

THE IPSWICH & EAST SUFFOLK BEEKEEPERS' ASSOCIATION

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Newsletter for January - April 2017

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Opinions expressed in this Newsletter are not necessarily either those of the Editor nor of the Association.

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The National Bee Colony Count

If you keep bees and have not yet recently informed the NBU how many colonies of bees you have, please go to: <https://secure.fera.defra.gov.uk/beebase/index.cfm?pageid=362> and do so.

This count will help the National Bee Unit improve their understanding of the UK's honey bee population and forms part of the National Pollinator Strategy. That seeks to improve how populations of pollinators are monitored. Pollinators face many challenges including adverse weather, habitat loss, pests and diseases and the use of pesticides, leading to a decline in both the number and the diversity of pollinating species. The Hive Count will help the NBU measure changes in honey bee populations over time.

The discovery of Asian Hornet in Gloucestershire in September 2016 emphasises the need for accurate and up to date figures for the number of beekeepers and colonies in all areas of the UK. Most beekeepers will have been asked already. Please respond; do it today. This really is urgent.

In space, bees won't fly

When NASA asked him, Robert Pickard predicted that honeybees taken into space would be unable or unwilling to fly; the gravitational sensors on the head need to be stimulated so that the bee knows which way up it is and which direction to aim for. He was right. From the Herefordshire newsletter 'Buzzword'.

Practical beekeeping training every week

We hope that, as last year, we can open our Association apiary at 2:00 pm every Sunday afternoon from 30th April. There will be something different every week and something the same - the bees. This is an opportunity for us all to advance our beekeeping knowledge and improve our skills. See [link](#).

Please support us and use the facility.

We also need a few of the more experienced to help with running the sessions; if that could be you, please contact JeremyQ@tiscali.co.uk/01473 737700.

A new apiary?



Subscriptions for 2016-17 are due

If you have not yet paid yours, please go to <http://www.suffolkbeekeepers.co.uk/esbka-form2017.php> and do that.

For last year's members who we know don't have access to the web, a copy of the renewal form will accompany this newsletter.

Ipswich meetings

We meet in the Scout Hall, Kesgrave IP5 1JF from 7:30pm.

Wednesday 25th January: Dale Gibson

“Bees Can’t Eat Kind Words” *Beekeeping in London*

Dale has always lived in London. Stockbroker by day, beekeeper by night, he was on his allotment near Bermondsey Spa nine years ago when he spotted a bee on a damson tree that was about to blossom and it occurred to him that he could have bees on his roof, even though then he “knew nothing about them”. He has since become what he calls a ‘Bermondseyshire farmer,’ harvesting and selling pots of exceptional, award-winning honey under his Bermondsey Street Bees brand, selling ‘guest’ honeys, and advising others on how to do the same - such as the new Soho Farmhouse in Oxfordshire. His brief there was to set up an apiary on site to pollinate the kitchen gardens and produce liquid and comb honey frames for the Farmhouse’s breakfast table, kitchen and deli. His Bermondsey Street Honey is produced as liquid honey, ‘chunk’ honey and pure comb honey.

The honey he produces for clients belongs to their own hives and terroir. He also sources exceptional honeys to order for restaurants and hotels that can't have their own hives. In addition to this, he selects 'guest' honeys from other artisanal beekeepers, which he sells with a detailed provenance under his Metro (urban honeys) and Union (country honeys) labels.

Wednesday 22nd March: Mark Patterson

Gardening for pollinators

This covers different types of pollinators, their declines, what they need and how we can best provide for them in our domestic gardens. I have data on managed colony numbers and distribution and foraging habitat quality/distribution.

I shall bring some examples of the branded seeds etc. my association gives out and examples of the branded leaflets about planting for bees I designed for LBKA. I shall bring some London honey to taste too.

Sunday 23rd April Bee Health Day

9:30-4:00 Dallinghoo Jubilee Hall: booking essential.

We split into groups and look at inspections, swarm control, equipment and frame changes & taking swarms and practice bee handling in the apiary. 01473 737700 or JeremyQ@tiscali.co.uk.

Wednesday 26th April: Richard Ridler

Modern African Beekeeping & the Relief of Poverty

The talk is mostly about beekeeping in Africa, focussing on the differences in practice.

Bees Abroad is UK registered charity whose objective is the relief of poverty through beekeeping. We are all volunteers and we are all beekeepers. We have over 50 projects in 15 countries to our name. Our projects typically increase family income by some 20% the money being used to pay for such things as medicines and education. Beekeeping has many plus points as a means of successfully achieving poverty reduction. It is culturally acceptable, environmentally friendly, sustainable, equally accessible to both men and women, old and young - and bees do much of the work!

Our project managers not only provide the skills for beekeeping but also for accounting, record keeping, sales and marketing; in fact, everything to make a small business successful.

Richard became Chairman of Bees Abroad in April 2015. Before that he was Chairman of Essex BKA for 5 years and prior to that its treasurer.

Apiary Offered

Trevor Gill writes: “I am restoring 12 acres in Easton / Letheringham. It has been neglected/overgrown for c.30yrs. As part of the restoration I have started to sow in a new wild flower grass mix with some direction from FWAG and Walnes Seeds. I am now looking to establish some bee hives for honey and to help with pollination.” Email: trevor_gill@msn.com.

BeeConnected

The new *BeeConnected* Crop Spray Alert launched by the BBKA, the NFU and the Crop Protection Association went live in September. ‘Alerts from farmers will tell beekeepers when spraying is happening up to a maximum of 5km from their hives, the crop being sprayed and the compound being applied. The beekeeper will receive an email allowing them to take mitigating action such as moving their hives or shutting the bees in for a short while’. Farmers and beekeepers may register at www.beeconnected.org.uk.

The Suffolk BBKA Examinations Secretary

From 1st January, this will be **Kevin Thorn**. His contact details are: kevinthorn@me.com; 07557 418418; 75 Head Lane, Great Cornard CO10 0JS.

Adrian Howard carried out this role really excellently for four years. This was all the more creditable because he found he could no longer keep bees. He has our very grateful thanks.

Thursday 9th March: Suffolk BKA AGM

Community Centre, Hillside, Stowmarket IP14 2BD

Please come and tell us what you think of the membership fee, Suffolk BKA events, and what you would like to see the County association doing for you, the members, in the future. 7:30pm.

Saturday 25th March: Suffolk Beekeepers’ Association’s “Best Practice Day”

This will run from 9:30 - 4:00 and follows on from last year’s very successful event which was also at the Hillside Community Centre, Stowmarket IP14 2BD. Please reserve the day in your diary.

Speakers will be **Bob Smith**, NDB: *Bee Space - 8 mm of nothing*, **Barrie Powell**: *Keeping Better Bees*, **Mike**

Graystone and **Jeremy Quinlan**: *Standard Manipulations*.

The County Committee is negotiating catering arrangements and finalising other details and expects to be able to publish them soon after Christmas.

Extractor for sale

12 frame stainless steel hand-cranked radial extractor (by Thomas, France) £250 o.n.o. Contact: John Forbes; 01394 382209 or johnforbes@struie.plus.com.



Box House Beekeeping Supplies

In East Bergholt, Suffolk - for the local supply of hives, frames and foundation, tools and other equipment for keeping bees. Open by arrangement - please email or telephone Paul White to discuss your requirements. 01206 299658 or 07768 634038.

A Winter's Tale

As you are tucking into your turkey and Christmas pud this year, stop to think for a moment about the bees in your hives. In the middle of winter we tend to forget about them, but those bees are the most important group of bees that will ever live in your apiary and on them depends the existence of the colonies and the success, or otherwise, of next summer's beekeeping.

In late summer and autumn the queen continues to lay, although at a reduced rate. The bees that develop from these eggs will have a lower metabolic rate and little work to do as there are fewer larvae to feed and the available forage is meagre. As a result of this they remain 'young' and do not follow the normal pattern of development and aging which we see throughout the summer, when approximately 3 week old bees graduate from in-hive duties to foraging and, as a result, age and die in about 2–3 weeks.

It is important to realize that the aging process in a worker bee switches when that bee becomes a forager. At that point in her life, a number of changes take place: her protein levels drop, her Juvenile Hormone (JH) levels rise and she is then on the slippery slope to death. Our winter bees do not make this transition at 3 weeks, but continue in their physiologically young state until the spring, when they kick-start the massive colony growth which precedes the swarming season.

So, how do they prepare for this lifestyle? All newly-hatched workers eat nectar/honey and large quantities of bee bread, which is stored, fermented pollen. The honey provides the carbohydrate in the diet but the pollen contains large amounts of protein plus some fat, minerals and vitamins, and is used to manufacture brood food in the mandibular and hypopharyngeal glands of these young bees so that they can feed larvae.

Young winter bees also consume large quantities of bee bread but they do not use it immediately. Instead, much of it is stored in their fat bodies. These are important as substances, including enzymes and other proteins. They are spread throughout the body of the bee, principally in the roof and on the floor of the abdomen where they appear as masses of white cells. Well fed, winter bees have abundant fat bodies.

One of the principal stored proteins is vitellogenin, and quantities of this are also stored in the hypopharyngeal glands, which remain plump. In the spring, as new larvae need food, all this stored protein is converted into brood food. With their protein reserves depleted, our winter bees become foragers, the aging process starts and they die.

What goes wrong? Disease is the biggest problem. *Varroa* has been shown to change the physiology of the winter bees so that they do not store adequate protein, but the main effect of all adult bee diseases is to shorten the life of the infected bee. *Varroa*, *Deformed Wing Virus* (DWV) and *Nosema*, our 3 main culprits, can have a devastating effect on the colony, killing many of the winter bees before the spring bees can build up sufficient numbers to take over. This leads to the classic situation of colony deaths in February and March. Colonies can also die at this time of year if they run out honey stores, as the increasing population of young bees in the colony puts greater demands on the available stores.

This is all of practical importance to us as beekeepers. The winter bees must be protected by ensuring that they do not suffer from high levels of *Varroa* during their development. This means treating early, as soon as the honey crop can be removed in August, if *Varroa* numbers have not been controlled by husbandry means during the active season.

It may present particular problems for those taking bees to the heather, as any treatment applied after the return of these colonies

will be too late to be effective. They need to go on their travels with low *Varroa* counts. Controlling *Varroa* to keep it below the 1000 mites/colony level will also control the viruses, particularly DWV.

Nosema has to be monitored and controlled during the spring/summer by testing the colonies and getting them onto new comb if necessary. There is no chemical treatment available. Progress can be made by breeding from colonies not showing the disease and removing those queens which are susceptible.

Finally, and very importantly, colonies need good supplies of pollen during the later part of the summer so should be sited where sources are available. (The use of pollen supplements or substitutes is debatable.) There is of course, no excuse for colonies dying of starvation and every effort should be made to supplement stores of honey if necessary in September.

Another excellent article from Celia Davis of Warwickshire BKA

Does good insulation keep *Varroa* numbers down?

My ramblings usually require some trigger to kick them off and this month it was an e-mail from Bill Summers, promoting his Zest hive. It's simple and rather industrial appearance may put some people off, particularly those who prefer their hives to look like hives. However, many of the principles are sound, not least the thermal capacity and insulation of 4" of Thermalite block, which may go some way to matching the insulating properties of bee nests in trees.

It was something else that caught my eye - the e-mail had attached a *Varroa* Extinction Survival Chart, which looked interesting. The author of the chart postulates that in warm weather *Varroa* development is not optimal which could explain why *Varroa* tend to decline in late spring and summer. Once we enter the cooler weather of autumn and bee numbers start to reduce, brood is not maintained at the higher temperature, but sinks down a degree or so, to provide optimal temperature for *Varroa* rearing, explaining why *Varroa* numbers surge.

I decided to investigate the science behind the theory, or rather that which I could access fully on the internet. Groh *et al* (2004) recorded pupa development times at different temperatures between 29°C and 37°C. Above 34.5°C the time for pupal development stays the same, at 10 to 11 days, but below that temperature pupal development gets progressively longer. Dropping the temperature to 33.5°C extends pupal development by a day and at 32°C by 2 to 3 days. It is not difficult to see how this extra pupal time might extend the growing period for *Varroa* enough to generate an extra viable daughter or two per cycle. Le Conte *et al* in 1990 showed that *Varroa* are most prolific between 32.5°C and 33.5°C, which would correspond not only with longer worker brood times but fits in with the temperature of drone brood at the nest periphery. Studies of temperature in beehives suggest temperature is maintained at between 32°C and 36°C, although the optimum varies between authors, possibly reflecting the need to calibrate heat sensors accurately or a genuine variation between different bees in different countries, or at different ambient temperatures. In hot weather the brood temperature may drift up slightly before the bees take action to cool it, while in cold weather, it may drift down before bees start warming the brood. The differences may be greater in the outer area of brood where slightly lower temperatures may attract *Varroa*.

Temperature may not be the only reason. The better insulation of the Zest hive allows the bees to maintain not only a higher temperature but also higher humidity. Water vapour does

not condense if the walls are as warm as the air. Condensation on cold hive walls makes the hive act as a dehumidifier, resulting in lower humidity inside the hive. Kraus and Velthuis 1997 looked at two humidity ranges 59% - 68% RH and 79% - 85% RH and found that while 59% of mites produced offspring at the lower humidity, only 2% did so at the higher humidity. Putting the research together, laboratory studies suggest that *Varroa* reproduce better at the lower end of the brood temperature range and at normal humidity. A detailed study by Ellis on *A. mellifera scutellata* in hives, suggested humidity was largely under control of the bees and typical ranges were 50% - 60% RH in *A.m. scutellata* in South Africa and *A.m.m.* and *A.m.* Buckfast tested in Denmark, but that local South African nests in trees had higher humidity at 60% - 70%. Does the better insulation of the Zest hive allow bees to maintain higher temperatures and humidity helping to control *Varroa*? Derek Mitchell (2015) suggests that enclosure wall temperature limits the maximum humidity since it acts to condense the water vapour from the air. Effective insulation would thus allow higher brood humidity to be maintained than has hitherto been measured in beehives and hence could reach the 80% said by Kraus and Velthuis, to inhibit *Varroa* development. Such a hypothesis deserves further scrutiny by the scientific community.

Just to add to the debate, a recent study, by Hou et al, which was done in hives, found that brood temperatures were higher in colonies with heavy *Varroa* infestations. They found normal low *Varroa* colonies had a brood temperature of around 33 °C, which the authors state as being their optimal temperature, while high *Varroa* colonies were at around 34.7 °C. The primary aim of the study was the use of temperature monitoring as a means of identifying the presence of high *Varroa* to indicate the need for treatment. Interpretation of their results could include increased metabolic activity in the brood cells due to the presence of the parasite or maybe the bees actively raised the brood temperature in an attempt to defeat the developing mites, much as our body temperature rises when we have an infection. Could this be yet another defence mechanism to put alongside *Varroa* sensitive hygiene and grooming? There is clearly much more to be learnt from further studies on brood, *Varroa*, temperature and humidity, but I am not waiting and have gone ahead with full insulation inside some my WBCs, to see if it has an effect on *Varroa* numbers this autumn. *Jim Norfolk, Chairman West Sussex Beekeepers*
References appeared in the original. They were omitted for lack of space but are available from The Editor of this newsletter.

Varroa mites lurk on flowers

Varroa mites move horizontally between colonies via robber bees and drift. In a new paper published in [PLoS](#), David Peck, Michael Smith, and Tom Seeley show that mites also have the acrobatic wherewithal to climb from a flower onto a forager. "As the mites lack eyes and likely rely on their chemosensory forelegs to detect potential hosts, we began this study with a genuine doubt that a mite on a flower would be capable of the sensory discrimination and rapid acrobatics required to detect and mount a foraging honey bee before it flew away."

But the mites were highly successful, latching onto a host with their forelegs and then rapidly flipping their body upside down to bring the rest of their legs in contact with the host. They climbed successfully onto a bee and clung tight to the forager, despite the grooming efforts of some bees. The mites quickly found safe spots - refugia that made bee grooming efforts quite futile - coming to rest in less than 4 seconds after first contacting the bee.

In an extremely poor area for nectar, the researchers placed cut flowers in plastic cups and then added a bit of sucrose syrup, where the bees would typically find nectar. Then they added a live mite and watched its interactions with the foragers that arrived.

Of 31 mites placed on the glass feeder, 29 infested a bee; the two that did not were blown off the feeder by wind. In 12 of the 29 infestations (40%), the bee immediately groomed herself, but in only 3 instances was the mite successfully dislodged. Consequently, 26 of the 31 mites (84%) left the feeder attached to a bee. Of 43 mites placed on flowers, all 43 infested a bee, and almost every one (41 of 43) left the flower on the bee it had infested. One mite fell off its forager, and one was groomed off. The average time taken by a mite placed on a flower to infest a foraging bee was 119 bee-seconds. The most rapid infestation from a flower took only 2 bee-seconds, while the longest took 840 bee-seconds.

The authors note that live mites have been shipped across national borders in flowers, suggesting a potential route for accidental mite importations. Read the full paper "[Varroa destructor Mites Can Nimbly Climb from Flowers onto Foraging Honey Bees.](#)"

A new anti-Varroa treatment

Many will remember BeeVital's *Hive Clean*, quite a popular anti-*Varroa* treatment. As it never achieved regulatory approval, it had eventually to be taken off the market.

The Austrian company has now produced *Varromed* and this has gained approval for use in every EU country. It may be applied at any time of the year and, just like *Hive Clean*, it has a zero day withdrawal period.

A new honey bee virus

Collaboration between the Earlham Institute in Norfolk and the Marine Biological Association in Plymouth has identified a new honey bee virus. It was found in the Hawaiian island of Moku, so has been named Moku Virus.

The study has highlighted the importance of monitoring invasive species for broad-range viruses as well as the potential for transmission of these pathogens. Dr Declan Schroeder, Head of the Virus Ecology Group at the MBA explains: "The true significance of this discovery lies in the potential ramifications that a new biological invasion could cause. Could we be seeing history repeating itself? Similar to the Spanish invasion of the Inca and Aztec empires in the sixteenth and seventeenth centuries, it was the smallpox and measles viruses that inflicted the most damage on the individuals of these populous nations. Here we are seeing an invasive wasp bringing in a new virus to honey bees."

Viruses Can Change a Plant's Scent

A study led by Corpus Fellow Dr John Carr finds that certain plant viruses can change the scent of their host plant in order to attract bees. One example is cucumber mosaic virus. The virus is effectively paying its host back by changing the plant's scent; this indirectly manipulates bee behaviour to improve the pollination of infected plants. This may also benefit the virus: helping to spread the pollen of plants susceptible to infection and, in doing so, inhibiting the chance of virus-resistant plant strains emerging.

The authors of the study, published in the [journal PLOS Pathogens](#), say that understanding the smells that attract bees, and reproducing these artificially by using similar chemical blends, may enable growers to protect or even enhance yields of bee-pollinated crops.

Viruses quickly shift hosts

Honey bees have the potential to spread viruses to wild bees. Research has shown that numerous honey bee viruses show up in wild bee populations, especially in bumble bees. But how wide spread is the transmission? And are the viruses replicating in these other hosts?

A team at the University of Iowa looked for 5 different honey bee viruses in 15 different wild bee species they captured at their prairie field sites. Overall 80.4% of all the non honey bees collected carried at least one honey bee virus, most commonly Deformed Wing Virus and Sacbrood Virus. Looking at the amount of virus in each bee, they found that the viruses appear to replicate poorly in the wild bees, existing at much lower levels.

To see how the honey bee viruses affected solitary bees, they mixed up a viral cocktail at a dose strong enough to kill honey bees. When fed to alfalfa leafcutter bees and the mining bee *Colletes inaequalis*, it had no impact on mortality. The authors caution that viruses can evolve quickly in new hosts and may prove virulent in the future. Check out the full open access paper at [PLoS](https://doi.org/10.1371/journal.plosone.0158888).



Many different bees visit the same flower, and have the potential to share more than nectar and pollen.

New Honey Bee Pest Confirmed in U.S.



Dorsal view: Adult Australian sap beetle (*Brachyepelus basalis*) on the left and adult Small Hive Beetle (*Aethina tumida*) on the right.

A new honey bee pest, the Australian sap beetle, has been confirmed in the western United States. It is the Australian Sap Beetle *Brachyepelus basalis* Erichson:

In 2015 the California Department of Food and Agriculture published a pest rating proposal for this beetle which had been discovered in beehives in four California counties, the earliest discovery taking place in 2010. This report observed that the beetle had not been collected outside of beehives. In 2015 and 2016 the beetle was identified infesting stored bee equipment in two separate Oregon beekeeping operations. The 2015 sighting constitutes the first record of a *B. basalis* infestation (in bee boxes

with frames stored outside) in Oregon. The findings continued in 2016.

The People's Community Garden

The PCG provides access to green space and a diverse range of activities for volunteers - among whom are many marginalised groups: the Papworth Trust, offenders, the disabled, those recovering from long-term health or mental health issues, as well as school children, scout groups, and general well-wishers and supporters. Among the many projects that ActivLives (<http://activlives.org.uk/>) runs is a small apiary at Maidenhall, Ipswich. This provides an opportunity for weekly hands-on experience. Regular beekeeping mentors are also very much welcomed. If you think you could help, contact betsyr@talk21.com or 01473 736506.

Bees Don't See Windows

Bees' vision is different to ours and is biased towards the ultraviolet end of the spectrum. As a consequence, looking at a window from the outside in, what the bees see is a dark area worth exploring. Unfortunately, this is when they will bump against or bash into the window. But they survive the strike

Honey bees fly quite fast for their size; their speed is generally around 11-24 km/h (6-15 mph), faster than bumblebees but much slower than most birds. But the main factor that protects them from damage when they bash into solid objects is their very low mass. Kinetic energy is equal to half the mass multiplied by the velocity squared. For an insect that weighs less than 100 mg, this comes to less than a millijoule of energy. This is the same as the energy an adult human male would have at a practically immobile speed of 3 mm per sec.

Just before it rains, bees are extra busy

The research, which involved attaching RF trackers to three-hundred individual honeybees to track their movements and behaviour, suggests bees are very good at detecting atmospheric changes, such as that of temperature, pressure, and humidity that often come along just before changes in weather are likely to occur.

Just before a rainy day, honeybees were found to spend more time flying around outside the hive, looking for nectar and pollinating plants, but on days following rainfall, when it would be perfectly sunny outside, bees were a bit lazier and stayed around at the hive longer.



On sunnier days, honey bees would spend less time outside the hive foraging, and would return to the hive at earlier than they would on days just before it rained.

This behaviour also suggests honey bees are excellent preparers and know when to take advantage of flowers and food-gathering before rain makes that difficult. While it is raining they also use the time they have to process the resources they have just collected. In these ways, even when a long period of bad weather is due, honey bees try to ensure their survival.

Source: [Insect Science](https://doi.org/10.1093/ise/iaa001) via [New Scientist](https://doi.org/10.1093/ise/iaa001)

Relishing faeces

We humans are unusual in our aversion to faeces but, in some circumstances, they can be good for us. Many other animals practise coprophagy, dogs are noted for it, and will gladly eat each other's dung. It turns out that this is done to acquire beneficial gut microbes. In this way, bumblebees and termites spread bacteria that act as a colony-wide immune system to defend against parasites and pathogens.

This is just one aspect of the many values of beneficial bacteria described in an excellent book "*I Contain Multitudes*" by Ed Yong; I wholeheartedly recommend it.

The Bees' Hunt for Pollen

Bees use a variety of senses and their memory of previous experiences when deciding where to forage for pollen. The researchers believe pollen-collecting bees do not base their foraging decisions on taste alone, but instead make an "overall sensory assessment" of the pollen from a particular flower.



When they collect it from flowers, bees typically do not eat pollen, but carry it back to the nest in the "baskets" on their legs or hairs on their body. So it difficult to understand how bees judge whether the pollen a flower produces is nutritious enough for their young. Indeed, researchers have been puzzled for a long time as to what exactly bees look for when they collect pollen from flowers.

Co-author, Dr Natalie Hempel de Ibarra, expert in insect neuroethology at Exeter's Centre for Research in Animal Behaviour, said: "It seems that bees don't just respond to a single nutritional compound in pollen, such as crude protein content, but to a range of sensory cues in pollen and flowers. "They also form memories for locations and types of flowers that they have visited which affect their foraging decisions. "We need more research that considers the behaviour and neurobiology of bees to understand when and why they prefer some plants and some pollen over others. "A breakthrough in this area could advance our efforts in both biodiversity conservation and crop production."

The review, published in the journal *Functional Ecology*, examines existing evidence on how bees use their senses, previous experience and - in the case of social bees - feedback from the nest to decide where to gather pollen. First author Dr Elizabeth Nicholls, a former PhD student at the University of Exeter and now a Postdoctoral Research Fellow at the University of Sussex, said: "Our review is unique in considering pollen foraging from an individual bee's perspective, asking which senses bees use to decide which flowers are worth visiting. "In our review we suggest that although bees may taste pollen during collection and use this nutritional information to guide their choices, they are also likely to pay attention to the strong odour and visual appearance of both pollen and the flower itself. "For bees that live together in colonies, information passed on from the other bees in the nest, either via chemical cues or even special 'dances', may also be important in influencing their pollen-collecting behaviour."

New Magazine for 'natural' beekeepers

In November Northern Bee Books published the first ever magazine for the growing number of 'natural' beekeepers - *Natural Bee Husbandry*. They say: "The subscription will be £20 per year. Subscriptions may be entered at www.naturalbee.buzz or by email giving your name and address to jerry@northernbeebooks.co.uk; you will be billed later."

No Smoker? Use a Mongoose!

Maasai tribesmen and women have been forced to switch production from cattle to beekeeping due to massive drought in Africa. Some tribes have opted for starvation rather than change from their ancestral cattle herding nature. Originally the Maasai had no bee suits so they would tend the hives early in the morning naked. They have since used profits to buy bee suits which, in turn, increased production. They have been selling honey locally and are expanding to the capital. The biggest threat to the hives has been the mongoose. The tribesmen say the mongoose climbs the trees and farts on the hive and the foul smell drives away the bees so they can eat the honey. From Beemaster for Sep 16

Honey, Wax, Propolis, Royal Jelly and . . . Dung?

Digested pollen needs to be excreted. Bee excretion means releasing a few drops of pale yellow coloured fluid resembling a water drop. It is referred to as bee dung. The bees normally use an area within a radius of 10-30 metres of the colony as a toilet zone. It is estimated that an average colony produces as much as 45-50 kg of bee dung a year, neatly deposited around the hive as highly nitrogenous manure. When it rains, this dung gets washed into the soil, breaks down and provides an excellent natural fertilizer.

The Hindu via Stratford on Avon BKA

Toxic Foundation!

If fake and contaminated honey wasn't enough to contend with, a new threat has come along to haunt us. Foundation wax made using paraffin wax, stearin and colourants is on the market and is mainly being sold online through auction sites and the like. What is wrong with using it? Unfortunately some of the ingredients are toxic to the younger larvae. The queen will apparently keep on laying and laying. The eggs will hatch, but most of the larvae succumb, leading to a 'pepperpot' brood pattern. So beware! This 'fake' foundation tends to be more yellow in colour than natural beeswax foundation, and the stearin variety is much more pliable than beeswax. *Courtesy of Somerton & District BKA via ebees*

Biocide-Free Paint

I have sourced some biocide-free paint that can be used on beehives. It's called Country Colour by a company called OSMO. They do some good colours and the hives I painted last year still look fantastic. Penny Robertson, Leiston BKA

We welcome our new members

They are: Sally Carr, Jim Clarke, Barry Crabtree, Tim Daly, Sally Hepher, John Lee, Hazel Lee, Ben Lincoln, Ruth Lincoln, Anthony Mason, Celia Mason, Kim Meredew, David Moore, Sammy Page, Richard Pennie, James Reed, Samantha Reed, Ross Russell, Simon Sturgis, Joyce Taylor, Stephen Taylor and Caroline Wheeler (who renews).

Finding a queen!

Why bother?

Most of the time when you inspect, there is no need to see her.

If you have sealed worker brood then 10 to 20 days ago you had a mated queen laying fertilised eggs that have developed into females. If you can see larvae, then the queen was present 3 to 10 days ago.

With eggs, the queen was present 0 to 3 days ago.

With routine inspections, you do not need to see her majesty- just the evidence that she is in the colony.

However:

If you find queen cells and want to make an artificial swarm you must find the queen; she goes into the 'swarm' - the colony on the original site with one frame of brood without a queen cell and the supers go on top. Flying bees come back to the original site so you have a 'swarm'.

If you have a real swarm:

A prime swarm may have eggs in a few days because you have a previously mated queen - with luck she might even be marked.

A cast or second swarm MUST have a virgin which might not start egg laying for five weeks.

But how do you find her?

Today I went through four small colonies and saw only one queen but I bet that there are at least three queens in the hives.

Tomorrow I am having my eyes tested. Put on your reading glasses if you have them.

Look at the hive entrance - with a laying queen, workers work enthusiastically and bring in pollen (protein) for their larvae and nurse bees. Colonies with no queen, or queens that have not started to lay, are apathetic.

Use the minimum of smoke or none at all so the bees remain in situ on the comb without panicking and chasing around.

Look for polished cells; the queen lays eggs in polished cells and workers prepare them for the onset of egg laying.

Look for eggs - a small LED torch from £1 shops is useful. If the eggs have just been laid, the egg frame is often the most likely one to find the queen.

When you lift a frame out, look at the dark side first - the side next to other frames.

Scan the frame and look for a different coloured bee. Don't ask me why but the queen is often a different colour to her workers.

If you have a cluster of bees on frame, stroke it with your finger - she may be underneath.

Queens have red legs.

The top of the queen's thorax is a different shape to that of a worker's.

Young queens scurry about - focus in on fast moving bees.

If you still cannot see her, go and have a break, then try again.

When/if you do spot her, mark her - it saves time and, if you keep records, you can then know how old your queen is.

Finally:

I find it hardest to see black queens with black bees. Yellow Italians stand out best.

John Everett

Buglife's B-Lines Network

We are interested in hearing from everyone, whether you are a school creating a bee-friendly garden, a landowner creating a



wildflower meadow, a local authority developing bee-friendly flower-beds, or a business planting wildflowers in its grounds. [See how you can get involved.](#)

All of these activities, along with many more can help make stepping stones of habitat which will aid movement of insect pollinators around the B-Lines network.

For more information about how Buglife and our partners are taking action to create the B-Lines on our B-Lines project pages. Then why not try and help us fill in some of the gaps by taking action yourself or persuading others to do so? - [See how you can get involved.](#) We have not mapped the B-Lines in every area, but will be trying to do so in the future. In the meantime why not try and persuade your local council or biodiversity partnership to get involved. They can contact us for guidance or information.

- See more at: <https://www.buglife.org.uk/campaigns-and-our-work/habitat-projects/helping-create-b-lines#sthash.AbLtgPwu.dpuf>

Flower Smells Like a Bee Under Attack

A new discovery takes plants' deception of their pollinators to a whole new level. Researchers reporting in *Current Biology* on October 6 found that the ornamental plant popularly known as Giant *Ceropegia* fools certain freeloading flies into pollinating it by mimicking the scent of honeybees under attack. The flies find that smell attractive because they typically dine on the drippings of honeybees that are in the clutches of a spider or other predatory insect.

"These flowers have a complex morphology, including trapping structures to catch pollinators, temporarily trap, and finally release them," says Stefan Dötterl of the University of Salzburg in Austria. "We show that trap flowers of this plant mimic alarm substances of western honey bees to lure food-stealing flies as pollinators. Flies are attracted to the flowers, expecting a meal, but instead of finding an attacked honeybee, they are temporarily trapped in the non-rewarding flowers and misused as pollinators."

About four to six percent of plants, including the fly-pollinated genus *Ceropegia*, are pollinated by deceit. They engage in false advertising by appearing to offer a reward, such as pollen or nectar, a mating partner, or an egg-laying site. The new study is among the first to describe a plant that achieves pollination by mimicking the scent of an adult carnivorous animal's dinner.

Study co-authors Annemarie Heiduk and Ulrich Meve from the University of Bayreuth in Germany became curious when they realized that the flies pollinating *Ceropegia sandersonii* were *Desmometopa*. The flies are known as kleptoparasites, commonly feeding on honeybees eaten by spiders.

"We asked ourselves how the flies might find such honeybees," Dötterl says.

When observing a honeybee caught by a spider, they noticed that the bee extrudes its sting and releases a drop of venom. The bees' venom contains volatile alarm pheromones, which serve to call and attract nest mates for help. They wondered whether the plant might be taking advantage of this kairomone.

Preliminary experiments showed that honeybees under simulated attack are highly attractive to the flies. In the new study, the researchers show that the floral scent of *C. sandersonii* is indeed comparable to volatiles released from honeybees when under simulated attack. Some of those shared compounds also elicit a response in the antennae of pollinating *Desmometopa* flies and are strong attractants for these insects. The evidence is clear: an unusual blend of compounds emitted by *C. sandersonii* lures kleptoparasitic flies into the plants' trap flowers.



A honey bee eaten by a spider and food-stealing kleptoparasitic flies. A drop of venom is visible at the tip of the sting

Honey and Coconut Biscuits

85 g Margarine
85 g Brown Sugar
105 g Honey
170 g Self-raising Flour
1 tbs Desiccated Coconut
¼ tsp Bicarbonate of Soda

Sift together the flour and bicarbonate of soda. Rub in the margarine until the mixture resembles bread crumbs.

Stir in the sugar and desiccated coconut and work the dough together.

Shape the mixture into evenly sized balls about the size of a walnut and place fairly well apart on a baking tray.

Cook at 200°C for 7 – 10 minutes.

Allow to cool on the tray for 1 minute before transferring to a wire rack.

The Teaching Apiary

On Sunday afternoons this summer bee-suited figures could be seen near the corner of Humber Doucy Lane and Tuddenham Road, disappearing through an unobtrusive gateway into a secluded field hidden by trees.

Here were the hives of The I&ES BKA teaching Apiary: six Association hives and several members' hives and each week an experienced member of the Association talked the group through a different topic, usually illustrated with the relevant equipment. Examples: taking swarms, making nucs, setting up an observation hive, uniting colonies.

After the talk, there was the opportunity to inspect the hives and in this way to see things that might not have cropped up in our own hives, or to clarify things which had.

Bees have a sense of humour. Although there were a couple of swarms, they were not there on swarm-taking day and we did unite two hives but they didn't give us the opportunity on hive-uniting day. It was slight reassuring to at least one beginner that even the experts could be briefly nonplussed at some of the things that were going on in the hives – surely practical jokes.

Thanks are very much due to those who took the sessions: their names are on the programme (see website) apart from Roy and Terry - who did a great deal of the actual work - and were there every week.

It is hoped to continue the sessions next year if there is support. There really should be: they are of genuine help. Dress code bee-suits (Mr Powell smart casual as usual).

Tim Wilmshurst



I&ES Suffolk Show prize winners

Calendar

Members of the six Associations which form the Suffolk Beekeepers' Association are welcome to attend any or all these meetings. There will be other meetings but details were not available at the time we went to press.

Ipswich & ES BKA winter meetings are held in the Scout Hall, Kesgrave IP5 1JF from 7:30pm.		
Wed 25 Jan	Dale Gibson: "Bees Can't Eat Kind Words" - Beekeeping in London	Ipswich & ES Malcolm Marchant
Sun 29 Jan	Roger Patterson <i>Bee Improvement for All</i> £12.50 Marks Tey Parish Hall, CO6 1EJ.	Colchester BKA Contact
Wed 22 Feb	AGM followed by talks on the Asian Hornet & other matters.	Ipswich & ES Malcolm Marchant
Mon 27 Feb	An Introduction to Beekeeping Dallinghoo Jubilee Hall (See Booking form and details)	Ipswich & ES Jeremy Quinlan 01473 737700
Thu 9 Mar	Suffolk Beekeepers' AGM Community Centre, Hillside, Stowmarket IP14 2BD 7:30pm	Suffolk BKA Ian McQueen 01473 420187
Sat 11 Mar	Cambridge BKA One Day Meeting: "Threats to Bees and Other Pollinators"	David Abson details
Wed 22 Mar	Mark Patterson: Gardening for pollinators (see page 2)	Ipswich & ES Malcolm Marchant
Sat 25 Mar	Best Practice Day at Stowmarket 9:30-4:00. Four presentations Essential to book (See page 2)	SBKA contact
Sun 2 Apr	Essex BKA: Ted Hooper Memorial Talk at Mark's Tey	www.ebka.org
Fri 7-Sun 9 Apr	BBKA Convention, Harper Adams University, Newport, TF10 8NB	Spring Convention
Sun 23 Apr	Bee Health Day 9:30-4:00 Dallinghoo Jubilee Hall Booking essential. (See page 2)	Ipswich & ES Jeremy Quinlan 01473 737700
Wed 26 Apr	Richard Ridler: Bees Abroad: Modern African Beekeeping & The Relief of Poverty (See page 2)	Ipswich & ES Malcolm Marchant
Sun 30 Apr 2:00pm	Weekly apiary training sessions begin every Sunday. Please book - it helps us to plan.	See link .

Asian Hornets for lunch?

Breton Farmer Christophe Bitauld has discovered a new weapon in the fight against Asian hornets, his hens.

Last year he lost hives to the hornets. This year he saw his hens, the omnivore Poulenc noir de Janze, a breed known to climb trees to search out food, were catching the hovering hornets outside the hives. They were biting off the heads and eating them. Now he has a mobile henhouse to take them to nearby farms.

Perhaps Guinea fowl would do the same?

<http://www.bretagne-bretons.fr/poule-janze-frelons-asiatiques/>
With many thanks to John Nayler

Winter evening entertainment at home

<https://www.honeyshow.co.uk/lecture-videos.php>
<https://youtu.be/mTPPnXDljIY>