The London Beekeepers' Association
LBKA News

February, 2019

Thanks to those who came to the excellent talk by Dave Goulson this week. Natalie has written up (p6) perhaps the best attended Winter Lecture we've ever had. Do come to our next Winter Lecture on bee venom immunology (27^{th} February) and get your (free) tickets here. Howard has written up the microscopy course that he ran with Richard (p7), we have part 1 of Mark's defence of "silly urban meadows" (p12) and we feature an article from Rosi Rollings about which flower bees prefer (p10) and Zaffrin's blog (p16). Plus regular contributors Richard, Howard and Eugene.

A big thank you to this month's contributors: **Natalie Cotton, Eugene Fahy, Richard Glassborow, Howard Nichols, Zaffrin O'Sullivan, Mark Patterson and Rosi Rollings**. Thanks as usual to **Martin Hudson** for proof-reading it. Would you like to join these esteemed contributors? If so, please contact me.

Happy beekeeping.

Aidan Slingsby, Editor, services@lbka.org.uk

From our Chair

Richard Glassborow
chair@lbka.org.uk

As we head into that critical time of year for honey bee colonies, and are getting excited again at the prospects of a new season approaching, BBKA politics is probably the last thing on your minds, if indeed it ever is. But I thought I would just risk a passing comment or two on the recent BBKA Annual Delegates' Meeting (ADM), held on January 13th. I am happy to say honey beekeeper democracy was in much better shape this year than the last. That is a good thing – the 2018 ADM had been a miserable affair and the three of us who attended, Vlad Zamfir, Elliot Hodges and myself, had been shocked enough to contact the Trustees in the

Snow drops. Photo: Aidan Slingsby.

spirit of "critical friend". As a result of that contact, our advice was sought, given and, apparently, heard, regarding the development of a new constitution and dispute procedures for the BBKA as it moves towards Charitable Incorporated Organisation status. That is still work in progress, but the BBKA Trustees, and particularly Stephen Barnes who is leading the undertaking, must be relieved that the draft put to the ADM was largely accepted, albeit with certain caveats and amendments.

In LBKA, we have our own busy agenda, and I would prefer to spend my time helping to deliver that. But I will mention one issue that niggles me: it concerns delegate versus member voting. This is arcane stuff and I have probably lost the entire readership at the mere mention.

I generally try to avoid anthropomorphising honey bee society, but if it helps, think for a moment about honey bee democracy when a swarm chooses a new home. Is it direct or representational democracy? Does every worker in the swarm have all the information needed to contribute / have a say / "vote" to make a choice? Or do the scouts "lead" the process as they gather information, scrutinise available options and convey the information to the surface of the cluster? Hmm? I think I will stop there! Except to say that I do recommend Tom Seeley's book, Honey Bee Democracy! So, here's how it works at the ADM: BKA delegates debate issues, make proposals, amend and vote, etc. Much of the content is published in advance; the outcome is decided by a majority of delegates present. It can be rough, but it can work.

But here is my niggle: any one delegate can then call for the vote just cast to be translated into a membership vote. That is, the delegate's one vote is translated into the number of members in that delegate's Association. Fair enough, it could be said, if that delegate has consulted all their members. But then that position is taken in advance of the ADM, and not influenced by the ebb and flow of debate at the meeting. And there's a big "if" in there.

At this year's ADM, a membership vote was called for on several occasions, and twice the delegate vote was overturned by the membership maths. The problem is that three or four of the 50+ delegates present represent several thousand individual members each, whilst most delegates – like LBKA's – represent only a couple of hundred or so members.

My reason for feeling uncomfortable with the democratic integrity of this form of membership voting may have something to do with motive. I am frankly baffled as to why the delegate, or indeed the members, of a large area association (in excess of 1,000 members) in one part of the country should want to stop a small branch Association (with 60-or-so members) leaving an area association in another part of the country, and joining the BBKA directly. (To be honest, I am baffled as to why that needed to come to conference). But that is what happened. It doesn't add up.

A colony that has built its nest out in the open. The photo was taken in South London on a December day a few years ago.

That's more than enough of that subject. As I said, LBKA has important positive stuff on our agenda: this is not one of them. But worth a mention because it may become important. I will finish back with honey bee democracy. It doesn't always work! I may have shown this photo before. It was taken in South London a couple of years ago – in December! Clearly, they just couldn't agree where their new home should be when they split from the parent colony. They died.

Announcements

This is our official place for announcements. If you only read one section of the newsletter, it should be this one!

February Monthly Meeting

The next Monthly Meeting will be on **Sunday 10th February** and will be about European Foul Brood (EFB) and American Foul Brood (AFB). Both are notifiable brood diseases (you're legally obliged to report them if you see them). These were both rife in London

The venue for our monthly meeting – the white door on the left.

last year. Amongst those affected were LBKA apiaries and LBKA members' apiaries. Get important advice, hear from those who experienced it last year and help us do our bit to help keep it under control in future.

March's monthly meeting will be a hands-on affair with microscopes for testing your bees for nosema. Bring along about 30 of your bees which have been humanely killed in a freezer overnight. You can collect them by holding a polythene bag open at the hive entrance to catch returning foragers... if the weather is warm enough for them to be flying.

Natalie's pub pick

February's Monthly Social will be on **Tuesday 26th February** from **18:30** at Earl of Essex 25 Danbury St, Islington, N1 8LE. A serious beer lover's haven in a quiet street between Angel and Islington.

Winter Lecture: Bee venom immunology

Dave Goulson gave a fascinating talk this week (see page 6).

Our next Winter Lecture is entitled "**Bee Venom Immunology**" and will be on **27th February** at **Roots and Shoots** (Walnut Tree Walk, Kennington, SE11 6DN). It will be given by Dorothea Grosse-Kreul, a Senior Specialist Nurse for Clinical Immunology & Allergy at King's College Hospital NHS Foundation Trust. For over 20 years, she has specialised in treating allergies from pollen to wasp and bee venom. In her clinics she treats many members of the public – including LBKA members! – who have developed an allergic response to bee venom. In this winter lecture she will explain what causes allergies to bee venom and what is involved in their treatment.

As with our previous Winter Lecture, please request (free) tickets this. Please also promote this event.

Upcoming events

We now have dates for the Ascot Family Day (Sunday 31 March), for Battersea Park Zoo (Thursday 11 April), and most importantly for the Lambeth Country Show 2019 (Sat/Sun 20/21 July 2019).

LBKA is exhibiting at all these events and we will need helpers.

We will also need help (and some presenters) at our Introductory Courses on 4-5 and 11-12 May. Would any potential helpers please put these dates into their diaries and, if they would like to volunteer, please contact Martin at events@lbka.org.uk.

Torben Schiffer talk?

Would anyone be interested in hearing a talk by Torben Schiffer, Research Assistant at the University of Wurzburg, on his research on the varroa mite and implications for bee husbandry? A couple of us were so intrigued by his findings on the beneficial behaviour of pseudo scorpions in relation to varroa that we have invited him to speak in the UK sometime in 2019. For more information contact shaywill@fastmail.co.uk.

Old announcements from January

Check our previous newsletters or contact services@lbka.org.uk for more details.

Introductory Courses have been advertised via the website and places are going fast. If you're interested in helping, contact Martin on events@lbka.or.uk.

Can you help on our new course for school teachers? If so, contact Martin on events@lbka.or.uk.

Sustainable Queen Rearing: The Bee Improvement and Bee Breeders Association (BIBBA) are running a series of Queen Rearing courses.

Want to sell cut comb in Brixton? Jon Harris knows a shop owner in Brixton looking for cut comb to buy. If anyone has any for sale, contact services@lbka.org.uk.

Old announcements from December

Martin Hudson: We welcomed Martin Hudson onto the committee. He'll be overseeing LBKA's external events and recruiting volunteers to help run them. You can contact Martin on events@lbka.org.uk.

LBKA's education offerings: Those who registered for our microscopy course, the Module 3 learning group and the 2019 Basic Assessment should have received emails acknowledging their interest. If not, please e-mail Howard on education@lbka,org.uk.

Old announcements from November

New Committee: there is a new committee.

Membership renewals: If you haven't renewed, please do so with your personalised renewal link. If you don't have your renewal link, please ask services@lbka.org.uk to resend it.

Thanks for your support this year and we hope that you wish to continue being a member of our association.

Register your hives: Please update your records to help the National Bee Unit get a sense of the health of the UK's honey bees.

Do you have any announcements?

If you've any announcements for the next issue of LBKA News, please send to Aidan at services@lbka.org.uk.

February's Committee meeting

Here, we keep you up to date with what the committee discuss at our monthly committee meetings (and what keeps us awake at night). Let us know if you can help or have any suggestions that might help.

Aidan Slingsby
services@lbka.org.uk

We discussed some technical details of our planned move to using GSuite for managing our emails and files and BBKA's new eReturns system for managing membership data. We then talked about our webpage. We will restructure some of the information there, add some new pages that give authoritative advice on various aspects of beekeeping for different interest groups including advice and templates for risk assessments. We will also try an ensure consistency of branding and logo, including more use of our "better beekeeping, better public understanding of bees, better London environment for bees and Londoners" and "bees and flowers go together" taglines.

Richard updated the committee on the current state of our apiaries. Apiary managers have provided the information needed to purchase equipment necessary to keep them running smoothly, but proposals for upgrades are still needed. Holland Park apiary's imminent move from a rooftop to its new site in a small field is happening this week and hives will be placed on specially positioned stone stabs. Richard also reported that he'd reordered the new seeds and leaflets as agreed last month.

We're still working on a new swarms collectors' policy in which swarm collectors will try to local establish micro swarm quarantine apiaries by asking neighbours to volunteer part of their garden. Richard and Martin are making enquires in their local area as to the feasibility of this.

The Asian Hornet will be a potential thread and beekeepers are effectively in the "front line". We will provide more prominent advice to help with recognition and what to do with positive identifications.

Last month's Monthly Meeting:

What happened at our meeting last month.

Howard Nichols
education@lbka.org.uk

As usual the meeting was held at Fairley school on the 2nd Sunday of the month. It was the first meeting of the new year and about 40 members attended. We also had a visitor from Tiverton, Mid-Devon Beekeepers.

The subject was Brood Diseases and Conditions and this took the form of a series of 30 individual Powerpoint slides, each one showing a different brood disease or condition. The technical difference being that a disease is caused by a related pathogen whereas a condition is not.

In the first instance we displayed each slide for about 30 seconds and each person wrote down what they thought the problem was. Paper and pencils were supplied. We then went through each slide again but spending more time on each. People marked their own papers and the essence of the exercise was to learn about the different problems. It was not a quiz or a test and members did not reveal how many of the 30 they got right.

As the answer to each slide was given, the disease or condition was explained and pointed out on each individual slide. Sometimes all was self-evident but at other times the issue was not easy to identify. Some were quite difficult but this was the purpose. It enabled us to look at an abnormality and then try to make a judgement. Diseases such as Sacbrood were shown to be easily mistaken for EFB, and not always easy to differentiate between them, especially with a photograph.

People did not discuss their individual scores as this was not the purpose, but, having done this same exercise myself, I know that 15 correct out of 30 would be a very impressive effort. It is the ones we get wrong

from which we learn, not so much the ones we get right.

As usual there was a lot of discussion about the individual diseases and conditions and a variety of questions asked. The discussions continued long after we had finished and into the social part of the meeting. Tea, coffee and cake (thanks Aidan, it was delicious) were provided and consumed.

This meeting is the first in a series of meetings and LBKA events concerning diseases over the forthcoming year. Next month (February 10th) we will be concentrating exclusively on EFB and AFB. In June we will also have a practical Bee Health Day.

In 2018 there was a large increase in the findings of EFB in colonies within the London area. We even had instances of AFB. As a result of these serious diseases now being found in such numbers, LBKA is making a concentrated effort to bring these issues to its members minds with a view to educating ourselves as a beekeeping association and improving our awareness and skills of detection. It is hoped that as many members as possible will make the effort to attend and improve their pathogen knowledge and detection skills.

February in the Apiary

Where we should be with our colonies at this time of year.

Howard Nichols
education@lbka.org.uk

February is a time of increasing activity for the bees. Although cold and rainy on the outside, and, to all appearances all appears to be very quiet, a lot is happening inside the cluster. Brood rearing is increasing and this requires use of additional stores. Furthermore, this winter has, again, been extremely mild until very recently with the bees flying excessively. Therefore, the main job of the beekeeper is to keep an eye on stores. Bee colonies are more likely to die out in February / early spring due to starvation, not due to the cold.

The queen will now be laying at an increasing rate. The empty cells inside the cluster will have been prepared and more eggs are being laid. The temperature of a broodless cluster is maintained at 20°C but a cluster with brood requires a 35°C temperature. This also consumes more stores.

If feeding is necessary then fondant is probably still the best bet. If, on a warm day, the bees are flying and emergency stores are required then feeding liquid stores is a possibility. Bees carry and metabolise nectar at 50% concentration. 1kg of sugar dissolved in 1 litre of water will give this concentration and so involve the bees in the minimum amount of work. If stores are not required then it is better not to feed at all so not to cause any disturbance. Unnecessary liquid feeding at this came can produce increased egg laying leading to chilled brood or the onset of early swarming later on.

On a warm February / early March day the bees will fly for forage. Main sources in February include snowdrops, crocus and early flowering hazel. The latter is a godsend when it flowers as it provides an abundance of pollen. If your bees have been foraging hazel then they will be coming back to the hive drenched in surplus bright yellow pollen. All these sources provide pollen only. Not nectar.

Late February and early March is a challenging time for bees. The winter bees are now old but need to work at an increasing rate to feed larvae and young bees. Many of these older bees will be dying off and a disproportionate number will die in the hive. It is not unusual to find a large quantity of dead bees in front of the hive or behind the mouseguard. Just lift the mouseguard and brush out. This should not normally be cause for concern and does not mean that the colony is dying out. If you keep your hive on a concrete or stone floor then the quantity of dead bees may appear to be substantial. If kept on grass then there may well be just as many dead bees but they will appear substantially less.

Other jobs to do

Ensure sufficient ventilation around the hive and that vegetation has not encroached leading to dampness.

Formulate an outline plan for the forthcoming season. Have a strategy to develop or improve a particular beekeeping skill. In 2018 we experienced unprecedented levels of foulbrood in London. Parts of my own beekeeping plan will incorporate more vigilance in brood inspections and also looking out for the Asian Hornet.

Assemble frames and ensure you have sufficient equipment for the season.

Do not forget the LBKA monthly meetings and the mid-week winter lectures in February.

Winter Lecture: Saving our wild bees

Natalie reports back from our first Winter Lecture of the year. Dave Goulson came to speak to us about saving our wild bees, an issue close to our hearts.

Natalie Cotton
admin@lbka.org.uk

In a packed winter lecture, University of Sussex lecturer and well known author Dave Goulson introduced us to some of the 20,000 species of bee found around the world.

His slides ranged from the Hairy Footed Flower Bee to the 60 odd species of cuckoo bees, who parasitise other bee species, and the iridescent orchid bees of Central America whose males gather scents to woo females.

Dave's speciality is the 250 odd species of bumbles. Like honey bees, these are social, although colonies are much smaller. Queens hatch in February and generally make nests underground by incubating eggs in a ball of pollen. The queen will not leave her nest again, having her daughters forage then switching to producing males later in the summer. After a single mating, the new mated young queens leave their mother nest and burrow in to the ground to wait out the winter. The old queen perishes at the end of the season, unlike honey bees.

Bumbles evolved in the Himalayas about 30 million years ago, spreading across Asia, Europe and the Americas. They prefer cold places, hence why they are large and furry. There's even an Arctic bumble!

This adaptation comes at the price of needing a lot of energy, therefore a lot of flowers. They are renowned pollinators.

Dave moved on to the challenges faced by bumbles today. The great yellow, once common across Britain, now only clings on in the Hebrides; at least three further species are now extinct.

Bumblebees face the same problems as many other insects. In a German study, insect biomass has fallen by 76% in a 27 year period and other evidence suggests declines across the world. As insects make up the bulk of life on earth, this level of decline could signal onward declines in other species such as birds.

What's causing the issues? Dave identified three main causes for these declines – disease, loss of habitat, and pesticides. Bumblebees, like honey bees, are susceptible to disease and especially to the movement of diseases and pests around the world to areas where the native bees have no resistance. Humans have accidentally redistributed these, mainly by moving honey bees and in the last 30 years moving bumble nests to pollinate tomatoes.

An even bigger driver is loss of habitat. In the UK, we've lost 98% of our hay meadow and chalk down over the last century as farming methods and land use has changed. Similar changes to monoculture have happened across Europe and America.

The third reason Dave cited was pesticides relied on by modern farming. He said this was the most controversial part of his talk, but referred to his own research on farms around Sussex. Each field has an average of 20 agrochemical applications applied in a season (all published by DEFRA). All regulatory testing involves a single chemical tested at a time, not a mix over time.

Dave urged us all not to use pesticides in our own gardens. France is banning garden pesticides this year! Less publicised are that neonicotinoids are found in many flea treatments for dogs and cats. The dose for a medium sized dog is enough to kill 60 million honey bees. Garden centre plants can also be 'dripping in pesticides' – even the bee friendly ones. Ideally, go organic or buy from seed.

So bees are being bombarded by issues. Concerningly, projects are underway to build robot bees to replace our declining pollinators. Imagine a countryside littered with trillions of spiky broken bee bots, rather than self replicating, biodegradable bees!

What did Dave suggest we should do to reduce these dangers to our bees??

1. Raise awareness. 95% of the population don't think environmental issues are relevant. Crucially, start with kids at primary schools – what about a GCSE in nature and environment?
2. Restore and recreate flower-rich meadows. Out of reach for many Londoners, but more practically...
3. Lobby local authorities to manage green spaces differently – for example by reducing mowing frequency, which saves money – and plant wildflowers, including verges and roundabouts.
4. Encourage and promote allotments. A recent study from Bristol uni showed the best city habitats for pollinators are allotments. Plus a competent allotment holder can get 4 times as much produce per hectare than an industrial farmer.
5. Make our gardens more wildlife-friendly. Let the lawns run wild; choose the right flowers – avoiding double variety ornamentals and annual bedding which are bred to attract humans, not insects, and opt instead for cottage garden plants and native wildflowers. Dave recommends Viper's Bugloss. Bee hotels are easy to make.

He concluded by saying bees are a great starting point for engaging with people on environmental issues, and promoting the conservation of all biodiversity.

LBKA's Microscopy Course

How LBKA's Microscopy Course went.

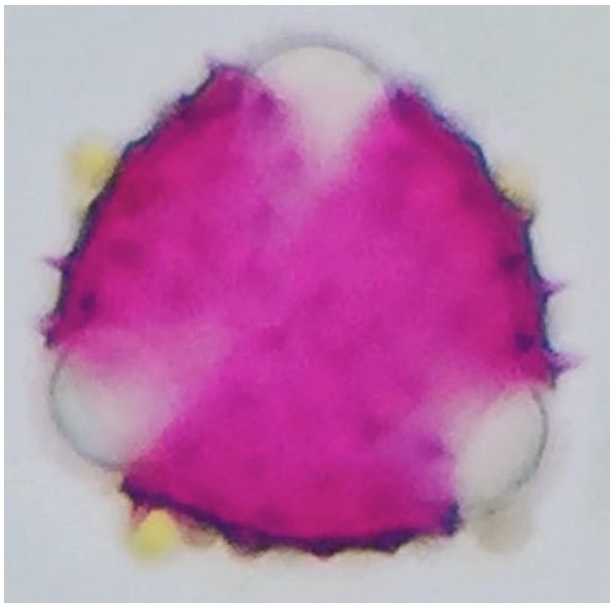
Howard Nichols
education@lbka.org.uk

LBKA again ran this popular course this January. Due to the limit on microscopes we have to limit the numbers to 8 members and on a first-come-first-served basis. It was organised by Howard Nichols and Richard Glassborow and held at Walworth Garden (WG) on 3 consecutive Tuesday evenings.

Evening 1

This was all about pollen. We commenced with a brief introduction to the structure and identification factors for pollen grains, then the rest of the 2 hours was all practical work. Although deepest winter we did manage to have a selection of different flowers. We also had some samples of pre-prepared pollen slides. The setting up of the compound microscope with its 2 sets of optics was the first task and focussing was done at lower magnification and using slides with varroa mites on.

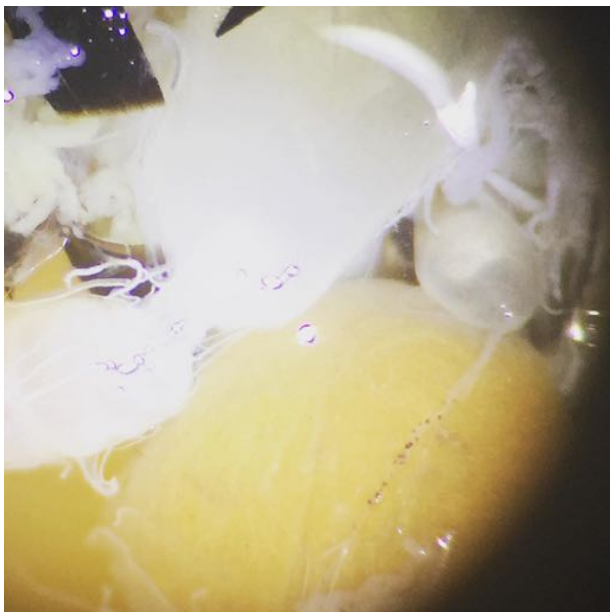
Now with the microscopes focussed we commenced to take samples of pollen from the flowers. Ripe pollen (dehisced) is easy to collect as it just falls from the anther. Unripe pollen is more tricky as it involves cutting into the anther to produce its release. The microscopic pollen grains were then cleaned and degreased with isopropyl alcohol, stained with fuschin jelly and examined on slides under compound microscopes. We had access to the WG computer system and were able to compare the features of the pollen grains with an on-line identification chart.



Teucrium pollen. Source: Mark Patterson.

Pollen is identified by size, shape, colour, number of apertures, type of apertures and external features. Apertures may be pores (porate), furrows (colpate) or a mixture of pores and furrows (colporate). A pollen grain is a 3D object but the image is 2D which makes counting the apertures quite challenging (done by having at least 2 grains simultaneously in focus from different aspects).

During the course of the evening we also extracted pollen from honey for analysis purposes by use of a centrifuge.



The yellow-egg-yolk-looking mass is the rectum full of waste, the big white mass to the left surrounded by noodle like structures is the intestine and upper left the translucent white balloon looking object is the venom gland. Source: Mark Patterson.

A honey bees intestine removed during dissection. Source: Mark Patterson.

Evening 2

This was the first of 2 evenings devoted to the dissection of honey bees, this evening being an abdominal dissection. Each attendee first removed the appendages of 3 bees (dead of course!) and embedded them in wax for dissection. This is a particularly tricky task as, if embedded too deeply into the wax the dissection is impeded and, if embedded too high then it is unstable and cannot be dissected at all

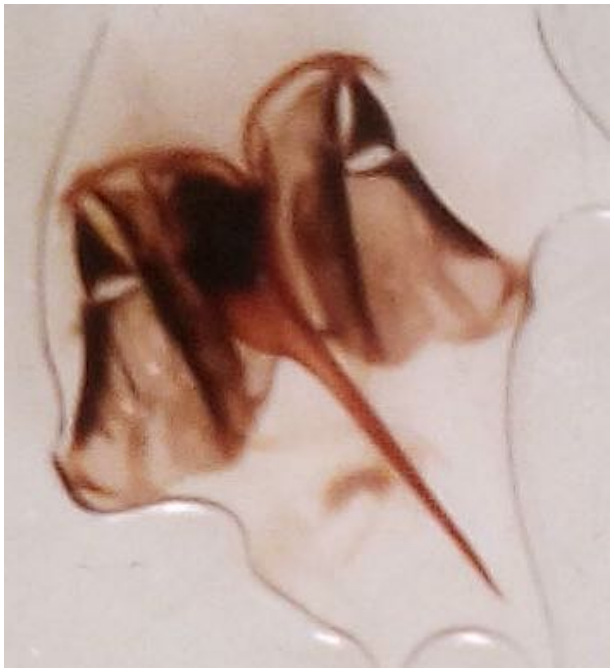
With the bees embedded we flooded all the specimens with isopropyl alcohol and commenced dissection. Considering that course attendees have not previously done this it is surprising how many good abdominal dissections were produced. As student doctors will use a cadaver, then we, as beekeepers, used dead bees to learn. To see these actual parts under a microscope in a specimen you have prepared and dissected yourself is far more instructive than viewing a picture in a text book.

The yellow ovoid at bottom of picture shows 3 of the 4 rectal pads which are used for water recycling. In winter the rectum can expand hugely to store the waste as the bee may have to wait some time before being able to deposit this outside the hive. This bee's rectum (dissected by Elliot Hodges) is relatively small and could expand up to three times its size. The spaghetti-like structures above the rectum are the Malpighian tubules.

Although not part of the digestive system, the sting can sometimes be extracted. The photograph of the sting clearly shows the oblong plate, triangular plate and quadrate plate on each side. The names are self-descriptive but the triangular plates are on the outermost top sides with the quadrate plates immediately below.

Evening 3

The final evening was all about the thorax and head dissections. It was enhanced by also viewing the appendages (antennae, wings and legs). It was at this point we had our one and only hitch, albeit a significant one. A few of the bees were not fully dead and had to be placed back into the gassing jar to complete the process. I was the person responsible for bringing



Bee sting

the dead bees but, in my defence, must say they cannot be killed too early. Neither can they be frozen as this will make them void for dissection. Whenever a living creature dies, different processes of decomposition commence. The first stage is autolysis whereby the body's cells are destroyed by its own enzymes. This happens quite quickly and so the bees cannot be left too long before dissection commences. Everyone seemed to cope well with this unpleasant diversion.

To spend 3 winter evenings in the warmth of WG teaching room, dissecting bees and conversing with other beekeepers is a most pleasant task. It is also a very interesting beekeeping activity in the middle of winter.

This photo of the thorax is evidence of an exceptionally good thoracic dissection (again, done by Elliot). All the white tissue is the flight muscles fully intact (extremely difficult to keep intact when removing the upper thoracic plate). Even better, the aorta is exposed and lying longitudinally on top of the flight muscles in the lower half of the photo.

Focus on Forage

Mark tells us what's in flower at this time of year. This article is is an extract reprinted from last year.

Mark Patterson
forage@lbka.org.uk

There are valuable pollen sources that are making an appearance in February.

Winter Aconites (*Eranthis hyemalis*) are beginning to appear. Their bright lemon yellow flowers are attractive to bees which will collect their pollen. They are members of the Buttercup family.

In gardens **hellebores** are also flowering, offering much needed pollen. Hellebores come in a wide variety of colours. The hybrid hellebores are particularly hardy and easy to grow as are the native stinking hellebores (*Helleborus foetidus*) which can be found in gardens and in wild areas too.

Winter heliotrope (*Petasites fragrans*) is a relative of our native Butterbur but flowers much earlier. It's not a UK native and can be quite invasive when established in the wild but is a great garden plant for bees in late winter. The flowers are shaped like a toilet brush and pink in colour.

The first **daffodils** (*Narcissus sp.*) are beginning to bloom. Despite their attractive flowers, daffodils and other narcissii are poor forage for bees. I have never seen a Honey Bee visit them and only occasionally have I seen desperate Bumblebees alight on them.

Wallflowers (*Erysimum*) are flowering now and will continue to do so right through till late spring. Bees will visit both the popular bedding type wallflowers as well as the longer lived everlasting perennial types. Their purple and orange 'bowls' are particularly good for bees as they have a very long flowering period and will bloom almost continuously all year round.

Off the ground there are several shrubs and small trees which are now flowering and these may offer rewards of nectar on warm days alongside the pollen they pro-

Willow

duce. These include **Mahonia** or **Oregon Grape** which grows in our towns and cities in abundance and flowers throughout the winter providing nectar and pollen for bees. In southern towns and cities **Buff Tailed bumblebees** (*Bombus terrestris*) continue to be increasingly active throughout the winter, surviving largely on this plant. Around 75% of winter flowers visited by bees are Mahonia. The variety 'winters sun' is particularly attractive. Bees taking advantage of Mahonia blooms in winter have few other insects to compete with and can fare better than some colonies active in summer.

Viburnum shrubs include a number of deciduous and evergreen species which flower during the winter months. They are relatives of our native **Guelder Rose** (*Viburnum opolus*). Some of bees' most popular Viburnums include the evergreen *Viburnum tinus* whose sweetly scented cream blooms flower from November through to March, and *Viburnum bodnaatense* whose pink flowers bloom from around Christmas to March.

Several **Clematis** species are useful forage sources to bees in winter. *Clematis amandii* and *Clematis cirhossa* both have creamy white flowers and bloom in winter. Honey and winter active bumble bees will visit them for pollen.

Winter Flowering Cherry (*Prunus subhirtella*) flowers from late November to February producing pale pink flowers. I've very rarely seen any bees on the blooms but have often seen flies on them. In the absence of better forage like Mahonia bees will visit the flowers.

Hellebore

Sweet Box (*Sarcococca confusa*) is a short growing evergreen shrub which produces extremely fragrant blooms (reminiscent of hyacinths) from late winter into early spring. It's one of those plants that you almost always smell long before you see it. **Winter Heather** (*Heaths Erica sp.*) produce tubular blooms in shades of white to pink throughout the winter. They are coming to the end of their flowering period now but still providing forage for bees brave enough to venture out.

Winter flowering Honeysuckle flower during winter, some of which are climbers and some are shrubs. One of the best is *Lonicera fragrantissimima*.

Daphne shrubs are beginning to flower now and their intense perfume-like scent will attract bees to collect their pollen.

Hazel (*Corylus avellana*) is flowering now and the long male catkins drip with pollen. On warm days Honeybees may visit the catkins to collect pollen, though the plants are wind pollinated and do not need the bees to reproduce.

Other trees that produce catkins may start to make an appearance in February include **willows** (*Salix sp.*) and **poplars** (*Populus sp.*) though they are usually a little later flowering.

Which 'bee-friendly' plants attract the most bees?

Rosi Rollings has been looking at which are the most popular plants for bees. She runs rosybee:plants for bees whose website offers plants for sale and lots of

Viburnum tinus

Mahonia.

information for helping support bees and providing tips for gardeners.

Rosi Rollings
rosybee:plants for bees

I've been passionate about gardening all my adult life. So, when my husband and I started keeping honey bees in 2009, it was natural for me to want to know which plants I should be growing to support them better.

I found many lists of recommended plants for pollinators but they failed to agree. Also, most were based on simple anecdotes or experienced observation but nothing more scientific. So I started growing some of the recommended plants and working it out for myself.

This became the start of a journey that now finds me having just completed 5 years of primary research to quantify which plants really attract the most bees. I also manage a small plant nursery, in south Oxfordshire, dedicated to supplying those plants. All pesticide and peat free, of course!

The plants in the study were chosen for their potential to be highly attractive to bees. Many of these plants are recommended by leading horticultural or wildlife organisations. The study covered 111 plants including 90 perennials, 6 biennials and 15 annuals, of which 30 were native plants and 81 were non-native.

The primary finding is that the number of bees each plant attracts varies hugely. Some attract surprisingly few, even supposedly 'bee-friendly' plants. This variation is significant for anyone wanting to maximise the amount of bee-food any area of land can provide.

Weather has a major impact on both bees and plants causing them to thrive much more in some years than others. Yet, both are also naturally resilient.

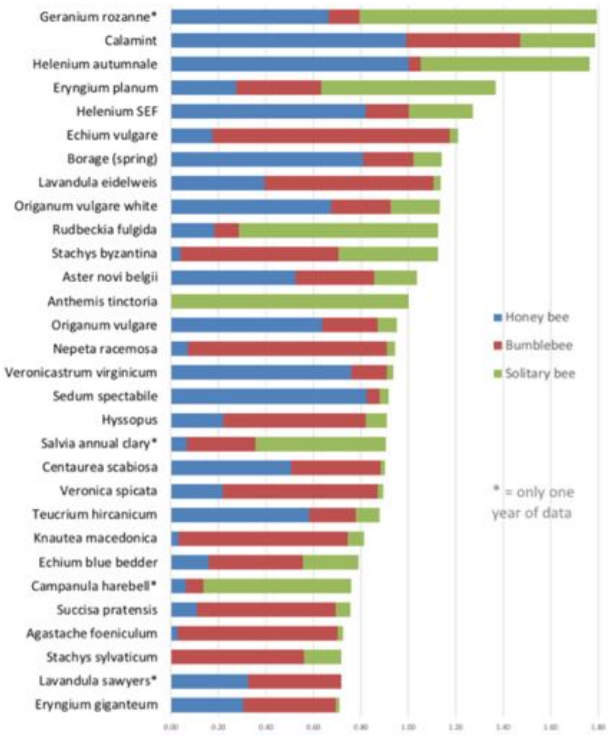
Both native and non-native plants are equally attractive to bees. Apart from cases where there is some unique inter-dependency, most bees show no favouritism to native plants. They simply seek food where they can access it.

Healthy plants with more flowers attract more bees. The old gardeners' adage of 'right plant for the right place' is important for both a sustainable garden and more bee-food.

Different plants attract different bees and so to ensure that food is supplied to a wide range of bees its best to have a wide range of flowers available. Although plant structure has a bearing on which plants each bee prefers, it is not the only factor.

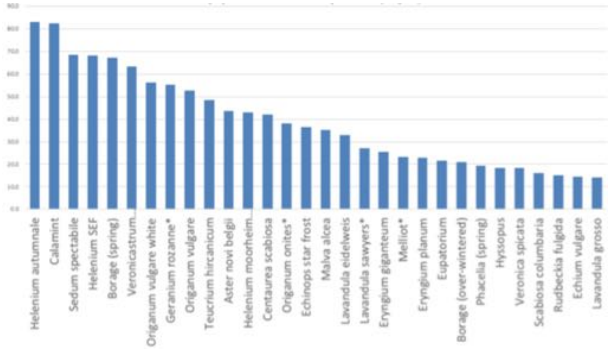
The chart provides a summary of the cumulative results for the 5 years of data showing which plants attract the most bees and of which kind. The values have been rationalised to adjust for the dominance of honey bees in the sample due to the proximity of our hives.

As I know you are all particularly focused on honey bees, then here is the specific 'top 30' plants that I



Top 30 bee plants over 5 years.

found attracted the most honey bees. I grow on heavy clay so all of these should be fine in typical London soil.



Top plants for honey bees over 5 years.

For further details of this research and individual charts for bumblebees, solitary bees see our website.

*A mixed meadow planting in the Queen Elizabeth Olympic Park featuring the usual native perennials as well as exotic bee friendly additions such as **Hollyhock**, **Knifophia**, **Camassia** and **Oriental Poppy**. Plants like /emphMullein featured in this planting mix cater for specialists like the colourful **Mullein Moth** whose larva are host plant specific.*

In Defence of "Silly Urban Meadows" (part 1)

This is part 1 of Mark's article In this article – reprinted from Mark's personal blog – in which he addresses some misunderstandings about urban meadows and annual flower mixes and explains how they play an important role in providing for London's many pollinators. Look out for part 2 next month!

Over the years as an environmental consultant, ecologist and as the forage officer for the London Beekeepers' Association I've been involved in a number of urban meadow projects which have created valued habitat for urban pollinators on social housing estates, city parks and brownfield sites. These meadow creation projects I've been involved with range from an 8 × 20 foot green roof on a shipping container to meadows dozens of hectares in size supporting threatened species as small as bumblebees to large birds like Barn Owls.

I have been compelled to write this blog in response to a number of tweets which have recently attempted to belittle and undermine the importance and significance of urban meadows (and similar flowery habitats). One twitter user has gone as far as to describe them as "an extravagant and expensive distraction" to pollinator habitat needs, specifically targeting London's Burgess Park and Queen Elizabeth Olympic Park as examples. The author has instead suggested we should plant trees and perennials as an alternative. However, compared to meadows, these are very expensive to maintain. The

*A cuckoo Bumblebee foraging on **Knapweed** – a valued meadow wildflower.*

fact is that, whilst trees are useful and important for some pollinators (honey bees producing a crop of honey for their beekeeper), most bees don't need and prefer not to forage on trees. Trees are actually expensive to plant and maintain properly, can take decades to mature and bloom and most only bloom for a very narrow window each year providing a glut of food for a limited range of species. Meadows and similar habitats by comparison are much cheaper to create, can be created almost instantaneously, can have a long flowering period with a succession of flowering species occupying the same space and are crucial to many rare and threatened bees and butterflies which seldom utilise trees.

So in defence of "extravagant and silly" urban meadows I bring you some facts and take a look at the pros and cons of different types of planting for pollinators.

Meadow or informal annuals?

First off, let's be clear. A lot of what we frequently see being planted and called meadows, are not actually meadows. They're informal annual mixes which are treated very much like annual bedding displays. The difference is, instead of being force grown in heated glasshouses (often abroad and then transported here to be planted at huge environmental cost, only to be replaced several times per year), annual mixes are sown from seed outdoors in spring in prepared soil, and last the best part of a whole year before needing to be cut down and prepared for planting again the following year.

Figures from the Horticultural Trade Association show that annual bedding accounts for over a third of UK horticulture. Annual bedding displays cost around £60 per m^2 per year to plant and maintain, and have a very high environmental footprint. The environmental cost is high because they are typically grown in peat which damages natural habitats and releases large volumes of carbon into the atmosphere. The plants are often grown in heated glass houses and dosed in pesticides.

A still from a video below shows a pollinator friendly informal annual mix which I grew as part of a trial at a west London community garden.

Informal annual mixes by comparison can cost as little as £5 per m^2 per year to plant and maintain, and have a far reduced environmental cost. They are typically grown from seed which requires less energy to transport, the seed is produced outdoors, and imported seed carries fewer risks of introducing exotic pathogens and pests (imported seed is regularly tested in a laboratory whereas bedding plants are not subject to viral screening and usually only subjected to visual inspection for insect pests) and above all else they are far, far superior in providing forage for pollinators than your typical bedding display. Typical bedding displays like **pelargoniums** are quite possibly the worst flowering plants for pollinators. In trials by the University of Sussex, pelargoniums and many other bedding plants received no visits from pollinating insects during a 3 year PhD study.

Informal annual mixes are not without problems however – they do require thorough ground preparation. The most common cause for failure is poor ground preparation prior to sowing.

Another moan about annual mixes is that, when you use them to replace mown grass, you get lovely flowers in year one, often followed by cabbages in year 2, and then a return to turf by year 3. Again this is a management issue. Annual mixes require bare, disturbed soil to thrive, so must be cut and dug over at the end of the season, and re-sown to produce the same display year after year. The claim that cabbages often take over in year 2 is often because annual mustard-like plants sprout from a natural seed bank in the soil and will become established if the first years display is not cut and the soil cultivated.

Without a successive sowing there is reduced competition from flowers so these cabbage-like weeds can thrive and dominate. If left unattended after the initial sowing, informal annual mixes will revert back to scruffy grass or rank herbaceous growth. It is a lack of understanding and expectation by the installers which leads to their failure. When executed correctly, informal annual displays have a huge cost saving compared to business-as-usual mowing of amenity grass every 3 weeks from April until October.

A solitary Lasioglossum Bee forages on an annual flower in an informal annual mix.

An inexpensive informal annual mix used on one of London's largest green roofs, an 11th floor sedum roof transforms the rooftop into a blaze of colour – far better for urban bees than sedum carpet which only flowers for 2-3 weeks in mid summer. This mix flowered from April to September when it was strimmed and provided valuable foraging habitat in the heart of the City of London.

I have seen some awfully managed informal annual displays. I've also seen some inappropriate and over reactive responses to their usage. In recent years, Hackney Council replaced areas of frequently mown amenity grass on London Fields with strips of annual flowers. At first the response from the public was lukewarm as it took a while for the plants to germinate and grow. Expectations were high for a colourful display which was promised.

After several months the flowers began to bloom and opinions of the Council's planting efforts were elevated to new heights. Local people loved the flowers, as did the local pollinators. That is until someone complained to the Council that the flower mix contained Corn cockle – a nationally rare flower (critically endangered species in the wild in the UK but commonly cultivated in seed mixtures), whose seeds are mildly toxic if consumed in large enough quantities. Being extremely risk-averse, Hackney Council immediately mowed down the flower display during peak bloom, decimating the flowers and turning the once beautiful patch back into grass.

The reaction was over kill. The seeds of Corn cockle would have had to be consumed in large quantities to have any noticeable effect, and who in their right mind would pick and eat them? Meanwhile elsewhere in the borough the Council blissfully ignores far more highly toxic plants frequenting its parks and amenity spaces. Plants such as Hyacinths planted in spring bedding displays can cause serious skin allergies to some people, as can the sap of Euphorbia plants – yet it is frequently planted around children's playgrounds to provide evergreen interest. Don't get me started on their reluctance to tackle Giant Hogweed along the canal...

The cost of success

Informal annual mixes are not just cheaper than bedding displays, they are also a lot cheaper than keeping neatly mown grass. Since 2014 Hartlepool Council in the North East of England has saved £35,000 per year on mowing 10km of road verges by switching from regular grass cutting every 3 weeks to informal annual planting (National Environmental research Council 2017 Greening the Grey report).

This has had huge beneficial impacts on pollinators and reduced the Council's CO^2 emissions from reduced diesel ride-on mowers. Unlike cars and other road vehicles, horticultural and agricultural machinery is not subject to emission restrictions, and they are highly polluting. A typical ride-on mower, for example, produces almost 10 times the CO^2 emissions per mm as that of a Ford Focus.

The use of non-natives

Annual mixes often contain species which are not native to the UK, but that is not a problem for pollinators. The majority of adult pollinators do not discriminate against native vs non-native flowers so long as the pollen and nectar is freely available. Most of the species in these mixes produce seed which is not frost hardy, so they are unlikely to escape into the wild or become invasive. Furthermore research by the 'Biodiversity in Urban Gardens' research Project has shown that combinations of native and non-native plants attract more biodiversity and are particularly better for hymenoptera than native-only plants.

Flowers have cultural value as well as being habitat for pollinators. Young people at Westcott Park Community Garden in Ealing sample the fruits of their labours having spent £4000 on bee friendly planting.

Value to people

Other benefits that informal annual mixes bring to us include 'the feel good' factor. People get a huge amount of enjoyment out of walking beside or through fields of colourful flowers, being able to touch the flowers, study them, pick them, smell them and hear and see the insects buzzing among them at close quarters. You cannot do this as easily with trees. These and other benefits to health and wellbeing via the green environment save the NHS £111 million annually through prevented GP visits (Fields in Trust charity report 2018).

These colourful annual mixes are cheap to use and maintain, and are ideal for temporary planting schemes pending more expensive and longer-term planting investment. They are also great at encouraging new and inexperienced gardeners to try their hand at growing for pollinators. They are as easy as 'throw and grow', and mixtures are available for every situation. Many conservation charities give away annual seed mix packets as a cheap and cheerful way of encouraging people to think about the needs of pollinators. They are inexpensive but can have a big impact.

Next month, Mark will examine establishing low-cost meadows. . .

Facebook (In)digest(ion)

Some of the highlights from LBKA's public facing Facebook page.

Eugene Fahy
LBKA Member

Unsurprisingly, January's Facebook posts show that beekeepers were more focused on education and current awareness than on their apiaries. Mark Anthony Patterson posted details of the LBKA introductory courses which will run in May and a link to a Youtube BBC video about London bumble bees. The opening segment has footage of a buff-tailed queen emerging from hibernation. It gives some idea of London's potential as a habitat for pollinators with three million gardens making up almost a quarter of the city. Following the same theme, Aidan Slingsby shared a link announcing the LBKA Winter Lecture on Saving Wild Bees, delivered by Dave Goulson of the Bumblebee Conservation Trust which took place on 6 February.

Research findings were another source of comment. Andrea Quigley shared a post from the COLOSS varroa control workshop which heard updates on projects including comb trapping and organic acids for varroa control and Mark Anthony Patterson shared a link to University of Maryland research which found that "Varroa feed on fatty organs not blood". This impairs the bee's ability to detoxify pesticides and robs them of essential food stores.

Toni Burnham from Washington DC posted a question about orientation and placing of hives near to solar panels on a rooftop. Mark Anthony Patterson posted pictures of his hives on the largest green roof in London which has an extensive solar panel installation with panels facing south and hives facing south east. Finally, journalist Tessa Hilton wrote about adult onset allergies, which apparently are more common in the 40-plus age group, and she would like to hear from beekeepers who have suffered an allergic reaction.

Guest Blog: Local Beekeepers' Associations

This month, member Zaffrin O'Sullivan talks about why she liked her local beekeeping association (and she means LBKA – thanks Zaffrin!) from her blog.

Zaffrin O'Sullivan
LBKA Member

Nestled in cities and places across the country are passionate bee educators that represent the interests of beekeepers and beekeeping. These volunteers help run local beekeepers' associations.

Beekeeping Associations

My local beekeeping association has been one of the main sources of information and practical tips that I have turned to when seeking guidance and advice on my beekeeping journey.

My journey to getting bees has been long. I have been planning for nearly 2 years to get bees. Living in London, I feel the full weight of responsibility that comes with keeping bees, as well as a duty towards other beekeepers in London.

Preparation

One cannot whimsically decide to get bees (although some people do). As beekeeping has gained popularity, so has the trend for impulse hobbyists. In the same way one would advise against purchasing a dog without commitment, the acquisition of tens of thousands of bees should warrant the same, if not greater consideration.

Urban Beekeeping Responsibilities

Beekeeping in London or any city with a dense population can present challenges. You need to have a level of competence to manage your colonies, recognise disease, minimise swarming and avoid your bees being a nuisance to the public.

The first place I turned to when I started my beekeeping journey was my local beekeepers' association. The London Beekeepers' Association (LBKA) is a volunteer-run members' organisation (and registered charity).

Beekeepers and Urban Beekeeping

LBKA represents the interests of beekeepers and urban beekeeping in the central London area. They have a mixed range of beekeepers as members as well as people like me who have yet to keep bees. However, what underpins the association is an experienced set of beekeepers, who are generous in their knowledge and keen to help other beekeepers.

LBKA Beekeeping Courses

Every year, LBKA run two weekends of beekeeping courses (this years' are available for booking here). I joined one of the LBKA courses in April 2016, which was inspiring, educational and full of practical tips. Reading textbooks is helpful background, however nothing beats hefting around beekeeping equipment, inspecting a hive and feeling the hum of bees when they are flying around you. After the course, I also received a season of mentoring by LBKA (which they offer) at their teaching apiary (an incredible commitment on the part of the LBKA members).

Mentoring

Since the course, I have remained an LBKA member. I have followed and engaged with LBKA through their Facebook group, seen discussions play out in their WhatsApp group and this year I plan to attend more of the monthly meetings to meet more beekeepers in person. It has been reassuring to see that even the best beekeepers face completely unknown situations. When an LBKA member is stuck on a bee related issue, advice is quick (and sometimes divided) however there is always back up on what to do next. It is a real community.

Members' marketplace

This section is for members offering beekeeping items or services to members or requesting items. Items could include nucs, wax and honey. Email services@lbka.org.uk to add something here.

Emily Abbott: I run Hive & Keeper Ltd a company that sells single apiary/harvest honeys from small scale beekeepers around the country. Jars are labelled with the honey's main flavour, the name of the beekeeper and where the apiary is. Hive & Keeper currently works with about 30 keepers and your honey would be enjoyed by people across the country. Let me know if you have honey you want to sell, but don't want to jar and sell it yourself. We buy 30lb buckets (a minimum of 3). Check out http://www.hiveandkeeper.com/ or email emily@hiveandkeeper.com.

Kyle Moreland: I am looking to contact other beekeepers in Streatham Hill (SW2); to lend a hand with hives, swarms, etc. I am available during the day as I am retired and have a pickup truck which can be useful for moving hives. I have 2 empty hives that I am looking to fill in Spring 2019. Please contact me on kyle@marmionroad.plus.com.

Upcoming events

Sunday 10th February: Monthly Meeting: EFB and AFB

11:00-13:00 at Fairley House Junior School, 218 Lambeth Rd, Lambeth, London, SE1 7JY

The meeting will be about European Foul Brood (EFB) and American Foul Brood (AFB). Both are notifiable brood diseases (you're legally obliged to report them if you see them). These were both rife in London last year. Amongst those affected were LBKA apiaries and LBKA members' apiaries. Get important advice, hear from those who experienced it last year and help us do our bit to help keep it under control in future. Followed by the usual hot drinks, cake and chat. Meetings are for members only, but you're welcome to come as a guest to find out more about our association.

Tuesday 26th February: Monthly Pub Social

from 18:30 at Earl of Essex 25 Danbury St, Islington, N1 8LE.

This month, we're in the Earl of Essex, A serious beer lover's haven in a quiet street between Angel and Islington.

Wednesday 27th February: Winter Lecture: Bee venom immunology

19:00-21:00 at Roots and Shoots, Walnut Tree Walk, Kennington, SE11 6DN.

Dorothea Grosse-Kreul is a Senior Specialist Nurse for Clinical Immunology & Allergy at King's College Hospital NHS Foundation Trust. For over 20 years, she has specialised in treating allergies from pollen to wasp and bee venom. In her clinics she treats many members of the public – including LBKA members – who have developed an allergic response to bee venom. In this winter lecture she will explain what causes allergies to bee venom and what is involved in their treatment.

Sunday 10th March: Microscopy and Nosema Testing.

11:00-13:00 at Fairley House Junior School, 220 Lambeth Rd, London SE1 7JY

A hands-on practical session with microscopes for testing your bees for nosema. Bring along about 30 of your bees which have been humanely killed in a freezer overnight. Followed by the usual hot drinks, cake and chat. Meetings are for members only, but you're welcome to come as a guest to find out more about our association.

Committee

Please do not hesitate to get in touch with a member of the committee if you have any questions, requests, suggestions. We are:

- **Chair:** Richard Glassborow, chair@lbka.org.uk
- **Treasurer:** David Hankins, treasurer@lbka.org.uk
- **Secretary:** Natalie Cotton, admin@lbka.org.uk
- **Education:** Howard Nichols education@lbka.org.uk
- **Membership:** Aidan Slingsby, services@lbka.org.uk
- **Resources:** Tristram Sutton, resources@lbka.org.uk
- **Development:** Simon Saville, development@lbka.org.uk
- **Mentoring:** Elliot Hodges, mentor@lbka.org.uk
- **Events:** Martin Hudson, events@lbka.org.uk

Our website is http://www.lbka.org.uk/ and the pictures are in the same order as the names above.