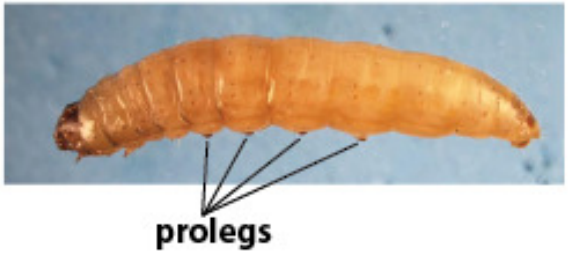
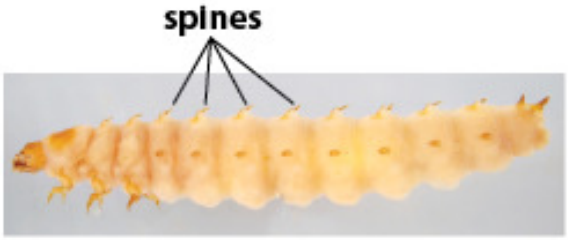
The small hive beetle larvae may resemble greater wax moth larvae (*Galleria mellonella*).

Greater wax moth larva: no spines, has prolegs



Small hive beetle larva: spines, no prolegs



https://catalog.extension.oregonstate.edu/em9150/html

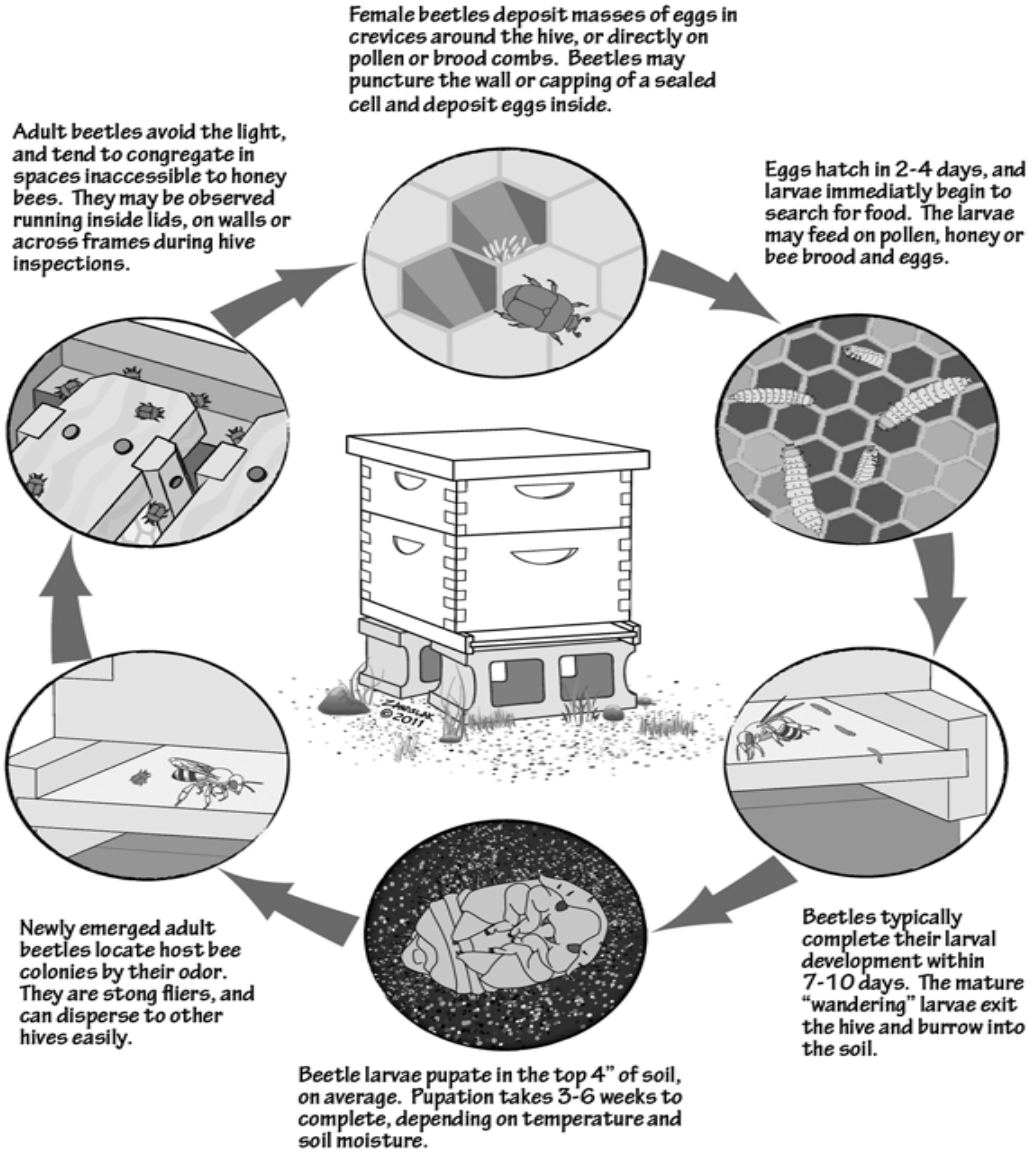
Small Hive Beetle (*Aethina tumida*)

Larvae	Adults
White to cream colour	Reddish brown to black colour
Has spines in rows along back	Shortened wing covers expose tip of abdomen
Only 3 legs (no prolegs)	5-7mm long (1/3 size of honey bee), 3mm wide
Soft body, hardened head capsule	Retractable antennae clubs
Up to 1 cm in length	Fine hair over entire body

James D. Ellis, University of Florida
Bugwood.org/CC-BY-3.0-US

NOVA SCOTIA

http://www.omafra.gov.on.ca/english/food/inspection/bees/smallhivebeetle.htm



Biology and Behaviour

- SHB are extremely mobile: between hives, up to ~15km.
- Larvae defecation introduces a yeast (*Kodamaea ohmeri*) that fouls honey and attracts more beetles. Smells like rotten oranges.
- Can survive on rotting fruits in the absence of hives.
- Overwinter as adults in the hive or pupae in soil.
- Development time is hindered by ambient temperature.
- Adult beetles avoid light and seek refuge in crevices.
- SHB adults can be imprisoned (and fed) by worker bees.
- Often associated with swarms.

http://www.omafra.gov.on.ca/english/food/inspection/bees/smallhivebeetle.htm

NOVA SCOTIA

Anticipated Impacts to Industry

Colony Impacts

- Consume large quantities of pollen, honey, eggs and larvae.
- Destruction of comb.
- larvae defecate in honey and cause fermentation.
- High populations can overrun a weak colony
- Nucs, cell builders, mating nucs at risk.

Operational Impacts

- Honey Crop Losses
- Changes to operations – Implementing BMPs, monitoring, labour, infrastructure
- Regulatory decisions (detainment & quarantine)

http://www.omafra.gov.on.ca/english/food/inspection/bees/smallhivebeetle.htm

Apiary Best Management Practices (BMPs)

Regular colony monitoring

- Familiarize yourself with SHB identification. Keep diagnostic tools in vehicles and work areas.
- Engage in routine monitoring using the top bar inspection method as well as inspection of the cells of the wax comb to detect adult SHB.
- Larval SHB can be detected underneath pollen patties, in cells of wax comb and amongst debris on the bottom board.
- The use of physical traps should be employed to assist in detecting SHB. Example: Better Beetle Blaster

Maintain a clean apiary:

- Regularly clean debris from the bottom boards of honey bee colonies.
- Keep the apiary clean of wax scrapings and/or bottom board debris. Take it with you in a sealable bucket.
- Promptly deal with deadouts.
- Do not leave unused equipment exposed.
- Avoid open barrel feeding.

…Apiary BMPS continued

Maintain strong, healthy and populous honey bee colonies:

- Obtain bee stock from an operation with known health status.
- Reduce potential colony damage or stress by managing other honey bee pests and diseases throughout the beekeeping season.
- Ensure nucleus colonies are of sufficient strength, and/or not below three frames of bees and that there is little to no extra comb space.
- Space combs adequately to ensure bees are occupying all combs.
- Consider switching from all plastic frames which provide crevices for beetles to hide.

Take immediate measures to manage weak colonies

- Requeen queenless colonies immediately.
- Cull or combine weak honey bee colonies, after assessing these colonies for other pest or disease issues.
- Minimize the amount of unprotected comb in proportion to the honey bee population - do not over-super colonies.

Biosecurity BMPs

Follow Biosecurity Protocols

- Keep vehicle windows and doors closed when visiting a bee yard.
- Before leaving a bee yard and prior to entering a vehicle, conduct a thorough inspection of your bee suit and veil for insects. Remove the bee suit and veil and shake vigorously.
- Flame hive tools before leaving each apiary.

Additional Precautions for High Risk Areas (in or near known SHB-positive yard)

- Park vehicle 10 meters outside the boundaries of the bee yard. Wash the exterior of vehicle prior to leaving a high risk area.
- Take only required beekeeping equipment into the bee yard.
- If visiting a bee yard or location with a greater risk of harbouring SHB, visit this site last during a day of beekeeping activity.

Honey Extraction Facility BMPs

- Promptly extract honey supers. Do not bring more honey supers to the extraction facility than can be extracted within a week (ideally within 24 to 48 hours).
- Ensure supers are free of bees and SHB before bringing back to honey house (e.g. using bee blower).
- If possible, manage colonies with queen excluders. If queen excluders are not used, ensure honey bee brood is not brought into the honey house in honey supers.
- Run dehumidifiers in hot rooms to maintain relative humidity (RH) below 50%.
- Remove unprotected comb, wax cappings and slumgum, or store them in beetle-tight containers. Melt cappings as soon as possible.
- If wax cappings or other materials become infested with SHB, ensure the material is promptly frozen, ideally at -10?C or colder for 24 hours.
- Store honey comb, extracted frames and unused honey supers in a freezer or a cold room (< 10°C) and/or a room with low humidity (< 50% RH).

Top Bar Inspection

- Process yards in pairs.
- Gently apply smoke to the hive entrance.
- Position yourselves at the front and back of the hive.
- Tilt outer covers up from side in a fluid motion. Do not fully remove.
- One person visually scans the frames tops from the front to the middle while the other scans forwards from the back. 15 seconds.
- Both Visually scan the underside of covers.
- Peel back pollen patties and examine for the presence of larvae.
- Avoid smoking the frame tops until observations are complete.
- Examine bottom board by tilting stacked chambers forward. Gently sift through hive debris for signs of SHB.
- Close hive and apply TB symbol to indicate hive has been inspected

Collecting Specimens

- Depress with forefinger.
- Apply enough pressure to immobilize, not to crush.
- Partner prepares specimen container.
- Grasp with pinching motion, or aid of hive tool to transfer to container.
- Specimen label should include: Date, yard #, report #). Label specimen using pencil and paper.
- Mark the hive in the apiary.
- Report and submit sample to Provincial Apiculturist.
- Consider reducing entrances of remaining hives.