

# Small Hive Beetle

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## A Potential New Pest for Utah Beekeepers

The Utah Department of Agriculture and Food's Apiary Program has detected various life stages of the small hive beetle (*Aethina tumida*) in multiple counties across the state. It is not yet clear if this honey bee pest is established in Utah or if these specimens are merely the result of migratory transportation. The Apiary Program will continue to conduct trapping and inspections for this pest and keep beekeepers updated regarding our survey efforts. Our program is encouraging beekeepers to inspect their hives for small hive beetle. If any beetles are found in a beehive and can be collected, please send them to our Insect Lab in Salt Lake City for identification.

**Utah Department of Agriculture and Food**  
**Insect Lab**  
**350 North Redwood Road**  
**Salt Lake City, Utah 84116**

Please do not ship live beetles. Freeze the insect overnight before mailing or soak in alcohol overnight and drain alcohol before mailing. Contact the Apiary Program with any questions:

(801) 538-4912 or [UDAF-Insects@utah.gov](mailto:UDAF-Insects@utah.gov)

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James D. Ellis, University of Florida, [Bugwood.org](http://Bugwood.org)

## What is Small Hive Beetle?

Small hive beetle (SHB) is native to South Africa, it was discovered in the USA in 1996. They are considered secondary pests in most situations, but can become a serious problem in the right conditions. They thrive in warm, humid climates. This likely will limit their success in Utah, but occasionally conditions are suitable here. Proper management and sanitation practices can help prevent problems with Small Hive Beetle in Utah.



Jeffrey W. Lotz, Florida Department of Agriculture and Consumer Services, Bugwood.org

## How Did it Get Here?

SHB has been in the USA since 1996, and it moves easily when beehives are transported, so any number of them could come off trucks or equipment from other parts of the country.



Jessica Louque, Smithers Viscient, Bugwood.org

## What Does the SHB and its' Damage Look Like?

Adult SHB are about 0.5 cm long, black, with clubbed antennae. They are lighter brown when they emerge and darken as they age. They have a 4-6 month lifespan and can fly several miles, spreading and surviving without a beehive. They can eat some rotting fruits, but they strongly prefer to eat bee eggs and brood. If they cannot access bee brood they will feed on honey and pollen. When they find a good food source, they can lay thousands of eggs quickly which produces an explosion of maggot-like larvae. These larvae then feed on wax, honey and pollen; producing a dry dust when feeding on pollen, or a smelly, runny "slime" with a honey diet. If the larvae are too numerous and make it difficult for bees to clean up, they can wreck the hive quickly and the bees may abscond.



James D. Ellis, University of Florida, Bugwood.org

## Is SHB in My Hives?

Adult beetles and larvae are inclined to hide from bees, so they are often found in the periphery of the hive; on the bottom board, above the inner cover, and on the wall combs. Often you will see them immediately upon opening a hive, as they fly away or run and hide. Bees are good at chasing the beetles away, so a beekeeper's main line of defense is to make sure the space available to the bees is appropriate for them. Without adequate coverage (due to excess space or too few bees) beetles will reproduce in the periphery of the hive unchecked, and the bees will not be able to stop the exploding mass of maggots. For this reason, beetles prefer deadouts, weakened or stressed hives, honey suppers which have been pulled off hives, waste comb or slungum. Adult beetles lay eggs in the comb, larvae hatch and feed in the hive, and then crawl out to pupate in the soil. From egg to adult can take 4 to 5 weeks, depending on conditions.

## How Can I Tell the Difference Between Small Hive Beetle Larvae and Wax Moth Larvae?

Small hive beetle larvae often congregate in corners, possibly to retain heat. This clustering distinguishes beetle larvae from wax moth larvae that are found scattered throughout weak colonies. Other distinguishing characteristics include size. Beetle larvae measure about 1 cm when fully grown. Mature wax moth larvae can grow to double this size. Also, beetle larvae have three pairs of jointed, "true" legs located behind the head. Wax moth larvae have many small, fleshy, uniform legs along the length of the body. And the bodies of beetle larvae have tough exteriors while those of wax moth larvae are soft and can be easily squished. Lastly, wax moth larvae leave behind webbing; SHB larvae do not.

### Small Hive Beetle Larvae



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### Wax Moth Larvae



Susan Ellis, USDA APHIS PPQ, Bugwood.org

## What Can I do to Prevent SHB Damage?

### Cultural Control (highly recommended)

- Because beetles need humid conditions in the hive and soil, **keeping hives in full sun is recommended to reduce beetles.**
- Having a **high ratio of bees to comb** prevents beetles from reproducing in the hive where no bees are patrolling.
- **Do not create crushed combs or messes in the hive**, where bees cannot clean. These will be quickly used by beetles for egg laying and can foster a rapid population explosion; within three days there can be many thousands of larvae. **Pollen traps and pollen patties are also vulnerable**, check them often. Beekeepers should be conservative in feeding pollen substitute patties when small hive beetles are present in late winter or early spring when mild temperatures may persist and result in successful beetle reproduction earlier than normal.
- **Extract honey within two days of removal from hive, or installing a bee escape.** Honey supers without patrolling bees are vulnerable to beetles, the larvae hatch in three days.
- **Do not leave larvae, honey, wax, brood or bees in waste piles** where beetles can find them. Honey house messes, slumgum and deadouts can harbor beetle population explosions.
- **Hive management tips** include keeping strong queenright colonies, with a high ratio of bees to comb; removing messy burr comb and hive debris; not stacking deadouts on healthy colonies without checking for SHB; and not storing empty equipment on hives or in places SHB can find and use resources like honey, pollen and dead bees.

### Monitoring and Trapping

- There are many devices that can be used in the hive to monitor and trap beetles, either on the hive bottom or between frames. Beetle traps take advantage of SHB behavior to hide from bees, with holes too small for bees, when beetles pass through there is a pesticide or a reservoir of oil or vinegar which kills SHB.
- There is no threshold for how many beetles is “too many”. In warm humid areas, it is not unusual to see hundreds of beetles in a hive with no problems. Hot, cold and dry conditions in Utah likely will limit SHB populations.
- Noticing growing numbers of beetles, either in traps or while working hives, should alert beekeepers to manage carefully (using methods above) to prevent problems.

### Chemical Control (not recommended)

- Checkmite strips are registered for use in Small Hive Beetle traps. Beekeepers should carefully use this product only when other forms of control have failed. Beekeepers must follow the pesticide label and resist the temptation to use the product in other locations of the hive.
- Gard Star is registered to drench soil to kill SHB pupae. Efficacy of this treatment depends on knowing where the beetle pupae are, and also soil conditions and rain.



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### Websites:

<http://www.utahbeekeepers.com/>

<http://www.ag.utah.gov/plants-pests/beekeeping.html>

