CRASH COURSE IN BUMBLEBEE IDENTIFICATION

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How many species are there in Ireland?

20

14 true bumblebees

6 cuckoo bumblebees

Some bumblebee species are cleptoparasites or cuckoo species. Like the cuckoo bird, cuckoo bees lay their eggs in the nest of another bee species (their true bumblebee host) rather than bringing up their own offspring.
It is easiest to identify bumblebees when they are foraging on flowers. In this case it can also be possible to take a photograph for later identification. If you have a (butterfly) net it can be useful to catch bumblebees and have a closer look by briefly putting them in a plastic tube or clear ziploc sandwich bag. This will not harm the bumblebee & is recommended for beginners.

Mountain Bumblebee photographed in a clear plastic tube

Irish net suppliers: http://entomology.org.uk
TRUE BUMBLEBEE IDENTIFICATION IN IRELAND:

When identifying bumblebees, the first step is to check the colour of the tail.
TRUE BUMBLEBEE IDENTIFICATION IN IRELAND:

4* species have a white tail

5 species have a red tail

1 species has a ginger tail

2 species have a blonde tail
In the Data Centre’s Bumblebee guide, species are arranged by tail colour – if you see a bumblebee with a white tail you can fan out those 4 species in the swatch to assist with identification.

http://www.biodiversityireland.ie/home-page/shop/
Queen emerges from hibernation in early spring

Forage and find a nest

Prepares a pollen loaf and a nectar pot and starts laying eggs fertilised with sperm stored from previous year

Mated new queen forages to build up reserves before hibernation. Workers, males and old queen die

New queens and males leave the nest to find mates

In mid-late summer the queen lays unfertilised eggs which will become males. She also allows some new queens to develop

Female workers emerge and take over nest duties

Queen remains in the nest laying eggs

Cuckoo bumblebee queens will emerge when the true colony is established. The cuckoo queen will enter the nest, kill the true queen and replace her. The true queens workers then bring up the cuckoo queens eggs for her. Cuckoo bumblebees don’t have a worker caste, just queens and males.

* This lifecycle is approximate for the average bumblebee in Ireland. Some species emerge later than others, and some common early species go through two lifecycles in one year.
How do you tell males from females?

1. The colour pattern may differ

2. Only females will have a pollen basket on their hind leg. Males don’t look after the young so don’t need to carry pollen back to the nest.

3. Only females will have a sting!

4. Length of the antennae (males have 13 segments and females have 12)
TRUE BUMBLEBEES:

- Queens and workers will be identical except for size. Queens are much larger (15-20mm long). Distinguishing the two comes with experience, particularly of seeing the large queens in spring.

- Males are similar in size to workers or slightly larger, and may or may not have a different banding pattern depending on the species.
White tailed – 4* species (all common)

Two yellow bands on thorax

Bombus hortorum

One yellow band on thorax

Bombus lucorum

LONG FACE

TWO YELLOW BANDS ON THORAX

SHORT FACE

WHITE TAIL

WHITE TAIL

LEMON YELLOW BANDS AND CLEAN WHITE TAIL

ORANGE YELLOW BANDS AND BUFF TAIL

Bombus hortorum

Bombus jonellus

Bombus lucorum

Bombus terrestris
White tailed – 4* species (all common)

White tail and **two** yellow bands on the thorax = *Bombus jonellus* (Heath bumblebee) or *Bombus hortorum* (Garden bumblebee)

*Bombus hortorum* has a long (horse-shaped) face  
*Bombus jonellus* has a short (heart-shaped) face

Note that *B. jonellus* males have yellow hairs on their face
White tailed – 4* species (all common)

White tail and **one** yellow band on the thorax = *Bombus lucorum* (White-tailed bumblebee) or *Bombus terrestris* (Buff-tailed bumblebee)

*Bombus lucorum* has lemon yellow bands **and** a clean white tail

*Bombus terrestris* has orange-yellow bands and a buff or off-white tail

NOTE – THIS ONLY APPLIES TO QUEENS!
Research has shown that workers of *B. lucorum* and *B. terrestris* cannot be reliably distinguished by sight. They should all be recorded as *Bombus lucorum* aggregate.

If you see a queen you can reliably tell these two species apart.

*B. lucorum* males can be easily distinguished by the yellow hairs on their face.
Why 4*?

*Bombus lucorum* has two closely related sister species that also occur in Ireland: *Bombus magnus* & *Bombus cryptarum*. These three species can only be reliably distinguished from each other using DNA analysis. When we receive records of *Bombus lucorum* we are aware that it is a species complex.
Red tailed – 5 species

Not only a red tail, but more than half of the abdomen red = *Bombus monticola* (Mountain bumblebee)

- Restricted range
- Arrived from Wales into the Dublin/Wicklow Mountains in the 1970s and slowly expanding its range south. Arrived from Scotland into N. Ireland, but not currently showing the same expansion.
- Associated with Blaeberry/Bilberry (*Vaccinium myrtillus*) & found in upland bogs/heaths

Note that *B. monticola* males have yellow hairs on their face.

Records since 2000
Red tailed – 5 species

Red tail, two clear bands on the thorax & grey-greenish in colour = *Bombus sylvarum* (Shrill carder bee)

- Rare
- Late emerging species, associated with flower-rich grasslands
- Queens, workers and males have same banding pattern
Red tailed – 5 species

Tail red, one yellow band on the thorax and another on the abdomen = *Bombus pratorum* (Early bumblebee)

- Very common
- Often smallest bumblebee you will see

Note that the yellow band on the abdomen can sometimes be missing. In this species, the red tail can sometimes occur only at the very tip making it difficult to see

Note that *B. pratorum* males have yellow hairs on their face}

© John Breen

© Tracy Platt
Note that *Bombus pratorum* males have yellow hairs on their face.
Jet black bumblebee with a red tail = *Bombus lapidarius* (Red-tailed bumblebee) or *Bombus ruderarius* (Red shanked carder bee)

*Bombus lapidarius* has black hairs on the hind leg
*Bombus ruderarius* has red hairs on the hind leg

**NOTE** – IN *BOMBUS LAPIDARIUS* THIS ONLY APPLIES TO FEMALES
**Bombus lapidarius**

- Common
- Females jet black, red tail and black hairs on hind leg
- Males yellow band on thorax, yellow hairs on face and red hairs on hind leg
- Males are occasionally confused with *B. monticola* males, but these have black hairs on the hind leg

**Bombus ruderarius**

- Rare
- Late emerging species, associated with flower-rich grasslands
- Females jet black, red tail and red hairs on hind leg
- Males two greyish bands on thorax and red hairs on hind leg
Ginger tailed – 1 species (very common)

Ginger tail, all ginger thorax, and some black hairs on the abdomen = *Bombus pascuorum* (Common carder bee)

- Probably the most common bumblebee you will see
- Queens, workers and males have the same banding pattern

Note that *B. pascuorum* is prone to fading and can look unusual.
Blond tailed – 2 species

All hairs on the abdomen blonde = **Bombus distinguendus** (Great yellow bumblebee or **Bombus muscorum** (Large carder bee)

*Bombus distinguendus*

- Very rare
- Late emerging species, associated with flower-rich grasslands
- Two yellow bands on thorax
- Queens, workers and males have the same banding pattern

*Bombus muscorum*

- Widespread but not common
- Good indicator of general pollinator diversity
- All ginger thorax
- Queens, workers and males have the same banding pattern
Take care not to confuse *Bombus muscorum* & *B. pascuorum*, both of which have an entirely ginger thorax.

**Blond tailed: *B. muscorum***

All hairs on abdomen blonde (abdomen itself black)

**Ginger tailed: *B. pascuorum***

Some black hairs on abdomen
Summary

Very common: 6 species
Bombus lucorum (aggregate)
Bombus terrestris
Bombus hortorum
Bombus pratorum
Bombus lapidarius
Bombus pascuorum

Widespread but less common: 2 species
Bombus jonellus
Bombus muscorum

Restricted geographic range: 1 species
Bombus monticola

Rare: 3 species
Bombus distinguendus  ENDANGERED
Bombus sylvarum  ENDANGERED
Bombus ruderarius  VULNERABLE
The next arrival to watch out for!

The Tree bumblebee (*Bombus hypnorum*) arrived in Britain in 2001 and is spreading very rapidly. It hasn’t been spotted in Ireland yet but it is only a matter of time.

It is a very distinctive white tailed species with an all ginger thorax.

If you see this species please take a photograph and let us know.

The other Irish bumblebee species nest on the surface of the ground or just underneath. In contrast, this species nests above ground and in Britain is commonly associated with bird nest boxes in gardens.
How do you tell true bumblebees from cuckoo species?

14 true bumblebee species

6 cuckoo bumblebee species

You need to look at the hind tibia (leg):

True bumblebee females (queen & workers) have a pollen basket on their hind leg where they store collected pollen to bring back to feed the larvae – their hind legs are flattened, shiny, and have a fringe of long hairs.
Cuckoo bumblebees rely on the true host workers to feed their larvae. Their hind leg is not adapted to store pollen. Cuckoo bumblebees have a hind leg that is not flattened or shiny, and is covered in short hairs.
In reality?

Concentrate on learning how to identify the true bumblebees.

With time you’ll then start to occasionally notice bumblebees that look “odd”.

When that happens, catch them and have look at their hind leg to check if they are a cuckoo species. If they are they can be identified using the swatch identification guide (the 6 cuckoo species are colour coded blue at the back).
Other resources

Andrew Fenner has developed two freely available android smart phone apps. They can be downloaded from Google play.
Please submit your bumblebee sightings online, regardless of how common the species:
http://records.biodiversityireland.ie/

Photographs can be emailed for validation before submitting records if you’re not sure
Thanks to all those who have submitted photographs and agreed for them to be used in educational guides.