Pests of Australian native stingless bees

Source: : Dr Jenny Shanks, Plant Health Australia

NATIVE AUSTRALIAN BEES

Despite the rapid increase in the numbers of people keeping native bees, little is still known about the pests and diseases that affect our bee species. The following pests have been identified as being of potential concern, however as more people keep and observe bees, more will become known about the types of pests that can affect stingless bees and the ways we can keep bees healthy. The pests listed below are present in Australia.

Hive beetles and mites

Weak or old/dead colonies are more susceptible to beetle infestation. Regular inspections on the health of your hive will give you a better chance of identifying unusual symptoms or presence of pests picking up pests early. Make sure to clean the area when you have finished working. Do not leave out bee products or old/empty hives as this will help limit beetle infestation.

Small hive beetle

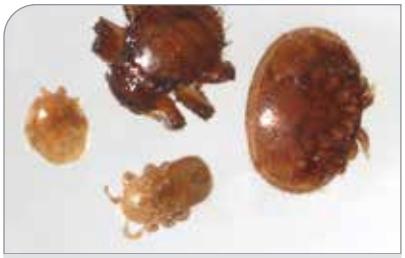
Small Hive Beetle *(Aethina tumida)* can cause damage by burrowing into colonies, and eating brood, honey and pollen. Small hive beetle is common in European honey bee hives in some states, but should be reported in European honey bee or stingless bee colonies if seen in Tasmania, Northern Territory or Western Australia. Small hive beetle is generally not a problem in healthy colonies but can be a problem in weakened hives when adult bees are not able to remove larvae or capture adult beetles before they reach damaging levels.

Small hive beetle

Source: Tim Heard, Australian Native Bee Association

Native hive beetles, sap bettles and pollen mites

Native hive beetles, sap beetles (*Carpophilus* and *Brachypeplus* species) and pollen mites (such as *Chaetodactylus krombeini*) can infest native bee hives. They feed on pollen stores, and can often be found in old dead hives, but are not considered to be a pest in their own right.



Pollen mite (left), Braula fly (top), Varroa mite (right), and Tropilaelaps mite (bottom).

Source: Food and Environment Research Agency, Crown Copyright

Bugs, wasps and flies

Regular hive inspections can assist with the early detection of bugs, wasps and flies.

Assassin bugs

Assassin bugs (*Reduviidae* species) can hunt and kill Australian social bees.

Assassin bug preying on a stingless bee

Source: Tim Heard, Australian Native Bee Association

Hive phorid fly and hive syrphid fly

Adults of Phorid fly (*Dohrniphora trigonae*) Syrphid fly (*Ceriana ornate*) lay their eggs in cracks or holes in social native bee hives. This results in the fly's young consuming food stores in the nest that belong to the bees.

Braconid and chalcid wasps

Braconid wasps (*Syntretus trigonaphagus*) lay their eggs inside adult bees. When the eggs hatch they feed on the bee, eventually emerging from its abdomen. Newly emerged braconid wasps will leave the hive and pupate in soil nearby. The Chalcid wasp species *Melittobia australica* has been shown to attack nest cell prepupae of leafcutter bees, and there could be potential for this disease to jump to Australian native bees.

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Source: : Dr Jenny Shanks, Plant Health Australia

Bacterial and fungal diseases

Keeping your hive tools clean when moving between hives can prevent the spread of bacterial and fungal diseases between hives.

Shank's brood disease

Shanks' brood disease is a bacterial infection of brood caused by *Lysinibacillus sphaericus* that causes brood mortality resulting in brood changing to a thick brown fluid. The structure and texture of the hive change, with adult bees becoming lethargic, resulting in decline in the hive and eventual death of the colony

Nosemosis

Nosemosis is a fungal disease caused by *Nosema ceranae*. It is common in European honey bees and has also been found to affect native stingless bees causing lethargy, reduced foraging ability, shortened life-span and reduced colony health/strength

Potential threats to Australian stingless native bees

Reporting unusual symptoms or unexplained colony deaths will assist build knowledge and may be the vital clue needed to identify a new pest or disease and stop it spreading. The pests listed below are present in Australia unless otherwise specified. Below are some threats that have the potential to negatively impact our Australian stingless native bees:

Parasitoid insects

- Insects such as Bembix wasps or Velvet ants are parasitoids of native bees. These pests are unlikely to cause serious harm to native bees however they could potentially impact weakened bee populations.
- Potential symptoms include:
  - Wasps or ants inside the solitary/semi-social native bee nest.
  - Unusual looking eggs inside the nest.

Chalkbrood diseases

- Chalkbrood disease (*Ascosphaera apis*) affects European honey bee colonies across Australia. Different strains of chalkbrood diseases have been shown to affect different bee species, but there is potential for strains to 'jump' into Australian native bees. For example, *Ascosphaera aggregata* (exotic to Australia) has been shown to affect the introduced leafcutter bee *Megachile rotundata*, and there could be potential for this disease to jump to Australian native bees

Shank's brood disease: healthy vs. diseased hive

Source: Dr Jenny Shanks, Plant Health Australia

Shank's brood disease: healthy vs. infected pupae

Source: Tim Heard, Australian Native Bee Association

Bembix wasp

Source: Dr Jenny Shanks, Plant Health Australia

Chalkbrood fungus

Source: Tim Heard, Australian Native Bee Association

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Source: : Dr Jenny Shanks, Plant Health Australia

- Potential symptoms include:
  - chalky brood (brood coated in black/grey powder)
  - large amounts of larval death.

Honey bee viruses

- Some European honey bee viruses have been observed in overseas native bee populations. It is not known whether Australian native bees may also be susceptible to bee viruses, many of which are exotic to Australia.
- Examples of potential symptoms include:
  - Deformed wing virus (exotic to Australia): unusual looking wings on bees or sudden colony death.
  - Black queen cell virus (exotic to Australia): mortality in queen bee pupae, dead queen bee larvae turning yellow and then brown/black.
  - Sacbrood virus: infected brood capping discoloured, sunken or perforated and larvae become a fluid filled sac.

If you see anything unusual, call the Exotic Plant Pest Hotline.

EXOTIC PLANT PEST HOTLINE
1800 084 881

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