National Bee Unit

FAQ 19

The Food and Environment Research Agency

Wax Moth

There are two moths that present problems to beekeepers in the U. K. They are the Lesser Wax Moth, *Achroia grisella,* and the Greater Wax Moth, *Galleria mellonella.* Outside the beekeeping world Greater Wax Moth is often considered a useful insect being commercially reared for fish bait, bird food and use in research. If climate change creates warmer conditions other moths such as the Deaths Head Hawk Moth, *Acherontia atropos,* and other similar species may become a problem as they rob colonies of nectar and honey.

What are the problems that wax moth cause?

Wax moth larvae are often found destroying unoccupied combs in colonies that have failing queens, been damaged by pesticides, are weak, queen less, starving or diseased. They also have the potential to destroy or damage stored comb. Contrary to common belief wax moth does not kill bee colonies. The Greater Wax Moth can also cause damage to hive components and is generally recognised as causing significantly more damage than the Lesser Wax Moth.

Do they have any benefits to bees and beekeepers?

In foul brood disease areas it is probably the 'beekeepers best friend' as it removes infectious comb from the disease cycle. This is particularly important respecting feral or abandoned colonies, Certainly when The Greater Wax Moth arrived in New Zealand, as an exotic species, it was accompanied by a decline in the number of cases of American foul brood.

What is the life cycle?

In order to control wax moth infestations it is important to be able to recognize them and understand their life cycles so that appropriate action may be taken.

Greater Wax Moth, *Galleria mellonella*, The adult greater wax moth has a length of about 20mm., a wingspan between 24 and 33mm. and is a brown colour with ash white markings. When seen in a hive it makes short runs or flights to darkness. It can sometimes be seen perching and flying in the vicinity of bee colonies at dusk usually entering hives or boxes at that time. Females lay clumps of eggs in crevices within the hive, laying between 300 and 600 eggs which are pink/cream/white and are difficult to see. They hatch after 5–8 days into the larvae that cause the damage to bee combs. These larvae cannot ingest beeswax but eat it and live on the impurities contained therein. As a result they are generally found in the brood comb or any comb containing organic matter. The larvae burrow through combs often just under the cappings leaving a silken tunnel behind them. The bee pupae in the cells are rarely damaged, but sometimes become trapped in the cells by the silk threads and die. This condition is known as *Galleriasis* and is more

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January 2010

frequent in newly drawn comb. The larvae grow to 24-33mm length and when they larvae pupate often burrow into wooden frame components leaving tell tale holes often next to frame lugs, or adjacent to the hive walls leaving tell tale boat shaped furrows about 15mm long. In serious infestations the entire box can be filled with pupae in white silk cocoons. These are usually accompanied with dark specks of frass. On emergence adults mature and usually mate within the hive.

Greater Wax Moth Larvae

Greater Wax Moth Pupae

Greater Wax Moth Immature Adult

The Lesser Wax Moth *Achroia grisella* has a length of 10-13mm, a wingspan of 11-14mm and is silvery-grey to buff in colour with a yellow head. When seen it either flys, runs very quickly or holds onto the comb vibrating its wings. Each female can lay 250-300 eggs hatching into larvae that are similar in appearance to Greater Wax Moth larvae but not as large being up to 20mm in length. Though larvae consume honey, pollen and wax they are not found in comb occupied by bees and do not damage hive components. Lesser Wax Moth larvae are unable to compete with Greater Wax Moth larvae as the latter will eat them.

In the live bee situation the best preventative against wax moths is strong healthy colonies. If not controlled wax moth infestations can rapidly multiply, which is exacerbated with warmer conditions.

Does Greater Wax Moth infest other bee species?

Apis cerana, A. dorsata and *A. florae* are all reported as being infested. In periods of dearth or monsoon infested colonies often abscond.

Are there other species of wax moth?

Yes, the Bumble Bee Wax Moth, *Aphomia sociella*, which is very similar to, but smaller than Greater Wax Moth. The body and forewing are a reddish brown and the female has a distinct dark spot on the forewings. Larvae, the life stage that causes damage, reach 24–30 mm in length and become distinctly yellow in colour. The adult moth is attracted to bumble bee nests by scent, lays her eggs and when hatched, the larvae create tunnels of silken thread through the nest. Bumblebees often abscond when nests become infested.

Do other insects infest honeybee colonies?

Yes. In particular larvae of the Small Hive Beetle, *Aethina tumida,* which can consume beeswax, honey, pollen and brood resulting in total devastation of bee colonies. They are very similar to Greater Wax Moth larvae but have three pairs of legs and dorsal spines. Further details can be found in the NBU leaflet 'Small Hive Beetle'. At present it has not been confirmed in the UK but there is a significant risk of its introduction. If suspected it must be reported to the National Bee Unit. Other species of beetle such as pollen beetle can occasionally be found.

Larvae of the Small Hive Beetle

Suggestions for the control of wax moth are included in FAQ 20 'PDB, Napthalene and the Storage of Comb'.

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