

Small Hive Beetle Distribution

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Mike Brown and Jason Learner outline the current status of the distribution of small hive beetle across the globe.

Brazil recently confirmed to the World Animal Health Organisation (OIE), the presence of the small hive beetle (SHB) near Sao Paulo, and investigations to assess the extent of infestation are underway. The outbreak was first detected in March 2015 with final confirmation of the beetle species as *Aethina tumida*, in February 2016. This is the first confirmed report of SHB in Brazil.

Further details of the outbreak can be found on the OIE website (www.oit.int). Epidemiological investigations are ongoing within a 20 km radius of the location where the first infested hive was detected. Meetings with representatives of the beekeeping associations and the apiculture sector have been organised, and guidance regarding detection, notification and prevention/control measures of the spread of the agent have been disseminated.

Risks for the UK

The overall risk for the UK has not changed with the new findings as imports are not permitted from these parts of the world. At this point it is useful to remind beekeepers of the rules governing the import of honey bees.

Detailed guidance notes are available on BeeBase. Bees can only be imported from very few designated Third Countries (outside the EU) and with strict health certification. Imports or exports of bees (including queens, packages and colonies) are only permitted if accompanied by an official European Union (EU) or Third Country health certificate issued by the competent authority/veterinary services of the country where the bees originated.

Current known distribution

In recent years, SHB has spread to a further ten confirmed countries. Set out below, is an updated list of other known countries where SHB has spread to, outside of its native range as of April 2016.

Africa

The SHB is indigenous to Africa, and therefore widespread across the continent, particularly sub-Saharan Africa.

In 2002, SHB was reported in Itay-Al-Baroud in Egypt and subsequently in a number of apiaries along the Nile Delta. However, a latter extensive apiary survey could not confirm its presence and no SHB damage to bee colonies has been reported since then.

Australasia

SHB was confirmed in Australia in 2002 and is now present in Queensland, New South Wales and Victoria. It is considered endemic in those states.

The Americas

In the USA, SHB was first found in 1996 and the species formally confirmed in Florida in 1998. The beetle is now established across continental USA, all 48 contiguous states having confirmed positive finds.

SHB was detected in Canada in 2002 (Manitoba), 2006 (Alberta and Manitoba), 2008 (Quebec and Ontario), 2009 (Quebec) and 2013 (Ontario). In Ontario, the most southern point has an established SHB population with movement restrictions in place on colonies and apicultural material out of the region. SHB was also confirmed again in Quebec in 2013.

Mexico (2007). SHB is established in at least eight states of Mexico, especially in the tropical states e.g. Yucatan. In such areas, infestation levels can be extremely high with hundreds or even thousands of adult beetles found in a single infested hive.

Jamaica (2005). Low impact to date.

Hawaii (2010). SHB has had a devastating



Small hive beetle. Photo by Jessica Lawrence.

Guidance notes

Detailed guidance notes on SHB are found at <http://www.nationalbeeunit.com/index.cfm?sectionid=47>

impact on the local beekeeping industry, in particular on the queen rearing industry.

Cuba (2012). *A. tumida* is currently present in the provinces of Villa Clara, Cienfuegos, Matanzas, La Havana, Mayabeque, Artemisa and Pinar del Rio and expected to extend to the whole country.

El Salvador (2013). A follow-up survey in December 2014 detected SHB in only 68 out of 1,700 hives suggesting a localised outbreak to date.

Nicaragua (2014). SHB has been reported in Rivas, but it is currently unknown if it is established or localised.

Brazil (2015). In March 2015, a swarm of honey bees (*Apis mellifera*) was captured and held in the apiary of the Beneficial Insects Laboratory, Department of Entomology and Acarology of the



SHB Larvae on a honey frame. Photo by Jeanette Klopchin, Honey Bee Research and Extension Laboratory, Department of Entomology and Nematology, University of Florida.

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Graduate School of Agriculture 'Luiz de Queiroz', University of São Paulo. Days later, twenty adult females of the small hive beetle were detected in the crate containing the captured swarm. No larvae were found and no apparent damage was observed in the hive. At the beginning of the investigation the apiary included six hives of *Apis mellifera* and forty stingless bee hives. The remaining hives showed no presence of beetles.

Portugal (2004). SHBs were intercepted in a shipment of queens from the United States into Portugal in 2004. All colonies in the destination apiary were destroyed and the surrounding soil treated with insecticide.

Italy (2014). SHB was confirmed in Calabria and in Sicily. Contingency measures are currently in place with the aim of eradication of the SHB from Italy.

Asia

Philippines (2014). Managed colonies of introduced European honey bees were confirmed as severely infested in Lupon. Control measures are currently being undertaken, e.g. prohibiting inter-island movement of bees.

Key reference

For more details of the geographical distribution and impact on the apiculture industry in those countries affected by SHB readers are directed to the following review paper:

Neuman P, Pettis JS, O Schafer M. Quo vadis *Aethina tumida*? Biology and control of small hive beetles. *Apidologie*, February 2016. This is available on line: Open Access, at <http://link.springer.com/article/10.1007%2Fs13592-016-0426-x>