

Stahlman beekeeping notes for 2021

Issue # 31 Small Hive Beetles

Previously I wrote about wax moth problems in the bee hive. This week I will cover another summer pest that appears now in many bee hives.



I had a small queen mating nuc that had some adult hive beetles in it last week. Over the past week, I was on vacation. Upon my return, I noted that the landing board of one of the mating nuc's was covered in dust and debris. It had been robbed out. I am not surprised by this! As I have indicated in a previous article, small nucs are not sustainable and I am guessing that the laying queen took off for greener pastures.

It was also evident that the mating nuc had been completely abandoned – brood was present but the small hive beetles had made a meal of the larva and pollen in the frames.

The above photo is a close up of the center of this picture. They are feeding on the honey bee larva and pupa.



One might mistake these little larva as wax worm larva but they are only $\frac{1}{4}$ ' in length. Wax worm larva reach a length of 1 inch. One other important difference is the lack of webbing and cocoons created by wax moth.

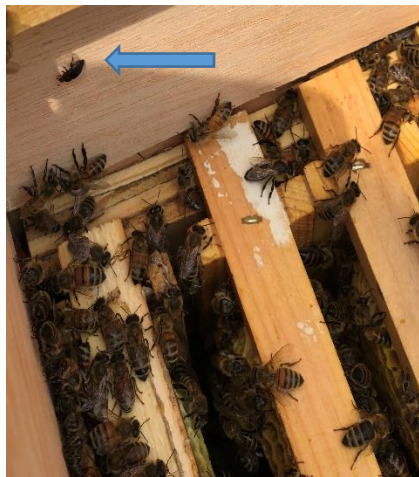


If the frame on which these active little larva are located is shook hard onto a paper towel, the photo below will show just how many of these critters were on this one frame. Just image how many adult Small Hive Beetles would result in a hive.



Wax moth at least can be used as fish bait – these won't even fit on the smallest hook.

The bees that were in the hive usually abandon it as the SHB population explodes as indicated by this one example.



The first indication that a hive is infested by Small Hive Beetle is the appearance of little bugs scattering and running on top bars, inner cover lids and from cell to cell on drawn comb.

It is also interesting to see the bees chase them (some call it herding). Strong hives are the best defense against SHB. The beetle does not cause the damage created in the hive. As seen in the pictures above, the larval stage is quite destructive. Small hive beetles seek out pollen, brood and honey for food sources.



This is about the actual size of an adult SHB. They can run very fast, and are hard to pick off one at a time. If they are on the face of drawn comb they dart into the bottom of cells for protection from bees and beekeepers.



This is a close up of an adult SHB adjacent to worker cells. It was first spotted in South Carolina in 1996 according to information I was able to find. I came into contact with SHB in hives in Georgia several years after that. I quickly learned that problems were worse with small mating nucs while large strong hives seemed to control the SHB from causing much damage.

I first got really concerned when it was rumored that Ohio was going to restrict

bees being shipped into Ohio from southern states. But SHB showed up in Ohio thru package bees and pollinators shipping bees into Ohio. In fact, the local appearance of SHB seemed to occur in those areas where pickles and pumpkins were being pollinated.

Adult SHB are strong fliers. If you ever pick one up and put it on your hand, it can easily fly away. I have since learned that one single SHB female can lay 1,000 eggs. The term clutches is used to describe the group of eggs laid by the female SHB. As can be seen in my photos, the appearance of a clutch can include thousands of SHB larva all squirming and moving as if they are one – sometimes as many as 5 larva to a single worker cell.

Frames affected by the larva become a slimy mess. What appears to be a small section of the comb on a frame can reveal a mass of SHB larva. They have even developed the ability to overwinter during cold weather – I saw this first in Ohio in a cut-out of a feral colony located in a tree.

It is also important for those who harvest honey from hives to extract honey from supers as soon as possible. SHB larva spoil the honey – making it runny, strong smelling and unpalatable.

Control methods:

Some treatments require using chemicals such as Gard Star 40 or Pemethrin applied to soil around the hives. Some - in hive - treatments use products containing the chemical coumaphos (Checkmite +).

I have used several nonchemical methods to trap SHB that seem to work for me.

The best I have found was something called a "beetle jail" but other names for similar products are based on the same idea.



This is the side view of a beetle trap. It is easy to use – just place it between two frames. Some use mineral oil or apple cider vinegar in the trap to attract and

drown the beetles that crawl into the safety of the trap to escape the bees harassing them. This must be used early when the first SHB are observed.

If one has a screened bottom board, SHB can drop thru it to the ground. One solution to that is to place a large container under screened bottom board with a solution of mineral oil to kill the beetles when they fall into the solution. Special trays are sold for this purpose in some bee supply catalogs.

Other methods have used a CD disc tied to a string placed on the bottom board. Small holes are drilled into the side to allow the SHB to enter but exclude honey bees.

Corrugated cardboard can also be used either on the bottom board or under the top cover. Beetles hiding in the openings can be removed from the hive - placed in sealed plastic garbage bag and the bag burned in a burn barrel.

How does one save frames that have adult SHB present?

If one has frames on which SHB adults can be seen running or hiding, a solution may be to freeze the frames to save them when put into storage. Putting them into a plastic bag will not solve the problem! A plastic bag with frames put into a freezer is a great solution. If honey bees are on the frame, they can be brushed off. The SHB will seek a hiding place in a crack, or cell.

If you find SHB larva on the bottom board among the debris found there, scoop it up and burn the debris. If a frame still has some comb, some can be salvaged by placing such frames in a solar wax melter. The heat from the sun will not only render the wax in the frame but kill eggs and larva in the comb.

Some examples:

This close up shows a frame of worker cells – some filled with pollen. There is a little damage one can see from the SHB.



Closer examination:

The far greater damage is being done below the surface of the comb. The foundation is a plastic insert. Thus, the wax and SHB larva on this frame can be scraped off but it must be cleaned before bees will continue to build more wax back on the foundation.



In beeswax foundation, the larva will eat thru the mid rib and make the entire frame unusable.

Consider this when you use pollen patties. SHB love them!



This is an enlargement of the larvae collected from just one frame.

I shook the frame over a plastic shoe box. Many of the larvae seem to be the same size but if you look, smaller larvae can be observed.

The entire bottom of the shoe box was covered with larvae as shown.

This SHB larvae developed within 7 days of a previous examination of the hive. At that time, I noted a number of adult beetles in the hive. The mating nuc had a laying queen and a small population of bees.

I thought I had time to take a short vacation. I was going to harvest the queen and take care of the SHB issue when I returned.

Unfortunately, the bees and queen were no longer in the mating nuc and I found this!

If you see SHB it is time to put Beetle traps on your hive! IMMEDIATELY TAKE ACTION

One can research SHB on the internet. Life cycles, other views on how to treat for them, and scholarly research articles are available. Take advantage of all the information you can find.

I often get tied up in my own bees and fail to notice that other beekeepers have problems far greater than mine!

This Covid season, I have done a few Zoom meetings. I always like to know something about the group that has asked me to speak.

I spoke to a group in British Columbia this past week. The Kamloops Beekeeping group live in a semi-arid region in a river valley among mountain near-by. Their bees are facing issues which most of us don't even encounter.

I have been watch TV reports of fires in the West. Canada gets little coverage here in the U.S. But conditions are just as bad in British Columbia with wild fires and high heat. Something like – record temperature readings (118 °). One of the members shared a picture of a frame that the comb had melted from the top bar during that heat period. It gets hot here but not that hot! And they have to deal with -20 ° F during the winter. And right now, the bees are having to navigate through smoke – visibility is ½ kilometer. That is 1/3 of a mile to us. And

that is not all! Some have been alerted to emergency evacuation from the fires in the area. If you were asked to evacuate from your home in the face of fire, would you find a way to load up your bees to save them?

Then think of beekeepers in a similar situation in the west. Living here with rain, hurricanes, hot summers is far different than having a giant fire bearing down on your home or living in a semi-arid region.



The two guest speakers, Albert Robertson from Saskatchew... See More

I was talking about queen rearing which they had an interest. So glad to know I have so much more to learn about beekeeping and I could share a topic that both of us have in common. Queen bee biology is the same regardless of where you live. The climate determines the differences in management techniques. I am not totally unaware of Canadian beekeeping. I have had the pleasure of meeting and sharing a program with Dr. Albert Robertson from Saskatchewan the breeder responsible for creating the Saskatraz queen line.

That queen was developed in a climate zone that sometimes gets as low as -50° F. Certified Saskatraz hybrid queens are produced in Northern California (Orland area) exclusively by Olivarez honey Bees Inc. (www.ohbees.com), using Saskatraz breeder queens constructed in Saskatchewan, Canada.