

Pests of honey bees



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A list of honey bees pests

Bees and their larvae, honey, pollen and wax could attract a large variety of pests (and diseases). Within all the pests, Australia has only a few, usually not deadly, but that can cause a lot of troubles

List of pests:

- *Varroa destructor*
- Predatory hornets
- Predatory wasps
- Some birds
- *Aethina tumida* (SHB)
- Wax moths
- Toads
- Ants
- Flies
- Dragon flies
- Mites (tracheal, tropilaelaps)
- Large mammals
- Etc...

List of pests present in Australia and NSW:

- *Aethina tumida* (Small hive beetle) - NSW
- *Galleria mellonella* (Greater wax moth) - NSW
- *Achroia grisella* (lesser wax moth) - NSW
- *Vespula germanica* (European wasp) – NSW (cooler climate)
- *Braula coeca* (Braula fly) – TAS
- *Merops ornatus* (Rainbow bee eater) - NSW
- Ants - NSW
- Livestock - NSW
- *Rhinella marina* (Cane toad) – QLD, NT, NSW?

Small hive beetle

The small hive beetle is the most common and dangerous pest in the Sydney area.

Originated from South Africa, they spread over 2 year in all America after their accidental introduction in Florida in 1998. First described in 2002 in Richmond, it is believed that they were there at least a year before.

Since then they have spread with hive movement and by their own.



Close up of small hive beetle



Small hive beetle

It is the larvae that is the most damaging to the colony:

- Eat bee eggs, brood, pollen and honey
- The larvae burrows through honey and brood combs
- Excrements contaminate honey with yeast that will causes honey to ferment and froth: the hive can slime at the entrance
- Can cause absconding of the colony

Be aware that storing honey frames and stickies can attract SHB and cause them to froth



Larvae and honey frothing



Damage to the comb

Small hive beetle cycle

Adults can fly up to 7 km and are most active at dusk to invade a colony.

Once inside they seek cracks, corners, holes where they can hide. Bees can also keep them in “prisons” made of propolis.

Eggs

Female will start to lay eggs individually or in small clusters.

Eggs are 2/3 the size of a honey bee egg and are not removed by workers. They are pearly white and similar to bee’s eggs. They are very vulnerable to desiccation. Eggs are laid between 20 to 40°C in the brood chamber or just above. Female will lay eggs when they are disturbed. Squashing them will also trigger egg laying.

With a high temperature and humidity and a good source of protein, female will lay more eggs that will develop more quickly.



FLI, M. Schäfer

Small hive beetle cycle

Larvae

The small hive beetle larvae cause the most damage. Therefore, it is important to recognise them.

When ready to crawl out of the hive entrance, they measure almost 9.5 mm long and 1.5 mm in diameter.

In a heavily infected hive, they will gather at the back of the baseboard, in a corner, waiting to crawl outside, mostly at night.

Pupae

Then they will burrow their way in the soil, in a radius of 50 cm around the entrance at 10 cm deep and pupate.

They can emerge from 2 to 15 weeks after depending on the weather conditions as they become inactive below 10°C and prefer moist soils.

Larvae will be chased and eaten by ants or chickens.

SHB larvae spikes on top



Wax moth larvae



Prolegs

SHB larvae



Back spikes

Tough skin

Small hive beetle management

As it is a very nasty pest, that can't be eradicate, the best way is to give the bees, the opportunity to control them.

This can be managed in several ways:

- Keep a strong hive with a good population density. The adults SHB will be imprisoned in "jail cages" made by the workers.
- Reduce the size if needed.
- Avoid opening the hive too often, as it will open the jail cages and trigger eggs laying. It can takes a few days for the bees to recover from a full brood check.
- Keep beetle population to a minimum as beetles attract other beetles.
- Use traps with food grade oil, lime powder or diatomeus earth powder.
- Use a mesh or ventilated bottom board.
- Keep ants near the hive to control escaping larvae.
- If possible have your hives with chickens (hives have to be well elevated)
- Protect the soil in front of the hive (pavement, concrete,...) or treat the soil.



Apithor



Bait and trap



Silver bullet trap



Blue bees ventilated board



Mesh board

Small hive beetle

What to do if there is infestation?

In the case of heavy infestation (sliming) and IF the colony is still alive:

- Put a tarp in front of the hive to prevent escape and burrowing and avoid spills that attract other SHB.
- Open the hive and remove any super to reduce the colony size to a minimum. Move them to a NUC if needed.
- Remove all honey frames and put them in garbage bags for freezing before disposing them.
- Do not extract frothed honey as it contains harmful yeast.
- Clean the bottom board with hot water and dish soap.
- If you can, freeze for 48h the bottom box and base board or use a blow torch to kill all the eggs.
- Once cleaned, put the colony back to the original hive with new frames.
- Add several traps to prevent SHB adults to come back.
- FEED them with light sugar sirop (1 dose of white sugar for 2 doses of water) to stimulate the colony (egg laying).
- If you can, requeen ASAP, as infestation is due to a weak hive (often due to a weak queen).
- Monitor the hive.

Act before it's too late: don't leave it out of control!

[Small hive beetle fact sheet](#)

Wax moths

There are 2 types of wax moth:

- Greater wax moth *Galleria mellonella*
- Lesser wax moth *Achroia grisella*

Both of them will cause damage to the unattended frames comb inside the hive or outside, on stored frames.

Greater wax moth will cause the most damage as they have a bigger hungry larvae that feed on wax, but targeting proteins such as the silky bee cocoon, pollen or even bee larvae.

Wax moth will develop in weak and low density colonies sizing the advantage of small hive beetle presence. Therefore, both larvae are presents inside the hive weakening even more the hive.

How to recognize them?

Lesser wax moth are silvery and are smaller than great wax moth. They belong to the *pyralidae* family which include kitchen moth. Both will compete inside the hive, but greater wax moth will dominate.



Wax moths

How to prevent wax moth infestation?

Same question as before and same answer: **keep strong hives.**

Wax moth will seize the opportunity and once established will deter bees by their silky secretions and excrements. As the bees retreat, they will take over.

A female wax moth can lay up to 600 eggs and if conditions are great (between 29-35°C), eggs will hatch in 3-5 days.

A low temperature will greatly slow the hatching process (35 days to hatch at 18°C). Freezing frames for 24h is the easiest solution.

Avoid stoking frames that haven't been frozen for 2 days in dark conditions or store them in a well ventilated and a lot of light.

Be aware that wax moth will eat through wood and thin plastic.

Walnut leaves seem to have a deterrent effect on wax moth with the high amount of juglone they produce.

Act before it's too late: don't leave it out of control!



[Wax moth fact sheet](#)

European wasp

European wasp (*Vespula germanica*) are nasty and aggressive. They are very recognisable with their black and yellow stripes and a yellow mask.

They build a paper nest outside or in the ground.

European wasp attack bees when they are back from foraging, cutting them in half with their strong mandibles and bringing the bee abdomen back to their hive.

They usually don't cause a lot of damage, but will cause harm to a young or a weak colony with few foragers.

As they are an invasive specie, destroy any nest you can find, but be aware that they can sting many times...



Wasp nest in the ground, with guardians ready to attack



Braula fly

The Braula fly is NOT present in NSW, but in Tasmania

It could be detected while doing a sugar shake.

Also called bee lice, it travels on bee body and could be mistaken as a Varroa BUT, it has 3 pairs of legs (insect) instead of 4 pairs for the varroa (mite).

Braula flies larvae dig into honey comb giving it a scribbling pattern.

They are not considered as a threat to bees, but it is a reportable pest.

[Braula fly fact sheet](#)



Thank you



20. maj **SVETOVNI DAN ČEBEL**
20 May **WORLD BEE DAY**



Merci