This presentation is part of a suite developed by the Scottish Government and SRUC to provide local associations advice and information on statutory beekeeping requirements, best practice, and how the Scottish Government provides support to Scottish beekeepers.

Aims of module

- To provide information and advice on notifiable pests of honey bees in Scotland

This module aims to look at notifiable pests specifically Small Hive Beetle and Tropilaelaps which are not native to the UK.

The Bees Act empowers Ministers to take steps to control diseases and pests of bees, and it gives powers of entry for authorised persons – Scottish Government Honey Bee Health Inspectors – to access premises to ascertain if disease/pests are present, and to take action.
The Bees Diseases and Pest Control (Scotland) Order 2007 (as amended) places a legal obligation on beekeepers to report any suspicion of notifiable diseases or pests immediately. This Act also empowers authorized persons, Bee Inspectors, to take appropriate action to tackle the incident. No other actions are legally permissible and you *must* comply with Inspectors' instructions.It is a beekeeper's duty to inform the Bees_mailbox@gov.scot if they suspect they have seen a notifiable pest.

What is a notifiable pest of honeybees?

- Non-native and identified as potential to be invasive or damaging to honey bees.
- Lives on bees or in a honey bee colony
- Dependent on a bee/larva or colony to complete its lifecycle
- Can be moved with bees or bee products

Notifiable pests are exotic pests which, although not yet present in the UK, would pose a significant threat to honeybee colonies should they arrive. The risk these two exotic pests could pose to honeybee colonies is recognized in the Bee Diseases and Pests Control Orders which makes them both statutory notifiable pests. Imports from places that have these pests are currently banned from entering Scotland. This means that the law requires that any beekeeper or person in charge of a hive **who knows or even suspects** that one of these two pests is present in or near their hives must notify the Bees mail box immediately. We do not have Small Hive Beetle or Tropilaelaps yet in the UK but they may arrive on imports so we need to be vigilant. Anyone recognise the pictures? Tropilaelaps on top picture under a microscope and Small Hive Beetle on bottom picture

Notifiable pests in Scotland

Small Hive Beetle

Tropilaelaps

The two notifiable pests that threaten honey bee health are The Small Hive Beetle and Tropilaelaps. They can both have a very negative impact on hives.

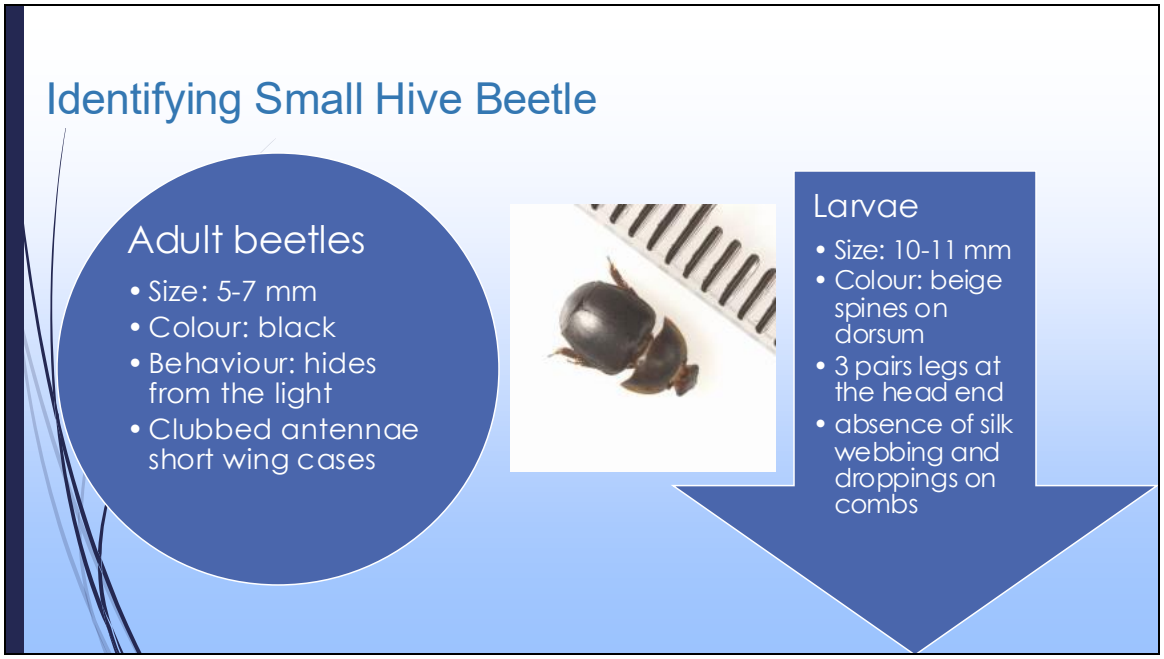
Small Hive Beetle

Can you spot the Small Hive beetle in the picture? It's just left of the middle

Small Hive Beetle
Aethina tumida

- Invasive pest species
- Indigenous to Sub-Saharan Africa
- First found out with Africa in late 1990's - USA
- Infested hives detected in S. Italy on 5th Sept 2014
- Notifiable pest

This beetle, indigenous to Africa, has recently spread to the USA, Canada, Mexico, Jamaica and Australia with all showing that it will be a serious pest of the honey bee should it ever reach the UK. Special measures fall under the following legislation:
THE BEE DISEASES AND PESTS CONTROL (SCOTLAND) ORDER 2007, THE BEES ACT 1980, THE TRADE IN ANIMALS AND RELATED PRODUCTS (SCOTLAND) REGULATIONS 2012
It is currently in the Calabria region of Italy, and in Sicily. Legislation is in place to ban imports of honey bees into the UK from these regions.



It is important to know what you are looking for as other beetles that cause no problem can be in a hive. They are about 6mm long, black with clubbed antennae and the larvae are bigger at about 10mm spines on the larvae and 3 pairs of legs. The eggs are 1.5 x 0.25 mm (two thirds size of honey bee eggs) white and masses of eggs can be found in hive crevices or hive floors. They dislike light, so when the hive is opened they will scuttle to dark corners and hide.

Impact

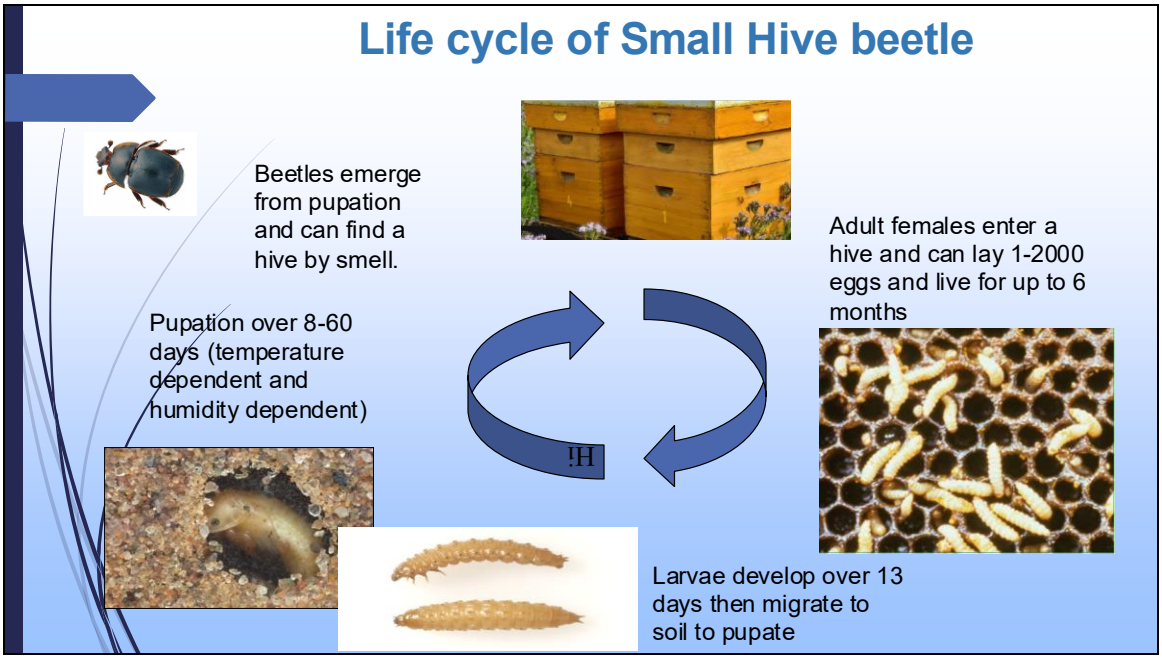
AFRICAN BEES

- A minor pest
- Native bees have evolved to deal with this pest
- Disposes of abandoned brood/comb

EUROPEAN BEES

- **The European honey bee has not adapted to the beetle**
- **Causes severe damage to brood, pollen and honey**
- **Severe infestations cause colony collapse or absconding**

African bees have adapted to cope with the beetle but in Europe the beetle is not native and it has a great impact. The beetles multiply to huge numbers, their larvae tunnel through comb to eat brood, ruin stored honey by causing fermentation, and ultimately destroy infested colonies or cause them to abscond.

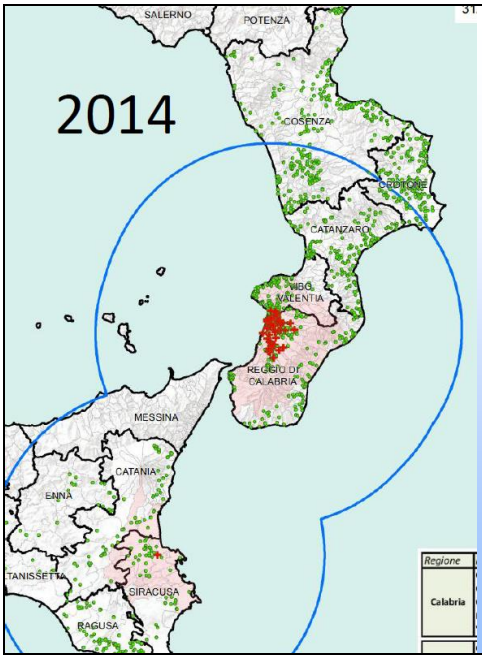


Adult beetles can survive for up to 9 days without food or water. Females can lay one to two thousand eggs in the hive during their lifetime. Beetle larvae eat brood, pollen and honey. They then migrate to soil usually within around 20m of the hive to pupate, at a depth of around 10cm. Adult beetles usually emerge after 3-4 weeks but can emerge anytime between 8 and 84 days depending on temperature. Adults can fly around 16 km to infest new colonies.

Small Hive Beetle behaviour - larvae

- Small hive beetle larvae do the most damage in the colony, burrowing through brood combs and consuming the brood and stores.
- Queens stop laying and colonies can quickly collapse. In heavy infestations, tens of thousands of Small Hive Beetle larvae may be present in a single hive.
- There can often be up to 30 larvae per cell.

Defecation of adult beetles and larvae in honeycomb causes the honey to ferment and drip out of cells. Affected combs become slimy and are reported to have a characteristic odour reminiscent of ‘rotten oranges’. These combs are repellent to bees and can also cause absconding.



Arrival in Europe

- Infested hive detected in Reggio di Calabria in Southern Italy on 5th September 2014
- 20km protection zone around outbreak
- 100km surveillance zone
- Inspections done by vets – no bee inspectorate
- Further finding in Sicily – movement for citrus pollination
- Genetic analysis traced back to African population

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. A further outbreak in Sicily in June 2019 meant that the ban on exports from Italy was reintroduced for Sicily. The prohibition on exports to the UK from Calabria and Sicily continues. You can find updates on the Italian situation on the link at the end of this PowerPoint

Current situation in Italy 2025

- Eradication not realistic
- Control and containment
- 30km protection zone
- Surveillance continues but is now limited

There was confirmation of new SHB cases in Sicily in October 2024, the UK has introduced new safeguarding measures. As of 1 November 2024, the import of live bees, apiculture products and beekeeping equipment from Sicily into England, Scotland and Wales has been suspended. To keep up to date with developments you can look up BeeBase via the link at the end of the presentation

Can it survive in Scotland?

- **Yes – but not optimal**

- Overwinter within cluster
- Limiting factors are soil temperature and humidity (17-25°C is ideal)
- Lower temps limit number of life cycles
- However…queen rearing and honey production affected even in cold climates
- Individual incursions could be eradicated; but once established eradication is unlikely

It could survive in Scotland and the warmer our climate gets the more likely it will. Conditions are not favourable but certainly in warm summers it will be an issue.

What is Scotland's response?

Surveillance:

- Exotic pest inspections around risk points:
  - Imports of bees from Italy
  - Airports
  - Zoos
  - Garden centres etc.

There is a serious risk that small hive beetle could be accidentally introduced into the UK. Studies have shown that some of the routes by which it could be transported are: Fruit imports – in particular avocados, bananas, grapes, grapefruit, apples, mangos, melons and pineapples. Freight containers and transport vehicles. Import of honey bees. Trade in hive products e.g. raw beeswax and honey in drums. Beekeepers are asked to be particularly vigilant and to make sure they only import bees through proper channels and with appropriate health certification.

Scottish Government Bee Health Inspectors carry out exotic pest inspections annually, in randomly selected apiaries which are identified as being at risk due to proximity to an exotic risk point such as ports, garden centres, zoos – places that regularly import goods where a small hive beetle could have hitch hiked.

What to do if you suspect Small Hive Beetle?

- Suspect small hive beetle adults or larvae should immediately be sent to SASA for examination.
- Use a sealed container, such as a plastic tube or stiff cardboard box.
- Please provide as many details as possible – your name, the apiary locations (including, where possible, the Ordnance Survey map reference).
- Do not send live beetles in the post. Kill them first by keeping them in a freezer overnight or by putting them in 70% ethanol.
- A simple to use sampling form is available to download directly from the NBU's BeeBase website www.nationalbeeunit.com (on the honey bee pests and diseases pages).

This information and more can be found on BeeBase and on the SASA bee disease section of their website. You can find links with more information at the end of this powerpoint

Tropilaelaps

What are we looking at? Can you describe/ compare them? You will find the updated booklet on Beebase by following the link or QR code at the end of the Powerpoint

Tropilaelaps overview

- Tropilaelaps is a mite
- Native hosts are Asian honey bee
- Group of four species – two of which have 'jumped' to *Apis mellifera*
- Less than 1/3 size of varroa – won't see with naked eye or hand lens

It is a mite, like varroa but smaller. The two types that have jumped to the Western honey bee are T. clareae and T. mercedesae, They feed off the hemolymph of the larvae. Tropilaelaps depends on the developing brood for food, they must move from the adult bees to feed on the larvae as quickly as possible after emergence. As a result, their phoretic stage(when the mites live on the adult bee) is much shorter than that of Varroa. It is a reportable pest and you must contact Bees_mailbox@gov.scot if you suspect it.
The symptoms that it causes are almost identical to that of varroa – essentially parasitic mite syndrome – and so it may not be suspected or detected in a colony.

Distribution

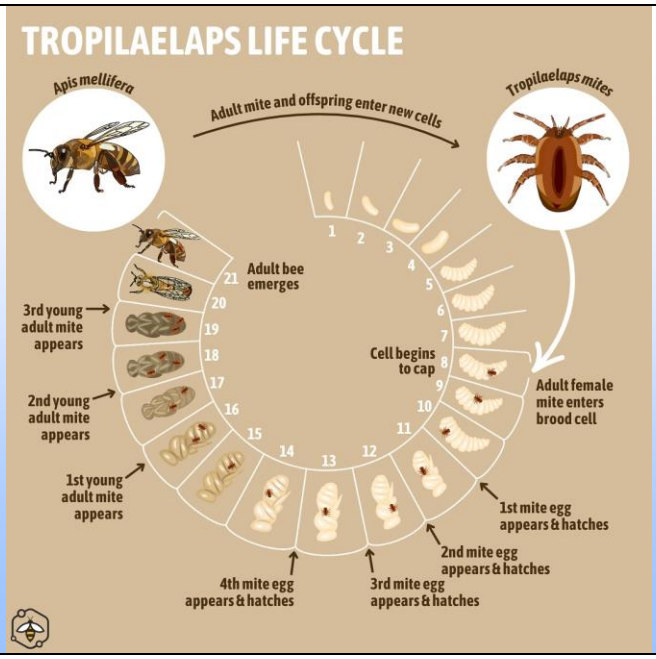
- Currently present in Indonesia, the Philippines, Myanmar, China, India, Laos, Malaysia, Papua New Guinea, Sri Lanka, South Korea, Thailand and Vietnam.

  Recent reports from Russia and Ukraine

- Imports from the Ukraine are now banned.

Distribution of giant Asian honey bees (*Apis dorsata*) and the current confirmed distribution of *Tropilaelaps mercedesae* (correct December 2025)

They are currently largely confined to tropical/sub-tropical zones, where these mites are responsible for very significant economic losses. However, their geographic range has spread dramatically within the past 40 years, with a northward and westward expansion. Due to the symptoms being so similar to that of varroa, and the mite being so much smaller, it is often not detected in an area until has already spread extensively. There are anecdotal reports of the mite being present for 8-10 years before detection. Therefore any maps of distribution are likely to be inaccurate. Confirmation and publication also takes a long time so the real 'on the ground' situation is likely to be ahead of what is currently reported.



Their development is much quicker than varroa. Up to 14 mites from one cell. They enter cells containing mature bee larvae, reproduction takes place within sealed brood, particularly that of drones, 48 hours after cell-capping. Each female lays three or four eggs, which hatch within 12 hours. Over the next five days, mite larvae go through nymphal stages before becoming adults.

Spread

- They readily move between bees and within the hive.
- They move between colonies through drifting, robbing and swarming.
- They are also spread within apiaries through distribution of infested combs and bees through poor beekeeping management.
- Transport / migratory beekeeping

Figure 10. *T. clareae* on pupa of *A. dorsata*

To move between colonies they depend upon adult bees for transport through the natural processes of drifting, robbing and swarming. Mites can spread slowly over long distances in this way. They can be spread by imports from countries that have it or are at risk of having it and through moving or transporting hives. Because you can't see them and the beekeeper isn't aware that they are there, they are more easily spread.

Impact and risk

- Large economic impact in affected countries
- Feeding mites spread viruses – in the same way as varroa does.
- Size and biology mean beekeeper detection is unlikely
- Rapid population increase makes control more difficult and impact more severe
- Populations are likely already to have resistance to some miticides

Tropilaelaps causes abnormal brood development and death of both brood and bees, leading to colonies declining, absconding or collapsing. In severe infestations up to 50% of brood dies and there is a smell of decay. Adult bees damaged during development have reduced life-spans, lower body weights, and wing and leg deformities.

What do you do if you suspect Tropilaelaps?

- You must report immediately to the Beesmailbox.
- Suspect Tropilaelaps adults or larvae should immediately be sent to the SASA for examination.
- Inside the package, use a sealed container, such as a plastic tube or stiff cardboard box. Please provide as many details as possible – your name and address, the date, the apiary name and location (including, where possible, the Ordnance Survey map reference).
- Do not send live mites in the post. Kill them first by keeping them in a freezer overnight (or by putting them in 70% ethanol).

Tropilaelaps is a statutory notifiable pest under both EU and UK legislation. Beekeepers are permitted to import honey bees from a very limited number of countries outside the EU. Import regulations are our main defense against the introduction of these mites from overseas to the UK, and it is essential that all beekeepers abide by them

Your responsibilities as a beekeeper

- It is important that beekeepers prepare for this possibility.
- Make sure your details are recorded on BeeBase
- Make sure you only import bees through the proper channels and with appropriate health certification.
- Knowledge of Tropilaelaps biology is changing based on new research.
- Keep up to date with the latest advice on the best ways to monitor and control for this pest.

It is extremely important that all beekeepers register on BeeBase. This is the responsibility of the beekeeper. To register as a beekeeper, please visit www.nationalbeeunit.com

If we don't know where at risk colonies are located, then our chances of effectively monitoring for the arrival of Tropilaelaps. It is irresponsible to import bees illegally; this puts the health of everyone's bees at risk. If the mites do enter the UK, early detection will allow control action to be targeted promptly where it is most needed and help reduce the spread of this pest throughout the country.

Here you will find links for updates for the small hive beetle in Italy and an update from BeeBase
You will also find a link to SASA with advice on what to do if you find any.
The Tropilaelaps pdf has been updated and is also available from BeeBase

Here are some of the Government and SRUC resources available to you. If you have any queries you can contact the Honey Bee Health Team by email.
Information about how the Scottish Government supports honey bees in Scotland can be found via the QR codes. And links SRUC podcasts on honey bee management can be found using the QR code.

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Scottish Government
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SRUC
BEEKEEPING GOVERNMENT TRAINING MODULES
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Many thanks