

THE ITALIAN SITUATION AND 2017 NBU CONTINGENCY EXERCISE

# Small Hive Beetle Update

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**Most of you are probably aware of the outbreak of *Aethina tumida*, the small hive beetle (SHB), which was reported in Italy in September 2014. It was first discovered in honey bee nucleus colonies (nucs) near the Gioia Tauro port in the Calabria region and, three years on, efforts to either contain or eradicate the beetle are still ongoing.**

Since its discovery, the Italian authorities have learnt a great deal about this exotic pest and have confirmed the African origin of the incursion into Italy.

They have also developed and improved their own database of registered beekeepers which has greatly aided their inspection services.

In this article, we present the control procedures that were employed by the Italian veterinary authorities to hold back the invasion front and outline the National Bee Unit's (NBU) contingency exercise in Leicester in 2017, which simulated an SHB incursion.

## Italian Control Procedures 2014–16

As soon as SHB was discovered in Gioia Tauro, a 20-km-radius protection zone was set up

around the infested apiary which prevented the movement of hives and any beekeeping material, equipment or bee by-products into or out of the area (this protection zone is mandatory for all Member States belonging to the EU).

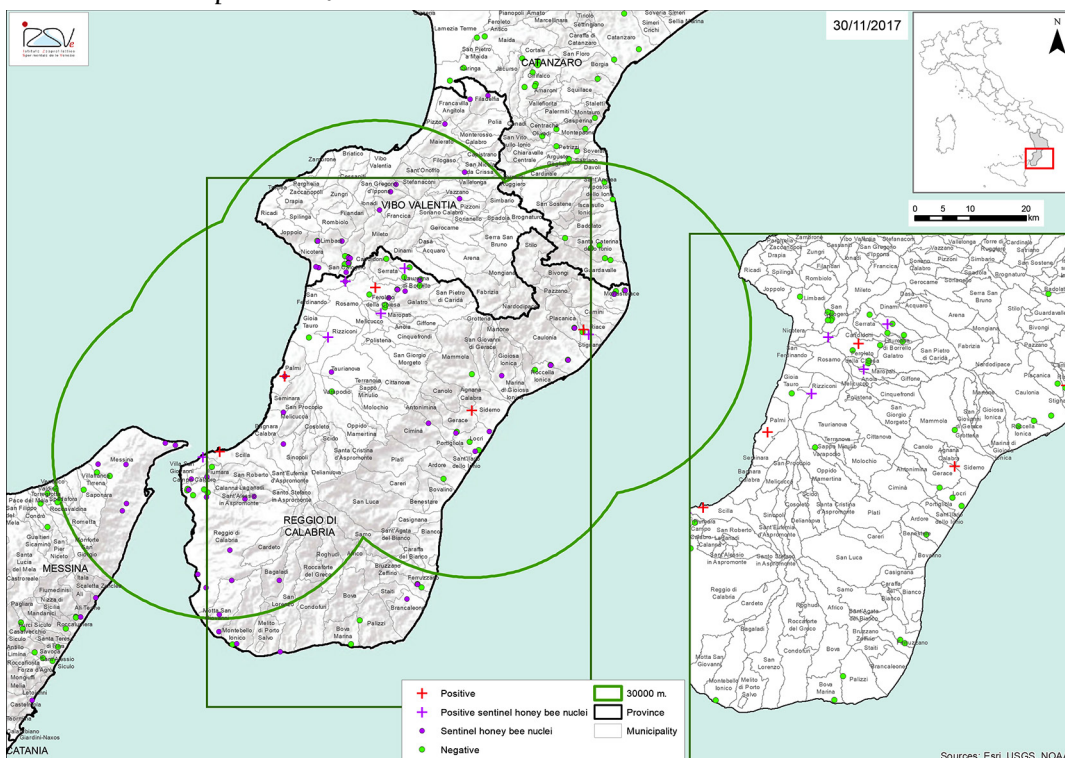
In addition, a 100-km-radius surveillance zone was established around the apiary and extended as necessary when another apiary was found to be infested. In the 20-km-radius protection zone, all apiaries were inspected mandatorily, while inside the 100-km surveillance zone, visual colony inspections were carried out in line with an expected

prevalence, in 2014, of 5%. This was later altered in 2015 to an expected 2% prevalence.

Beekeepers were, and still are, required to notify the local veterinary services immediately if they detect the presence of *A. tumida*.

Upon notification, members of the veterinary services inspect the whole apiary and, if just one beetle or larva is found, the whole apiary is then destroyed in accordance with a decree of the Ministry of Health, and the surrounding soil ploughed and treated with a 1% solution of pyrethroids. Compensation is then paid out to the beekeepers for the destroyed colonies and beekeeping equipment.

The Calabria 30-km protection zone as at 30 November 2017



## Sicily

On 7 November 2014, SHB was also found in Sicily in a migratory apiary. The infestation is believed to have arrived through hive movements made by the beekeeper, whose hives had come from the area of Gioia Tauro, after being situated there from April to August 2014 for pollination services.

Thanks to the swift report by the beekeeper and the intervention by the Italian authorities, the outbreak was quickly eradicated and not allowed to spread further. Since then, no further outbreaks have been discovered on Sicily.



Treating the apiary with pesticide

### Sentinel Nuclei

In 2015, sentinel nuclei (nucs) were used to improve SHB detection within the border of the protection and surveillance zones.

In 2016, 26 sentinel nucs were placed in the northern part of the protection zone, 19 were placed inside the protection zone and 17 along the southern border of the protection and surveillance zones.

Originally, these were composed of queenless colonies with three or four frames of brood, honey and pollen, and they were inspected every 15 days. However, this was later changed to queen-right five-frame nucs with brood, honey and pollen because it was considered that these would be more attractive to SHB.

### National Surveillance

In 2015, the Italian national SHB surveillance programme began. This involved two rounds of controls, in the spring and autumn. The surveillance plan was extended into 2016 and was still in force throughout the whole country in 2017.

Additionally, after a review in 2015 of the dispersal of

*A tumida*, the Italian authorities decided that SHB was established in the area where it was first reported and therefore, in 2016, they shifted to random clinical controls within the region and adopted an overall goal of tracking pest movement rather than eradication.

### Variable Detection

While carrying out inspections, the Italian authorities found that detection of SHB was highly variable, depending on the method used (visual inspections versus traps) and they believed this was probably owing to the low prevalence of adult beetles.

Much of the SHB literature recommends that corrugated traps are left in the hive for at least 48 hours.

However, until further data are available, the National Reference Centre in Italy recommended performing a thorough visual inspection

of colonies to detect the presence of SHB, using traps as a complementary tool. They found that the corrugated traps proved to be unreliable as the bees very quickly propolised them, thereby reducing their efficacy.

### Cosenza Outbreak

In July 2016, an unregistered beekeeper notified the Italian authorities that four out of six apiaries were infested with SHB in the province of Cosenza. A total of 128 colonies were subsequently destroyed. Later that year, in September, another apiary of 70 colonies was found to be infested with SHB and was destroyed.

### 2017

Early in 2017, two infested apiaries were discovered in the 20-km-radius protection zone in the municipality of Palmi (24 March) and Siderno (3 April) in the province of Reggio Calabria. Two natural colonies were found to be infested, in Laureana di Borrello (3 April) and Scilla (25 May), the first with a heavy presence of SHB larvae.

In the municipality of Stignano on the Ionian coast, another outbreak was ascertained, roughly 10 km outside the 20-km Gioia Tauro protection zone (18 April).

All the positive apiaries have been destroyed and compensation granted to the beekeepers.

Furthermore, *A tumida* was found in sentinel nucs in the municipality of Rizziconi within the 20-km protection zone (3 April), in the municipality of Stignano on the Ionian Sea coast (14 June) and in Villa San Giovanni facing the Messina coast (29 June).

### Within the Zone

With this new data, *A tumida* has only been detected within a 30-km-radius from the centre of the protection zone after implementation of a combination of restrictive measures, hive management and environmental factors.

Since the genetic origin of SHB has been confirmed to have been Africa, a surveillance programme, similar to the Exotic Pest Surveillance Scheme set up across England and Wales, has been established around certain ports which are known to import goods from several African countries.



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SHB larvae were found in sugar candy supplements

### Citrus, Kiwi and Rotten Fruits

Knowing the SHB's attraction to fruit, a preliminary field investigation was carried out between December 2014 and January 2015 to detect SHB on rotten fruits in citrus and kiwi orchards in the protection zone of the Calabria region.

Among the samples collected there were seven different non-SHB nitidulid (sap-feeding beetle) species, 16 identified on rotten citrus, while no coleoptera (beetles and weevils) were detected on rotten kiwi. No specimens of *A tumida* have been detected on rotten fruit.

In November 2016, the field survey was repeated in the

protection zone of Gioia Tauro, at sites where SHB-infested apiaries had been destroyed.

No specimens of *A tumida* have been detected on rotten fruits. On the other hand, as previously reported, many adults and larvae of other nitidulidae beetles were found on rotten citrus. Again, no coleoptera were found on rotten kiwi.

### UK Contingency Exercises

Every year the NBU holds contingency exercises to practise the procedures that would follow the confirmed arrival of exotic pests.

In 2017, a four-day exercise was held in Leicestershire simulating the arrival of

SHB. These exercises are unannounced and test our procedures, from the detection of SHB in floor scrapings through the setting up of control centres, to arranging and performing inspections.

Over the four days, 79 exotic pest survey inspections took place and we thank all beekeepers and associations involved. As well as testing our inspection procedures, the operation also simulates the use of control centres, along with staff handovers and the necessary reporting.

### Guidelines and Regulations to Halt SHB

It is clear that, once established, SHB is very difficult to eradicate. In some territories of Italy, it was the rapidity of intervention in infested apiaries that was vital in helping to eradicate *A tumida* in a specific area.

The same is true in the UK and this is one of the reasons why we should all stick to the import rules to mitigate the risks of bringing in the pest from overseas.

### Guidelines

An import guidelines document can be found on BeeBase ([www.nationalbeeunit.com/index.cfm?sectionid=47](http://www.nationalbeeunit.com/index.cfm?sectionid=47)). This outlines what you need to do in order to comply with the regulations when importing bees from either a European or non-European country.

There is also useful information about the SHB on our Fact Sheets and Advisory Information pages: [www.nationalbeeunit.com/index.cfm?pageid=167](http://www.nationalbeeunit.com/index.cfm?pageid=167)

### Reference

Carreck, Norman (Ed) (2017). *The Small Hive Beetle – a growing problem in the 21st century*. IBRA, pp 7–19.

### A small hive beetle trap



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### Hives being destroyed in Italy

