

Selective trapping of *Vespa velutina* in apiary and non-apiary environments: a comparative study of trap efficacy and selectivity within the GO BIOVESP Project

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The invasive Asian hornet, *Vespa velutina*, represents a significant threat to honeybee (*Apis mellifera*) colonies and native pollinator populations. The implementation of efficient and selective trapping methods is critical for mitigating the impact of this species while minimizing collateral effects on non-target insects.

Within the framework of the GO BIOVESP project, this study evaluated the efficacy and selectivity of three different trap types for *V. velutina* capture in both apiary and non-apiary environments. A total of five replicates per trap type were deployed across both environments, and collections were made every 15 days over a five-month period starting in March. The study aimed to identify the most effective trap designs that maximize *V. velutina* capture rates while reducing unintended bycatch of honeybees and other beneficial pollinators.

Our results revealed differential capture efficiency and selectivity among the trap types tested. Notably, certain trap models exhibited superior capture rates of *V. velutina* while minimizing the capture of non-target insects, including honeybees and other pollinators. The observed variations in trap performance suggest that factors such as trap design, attractant type, and placement location significantly influence capture efficiency.

These findings highlight the importance of selective trapping as a precision-targeted management strategy for invasive hornet populations.

The dataset generated contributes to the overarching objectives of the GO BIOVESP project, which seeks to develop and implement sustainable, science-based approaches for pollinator conservation and biodiversity preservation.

This research provides valuable insights for beekeepers and conservationists seeking to mitigate the impacts of *V. velutina* on honeybee colonies and ecosystem biodiversity. By optimizing selective trapping methodologies, we can effectively manage *V. velutina* populations while preserving beneficial insects and safeguarding pollination services.