Impatto in apicoltura e tecniche di controllo di Vespa velutina

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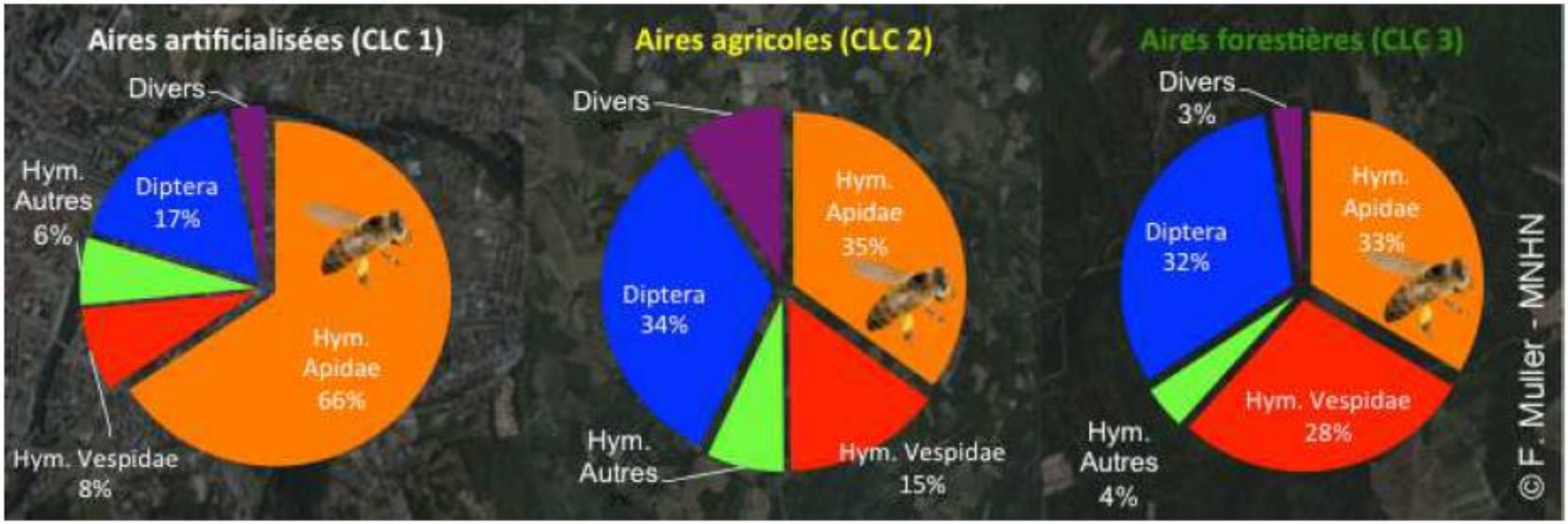
Istituto Zooprofilattico Sperimentale Lazio e Toscana

Montefiascone
Rocca dei Papi
17 febbraio 2024

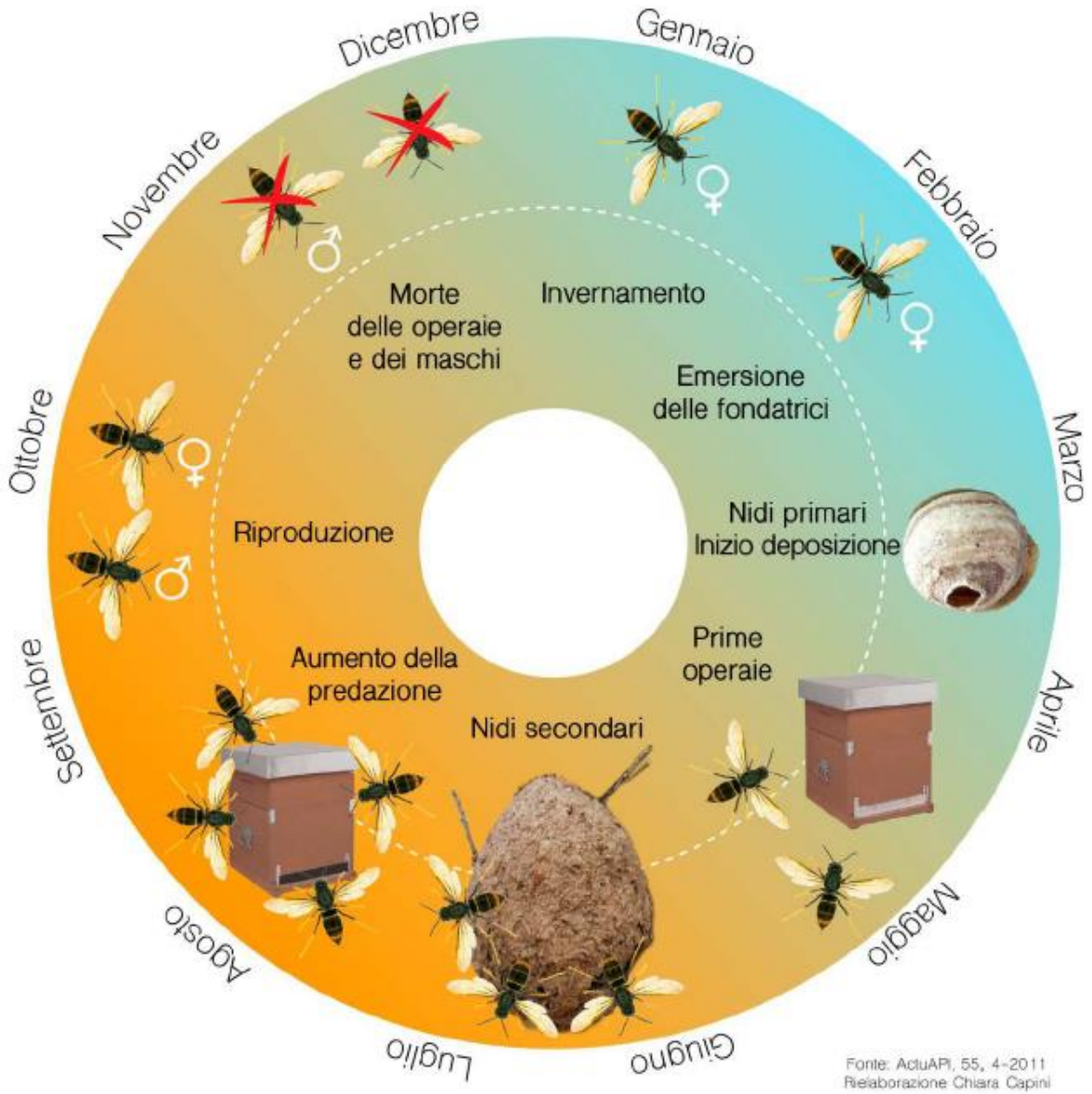
Video apiario

Quali prede?

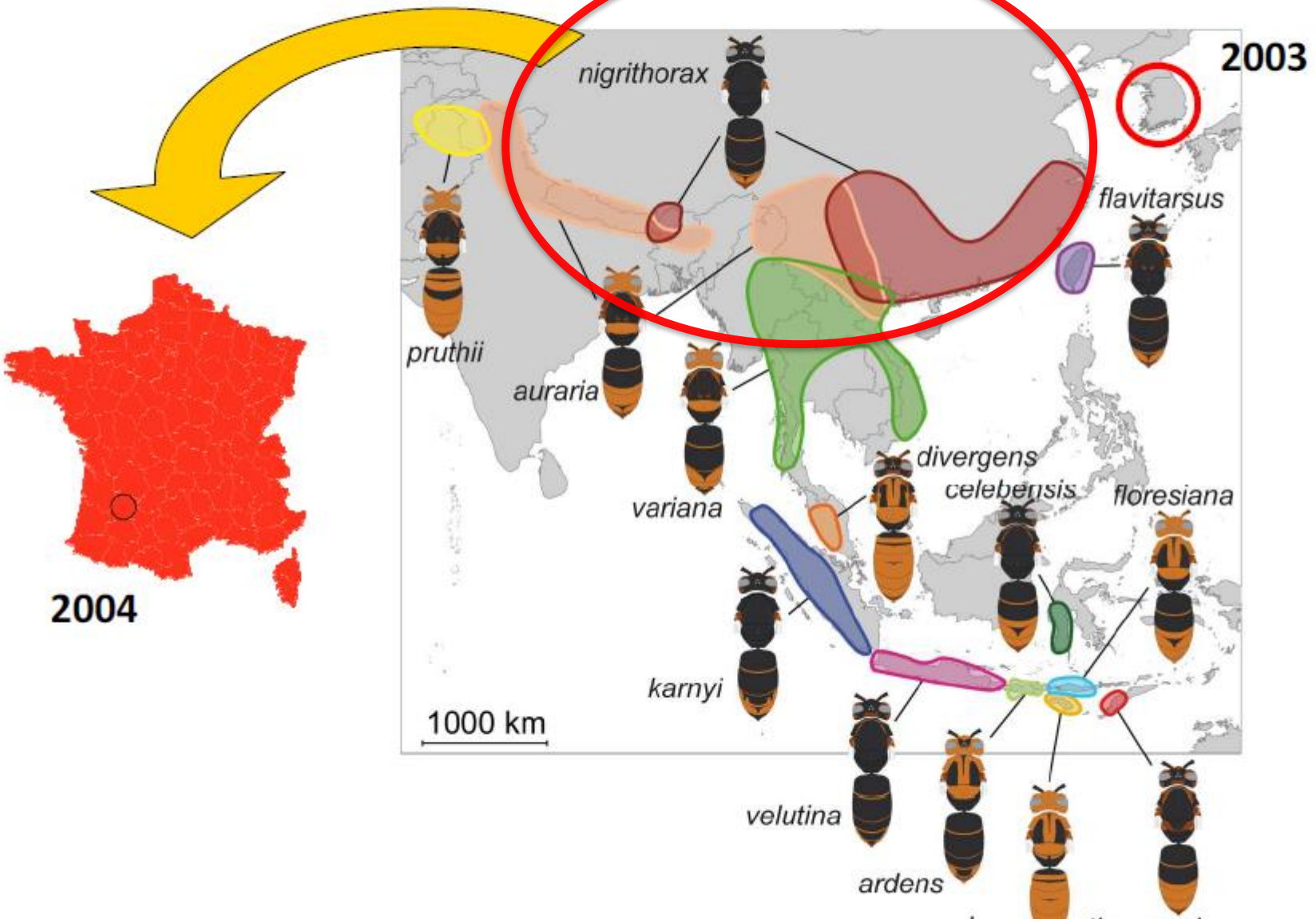


Rome *et al.*, 2011

Il ciclo biologico



Vespa velutina: da dove viene?



Scheda identificativa

Potenziali errori con nidi di vespe

Se si stampa questa pagina su un foglio A4, gli insetti saranno in taglia reale.
Ulteriori informazioni ed una scheda di segnalazione su internet
http://inpn.mnhn.fr/espece/cd_nom/433589/tab/fiche

A primavera, ogni regina fondatrice costruisce da sola il suo nido in un luogo spesso protetto. Nella maggior parte delle vespe il nido inizialmente rassomiglia ad una piccola sfera da 5 a 10 cm di diametro con un'apertura verso il basso. Nei calabroni, la colonia non esiterà a spostarsi se l'ubicazione non risulterà più adatta (mancanza di spazio o di sicurezza).

Calabrone asiatico a zampe gialle, *Vespa velutina var. nigrithorax*

73% su alberi a più di 10 m di altezza
10% su edifici
3% su siepi
sferica a piriforme
Apertura piccola e laterale
circa 60x80 cm

Calabrone europeo, *Vespa crabro*

Alberi cavi, camini
Raramente aereo
Cilindrico
Apertura larga verso il basso
circa 30x60 cm

La vespa *Dolichovespula media*

Cespugli meno di 2 m
Conico
Piccola apertura in basso, decentrata
circa 20x25 cm

Vespa comune, *Vespula vulgaris*

Sul terreno, su edifici
Conico
Piccola apertura nascosta,
Nella parte più bassa
circa 30x35 cm

(*V. germanica* costruisce nidi che sono leggermente più grandi e grigi)

Come distinguere tra *crabro* e *velutina*

Vespa orientalis (solo sud Italia)

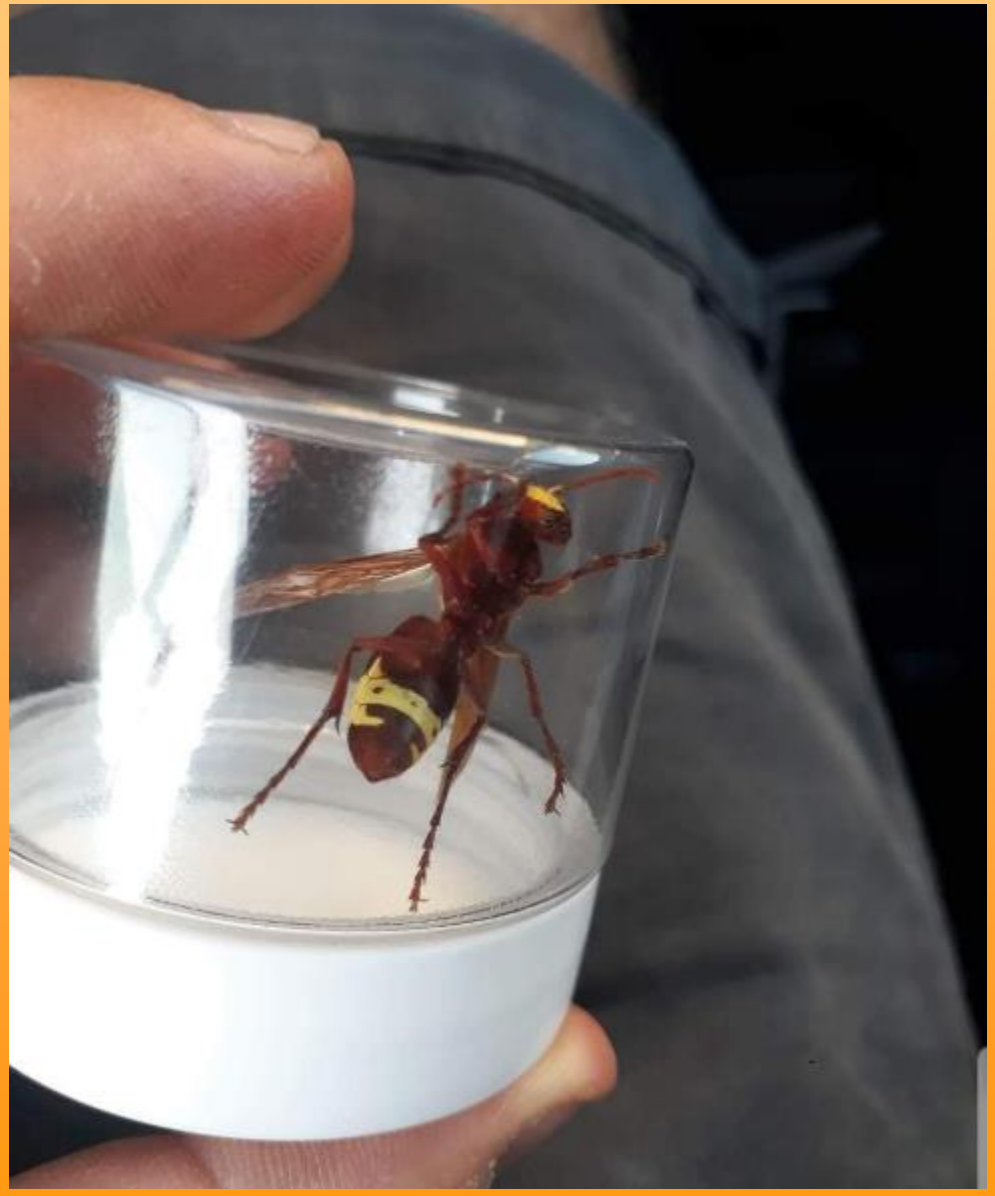
Dimensioni minori
Colorazione rossa e gialla

Nidi sempre sotterranei

Già dal 2018 la Vespa orientalis si è insediata a Trieste e sempre nel 2018 è stata avvistata a Genova

L’avvistamento è avvenuto nella mattinata del 13 maggio 2018 e la correttezza della specie, dopo un primo riconoscimento da parte dei tecnici di ALPA Miele, è stata confermata anche dagli entomologi di StopVelutina e del progetto Life STOPVESPA.

Dal sito STOP VELUTINA



Altri insetti simili per dimensioni

***Xylocopa* spp.**

Apidae

***Bombus* spp.**

***Scolia* spp.**

Vespoidei, Scolidi

La Vespa velutina

Cosa è

Come si riconosce

Dove è

Quando c'è

monitoraggio

C'è il nido?

Che nido è?

Dove è il nido?

Ricerca 1

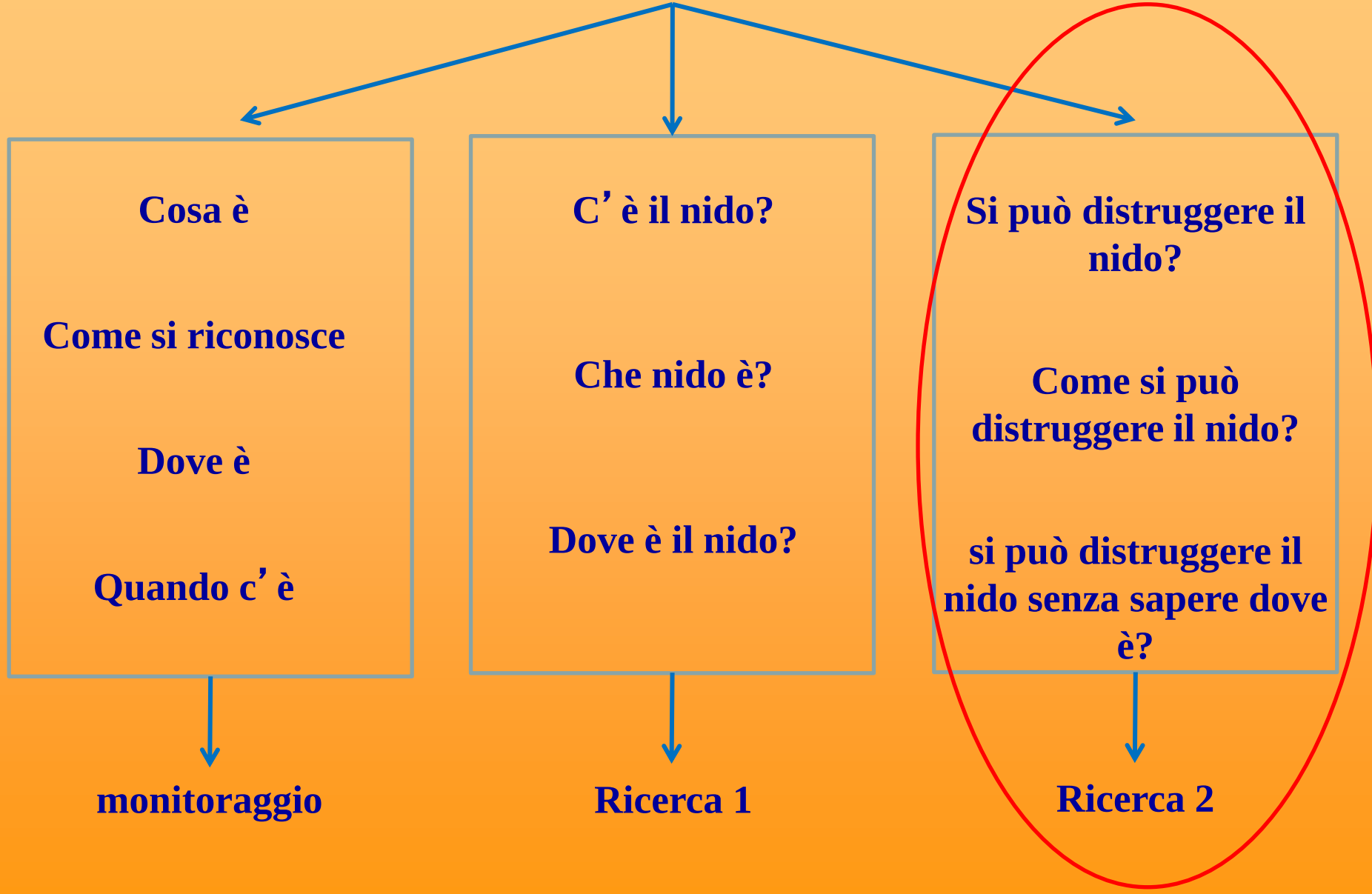
Si può distruggere il nido?

Come si può distruggere il nido?

si può distruggere il nido senza sapere dove è?

Ricerca 2

La Vespa velutina



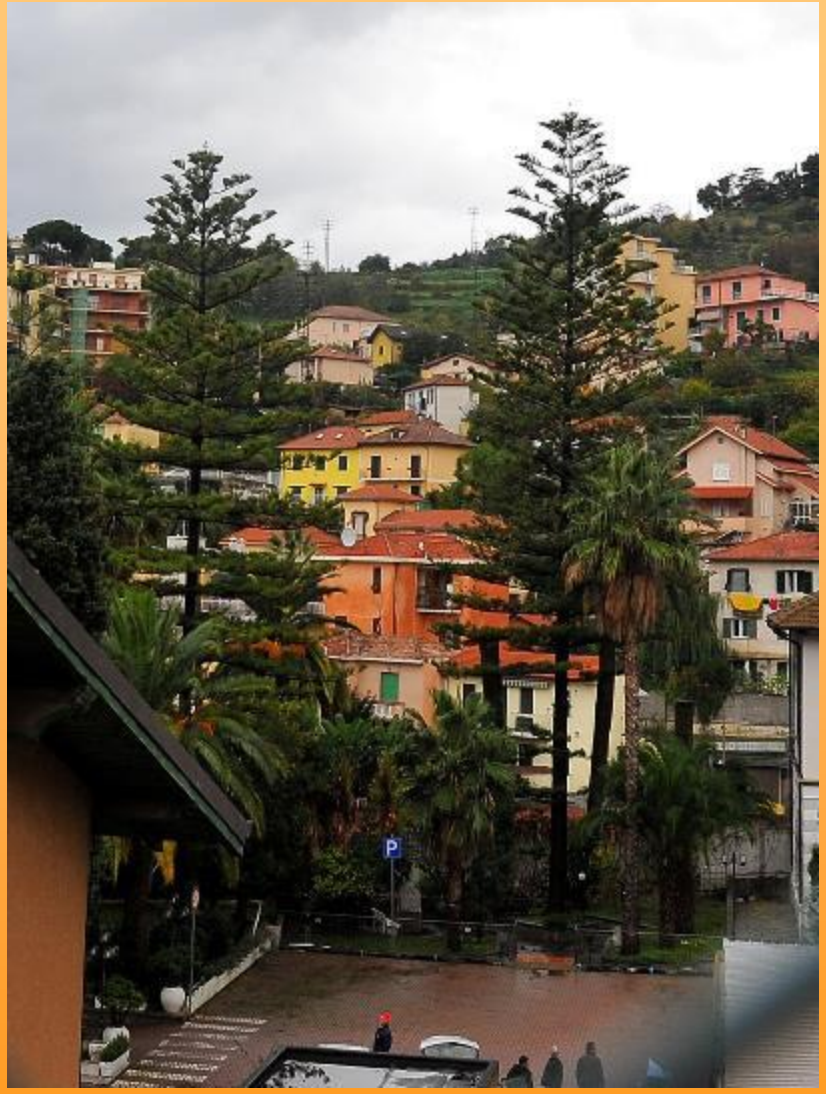
Cosa fare se il monitoraggio rileva la presenza di adulti?

Interventi di **ricerca dei nidi** al primo apparire delle vespe nelle trappole o davanti agli alveari

Nidi primari

Nidi secondari

Pericolosità per l'uomo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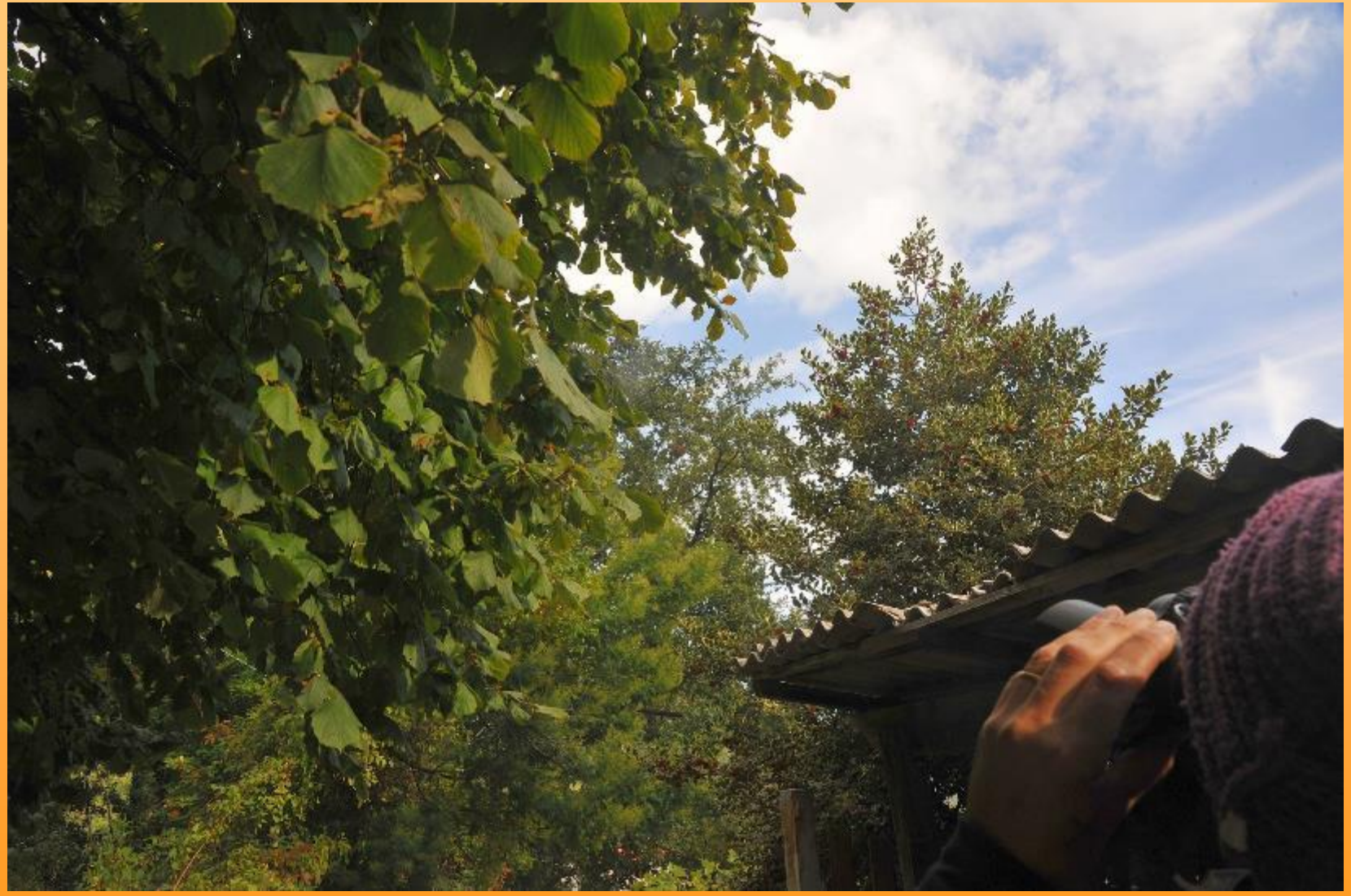


L’eliminazione dei nidi

L’eliminazione dei nidi primari

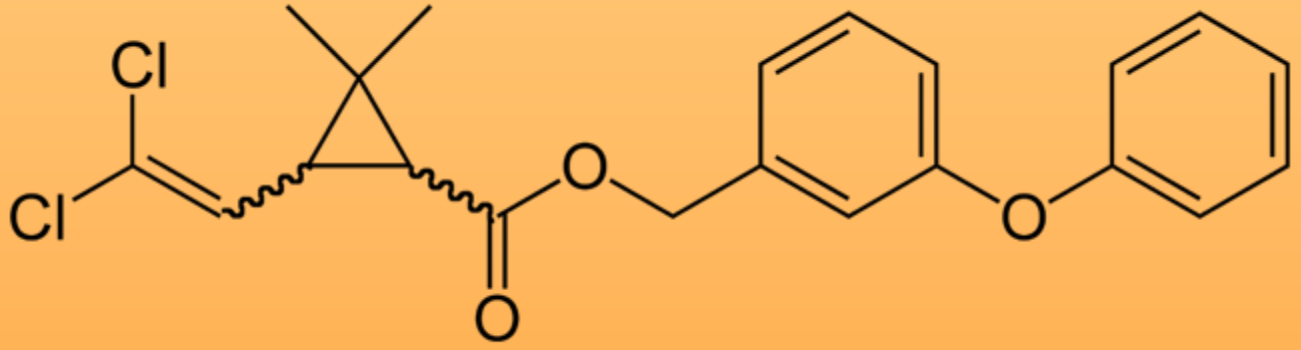
L’eliminazione dei nidi primari

L’eliminazione dei nidi secondari

PERMETRINA.

3-fenossibenzil (1RS) cis, trans-3-(2,2- diclorovinil)-2,2- dimetilciclopropanocarbossilato.

$C_{21}H_{20}Cl_2O_3$



Piretroidi sono analoghi sintetici delle piretrine (naturali in quanto estratte dai fiori di *Tanacetum cinerariifolium)*

Detti anche piretro della dalmazia

la permetrina è estremamente tossica per le api. La permetrina è tossica per le forme di vita selvatica. Non deve essere applicata direttamente, o fatta giungere per deriva, su coltivazioni o vegetazione spontanea che possa fungere da foraggio.

la permetrina nell'ambiente del suolo ha una persistenza moderato-bassa, con valori di emivita riportati da 30 a 38 giorni.

In acqua la permetrina ha una emivita inferiore ai 2,5 giorni.

alla luce solare, l'emivita è di 4,6 giorni.

Proteggere dal gelo.
Proteggere dal calore e dai raggi diretti del sole.
Proteggere da umidità e acqua

PRODOTTO COMMERCIALE

AVIDUST

ATTENZIONE!!!!

Protezione respiratoria Non necessaria
durante il normale utilizzo del prodotto

QUALE è IL normale utilizzo del prodotto?!!!

Non facilmente biodegradabile (OECD 301B - CO2 evolution method e OECD 301F - oxygen consumption).

Idroliticamente stabile a pH 3, 4 e 7. A pH 9,6 (25° C) la permetrina idrolizza con un valore di DT50 stimato in 35 giorni per la cis-permetrina e 42 giorni per la trans-permetrina.

L’eliminazione dei nidi secondari

Tecniche di distruzione dei nidi

Aste telescopiche e permetrina in polvere

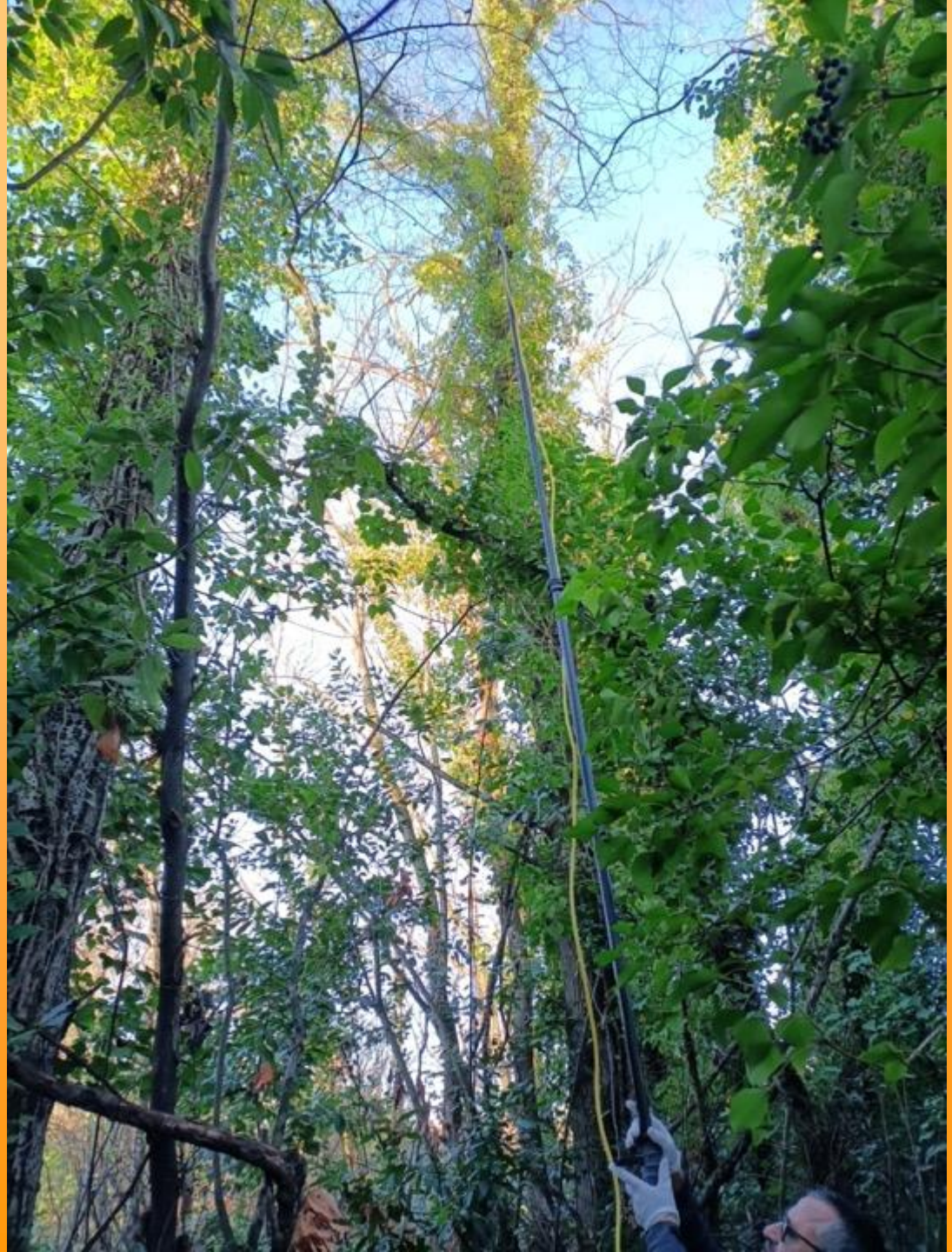
Tecniche di distruzione dei nidi

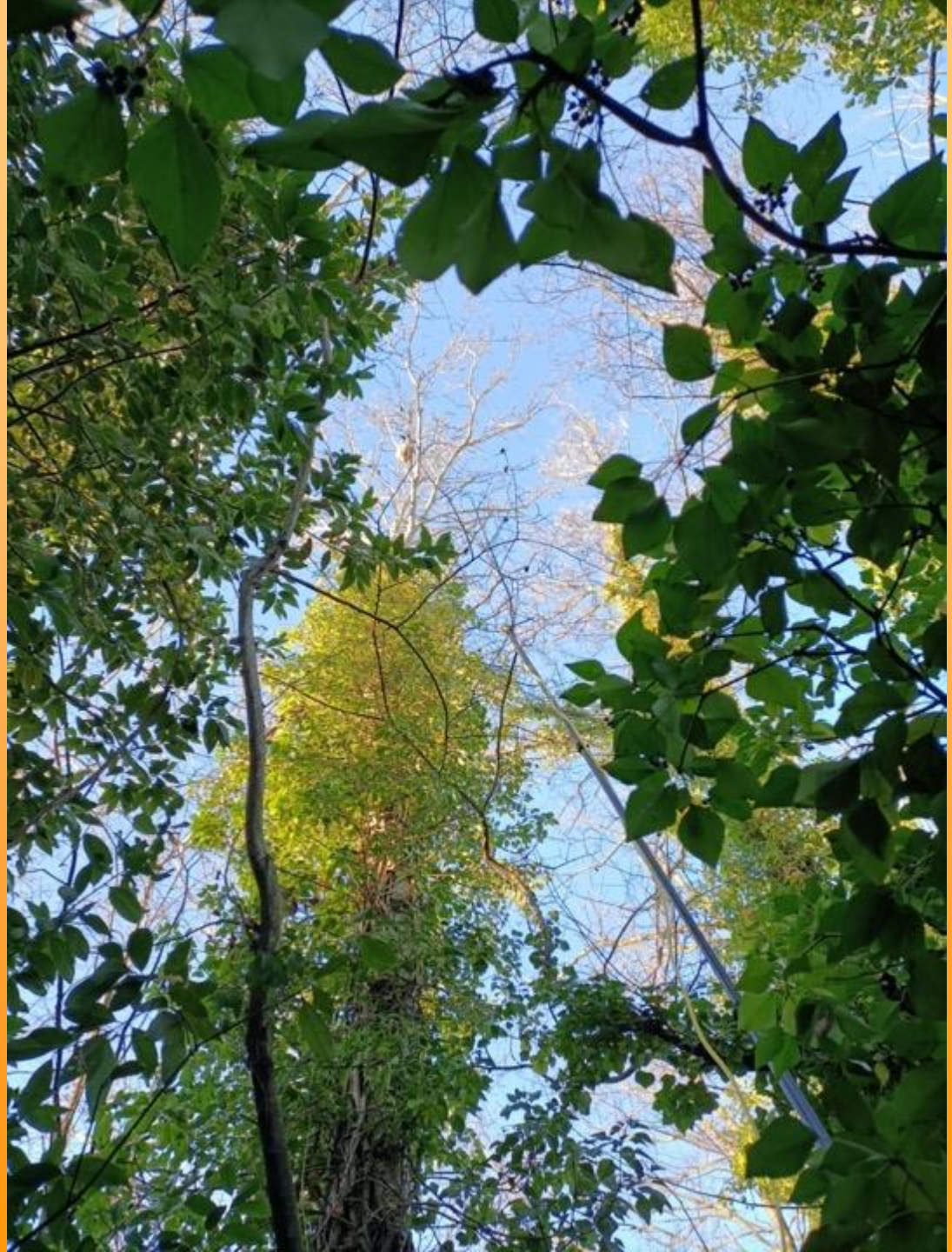
In Liguria la distruzione dei nidi viene effettuata perlopiù da apicoltori volontari, talvolta affiancati da Vigili del Fuoco o protezione civile

L’interno del nido secondario

22 dicembre 23


FD 349 YK






VIGILI DEL FUOCO

10 gennaio 2023

Ricerca

Ricerca

ricerca


0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
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Le nuove regine

300-500 nuove regine

5-10% sopravvivono alla primavera successiva

Problemi irrisolti

Procedure pericolose (nidi ad altezza elevata)

Problemi di pubblica sicurezza durante le operazioni (molti nidi si trovano in aree urbane)

Sistema costoso e solo parzialmente efficace (molti nidi sono nascosti o impossibili di distruggere)

Mancanza di protocolli ufficiali, autorizzazioni all'uso dei prodotti, coperture assicurative

...

La Vespa velutina

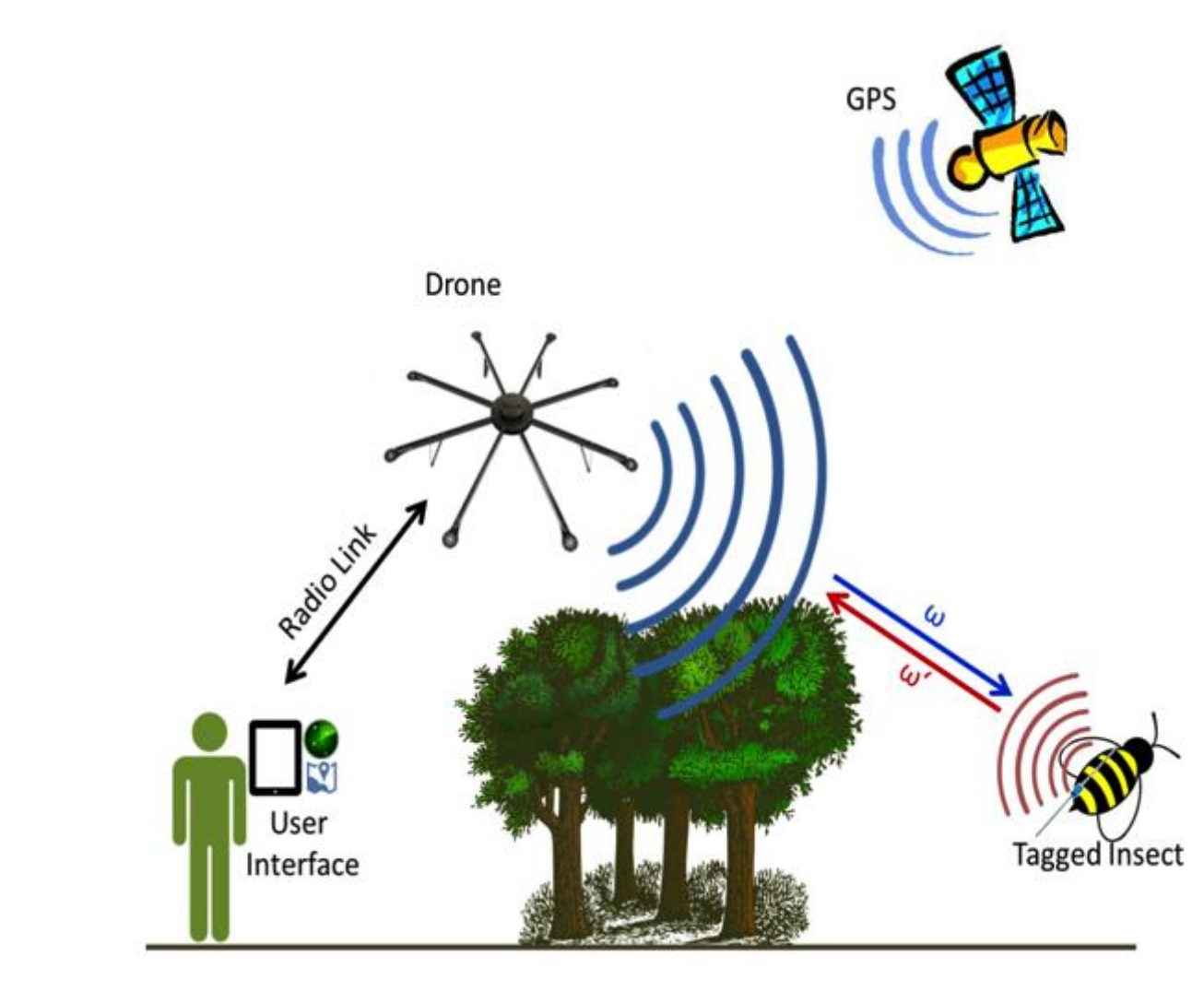
Contributo per la messa a punto di metodi per l'individuazione e distruzione dei nidi

Ricerca dei nidi: radar armonico

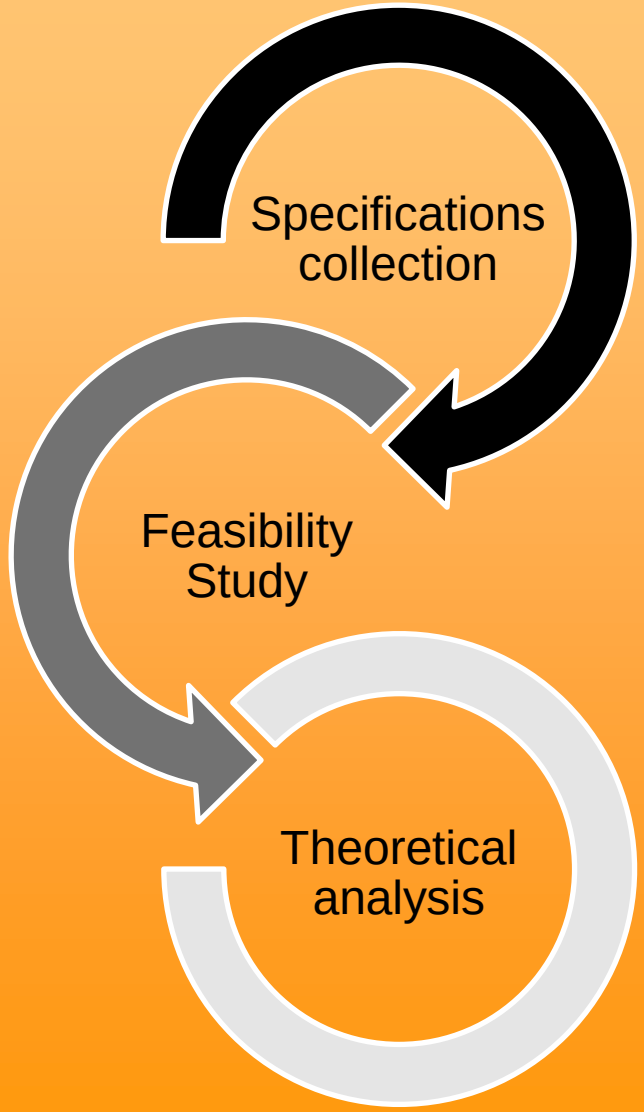
STOP VESPA ASIATICA

Progetto LIFE - STOPVESPA: DISAFA e Politecnico di Torino

FIRST IDEA



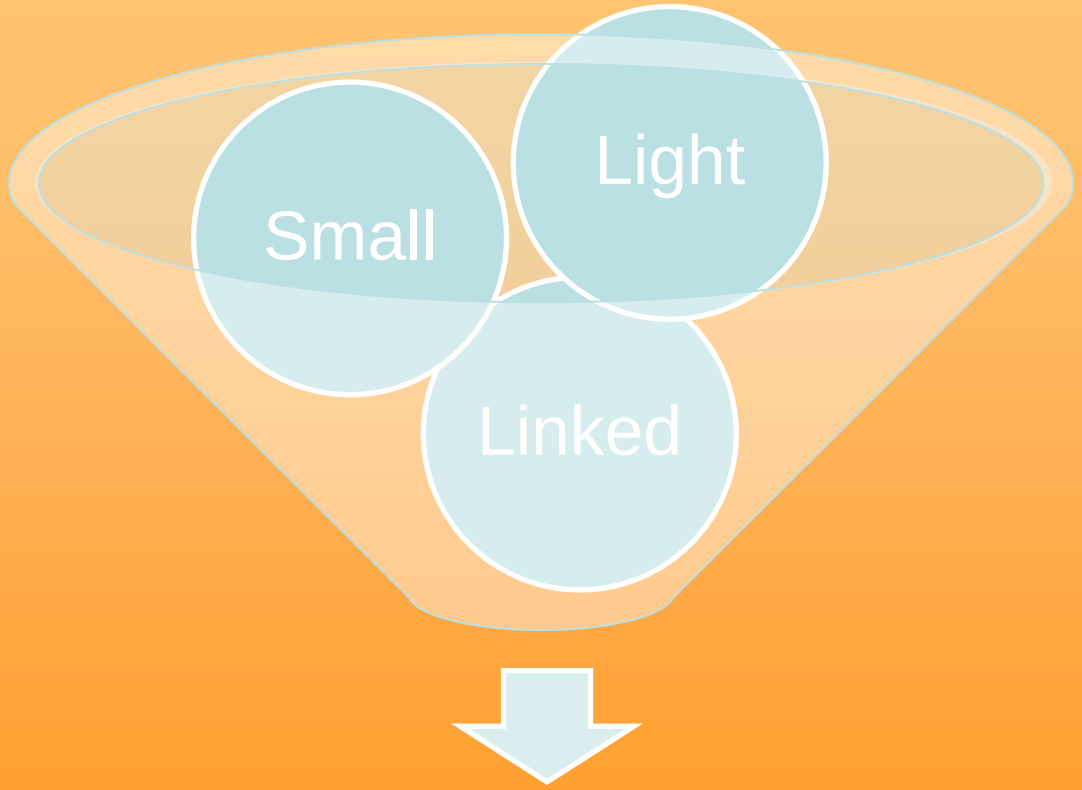
project


Specifications collection
Feasibility Study
Theoretical analysis

Ricerca dei nidi: sistema multisensore

Progetto Velutina: Università e CNR di Pisa

Smart device



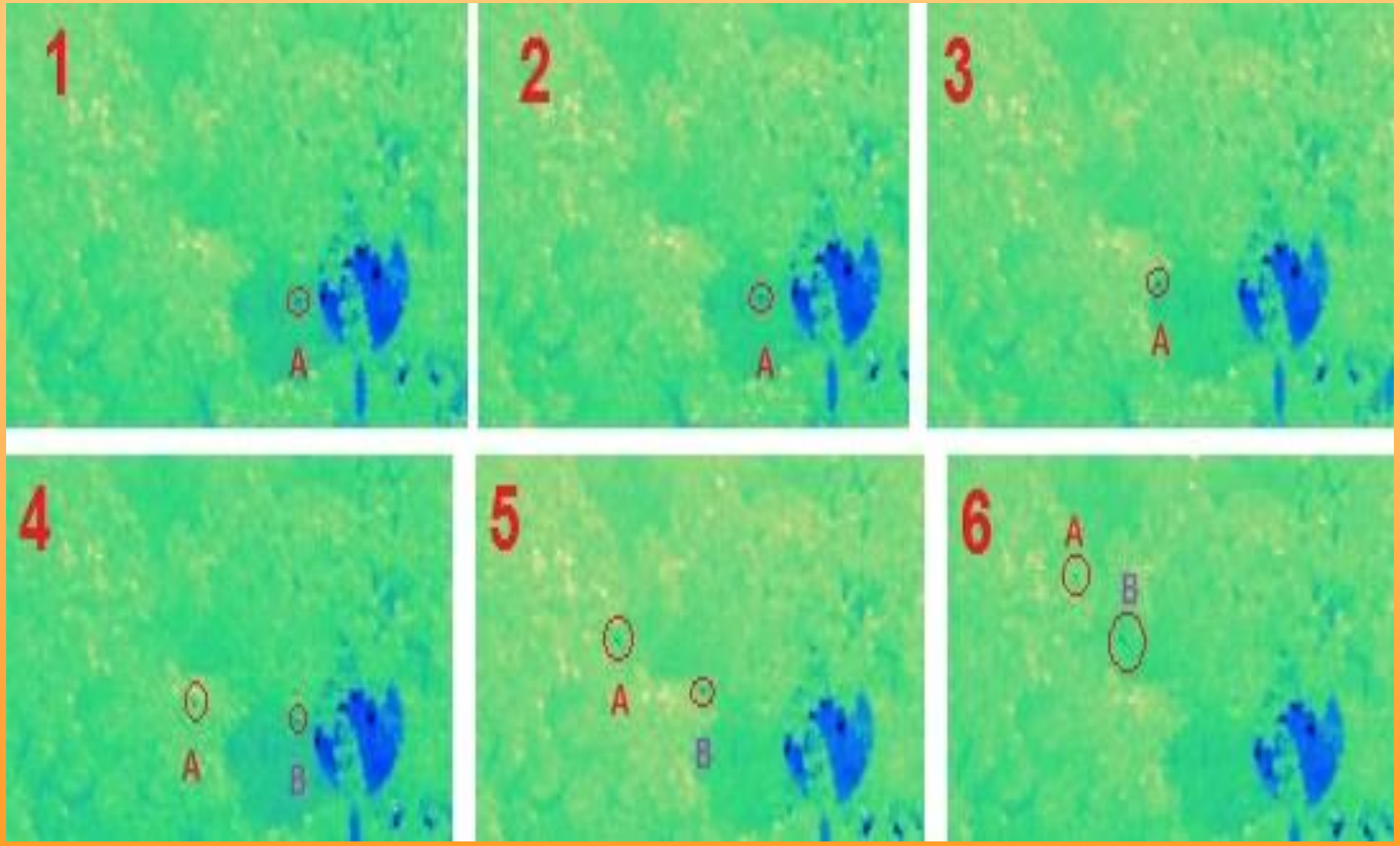
User Friendly Device

UFD

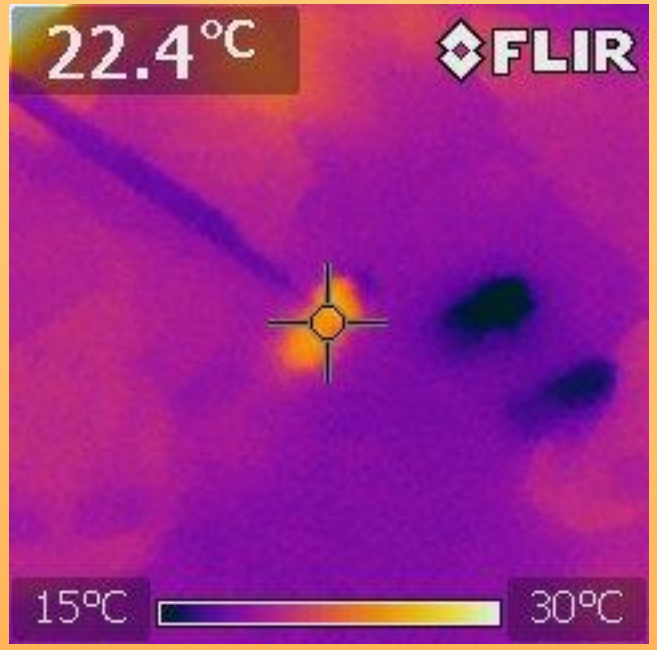

i7
16.5°C
FLIR
16°C
24°C
ε=0.98
Menu
Auto/Bloc

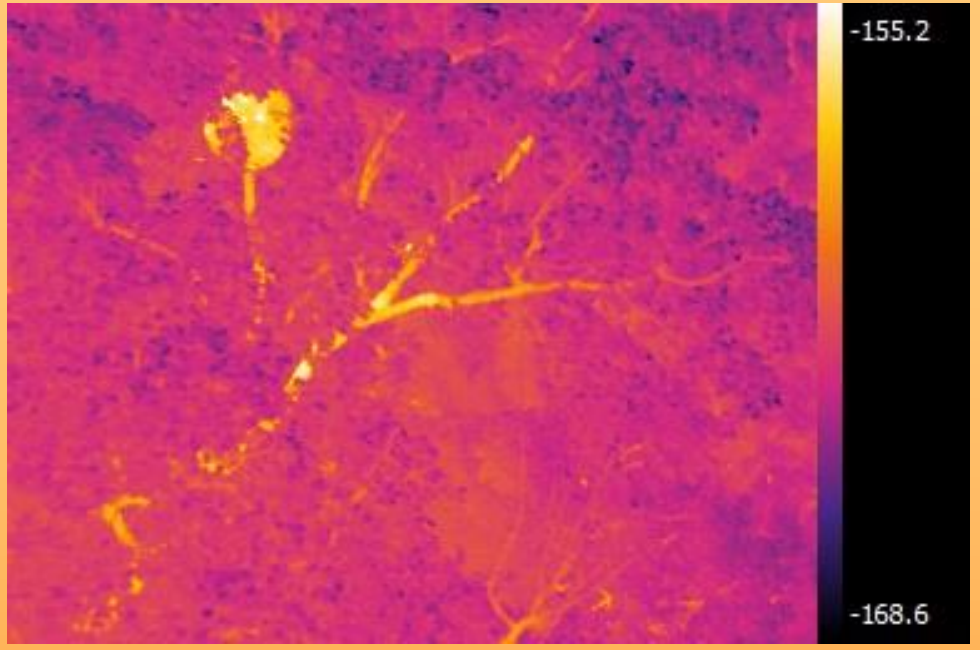

NON DISTURBARE
DO NOT DISTURB
PILOTA

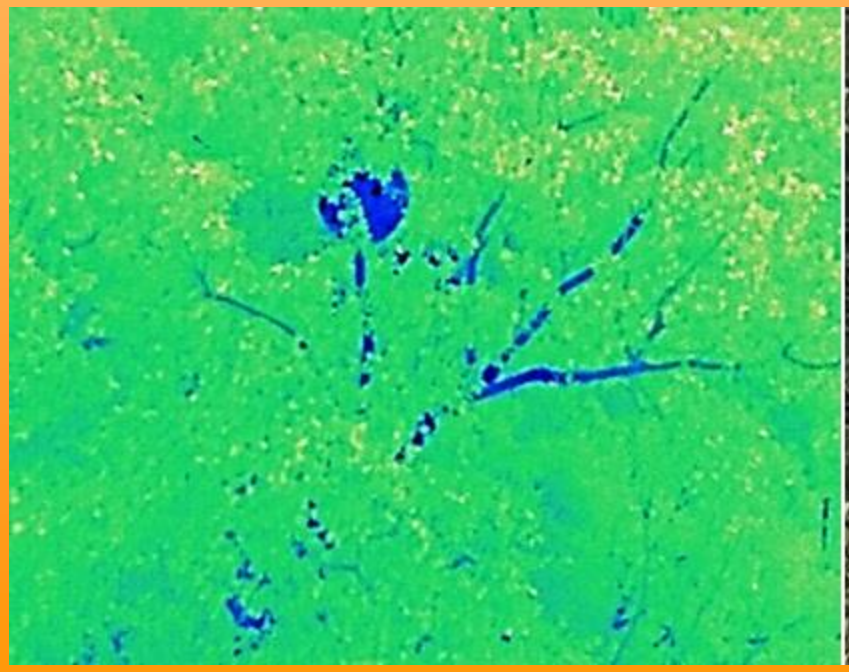

Zeiss

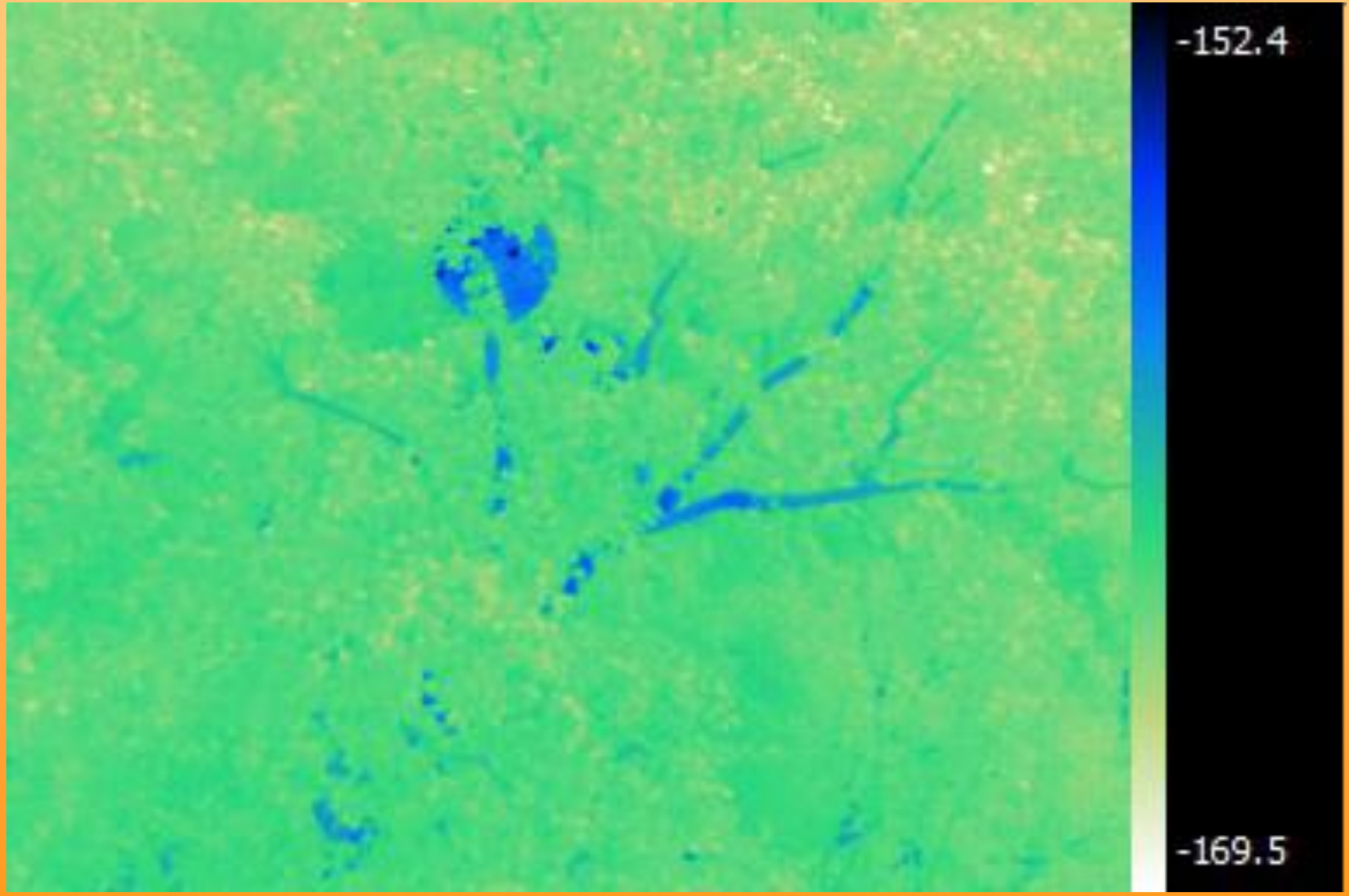


50 meter distance from the nest

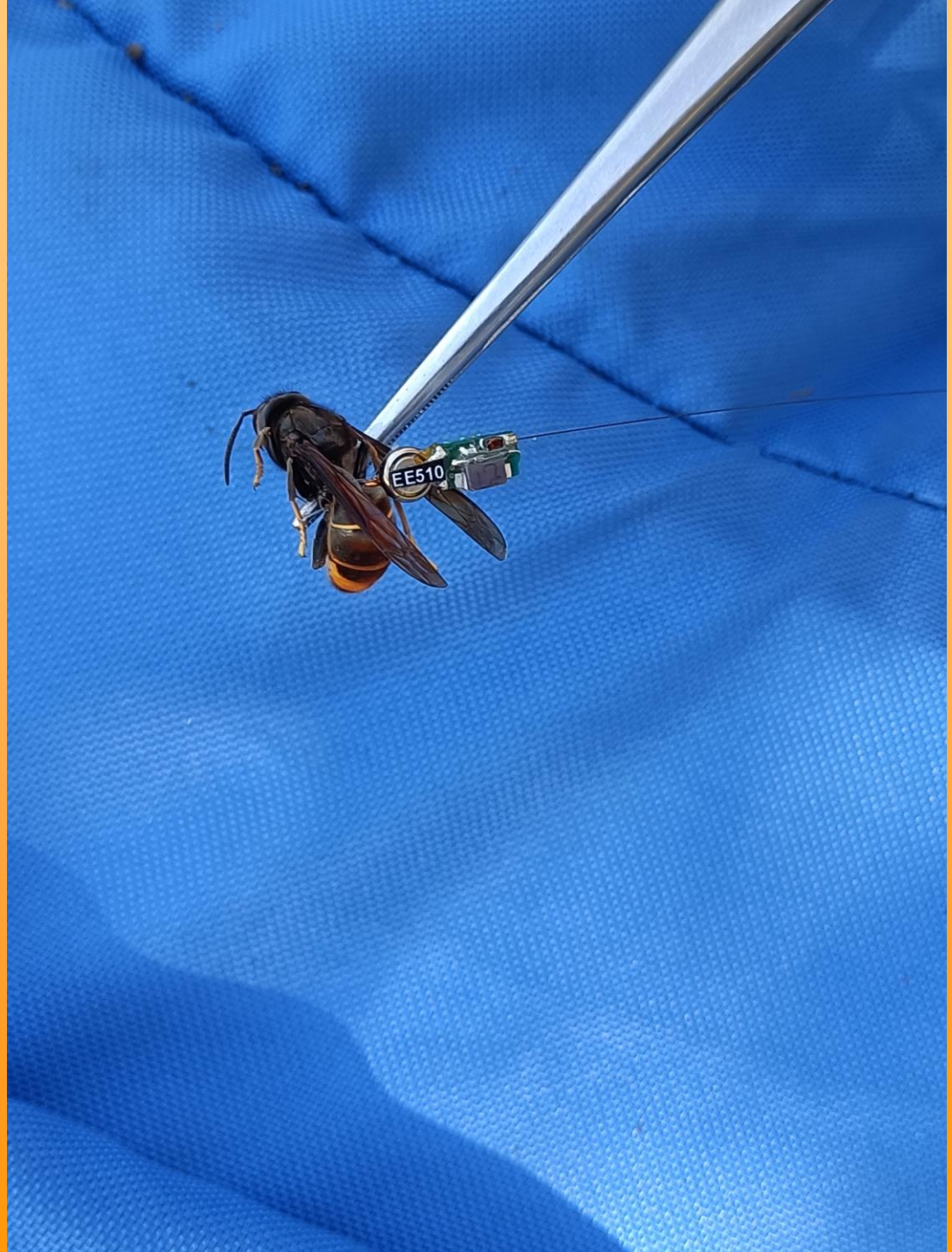

22.4°C
FLIR
15°C
30°C


-155.2
-168.6

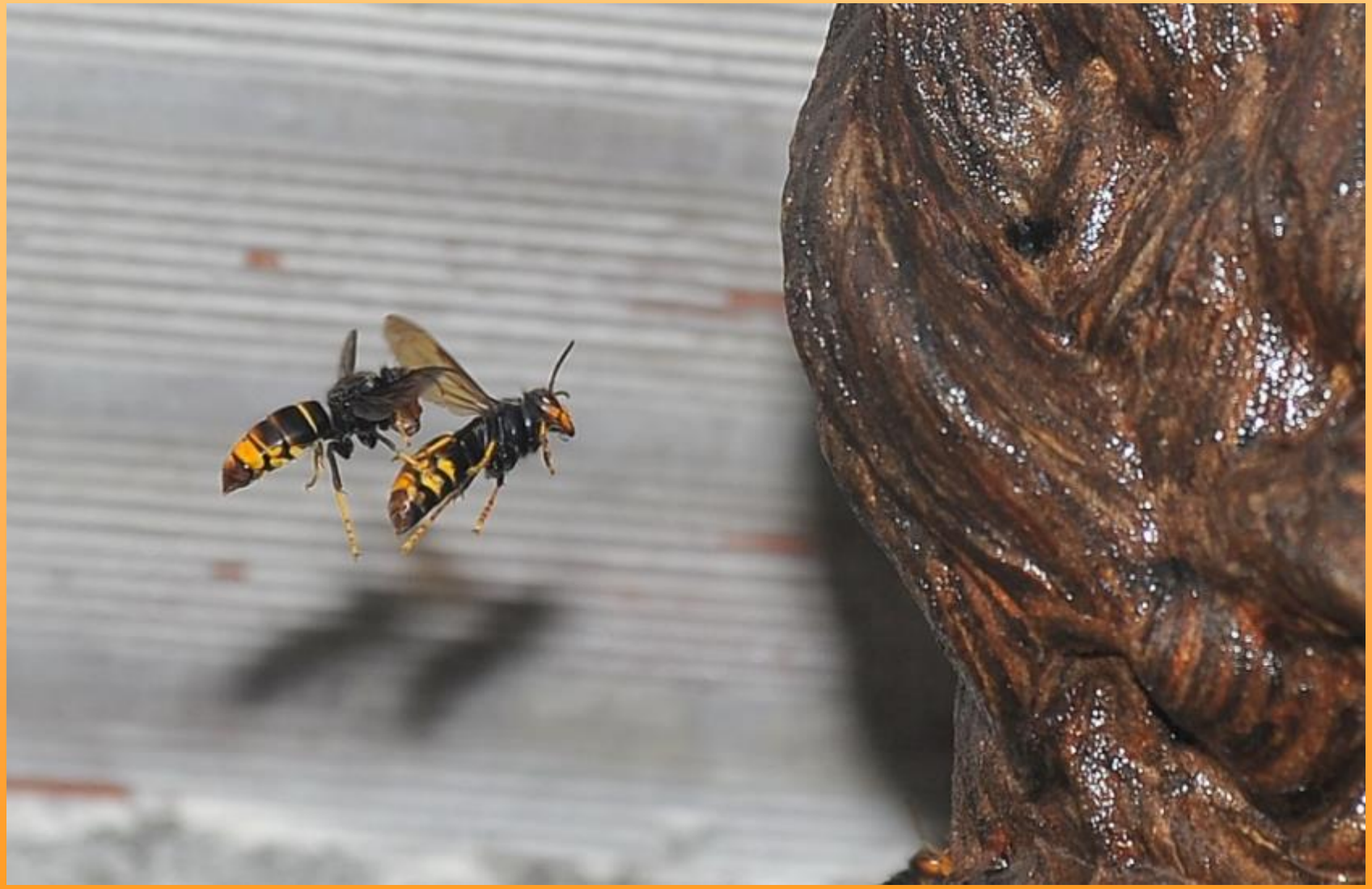



-152.4
-169.5

Monitoraggio attivo e catture

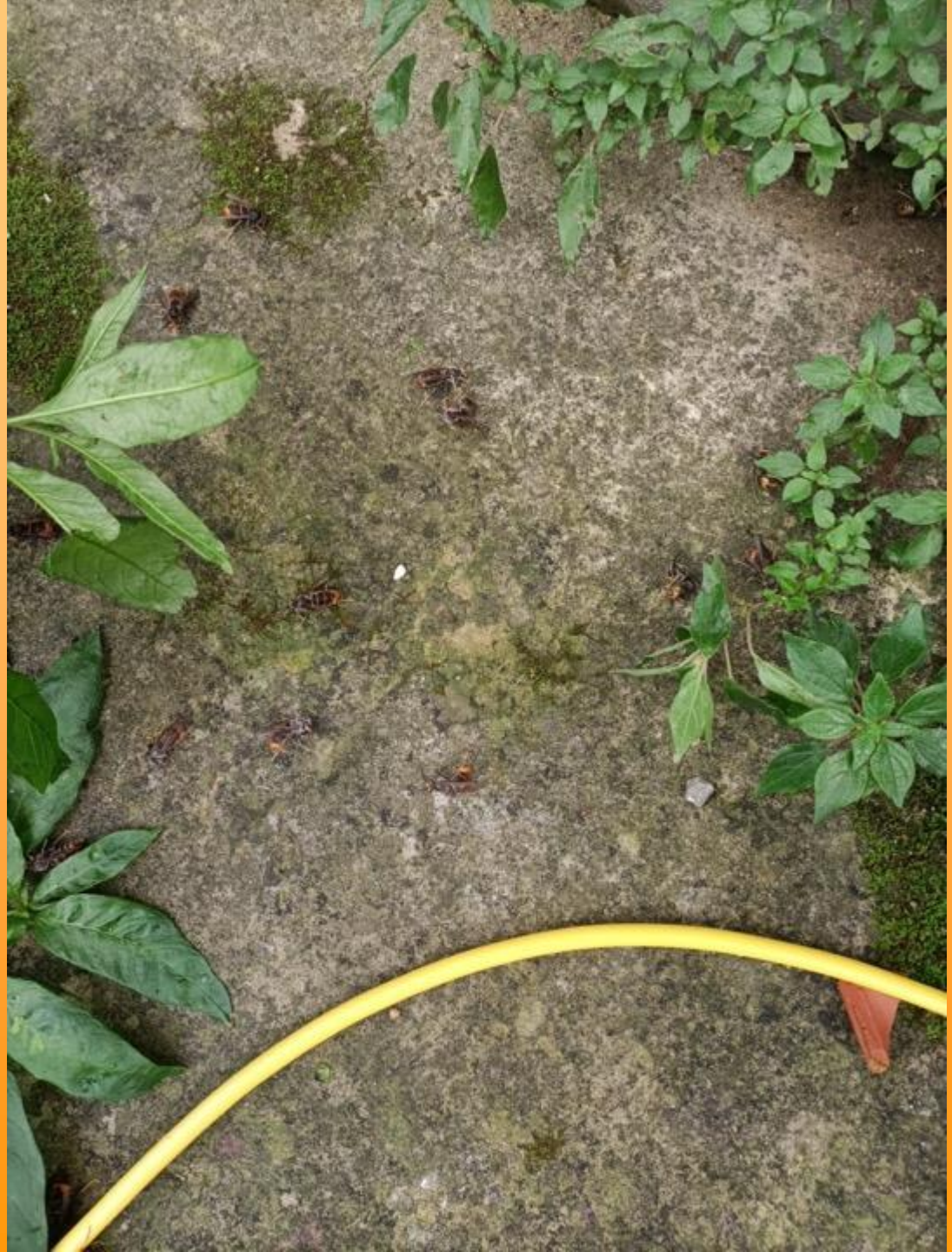

EE510


TOP500 500 x 0.01g
PCS
MODE
0.19
g
TARE
HOLD




UNGER
LITE


UNGER
nLITE




LITE
connect


onnect
Extension Pole
mLITE

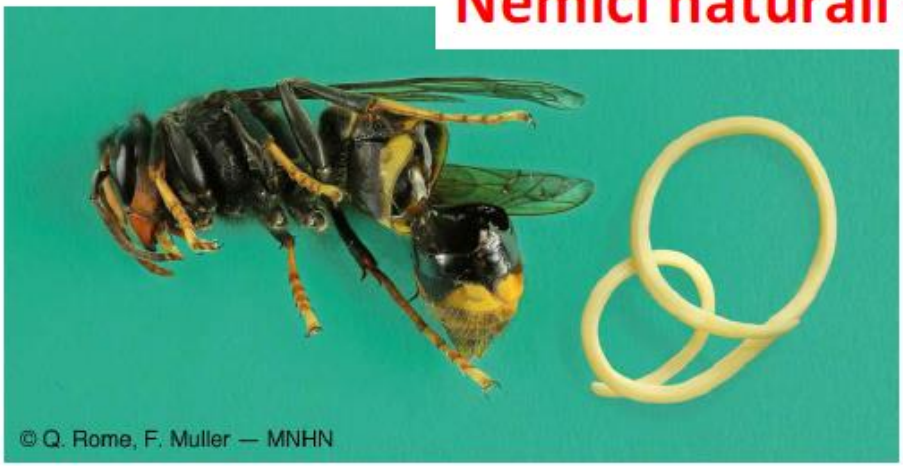
Ricerca

Ricerca

ricerca

Nemici naturali

Nemici naturali aspecifici



PLOS | ONE

RESEARCH ARTICLE

Infectivity of DWV Associated to Flower Pollen: Experimental Evidence of a Horizontal Transmission Route

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☯ These authors contributed equally to this work.

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Data Availability: The authors confirm that all data underlying the findings are fully available without

Abstract

Deformed wing virus (DWV) is a honeybee pathogen whose presence is generally associated with infestation of the colony by the mite *Varroa destructor*, leading to the onset of infections responsible for the collapse of the bee colony. DWV contaminates bee products such as royal jelly, bee-bread and honey stored within the infected hive. Outside the hive, DWV has been found in pollen loads collected directly from infected as well as uninfected forager bees. It has been shown that the introduction of virus-contaminated pollen into a DWV-free hive results in the production of virus-contaminated food, whose role in the development of infected bees from virus-free eggs has been experimentally demonstrated. The aim of this study was twofold: (i) to ascertain the presence of DWV on pollen collected directly from flowers visited by honeybees and then quantify the viral load and (ii) determine whether the virus associated with pollen is infective. The results of our investigation provide evidence that DWV is present on pollen sampled directly from visited flowers and that, following injection in individuals belonging to the pollinator species *Apis mellifera*, it is able to establish an active infection, as indicated by the presence of replicating virus in the head of the injected bees. We also provide the first indication that the pollinator species *Osmia cornuta* is susceptible to DWV infection.

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Detection of deformed wing virus in *Vespa crabro*

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Abstract

Specimens of *Vespa crabro* L. queen were found to be infected by deformed wing virus (DWV). The abdomen and the thorax of asymptomatic and symptomatic wasps were positive for the virus by strand specific RT-PCR, indicating active replicanion. This finding confirms the ability of the virus to infect not only bees (Apoidea) but also wasps (Vespoidea) suggesting a possible transmission route by ingestion of infected honey bees by wasp's larva. This is the first report concerning the detection of DWV in *V. crabro*. In the view of this finding the possibility of using naturally infected bees as a tool for the biological control of its predators is discussed.

Key words: deformed wing virus, honey bees, European hornet, strand specific RT-PCR.

Introduction

Deformed wing virus (DWV) is a pathogen of honey bees (*Apis mellifera* L.) and it is linked to colony bee losses causing important negative effects for the ecosystem, the agriculture and the economy (de Miranda and Genersch, 2010; Genersch and Aubert, 2010).

DWV belongs to the Picornaviridae family within the *Iflavirus* genus, with a positive ssRNA genome of 10 kb in length (Lanzi *et al*., 2006).

Recently, three generic variants of DWV defined as type A, B and C have been identified (McMahon *et al*., 2016; Mordecai *et al*., 2016). By performing laboratory experiments and a systematic field survey DWV type B resulted as more virulent than the estsblished DWV type A (McMahon *et al*., 2016).

DWV, with some exception, is distributed worldwide and is transmitted to honey bees mainly by the bite of the ectoparasitic mite *Varroa destructor* Anderson et Trueman which is its main biological vector. The role of varroa mite in transmitting DWV is relevant in permitting the infection of new bee families. Within a bee family/beehive transmission could also occur horizontally through direct contact between infected and non-infected bees, especially when the level of infection (infectious titers) is high (Ball and Allen, 1988; Nordström, 2003; Shen *et al*., 2005; Lanzi *et al*., 2006; Gisder *et al*., 2009; Martin *et al*., 2012; Francis *et al*., 2013; Giusti *et al*., 2016). DWV can also be transmitted vertically, and recent studies have proven the presence of DWV on flower pollen, pollen load and in other bee products supporting the horizontal transmission of the pathogen (Chen *et al*., 2006; Yue *et al*., 2007; Möckel *et al*., 2011; Mazzei *et al*., 2014). The virus can persist in the bee colony as covert asymptomatic infection, but as consequence of high level of virus particle production, overt infections are revealed (de Miranda and Genersch, 2010). High levels of viral infections are often triggered by change in the homeostasis of the bee-family such as in case of high levels of varroa mite infestation (Francis *et al*., 2013). Those are characterized by deformed or missing wings, shortened abdomens and premature death leading ultimately to the collapse of the bee colony (de Miranda and Genersch, 2010). Several chemical and natural approaches have been proposed for controlling DWV infection (Desai *et al*., 2012; Mazzei *et al*., 2016). Honey bees are not only exposed to pathogens; vertebrate and invertebrate predators are an important threat for the entire colony.

Among predators, some insects of the *Vespa* genus are extremely dangerous for the bee colony, even causing its complete collapse.

The European hornet (*Vespa crabro* L.) is one of the honey bee's natural predators and it is widely distributed in Italy. The hornet is a carnivore predator of other wasps, large moths and honey bees. It can build impressive nests and its dimensions can easily reach up to 2.5 cm or 5 cm in length for the adult male and female, respectively (Carpana and Lodesani, 2014). Honey bees can be attacked by *V. crabro* during their foraging flight or just outside the hive. In case the colony is already suffering for other pathologies, *V. crabro* could have a devastating effect on it (Baracchi *et al*., 2010). *V. crabro* is dangerous also for humans since its sting is very painful and, in some cases, could even be lethal (Antonicelli *et al*., 2003).

In this short report, we describe the first detection of DWV from *V. crabro* by molecular investigation. DWV was detected from two insects of which one was presenting deformed wings. Implication in using DWV as a biological control tool against wasps is here suggested as a possible perspective.

Materials and methods

Sampling

In October 2016, a *V. crabro* nest was destroyed at the Department of Veterinary Science, University of Pisa, Italy (43°70'85"N 10°41'07"E). Two new generation queens were caught alive and one of them was showing deformed wings (figure 1). Insects were immediately stored at −80 °C. The rest of the insects could not have been tested since destruction was performed by flaming the nest.

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VIRUSES

Complete Genome Sequence of Deformed Wing Virus Isolated from *Vespa crabro* in Italy

Mario Forzan, Antonio Felicioli, Simona Sagona, Patrizia Bandecchi, Maurizio Mazzei

Department of Veterinary Science, University of Pisa, Pisa, Italy

ABSTRACT In this article, we document the first isolation of a replication-competent deformed wing virus from *Vespa crabro* in Italy. Although the virus has never been isolated from this insect, the sequence of this virus shows a strong sequence homology with isolates obtained from *Apis mellifera*, which is considered its natural host.

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M.F. and A.F. contributed equally to this work.

Deformed wing virus (DWV) is a viral pathogen of honeybees that is responsible for asymptomatic infection (covert) that can become clinically manifested (overt) in a stressful situation such as high infestation of the mite *Varroa destructor*, which is the biological vector of DWV. Clinical symptoms in honeybees include early death of pupae and deformed wings, shortened abdomen, and cuticle discoloration in adult bees that result in an inability to fly (1).

The virus is assigned to the *Iflavirus* genus belonging to the family *Picornaviridae*. Its genome consists of a 10-kb positive single-stranded RNA with a single open reading frame (ORF) flanked by a long 5′ untranslated region (5′ UTR) and a short, highly conserved 3′ UTR terminating with a 3′ poly(A) tail. DWV sequences available from various parts of the world share 98% to 99% identity, which is consistent with the suggested recent global spread of the virus and evolutionary divergence that is still limited (2).

Here we report the complete nucleotide sequence of a replication-competent DWV strain isolated from a *Vespa crabro* queen with deformed wings collected in October 2016 in Italy.

The viral RNA was extracted from *V. crabro* abdomen using an RNeasy tissue kit (Qiagen, Hilden, Germany) eluted in 30 μl as previously described (3). Viral cDNA was synthetized by use of a Superscript II reverse transcriptase kit (Thermo Fisher Scientific, Waltham, MA, USA) using oligonucleotide dT primers.

A total of 14 overlapping amplicons covering the entire viral genome were generated using Kapa HF *taq* polymerase (Kapa Biosystems, Boston, MA, USA) and sequenced by BMR Genomics (Padova, Italy). Sequences were then assembled using Bioedit software (4). Sequence analyses were performed by MEGA software and Simplot software.

The complete sequenced genome is 10,135 nucleotides (nt) in length, comprising 2 UTRs. The long UTR at the 5′ end spanning from nt 1 to 1136 contains the putative internal ribosome entry site (IRES). The ORF spans from nt 1137 to 9817 and encodes the viral polyprotein. A 317-nt-long UTR is present at the 3′ end, including a 31-nt poly(A) tail.

The DWV *V. crabro* sequence scored 97.9% nucleotide identity with previously reported DWV isolated in Italy from *Apis mellifera* L. (DWV-It, GenBank accession no. AJ489744) (2). Simplot analysis indicated a 98.22% nucleotide homology to DWV type A virus (GenBank accession no. NC_004830), which was suggested as the less virulent circulating strain (5).

E in velutina?

22 dicembre 2017

Trovato il DWV in velutina!!

Bulletin of Insectology 71 (2): 211-216, 2018
ISSN 1721-8861

First detection of replicative deformed wing virus (DWV) in *Vespa velutina nigrithorax*

Maurizio MAZZEI[1], Mario FORZAN[1], Giovanni CILIA[1], Simona SAGONA[1], Laura BORTOLOTTI[2], Antonio FELICIOLI[1]

[1]*Department of Veterinary Science, University of Pisa, Italy*
[2]*CREA-AA, Consiglio per la ricerca in Agricoltura e l'analisi dell'economia agraria, Centro di Ricerca Agricoltura e Ambiente, Bologna, Italy*

Abstract

In order to investigate the possible infection of deformed wing virus (DWV) in the Asian hornet *Vespa velutina nigrithorax* du Buysson, in 2017 hornet workers were sampled during their predatory activity in April/May (early-season) and July (mid-season), while newly-emerged males and gynes were sampled in November (late-season). By strand specific RT-PCR replicative DWV was detected in workers sampled in July and in the newly-emerged specimens collected in November, proving that DWV can infect the Asian hornet. Sequence analysis of partial DWV genome indicates that the virus belongs to the worldwide diffused and less virulent genetic variant, DWV type A. This is the first report of DWV infection in *Vespa velutina* Lepeletier. This result suggests a possible role of this RNA virus in a natural re-equilibrium of the relationship between the prey (honey bee) and the predator (Asian hornet).

Key words: *Vespa velutina*, Asian hornet, deformed wing virus, honey bees, strand specific RT-PCR.

Una domanda.....

Ma velutina può essere attaccata da altri patogeni dell'ape da miele??

SCIENTIFIC REPORTS

OPEN

Detection of replicative Kashmir Bee Virus and Black Queen Cell Virus in Asian hornet *Vespa velutina* (Lepelieter 1836) in Italy

Received: 17 December 2018
Accepted: 2 July 2019
Published online: 12 July 2019

Maurizio Mazzei[1], Giovanni Cilia[1], Mario Forzan[1], Antonio Lavazza[2], Franco Mutinelli[3] & Antonio Felicioli[1]

Information concerning the pathogenic role of honey bee viruses in invasive species are still scarce. The aim of this investigation was to assess the presence of several honey bee viruses, such as Black Queen Cell Virus (BQCV), Kashmir Bee Virus (KBV), Slow Paralysis Virus (SPV), Sac Brood Virus (SBV), Israeli Acute Paralysis Virus (IAPV), Acute Bee Paralysis Virus (ABPV), Chronic Bee Paralysis Virus (CBPV), in *Vespa velutina* specimens collected in Italy during 2017. Results of this investigation indicate that among pathogens, replicative form of KBV and BQCV were detected, assessing the spillover effect of both these viruses from managed honey bees to hornets.

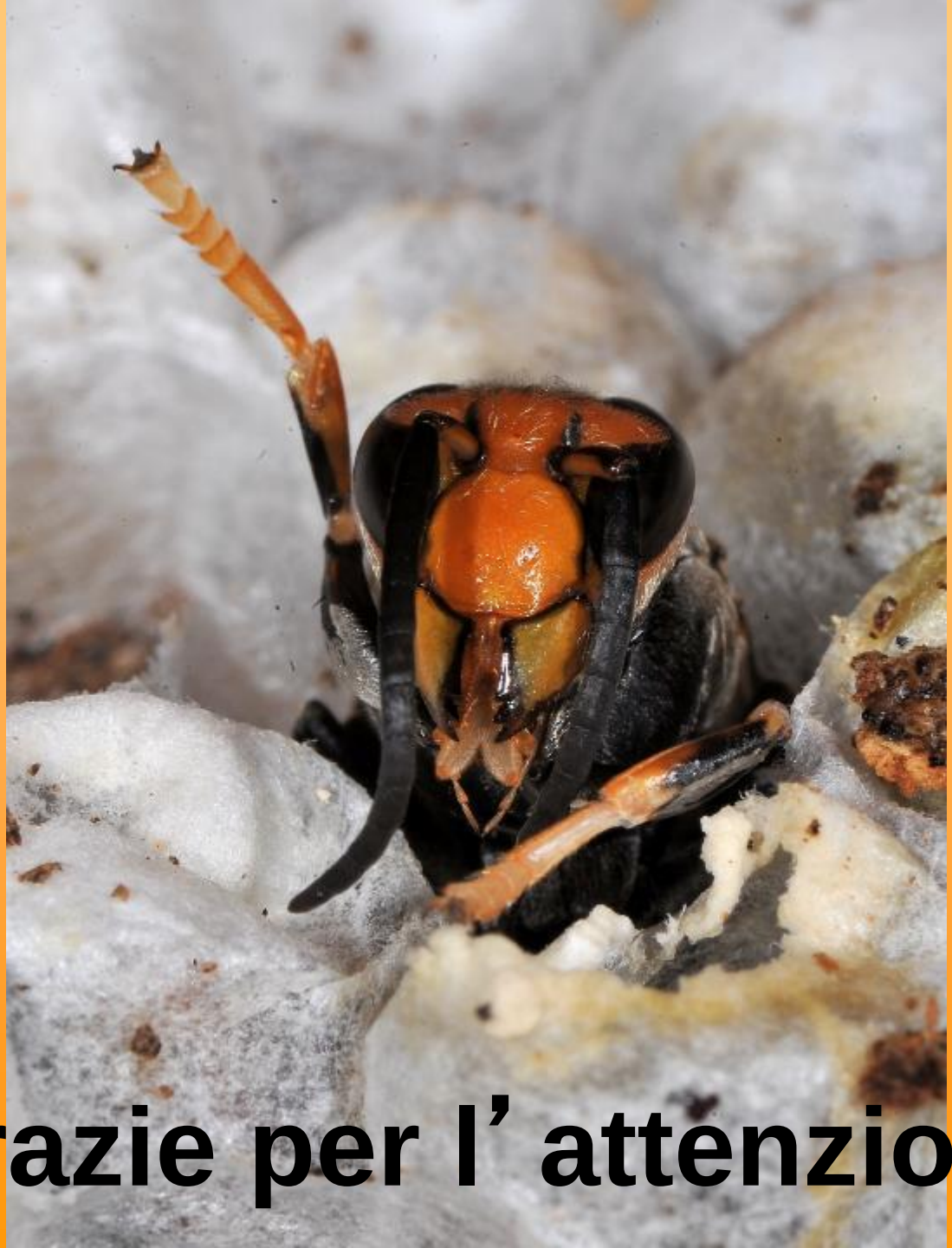
Due domande…..

In quale altro modo potremmo Contenere gli attacchi di velutina?

Come potremmo automatizzare il monitoraggio?

Una risposta!!

Studiando il comportamento di attacco della velutina

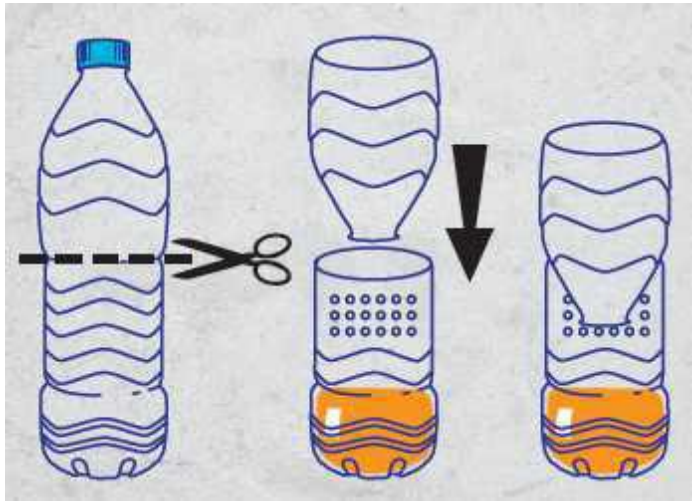


Grazie per l’attenzione

Grazie per l'attenzione

Tecniche di monitoraggio e difesa degli alveari

Monitoraggio: le bottiglie-trappola



Riempite con birra chiara

Posizionate in vicinanza degli apiari, a 1,5 – 1,8 metri da terra

Monitoraggio: le bottiglie-trappola

L’esca a base di sola birra chiara è risultata efficace e selettiva

Demichelis et al., 2014. Social wasp trapping in north west Italy: comparison of different bait-traps and first detection of *Vespa velutina.* *Bulletin of Insectology* ***67*** *(2): 307-317, 2014*

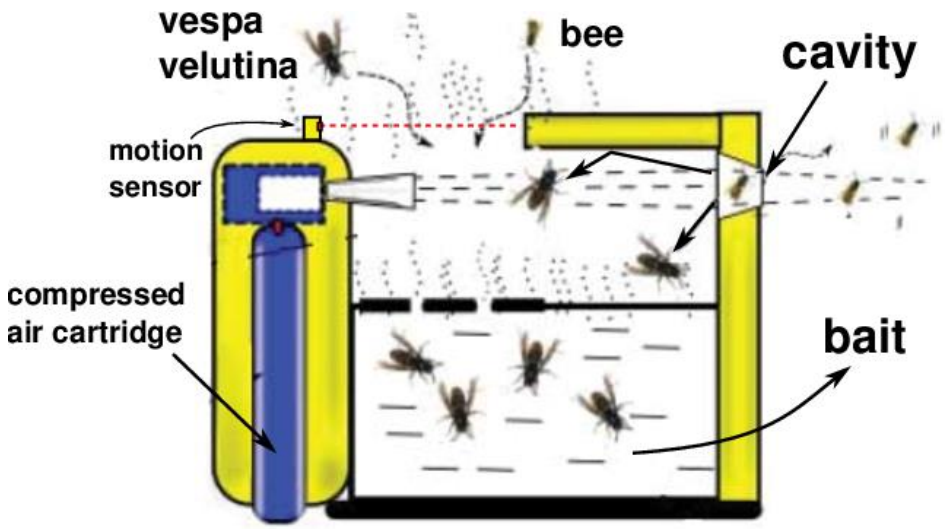
Monitoraggio: le bottiglie-trappola

Esame degli insetti catturati <u>almeno ogni 15 giorni</u>

Altre trappole in commercio

Altre trappole in commercio

Altri tipi di trappole



Trappolaggio

In : Barbançon, J-M, L'Hostis, M (eds). Journée Scientifique Apicole JSA, Arles, 11 février 2011. ONIRIS-FNOSAD, Nantes pp. 18-20

IMPACT SUR L'ENTOMOFAUNE DES PIEGES A BIERE OU A JUS DE CIRIER DANS LA LUTTE CONTRE LE FRELON ASIATIQUE

Quentin Rome[1], Franck Muller[1], Thomas Théry[1], Judith Andrivot[1], Sandy Haubois[1], Etienne Rosenstiehl[2], Claire Villemant[1]

[1] Muséum National d'Histoire Naturelle, UMR7205, CP50, 45 rue Buffon, 75005 Paris, France
[2] Association Bee my Friend, 11 rue Anatole de La Forge, 75017 Paris, France
Contact : Quentin Rome, vespa@mnhn.fr

Vol.2, No.4, 183-191 (2012)
http://dx.doi.org/10.4236/oje.2012.24022

Open Journal of Ecology

Chasing the queens of the alien predator of honeybees: A water drop in the invasiveness ocean

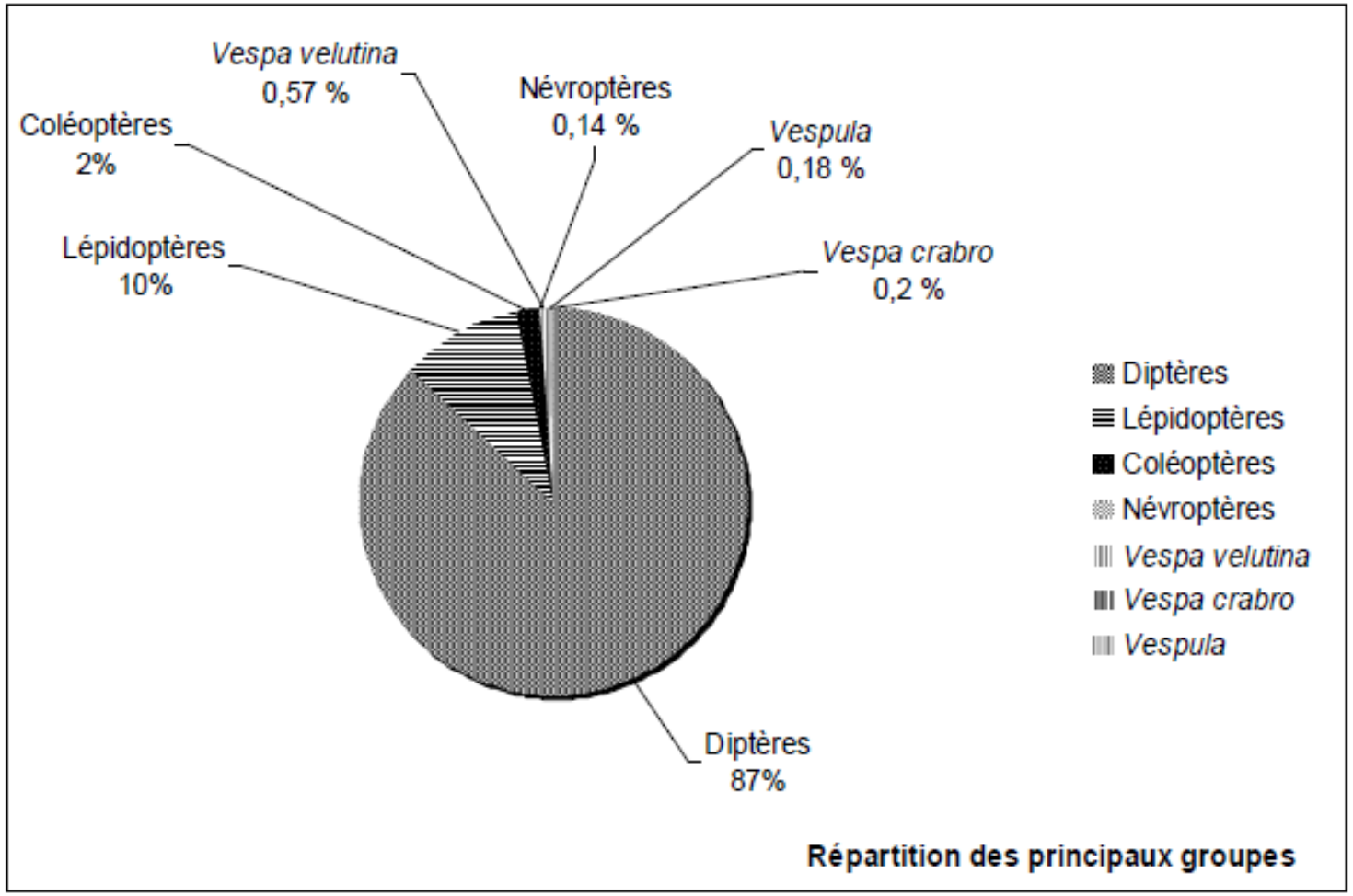
Karine Monceau[1,2], Olivier Bonnard[1,2], Denis Thiéry[1,2*]

[1]Institut National de la Recherche Agronomique, UMR1065 Santé et Agroécologie du Vignoble, Institut des Sciences de la Vigne et du Vin (ISVV), Villenave d'Ornon, France; [*]Corresponding Author: thiery@bordeaux.inra.fr
[2]Université de Bordeaux, UMR1065 Santé et Agroécologie du Vignoble, Bordeaux Sciences Agro, Villenave d'Ornon, France

Received 31 July 2012; revised 5 September 2012; accepted 13 September 2012

Trappolaggio

Quelques données sur le contenu des "pièges à Frelons asiatiques" posés à Bordeaux (Gironde) en 2009



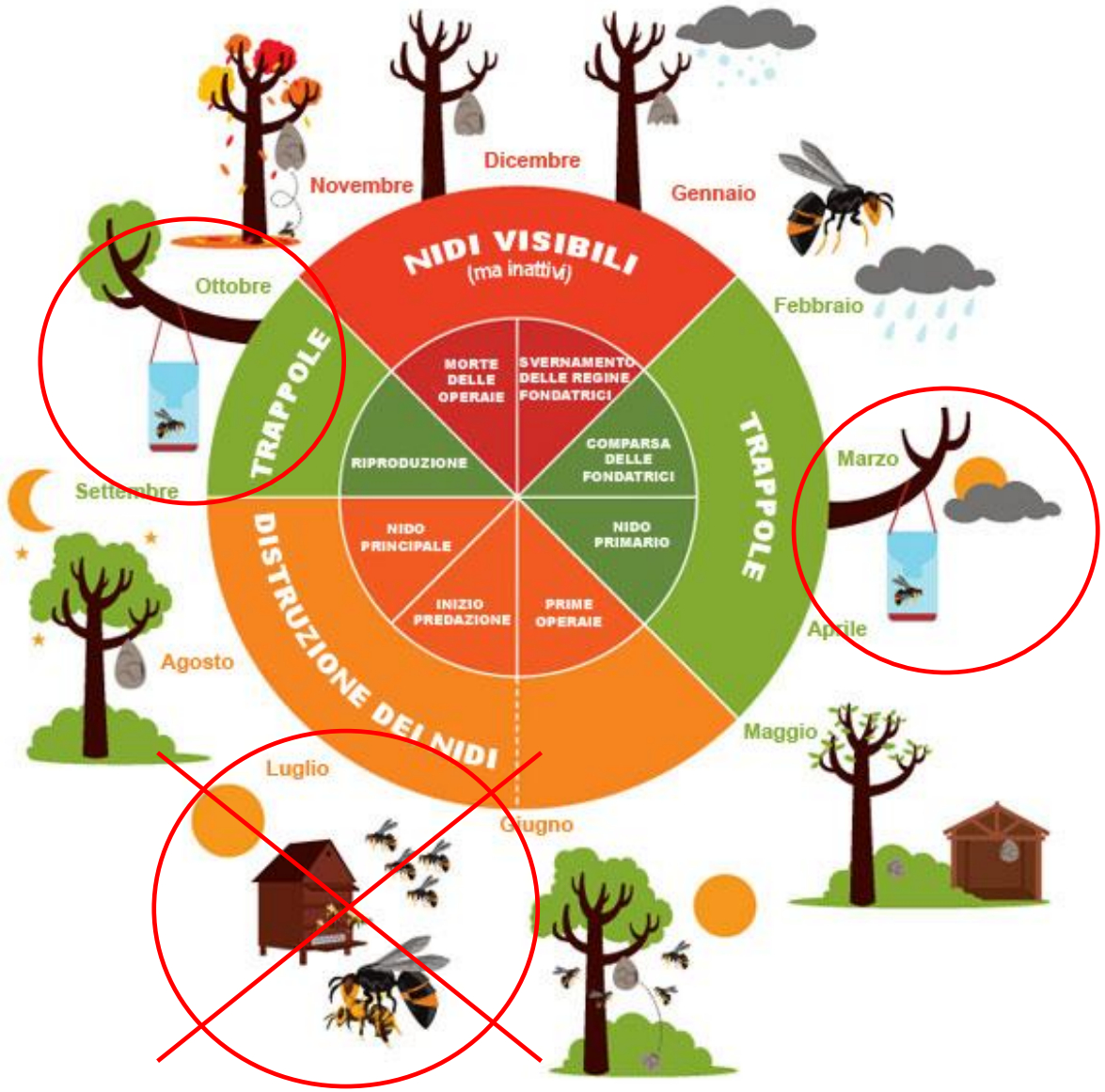
Répartition des principaux groupes

Monitoring and control modalities of a honeybee predator, the yellow-legged hornet *Vespa velutina nigrithorax* (Hymenoptera: Vespidae)

Quentin Rome, Adrien Perrard, Franck Muller and Claire Villemant


BEE

Trappolaggio primaverile/autunnale



Negli altri periodi il trappolaggio può risultare dannoso

Trappole selettive

Trappole a feromoni per catturare i maschi di *Vespa velutina*

Ping Wen, Ya-Nan Cheng, Shi-Hao Dong, Zheng-Wei Wang, Ken Tan & James C. Nieh. **The sex pheromone of a globally invasive honey bee predator, the Asian eusocial hornet, *Vespa velutina.*** *Scientific Reports 7, Article number: 12956*

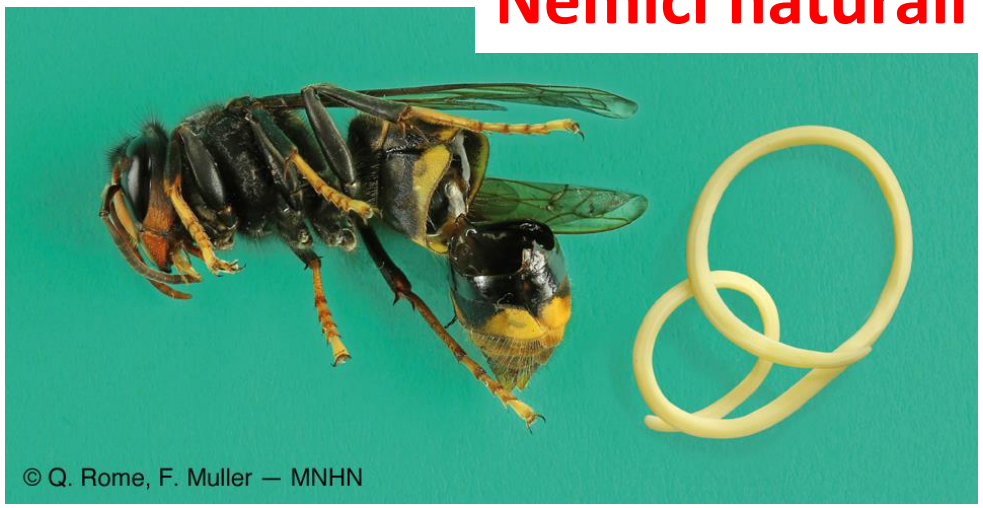
Studio di attrattivi feromonali

Università di Firenze

Saggi di laboratorio e analisi chimiche

Nemici naturali

Nemici naturali aspecifici



Sistemi «a barriera»

Sistemi «a barriera»

Le arpe elettriche

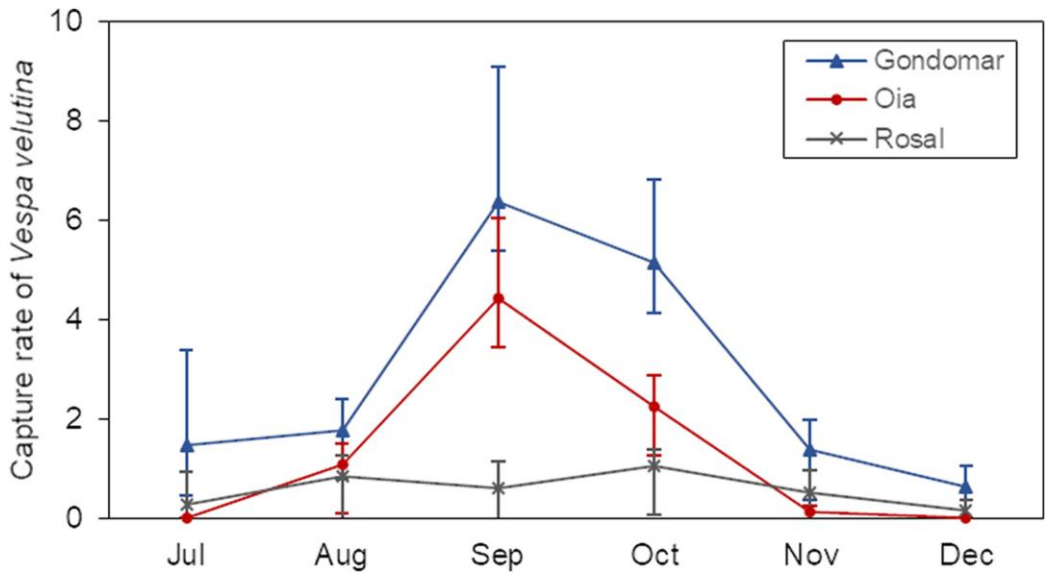
Pest Management Science

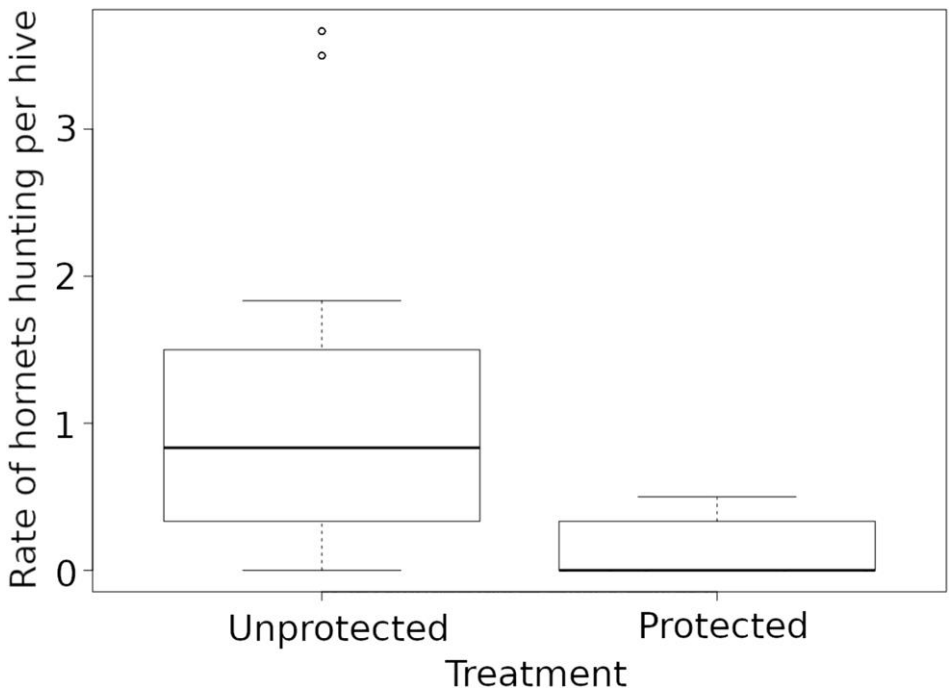
SCI where science meets business

Research Article | Open Access

Effectiveness of electric harps in reducing *Vespa velutina* predation pressure and consequences for honey bee colony development

Sandra V Rojas-Nossa, Damian Dasilva-Martins, Salustiano Mato, Carolina Bartolomé, Xulio Maside, Josefina Garrido






(a)
TS6
TS5
TS4
TS3


(b)

Metodo-Z

Si tratta di un metodo brevettato che mediante la contaminazione di un certo numero di adulti di vespa, con una quantità minima di principio attivo, permette la completa neutralizzazione del nido in modo indiretto

M&Z Mohos & Zagni GbR

STOP VESPA VELUTINA

Progetto VeSPa

Controllo di *Vespa velutina* nella provincia di La Spezia
con il metodo-Z

REGIONE LIGURIA

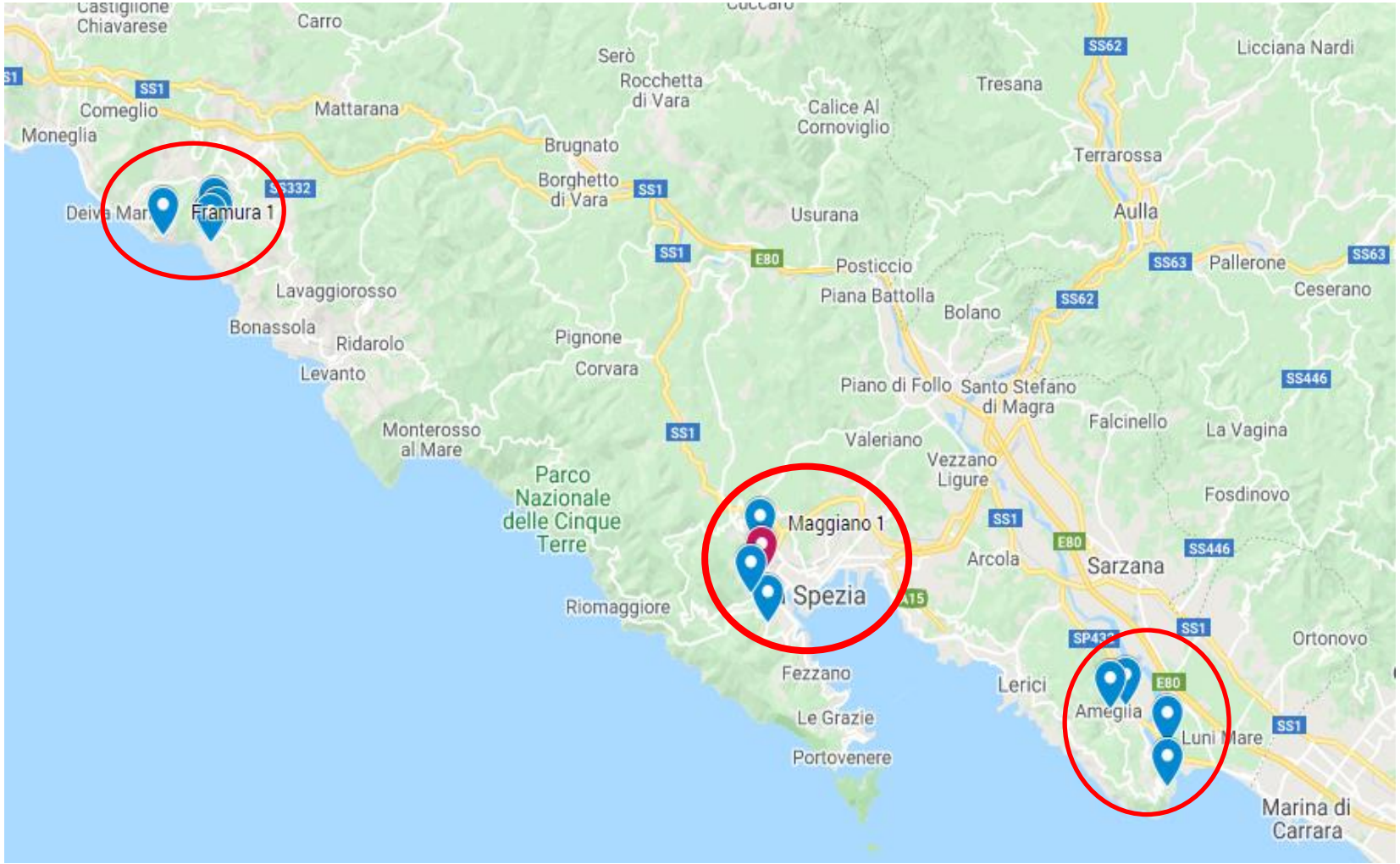
crea
Consiglio per la ricerca in agricoltura e l'analisi dell'economia agraria

ALPA Miele
Associazione Ligure Produttori Apistici Miele

APILIGURIA

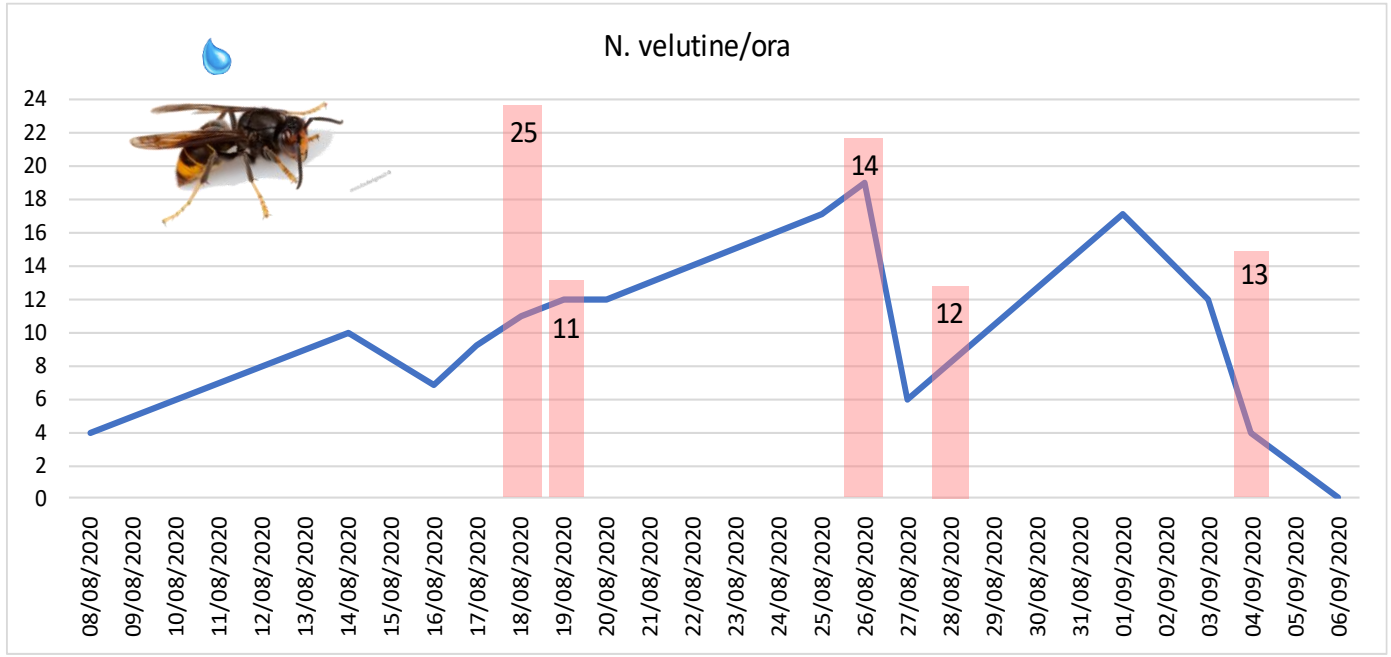
M&Z
Mohos & Zagni GbR

Apiari interessati dal progetto

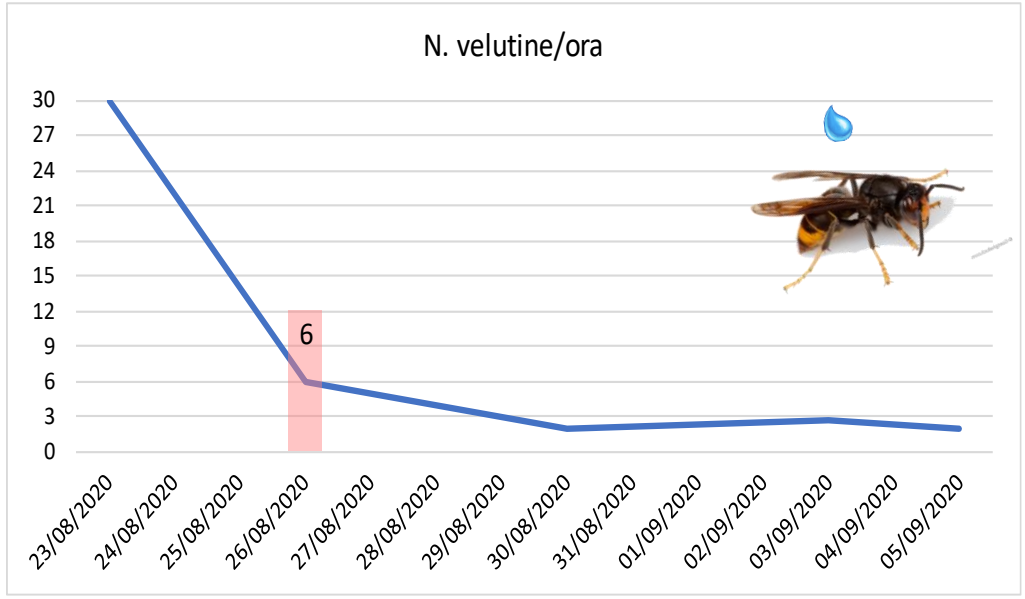


Apiari e nido La Spezia

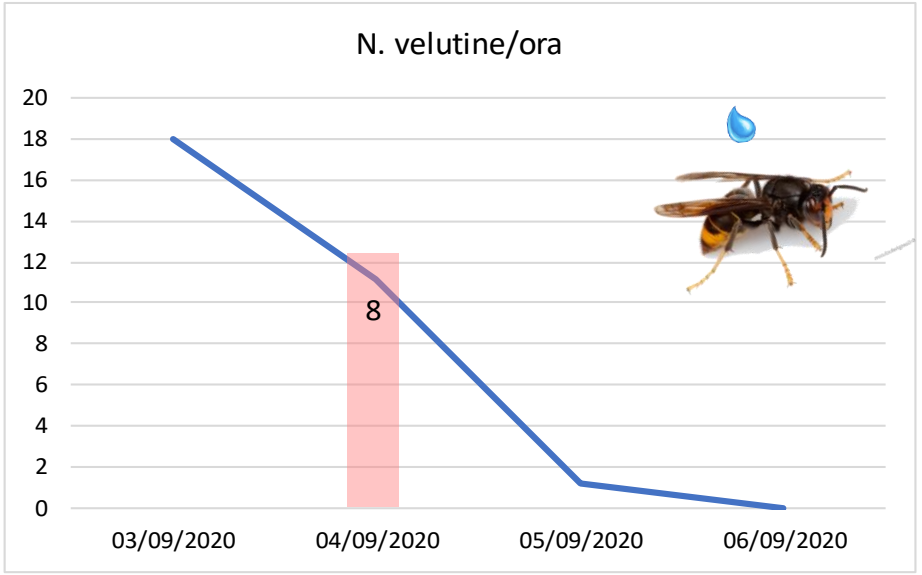
Maggiano (900 m)



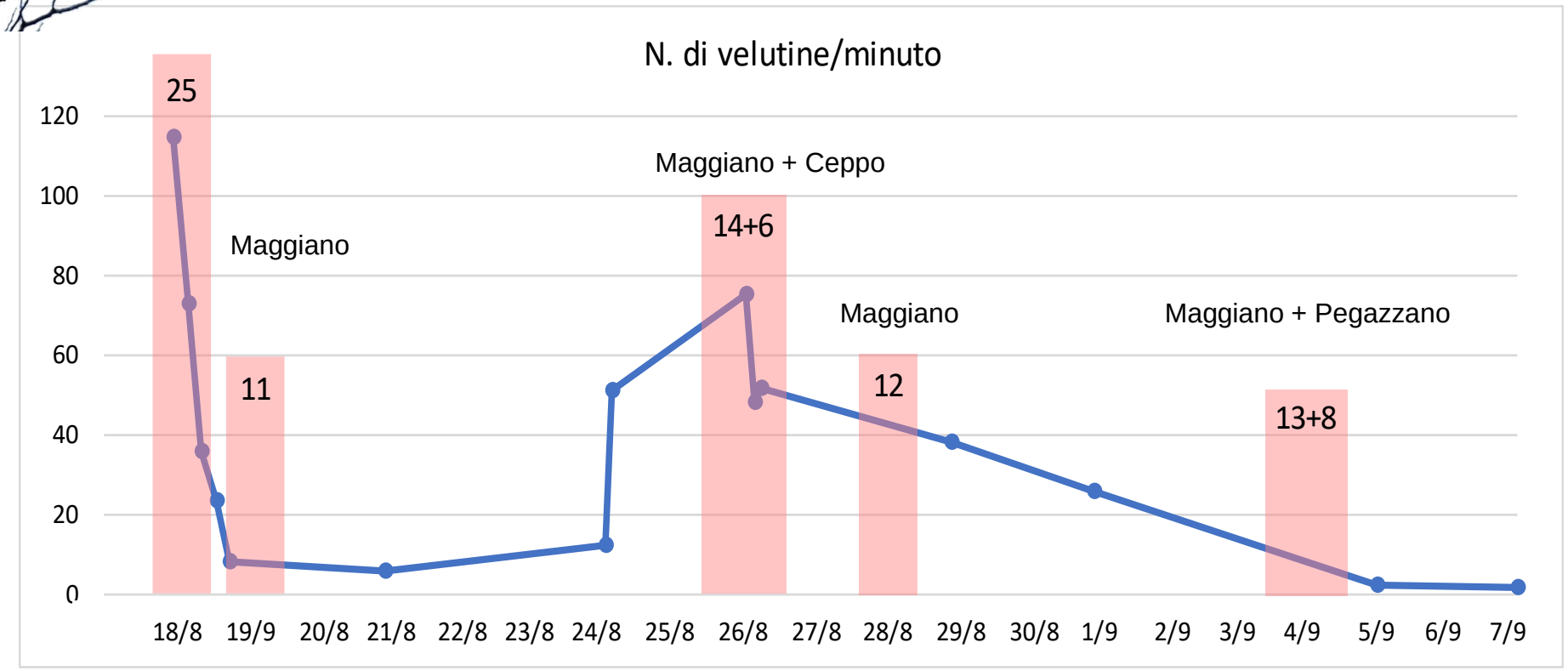
Ceppo (1.600 m)



Pegazzano (700 m)



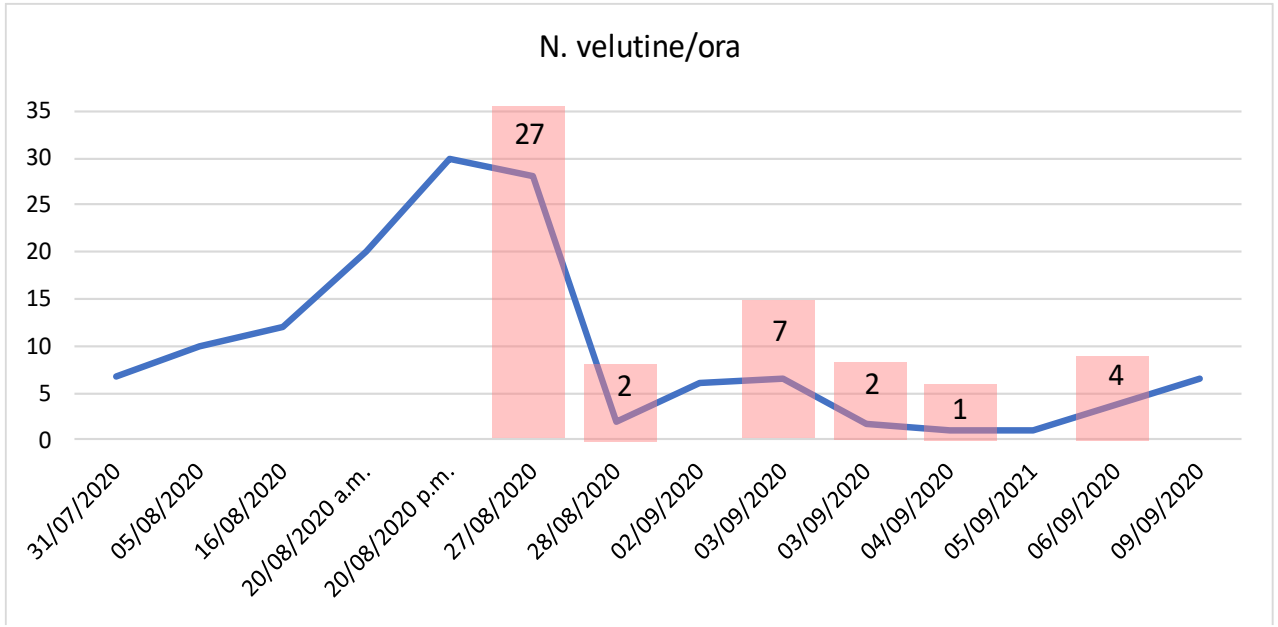
Popolazione del nido



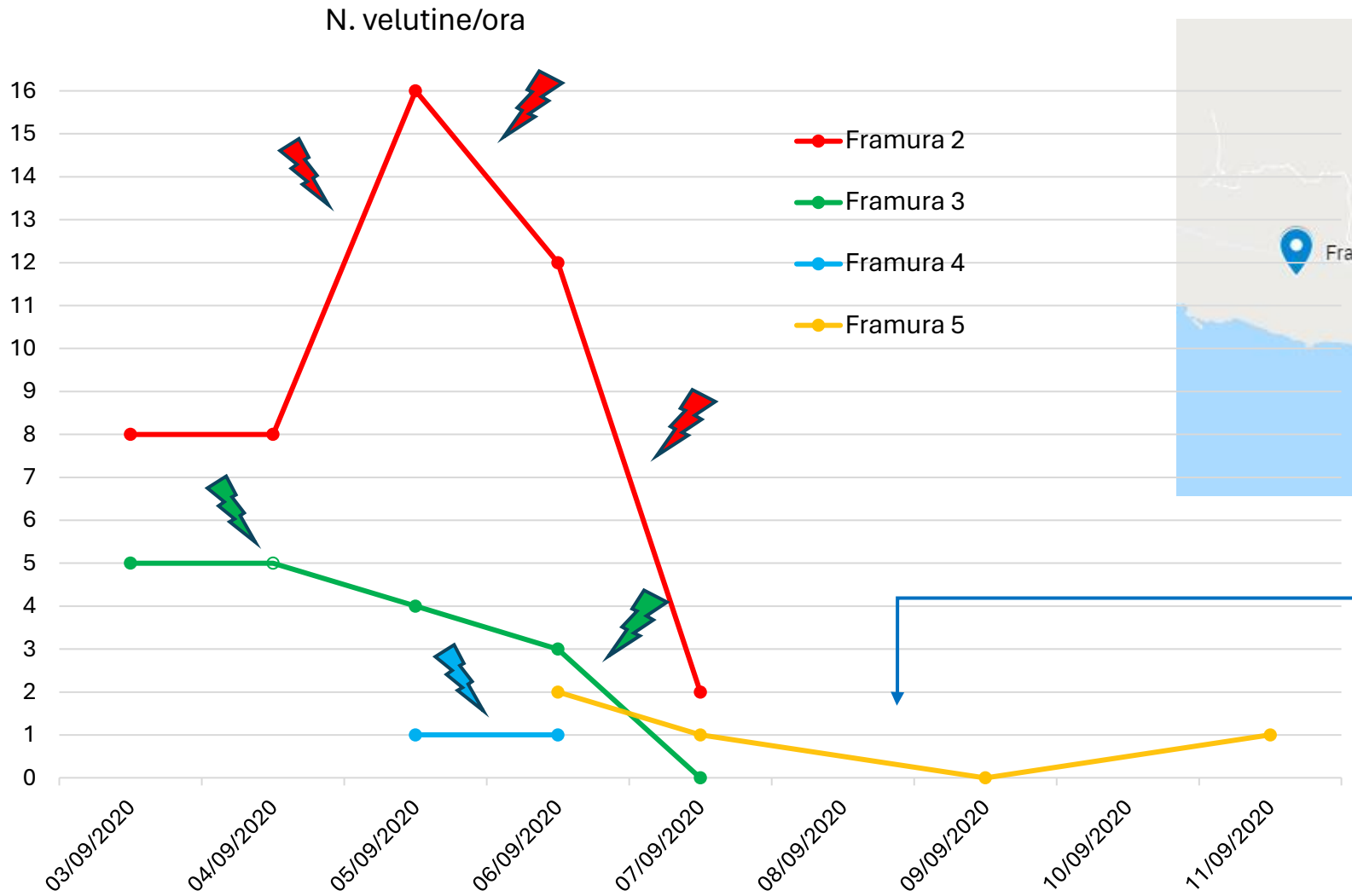
Nido al termine del trattamento

Apiari Framura

Apiari Framura



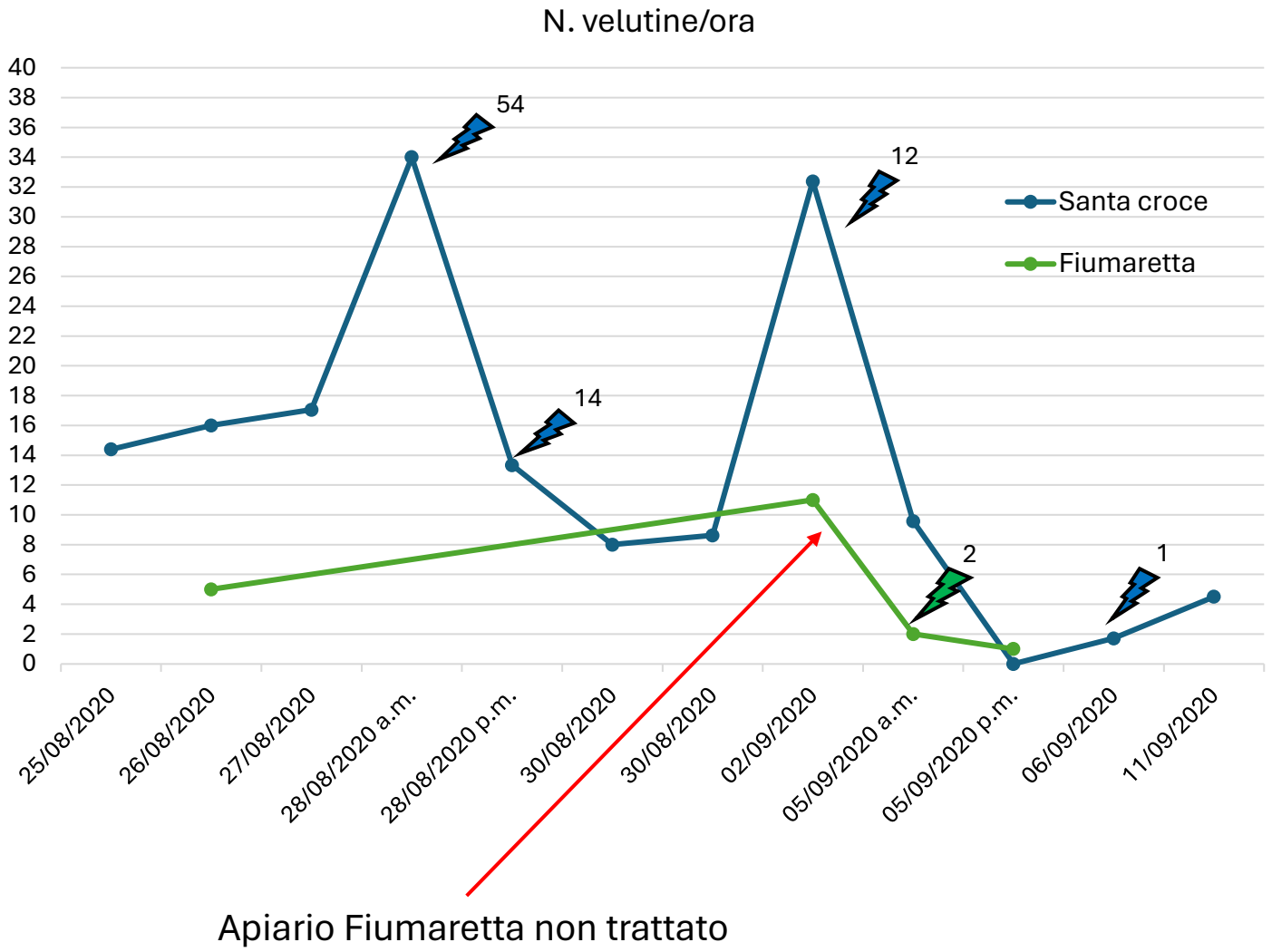
Apiari Framura



Apiario Framura 5 mai trattato

Apiari Ameglia

Apiari Ameglia



Progetto MiPAAF 2022-2023

STOP VESPA VELUTINA

Cos'è | Dov'è | Danni | Cosa fare | Notizie | Chi siamo

25 novembre 2021

Dal MiPAAF via libera al progetto che utilizza il Metodo-Z per il controllo di Vespa velutina

Dopo le sperimentazioni dell'estate 2020 in Liguria sull'applicazione del Metodo-Z (Progetto VeSPa), il Ministero delle Politiche Agricole Alimentari e Forestali finanzia un progetto biennale per il controllo di Vespa velutina. Coordinato dall'Istituto Zooprofilattico Sperimentale del Piemonte, Liguria e Valle d'Aosta e sostenuto dalla Regione Liguria e dalle Associazioni apistiche locali ApiLiguria e Alpa Miele, il [...]

Video

Guarda i nostri video per scoprire come identificare e fermare Vespa velutina.

Vuoi aiutarci?

Segnala quando vedi una Vespa velutina o un suo nido.

- Effettua una segnalazione →
- Fai una trappola anti-vespa →
- Come distruggere un nido →

ISTITUTO ZOOPROFILATTICO SPERIMENTALE del Piemonte Liguria e Valle d'Aosta

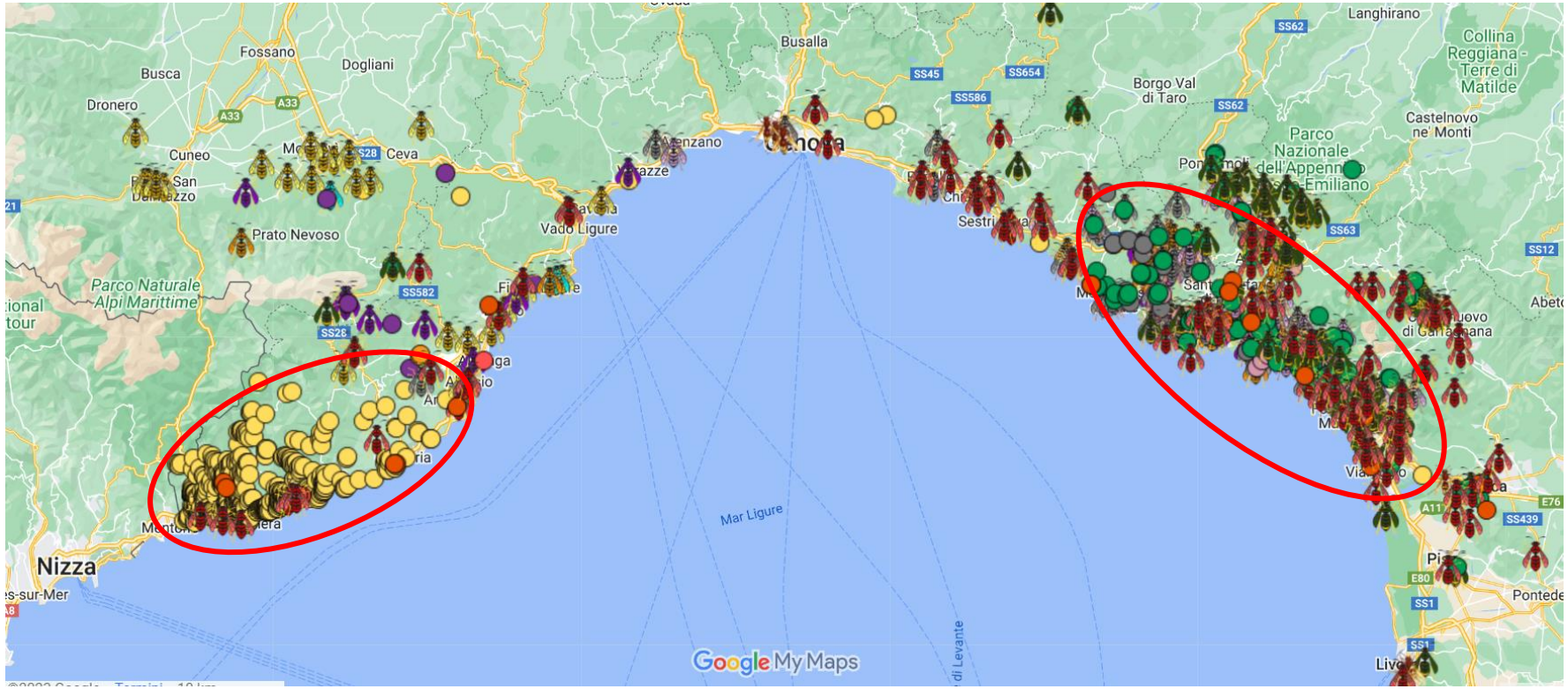
crea Consiglio per la ricerca in agricoltura e l'analisi dell'economia agraria

M&Z Mohos & Zagni GbR

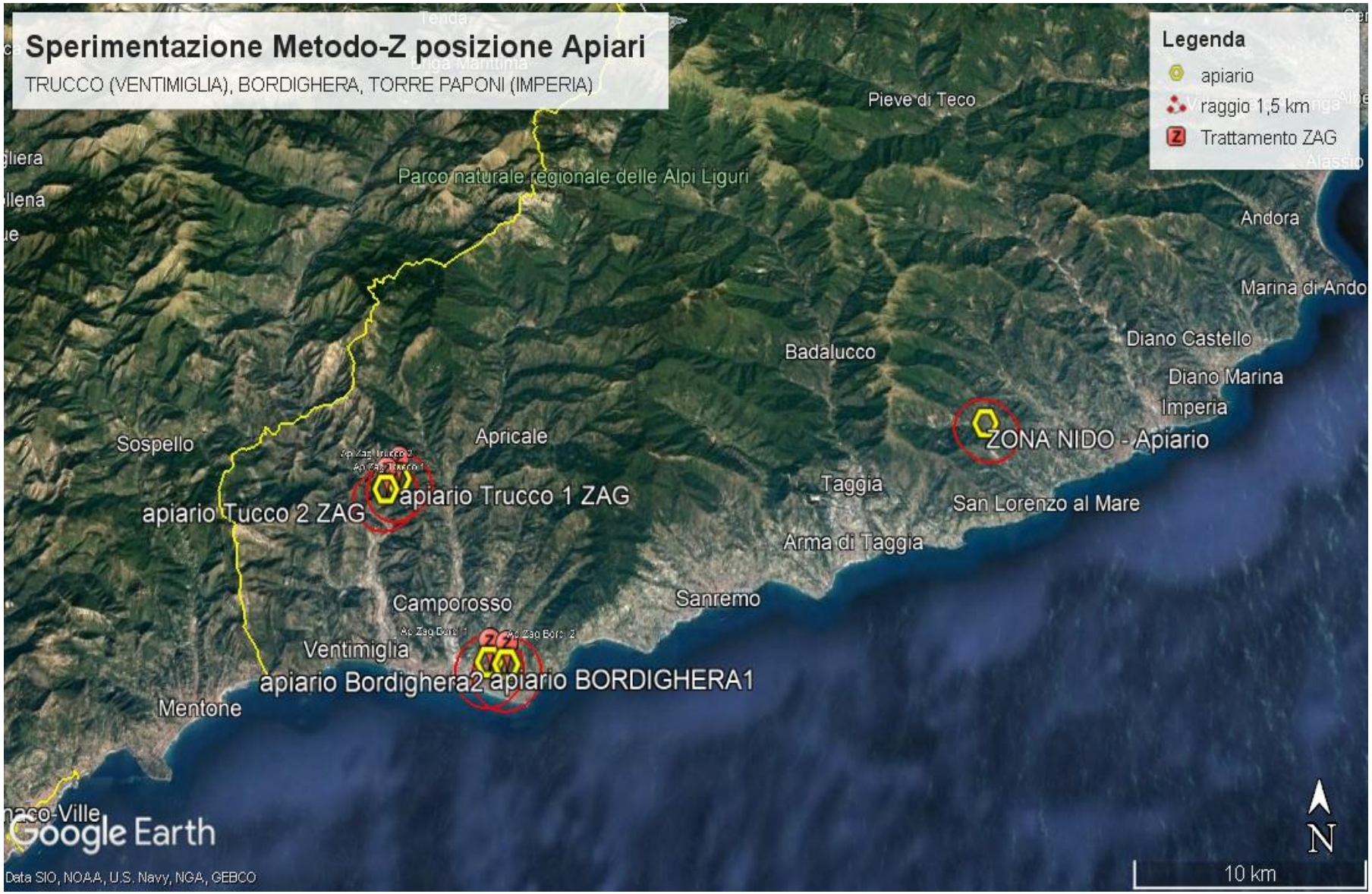
Metodo-Z

Il metodo è stato autorizzato dal Ministero della salute per scopi sperimentali su *Vespa velutina* nella provincia di Imperia e nella zona tra La Spezia e Massa Carrara.

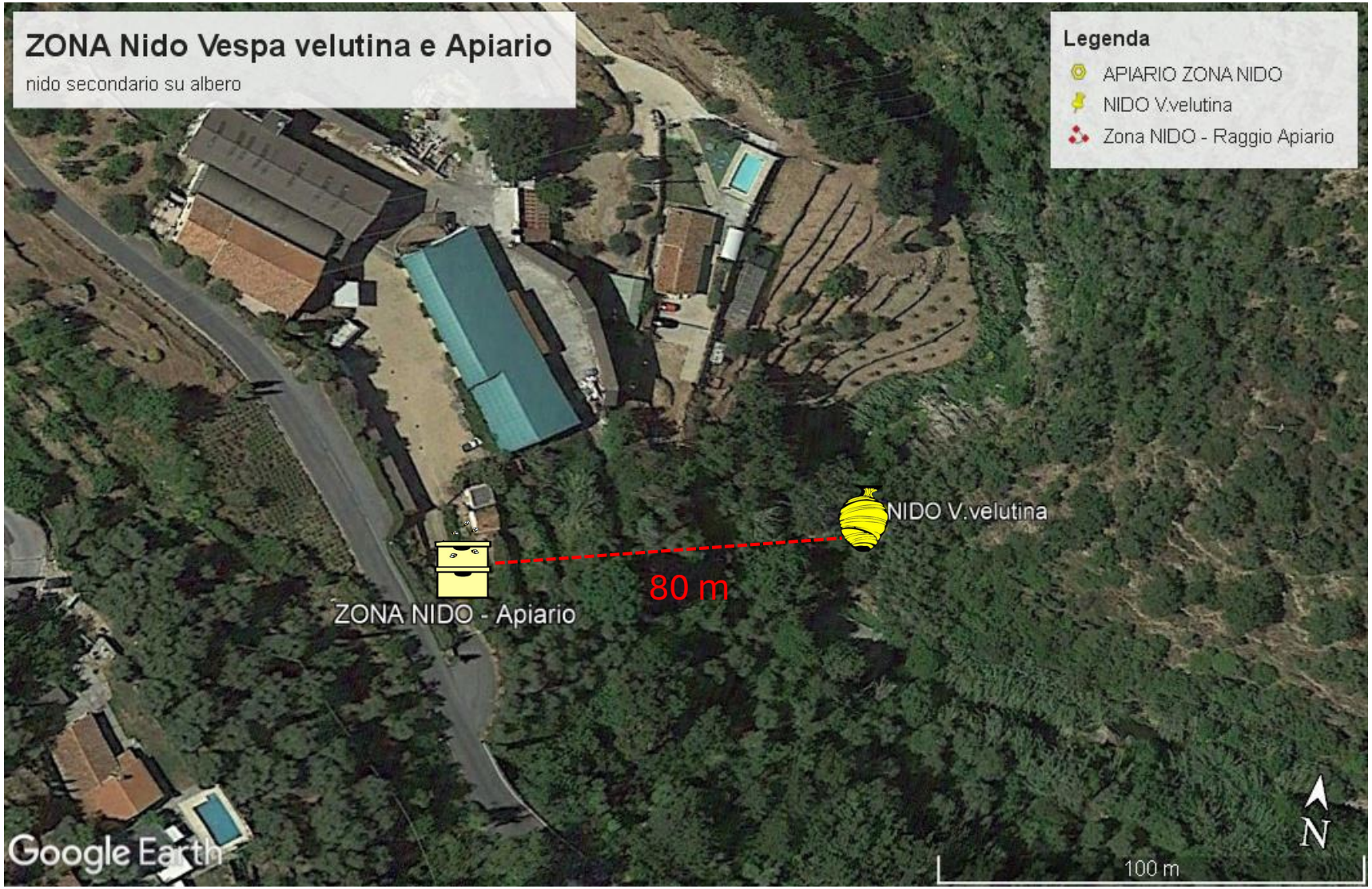
Autorizzato su *Vespa orientalis* nella provincia di Palermo

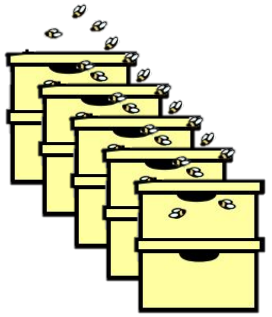


Sperimentazione Metodo-Z

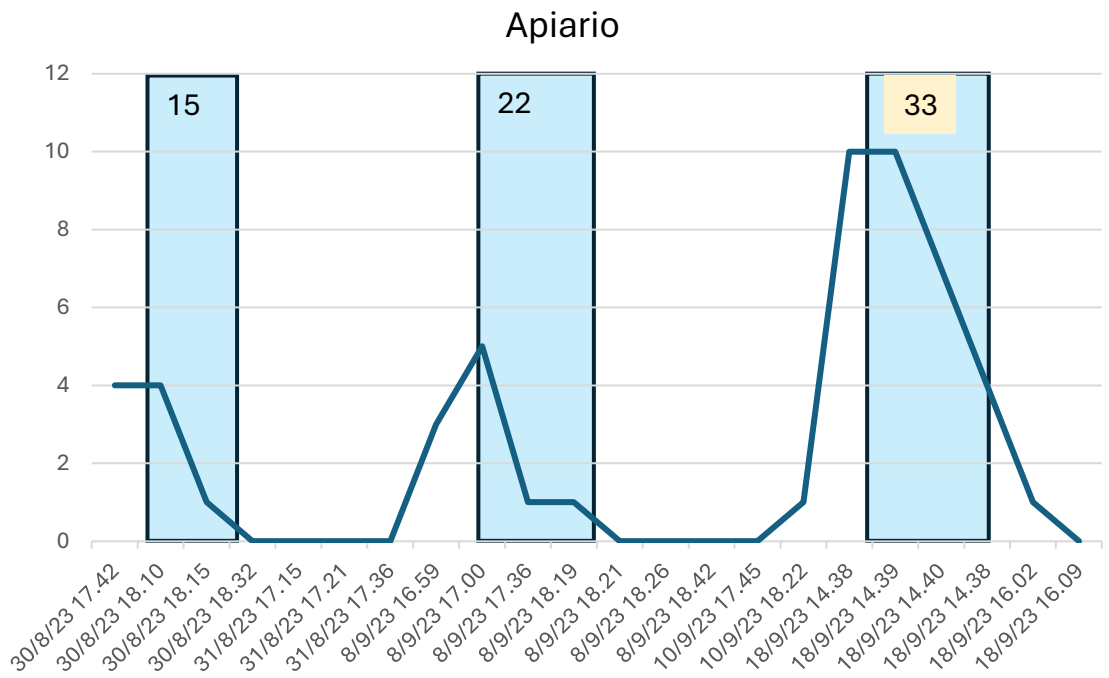


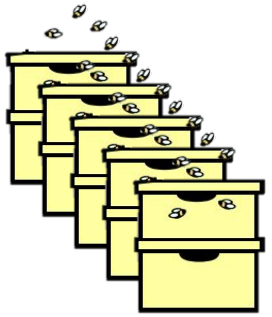
Apiario e nido Torre Paponi

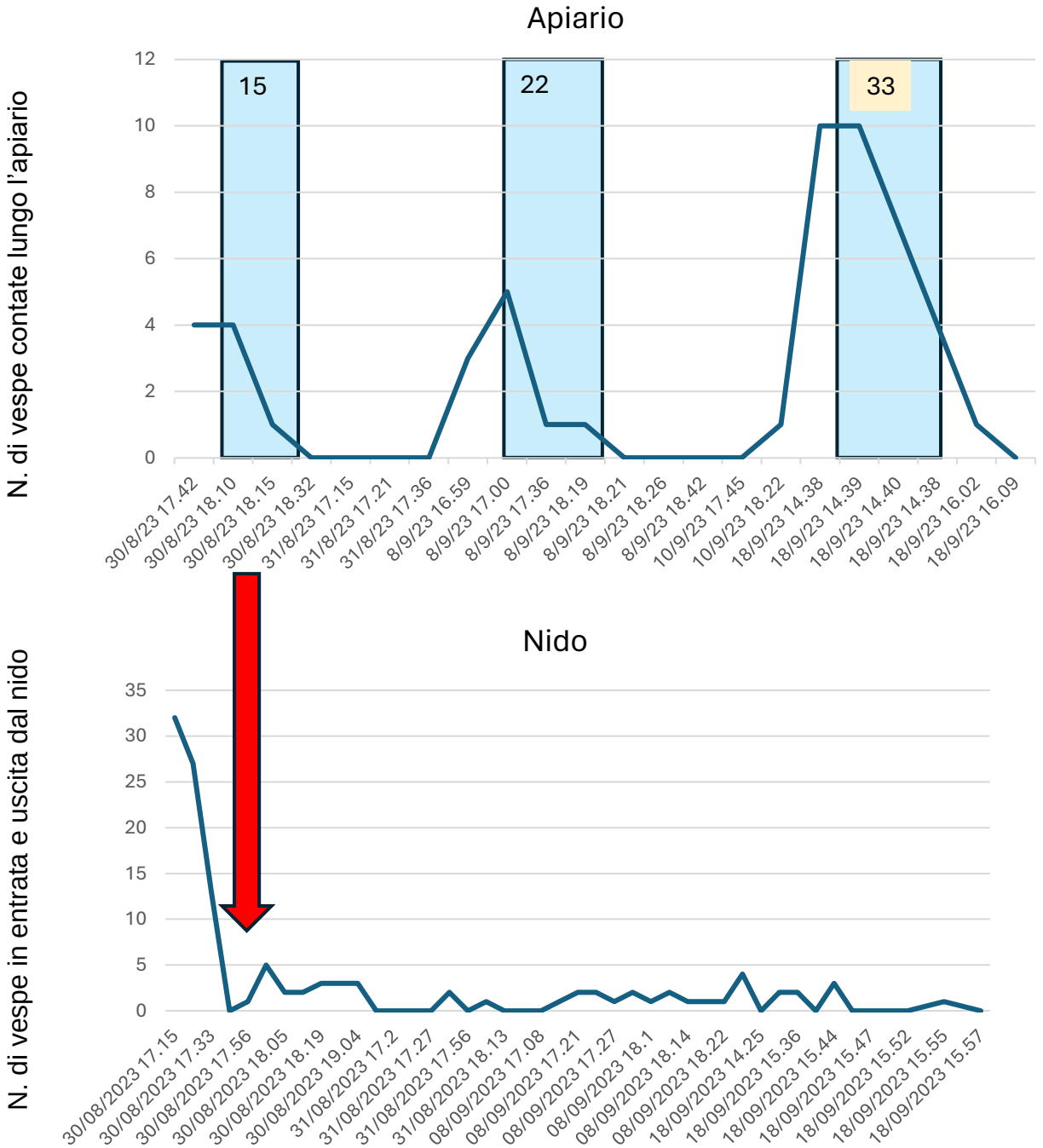


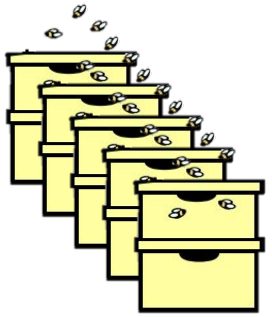


N. di calabroni contati lungo l'apiario

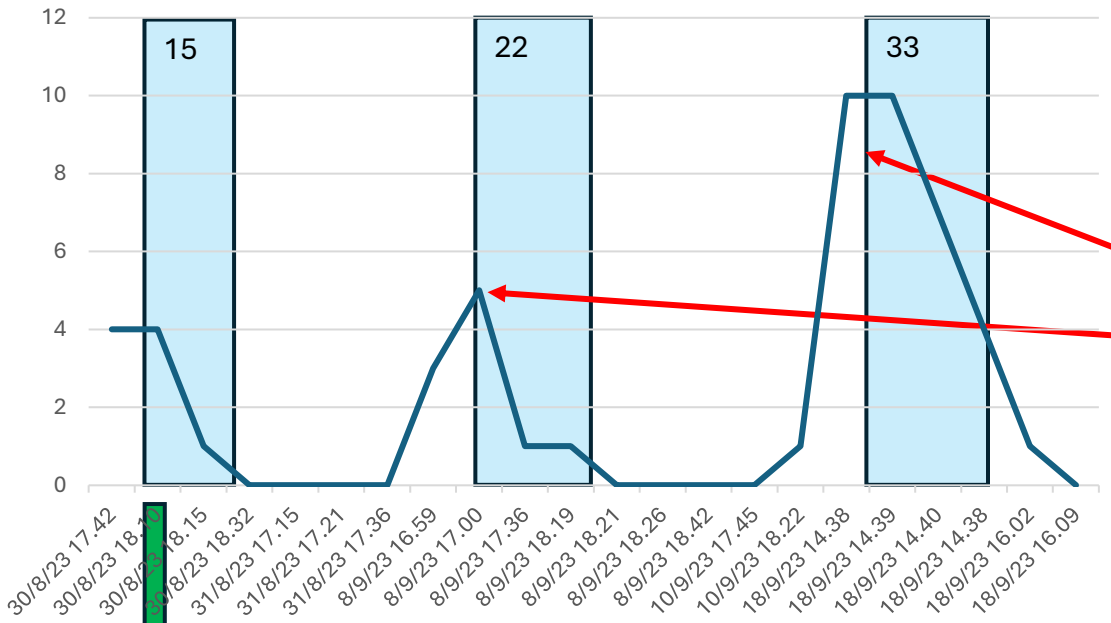




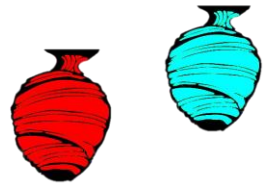

Apiario
N. di vespe contate lungo l'apiario
12
10
8
6
4
2
0
15
22
33
30/8/23 17.42
30/8/23 18.10
30/8/23 18.15
30/8/23 18.32
31/8/23 17.15
31/8/23 17.21
31/8/23 17.36
8/9/23 16.59
8/9/23 17.00
8/9/23 17.36
8/9/23 18.19
8/9/23 18.21
8/9/23 18.26
8/9/23 18.42
10/9/23 17.45
10/9/23 18.22
18/9/23 14.38
18/9/23 14.39
18/9/23 14.40
18/9/23 14.38
18/9/23 16.02
18/9/23 16.09
Nido
N. di vespe in entrata e uscita dal nido
35
30
25
20
15
10
5
0
30/08/2023 17.15
30/08/2023 17.33
30/08/2023 17.56
30/08/2023 18.05
30/08/2023 18.19
30/08/2023 19.04
30/08/2023 17.2
31/08/2023 17.27
31/08/2023 17.56
31/08/2023 18.13
31/08/2023 17.08
08/09/2023 17.21
08/09/2023 17.27
08/09/2023 18.1
08/09/2023 18.14
08/09/2023 18.22
18/09/2023 14.25
18/09/2023 15.36
18/09/2023 15.44
18/09/2023 15.47
18/09/2023 15.52
18/09/2023 15.55
18/09/2023 15.57



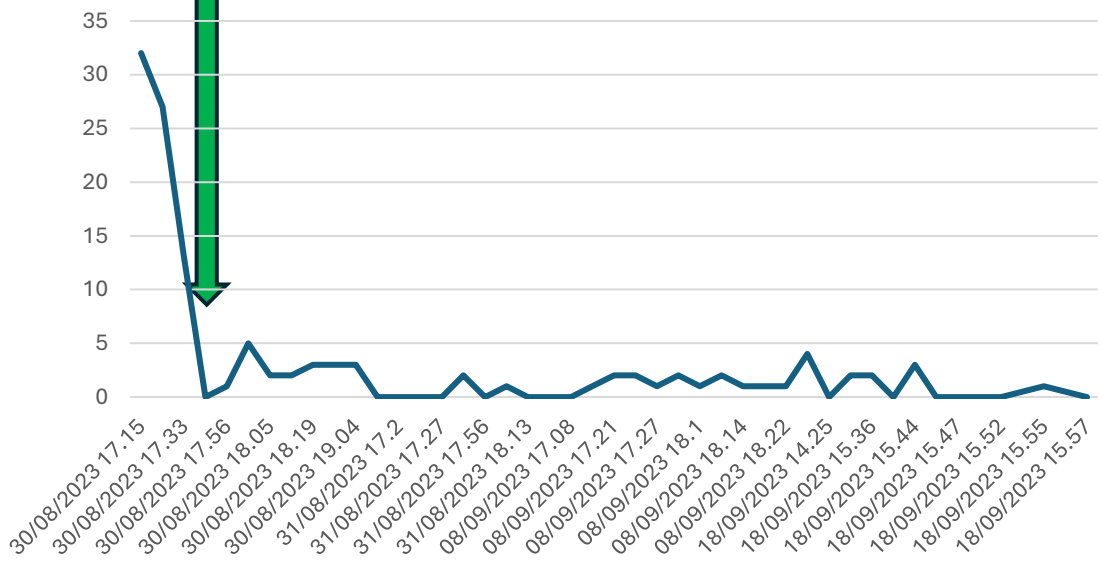
N. di calabroni contati lungo l'apiario



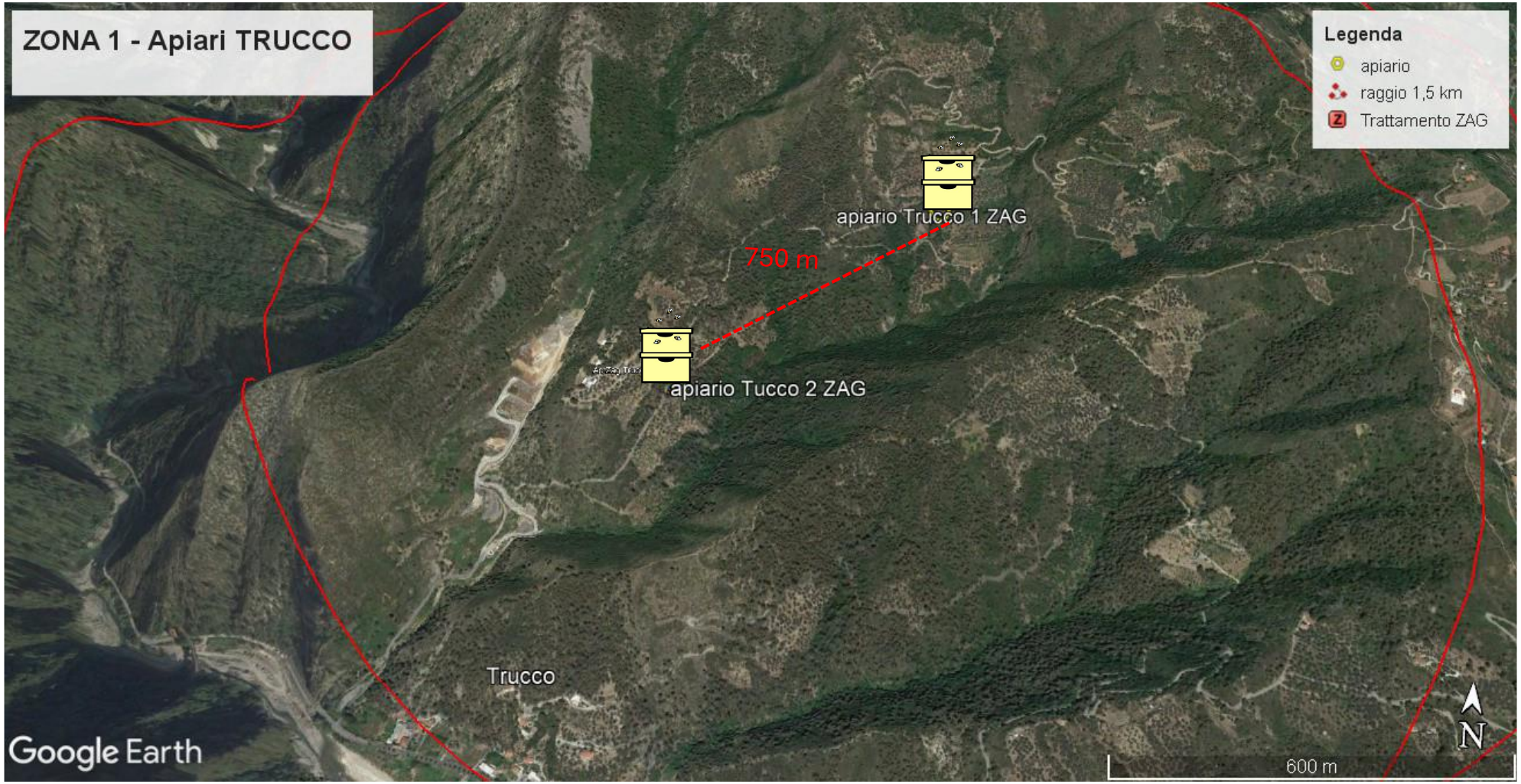
Altri nidi che predano sull'apiario



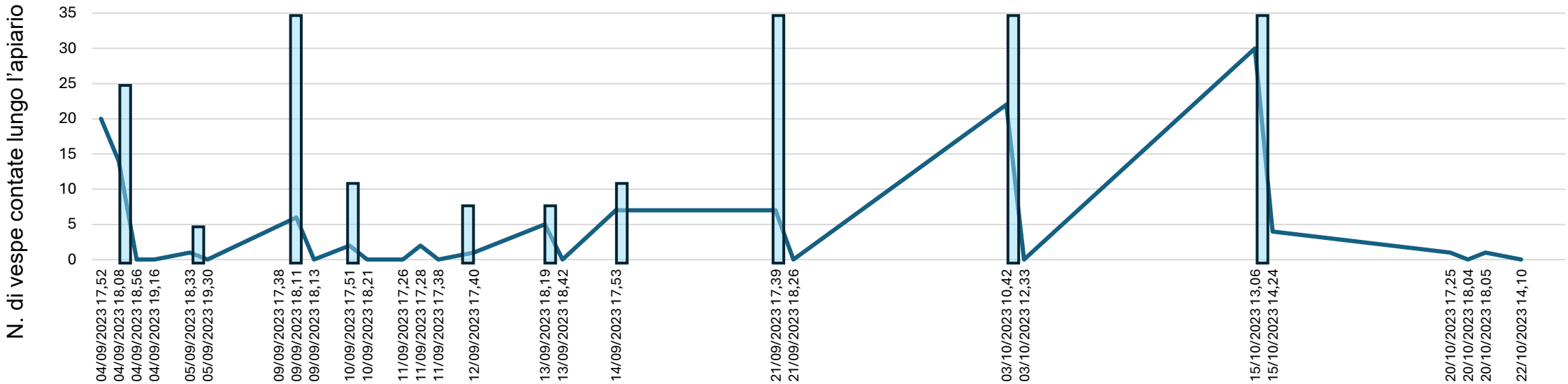
N. di calabroni in entrata e uscita dal nido in 2 minuti



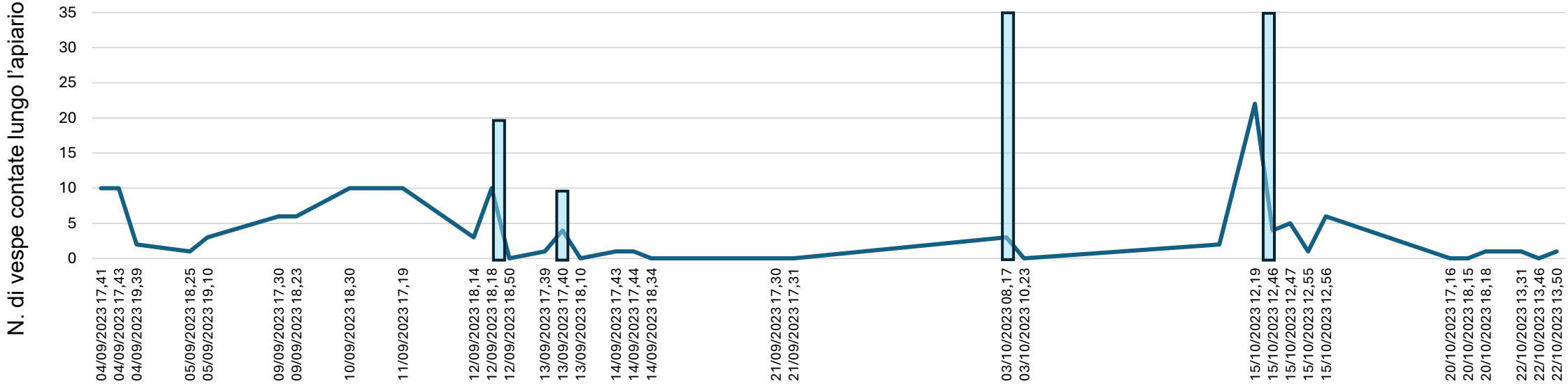
Trucco area mediamente infestata



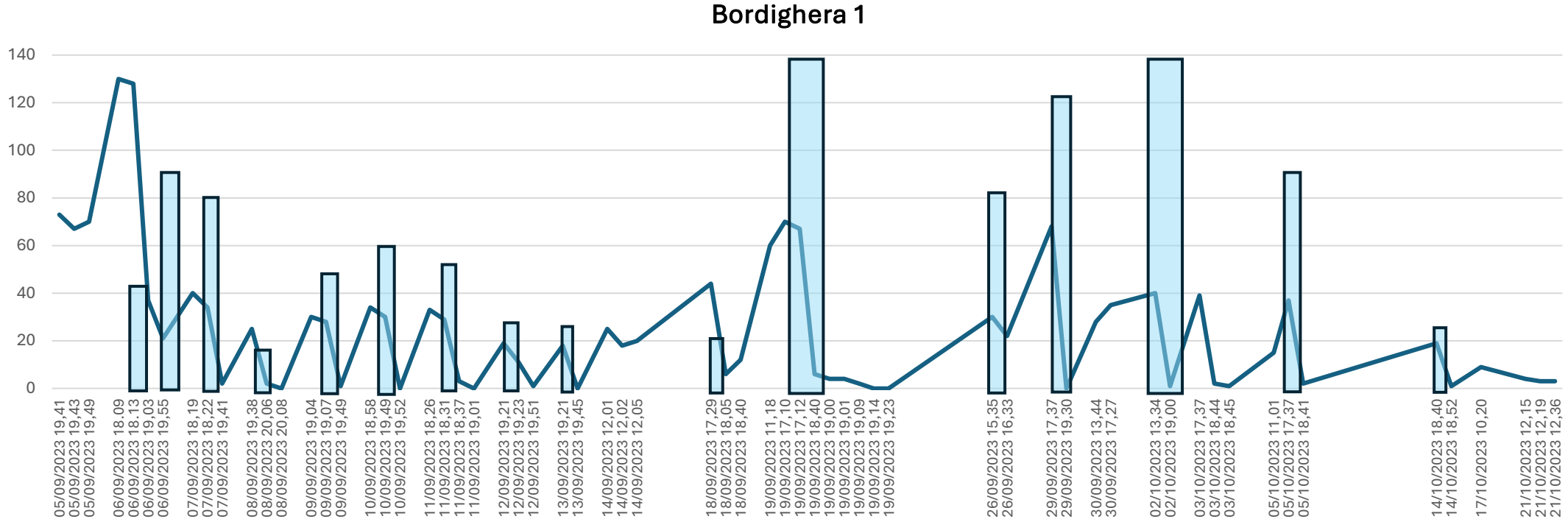
Trucco 1



Trucco 2



Bordighera area molto infestata


Bordighera 1
140
120
100
80
60
40
20
0
05/09/2023 19,41
05/09/2023 19,43
05/09/2023 19,49
06/09/2023 18.09
06/09/2023 18.13
06/09/2023 19,03
06/09/2023 19,55
07/09/2023 18,19
07/09/2023 18,22
07/09/2023 19,41
08/09/2023 19,38
08/09/2023 20,06
08/09/2023 20,08
09/09/2023 19,04
09/09/2023 19,07
09/09/2023 19,49
10/09/2023 18,58
10/09/2023 19,49
10/09/2023 19,52
11/09/2023 18,26
11/09/2023 18,31
11/09/2023 18,37
11/09/2023 19,01
12/09/2023 19,21
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13/09/2023 19,45
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18/09/2023 17,29
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19/09/2023 19,14
19/09/2023 19,23
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29/09/2023 19,30
30/09/2023 13,44
30/09/2023 17,27
02/10/2023 13,34
02/10/2023 19,00
03/10/2023 17,37
03/10/2023 18,44
03/10/2023 18,45
05/10/2023 11,01
05/10/2023 17,37
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14/10/2023 18,52
17/10/2023 10,20
21/10/2023 12,15
21/10/2023 12,19
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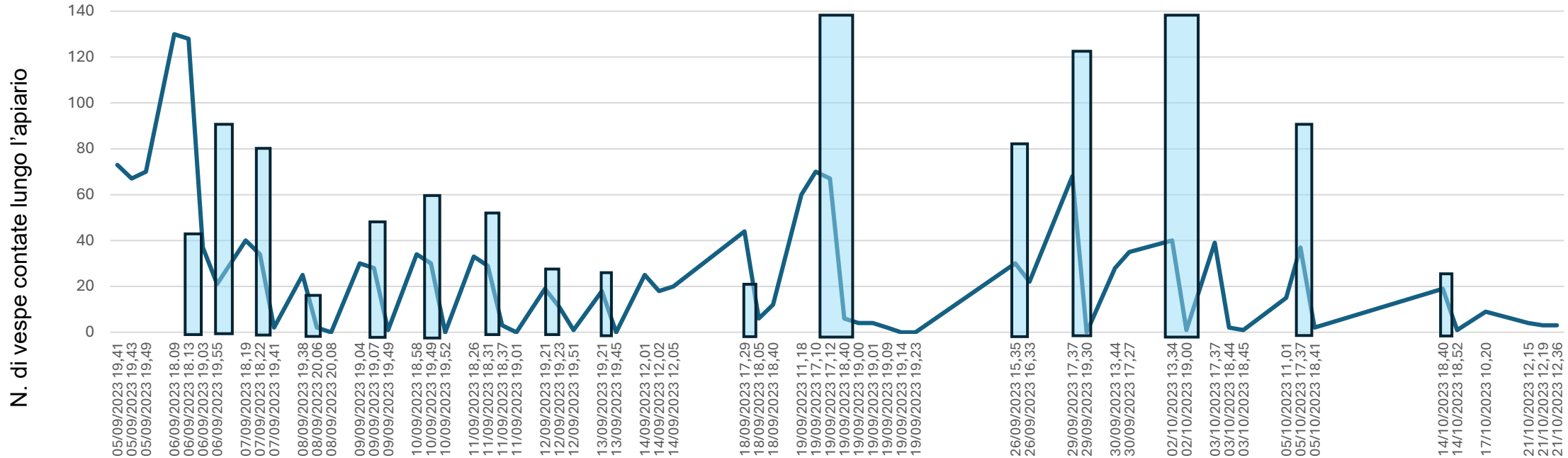
Bordighera 1



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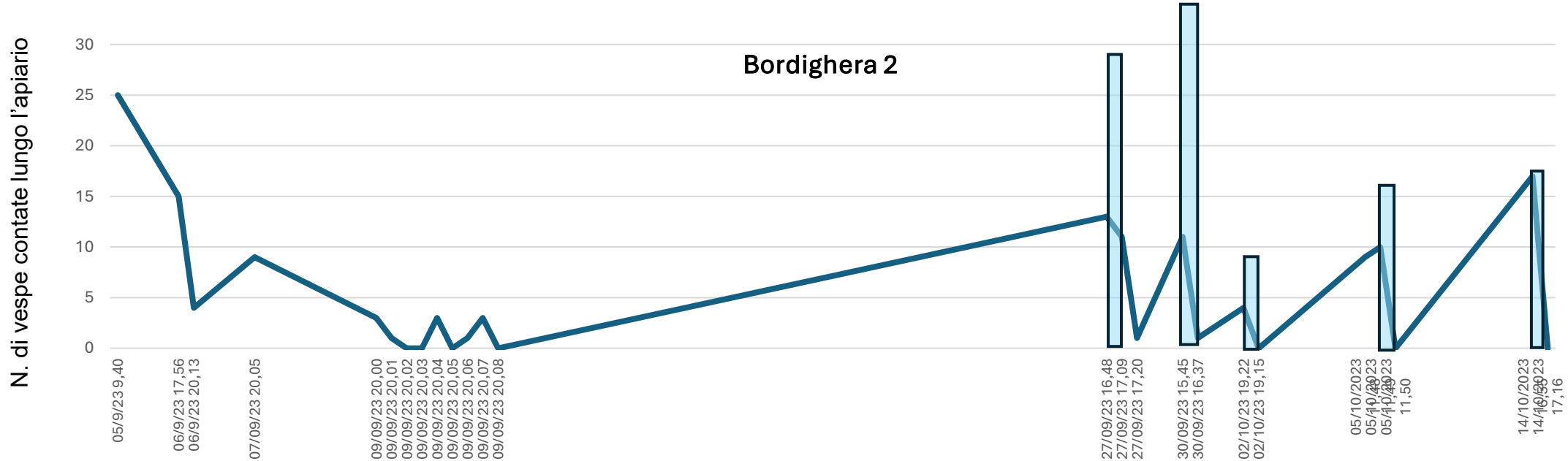

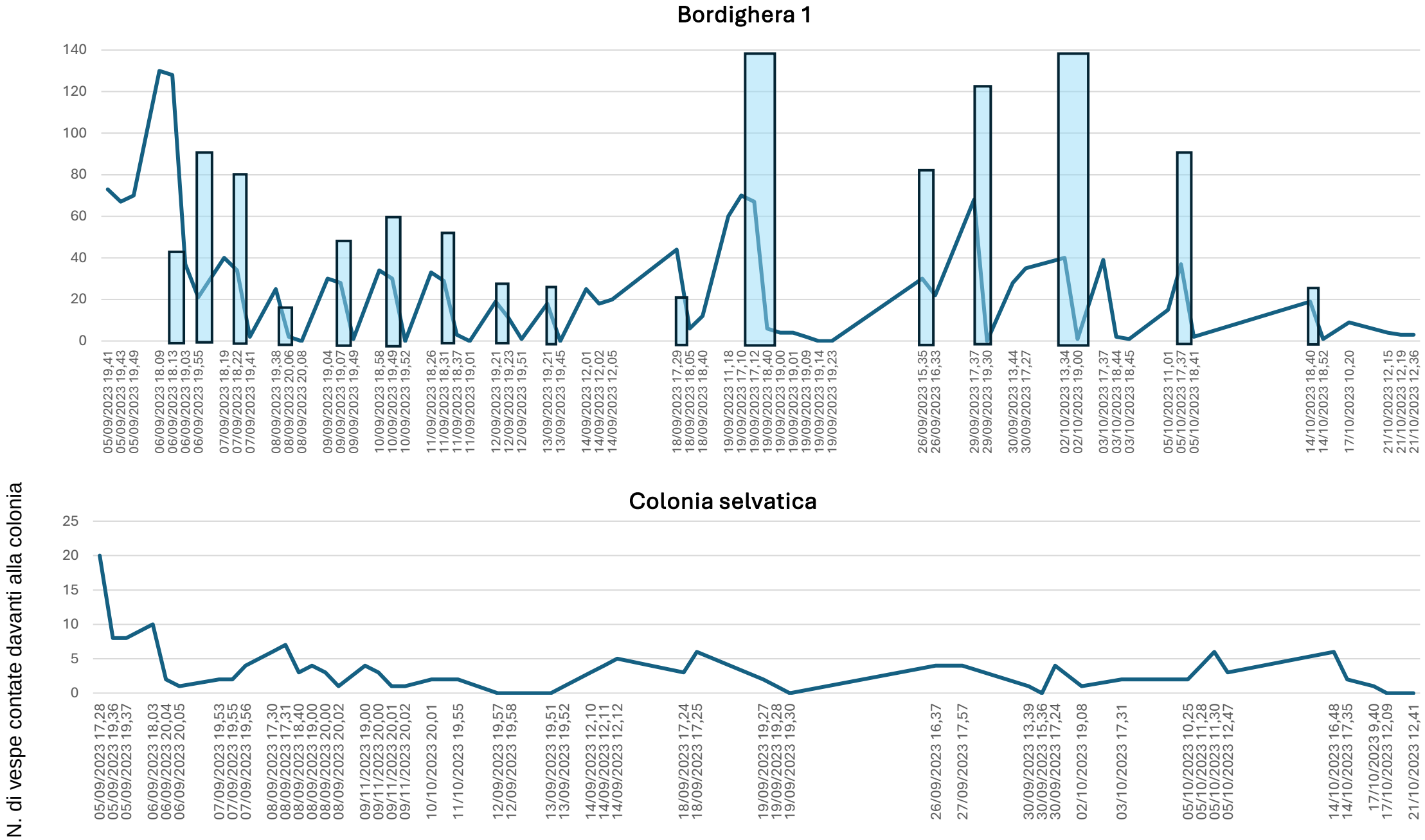
Bordighera 1
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100
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Colonia selvatica
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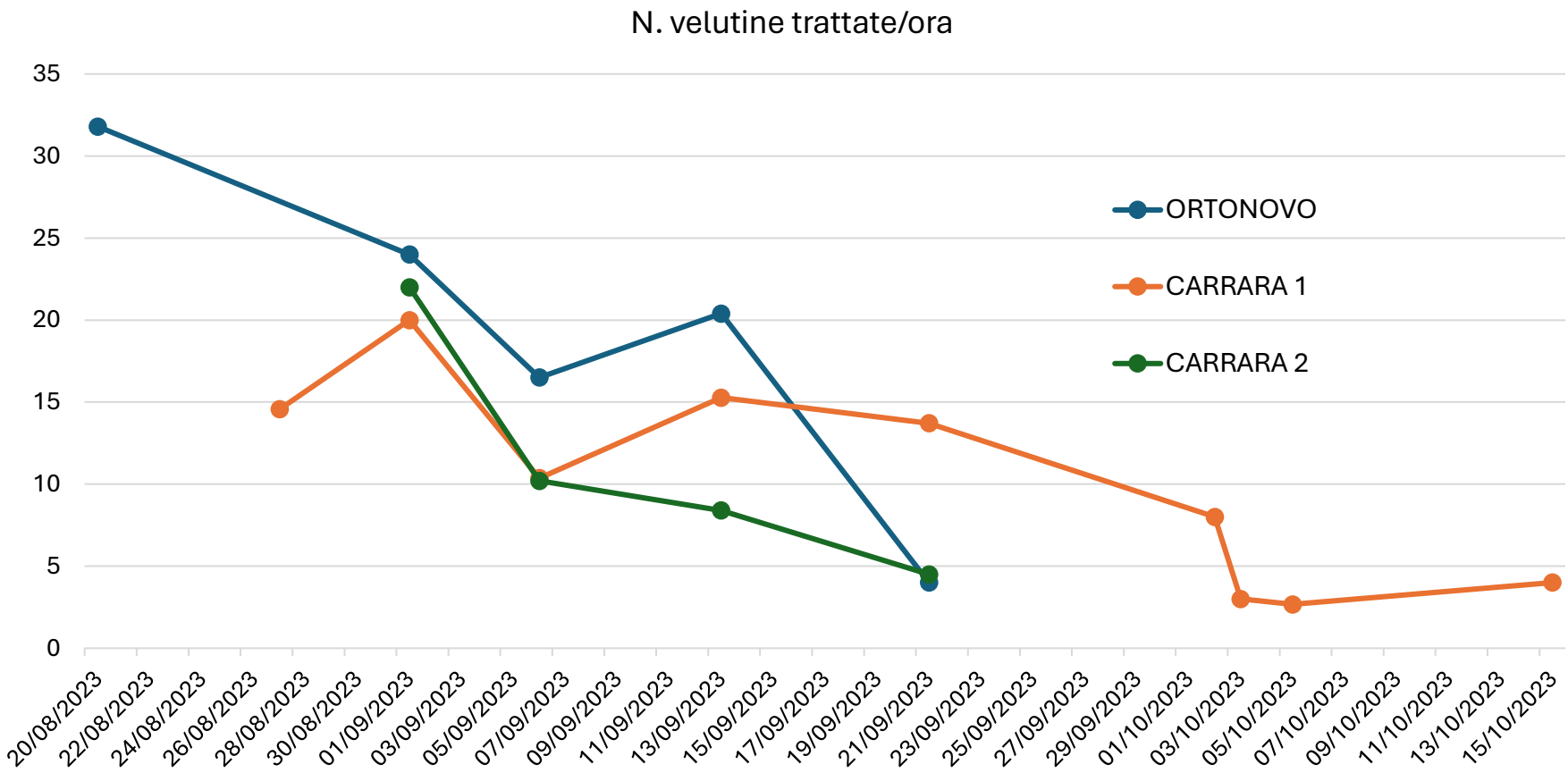
Apiari Carrara

Apiari Carrara



Zone di alta infestazione

≈ 10 nidi/km^2

=> 7 km^2 = ≈70 nidi

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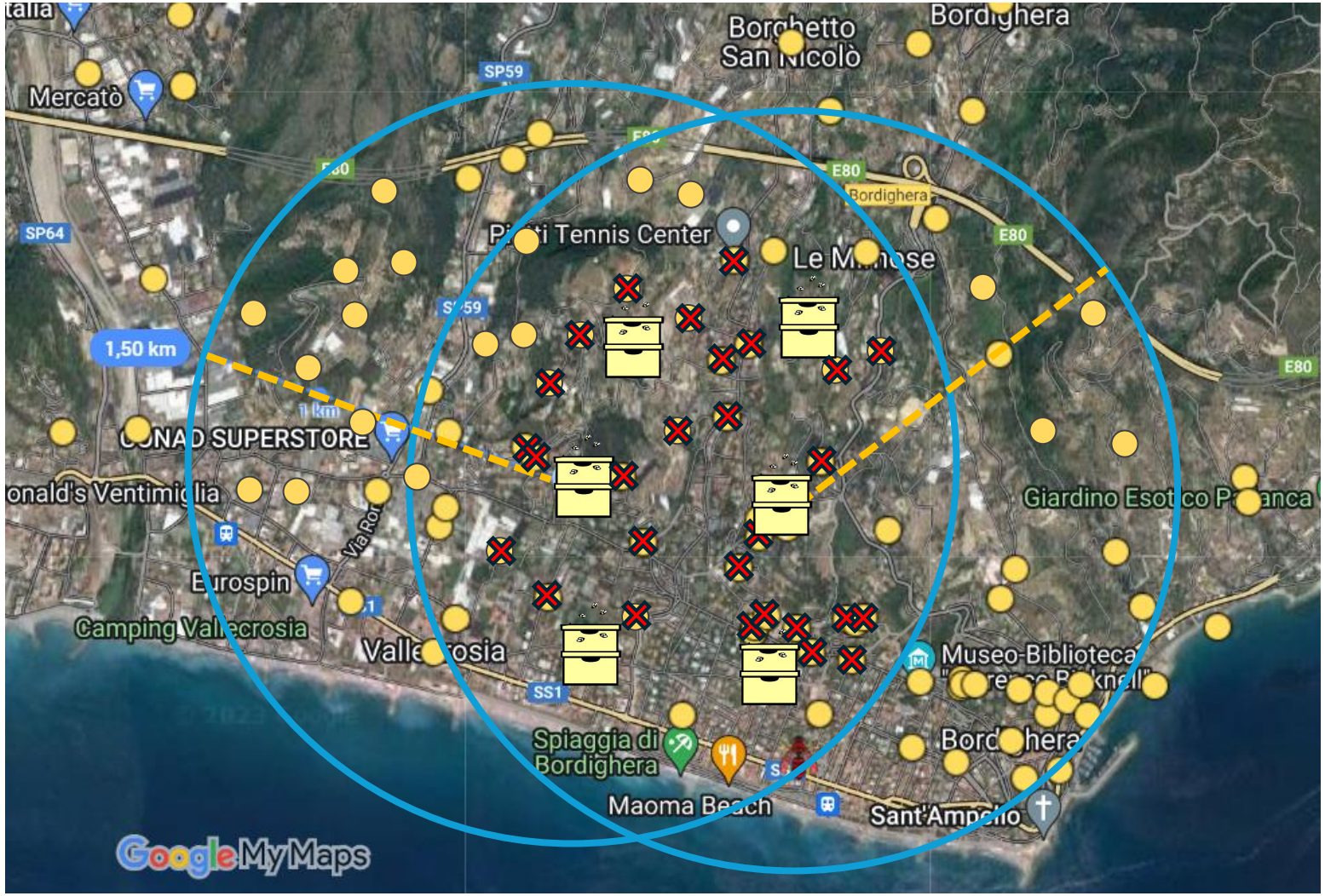
Zone di alta infestazione



≈ 10 nidi/km^2

=> 7 km^2 = ≈70 nidi

Conclusioni

Il metodo è efficace nel neutralizzare i nidi trattando i calabroni in apiario

Il trattamento di un apiario **è efficace anche su altri apiari** situati nelle vicinanze

Il numero dei calabroni può aumentare dopo pochi giorni a causa dell'uscita delle pupe dal nido, oppure perché altri nidi iniziano a predare l'apiario

Nelle aree fortemente infestate sono necessari trattamenti ripetuti per ridurre il numero di calabroni nell'apiario

Prospettive future

Il **trattamento simultaneo di molti apiari** vicini potrebbe portare all'eliminazione di tutti i nidi di una zona

Un dispositivo in via di realizzazione permetterà il trattamento selettivo dei calabroni

Grazie per l’attenzione