LUNE VALLEY COMMUNITY BEEKEEPERS

NEWSLETTER DECEMBER 2019

Bees on Earth; Goodwill to All

Seasons greetings and best wishes for a successful 2020 from the Trustees of LVCB.

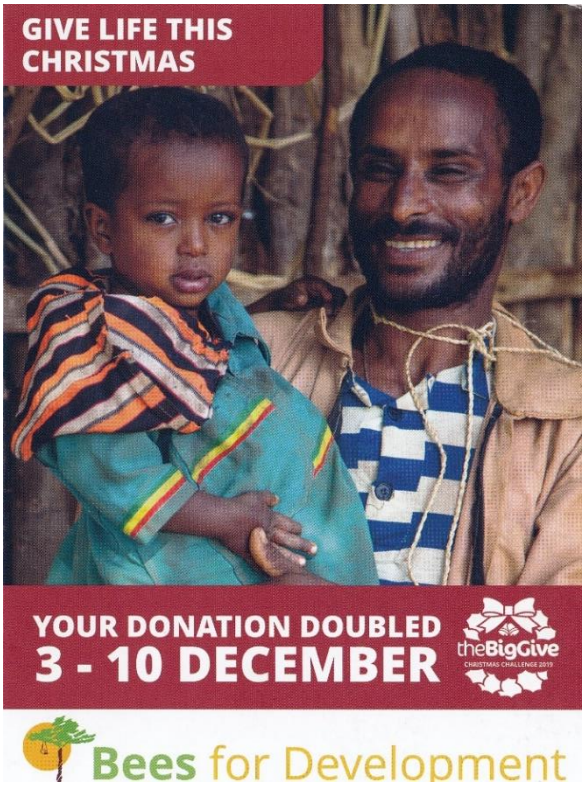
November activities

Club meeting

At our meeting on 13th November, Bob Spencer, a Trustee of **Bees for Development**, gave a fascinating talk on the work of this international organisation that promotes sustainable beekeeping to combat poverty and to build sustainable, resilient livelihoods. Bob showed us a range of examples, supported by video clips of actual beekeepers, of how the organisation supports beekeepers to maintain environments that are good for local bees, for biodiversity, and for the local people. He explained that Bees for Development always works with local partners on community-based projects to ensure that projects are sustainable.

Making bee hives from bamboo in Ethiopia

Detail of Bees for Development's Christmas appeal are shown below.



Managing woodland for pollinators

Despite the interest shown earlier this year, due to insufficient members registering, this event had to be cancelled.

Nucleus Group

The 2020 Nucleus Group met on Saturday, 23rd November, to build their correx nucleus hives and the frames and foundation to go in them. Building correx nuc boxes was a new experience for everyone but the task was completed successfully.

December meeting

Wednesday. 11th December, **Scarthwaite Hotel starting at 7-30pm**
Topic: Obtaining bees and splitting colonies **Speaker: Fred Ayres**

Fred will explain the various ways of obtaining bees, together with their advantages and disadvantages, and then explain several techniques for increasing your number of colonies. We shall also discuss the possibility of a Club initiative to breed bees on a collective basis for those who wish to take part.

This meeting should be of particular interest to newer members planning to obtain their first bees or begin expanding their colonies.

Special thanks

A number of club members worked very hard during the year to ensure that the club and the apiary continued to develop and grow. Your efforts are greatly welcomed and appreciated.

A number of other people and organisations who are not members of the Club, also made significant contributions and we should like to express and record our enormous appreciation for the help and support they provide.

Nazareth House

We are particularly grateful to the Sisters and staff of Nazareth House who permit us to use their conservatory as a temporary club house and cheerfully loan us tables, chairs and other equipment for special occasions such as our annual Open Day.

Community Payback Team

Community Payback is a punishment which requires offenders to pay back the community for the offenses they have committed. They have to carry out demanding unpaid work as a sentence from the courts for between 40-300 hours. Over the last year, Community Payback Teams have made a major contribution to on-going maintenance of our Apiary grounds to ensure that they are both well managed and safe.

Urban Attic

URBAN ATTIC

Urban Attic, based in Lancaster, are the professional web design and marketing experts who create and maintain our web site and who cheerfully sort out all the problems associated with emailing the newsletter out to members. As one of the charities they support, they provide their services to us at a significant and very supportive discount.

Skelton Trust

The Skelton Trust supports registered charities from within Lancashire, Greater Manchester and Merseyside, particularly favouring:

- Equipment for organisations supporting the elderly and people with disability and for youth groups,
- Holidays for disadvantaged children and carers.

The Trust provided us with a grant of £1000 which enabled us to complete the disabled access path to our training apiary.

Morecambe Carnival

Ian Hughes is a qualified environmental consultant and managing director of Oakstone Consulting based in Morecambe. Ian also organised the Wildflowers and Hedgerows theme of this year's Morecambe Festival, and donated the funds raised to the Club, to improve the woodland wildflower planting at the apiary.

Out apiary site

The excellent out apiary site near Tatham in the Lune Valley is still available. If anyone is interested, please give me a call.

Lancaster Youth Challenge 2020

If you would like to help with either of the two projects sent out in last month's newsletter, please let me know as soon as possible. The Woodland Management project is due to start in January.

Club activities programme for the remainder of 2019-2020

2020

Wed 8th Jan — **Social Event** — **Scarthwaite Hotel, 7-30pm**

The evening will start with wine and cheese followed by another opportunity to see *"More than Honey",* a remarkable documentary film made in 2013 by the Swiss filmmaker Marcus Imhoof, which looks into the fascinating world of bees, and showing small family beekeepers and industrialised honey farms. *"More than Honey"* is a film on the relationship between mankind and honey bees, about nature and about our future. It is well worth watching.

Wed 12th Feb — **Speaker Meeting** — **Scarthwaite Hotel, 7-30pm**

Topic: The Woodland Trust — **Speaker: Paul Littlewood**

Paul will explain the work of the Woodland Trust and provide advice on how we should manage the woodland at our Club apiary.

Wed 11th Mar — **Speaker Meeting** — **Scarthwaite Hotel, 7-30pm**

Topic: Thermoregulation in the hive — **Speaker: Keith Bartlem**

Keith is an airline pilot, and experienced beekeeper. His talk will help to improve our understanding of how, why, and when bees monitor and alter the hive temperature and is particularly relevant in our usage of insulated hives.

BIBBA 2020 Conference cancelled

Unfortunately the BIBBA conference to be held in Chesterfield on 15th and 16th February 2020 has had to be cancelled. The person organising the publicity was the victim of a random and unprovoked road rage attack. This left him unable to perform this task, as such, we were unable to fully publicise the event in reasonable time. He is recovering slowly and we hope he will be able to resume publicity duties soon. BIBBA sincerely apologises to all who were looking forward to the 2020 conference and looks forward to seeing you all at the 2021 conference.

The Lune Valley Long Hive

An innovative but simple long hive

Only £325

Only obtainable from Lune Valley Community Beekeepers

Essential features:

- Designed by bee-centric beekeepers for bee-centric beekeepers
- Comfortably houses one colony of bees without the need for additional supers or brood boxes
- Has a hinged roof to avoid the need for heavy lifting
- Can be managed by a person in a wheelchair
- Can be used with 14 x 12 frames (recommended), standard brood frames or top bars
- Has a removable floor tray which can act as a biological sump or a debris board for varroa counts
- Has 2" thick wooden walls which provide five times more insulation than a standard hive
- Roof space is ventilated and has space for a jumbo feeder
- Has a metal roof
- Is manufactured locally, especially for LVCB
- Is constructed from pine wood to reduce the cost but will need an external preservative or coat of paint
- External measurements: L 86cm, H 77cm, W 52cm
- Despite its high specification, it is economically priced whilst offering exceptional value for money.

Honey bees and alcohol

To most Europeans, the production of alcohol in the form of mead, is intrinsically linked to mediaeval monks and monasteries. (They also produced a fair amount of wine and beer as well!)

However, the earliest archaeological evidence of a honey-derived alcoholic drink comes from Neolithic China where residual traces of a fermented beverage of rice, honey and fruit have been found dating back to as early as the seventh millennium BC.

There is now circumstantial evidence to suggest that the first honey-based alcohol may have been produced in Southern Africa some 100,000 years ago!

Recently published figures suggest that mead, possibly the world's oldest alcoholic drink, has been making a comeback, especially in supermarkets, after winning a strong fan base among younger drinkers in pubs and at beer festivals. It can now be found with numerous different flavourings, such as strawberry or blackcurrant and in sparkling variants.

English Heritage, which claims to be the UK's largest retailer of mead through the gift shops in its 400 historic buildings and monuments as well as online, says it sells a bottle every 10 minutes.

Sales of mead have increased by an average of 10% annually for the past three years, according to English Heritage, and between April 2018 and March 2019 they sold 29,750 bottles.

The Cocktail effect

A new report launched on 1st November 2019 by PAN UK and the Soil Association exposes for the first time how mixtures of pesticides commonly found in UK food, water and soil may be harming the health of both humans and wildlife.

"The Cocktail Effect" reveals around a quarter of all food, and over a third of fruit and vegetables, consumed in the UK contains pesticide cocktails, with some items containing traces of up to 14 different pesticides. It also details evidence of pesticide cocktails in the environment, with mixtures of as many as ten different chemicals found in UK soil and water with the potential to affect wildlife such as birds and bees. The report warns that post-Brexit trade deals could lead to a rise in the number of pesticides authorised for use in the UK and an increase in the level and variety of pesticides permitted in food. Both outcomes would increase the exposure of the public and environment to potentially dangerous pesticide cocktails.

The report makes a number of recommendations to the UK Government, including calling for the introduction of a pesticide reduction target and a system for monitoring the impacts of pesticide cocktails on human health and the environment. It also urges the Government to ensure that post-Brexit trade deals with non-EU countries don't disadvantage British farmers and consumers by allowing an influx of poor-quality food laden with pesticide cocktails.

Someone's got the message!

Darwinian beekeeping

Professor Tom Seeley of Cornell University, USA, is probably the most eminent academic studying honey bees in the world. For some years now he has been promoting an evolutionary approach to apiculture known as Darwinian beekeeping.

Professor Seeley says "Evolution by natural selection is a foundational concept for understanding the biology of honey bees, but it has rarely been used to provide insights into the craft of beekeeping. This is unfortunate because solutions to the problems of beekeeping and bee health may come most rapidly if we are as attuned to the biologist Charles R. Darwin as we are to the Reverend Lorenzo L. Langstroth."

He goes on to list 20 differences between wild honey bees and those kept in conventional hives. Here is a summary of a rather lengthy article.

1. Wild colonies are genetically adapted to their locations whereas managed colonies are not. This often means that colonies may be forced to live where they may be poorly suited.

2. Wild colonies live widely spaced across the landscape whereas managed colonies are crowded into apiaries resulting in greater competition for forage and easier transmission of diseases and parasites.

3. Wild colonies live in relatively small nest cavities whereas managed colonies live in large hives. This difference profoundly changes the ecology of honey bees. Colonies in large hives have the space to store huge honey crops but they also swarm less because they are not as space limited, which weakens natural selection for strong, healthy colonies since fewer colonies reproduce.

4. Wild colonies live within a nest envelope of antimicrobial plant resin (propolis) whereas this is removed from managed colonies. Living without a propolis envelope increases the cost of colony defence against pathogens.

5. Wild colonies have thick insulating walls around their nest whereas managed colonies are housed in thin walled hives. This creates a difference in the energetic cost of colony thermoregulation, especially in cold climates. The rate of heat loss for a wild colony living in a typical tree cavity is 4-7 times lower than for a managed colony living in a standard wooden hive.

6. Wild colonies live in nests with small, high up entrances whereas managed colonies live in hives with low and large entrances. This difference renders managed colonies more vulnerable to robbing and predation (large entrances are harder to guard), and it may lower their winter survival (low entrances get blocked by snow, preventing cleansing flights).

7. Wild colonies have plentiful drone comb whereas this is often removed or reduced from managed colonies. Inhibiting colonies from rearing drones boosts their honey production and slows reproduction by Varroa but it also hampers natural selection for colony health by preventing the healthiest colonies from passing on their genes (via drones) the most successfully.

8. Wild colonies live with a stable nest organisation whereas the nest organisation of a managed colony is frequently disturbed. Disruptions of nest organisation for beekeeping may hinder

the colony functioning. In nature, honey bee colonies organise their nests with a precise 3-D organisation into a compact brood nest surrounded by pollen stores and honey stored above. Beekeeping practices that modify the nest organisation, such as inserting empty combs to reduce congestion in the brood nest, hamper thermoregulation and may disrupt other aspects of colony functioning such as egg laying by the queen and pollen storage by foragers.

9. Wild colonies experience infrequent relocations whereas many managed colonies are moved frequently. Whenever a colony is moved to a new location, as in migratory beekeeping, the foragers must relearn the landmarks around their hive and must discover new sources of nectar, pollen, and water. One study found that colonies moved overnight to a new location had smaller weight gains in the week following the move relative to control colonies already living in the location.

10. Wild colonies are rarely disturbed compared with managed colonies whose nests are frequently opened, smoked, and manipulated. The weight gains of colonies that were and were not inspected during a honey flow were measured and it was found that colonies that were inspected gained 20-30% less weight than control colonies on the day of the inspections.

11. Wild colonies rarely have to deal with novel diseases. Historically, honey bee colonies dealt only with the parasites and pathogens with whom they had long been in an arms race. Therefore, they had evolved means of surviving with their agents of disease. Managed colonies have to deal with new threats such as *Varroa destructor* from eastern Asia, small hive beetle from sub-Saharan Africa, and chalkbrood fungus and acarine mite from Europe.

12. Wild colonies have diverse homogeneous food sources compared with some managed colonies which are placed in agricultural ecosystems such as huge almond orchards or vast fields of oilseed rape, where they experience low diversity pollen diets and poorer nutrition.

13. Wild colonies have natural diets and are not fed artificial diets such as protein supplements (pollen substitutes) to stimulate colony growth before pollen is available. Although this may stimulate brood rearing, it may also result in workers of poorer quality (Scofield and Mattila 2015).

14. Wild colonies are rarely exposed to novel toxins. The most important new toxins of honey bees are insecticides and fungicides, substances for which the bees have not had time to evolve detoxification mechanisms. Honey bees are now exposed to an ever-increasing list of pesticides and fungicides that can synergise to cause harm to bees.

15. Wild colonies are not treated for diseases. Treating colonies for diseases interferes with the host-parasite arms race between Apis mellifera and its pathogens and parasites. Specifically, natural selection for disease resistance is weakened. Most managed colonies possess little resistance to Varroa mites, whereas wild colonies have evolved strong resistance to these mites. Treating colonies with acaracides and antibiotics may also interfere with the microbiomes of a colony's bees.

16. Wild colonies are not managed as sources of pollen and honey. Colonies managed for honey production are housed in large hives, so they are more productive. However, they are also less apt to reproduce (swarm) so there is less scope for natural selection for healthy colonies.

17. Wild colonies do not suffer losses of beeswax. Removing beeswax from a colony imposes a serious energetic burden. The most energetically burdensome way of harvesting honey is removal of entire combs filled with honey (e.g., cut comb honey and crushed comb honey). It is less burdensome to produce extracted honey since this removes just the cappings wax.

18. Wild colonies are not choosing the larvae used for rearing queens. When day-old larvae are grafted into artificial queen cups during queen rearing, the bees are prevented from choosing which larvae will develop into queens. One study found that in emergency queen rearing the bees do not choose larvae at random and instead favour those of certain patrilines.

19. Wild drones compete fiercely for mating. In bee breeding programs that use artificial insemination, the drones that provide sperm do not have to prove their vigour by competing amongst other drones for mating. This weakens the sexual selection for drones that possess genes for health and strength.

20. Wild drone brood is not removed from colonies for mite control. The practice of removing drone brood from colonies to control Varroa destructor partially castrates colonies and so interferes with natural selection for colonies that are healthy enough to invest heavily in drone production.

Honey bees communicate danger better than any other insect

Honey bees have developed the most sophisticated language for communicating danger in the insect kingdom, allowing them to deliver a warning by buzzing and headbutting their companions at the same time, according to new research.

Asian honey bees use a sliding scale of "vibrational pulses" to warn colleagues that danger lies ahead and the higher the pitch, the greater the threat.

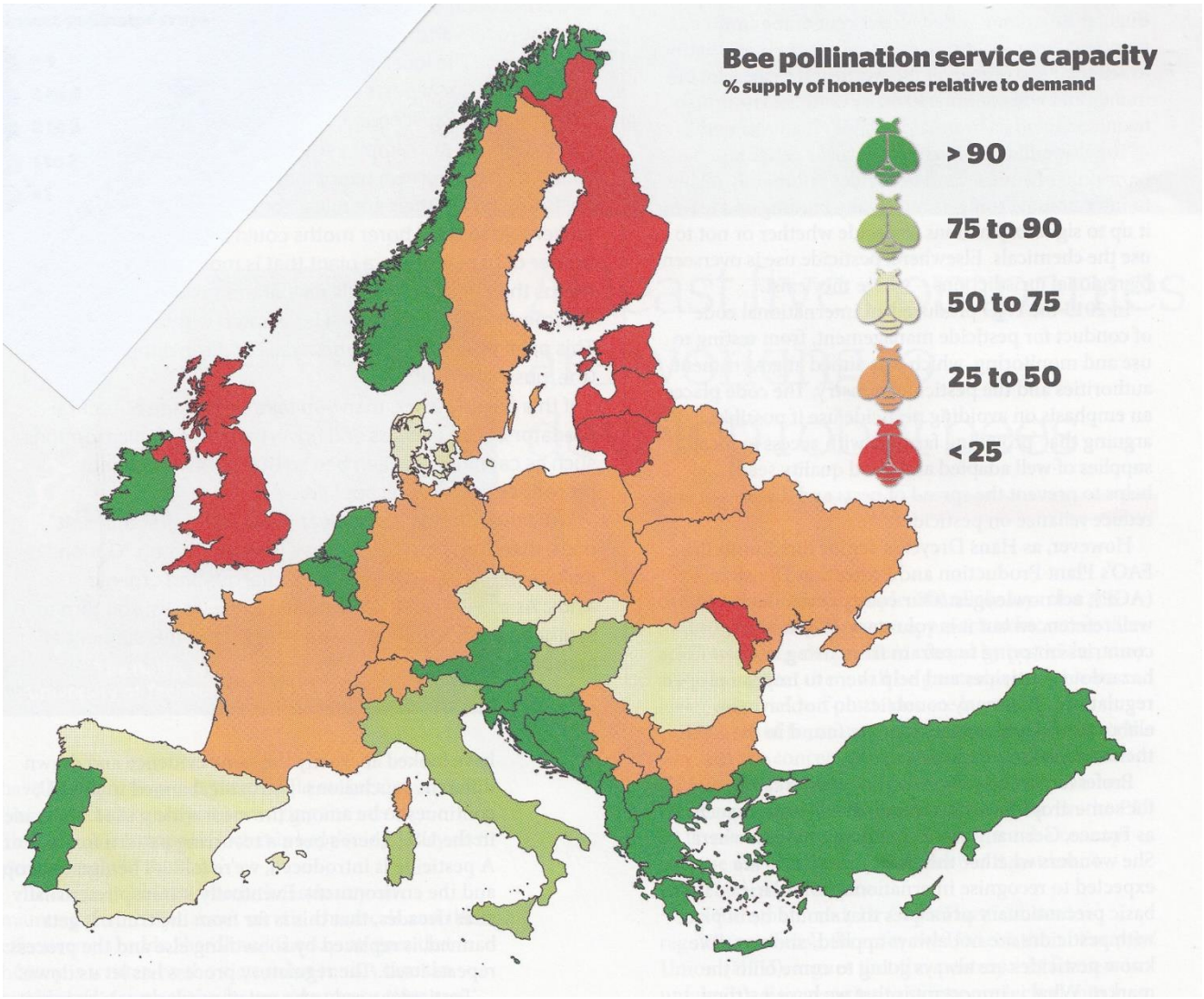
This "stop signal" is typically used to warn fellow bees that a giant Asian hornet or other danger lies around the corner, but it may also be used to deliver other kinds of news, for example to call off the search for a new nest site when a suitable location has been found.

A bee delivers its message by vibrating its wings and repeatedly headbutting other bees. This gives their colleagues directions to food or shelter, instructions they communicate through a sophisticated recruitment "waggle dance". The headbutts are designed to restrain the dance and effectively end the search. "This is the first demonstration of such sophisticated inhibitory signalling or alarm signalling in an insect," said James Nieh, a professor of biology at the University of California, San Diego.

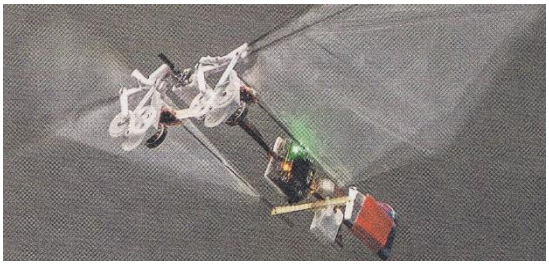
The research was carried out by UC San Diego and the Chinese Academy of Sciences and is published in the journal PLOS Biology.

Frankenbees!

Earlier this year Geographical Magazine carried this diagram which shows the supply of honey bees relative to the demand for their services. As you can see, the UK has less than 25% of the honey bees it needs.



Whilst pesticides such as neonicotinoids are widely blamed for this and consequently banned in many parts of the World, the companies that make them are hard at work developing new pesticides such as sulfoxaflor (Dow Chemicals) and flupyradifurone (Bayer CropScience). Whilst the manufacturers claim that these are not harmful to pollinators, independent research claims that they are.



On a different front, at least five companies are working to develop robot bees which it is claimed can pollinate just as effectively as natural bees.

At the same time it is said that several groups across the world are working to develop "frankenbees", a gene-edited honey bee that is resistant to pesticides.

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