Brighton & Lewes Beekeepers Newsletter

Volume 4 - April 2018

Editor: Norman Dickinson

BRIGHTON AND LEWES DIVISION OF THE SUSSEX BEEKEEPERS ASSOCIATION

www.brightonlewesbeekeepers.co.uk

First out apiary meeting - Saturday, 14th April 2018

Our first out apiary meeting will take place on Saturday, 14th April at Barcombe. A 1.30pm start is for beginners and will be followed by a general meeting with refreshment at 2.30pm. A location map is located in the members section on the B&L website.

Skep Beekeeping with Chris Park - Report and photos by Norman Dickinson

Those members who attended the 2016 SBKA hosted by Brighton & Lewes will recollect an excellent talk given by Chris Park entitles "The Island of Honey" and the even more memorable passing round of a large horn of metheglin. It was with great pleasure therefore that Chris accepted an invite to give a talk on Skep Beekeeping at the final winter meeting of the season.

An array of different styles of skeps were on display and Chris described the pros and cons of each type and explained that the word "skep" literally translates to basket. He explained that, as part of the history of beekeeping, there was no direct evidence prior to Roman times of beekeeping in the UK, however these was plenty of evidence to support the fact that early Britons were using honey.

As a beekeeper, Chris uses a number of different hiving techniques including skeps and the various removable frame style of wooden hive. Whist getting the honey from the skeps was not too difficult, it was a much "stickier" experience when compared to spinning honey out of frames.

One very important feature of the skep is the timber cross spikes, which with several installed across the skep stabilises the comb and prevents it breaking and falling out when manipulating the skep.

Chris is a strong believer that beekeepers should not be pouring lots of chemicals into the hive as part of disease prevention and is convinced that any chemicals used must taint the honey. Due to the smaller size generally of the skep, when compared to the timber "National" hive, there is a preponderance for the bees to swarm more and it may be this that actually helps reduce the instance of varroa etc. This together with a slightly smaller brood cell that is made in the skep may assist in reducing the number of mites in a colony.

All in all a most interesting and sometimes humorous evening with him finishing by suggesting that dried "puff balls" put into the smoker actually makes the bees even more calm, so one to try sometime in the season.

Our Secretary Hilary has found a youtube video relating to skep beekeeping in Germany, well worth a view, and with English voiceover! Please see https://www.youtube.com/watch?v=k2IjNBbLESY

Amanda advises

I hope you did not lose any colonies in the cold spells we had in March. If, however, you found one of your colonies has died recently, it is important you inspect them carefully to find out why they died. They may appear to have died of starvation (heads in cells, no stores on that frame) even if there are stores elsewhere in the hive (isolation starvation). If they are only on one or two seams or the cluster is the size of two fists then starvation may just have been the last straw for an already ailing and doomed colony. Often the bees in the dead cluster look normal as they did die of starvation and there may be a queen there. But look on the floor and see what the earlier ones died of which reduced the numbers to this low level. You may see evidence of Deformed Wing Virus, dead deformed pupae pulled out, Paralysis virus (shiny, K-wing etc). That is what really killed them. Did you monitor your mites after treating in the autumn? Did you have a late invasion of mites which might have caused it? This is what happened to two at our Divisional apiary, even though the mites were brought under control within a few weeks in November, the damage was done. Look at the brood frames too; there may be clues there. One of these colonies had a dozen or so chalkbrood mummies on each frame, more than were recorded during the summer in this colony although Chalkbrood was known to be present since it was collected as a swarm in 2016 and persisted after a shook swarm last May. Chalkbrood is not normally considered a cause of winter losses on its own but last year one or two DWV and sacbrood were also regularly seen. So my view is that it was no great loss losing that disease susceptible colony. Of course, it is a pain having to clean and sterilise all frames (3 shallow boxes worth on this colony) mostly full of stores to wash down the sink as it will not burn with all those stores. (If most had been honey I might have rescued it for cooking but it was largely syrup, and the other colony on two boxes had a bit of dysentery too). If they were a decent size and they had only died of starvation then you only have yourself to blame. But if you lose a colony during the cold weather to disease, think of it as a good weeding out of poor colonies; clean up and start again either splitting your healthy strong colonies or try again with a swarm. I must say though that I don't often get many swarms I am happy with these days. Several in recent years, I have had to cull within weeks when they showed sacbrood or some other nasty. The swarm I collected from the letter box last year though is now my strongest; 9 seams on a brood and a half, whereas most of my others are 5-6 full seams (and a couple struggling!) Hopefully though, you had a nice strong colony on 5 or more seams at your first inspection, now we must keep an eye on when they start producing drones, an indication that they are strong enough to consider swarming in a few weeks time. I have a feeling the cold weather may have delayed swarming a bit - I hope as it has hardly been warm enough to look in them and more cold is forecast over Easter, unfortunately. I have had a brief look in all mine, assessed size and stores, carried out a varroa assessment and a couple were dusted before the middle of March, and last week I was able to change all their floors for clean ones, (except the letterbox swarm which was spotlessly clean – I shall breed from them this year!). One small one seemed to have lost its queen so I shook the bees into the adjacent colony, also at marginal critical mass but with brood and queen, and hope the extra bodies will help them build up more quickly.

It is time to sow some nectar/pollen rich plants for your bees and other pollinators. Keep watch on how much space they have to prevent them feeling congested which can encourage swarming, but before adding any supers, remove any frames full of sealed stores. They are reluctant to uncap stores and they could be a barrier to brood nest expansion too. Also, when they do move it, it will be into the new supers, not what you want if you used a chemical treatment in the autumn or if it is mixed with sugar syrup. I label which hive they came off and store covered, indoors in a tray to catch drips or better still, in the deep-freeze and give them back to the appropriate hive in the autumn. I have a feeling I will have quite a bit to store as some colonies feel rather heavy. Although only 25% of mine had Apiguard, they were all topped up with syrup which they have been very economical with. Even the two seeming light when hefted, turned out to have sufficient on closer inspection, or rather just the right amount as it happens.

Research:

The European Food Standards Agency (EFSA) published their conclusions on 28.2.18 that the three neonics pose a threat to honey bees, solitary and bumblebees. They assessed the three routes; via nectar and pollen, seed treatment dust and via water consumption. So far so good, we must hold our government to any bans agreed, when/if we leave the EU.

It is great to know that such a worthy cause as the Bumblebee Conservation Trust has benefited from the People's Postcode Lottery to the tune of £3000,000, in March.

Recent research suggests that bees infected with Nosema ceranae will select better quality pollen, (even though the scientists are unsure how they make this selection) which also prolongs their lives. This is a form of self medication. Healthy bees were not so selective. While I have found what little research there is on pollen quality is mostly on overseas crop plants, high quality pollens (ie protein rich) on plants we have apparently include clover, oil seed rape, pear, almond and lupin. Spring pollen tends to be more protein rich than summer, but may vary between regions and times. Fat and vitamin content may vary so it is difficult to generalise on what is most nutritionally beneficial. In another paper it was suggested that sometimes low quality pollen in abundance may be more valuable to a colony than high quality in short supply. Abundance and diversity should be our motto regarding flowers!

I also came across research (from USA) published last month which finds that hedgerows enhance biodiversity, reduce soil erosion, protect water quality and do not introduce food borne pathogens into crops. Well, well, I would never have guessed! Cynicism aside, sadly many of our farmers have already or want to grub up their hedges too. I believe how they are maintained is also important. A very short back and sides at the end of summer is not going to benefit anything. A thicker hedge cut late winter when the birds have had a chance to eat the berries, and alternate years if possible will enable more flowers, berries, nesting opportunities etc etc. As an ecologist I find all this painfully obvious but many of those lucky enough to have hedges don't see it, sadly

2018 SBKA AGM and Spring Meeting - Report and photos by Norman Dickinson

The 2018 SBKA AGM and Spring Meeting was hosted this year by the High Weald Division and was held at the Broad Oak Village Hall just outside Heathfield. The Chairman Pat Clowser gave a brief update of the previous beekeeping year with mention that the Asian Hornet had been sighted on a couple of occasions in the UK. One again the SBKA held a successful Festival of Bees and Bee Market which attracted Meridian News who interviewed some of our beekeepers. Pat thanked the Committee for their hard work in organising the Festival together with all of the helpers who contributed to make such a successful event. The 2018 Festival is booked for Saturday, 19th May, which unfortunately is the same day as the Royal Wedding and FA Cup Final. Whilst the delegates approved changing the date to Sunday, 20th May, it has subsequently been confirmed that Heathfield Community College is booked that day so the 19th May date stands. The annual Convention was held on 25th November 2017 at Uckfield Civic Centre where there were a number of speakers talking on diverse bee related subjects that were of interest to most people attending. Pat has asked that members give some thought as to what topics could be included for this year's convention. Answers on a postcard please! Pat concluded her summary by thanking High Weald for putting on the AGM.

The formalities continued with Apologies for Absence and Matters Arising from the Minutes of the 2017 AGM and was followed by Liz Twyford presenting the Treasurers Report in Harold's Absence, which was proposed, seconded and passed by a show of hands. Amanda Millar, as SBKA President then oversaw the re-election of Pat as SBKA Chairman. Finally, Liz and Harold were re-elected as Secretary and Treasurer respectively.

Representatives from each of the five Divisions proceeded to give a summary of the past year's performance within their respective Division, and most agreed it had been a reasonably successful year. As there was no Any Other Business to discuss, East Grinstead were announced as the hosts for the 2019 SBKA AGM with the date and venue to be confirmed.

Liz announced the names of those members who had gained certificates for the Basic exam this year, then announced the names of the winners of the cups arising from the National Honey Show.

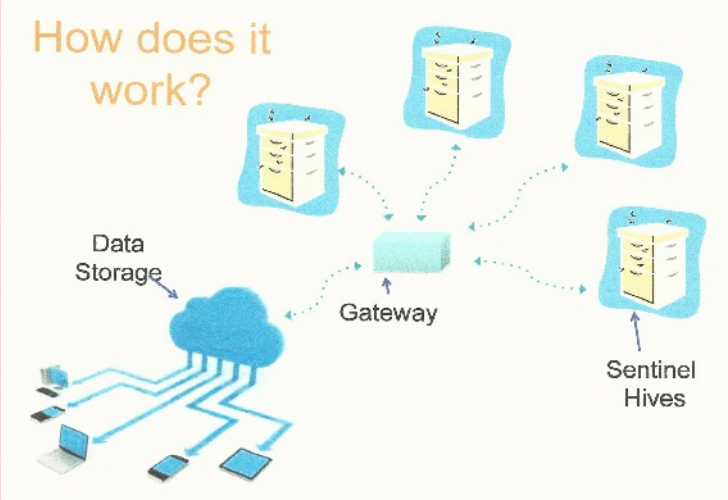
This concluded the business of the AGM.

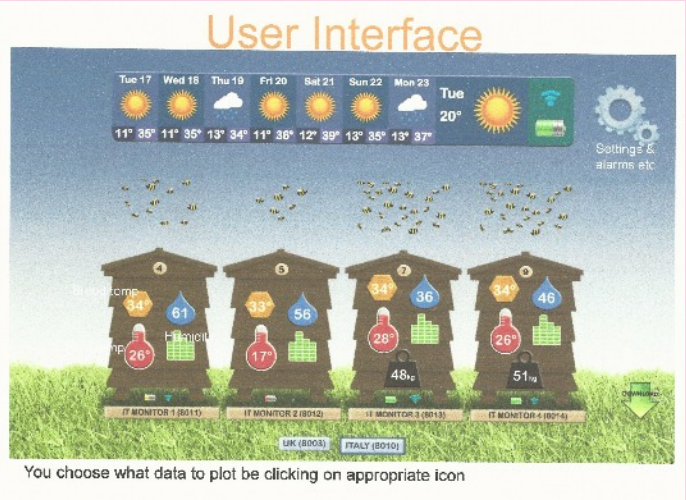
The first of the two speakers was Edward Hutt, who gave a revealing talk and video presentation of the FlowHive. The flowhive was conceived and developed by Stuart and Cedar Anderson who are father and son beekeepers in New South Wales, Australia. They believed that there had to be a better way of harvesting honey over lifting frames, de-capping them then spinning out the honey After a lot of experimentation and trial & error they hit upon the idea of splitting the comb horizontally thus allowing the honey to flow out of the comb and into a catchment area below the comb. Further development together with a number of prototypes led to the hive that Edward had on show they now needed funding to move on. Crowdfunding raised over US$2 million and they were in business. Their kits are now distributed worldwide. After a brief history of the hive Edward explained the inner workings of the hive, and explained that there are several size options available, including those for the National Hive, which would be used as a conventional brood chamber, as the flowhive is only for honey storage. The outer box is made from ply wood but the frames are all plastic. An ingenious method using a long "key" is used to "split" the frames allowing the honey to flow, this in turn then collects at the bottom of each frame to be piped into a collecting bucket. Care does need to me taken to ensure bees don't rob the honey as it is collected. Following his presentation a number of questions were posed including how temperature dependent is the hive, considering that it was developed in the heat of Australia against to relative cool UK. All in all, it looks quite complicated and only time will tell how successful in the UK this will be.

Our second speaker, George Clouston was to give a talk on the Arnia Remote Bee Hive Monitoring System, unfortunately, because of the snow George was unable to attend, however Peter Coxon stepped up to the plate in his stead and gave an excellent talk on the Arnia monitoring system. Peter himself has one of the monitoring systems, albeit without the weighing module which is a bit of a handicap as a lot of what the system does relies on being able to monitor weight. The system consists of a number of monitoring devices, i.e. microphone, temperature sensors, camera, weigh cells, motion sensor etc. all talking remotely to a central processor unit called a gateway, which itself also monitors temperature, rainfall and sunlight. The gateway is connected by the mobile phone GSM network to a central processing centre which analyses the data collected for the beekeeper to review. A number of individual hives can be connected to a single Gateway so long as they are within, I believe, 100m of the Gateway. To reduce battery usage, a small solar panel can be used to charge battery cells.

The bee keeper can monitor his / her hives from anywhere in the world, so long as a mobile signal or WiFi signal can be had and can be displayed on mobile phones, tablets, laptops and desktop PC's. The user interface looks to be very intuitive, especially the main dashboard displaying an overview of the hives. Numerous graphs are available to track hive weight, show brood temperature and clustering, winter stores depletion, when the Queen has started to lay, and the flying pattern of the bees. The graphs also show the relationship between rain, sun and how it affects the nectar flow as well as ALMOST predicting when a colony will swarm.
As well as presenting graphs to indicate what might be happening in the hive, the system allows your mobile phone to be used to record hive inspections and correlate these records with the automatic hive readings being taken.
As part of the system development, digital technology is making it possible to identify the "warble" which as far back as 1959, Eddie Woods published a graph detailing the "Warble", which is a sound that bees make prior to swarming. Frequency analysis generating a 3D soundscape spectrum has identified the point of swarming and shows the development of the "Warble" up to that point of swarming. Frequency analysis also has the potential to identify healthy and unhealthy colonies.
Peter described his experience with the Arnia system and regrets not having the weigh cell facility. He is also of the opinion that relatively new beekeepers best avoid it until they gain more experience. One thing is for certain, this is a tool for beekeepers, it will not do beekeeping for you.

My thanks go to Peter Coxon and the folks at Arnia for allowing me to use slides from their presentation in this newsletter.





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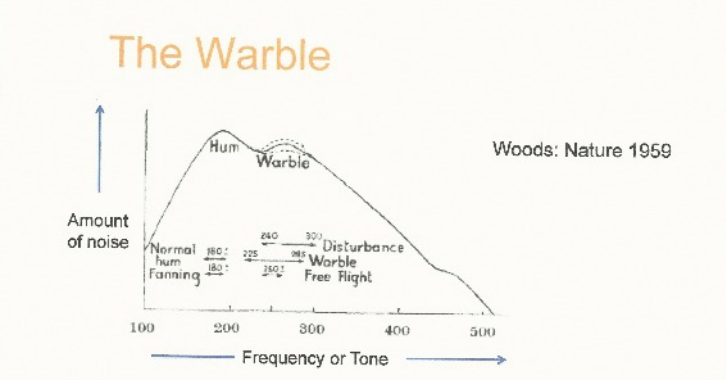
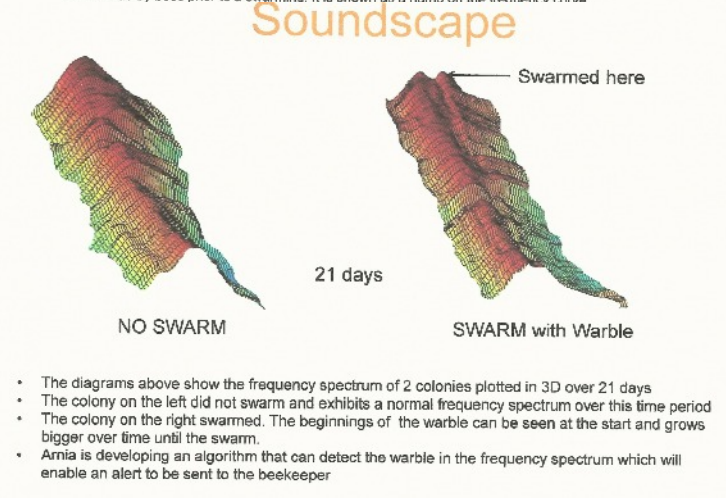


- The above graph was originally published by Eddie Woods in Nature (1959). This shows the Warble, a noise made by bees prior to a swarming. It is shown as a hump on the frequency curve

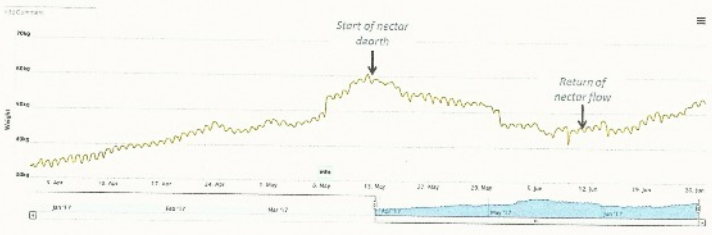


- The diagrams above show the frequency spectrum of 2 colonies plotted in 3D over 21 days
- The colony on the left did not swarm and exhibits a normal frequency spectrum over this time period
- The colony on the right swarmed. The beginnings of the warble can be seen at the start and grows bigger over time until the swarm.
- Arnia is developing an algorithm that can detect the warble in the frequency spectrum which will enable an alert to be sent to the beekeeper

The first nectar flow

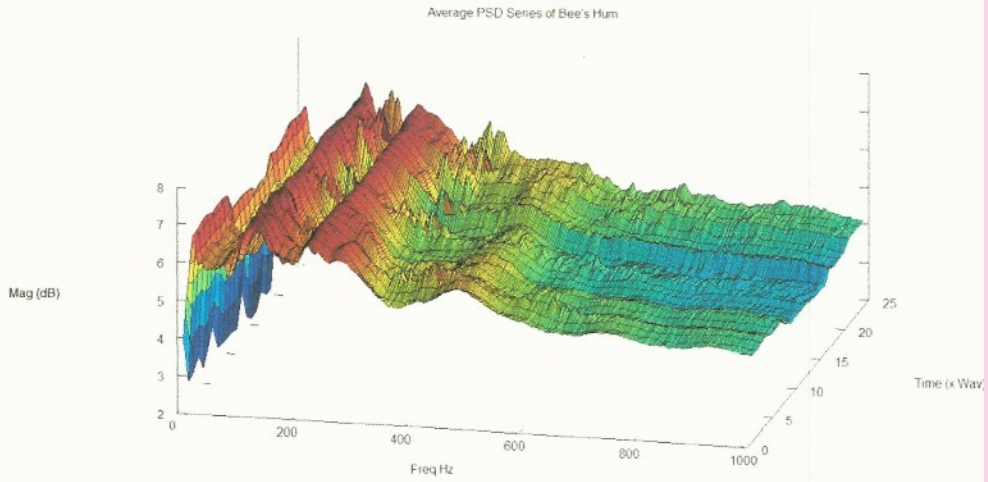
Hive weight: Also shows bee behaviour, foraging and evaporating moisture from nectar

June Gap?



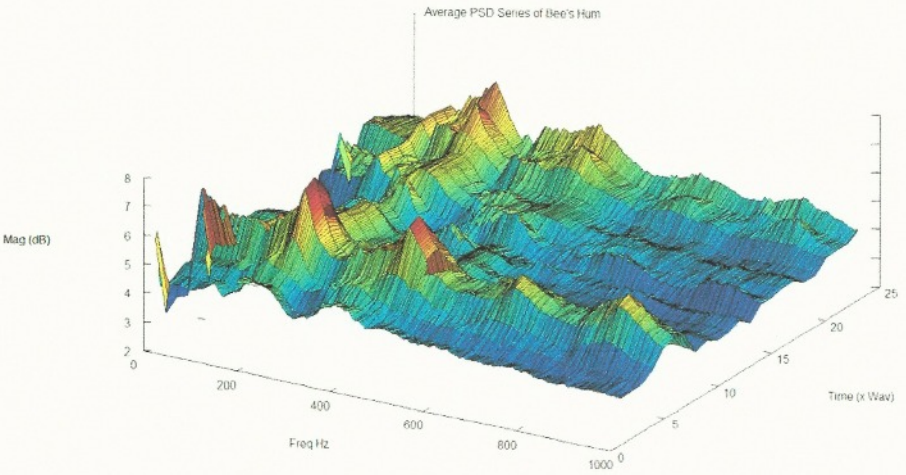
Hive Weight: Track nectar flows and dearth over season.

Healthy Colony



- Graph shows acoustic frequency spectrum of a healthy colony

Bees with Nosema



- This graph shows acoustic frequency spectrum of a colony with Nosema (PSD = Power Spectral Density in FFT)
- Arnia has identified quite an obvious disruption in the acoustic spectrum when bees have Varroa or Nosema. We also found the bees were less settled at night which we could pick up with both the circadian rhythms of the sound levels and an underlying 'modulation' in the night time noise.
- Acoustics & bee health is the subject of ongoing research

Photo Corner

Amanda's Cherry Plum tree in blossom which has been humming with bees in the sunshine

Arnia *Flowhive* as demonstrated at the SBKA AGM

Chris Park with a selection of different skeps

WSBKA 2018 Bee Market and Auction

The West Sussex Beekeepers' Association is again organising a Bee Market and Auction for the benefit of its members and non-members with beekeepers attending to buy and sell from a very wide area. The event will again take place at Chichester College's Brinsbury Campus in Pulborough, West Sussex on **Saturday 21st April 2018**. Auction details, Guidance Notes and the Entry Form are available to download from the WSBKA website - www.westsussexbeekeepers.org.uk/auction.html . If any Association would like hard copies of the Guidance Notes and/or Entry Form please let me know. The Auction catalogue will be published online after 18th April.
We look forward to seeing as many of your members as possible at Brinsbury.

For further details contact the WSBKA Secretary at email secretary@westsussexbeekeepers.org.uk or phone 01403 752493 Mobile 07761 349281

For Sale:

Observation hive for sale, takes three standard National frames, two shallow, one deep, its double glazed,
and in perfect working order, £160 or very near offer, contact Trevor, on 01323 487688, or 07772454006.

How royal jelly helps honeybee larvae defy gravity and become queens

Honeybee larvae develop into queen bees only when they are fed large quantities of a food known as royal jelly. But royal jelly does more than determine whether a larva becomes a queen: it also keeps her safely anchored to the roof of the structure, called a queen cell, in which she develops. Research published in *Current Biology* on March 15 explains the role that the pH of royal jelly plays in making the substance viscous enough to keep the queen-to-be from falling.

Royal jelly is kind of viscous and sticky and jelly-like; that's why it's called 'jelly.' It's like a mixture of marmalade and honey," says senior author Anja Buttstedt, a molecular ecologist who performed the study at Martin Luther University Halle-Wittenberg. And like jam in a jar turned upside down, it's viscous enough to cling to the ceiling of the queen cell and to keep the larva hanging as she grows.

Larvae destined to become queens don't have to hang to develop properly. But they are too large to fit into the cells of the hive's honeycomb, and often the only place on the hive with enough room for the queen cells is hanging off the bottom of it. While other larvae are fed small amounts of food jelly directly, the worker bees stuff it into the queen cell in vast quantities, building up a sticky mass that both feeds the larva and keeps her in place.

This space constraint makes royal jelly's viscosity extremely important, so Buttstedt and her team were surprised when their experiments on the proteins that make up the substance completely changed its consistency. "It was totally liquid, almost watery," she says. To understand what had happened, the researchers looked at royal jelly, which normally has a pH of 4, at several different pH levels. They found that between pH 4 and pH 5, the viscosity of royal jelly changed dramatically, and that at a neutral pH, it had that strange, runny consistency.

"And then we realized that the protein that we were purifying at pH 4 was somehow much bigger in size than what we would expect from its amino acid sequence. Most purification protocols use pH 7, so other people never expected or saw the huge size of the protein," she says. She found that the main protein in royal jelly, MRJP1, polymerized with another protein in more acidic conditions to form a network of fibers. These fibers both increased the size of the protein and played a crucial role in changing the jelly's viscosity. "That was, in the end, the missing link between the pH, the viscosity change, and the protein," she says.

It's still unclear how these fibers change the viscosity of royal jelly. But she does have a good hypothesis for why the change is necessary: royal jelly is produced in the glands of worker bees and needs to be fluid enough to travel through their glandular ducts. Production of the jelly actually happens in two separate glands, one that produces the proteins in a neutral pH and one that produces fatty acids that can reduce said pH when the two secretions finally meet.

Other species have similar pH mechanisms that regulate the formation of crucial proteins. In humans, a protein that serves as scaffold for melanin synthesis only forms fibers at pH 6 in specific organelles. Another example is spider silk. "You don't want it to be too sticky in the gland where it's being produced, but when the silk is coming out, there changes in pH that contribute to turning it into the real, strong silk," she explains. So royal jelly's pH-dependent viscosity change does make a lot of sense -- it's just that no one had ever looked at it before.

"The longer I think about it, the less surprising I find it," Buttstedt says. Still, she plans to continue studying royal jelly and the ways it works to turn normal larvae into queens. "There are many other proteins in royal jelly, and I would like to find out what all of them are doing. Because these proteins exist in this way just in honeybees, they most likely use them to do something very special.

Published in Science Daily, 15th March 2018. Thanks to Amanda Millar for the article.

Asian Hornet Action Teams plan

The BBKA executive committee support the Devon beekeepers initiative and their Asian Hornet Action Teams plan.

Jill and Ken have written the following information for you to pass on to members:

This week is NNSS Invasive Species Week

http://www.nonnativespecies.org/index.cfm?sectionid=132 - which is a timely reminder that we need to be preparing for the next Asian Hornet incursion in the UK.

As the next incursion could literally turn up anywhere, beekeepers everywhere are advised to use this time to prepare themselves.

With this in mind, Asian Hornet Action Teams (AHATs) are being set up in BKAs across the UK, with the aim of fighting the establishment of Asian Hornets, by speeding up the identification and verification process, to enable the NBU to deal with any Asian Hornet incursion/s efficiently and cost effectively. Visit the AHAT website: http://www.ahat.org.uk for more information about the aims of the AHAT concept and register your BKA's Asian Hornet Action Team.

On the NNSS website, there is information about their Local Action Groups
http://www.nonnativespecies.org/index.cfm?sectionid=13
An AHAT can submit details to apply to become a Local Action Group (LAG)
http://www.nonnativespecies.org/maps/editProjectMap.cfm
Once accepted as a LAG the NNSS offers a toolkit, which some groups might find useful.
http://www.nonnativespecies.org/index.cfm?sectionid=26

Here are the Devon Asian Hornet Guidance Protocols -
http://www.devonbeekeepers.org.uk/asianhornet/guidance-for-beekeepers/
http://www.devonbeekeepers.org.uk/asianhornet/guidance-for-branches/
http://www.devonbeekeepers.org.uk/asianhornet/how-to-obtain-a-sample/

On another NNSS website page, there is this request for everyone to share their ideas for #getINNSvolved! this coming Thursday, at the end of Invasive Species Week.
http://www.nonnativespecies.org/index.cfm?sectionid=132

Thurs 29th – #getINNSvolved
On the last day of *Invasive Species Week* we want to hear how you **#getINNSvolved!** From keeping an eye out for Asian hornet, to following Check, Clean, Dry, to volunteering with a Local Action Group, post a tweet or Facebook status beginning "I #getINNSvolved by" and tell us more!
We wish you well with your Invasive Species Week activity and look forward to hearing about your Asian Hornet Action Teams. We hope you find your bees are well after this long, slow, cold snapping spring.

Best wishes,

Jill and Ken Beagley, Devon BKA

Divisional Diary 2017/8

Outdoor meetings: Meetings are on Saturdays and Sundays. Unless otherwise, stated a 1.30pm start for beginners will be followed by a general meeting at 2.30pm. All meetings advertised will be weather permitting. Location maps are on the website in the member's section.

Summer Programme
14th April @ Barcombe with Heather McNiven .
29th April @ Cooksbridge with Ian White.
6th May @ Barcombe with Heather McNiven.
12th May for new beekeepers, venue to be advised.
3rd June @ Grassroots with Amanda Millar.
Further dates to be confirmed

For your diary
8th April - B&L Tuition days in Hurstpierpoint aimed at new beekeepers FULLY BOOKED. The Tuition day scheduled for 29th April has unfortunately been cancelled due to insufficient numbers.
21st April - West Sussex BKA Convention - please see details in newsletter
Sat 19th May 2018 - Sussex Beekeeper Association Festival of Bees, Heathfield Community College.
7th to 9th June - South of England Show @ Ardingly Showground Details at http://www.seas.org.uk
30th June - B&L stand at the Saltdean Fayre.
4th August - B&L stand at the Rottingdean Fayre.

The Brighton and Lewes Division of the SBKA cannot accept any responsibility for loss, injury or damage sustained by persons in consequence of their participation in activities arranged.

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Contributions to your newsletter
Contributions, including photos, to the newsletter (max 900 words) can be sent, preferably by email, to the editor see panel above for details
Photos etc. for the website should be emailed to our webmaster, see panel above.

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