts and comparison of management experiences

13 April 2018, Perugia, Italy

The yellow-legged hornet *Vespa velutina*

The species, native to South-East Asia, was introduced in France in 2004



Areas where *V. velutina* became invasive

The diffusion in Europe

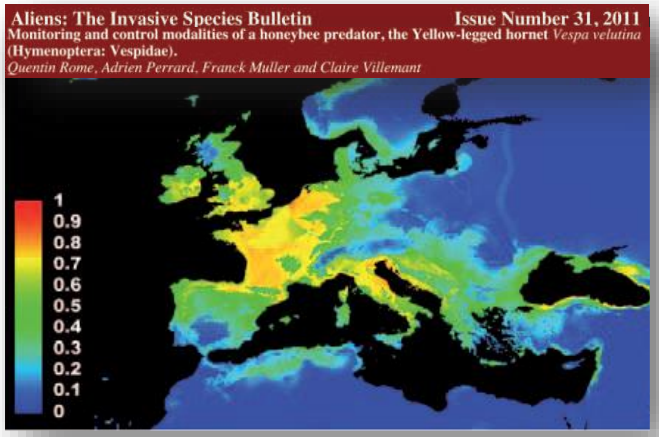
The hornet is an invasive alien species in Europe that is colonizing Italy and many other countries at impressive speed

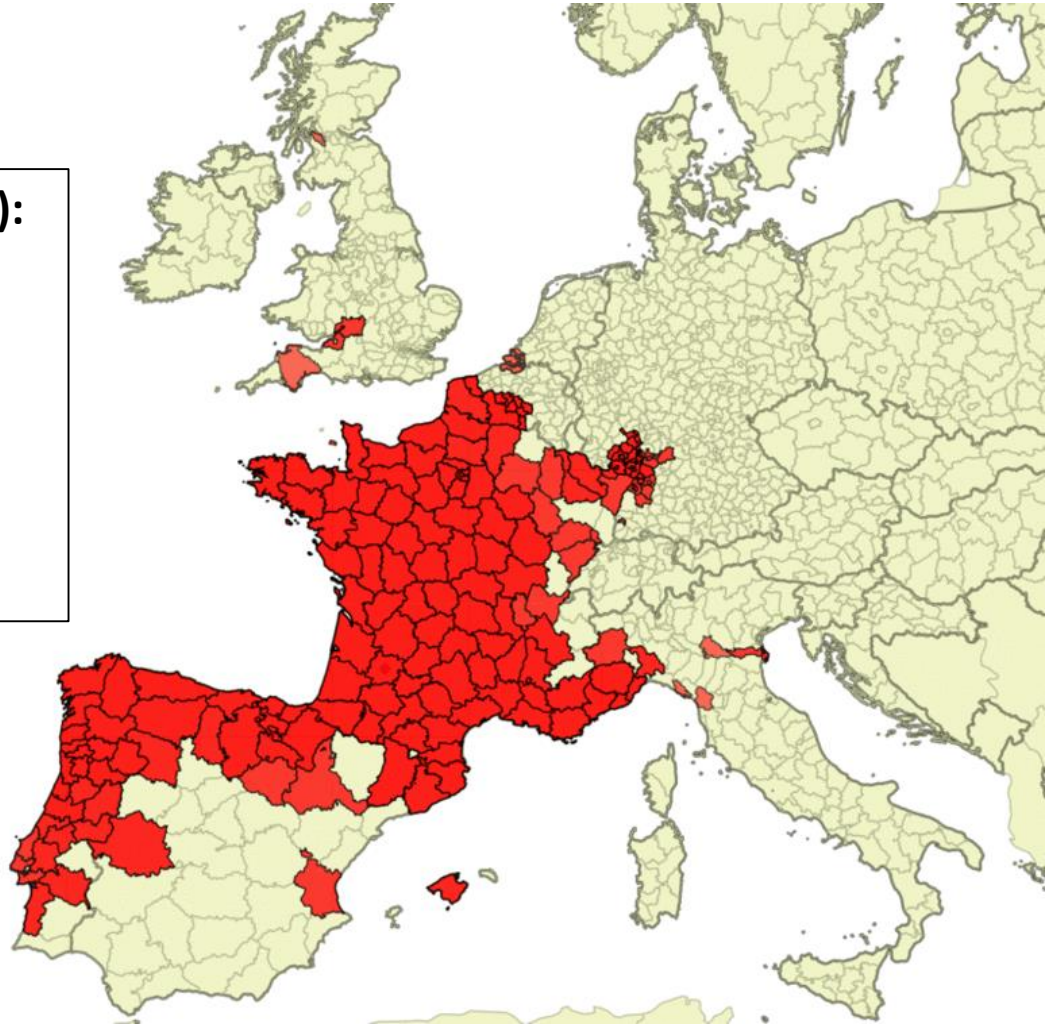
2017

Colonized countries (presence of nests):

- France
- Spain
- Portugal
- Italy
- Belgium
- Germany
- Great Britain

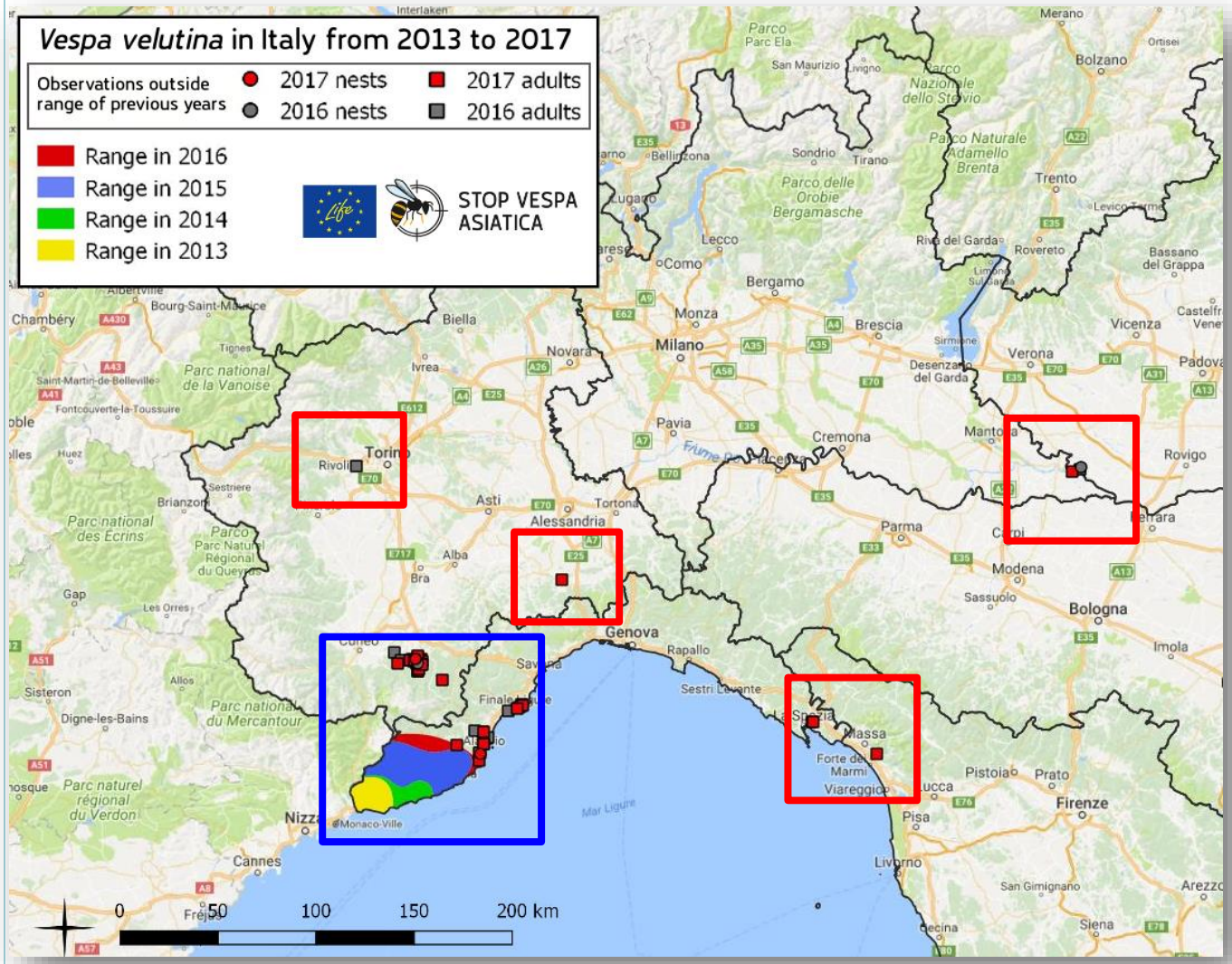
Reports of adults also from:
Switzerland and Netherlands





The Italian situation

Lower spread rate in Liguria than in Europe: **18.3 ± 3.3 km/year**
(Bertolino et al. 2016)



Spread modalities:

Natural diffusion

Passive transport

Founder queens hibernate in tree cavities, wood, straw, soil, …

The issues associated with *V. velutina* diffusion

Economic impacts on beekeeping, impacts on **biodiversity** and **pollination services** associated with honeybees and wild bees activity

Alarm and states of anxiety in citizens

IAS of Union Concern (EU 1143/2014, EU 1141/2016)

STOP VESPA ASIATICA

The LIFE STOPVESPA project

Spatial containment of *Vespa velutina* in Italy and establishment of an Early Warning and Rapid Response System

Coordinating Beneficiary:

Università di Torino – Dipartimento di Scienze Agrarie, Forestali e Alimentari

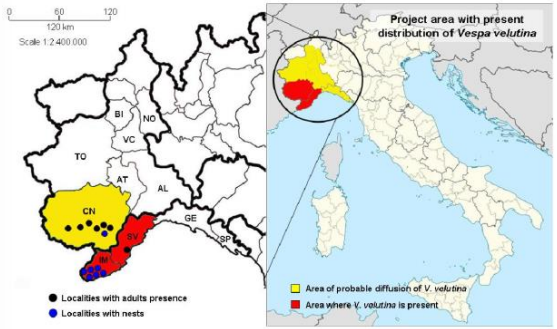
Associated Beneficiaries:

Politecnico di Torino – Dipartimento di Elettronica e Telecomunicazioni

Associazione Regionale Produttori Apistici del Piemonte – ASPROMIELE

Abbazia dei Padri Benedettini Santa Maria di Finalpia

Project Area

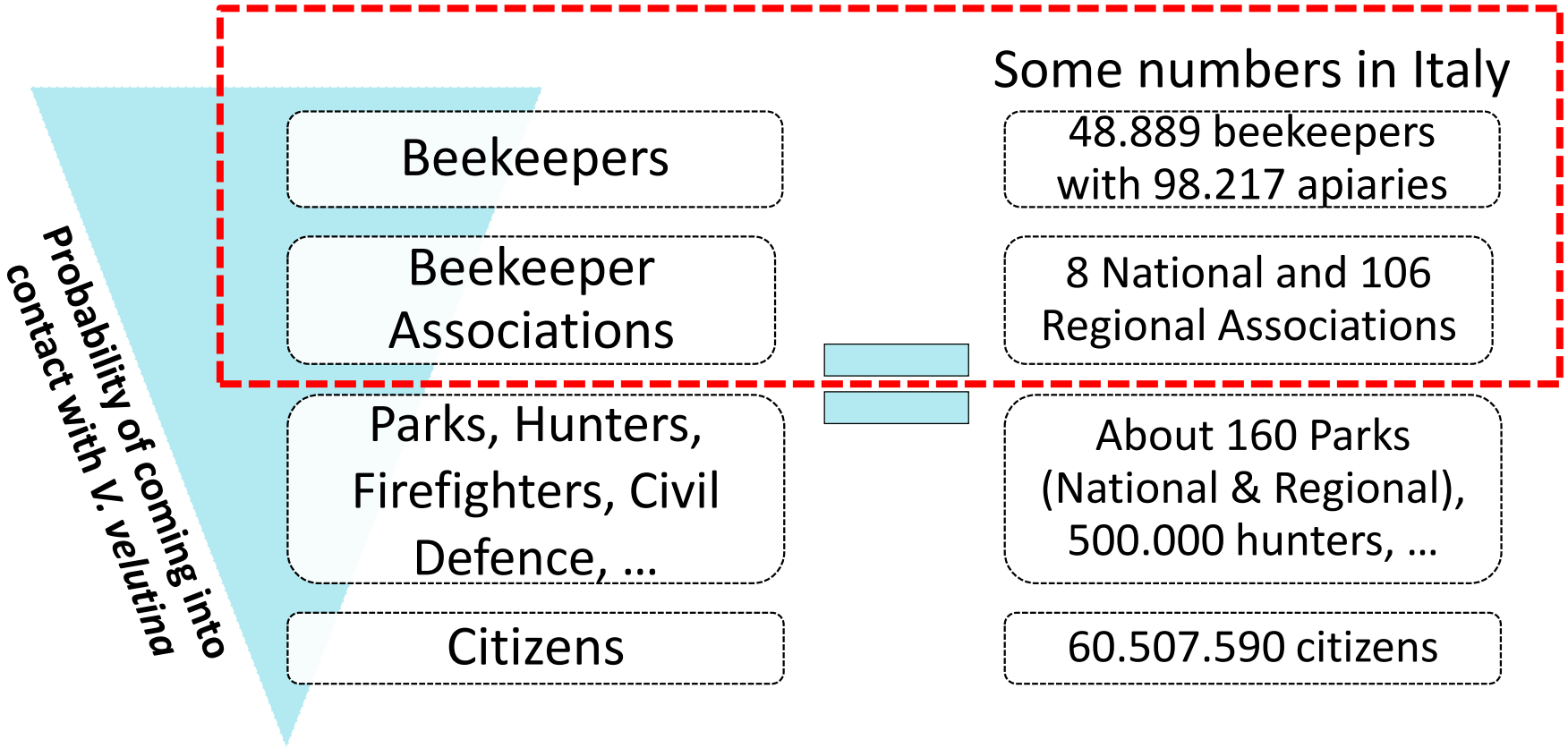


Period:
08/2015 – 07/2019

Budget:
2.273.738 €
(60% funded by EU)

The Early Warning System

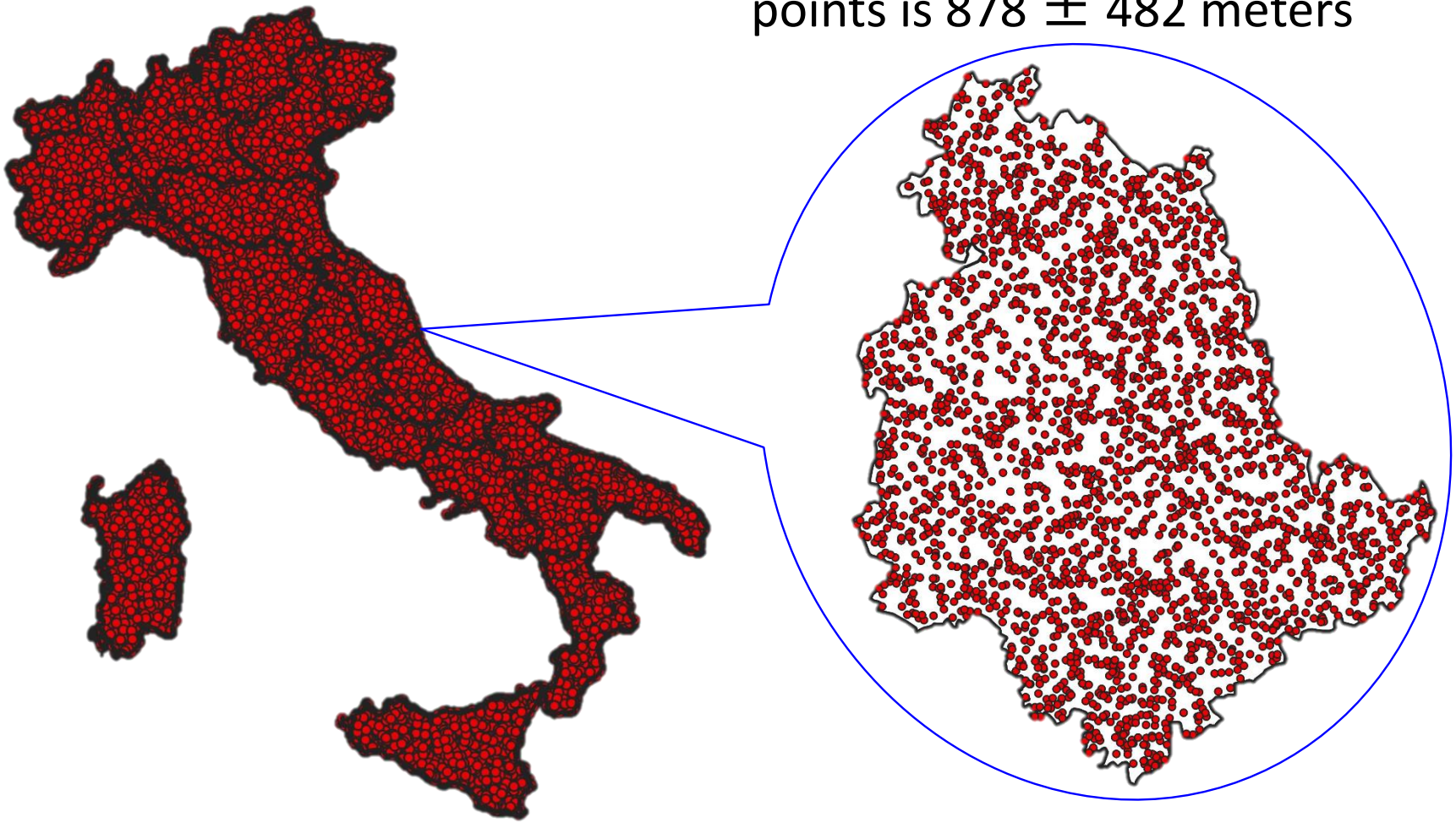
Identification of subjects and stakeholders to be involved in the monitoring network



The Early Warning System

98.217 random points in Italy to simulate the 98.217 apiaries

A zoom for Umbria region, the mean distance between points is 878 ± 482 meters



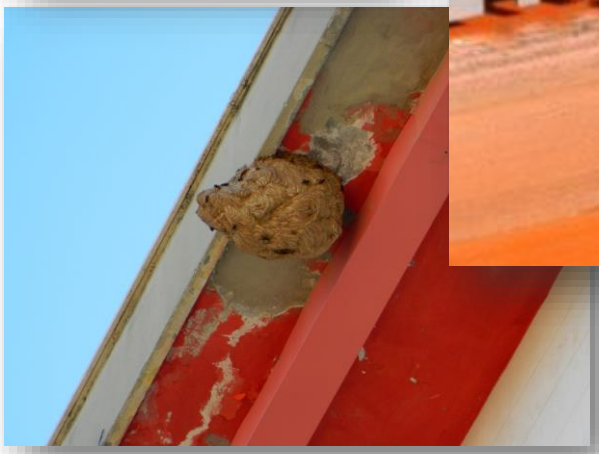
Of course this is a simplification of reality

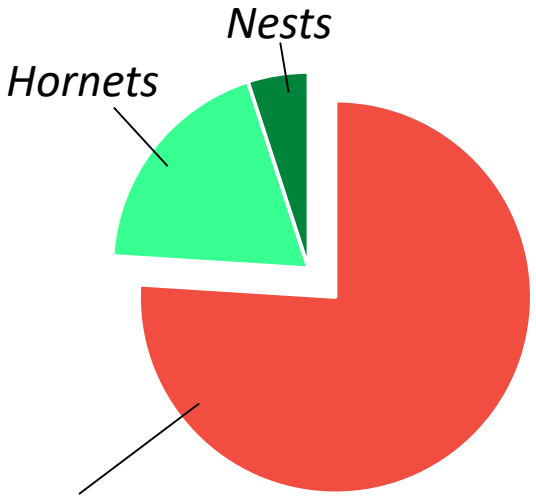
The Early Warning System

A widespread network already available, able to monitor *V. velutina* in a sustainable and economic way by:

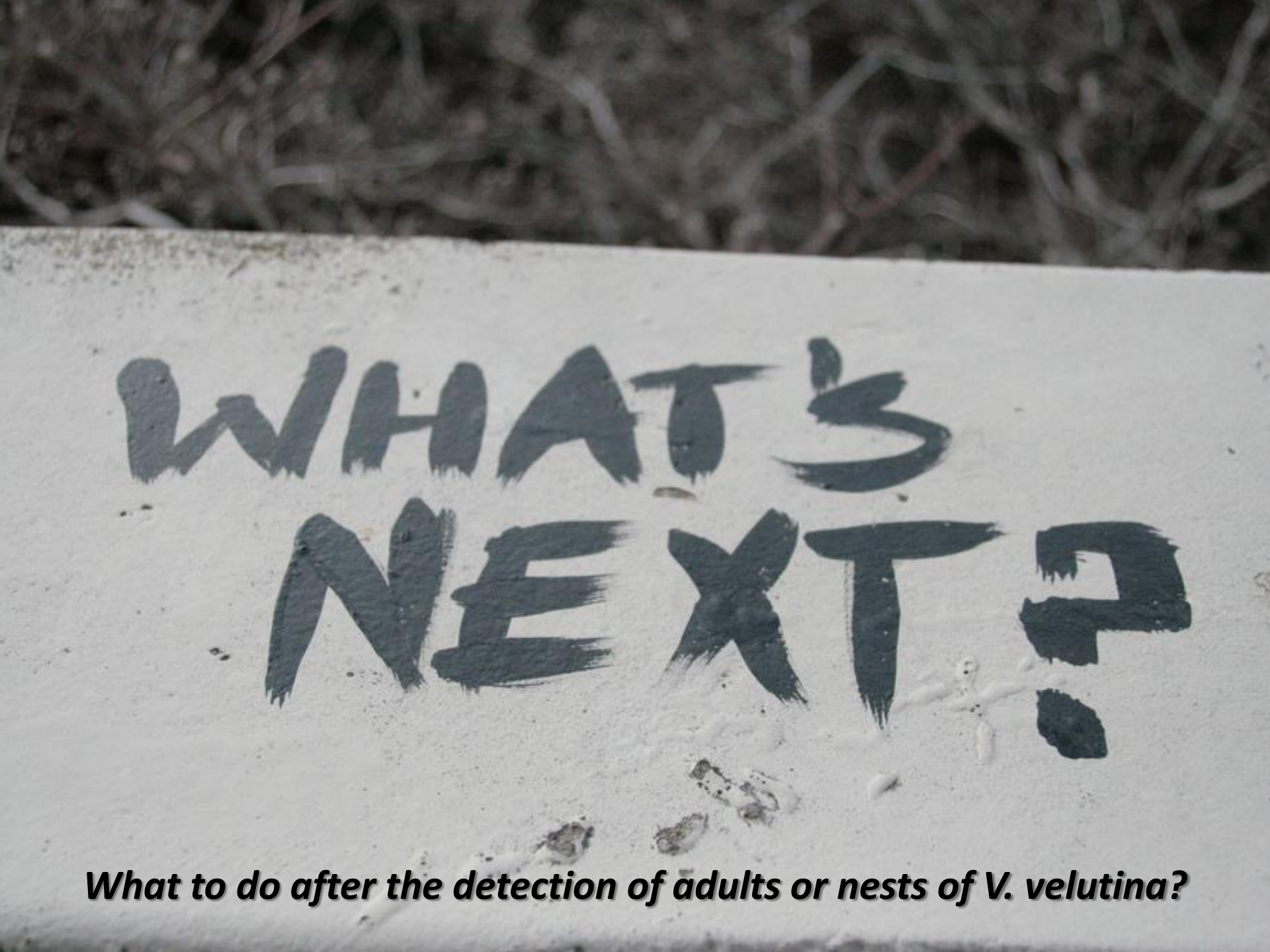
- Report the presence of hornets in apiaries
- Report the presence of nests
- Placing monitoring bottle-traps for hornets

No extra effort in respect to beekeepers' normal activity





<u>Pay attention to false reports, could reach 76% of the received reports</u>

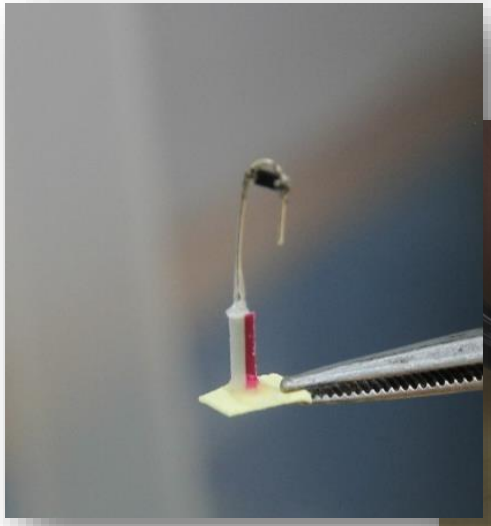


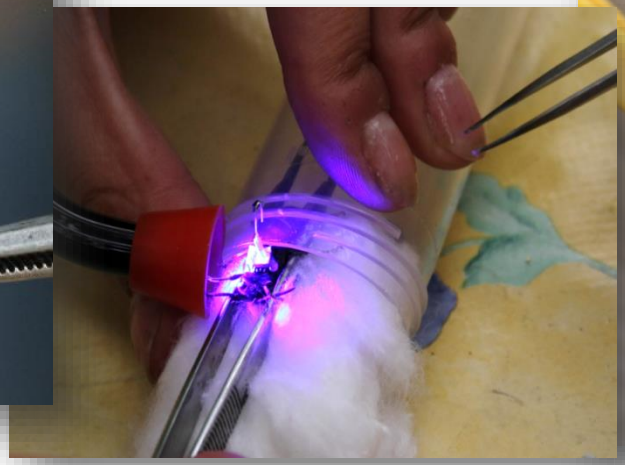
What to do after the detection of adults or nests of V. velutina?

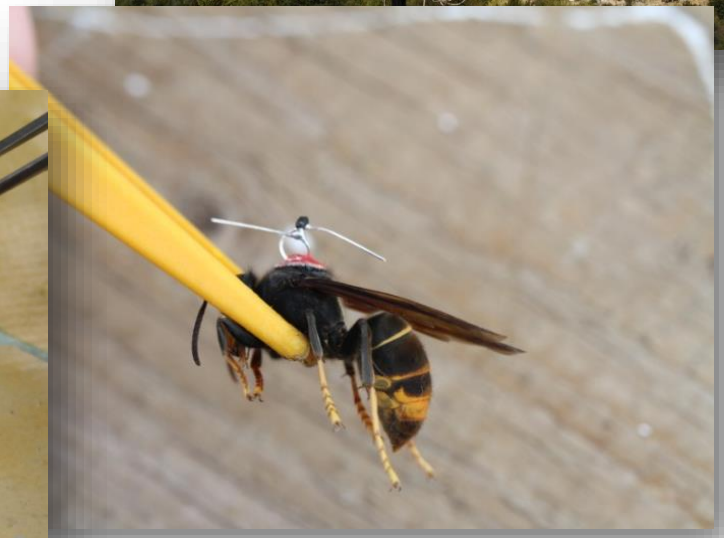
The Rapid Response System – The Harmonic Radar

Detection of adults, in particular in new areas of invasion far away from the colonized area

The LIFE STOPVESPA project has developed a **Harmonic Radar prototype able to track the hornets** flying back to their nests, so as to early detect and remove the nests



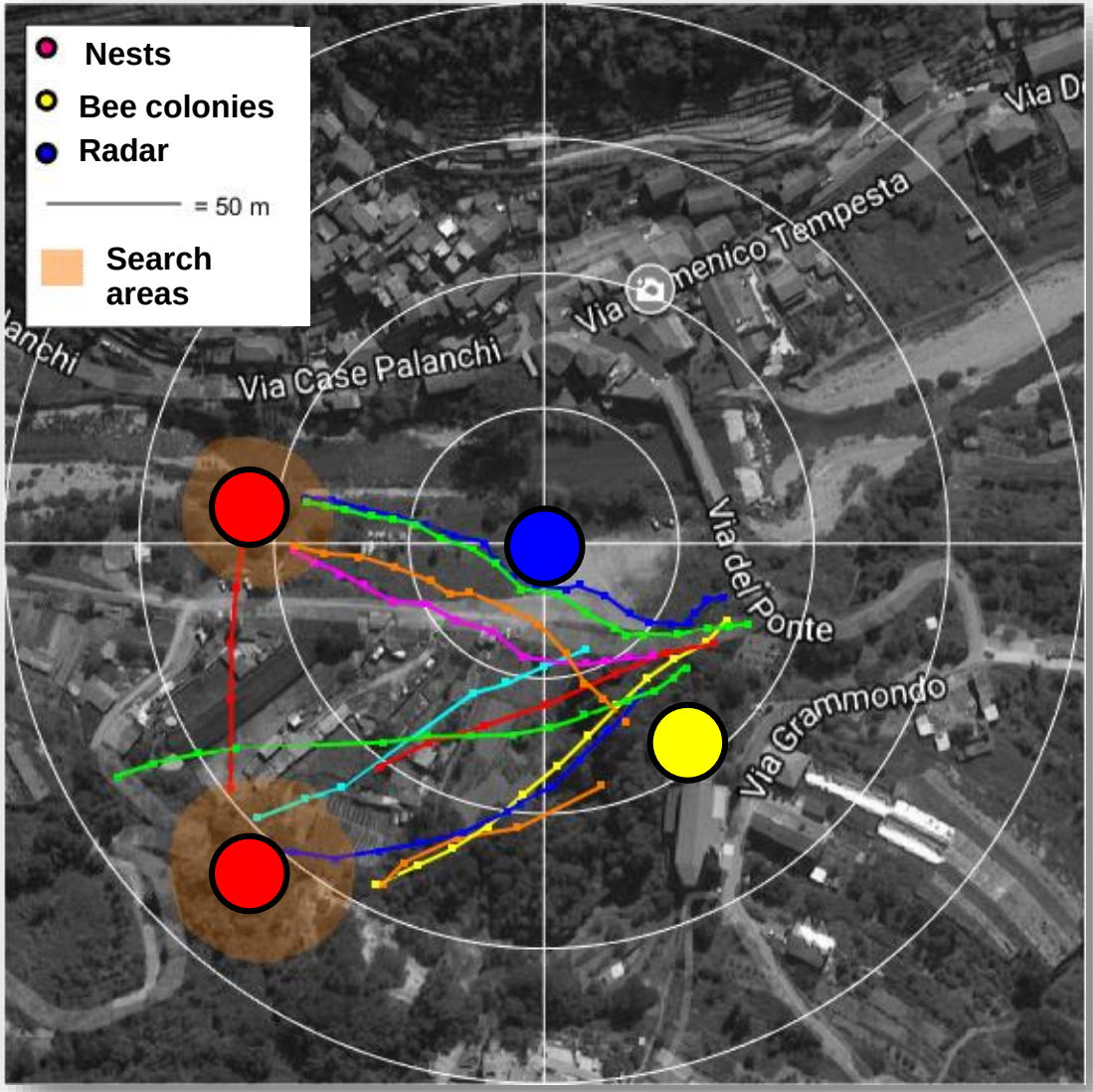




The Rapid Response System – The Harmonic Radar

Hornets are able to fly with the tag, prey honeybees and fly back to their nests. Tagged hornets could be followed up to 10 days

The Rapid Response System – The Harmonic Radar



Radius detection range of **470 m** in controlled conditions

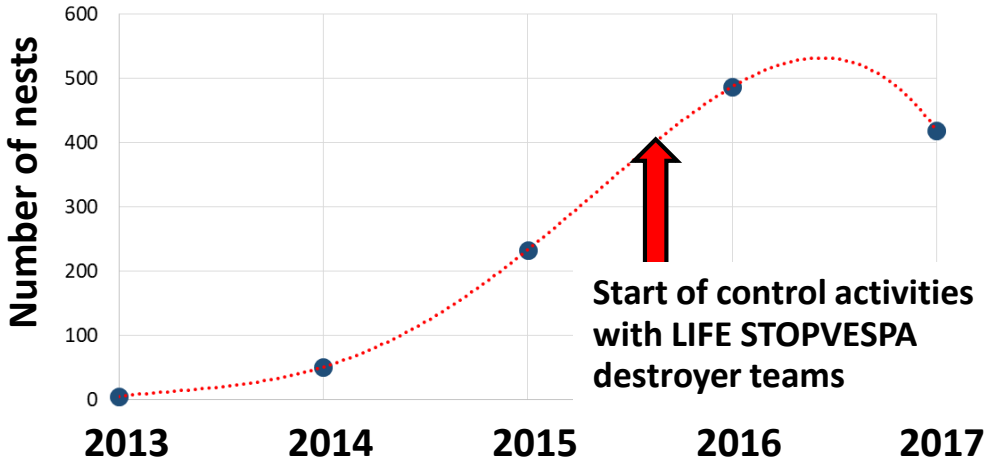
The Rapid Response System – Nest Destruction Strategy

Detection of nests

- Trained teams able to remove the nests
- Collaborations with Firefighters teams
- Collaborations with Civil Defence teams
- Involvement of Regional Authorities, Municipalities, Local Police, …

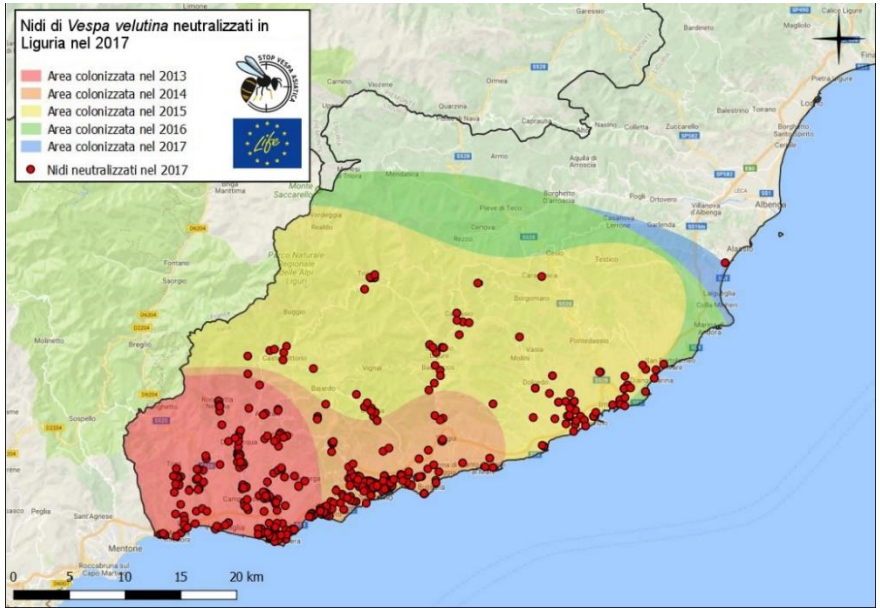
A preliminary result of the containment strategy in Liguria

Trend of *V. velutina* nests number in Liguria region



Diffusion of *V. velutina* in Liguria region

Year	N° Nests	Colonized area (km2)
2013	5	205
2014	51	346
2015	233	930
2016	487	1086
2017	419	1110



Many factors may have contributed to this trend, among them also nest destruction and trapping of hornets

Containment activity should continue and EWRRS extended at least in nearby regions

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Thank you for your attention

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