

PEST ALERT:

Small Hive Beetle (SHB)

(*Aethina tumida*)

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**ALASKA
DIVISION OF
AGRICULTURE**

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Introduction

In 2025, the small hive beetle (SHB), *Aethina tumida*, family: Nitidulidae, an economically significant pest of honey bees, *Apis mellifera*, was detected in Alaska. This is the first known detection in Alaska, located at an apiary in the Copper River Census Area, that acquired bee packages from Mississippi. The pest was discovered by Alaska Division of Agriculture staff during an inspection and officially confirmed as part of the USDA National Honey Bee Disease Survey.

SHB was first introduced into the United States from its native range of sub-Saharan Africa in 1996.^{1,2} Since then, it has spread across the contiguous United States and other parts of the world, including Australia, Canada, Italy, Mexico, and South Korea.³ SHB negatively impacts honey bee colonies by consuming brood and fouling honey stores, which can result in financial losses for the beekeeper through colony loss and reduced honey production.

This pest alert aims to inform Alaskan beekeepers about the presence of the small hive beetle in the state, including how to detect, control, and report it, with the goal of eradicating the pest before it can become established.

Description

Adults

Adult SHB are small, oval beetles, light-brown to black in color, that reach about one-third the size of a honey bee (1/4 inch in length). They feature club-shaped antennae and are covered in fine, hair-like structures.^{2,4}



Figure 1 SHB in comb Image Credit: Jessica Louque, Smithers Viscient, Bugwood.org



Figure 2 Detection site of the small hive beetle and the affected census region



Figure 3 SHB with limbs tucked (left) and expanded (middle and right). Left photo: Natasha Wright, Florida Dept. of Agriculture, Bugwood.org. Center and right photos: Lyle J. Buss, University of Florida.

If you have questions or want additional information, please contact the Alaska Division of Agriculture at DNR.Ag.SSC@alaska.gov.

Larvae

Larvae are cream-colored and can grow up to ½ inch in length. Superficially, they appear similar to larvae of moth pests such as the greater wax moth, *Galleria mellonella*, but can be distinguished by the presence of dorsal spines and the absence of the prolegs found on the moth larva (Figures 4 & 5). Signs of damage are also indicative of the species of larva present.

Life History

SHB life history is understudied in northern climates, but generally, SHB eggs are laid in cracks and crevices of the hive or in pollen and brood comb and hatch in one to three days. (SHB eggs are ~2/3 the size of honey bee eggs.)

Larvae feed on pollen, honey, and brood. The completion of larval growth occurs one to two weeks after hatching, upon which the larva enters a “wandering phase” that can last about 60 days until a suitable pupation site is found.⁵ Pupation occurs in the soil for two to three weeks, but estimates predict that development time can range from 82 to 93 days at soil temperatures of 59 °F.⁶ The flying adults are sexually mature a week after emergence and can detect hives up to 10 miles away.⁵ While survival and reproduction are best in honey bee colonies, SHB can use bumble bee nests, and this alternate host may facilitate the expansion of the hive beetle to other apiaries.⁷ Adults feed on pollen and honey and can even trick bees into feeding them. Adults can live up to 16 months in laboratory settings.⁵

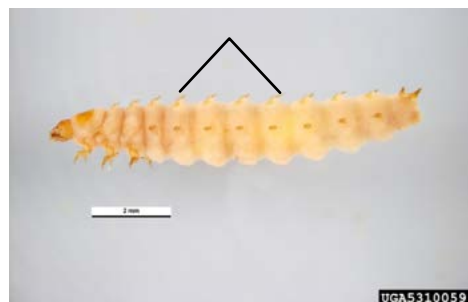


Figure 4 SHB larva with dorsal spines identified. Image Credit: Pest and Diseases Image Library, Bugwood.org.



Figure 5 Greater wax moth (*Galleria mellonella*) with prolegs identified. Image Credit: Susan Ellis, USDA APHIS PPQ, Bugwood.org

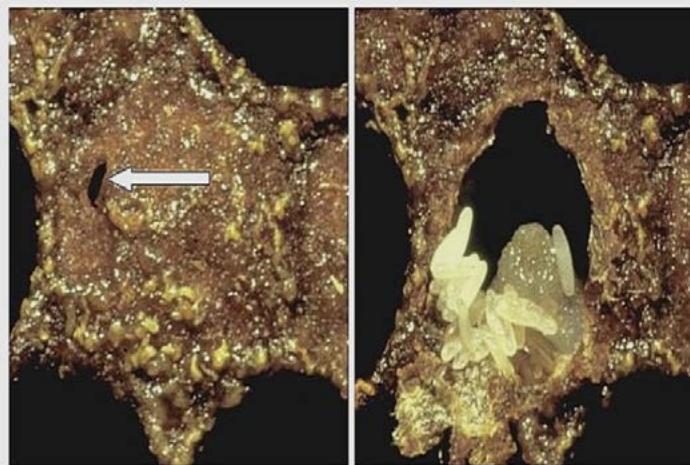


Figure 6 SHB oviposition damage and eggs. Image Credit: Keith Delaplane, University of Georgia, Bugwood.org

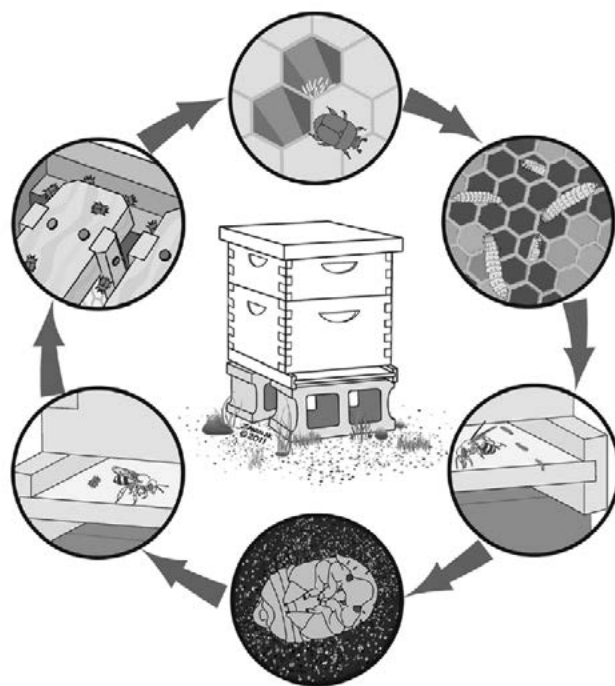


Figure 7 SHB life cycle illustration: Jon Zawislak, University of Arkansas

Life Stage	Duration*
Egg	1-4 days
Feeding Larva (L1-L3)	4-5 days
Wandering Larva (Late L3)	3-60 days
Pupa	13-90 days
Adult	1-16 months

Table 1: Life history timeline *varies within ranges depending on temperature and humidity.

However, the cooler climate and soil temperatures in Alaska may aid in slowing establishment and limit the SHB to two generations a year if left in uncontrolled settings.⁶

Considerations

Bee packages imported to or overwintered in the Copper River Census Area should be considered potential sources of SHB and monitored carefully. Any imported packages of bees, but especially those imported without a health certificate, can be a potential source of SHB.

How to Inspect Hives

SHB actively avoids bright light and thus can escape detection. Care must be taken when examining hives for SHB, as the act of surveying can cause them to flee undetected onto the ground or take flight, further spreading the infestation. To avoid this, place hive boxes on a white sheet on the ground during routine hive inspections to aid in spotting fleeing beetles.⁸ Before placing the top hive box back on the colony, quickly examine the underside of the lid for beetles that may have moved to the bottom during the inspection. Varroa sticky traps are not an effective monitoring tool. Instead, place corrugated plastic or cardboard on the hive's bottom board. Beetles will crawl into the grooves, making them easier to spot. If using cardboard, cover the smooth surfaces with tape to prevent the bees from chewing it.⁹



Figure 8 SHB larval damage. Photo Credit: James D. Ellis, University of Florida, Bugwood.org

Take care to monitor honey supers, especially those removed from the hive prior to extraction. SHB will readily infest stacked supers stored in honey houses and other structures awaiting extraction.

SHB Damage to Honey

Larval activity causes stored honey to turn foul and slimy due to yeasts and other microorganisms carried on the body. Such damage reduces both the palatability and nutritional value of honey, potentially resulting in economic losses for honey producers. Though honey bees are hygienic, they will not clean slimy comb.

Steps if Detected

Report

If you suspect you have small hive beetles in your apiary, take photographs and collect specimens. Store specimens in rubbing alcohol or high-proof spirits, such as Everclear, and contact the Alaska Division of Agriculture at DNR.Ag.SSC@alaska.gov.

Treatment

If SHB is found onsite, the only way to guarantee its destruction and removal from your apiary is to freeze all hive components. Hive beetles cannot survive temperatures of 10 °F or lower for more than 24 hours.⁴ Do not overwinter hives. Because bee colonies produce their own microclimate, SHB can persist inside overwintered colonies. Unfortunately, affected colonies must be euthanised or allowed to perish before the hive components can be frozen.

Currently, there are no pesticides approved to treat SHB in Alaska.

Prevention and Control

Preventing pests and diseases begins before the bees arrive in Alaska; only receive packaged bees from reputable suppliers. Any person importing bees into Alaska is required to obtain a health certificate signed by a qualified apiary inspector (AS 03.47.020).

Maintaining healthy colonies through stewardship best practices is the best line of defence against SHB. Strong

bee hives may be able to manage the presence of SHB and remove them. However, monitor weakened hives, such as those queen-less or recently split, as these allow SHB to thrive.

Additionally, avoid sharing spaces and resources with other apiaries as this increases the potential of spreading undetected diseases and pests.

Registering Bees

Alaska state statutes require that a person keeping bees shall notify the Division of the existence and whereabouts of the bees within 72 hours after acquiring them, and annually after that, on forms available from the Division (11 AAC 35.020). https://dnr.alaska.gov/ag/ag_is.htm The Honey Bee Registration program supports the Division of Agriculture in responding to detections like this, protecting the honey bee industry in Alaska through response, monitoring, notification, and eradication efforts. These efforts are only as complete as the data received.

References

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