Westerham Beekeepers Association Newsletter – February 2020

Events

On Wednesday 29th January 2020, Adam Leitch took us on a whirlwind of fascinating images and information on the anatomy of the honeybee and how their biology impacts on what they do and how we manage them. Many thanks to Adam. I am most grateful to Andrew and Susan Bradshaw-Smith for looking after the refreshments and providing a delicious cake. Our future events are:

Wednesday 26th February 2020	**Norman Carreck** will present on the EU project called "EurBest", which is looking at breeding of bees including known varroa tolerant populations.
Wednesday 25th March 2020	**Pam Hunter** will give the talk ***"When the king became a queen – aspects of the history of beekeeping made fun"***
Wednesday 29th April 2020	**Bob Smith,** fellow Kent beekeeper, National Diploma in Beekeeping and Master Beekeeper will talk to us on the perils of over-wintering: ***"Oh Dear, my bees have died again; what did I do, what can I do?"***

As ever, the meetings are held at 20:00 at Westerham Hall, Quebec House, Westerham, Kent. Anyone who can arrive early to help set out the room, will be doubly welcome.

Notices

1. Westerham Beekeepers had a very successful stall at the 2019 Edenbridge and Oxted show. Pictures are below. If you would be willing to volunteer to do a shift on the stand in 2020, we would be pleased to hear from you. Please contact our Treasurer, Keith Masters (masterskeithmasters@hotmail.com).

2. We are still putting together the programme of summer apiary visits. If you are willing to offer your apiary for a demonstration session, please let me know. This tends to work best if you have a generous garden and nearby parking, but we have organised many visits before, so do let me know if you are interested! Thank you.
3. Please see the information below shared by Peter Cobley from the recent Kent branch meeting regarding the Asian Hornet. I am enclosing the full report, for those interested.

Mark Waddington

17th February 2020

Asian Hornet Conference Report

Report on Asian hornet conference 8th Feb 2020

There was much fascinating information given at the conference, some of which, I've highlighted below. All of the talks were excellent, and I can only apologise that by summarising them here from my notes, they look somewhat boring. Nevertheless, there are some excellent research projects underway, and I feel hopeful that in the future some or all of these will produce helpful aids to combating *Vespa velutina* in the field. Please note, this is not everything that was said during the day – I have paraphrased!

Professor Steven Martin – Life History and Current Research

Steve has done much work on hornets, particularly in Asia. He gave lots of useful, general information on hornets. For example, the difference between a hornet and a wasp (and people will ask) is that the distance from the back of the eye to the back of the head is greater than the distance from the ocelli to the edge of the eye.

He explained that most hornet species mate with just the one partner, unlike our honeybee queens, which has previously made it difficult for hornets to be introduced to a new territory, due to having a smaller gene pool. As a rule, this is not true of *Vespa velutina* – except in the outliers at the forefront of the invasion, when they have less mates to choose from.

During hibernation, the hornet will have her wings distinctively tucked alongside her body, rather than along her back as they would be found when she is at rest at any other time of year. Once woken from hibernation, it is impossible for the hornet to re-enter this state. It is necessary for the queen to find a source of food quickly upon waking from hibernation – tree sap is a particular favourite source of energy, and necessary for them to build up their depleted fat bodies before they are able to start laying eggs. Early flowers are another invaluable source for them, (I've heard that winter flowering camellias are a particular favourite). Once they have regained their weight, the queen will then look for a sheltered spot, not often higher than a few meters from the ground in which to build her primary nest. April to May is the time of year when this activity is most likely.

Colony growth is limited by how quickly the queen can lay – in the very early stages of a primary nest, this is at a rate of roughly one egg per day, increasing rapidly until a peak of around 200 per day. A fact that I found particularly interesting is that, over the course of its' life, a nest allowed to develop to maturity will raise more males than workers, and more gynes than males. This is necessary for the survival of the species, as upwards of 99% of these mated gynes will die at some point before producing males and gynes of their own.

In Asia, Steve and his team had looked at most common reasons for a nest to fail in this early part of the year. While human activity stopped some nests, it was queen usurpation – or usurpation attempt resulting in injury, and loss of queen for unknown reasons that were the most common causes of nest failure.

In early summer, once the primary nest has reached around the size of a football, work begins on a secondary nest – this is usually in the tree tops. The queen will move to the secondary nest and begin to lay there, while workers still tend to the brood in the primary nest. Once the last of this brood has emerged and left the primary nest, it is now abandoned. There is rapid expansion of the colony in July/Aug/September. These nests can be difficult to find as they are well hidden, usually at the top of a tree. In some instances, the primary nest will not relocate, and the hornets will continue to expand the primary nest and remain there for the full nest cycle.

Sexuals are released from the nest from September to October. Gynes will stay in the nest from 1 to 2 weeks after emergence from the cell to be fed before leaving the colony for good. There is unfortunately much overlap between the sizes of workers and the size of gynes in Vv – it is not usually possible to tell them apart by eye. The easiest method of identifying a Vv queen is by dissection, as they will have the presence of fat bodies ie. large amount of white tissue in the abdomen. The longer the season, the more sexuals will be produced, so a long mild autumn would be bad news for us.

Interestingly, the spread of Vv in Korea (which began around the same time as the incursion into France) has seen a much slower spread of hornets than has happened in Europe. Steve believes this may be as the result of there being 10 hornet species already present in Korea, and therefore the competition much fiercer. He also mentioned that Vv in Asia has a reputation for being one of the more aggressive hornets, although this behaviour does not seem to have been observed in Europe, for which we should be grateful!
(Something else to be grateful for: while the media is desperate to make the Vv headline worthy and often confuses it with the Giant Asian hornet, Vespa mandarinia, it seems that somehow, that insect has actually made its way to Vancouver Island in Canada. Steve thinks the number of sightings and the distance between them suggests there is already an established population, rather than a single nest!)
https://www.amazon.co.uk/Asian-Hornet-Threats-Biology-Expansion/dp/0860982815
https://vancouversun.com/news/local-news/asian-giant-hornet-spotted-near-blaine-close-to-b-c-border

Xesus Feas - 8 Years of Experience Researching the Asian Hornet: Impacts and Future Needs

Xesus is taking part in some very exciting research regarding Vv in Galicia.
Firstly, he wanted to see if there was any truth in the idea that a defunct Vv nest will not be used by hornets. He has observed several interesting things, for example, nests taken down in December, January and February have all had dwindling hornet populations in them, presumably due to the warmer climate found in Galicia meaning nests have not died out as expected at the onset of winter. Further dissection of these defunct nests has revealed that hibernating gynes can sometimes be found tucked into the construction of the roof of the nest – therefore any and all nests should be removed, even if it seems that they have been abandoned.
The figures from Galicia are perhaps particularly terrifying due to this longer season that the hornets will have. They went from 2 reported nests, which were both removed, to 10,642 destroyed nests in 4 years. In 2019, the total number of destroyed nests was greater than 25,000 - Xesus believes this figure to be a massive underestimate, as this is only the nests which were removed by the government, and there will have been many dealt with by individuals or private organisations. 5 individuals died in Galicia alone last year due to Vv.
65% honeybee colony losses in the region are attributable to Vv. There are also hard felt impacts on forestry, fruit growers and viticulture. Xesus is studying what it is about certain grapes that means hornets are attracted to them – is it when the sugar reaches a certain percentage, for example? Apples are spoilt and can no longer be sold for eating – although can be turned into cider.
Xesus cited a Korean paper which suggested losses caused there by Vv were around 3 million dollars, 49 deaths and 78,380 injuries.
Xesus cautioned against the use of non-discriminatory traps and also urged beekeepers, scientists and government bodies to work together to ensure the most effective response to Vv is in place here in the UK.
Over the last three years, he has carried out some research on the commercial traps available, hoping to highlight those which kill the least bi-catch. A paper on this will be published shortly.
Following a research paper published in China in 2016, Xesus has also had some luck in producing the sex pheromone male hornets are attracted to. For the chemists among you, this is a combination of 4-oxo-octanic acid 4-0DA and 4-oxo-decanoic acid 4-0DA. He hopes that this will eventually become one of the tools a beekeeper will be able to use in the fight against Vv, later on in the year when the sexuals have emerged from the nests.
Xesus also discussed research underway showing the attractiveness of geraniol to Vv
In addition to this, Xesus has also made a biopolymer from the chitin found in the exoskeleton of Vv.
https://www.vespavelutina.co.uk/

Alastair Christie - The Jersey Experience in 2019

By April last year, there had been 30 reports of individual queens found or trapped on Jersey. In 2019, the last queen was reported at the end of June. Workers are seen from the end of May. With the first and second queens of 2020 having already been reported, it seems likely that they are on target to eclipse those numbers again.

One of the most interesting pieces of data that Alastair revealed from their campaign last year was that 30% of primary nests transition into a secondary without relocating to, for example, the top of a tree. This means that potentially, 30% of nests are fairly accessible to humans.

Alastair talked generally about what his role as coordinator for Jersey entailed. He acts as a central point of contact for reports, hornet hunters, volunteers from elsewhere, and pest controllers. As a government employee, he is also responsible for media and the public awareness campaign, although some of this is undertaken by volunteers. He organises weekly meetings for the volunteers, ensures that any unverified reports have been followed up (prior to this point, he does his best to cajole, bully or convince a member of the public to try to get a picture of a hornet after they've reported an initial sighting). He finds often a neighbour or relative is able to step in and help gain a picture in an instance where the initial reporter is not able to do it themselves. Alastair also sometimes has to prioritise which leads are followed at a time when many areas of the island need further investigation. Those that are reported near schools, for example, will take priority. Once a nest has been found and reported via Epicollect, an app that is accessible to the hornet hunting volunteers, Alastair meets with the pest controllers to discuss the best way of removing the nest – as each is unique in its situation. He also keeps a record of all reports that come in – and was able to show the most common insect falsely recorded as an Asian hornet was a hoverfly (17% of all reports) wasps made up 16% and bees an embarrassing 5%. Despite that, they maintain an impressive rate of correctly identified Vv – of 782 reports, 404 were verified as Vv.

He warned of the need to get the public on board with the campaign, as nearly all reports come via the public. He also stressed the importance of having a consistent, powerful media message, and best methods of getting the message out to those who are likely to see hornets, or their nests, include targeting estate agents and surveyors being a key group that Alastair likes to target (they go in and out of houses all day).

Safety awareness is another aspect of the role, and Alastair tries to engage with groups of people likely to come across a nest by accident, for example, farmers. He listed some of the places that nests have been found this year – it includes an outbuilding of a recently bought house (the owner was stung walking past the entrance in the brickwork), the back of a garden seat, a compost bin (this story was actually picked up in the mainland UK press) and the side of a cliff (multiple times) and bramble patches and hedge rows along with sycamores being the most common tree nests were found in. (Alastair also pointed out that the hornets don't tend to be fussy and will be more or less found anywhere). There was another instance of a nest being hidden by ivy on a wall immediately next to where a woman parked her car – fortunately she backed into the drive and therefore got out the opposite side rather than opening the car door into the ivy!

He emphasised that you'll need more volunteers than you think, due to previous commitments/ natural drop out.

There will be a spring trapping campaign in Jersey this year, but it will be carefully managed by having named individuals responsible for checking the traps on a daily basis to ensure that any non-target species are released before they have died. The traps will also only be positioned along the easterly edge of the island, where there are high numbers of 'blow ins' from France, due to the prevailing wind. The traps used will also have multiple 6mm exit holes in order to ensure queen wasps and other species can get out.

Alastair found 'Google My Maps' the most useful tool for recording bait stations and lines of sight, and WhatsApp the most useful method of keeping in touch with different groups of volunteers. The island is divided into three groups – East, West, Central, so when he needs a report to be

verified, he can ask within the relevant group for somebody to go and help. It's also an easy way for the volunteers to stay in touch with other and ensure they know who is doing what (and importantly, not wasting resources by unknowingly tracking the same nest without sharing the data).
(Just as an aside, to put this in perspective, Kent is more than 33x the size of Jersey, so we really need to encourage everyone we can to get involved with signing up to help with these duties on a local scale.)

Dr Peter Kennedy Research in 2020

Atlantic positive EU funded project with various partners including University of Exeter to represent UK along with various partners including University of Cork, Arnia, Spanish, French and Portuguese universities and government bodies.
Arnia are developing their existing microphone system that gives advance warning of swarms etc to listen out for Vv hawking outside the hive.
The radio telemetry project already started will be tested further this year to understand in which environments it will be less successful in eg. Built up areas. Good reputation for locating a nest within a few hours once a suitable hornet has been acquired (needs to be above a certain weight in order to carry the antenna).

Nigel Semmence the NBU Update on 2019 and Policy Moving Forward

Unfortunately, Nigel Semmence was unwell and missed the conference, so his presentation was delivered by Sandra Gray, regional bee inspector for the NBU.
Seasonal bee inspector's employment has now been continued until the end of October, to ensure they are still available for responding to hornet enquiries.
Another change has been the focus made on a local response to at the investigation stage (this is once a triaged hornet report has been made). There are also now local contingency boxes including everything one would need to track a nest. This change has been made in order to allow local bee inspectors to respond promptly rather than having to wait for the delivery of vital kit from NBU HQ. These boxes contain binoculars, traps and everything necessary for the tracking process.
Once an outbreak is active, ie. verified by a photo or sample sent in, an email is sent to all BeeBase registered beekeepers within 20km.
The RBI / SBI investigate the backstory, find out who has seen the hornet, where, where it was likely to have come from etc while the office makes contact asking for assistance from the local association / AHAT team and also alerts the town council.
A 'forward operating base' is set up in the area to ensure the inspectors have somewhere to regroup. They organise tracking from here, which involves following a line of sight and then triangulating results, until 1 min return times are achieved. From there the nest is found and then destroyed. Protocol says the nest should be killed in the evening (using Ficam D) and the dead nest is removed the following morning.
The operation is then moved to a surveillance phase to ensure that any hornets in the area were from the removed nest rather than an additional one.
So 2019 figures are 3 nests confirmed and destroyed.
AHAT members were commended at New Milton as they had a bee activity day planned on the Sunday just after the Vv was announced, then spent the whole of the following day involved in the campaign to find the nest. The nest was eventually found at the top of 65' tree, which required a larger cherry picker to be sourced as the original wouldn't reach.
Sandra revealed the individual hornet found SW of Ashford was at a fruit farm and had been confirmed via a photo of the hornet.
It was stressed that a local response was necessary and members of the public are crucial in the search for the hornets – therefore our main role as AHATS at the moment is public engagement, ensuring that the message is getting out in our local area.

In Christchurch, the first nest found contained one flying adult - the queen. When hornets were still found in the area following the removal of this, the search continued for a second nest. It was also the first nest the NBU have removed that was on public land. The discovery of the second nest led to a new protocol for inspectors searching for nests – once within 1min return times, hornet proof suits are to be worn. The reason for this? The inspectors thought the primary nest to be in a patch of brambles and whilst considering the area, an inspector stood on a log, which happened to be weak from decay and unfortunately his foot went straight into the nest. He received many stings, went into anaphylactic shock (to the point where he lost consciousness) but has luckily made a full recovery. There were no workers and no eggs in the nest when it was recovered.

In terms of DNA analysis of the found nests – all of the nests were destroyed and removed before the point at which they had produced any queens. No nests have been the genetic offspring of previous nests. The hornets tested are genetically the same as those in Europe, rather than a fresh incursion into the country from China. Hornets from the same nest are full siblings ie. The queen has only been mated once, which again implies this is the forefront of the invasion as high numbers of sexuals are not yet present in the area. For 2020 the NBU are still in the eradication phase. This will be true for the whole of the year and be reassessed in winter, each winter.

<u>Belinda Philipson Defra policy Update on 2019 and Policy Moving Forward</u>

Asian hornets are still classed as a non-native alien invasive species. This was previously covered under the EU invasive Alien species act. This has now been copied exactly across into UK law. They will continue to eradicate incursions of Vv.

All nests found have been destroyed. There is no evidence to suggest an established population here in the UK mainland. BUT

There are multiple entry points into the UK that have been identified, and these are growing as the continental population increases in number.

Action – to continue monitoring and act when necessary. To build relationships with AHATs. Review the procedure in winter 2020. Brief ministers about any changes required, as and when they are necessary.

<u>Anne Rowberry - Gaining Recognition for your Position as an Asian Hornet Co-ordinator and Team members: Short Certification Qualification Explained</u>

It was agreed that each group can have up to 15 members covered under similar insurance as for swarm collection, for instances when working as an AHAT in monitoring for AH presence.

This will be online in a few weeks and AH volunteers will be required to take a (very simple) test, after completing a form (and 'agree to be contacted' - otherwise there is no point).

You cannot fail the test as if you don't know the answer you can go away and look it up and continue the test.

Anne stressed that the main role of an AHAT at the moment is in informing the public of the threat – getting alerts to groups that are likely to see them. She also stressed, repeatedly, that trapping and releasing of hornets is illegal and therefore only to be done by bee inspectors. As an AHAT you are not to look for a nest, unless asked to accompany an inspector. However, if you are asked to join a bee inspector for tracking eg. Following lines of sight you would be covered under an additional insurance, just in case a member of the public was stung by a hornet that you disturbed. Certified AHAT members will be added to the er2 system and easily contactable by the BBKA.

The way forward : Question and Answer Session – panel featuring Steve Martin, Peter Kennedy, Xesus Feas, Bob Hogge, Alastair Christie, Belinda Philipson and Sandra Gray

Q) What is the trigger point that will prompt Defra to withdraw support from an 'eradication' campaign?

Belinda: Difficult to answer, as there is no trigger point in mind – it will be reviewed at the end of each season in winter.

Q) can we have more use of AHATs to ensure that higher number of nests are found without calling on too much of NBU's inspectors time and also ensure that local beeks are trained in the art of hornet hunting? And for that matter can we have some 'proper certification' rather than this certificate a child could pass?
Anne Rowberry: If it is too onerous, it will be difficult for AHAT leads to recruit members. I realise it's not important for you to know the ins and outs of hornet biology therefore the test is quite simple. It's also highly difficult to manage many volunteers even if that is your main job – and the bee inspectors may not have any experience in managerial roles, therefore having to control many people will actually slow the process.
Alastair Christie: The NBU have a very impressive track rate of finding nests quickly which they should be congratulated for. They find them much faster than I'd have expected them to.
Q) Will there be a transitional phase between Defra/ NBU managed eradication phase and no support at all as obviously you may well be leaving all of us beekeepers with no practical experience dealing with this pest when you suddenly decide you're no longer going to be involved?
Belinda: We are considering everything and will review at the appropriate time.
Sandra: Good idea we are also working on widening the comms net to ensure that every likely group of people to come into contact with Vv are informed.
Bob Hogge: The NBU is a fantastic resource and you should all get behind them as much as possible because they do an excellent job.
Q) Can you trap at other times of year or only in the spring?
Bob Hogge: Trap when you like but you'll realise how much success you have
Alastair: Also please empty your traps at least once a day to ensure the non-target species aren't killed too.
Q) other solutions – somebody mentioned nematodes but isn't there something you can paint on the hornets that kills them when they return to the nest and therefore kills the whole nest?
Bob Hogge: This is a terrible idea. Once the information is out there, you can't control where it goes and who has access to it. For example, would you still be in support if your neighbour decided they didn't like being stung by one of your bees and so caught the next passing bee. People tend to be scared of these things and will use it on all sorts of beneficial insects like bumble bees and European hornets. How will you know if the nest is killed? How do you know the hornets won't drop down and be eaten by hedgehogs and things?
Alastair: Not to mention it is completely and utterly illegal
Peter Kennedy: I believe there is some testing going on in France, as the authorities are aware it's going on anyway so researchers are looking into more selective options that are specific to hornets than neonics.
Q) Thank you all for an excellent day and much useful info. Can I have an answer from each on the panel please whether you think we can stop Asian hornets becoming established here in the UK?
Steve martin: no
Kennedy: They are highly adaptable creatures and have managed to become established across Europe. At the moment I don't think we can stop them, however there is much exciting research going on, for example, selective traps that can being developed and the radio telemetry that Defra have funded me to look into is making the process much easier to locate nests quickly.
Xesus: No (I have paraphrased sorry)
Bob Hogge: No (I have paraphrased sorry)
Alastair Christie: No (I have paraphrased sorry)
Belinda: nothing to add
Sandra: nothing to add
Q) Can we have a blueprint produced by the BBKA to follow on who we should alert and what we should say?

Belinda: it takes lots of time to produce messages that come out of Defra – as a body we are releasing information nearly every day.
Sandra: Many excellent posters already out there
Alastair: I would just say, try to keep things consistent. It will be easier for people to recognise what it's all about if they're seeing the same posters up rather than different ones everywhere.
Audience member: I had a laminated A3 poster which is really eye catching and very visually appealing – can't regional bee inspectors have a stack of those to hand out?
Another audience member: You can order those A3 posters online the same way that you get the posters.

For those wishing to raise awareness in their local area, posters can be ordered by emailing nnss@apha.gov.uk
https://www.ahat.org.uk/ The AHAT site has been updated and now includes a test you can take. Please note, this test refers to marking and tracking and at the moment, the BBKA & NBU are at pains to point out that releasing a hornet is illegal because it is an alien invasive species.
https://www.cabi.org/isc/datasheet/109164 This is a very useful site for general info if you haven't already stumbled across it.