OP-103 [Bee Health]
Insights into the management of the Asian hornet in South-West Germany: nest occurrences and hurdles in control strategies

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The Asian hornet (Vespa velutina nigrithorax) is expanding its range, with south-west Germany strongly colonized. To manage the incursion of this invasive pest, a central coordination office was established at the State Institute for Bee Research (LAB) at the University of Hohenheim, Stuttgart. We validate sightings from Baden-Württemberg, coordinate nest removal, provide educational programs for beekeepers and other stakeholders, and conduct research.

In 2024, the number of verified individual Asian hornets reported rose to over 3,300; additionally 1,450 V. velutina nests were located. The proportion of false and accurate hornet sightings changed throughout the season, with substantially more sightings at the end of the year.
In order to disrupt the reproductive cycle of the Asian hornet, it is imperative to eliminate nests early, before the new queens depart. However, the majority of reported nests were found in late fall, with 311 reported in October and 506 in November. Successful nest removal was higher for primary nests, with 447 out of 468 removed, as they were more accessible. The removal of secondary nests was less successful, with less than half removed.

Despite massive efforts to destroy Asian hornet nests, the invasive species continues to spread throughout Germany. Current removal measures are neither sophisticated nor cost-effective. Consequently, we need more research to explore economically viable methods of eliminating nests. Additionally, methods for safeguarding honey bee colonies should be investigated. The utilisation of “selective traps” has been proposed; however, these devices are non-selective, capturing non-target species, including the protected European hornet (Vespa crabro) and other social wasps. Further experiments designed to capture young queens are scheduled to be conducted in spring 2025. The resulting data will be presented at the conference.

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Apimondia 2025 - Copenhagen

INSIGHTS INTO THE MANAGEMENT OF THE ASIAN HORNET IN SOUTH-WEST GERMANY:

NEST OCCURRENCES AND HURDLES IN CONTROL STRATEGIES

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THREAT OF THE ASIAN HORNET IN EUROPE

State Institute of Bee Research

One nest of Asian Hornets consumes up to 11 kg of insects

- Reduced pollination
- Damage to fruit growing and viticulture
- Reports of honey bee colony losses of 30-80%
- Increase of insect stings

DISTRIBUTION OF ASIAN HORNET IN GERMANY

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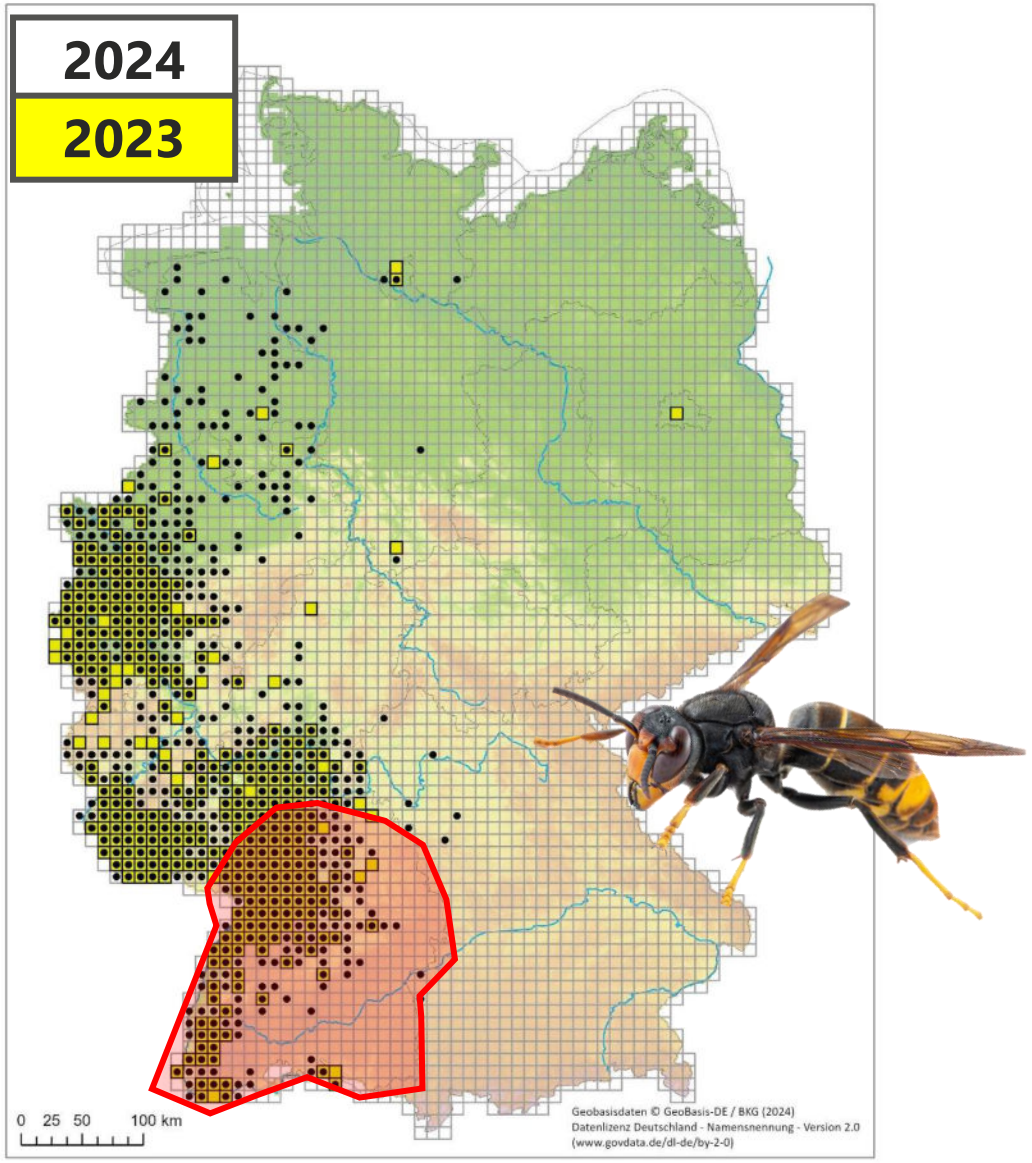

- First arrival in 2014
- Rapid spread since 2023
- No published data on damage in Germany
- Obligation to combat through March 2025

- Now:
  - ‘established invasive species’
  - Management strategy
  - The removal of nests is only necessary if there is a threat to biodiversity or the economy.

CURRENT DISTRIBUTION AND NEST COUNTS

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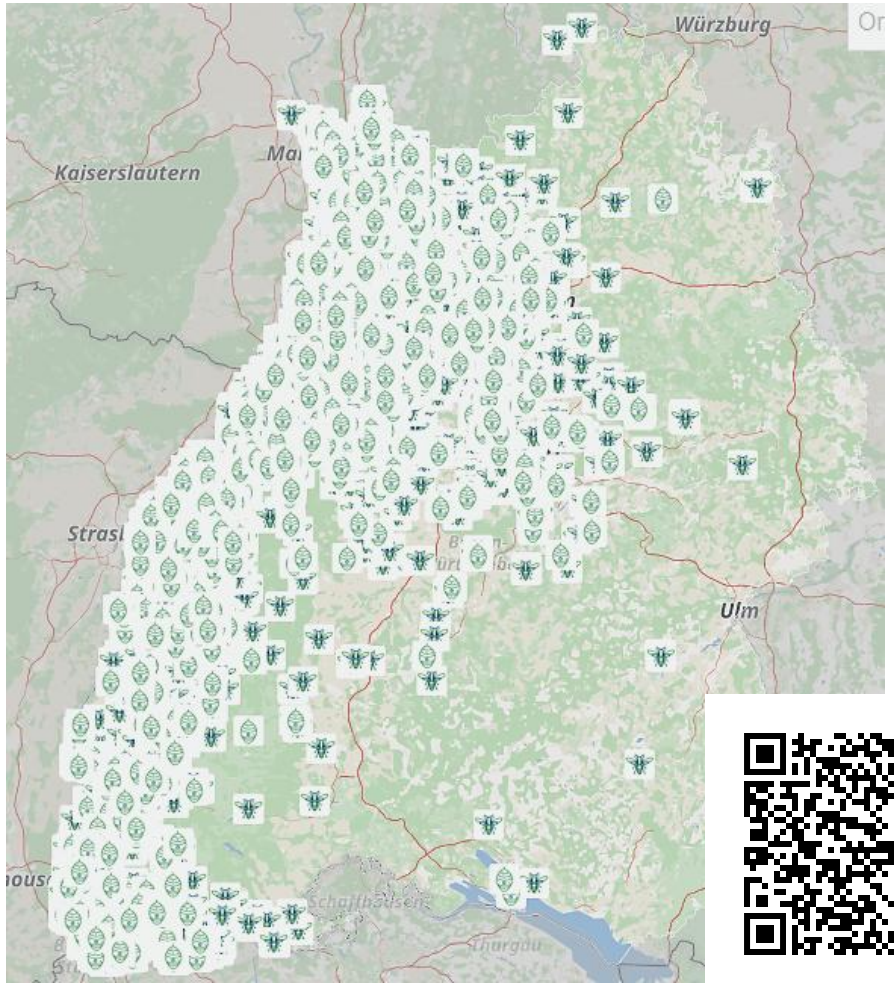
Insects: ~4,000 Nests: ~1,300



Central coordination office:

- Validation of reports
- Recommendation of knowledgeable nest removers
- Educational programs for beekeepers and other stakeholders
- Conduct research
- Newsletter

OUR STRATEGIES

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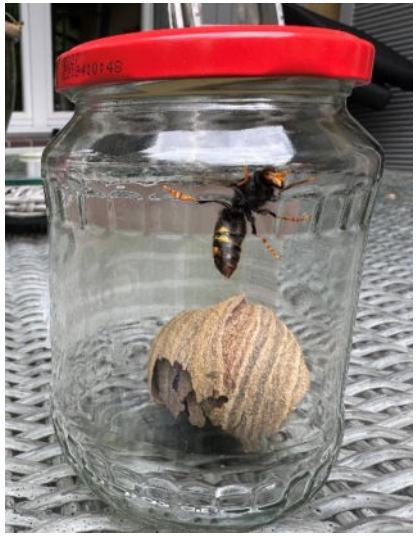
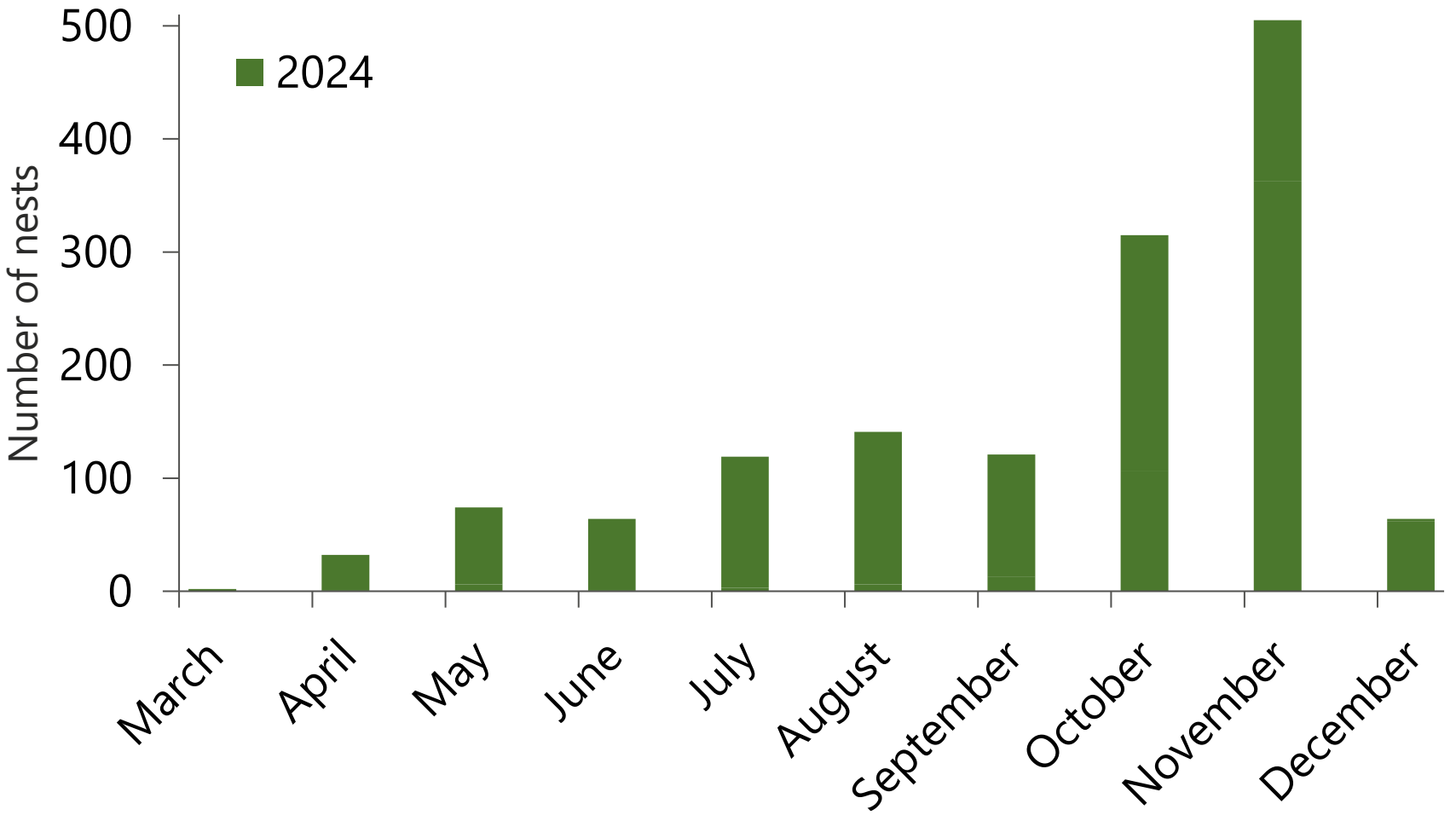
After reporting, people receive information about:

1. Spring:
   - Bait pot → Monitoring and catching of queens
   - How to remove an embryo nest



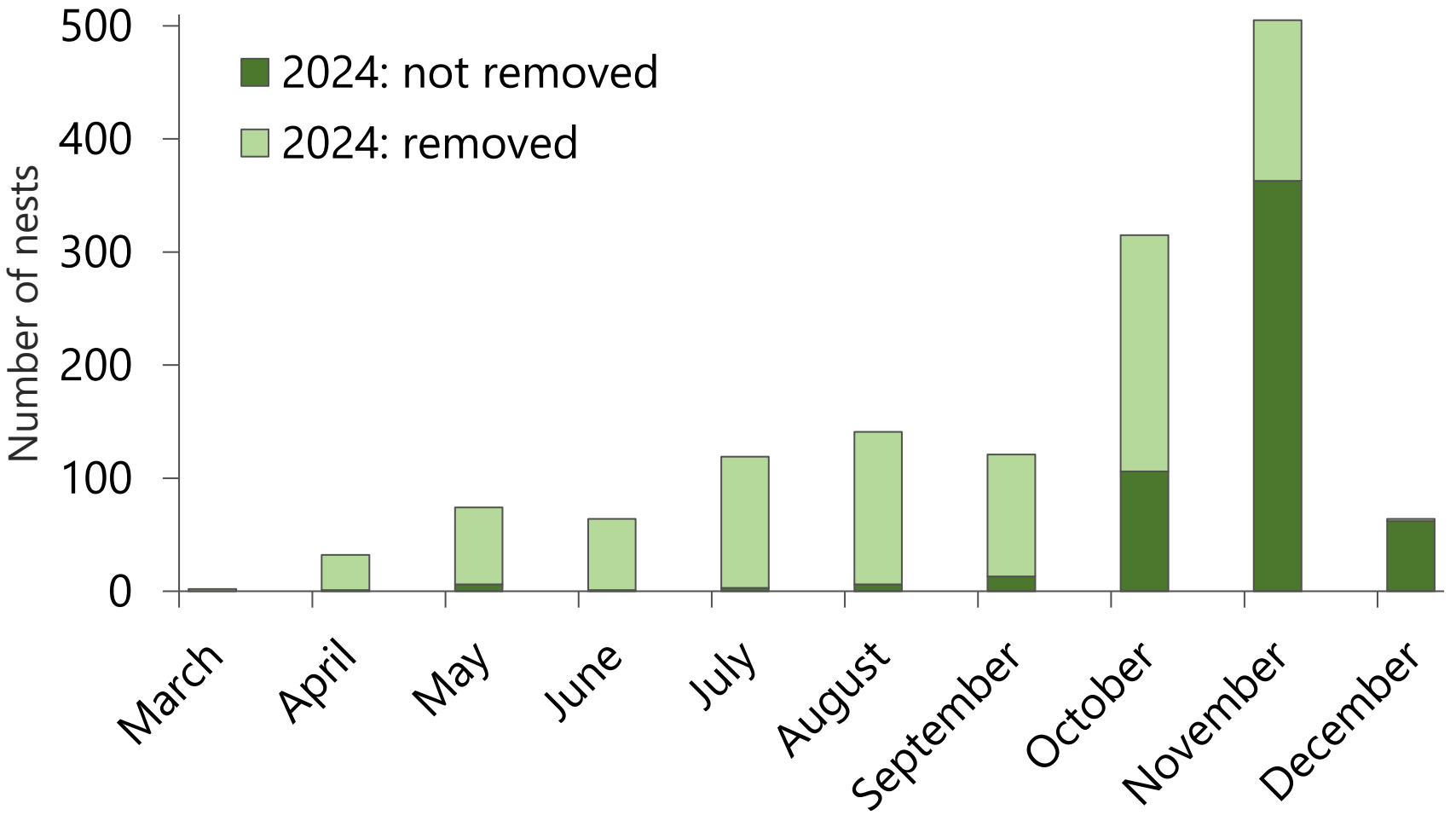
2. Summer and Autumn:
   - Contact of experts for nest removal of primary nests with workers and secondary nests
   - But: Client has to pay

NEST REPORTS AND REMOVAL RATE



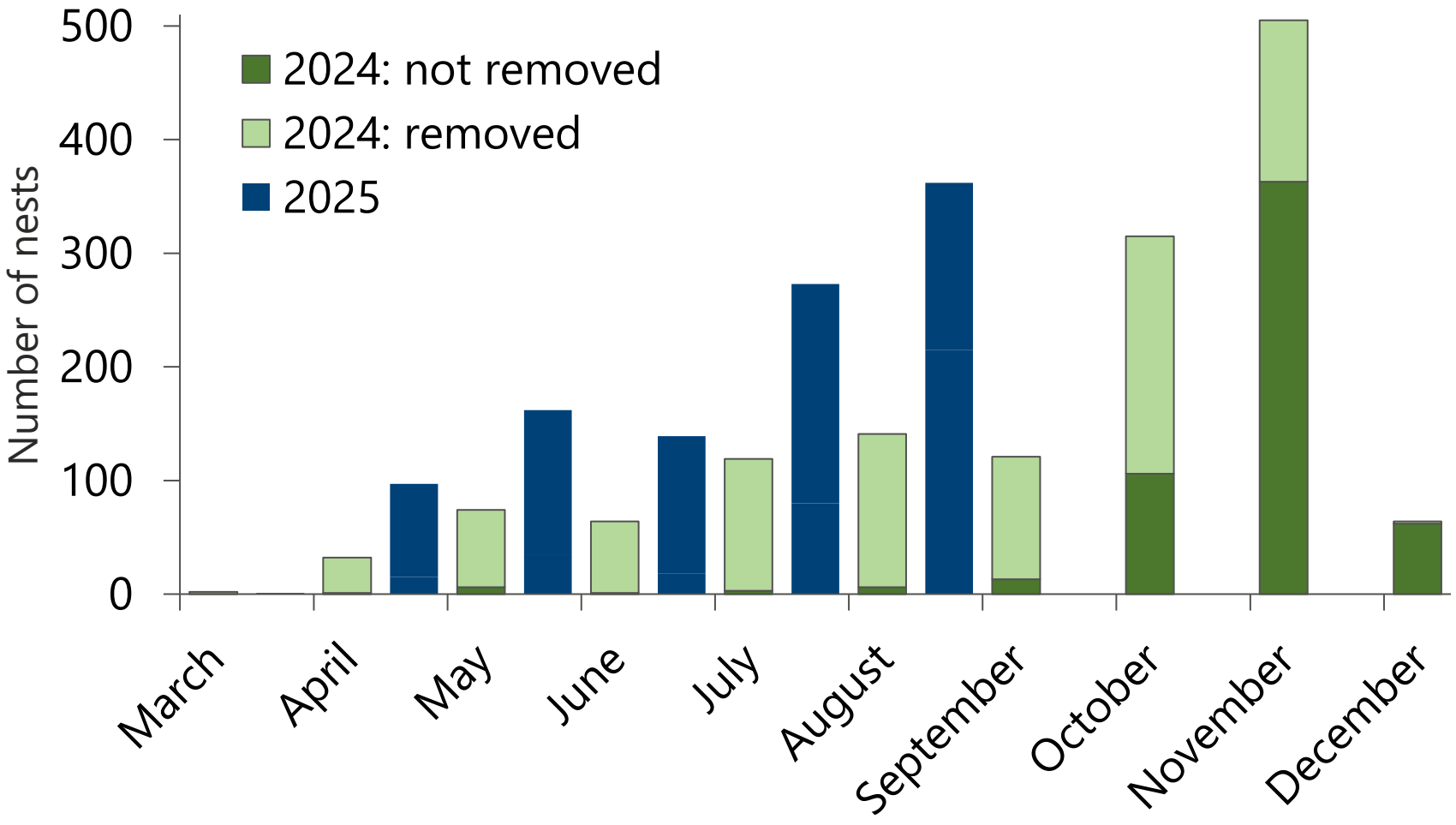
- Most nest reports in late autumn

NEST REPORTS AND REMOVAL RATE



- Most nest reports in late autumn
- >60% of nests have been removed
- Higher removal rate of primary nests

NEST REPORTS AND REMOVAL RATE



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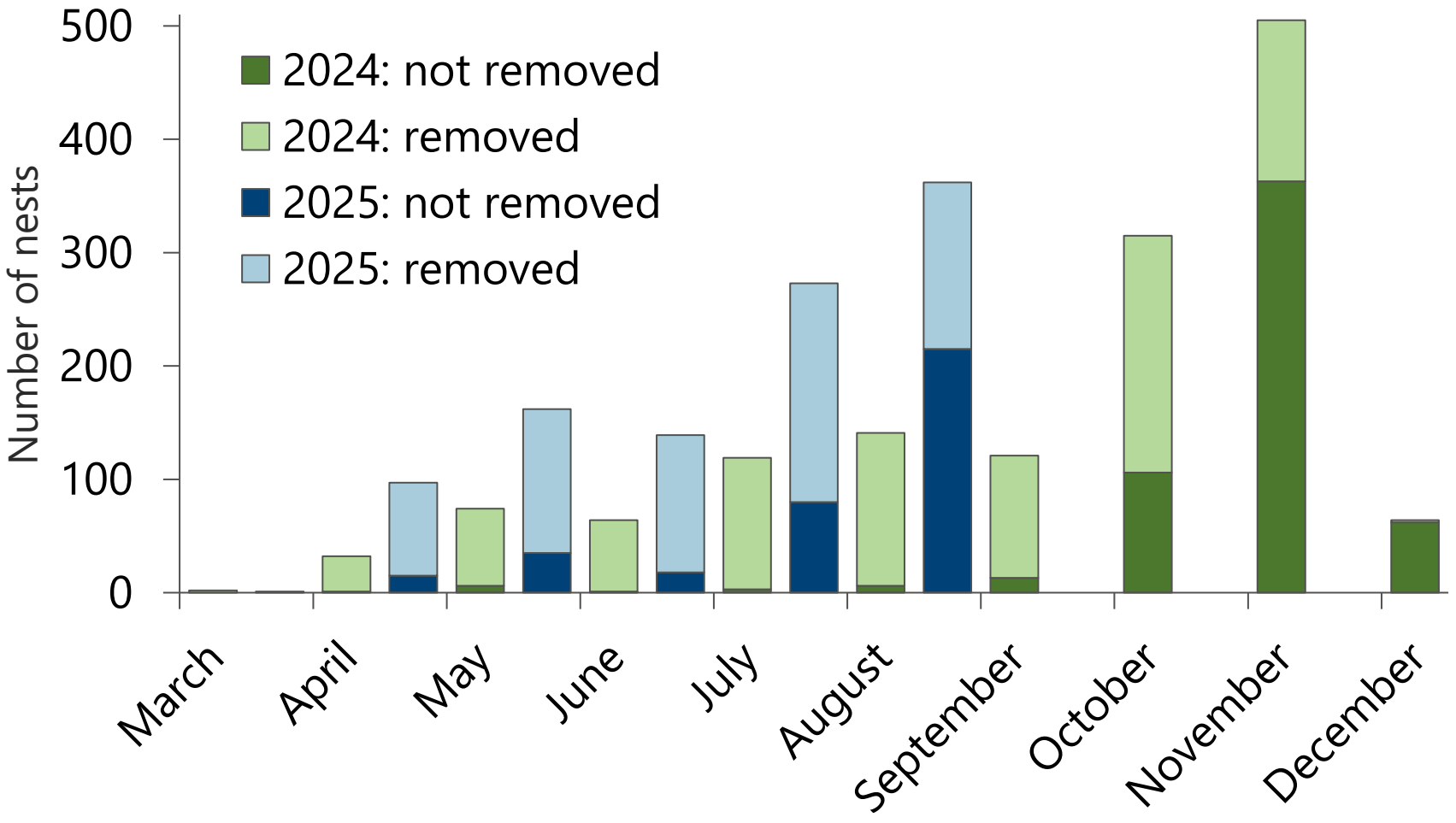
2025:

- 2.5x more nests

NEST REPORTS AND REMOVAL RATE



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2025:

- 2.5x more nests
- So far 65% of nests have been removed

HURDLES

- No registered biocide against the Asian hornet in Germany
- Mechanical nest removal from experts with specialized equipment is expensive
  - 2024: 350.000 € for South-West Germany

HURDLES

State Institute of Bee Research

- No registered biocide against the Asian hornet in Germany
- Mechanical nest removal from experts with specialized equipment is expensive
  - 2024: 350.000 € for South-West Germany
- Nest treatment using telescopic lances could be easier and cheaper
  - Research on the best treatment substance needed
- Nests are found too late, young queens have already left the nests

‘SELECTIVE TRAPS’ AS CONTROL STRATEGY?

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- Many different traps are currently available
- ‘Selection’ based on size of target species
- In Germany the use of traps is not allowed – but many beekeepers use them
- We tested two trap designs in autumn ‘24 and spring ‘25

Beevital

Wagner

RESULTS OF TRAPS

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Autumn:

- 70-90% of unwanted bycatch (incl. European Hornet)
- Peak of Asian Hornets in November

Spring:

- Only 3 (Wagner) and 13 (Beevital) Asian Hornets caught
- No European Hornets
- But >200 queen wasps and >3,000 honey bees

- **Traps are not selective when used over the whole season!**
- **Smaller insects can not escape!**
- **Bait attracts different insects at different seasons**

FURTHER RESEARCH

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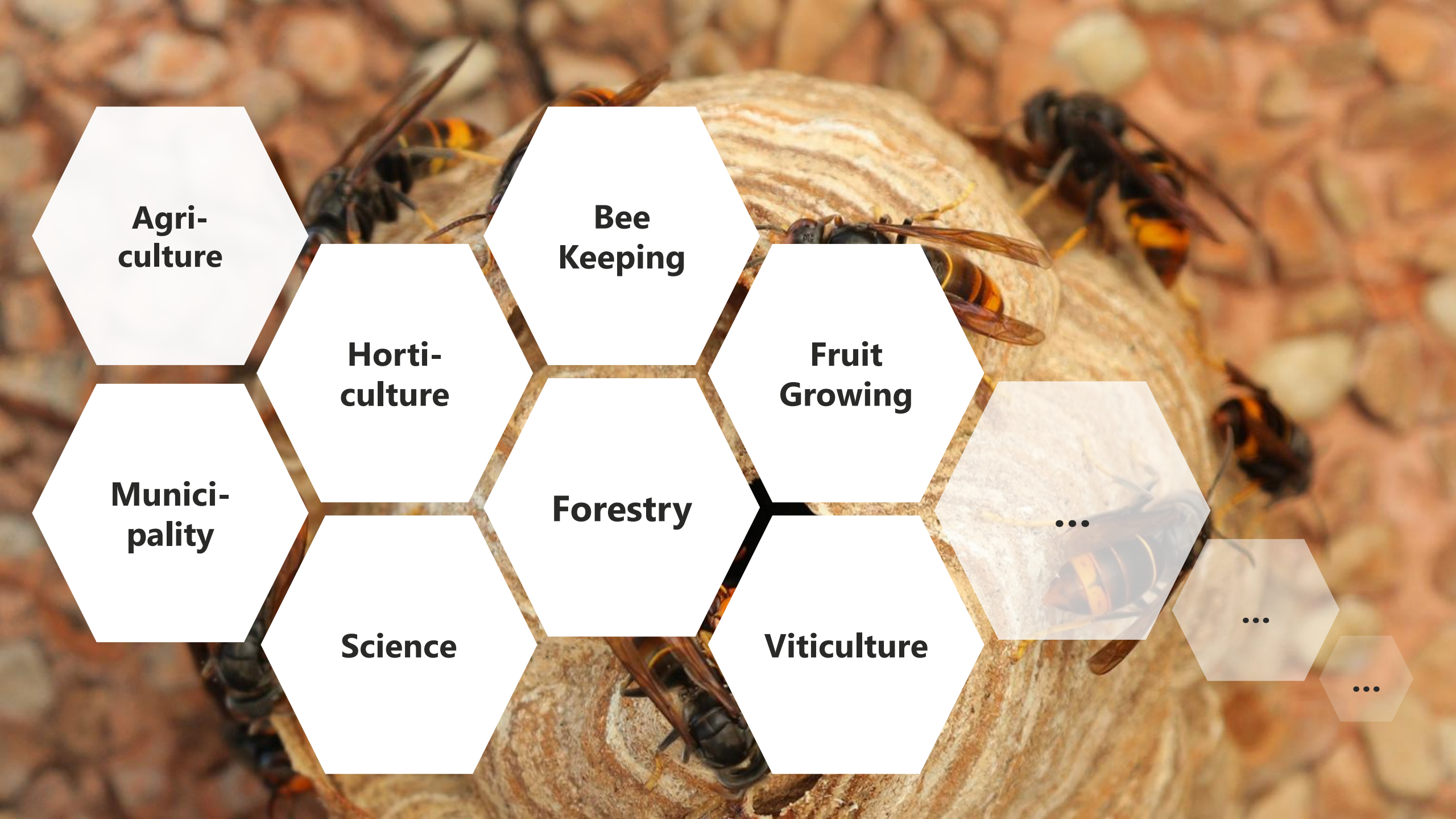
- Damage of traps on local biodiversity might be higher than its benefit
- Nest destruction alone will not solve the problem

- ➢ Protecting colonies is an increasingly important aspect of European beekeeping
- ➢ In the long term, a good strategy is still needed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THANK YOU FOR YOUR ATTENTION

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