



Figure 1: Adult small hive beetle (approx. 3/16" or 5mm)

Introduction. In April 2010, a beekeeper in Pana'ewa, on the Big Island, contacted HDOA's entomologist in Hilo about beetles he had found inside his hives. The entomologist collected four beetles and together with HDOA entomologists in Honolulu, made a preliminary identification of small hive beetle (SHB). This was confirmed on April 30, 2010 by the U.S. Department of Agriculture's National Identification Service in Riverdale, MD.

Description. Adult SHB are brown on emergence, changing to black after a few days. Beetles are oval shaped and are approximately 3/16 inch long. In the hive, they run quickly and avoid light. Larvae are off-white and elongated with 2 rows of spines running the length of their dorsal side - they grow to a length of approximately 7/16 inch before pupation. SHB larvae crawl out of the hive and drop to the soil beneath to pupate. Although SHB prefers to live with honey bees, it can also complete its life cycle on several types of fruit found locally.

Distribution. Native to sub-Saharan Africa, SHB was never reported outside of its native range until 1996. SHB has since been reported in the mainland United States (1996),

Small Hive Beetle

Aethina tumida Murray
(Coleoptera: Nitidulidae)

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Egypt (2000), Australia (2001), Canada (2002), Portugal (2004), Mexico (2007) and Hawai'i (2010). In Hawai'i, SHB is currently widely distributed on both O'ahu and the Big Island. It was also detected on Moloka'i and Maui in 2011 but widespread reports have not yet occurred.



Figure 2. Small hive beetle adults and larvae feeding on honey comb.

Damage. SHB invades beehives, where it lays eggs. Adult and larvae feed on pollen, honey,

wax, and even bee brood inside the hive. SHB activity within the hive causes honey to ferment, drip out of cells, become slimy and develop a smell likened to rotten oranges. Bees often desert affected hives at this point and beekeeping equipment may be unsalvageable. SHB is also attracted to stored honey. SHB infestation compounds problems faced by beekeepers still trying to adjust to the arrival of varroa mite, another serious bee pest, in 2007. Commercial beekeeping in Hawai'i includes both honey and queen bee production and its value has been estimated at over \$4 million. The queen bee industry has lost export markets due to SHB and quarantine restrictions in some countries. The combined effects of SHB and varroa mite may cause the decline of unmanaged bee colonies and potentially reduce the populations of both feral and managed honey bees in Hawai'i. Honey bees are vitally important for the pollination of agricultural crops; the results of decreased honey bee populations include decreased crop yields and fruit quality.

Control. Healthy honey bee colonies may be the greatest defence against SHB. Following best management practices (BMPs) for beekeeping is sometimes enough – honey bees in strong colonies harass adult beetles inside the hive and may keep their numbers in check. BMPs for SHB include keeping colonies in a well-ventilated, sunny area, monitoring for other pests and diseases on a regular basis (especially varroa mite), and placing hives on soilless surfaces where possible. A variety of traps that use vegetable oil to drown the beetles are also available for placement inside the hive. Currently, the only pesticides registered for control of SHB in Hawai'i are GardStar®, a soil drench that is used to control SHB at the larval stage as it drops to the soil to pupate, and Checkmite +®, available as strips for use inside the hive.

Reporting suspect SHB infestations. Residents are asked to report wild beehives and bee swarms the State Apiary Program at 808-339-1977. HDOA is also reminding residents that it is illegal to import bees or used bee equipment into the state of Hawai'i and these same materials may not be transported inter-island without prior inspection and permission from the Hawai'i Department of Agriculture. For more information, please contact the Apiary Program (above) or HDOA's Plant Pest Control Branch at 808-973-9525.

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References

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