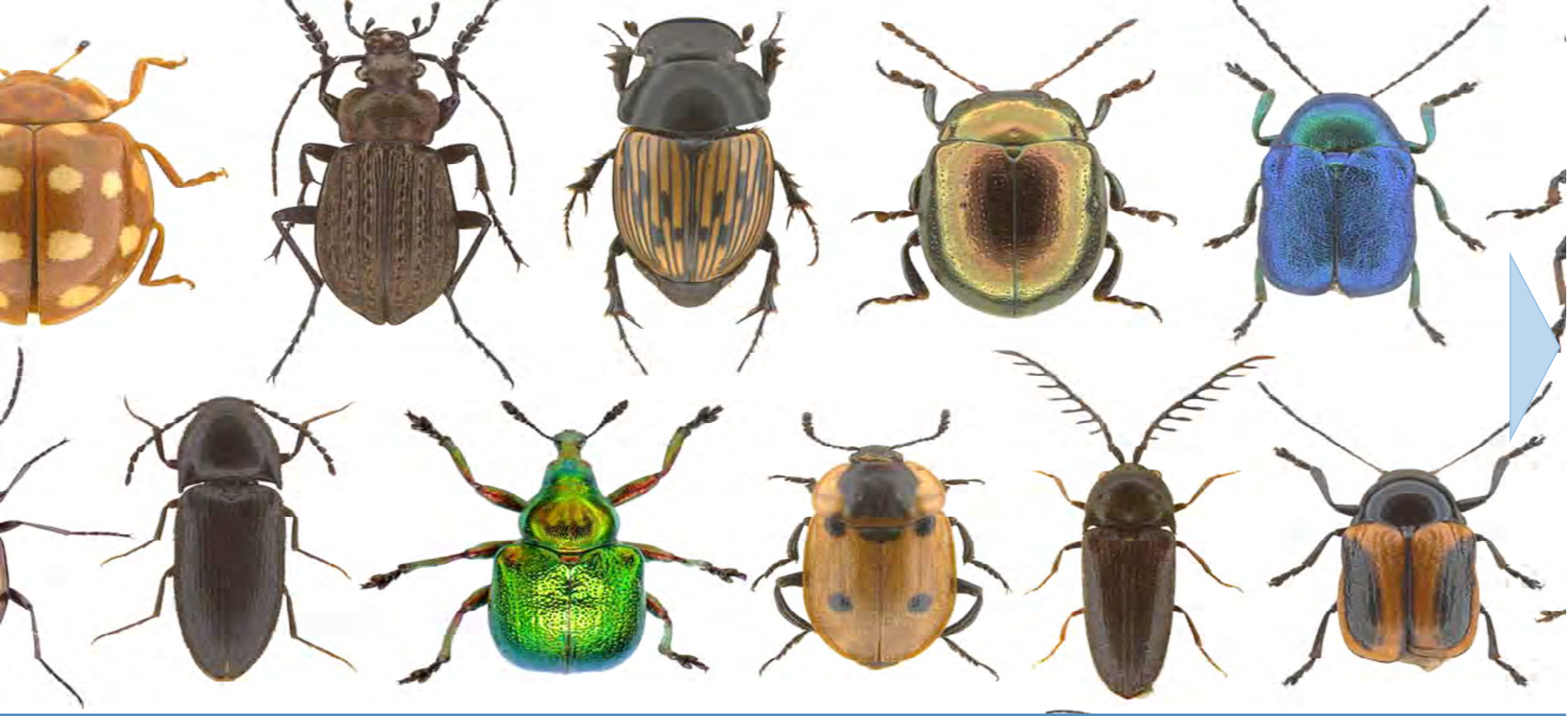


HOPE
FOR THE FUTURE

Get to know your bees

Get to know your bees

We don’t have to be outside for long before we hear the buzz of a bee. Bees and other pollinating insects such as hoverflies, wasps, butterflies, beetles and moths are economically and environmentally important. British crops such as apples, pears, strawberries, raspberries, blackberries and tomatoes are pollinated by insects. 84% of all crops produced in Europe are reliant on insect pollination. Wildflowers are an important part of a natural ecosystem and 80% of them are pollinated by insects.

Museum of Natural History
University of Oxford

There are about 260 different species of bees in the UK.

In this activity, you will

- **Learn about the variety of bees in the UK**
- **Explore some of the different ways in which we can identify different bumblebees**
- **Observe bees outside and have a go at identifying the different species**
- **Carry out your own insect investigation**

Know your bees…

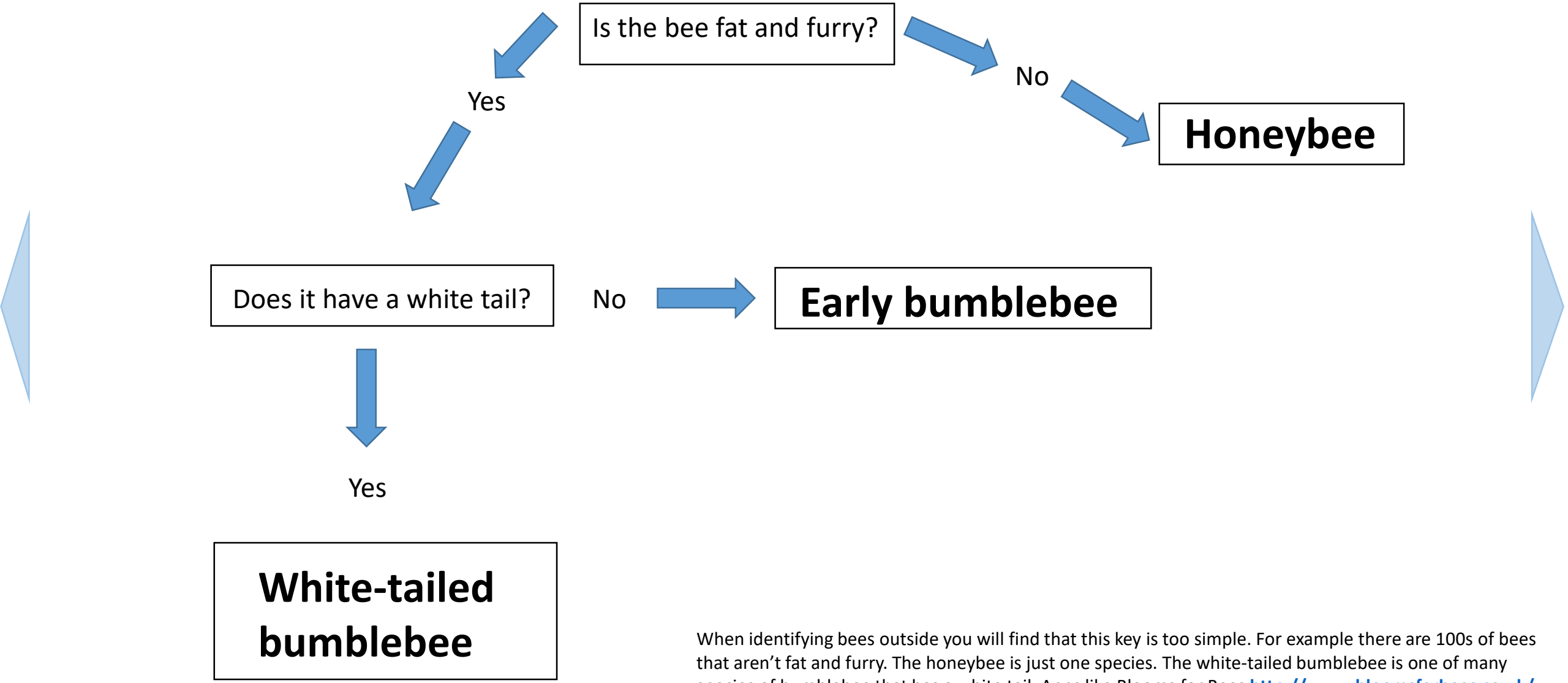
Here are 3 photos of bees that have been taken in an Oxford garden last year. There are many different tools you can use to help tell the species apart. Use the key on the next slide to help you identify the bees in each photo.


Image by Steven Falk


Image by Steven Falk


Image by Steven Falk

Bee Identification Key



When identifying bees outside you will find that this key is too simple. For example there are 100s of bees that aren't fat and furry. The honeybee is just one species. The white-tailed bumblebee is one of many species of bumblebee that has a white tail. Apps like Blooms for Bees http://www.bloomsforbees.co.uk/ are great for identifying different bee species when you're outside.

Some bees are easily confused…

White-tailed bumblebee
Bombus lucorum
This bee is common in the UK and active between March and October. It has a short tongue so can only feed on open flowers where the nectar is easy to reach.

Heath bumblebee
Bombus jonellus
This bee is common in the UK and active between March and September. It prefers heath and moorland habitats. It has a short tongue so can only feed on open flowers where the nectar is easy to reach.

Garden bumblebee
Bombus hortorum
This bee is common in the UK and active between March and October. It has a very long tongue so can feed on tube shaped flowers like honeysuckle and foxgloves

Look carefully at the bees. Are there any differences between the band patterns on the insect's bodies?
What other information might be useful to note down when you see these bees to make it easier to tell them apart?
Add one question to the key that would enable you to identify one of these bees.

Looking at bees outside

When studying living things its important to look carefully. Noting other information is also useful. In a museum collection like the one at Oxford University Museum of Natural History we record other information and keep that with the specimen, for example when and where the specimen was collected and the flowers the bee was feeding on.

27th April 2020
2pm

South facing garden
habitat in Oxfordshire

Aquilegia flowers with
very deep nectar spurs

Can you use the information from the last slide to identify this mystery bumblebee?

Bees in the Balance


Image by Steven Falk

This bee was recorded in a garden last year. This species isn't included in the key. There are a number of things that can help you identify tricky species. One thing you might do is look in a book. Insect experts might also compare the rarer things they find to specimens kept in museums. If you look in some books of UK bees or at a museum collection of British insects that is older than 20 years, you won't find this bee.
The tree bumblebee (*B. hypnorum*) was first recorded in the UK in 2001. Since 2007 its range and numbers have increased massively and now it's common in the UK.

Populations of living things change over time. Some species like the tree bumblebee are new to the UK. Some species have become much rarer than they once were.
Knowing more about the range and numbers of species in our surroundings might give us important information about how the environment is changing. Climate change and habitat loss effect our lives and the environment. By looking carefully and sharing what we notice, we will be able to understand these changes better.

Look out for projects that you can help with such as Blooms for Bees http://www.bloomsforbees.co.uk/

The great yellow bumblebee (*B. distinguendus*) was once found all over the UK. However in the last 100 years its population has declined by 80% and it's is now only found in the north highlands and islands of Scotland. Like many bee species it is a victim of intensive farming methods and the loss of flower-rich meadow habitats.


Image by Nick Owens


Image by Nikki Gammans

The short haired bumblebee (*B. subterraneus*) was also once widespread. However its population has also declined. As farming methods became more intensive, populations became isolated in patchy areas of suitable habitat. The species was last recorded in the UK in 1988 and declared extinct in the UK in 2000.

Exploring bees around you

Get to know the bees in your outside space. Find a spot where there are flowers of different shapes, sizes and colours. Set aside 5 minutes to watch that spot and watch for bees and the plants they prefer. It's best to choose a time in the afternoon when its warm and not too windy.

Focus on bumblebees first. There are 27 species of bumblebee in the UK and it's easier to spot them and tell the species apart. Choose a plant that is popular with bumblebees. Look carefully at the bees that visit and note the pattern and colour of bands on the body. (It might help to try and take a photo and use that to make a drawing) This will help you identify the species. Use the table on the next page to help you collect useful information.

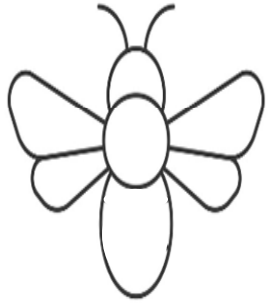
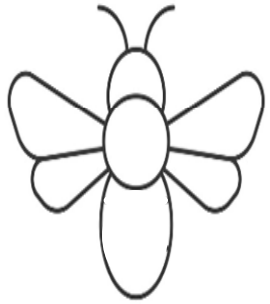
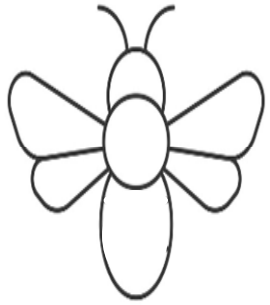
Your observations might help you think about questions like:

Do some plants support more species of bee than others?
Do certain species of bee visit more than one type of plant?
Which plants are most popular with bees?

Carrying out this activity might make you think of questions of your own.

Use a question to plan an insect investigation and share your conclusions by emailing education@oum.ox.ac.uk

Take some time to note things outside

Colour and band pattern on the bee's body	Date / time of day Weather conditions	Where in the UK and a description of the habitat.	Number of individuals 1, less than 5, more than 5	Notes (e.g. What was the bee feeding on?)	Type of bee (Find out more from Blooms for Bees website)
					
					
					

Planning an insect investigation

PLANNING YOUR QUESTION	My investigation question What are you trying to find out?	
	Make a prediction I predict that ….	
METHOD – DOING YOUR EXPERIMENT	What will you do?	
	What do you need to keep the same?	
	What will you observe or measure?	
	How will you record your findings? (eg photographs, tally charts, bar graphs)	
EQUIPMENT	Things I need	

Things to do next

Watch the "Queen Bee" and "One in the Magic Number" videos by Dr Lindsay Turnbull to find out more about bees.

Have a go at our "Bee experiment – Times of day" activity.

Have a go at planning and conducting your own bee investigation.

Acknowledgements

We hope you enjoyed learning about different insects. This is one of a series of resources from the HOPE collection of British insects at the University of Oxford Museum of Natural History.

You can find more about the Hope for the Future Project on our website: oumnh.ox.ac.uk/hope-future

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