

Introducing the 'Tree Bumblebee' *Bombus hypnorum*

By Clive Hill, Beekeeper

The 'Tree Bumblebee' (*Bombus hypnorum*) is a recent addition to the UK fauna. Despite this, it will already be familiar to many householders and beekeepers in England and Wales, as it can be the cause of phone calls - "Help, there's a Bee-swarm in my Bird-Box !"

B. hypnorum has a natural distribution in Mainland Europe, through Asia and up to the Arctic Circle. It was first found in the UK in 2001, in Wiltshire; but must have arrived from Mainland Europe. It has spread rapidly and is now present in most of England and much of Wales, where it can be very common in late spring to early summer. In 2013 it reached southern Scotland. Much of its rapid spread is probably due to its habit of setting up home in Bird Boxes, which abound in the UK. The Bee Wasps and Ants Recording Society (BWARS) has been busy monitoring its spread (see map below)



Recognition

The common bumblebees can be identified from the colour patterns (banding) of their fur. *B. hypnorum*'s banding is unique amongst the UK species. The thorax is tawny to reddish brown, the abdomen is black and tail is white. Queens, workers and males (drones) all have a similar colour pattern. Drones are chunky, about twice the size of a honey bee, have blunter ends to their abdomens and longer antennae. Fresh drones have a patch of yellowish facial fur, but this wears off with time. Queens vary significantly in size, with a range similar to that of the White-tailed bumblebee, *B. lucorum*. Workers are quite small. Thorax colour is the biggest variable; there are many dark *B. hypnorum* bees, but they always have a white tail. Sometimes bees have very worn fur on the central part of their thorax, which makes it look like they are going bald. This baldness can add to their apparent darkness.

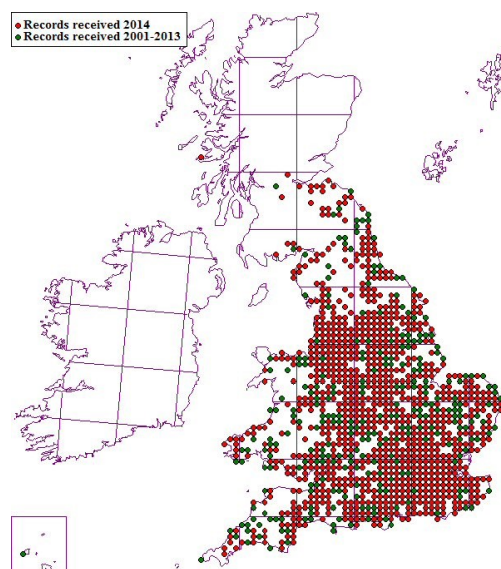
Life cycle

This one of the first bumblebee species to be seen in the spring. In nature it is a 'Woodland Edge' species, but in our human-dominated ecology is frequently associated with man-made structures. Like all bumblebees the Queens do "nest searching flights", looking for somewhere snug to set up home. With this species the flights are usually in March and April and are often along vertical surfaces - unusual amongst bumblebees. I've seen them search along fences, house walls at gutter level, around the eaves; and at bird box entrances.

The species is most likely to be seen from March until July, but does sometimes occur later in the year. The bees are highly active, agile, rapid and effective pollinators. Look out for them working flowers that hang downwards, like Raspberry and Comfrey. You might also see them visiting a wide range of other flowers including Winter Heathers, Pussy Willow, Blackcurrant, Gooseberry, Apple, Cotoneaster, Chives, Rose and Snowberry. They may also be seen working Lime Tree, Fuchsia and Blackberry flowers in later summer.

The queens of this species can be very enterprising in where they choose to set up home. Colonies are usually located well above ground level. Bird-boxes, containing old bird nests are commonly used. Nest-searching queens are even capable of evicting Blue Tits from a nest box, then re-using their nest. Once the colony has grown strong, the front of the nest box can sometimes become coated with yellow splodges of bee faeces. This yellow marking can be a visual indicator of the box's use by *B. hypnorum*. Another indicator is if the entrance has bird-nest material bulging out the hole. Other locations they choose to nest are holes in trees and places high up in buildings, such as soffit boxes, under roof tiles and at house eaves. In such places the bees will use an existing hole to gain access, then walk inside the roof to get to their nest. Roof-space colonies sometimes create their nest directly on the back face of a plasterboard ceiling, using the Rockwool loft insulation to keep the nest snug. Other places are also used for nest location, such as in Compost Heaps; but nests at higher level are more common. A few queens each year even set up home in fluff that has accumulated in Tumble Drier vent pipes !

Once a queen has established her nest, it will be around six weeks before the workers take over the foraging. The smaller workers stay at home and become 'House Bees', the larger ones forage for the colony. It can be four to five months for the colony to go full-cycle and die out. A really strong colony can build up to 300 - 400 bees, maybe more, but most colonies are likely to be smaller. Colonies often die out early, due to attack by caterpillars of *Aphomia sociella* Wax Moth. Strong colonies will rear 'reproductives' which are virgin queens and/or drones.



Drones leave the colony and never return, living a self-sufficient life for many weeks while foraging for themselves and looking for opportunities to mate. Virgin queens will mate, build up in-body food reserves, then find somewhere to hibernate until the following year. A few queens start second cycle colonies which continue into the autumn, but not much is yet known about this.

Flight activity and behaviour causing concern

Some traits of *B. hypnorum* can cause worried calls to Beekeeping Association helplines :-

- Nests are frequently established in Bird-Boxes, or in parts of buildings.
- Apparent high level of nest flight activity due to “Nest Surveillance” by drones - see below.
- Rapid reaction and defensive behaviour when a nest suffers vibration.
- The sound of bee activity heard through a ceiling - which can sometimes cause concern.

Some of the above traits can become “more edgy” because people tend to put bird-boxes close to their homes. The bee activities thus become more obvious to their “human landlords”. However, by the time a colony has become obvious (due to Nest Surveillance, or general activity level) it’s activity will be about to decline naturally. Spring formed colonies usually decline naturally by late July - perhaps sooner.

A “bee-sound/noise issue” might occur if a colony is in loft space above a room. It seems a colony’s “bee-chatter” can occur into “human-anti-social hours”. This is an area where we are still learning about colonies, and how to deal with such issues.

The rate of incoming calls for advice or help to Beekeeper Associations can become overwhelming. My BKA Swarm-line has had 40 calls a day at busy times! Some BKAs consequently try to avoid the issue by declaring that they cannot help with bumblebee issues. I view such a stance as short-sighted. Associations need to use their websites to give advice, so they can concentrate on the very small number of people who need active help. Interestingly, in mainland Europe and Asia, where *B. hypnorum* is an ordinary bee-fauna member, the human population appears not to have so many problems with the species: however, I believe the provision of bird boxes is significantly less in these countries than in the UK.

Bumblebee nest flight activity is very different to honey bees. In the early stages you get a queen foraging a few times a day. Once workers are active one forager flight every few minutes is hardly noticeable. So, it might be two months before bee-flights become noticed. Once drones are about however, with this species their “Nest Surveillance flights” greatly increase the apparent activity at a colony.

Nest Surveillance Flights. This looks like a cloud of bees doing an 'aerial dance' close to the nest's flight point, as in the photo to the right. Such activity catches the eye, draws attention to the colony and can cause public concern. To an untutored eye it looks like honey bee colony flight: but honey bees wouldn't choose a bird-box (it's too small) and the bees look too big. The behaviour, known technically as 'Nest Surveillance' is a mating-preparation characteristic of *B. hypnorum*. The 'cloud' bees are drones, about twice the size of honey bees, noticeably furry and they have white tails - take a photo and look. This activity happens mainly in May / June / July. It can occur over most daylight hours and may last several weeks. There might be one bee doing it, or 20+. Warm temperatures and sunshine increase the number of bees, cool damp weather, or rain, reduces numbers. It stops at dusk and starts a bit after dawn. Bees also join / leave the cloud as they move from nest to nest: they are probably following a 'patrol route'. If you look at slow motion film of the activity, the drones are facing towards the nest. When such 'dancing' is going on, a few bees fly directly to/from the colony straight through the cloud - these are workers and are usually smaller than the drones. Occasionally drones dart towards each other and fall out of the air with an audible bang - erroneous mating activity. Finally, if the colony has produced virgin queens, when these fly, drones attempt to mate. It looks like fighting. Paired bees fall to the ground, where they can remain coupled a considerable time.



Defensive behaviour due to nest vibration. This occurs with colonies in bird boxes when the box is fixed on a surface subject to vibration and the colony is strong enough to defend itself. The bees react strongly to the vibration and can sting people nearby whenever the vibration occurs. Examples: a shed door being used; a shed used as a workshop, where carpentry, or re-potting work is done, so that knocks and bangs occur. In bad cases the bees can 'boil out of the nest' which is highly intimidating - especially if you hadn't realised the colony was there!

Beekeeper help

Discussing and solving issues due to *B. hypnorum* can be an excellent source of 'brownie points' and grateful financial donations for a Beekeeper's Association. If your association is a Registered Charity, try to get donations Gift Aided. It may be necessary to move the nest (for example if someone has been stung). See the advice on nest moving on the next page.

If the person is just concerned because of the drone clouds, I educate the caller to enjoy the spectacle and feel honoured to be a "Bee Landlord". Unless they fiddle with the nest, they should be perfectly safe.

Moving Colonies in a Nest-box.

It is important to emphasise that it is best not to move bumblebee nests. It should only be done where there is a strong case for doing so.

Wait for any flying bees to return home - late dusk, they fly noticeably later than honey bees. Work in the dark wearing bee-gear. Beware - you might get stung, but bumblebee stings are un-barbed, so you only get a small dose of venom. Use red light from a cycle rear-light - so you can see what you are doing, but the bees (who don't see red) can't see what's going on. Quickly stop up the nest-box entrance. (I use a roll of Scotchbrite scouring pad, because it is very air-porous; but flexible foam also works OK.) Lift the box from its hook. Check for, and quickly tape over any gaps bees could get through. Keep the box upright. Now there are two options:



Re-locating Close-by: Re-locate the nest box onto a stable surface close to its original location (say 1 - 3 metres). The following day, quickly remove the bung to release the bees and retire to a safe distance. They will re-orientate - and shutting them in for a few hours will help them realise their location is a bit different.

Re-locating further away: Keep the box upright and somewhere cool and dark overnight, while they are shut-in. The following day, fix the box to a firm surface not liable to vibration and ideally a mile or more from the original location, to prevent returning bees. Remove the bung and release the bees - they will re-orientate. At the original location, a few bees might return: ones who camped-out overnight, then came back to find home gone, but these will soon diminish. At its new location the colony can be a fascinating learning opportunity. Drones doing Nest Surveillance are quite likely to find the colony at its new location within about 20 minutes !

Tumble Drier colonies. There seem to be several cases of this each year in the UK. You see bee-traffic entering the vent pipe grill. The nest will be in a vent-pipe side arm, filled with fluff. It is possible to move such colonies, but this needs Beekeeping Skills and is extremely time-consuming, so a more practical approach is to leave the colony alone, to reach full cycle and die out naturally. I would be most grateful if you could let myself, or the Bumblebee Conservation Trust know about such colonies: we want to find out how common they are.

I hope you find our new bumblebee interesting and a good source of income for your Association. My personal experience is that re-locating colonies to my garden has been a source of much satisfaction and extension to my bee-knowledge. Other beekeepers who have moved colonies have also told me they have greatly enjoyed the experience.

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NOTES

Previous articles by Clive Hill. In 2011, BBKA News issues 189 and 190 carried articles by myself about dealing with 'Bumblebee Swarm Calls' and about *B. hypnorum*. The issue of BeeCraft, published in May 2013, carried the article which was the basis of the updated text above.



Websites. The Bumblebee Conservation Trust website has a wealth of information about bumblebees. www.bumblebeeconservation.org There is also extra know-how in the BBCT Forum; and in the Get Involved section of the website. BBCT and others have put Videos about the Tree Bumblebee onto YouTube.

If you do a search on Google using : "Clive Hill, Bumblebee Trust, Tree Bumblebee, *Bombus hypnorum*" you will find some short video clips of the Nest Surveillance activity.

My thanks to BWARS for the map. You will find identification and mapping information on their website.

<http://www.bwars.com/>

A very useful book is: Bumblebees (3rd Edition) by Prys-Jones & Corbet. ISBN 978-1-907807-06-0.