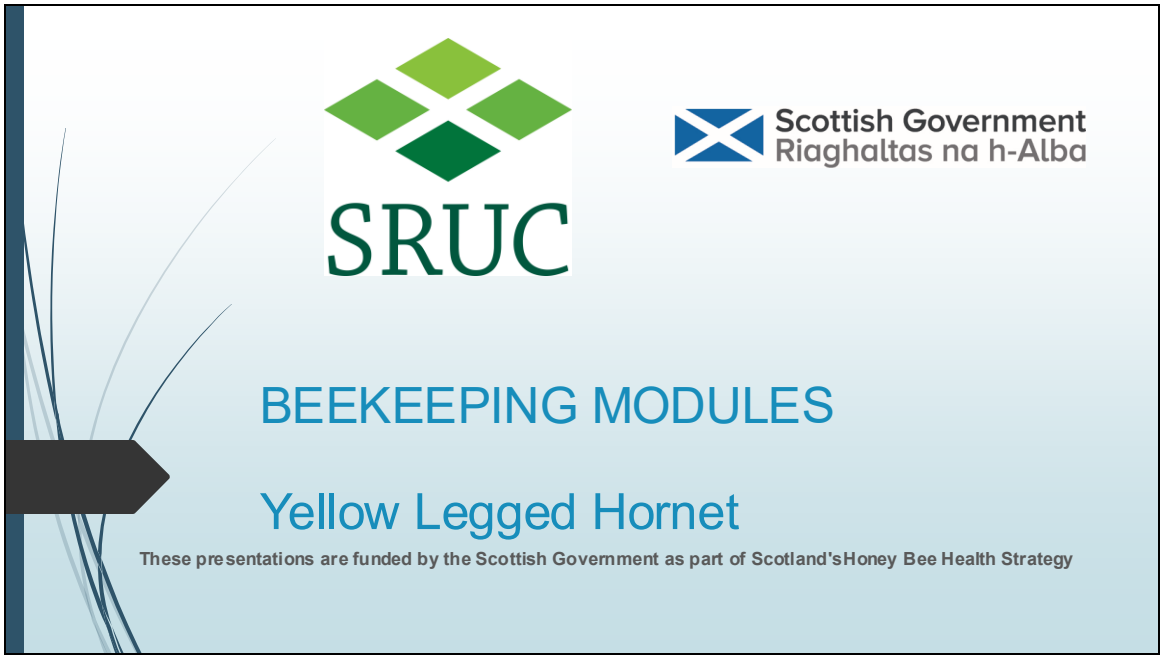


This presentation is part of a suite developed by the Scottish Government and SRUC to provide local associations advice and information on statutory beekeeping requirements, best practice, and how the Scottish Government provides support to Scottish beekeepers.

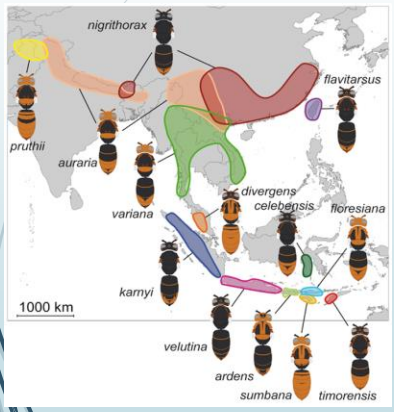
Why has the name changed?

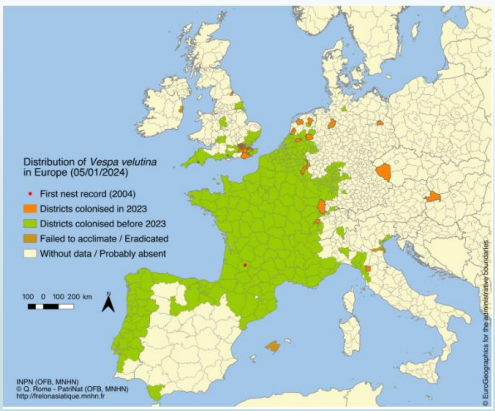
- Following feedback from external stakeholders, the Defra Bee Health Programme Board opted to adopt the term **"yellow-legged hornet"** as it is considered a more descriptive and accurate name for the species.
- Scottish Government also adopted this change to help **avoid confusion** and improve communication across all related sectors and the public. It is hoped this will also reduce the number of erroneous reports.

You will likely be more familiar with the term "Asian hornet". This has now changed to "yellow legged hornet" for the reasons outlined in this slide. There will be a period of transition where you may hear both terms until all documents are updated.

How Did It Get Here?

- From Shanghai region of China – a major worldwide shipping port
- First spotted in France in 2004 near garden centre – spread rapidly! ~100km/ year
- This sub-species has also spread to south Korea and Japan





How did YLH's get to Europe in the first place? A single queen came from Shanghai in China to France in a shipping container, hibernating in a Bonsai tree in 2004. Hornet queens are mated by several males, just like queen honey bees, and so they are able to establish genetically diverse populations by themselves. By the time they realised in France that YLH was present, it was already well established and eradication was not possible. It has since colonised significant areas of Western Europe, including Spain, Germany, Switzerland, Holland. Hornets regularly blow across from France to Jersey, and across the English Channel to Kent, as was evidenced by hornet nests on the cliffs of Dover in 2023.

Impact outside native range

- Major predator of bees and insects
- Predation affects European honeybee behaviour – reduced foraging/ no honey crop
- Large numbers of hunting hornets can lead to colony collapse
- Impacts on other pollinators
- **Risk to humans – nest defense**

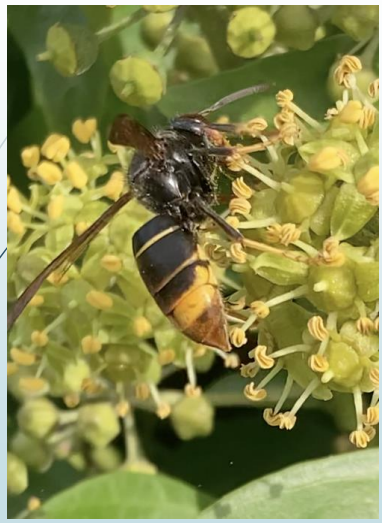
Click link to see hornets hawking bees in France:

https://youtu.be/4MGJ7KhlgL0

Why are we concerned about YLH establishing in the UK? They are a non-native species, meaning that our local pollinators, including honey bees, have not evolved defence mechanisms to cope with them. This leaves our pollinators vulnerable to being predated on by YLH. The Asian honey bee, *Apis cerana,* has evolved along with *Vespa veluntina nigrothorax* (yellow-legged hornet) and so they have developed their own defence mechanisms against them. Asian honey bees will collectively create a ball around the hornets, effectively cooking them. Hornets will hawk outside a bee hive, picking off bees as they return to the hive. This has the effect of scaring the bees and they are reluctant to leave the hive. Unwilling to leave the hive, they quickly use up the stores they have during the summer when the hive is at its most active. This is the point when hornets will invade, when they sense the colony is weakened, and the colony will collapse.

Beekeepers have had to look at inventive ways to attempt to protect their hives with special entrances that allows bees access to the hive without letting hornets get near enough to hawk them effectively.

What Is A Non-Native Species?



These are species which has adverse impacts on wildlife and the environment

These species cannot be:-

- Brought into Scotland
- Kept
- Bred
- Transported
- Placed on the market
- Used or exchanged
- Allowed to reproduce
- Be grown or cultivated
- Released into the environment (except under specific exemptions).

Yellow-legged hornets (YLH) are classed as Non-Native Species and they have an adverse effect on all pollinators. A non-native species can have a negative effect on the local ecosystem as it has not evolved with it. They predate on pollinators as a source of protein and are not pollinators themselves. This means that over time, they can change the biodiversity landscape of areas which they have colonised. It is therefore important that we do our best to prevent YLH's from establishing in the UK.

Is this the perfect invasive pest?

- **From a major port:** lots of opportunity
- **Multiple mating:** single queen can start a new population
- **Strong fliers:** long distance dispersal
- **Hitch hiking:** large numbers of queens each year (100s) overwinter in nooks and crannies
- **Rapid population spread**

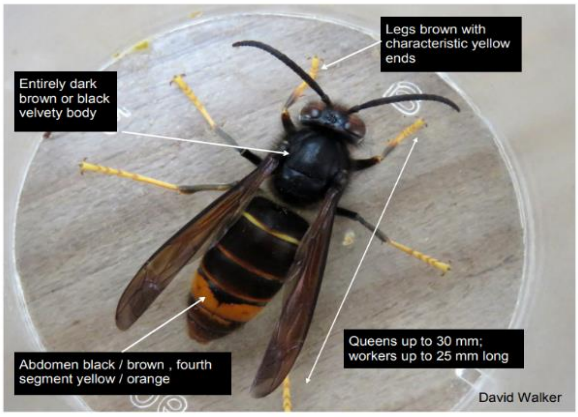
1 mated queen = 1 new colony = multiple colonies = expanding population = national problem

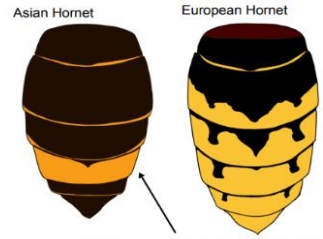
Now we know how they reached Europe, and the problems they can cause outside their native range. What else do we need to know about them? The volume of international travel is enormous. It is very easy for something very small, like a YLH, to hide in a nook and cranny and get from one side of the world to the other without being noticed.
We know that queens mate with multiple individuals, meaning that they can establish genetically diverse populations very easily by themselves. They are also very strong fliers – they are able to fly from France over the English channel if the wind is in the right direction. We know that it's very easy for them to hitch hike, and to overwinter in a tiny spot without being noticed.

All of these elements combined make yellow legged hornets incredibly successful at establishing new populations in new areas.

Yellow-Legged Hornet - Identification

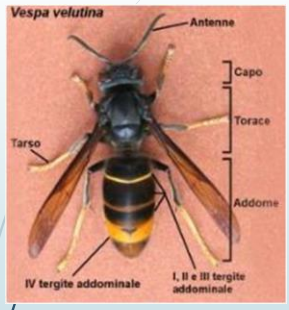
Key ID Features





Now we know a bit of background of YLH, it is important to be able to accurately identify it. This slide shows the distinguishing features unique to YLH. It is a mostly dark insect, with a distinctive yellow/orange band on the 4th section of the abdomen. The lower legs are yellow. No visible stinger. They are larger than a wasp and smaller than a European hornet.

Identification - confusers



European hornet

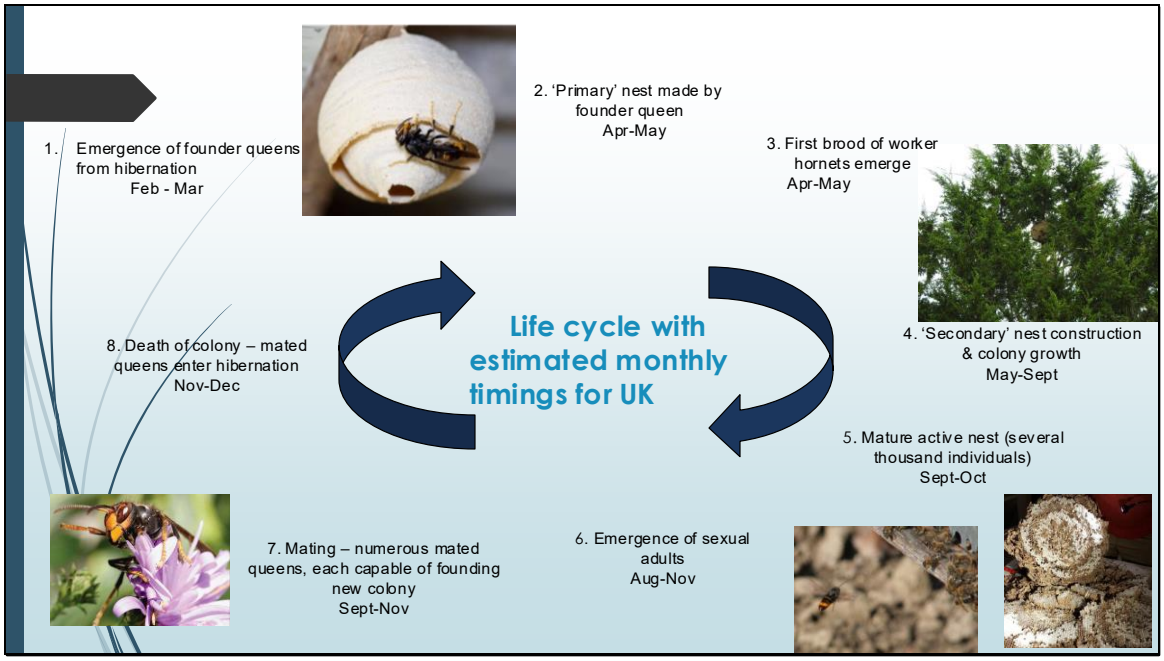
Median wasp

Horse fly

Giant wood wasp

It is important to be able to distinguish YLH from other similar looking insects such as wasps , hornets and flies that may look similar. The most common ‘confuser’ in Scotland is the giant wood wasp, due to the yellow legs. However, the giant wood wasp is much larger than a YLH and has a large ‘stinger’ called an ovipositor, which it uses for laying eggs in wood. The European hornet is not well established in Scotland but is common in England and is again larger than the YLH. The giant horse fly also has yellow legs, and is a common confuser with YLH in Scotland.

Can you name all of these insects before their names appear on the screen?



Now we know what it looks like and other similar insects that it can be confused with, it is important to understand the life cycle of the YLH. This is because nests can appear differently at different times of the year, and hornets will be focusing on different food sources depending on the stage of their life cycle, so it is important that you know what to look out for, where and when.
The life cycle starts in early spring, when the queens emerge from hibernation between February and March. They will create a small 'primary' nest, similar to that of a wasp nest that you often find in the shed in spring. The queen looks after the workers in this nest to start with by herself.
As the nest grows, the first worker hornets will emerge around April – May. The nest will continue to grow, and normally the whole colony will move to a larger 'secondary' nest, which is often located high in a tree, but not always.
Sometimes the primary nest and secondary nests will both be kept active, with the queen going between the two nests. During the summer, from May – September, when colony growth is at its most active, hornets will be foraging on protein sources to feed the brood. This can be roadkill, fish markets, and it is this time that hornets will be actively hawking beehives to feed bees to their young.
From August until November, the sexual adults ('gynes') are produced from the

nest. At this point the foraging behaviour will switch from protein sources to carbohydrates, so hornets can be seen around compost bins, fruit trees, ivy. The colony will die out around November-December and mated queens will enter hibernation. One nest can produce several hundred mated queens.

Nest Identification - Spring

Image: John De Carteret

- Over-wintered queens become active and start foraging
- Build a primary nest typically in a lowdown sheltered spot and begin the production of a new colony
- Nest is brown in colour, similar to a wasp nest
- Only fly during the day

After hibernating over winter, the queen will emerge and seek out a sweet, carbohydrate-rich food source, in order to build up energy to commence building a small embryonic nest, called a primary nest. This will look very similar to a primary wasp nest that you often see in sheds in early spring, and these are often also located in similar places such as sheds and outbuildings. During construction of the nest, she is alone and vulnerable, but she will begin laying eggs to produce the future workforce. As the colony and nest size increases, a larger nest is either established around the embryonic nest or they relocate and build elsewhere; this is called the secondary nest.

Nest Identification - Summer

Image: Pixabay

- The queens build a larger secondary nest which is typically but not always in an elevated position
- A single colony can produce up to 6000 individuals in one season.
- Each Yellow-legged hornet can kill 30-50 honey bees a day
- Can be spotted ‘hawking’ honey bees outside their hive

During the summer, a single YLH colony can produce an average of 6000 individuals in one season. From June onwards, YLH predation on honey bee colonies will begin and increase until the end of August. Hornets predating on hives will be seen hovering outside a hive entrance, waiting for returning foragers. This is a characteristic hornet “hawking” behaviour. When they catch a returning bee, they will remove the wings, head and abdomen, and return to the nest with the protein rich thorax to feed the brood. The developing larvae are fed a protein-rich diet consisting of insects or other protein sources scavenged by the workers. The nests are not always found in trees they may be found in hedges, cliffs and even underground.

Nest Identification - Autumn

Image: Claude Alleva on Pixabay

- Nests high up in trees more likely to be seen when the leaves start to fall
- Can be seen foraging on flowering ivy and fallen fruit
- Mated queens leave the nest to find a suitable place to over-winter and leave the workers and males to die

During autumn, the nest activities shift from foraging and nest expansion to reproduction. This is at the point when foraging switches from protein sources to carbohydrates, so hornets will often be seen around ivy, fallen fruit, compost bins. In France, it was found that nests may produce up to 350 gynes (future queens) and three times as many male hornets. After the mating period, the newly fertilised queens will leave the nest and find somewhere suitable to over-winter. The old queen will die, leaving the nest to dwindle and die off. Of the gynes (new queens) released by the nest, only a small number will successfully mate and survive the winter. The following spring, the founding queen will begin building her new colony and the process begins again.

Do not approach or disturb a nest.

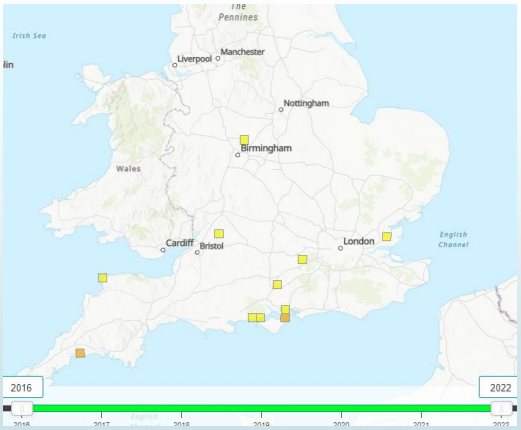
Image: Didier Aires on Pixabay

Yellow-Legged Hornets can be extremely aggressive if they feel they are being threatened. Stings are painful and can cause an allergic reaction in some people.

Individual hornets when out foraging are not generally aggressive. However, they are extremely defensive of their nests and will sting if they feel their nest is threatened. It is therefore very important to not disturb a nest. If you suspect a YLH nest, report it to the Asian hornet App as shown in forthcoming slides. Take a picture if you can but don't get close as they can be a danger to human health.

Situation in UK

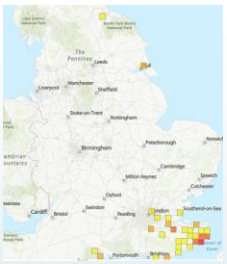
- **UK 2016 to end 2022:**
- 21 confirmed sightings
- 12 nests destroyed
- First hornet found in 2016
- Single hornet found in Scotland in March 2017 – not confirmed



This gives a bit of history of confirmed YLH sightings in the UK up until 2022.
To date, no nests have been discovered in Scotland. There was a credible sighting of a YLH at a supermarket distribution centre in the Central Belt in 2017. Unfortunately, the specimen was not conserved and, as a result, was not submitted for official laboratory confirmation.

Then in 2023…

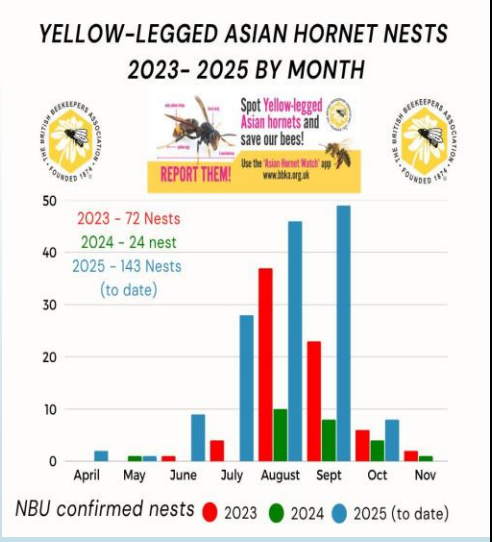
- 72 nests in 56 locations
- 1st individual confirmed 5th April (Newcastle)
- 1st nest found 28th June (Kent)
- Most northerly nest at Yarm, near Middlesburgh
- Many findings notable round major ports/transport routes
- Individual at Newcastle second cauliflower report



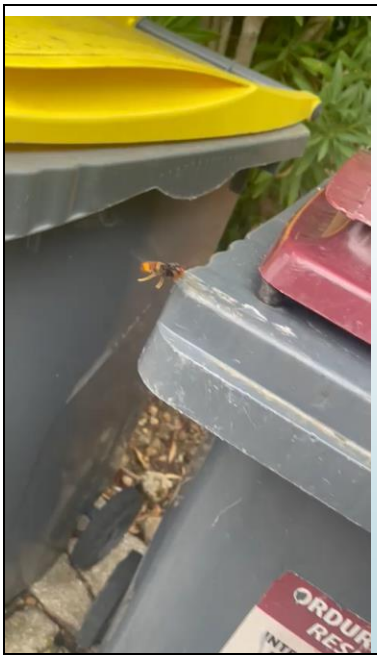
There was a large increase in nests in the South of England in 2023 and the nearest ones to Scotland are Yarm, near Middlesburgh and Hull. It is thought the weather in 2023 created perfect conditions in France for YLH's to overwinter well in 2022/23, and for the wind to be blowing in the perfect direction for hornets to be blown across the channel. Add to this an increase in hornets in France able to hitch hike in shipping containers, lorries etc which led to a vast increase in nests found in South of England in autumn 2023.

2025

- 161 YLH nests have been recorded in the UK in 2025 (incl. an 'unconfirmed' nest in Hythe, Southampton).
- 119 in Kent, 20 in East Sussex, 4 in Surrey, 2 in Sussex, 3 in West Sussex, 3 in Greater London, 2 in Hampshire, 2 in Essex, 3 in Dorset, 1 in North Yorkshire, 1 in Isles of Scilly and 1 in Cheshire.
- At time of writing there are confirmed sightings in Wrexham, County Cork and in the Dundonald area of Belfast



You can keep up to date using the beebase link or qr code which can be found at the end of this presentation



Where/when you might see them

Yellow-Legged Hornets adapt their dietary preferences as the season progresses.

- Summer: protein-rich foods such as insects, roadkill, fish, bee-hives.
- Autumn: carbohydrate-rich: flowering plants such as ivy, fallen fruits, compost heaps

The video shows a hornet in Autum search for food around some bins. It is important to know what food sources YLH prefer and when, so that you can remain vigilant and look in the right places at the right time of year. Not only beekeepers should be doing this; everyone with an interest in nature, including gardeners and environmentalists, can be looking out for yellow-legged hornets.

Legislation

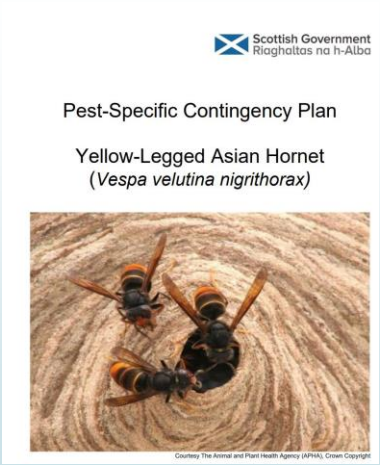
The Wildlife and Countryside Act 1981 (as amended) (sections 14 to 14P)

- Principal legislation dealing with non-native species in Scotland. Covers a range of issues from keeping or releasing a non-native animal out with its native range

The Wildlife and Countryside Act 1981 is the main piece of legislation relating to non-native species in Scotland. This legislation makes it illegal for non-native species to be released out with its native range. What this means is that if a hornet is captured, it cannot legally be released for the purpose of tracking it without an appropriate license. It is therefore important to understand that only licensed personnel can carry out track & trace activities to find YLH nests; members of the public should NOT release YLH if they capture them, instead report them. How to do so is explained later on in this presentation.

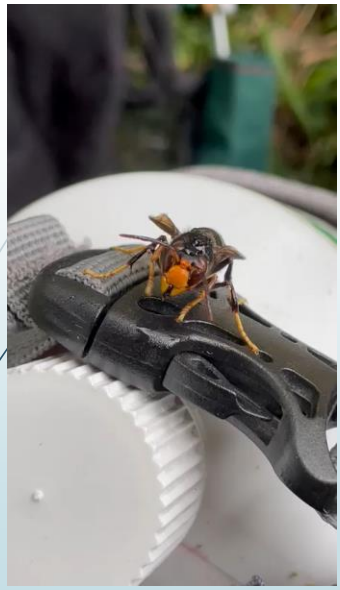
Scotland's response

- Contingency plan published and contingency exercises carried out.
- Contingency boxes fully stocked
- Bee inspectors been travelling to Jersey to gain experience in Track & Trace since 2019
- All inspectors regularly go to England to provide assistance to the English response and upskill our inspectors



So what is Scottish Government doing about yellow legged hornet then? Are we prepared for an incursion?
Our contingency plan is published, the link to which can be found on the next slide. Our bee inspectors have been travelling to Jersey to gain experience in track and trace since 2019. We have a close relationship with our colleagues in the National Bee Unit (NBU), and regularly all of our inspectors travel to England to assist with the English response, and to gain valuable training in the track and trace process. We have also run contingency exercises to test our response.

Our contingency boxes are fully stocked with all of the equipment that we need, so we are able to respond to an incursion as soon as we are alerted to it.



The video is a close up of a YLH recorded cleaning itself and the pictures are of the monitoring station and equipment and the top one are of them attaching the streamer to track and trace the hornet. This should only be done by an inspector. Photos and videos thanks to the Scottish inspection team

Scottish Government Yellow-Legged Hornet Contingency Plan

- Contingency Plan sets out how Scottish Government will triage, assess and manage any credible sightings and/or incursions of the Yellow-legged hornet.
- Available on Scottish Government website – search for Yellow-Legged Hornet Contingency Plan.

You will find the contingency plan by clicking the link or by using the QR code

Non-Native Species Secretariat

- The GB Non-Native Species Secretariat (NNSS) has responsibility for helping to coordinate the approach to invasive non-native species in Great Britain.
- The NNSS is responsible to a Programme Board which represents the relevant governments and agencies of England, Scotland and Wales.

The Non-Native Species Secretariat (NNSS) are responsible for coordinating the approach to non-native species in GB. Suspect sightings of YLH is coordinated by NNSS and therefore suspected sightings should be reported to them. How to do so is described in the next slide. On their website, there is a great deal of information, including two identification factsheets, one on YLH and one on nest ID. Scan the QR code at the end of the presentation to take you to the site.

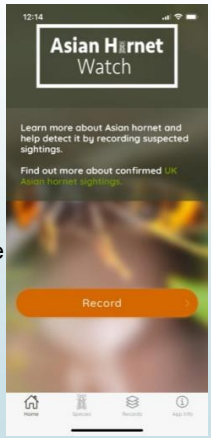
Reporting Suspect Sightings

Suspected sightings can be reported directly to the NNSS via:
The Asian Hornet Watch app

Alternatively:

An online reporting form via the NNSS website.

Email:
alertnonnative@ceh.ac.uk.



- **Only credible sightings will be investigated by SG Bee Health Inspectors.**
- Sightings are considered credible if there is a clear photograph of a Yellow-legged hornet included taken from the location of the sighting, or if there is strong supporting evidence such as information on the characteristics and behaviour of the insect.
- **Photographs of nests or downloaded pictures from the internet do not constitute "credible sighting" and will not be investigated further.**

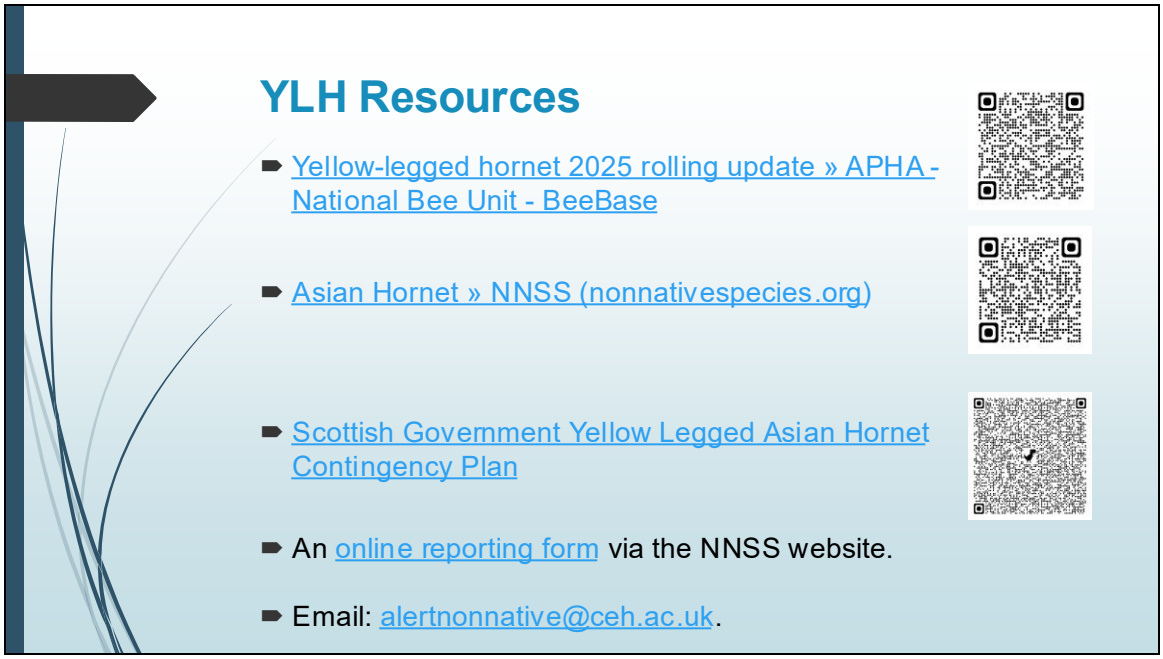
The easiest way of reporting a sighting is through the Asian Hornet Watch App. Alternatively, there is an online reporting form, or an email can be sent to the address above. These reported sightings are initially triaged by NNSS, and any Scottish sightings that require further investigation are sent to the SG Honey Bee Health Team. Only credible sightings will be investigated, normally with a photograph of the insect. We do investigate all images to ensure they are genuine; we will check the location of where the photo was taken, and are able to determine using software if the image has been downloaded from the internet.

How You Can Help

- **Familiarise** yourself with the differences between Yellow-Legged Hornets and other Bee, Hornet and Wasp species.
- **Understand** Yellow-legged hornets' life cycle and preferred food at different times of season so you know where to be vigilant.
- **Don't use traps** to monitor for yellow legged hornet
- **Targeted observations:** requires a bit more skill but can be just as successful as trapping and is more environmentally friendly
- **Do NOT approach or attempt to trap** a Yellow-legged hornet or nest.
- **Report** suspect sightings of Yellow-legged hornet and/or nest.

Doing the things mentioned in this slide will be very helpful; you are our eyes on the ground. We ask you please not to use traps of any kind to monitor for yellow legged hornet. The current situation in Scotland does not merit their use due to the risk of by catch and potential consequential damage to wild pollinators. Targeted observations in the right places at the right time of year is far more beneficial at the present time.

You can also get involved with the UK Pollinator Monitoring Scheme (POMS) to help gather data on how pollinator populations are changing. The UKPoMS survey season runs until 30 September
This may not seem like a lot but this approach is the safest and of most help.



These are links to useful information and advice sites on the Yellow Legged Hornet

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 emailing the Bees Mailbox.
Information about how the Scottish Government supports honey bees in Scotland can be found via the QR codes.
SRUC podcasts on honey bee management can be found using the QR code.

Resources Available – Others

BeeBase – Information for Scottish Beekeepers

Scottish Beekeepers Association

Bee Farmers Association

Honey bee health: guidance - gov.scot

You can also find these links by using a search engine

Thank you, Questions?