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PP-086 [Bee Health]

Monitoring the Health of Bee Populations in the Philippines: Pests and Pathogens

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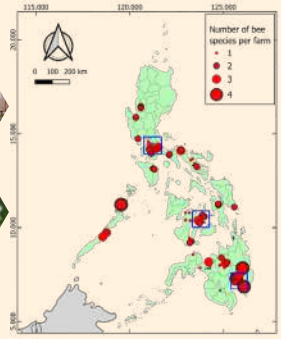
Introduction

- A major threat to beekeeping in the Philippines is bee pests and diseases. Among the pests, the SHBs and the mites are the most damaging (Cervancia et al. 2016). With the apparent decline of colony holdings of *Apis mellifera*, and stingless bees due to small hive beetle (SHB), and losses of honey bees to mites and diseases, it is imperative to conduct an assessment of their damage before we lose the colonies.
- The spread of these pests and diseases on native bees is a major concern, as it impacts food security, biodiversity maintenance, livelihood, and pollination services.
- If the SHB and the rest of the bee pests and diseases are not controlled, the bee industry will collapse.
- The project aimed to evaluate and mitigate the damage caused by bee pests and diseases nationwide. Specifically, (1) to determine the extent of distribution of SHB, mites, and other pests, (2) to determine the extent of distribution of American Foul Brood, Chalk Brood, and other diseases, and (3) to devise an integrated pest and disease management for bees.

Methodology



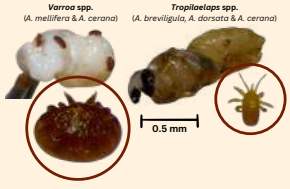
Region	Sampling sites
CAR	9
I- Ilocos Region	1
III- Central Luzon	1
NCR	4
IV-A CALABARZON	17
IV-B MIMAROPA	12
V - Bicol	10
VI - Western Visayas	4
VII - Central Visayas	17
VIII - Eastern Visayas	4
IX - Zamboanga	1
X- Northern Mindanao	10
XI - Davao	14
TOTAL	104

Samples of brood and adult bees were collected from 104 bee farms in the Philippines from April 2024 to May 2025. The map shows the bee farms visited and the number of bee(s) species present.

Results and Discussion

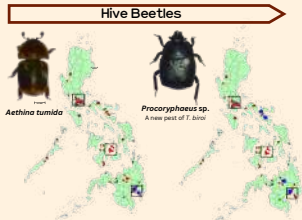
BEE PESTS

External Mites



First detection of *Tropilaelaps* sp. in *A. cerana*

Hive Beetles



A. tumida confined in Davao Region and now infesting *T. biroi*

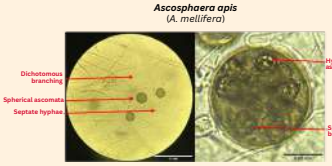
Other Bee Pests

First report of *Ac. externus* in *A. cerana*

BEE PATHOGENS

Chalk Brood Disease

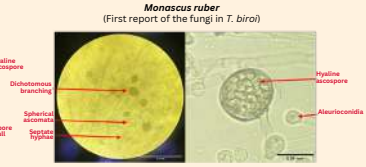
Ascosphaera apis
(*A. mellifera*)



Morphological characteristics of LBAM isolate from *Apis mellifera* under 400X

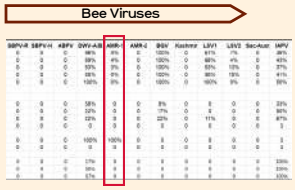
Monascus Fungi

Monascus ruber
(First report of the fungi in *T. biroi*)



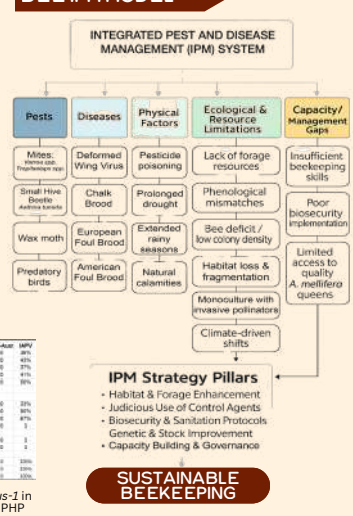
Morphological characteristics of LMTB isolate from *Tetragonula biroi* under 400X

Bee Viruses



First detection of *Apis mellifera Rhabdovirus-1* in mites collected from *A. mellifera* from the PHP

BEE IPM MODEL



Summary of Findings

From April 2024 to May 2025, a nationwide survey was conducted across 26 provinces in the Philippines to assess the health of managed and wild honeybee and stingless bee colonies. The study identified several key pests, including *Varroa* and *Tropilaelaps* mites, SHB, and wax moths. Notably, the ectoparasitic mite *Acarapis externus* was reported for the first time infesting *A. cerana*, and a suspected new pest, *Procoryphaeus* sp. was found in stingless bee colonies in Bicol and Mindanao. Microbial analyses revealed the presence of *Ascosphaera apis*, the causative agent of chalkbrood disease, in *A. mellifera*, including adult bee samples, while *Monascus ruber,* previously undocumented in stingless bees in the country was detected in *T. biroi*, highlighting its potential role in larval microbial regulation. Importantly, no *Paenibacillus larvae*, the agent of American Foulbrood, was found in the samples. These findings informed the development of a bee IPM framework that addresses major stressors, biological, environmental, and managerial toward promoting sustainable, science-based beekeeping practices in the Philippines.

Acknowledgments

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References

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A significant threat to beekeeping in the Philippines is posed by pests, including small hive beetles and mites, as well as diseases such as American Foul Brood, European Foul Brood, and chalkbrood. With the noticeable decline in colonies of Apis mellifera and stingless bees due to these threats, it is crucial to assess the extent of the damage before additional colonies are lost. This study focuses on implementing strategies to effectively address and mitigate the impact of pests and diseases on bee colonies. From April 2024 to March 2025, brood and adult bees were collected from selected bee farms across the Philippines. Interviews with beekeepers and sample analyses revealed that Varroa destructor, small hive beetle, Ascosphaerosis, DWV, and IAPV were the most common pests and diseases affecting A. mellifera. Additionally, the ectoparasitic mite Acarapis externus was identified for the first time in the necks of adult A. cerana bees. For stingless bees, ants and larvae of soldier flies were frequently found in weak or dead colonies, while a Histerid beetle, Procoryphaeus sp., is suspected to be a new pest. Based on these findings, it is recommended to implement strict guidelines for inter-island colony movement to prevent the further spread of these pests and disease threats.