

CRASH COURSE IN BUMBLEBEE IDENTIFICATION



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All paintings of bumblebees are © Bryan Pinchen

How many species are there in Ireland?

21



15 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

TRUE BUMBLEBEE IDENTIFICATION IN IRELAND:



When identifying bumblebees
the first step is to check the
colour of the tail

TRUE BUMBLEBEE IDENTIFICATION IN IRELAND:



5* species have a white tail



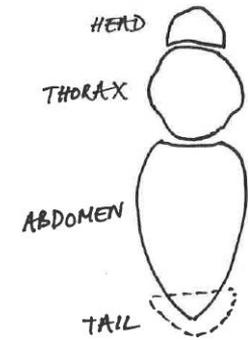
5 species have a red tail



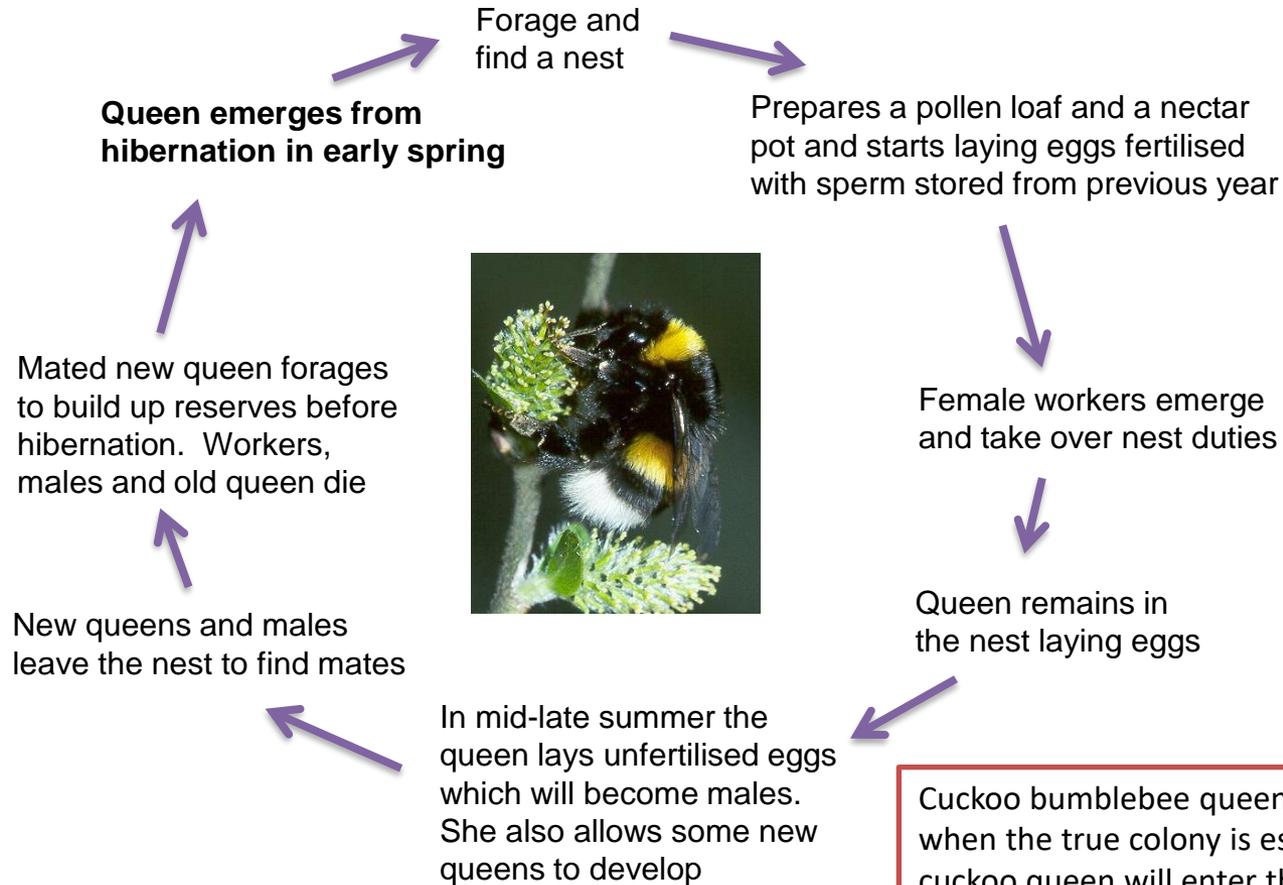
1 species has a ginger tail



2 species have a blonde tail



TRUE BUMBLEBEE LIFECYCLE

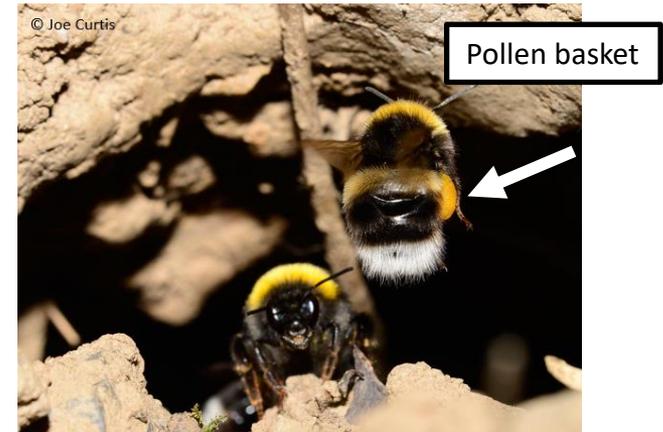


* This lifecycle is approximate for the average bumblebee in Ireland. Some species emerge later than others, and some common early species go through two lifecycles in one year.

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.

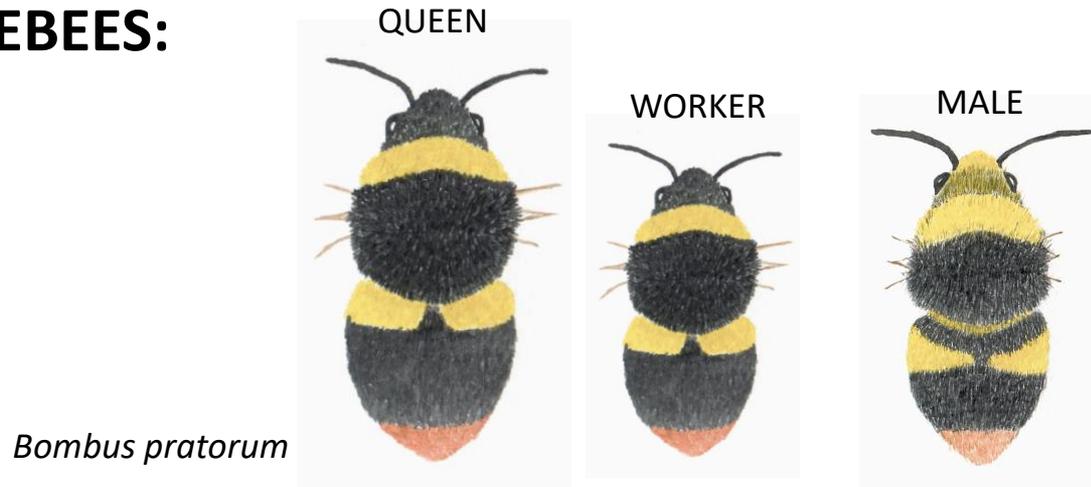
How do you tell males from females?

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)



How do you tell queens and female workers apart?

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

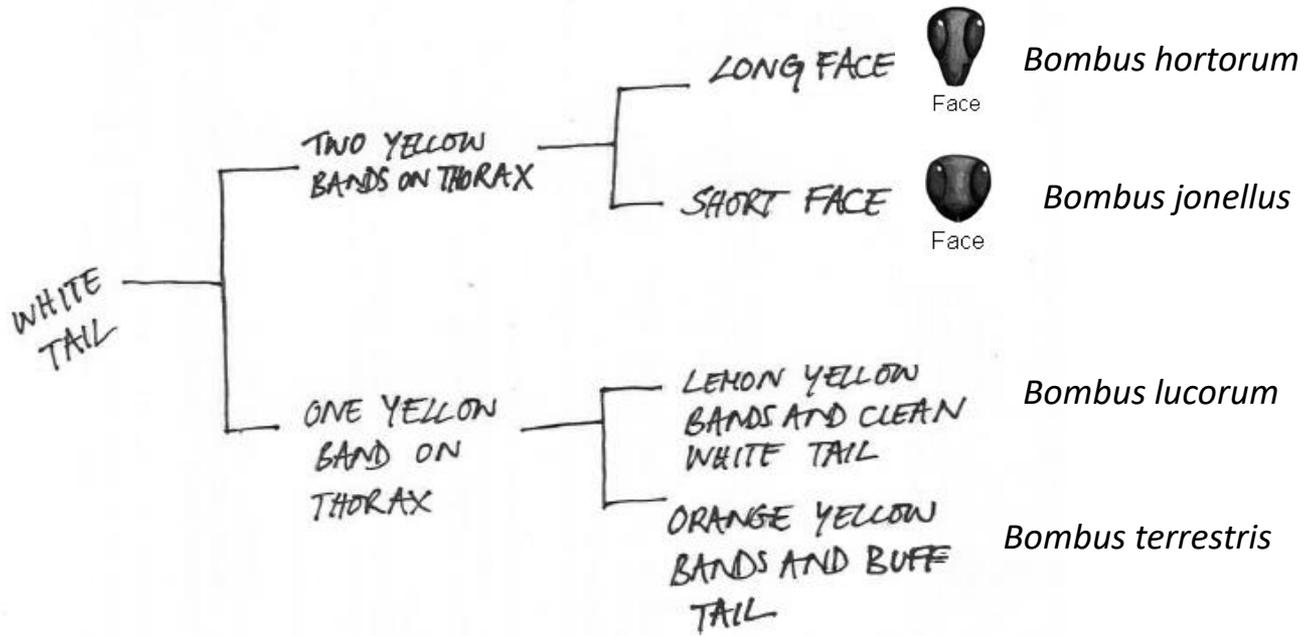
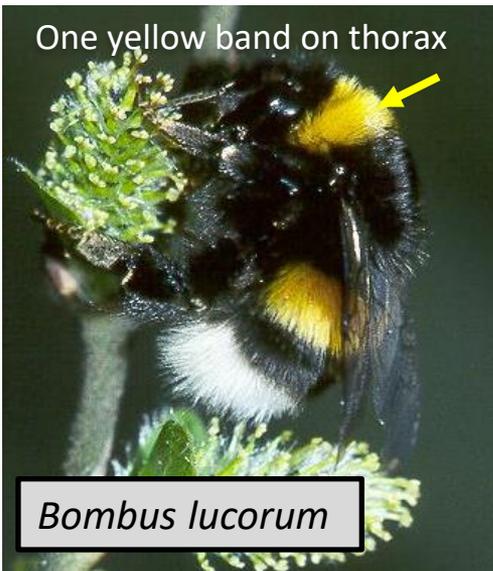
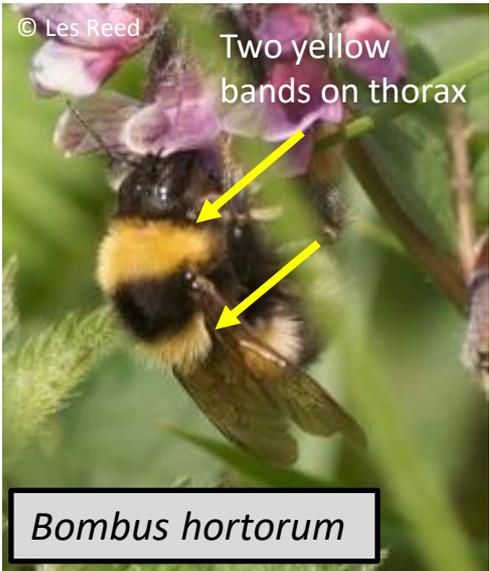
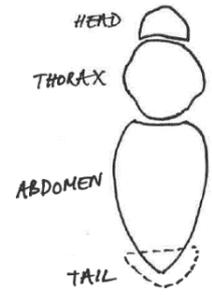
White tailed – 5* species (all common)

White tail and **all ginger hairs** on the thorax =
Bombus hypnorum (Tree Bumblebee)



- The Tree bumblebee (*Bombus hypnorum*) arrived in Britain in 2001 and has been spreading very rapidly.
- First spotted in Ireland in September 2017 – St. Stephen's Green, Dublin.
- 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.

White tailed – 5* species (all common)



White tailed – 5* 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



Bombus hortorum



Bombus hortorum



Bombus jonellus



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

White tailed – 5* 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

Bombus lucorum



Bombus terrestris



NOTE – THIS ONLY APPLIES TO QUEENS!

Bombus terrestris & *Bombus lucorum* – the full picture.....

QUEEN



B. terrestris



B. lucorum

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

WORKER



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**

MALE



B. lucorum males can be easily distinguished by the yellow hairs on their face

White tailed – 5* species (all common)

Why 5*?

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.



Bombus magnus queen



Bombus lucorum queen

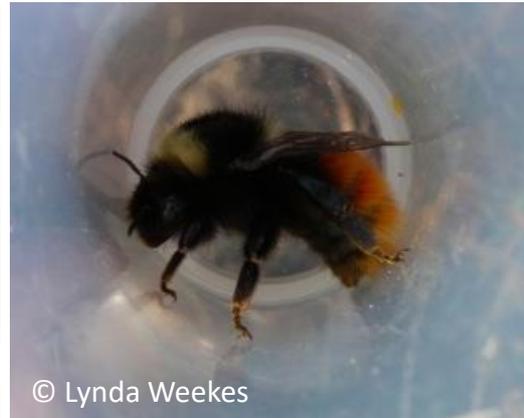


Bombus cryptarum queen

Red tailed – 5 species

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

More than half the abdomen with red hairs



- **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



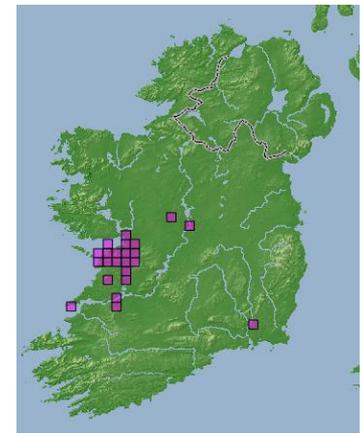
Records since 2000



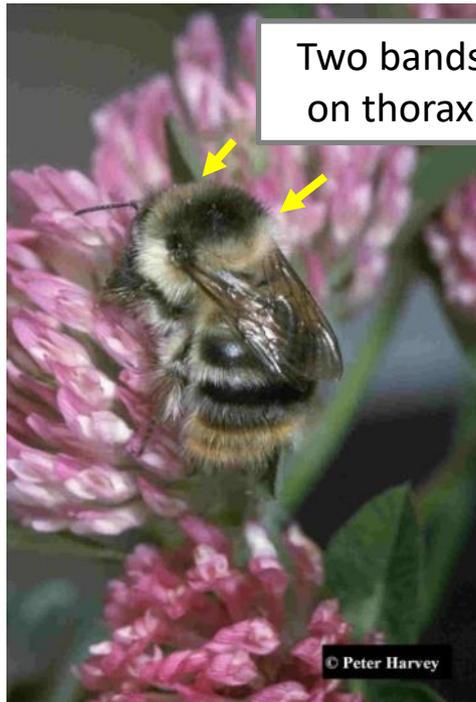
Note that *B. monticola* males have yellow hairs on their face

Red tailed – 5 species

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



Records since 2000



- **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

Bombus pratorum mating

Queen



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

Red tailed – 5 species

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

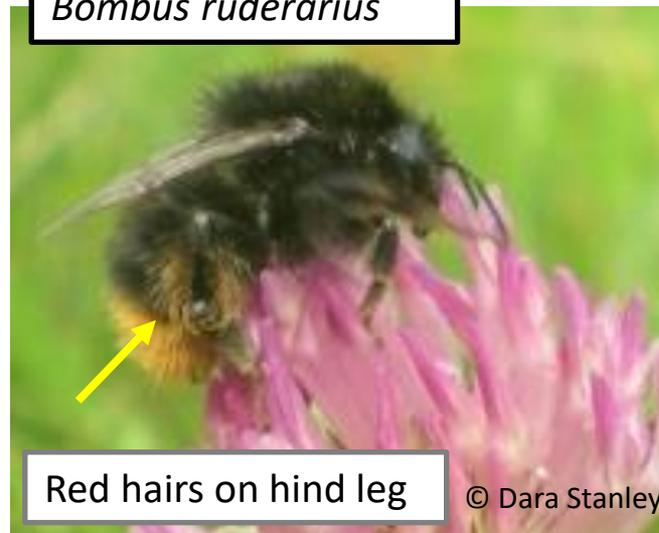
Bombus ruderarius has red hairs on the hind leg

Bombus lapidarius



- Common

Bombus ruderarius



- Rare

Bombus lapidarius

Common

Females



Males



Note that *B. lapidarius* males have red hairs on hind leg

Bombus ruderarius

Rare

Females



Males

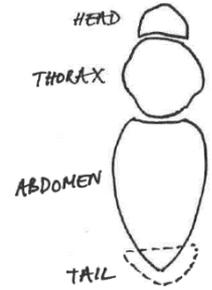


- Females jet black, red tail and black hairs on hind leg
- Males yellow band on thorax, yellow hairs on face and red hairs on hind leg
- Males are occasionally confused with *B. monticola* males, but these have black hairs on the hind leg

- 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)



All ginger thorax



Note that *B. pascuorum* is prone to fading and can look unusual



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

Blond tailed – 2 species

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

Bombus distinguendus



Two yellow
bands on thorax



© The Bumblebee Conservation Trust and Associates

Bombus muscorum

All ginger thorax



© Mario-Ruiz Gonzalez

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

- Widespread but not common
- Good indicator of general pollinator diversity
- 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

New arrival in 2017: 1 species

Bombus hypnorum

Restricted geographic range: 1 species

Bombus monticola

Rare: 3 species

Bombus distinguendus **ENDANGERED**

Bombus sylvarum **ENDANGERED**

Bombus ruderarius **VULNERABLE**

How do you tell true bumblebees from cuckoo species?

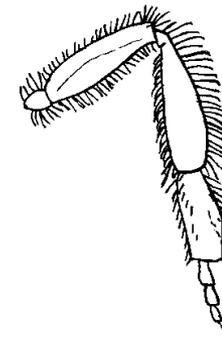
15 true bumblebee species



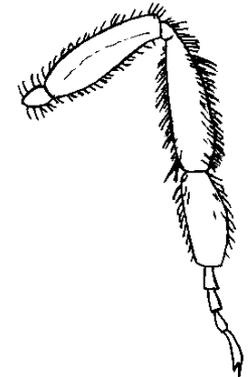
6 cuckoo bumblebee species



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



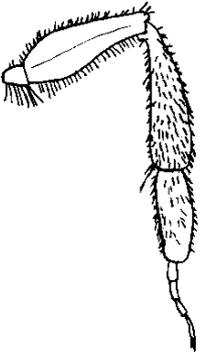
True bumblebee female



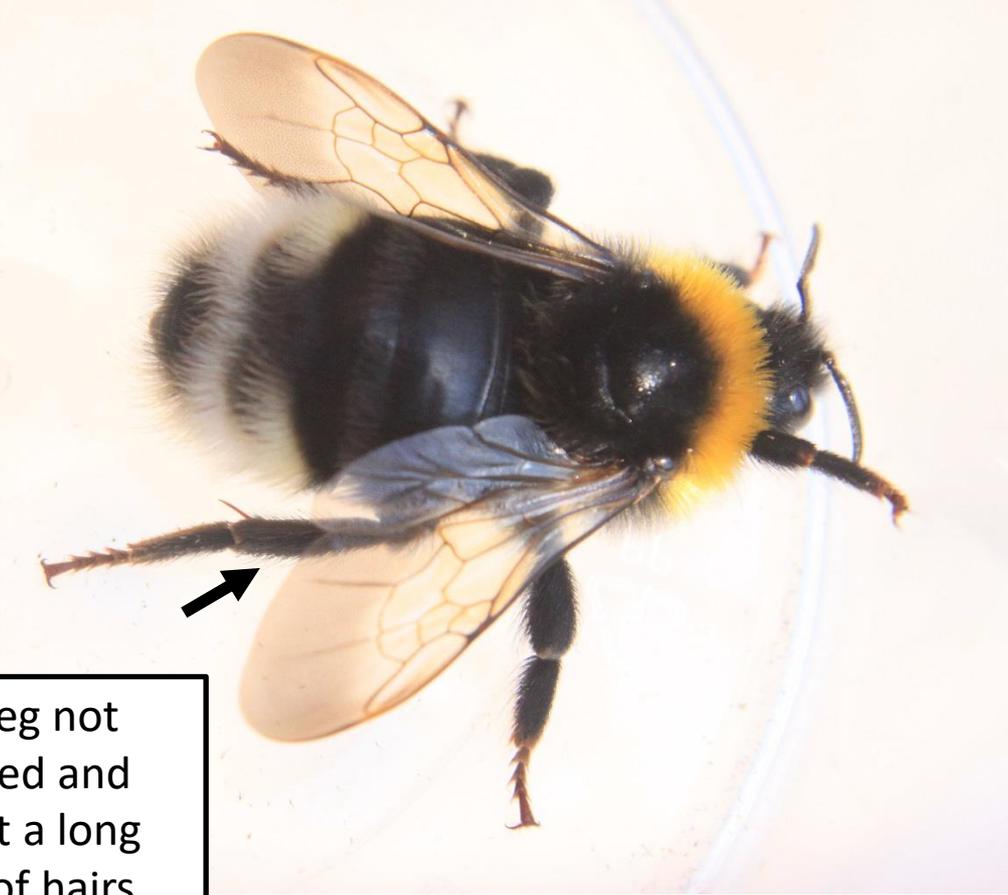
True bumblebee male

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.



Cuckoo bumblebee



© John Fogarty

Hind leg not flattened and without a long fringe of hairs

OTHER RESOURCES

Free online course

<https://biodiversityireland.ie/identifying-irish-bumblebees/lesson.html>

How To Identify and Record Common Irish Bumblebees

What's That Buzz?

How to Identify and Record Common Irish Bumblebees



Common carder bee Buff-tailed bumblebee Red-tailed bumblebee White-tailed bumblebee Early bumblebee Garden bumblebee



Comhairle Cathrach & Contae **Luimnigh**
Limerick City & County Council



European Green Leaf
Award Winner 2020 - Luimneach/Limerick



National Biodiversity Data Centre
Documenting Ireland's Wildlife

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Search... 

Bumblebee poster

https://pollinators.ie/wp-content/uploads/2019/06/SE-29-NBDC-Bee-Poster-2019_EMAIL.pdf



Bumblebees of Ireland

National Biodiversity Data Centre
Documenting Ireland's Wildlife
www.biodiversityireland.ie

Bumblebees are vital pollinators and a key component of Ireland's biodiversity. There are 21 different species.

The National Biodiversity Data Centre is mapping their distribution and tracking how populations are changing. Help by recording your sightings at: records.biodiversityireland.ie

www.pollinators.ie

 <i>Bombus cryptarum</i> (Cryptic white-tailed bee)	 <i>Bombus distinguendus</i> (Great yellow bumblebee)	 <i>Bombus hortorum</i> (Garden bumblebee)	 <i>Bombus hypnorum</i> (Tree bumblebee)	 <i>Bombus jonellus</i> (Heath bumblebee)	 <i>Bombus lapidarius</i> (Red-tailed bumblebee)
 <i>Bombus lucorum</i> (White-tailed bumblebee)	 <i>Bombus magnus</i> (Mountain white-tailed bee)	 <i>Bombus monticola</i> (Mountain bumblebee)	 <i>Bombus muscorum</i> (Large carder bee)	 <i>Bombus pascuorum</i> (Common carder bee)	 <i>Bombus ruderarius</i> (Red shanked carder bee)
 <i>Bombus rupestris</i> (Red-tailed cuckoo bee)	 <i>Bombus sylvarum</i> (Shrill carder bee)	 <i>Bombus sylvestris</i> (Forest cuckoo bee)	 <i>Bombus terrestris</i> (Buff-tailed bumblebee)	 <i>Bombus vestalis</i> (Southern cuckoo bee)	 <i>Bombus pratorum</i> (Early bumblebee)

All images © Steven Falk

<https://pollinators.ie/record-pollinators/>

The screenshot shows the National Biodiversity Data Centre website. At the top left, there are logos for the National Biodiversity Data Centre and the All-Ireland Pollinator Plan. A navigation menu includes links for Home, Partners, Record Pollinators, Ideas Hub, Newsletters, Latest News, Media, Videos, Resources, and World Bee Day. A search bar is located in the top right. The main content area is titled 'ID guides' and lists several identification guides:

- Bumblebee Identification Guides**
 - Crash course in bumblebee identification_2018 (1.6MB)
 - Irish bumblebees 1 (2015) (1.6MB)
 - Irish bumblebees 2 (2012) (1.2MB)
 - B. lucorum and B. terrestris (1.3MB)
 - Common bumblebee males (2.6MB)
- Solitary bee Identification Guides**
 - Simple guide to solitary bees in Ireland_part 1 (2016) (1.1MB)
 - Simple guide to solitary bees in Ireland_part 2 (2016) (2.4MB)
 - Simple guide to solitary bees in Ireland_part 3_Nomada (2013) (2.1MB)
 - Simple guide to solitary bees in Ireland_part 4_Andrena females (2015) (2.3MB)
- Hoverfly Identification Keys**
 - STN keys for the identification of adult European Syrphidae (Diptera):
 - STN-KEY-to-GENERA-2014 (2.3MB)
 - STN 2017 KEYS to SPECIES (2.5MB)

Small images of a bumblebee on a flower and a hoverfly on a flower are included in the guide descriptions.

More resources are available at <http://bumblebeeconservation.org/>

www.pollinators.ie

ufitzpatrick@biodiversityireland.ie

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