

Home Farm Marsh (HFM) Bumblebee Report 2019



Male White-tailed Bumblebee – Courtesy S Gunn

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1 Executive summary

The main points arising within this report are:

- The Bumblebee Conservation Trust (BBCT) visited Home Farm Marsh (HFM) in 2018 as part of its West Country Buzz Project. This North Devon initiative is focused on enhancing the habitat and forage available for two of the rarest bees in the county; the brown-banded carder and the moss carder bumblebees. The subsequent report by the BBCT highlighted that HFM has good bumblebee habitat and provided recommendations to enhance this. At the time of the visit no formal surveys of the bumblebee population had been undertaken.
- In March 2019 two bee walk transects, as prescribed by the BBCT, were initiated and undertaken by HFM volunteers to better understand the bumblebee species within the reserve and in particular to determine whether the brown-banded carder and moss carder were present.
- The results of the walks identified that seven of the most common bumblebee species could be found on or near HFM as well as three species of cuckoo bumblebees. The most abundant species were the buff-tailed/white-tailed, red-tailed and common carder. Neither the brown-banded carder nor moss carder were observed during the bee walks.
- With respect to habitat and forage, the bee walks identified that the flood bank bordering the Saltpill was the most visited location by bumblebees. However its value was diminished in July when grass cutting was undertaken by the Environment Agency.
- During 2019 HFM volunteers have continued with tasks to improve the habitat and forage available to bumblebees and other pollinators including the planting of viper's bugloss and the laying of green hay.
- Whilst the brown-banded carder and moss carder bumblebees were not seen on HFM in 2019 this should not detract from the potential that this Reserve offers these rarer species, particularly given its proximity to Braunton Burrows and RMB Chivenor where these bumblebees are present. To further encourage these rarer bumblebees the following suggestions are proposed;
 - Delay the mowing of the flood banks in order to provide bumblebee forage later into the bumblebee season.
 - Survey and where necessary plant additional water mint around the margins of the extended Saltpill, which would be beneficial to

encouraging the brown-banded carder and moss carder bumblebees.

- Improve the forage available to bumblebees on the western flood bank, particularly the south facing section
- Determine whether the seed mix used for the Nectar Mix field can be enhanced to include more indigenous flowering plants, seeking support from the BBCT.

2 Background

In June 2018 the Bumblebee Conservation Trust visited Home Farm Marsh identifying that there was good bumblebee habitat including forage plants of varying flowering dates and nesting habitat. With HFM located in reasonable proximity to both Braunton Burrows and RMB Chivenor, where the brown-banded carder and moss carder have been recorded respectively, there is the potential for these species to be found on the reserve.

At the time of the BBCT visit, no formal recording of bumblebee species was being undertaken and as a consequence the number and extent of bumblebee species on HFM was unknown. In consultation with the HFM reserve ranger two transects were identified where bee walks, as prescribed by the BBCT, would be undertaken in order to build an understanding of the bumblebee population.

3 The bee walks

The two bee walk transects established in 2019, in effect cover the northern and southern boundaries of the reserve and endeavour to incorporate the areas where forage is most readily available to bumblebees at varying times of the year. The bee walks are undertaken monthly between March and October in any given year.

3.1 HFM northern boundary

Figure 1 identifies the transect covering the northern boundary of the reserve. This is broken down into seven sections which include:

- The flood bank bordering the Saltpill (section 1)
- The Flowery Bank (section 6)

Both of these sections have a good concentration of bumblebee friendly forage including trefoil, vetch, knapweed, wild carrot and red clover.

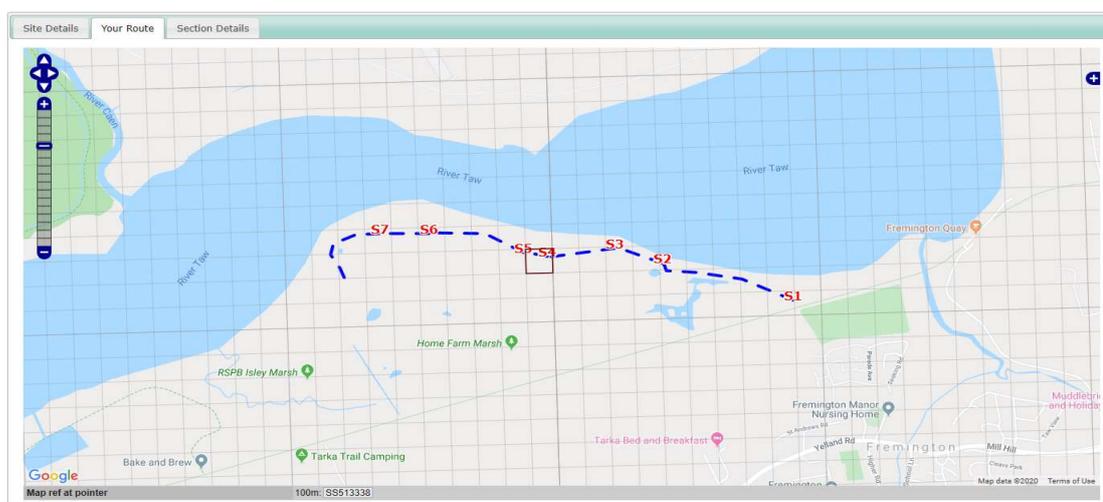


Figure 1 – HFM Northern Boundary Transect (map courtesy of BBCT)

3.2 Tarka Trail and HFM

Figure 2 shows the transect covering the southern boundary which contains five sections including:

- The nectar mix planting area (section 2)
- The wildflower meadow (section 3)

The remaining three sections are outside the boundary of HFM. These sections form part of the Tarka Trail that borders HFM, which have a good concentration of bumblebee friendly forage, and would therefore provide a food source for any bumblebees nesting within the reserve.

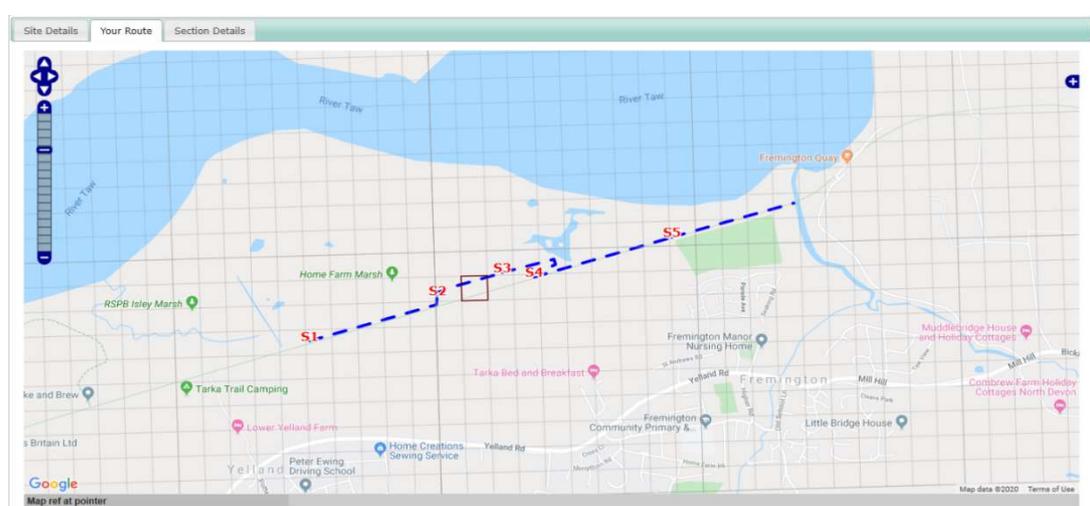


Figure 2 – Tarka Trail and HFM Transect (map courtesy of BBCT)

4 Bee walk results

4.1 HFM northern boundary transect

The observations from the bee walks are summarised in Figures 3 -5 on page 4 of this report. The key points to note are:

- The most abundant bumblebee species were the buff/white tailed (workers of these species cannot reliably be separated in the field) and the red-tailed.
- Six of the more common species were recorded but there were no sightings of either the garden or heath bumblebee. Two species of cuckoo bumblebee were also noted.
- The most prolific months for bumblebees on this transect were May and June.

- The Saltpill flood bank (section 1) recorded the most bumblebee sightings across the bee walk season which reflects the forage available to bumblebees in this section.

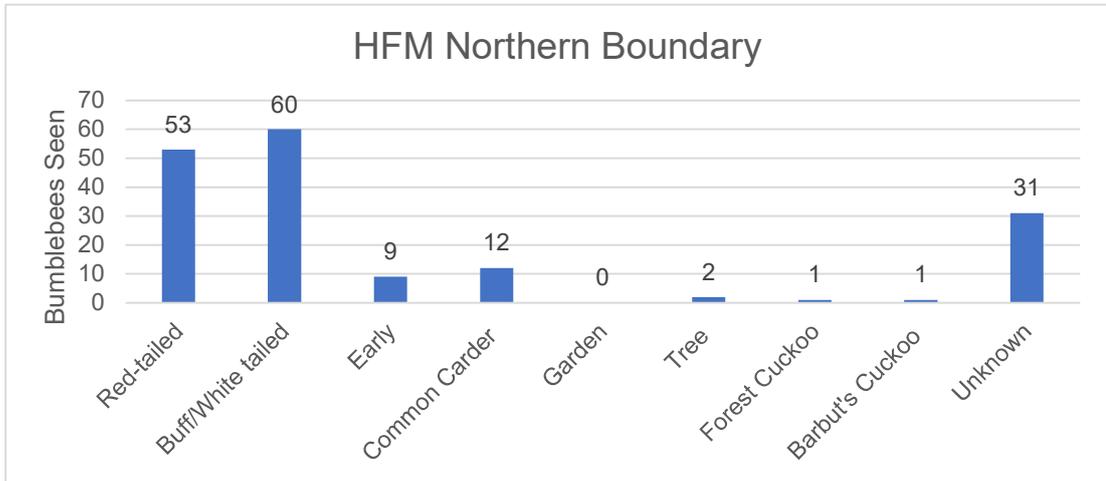


Figure 3 Bumblebees observed - HFM Northern Boundary Transect

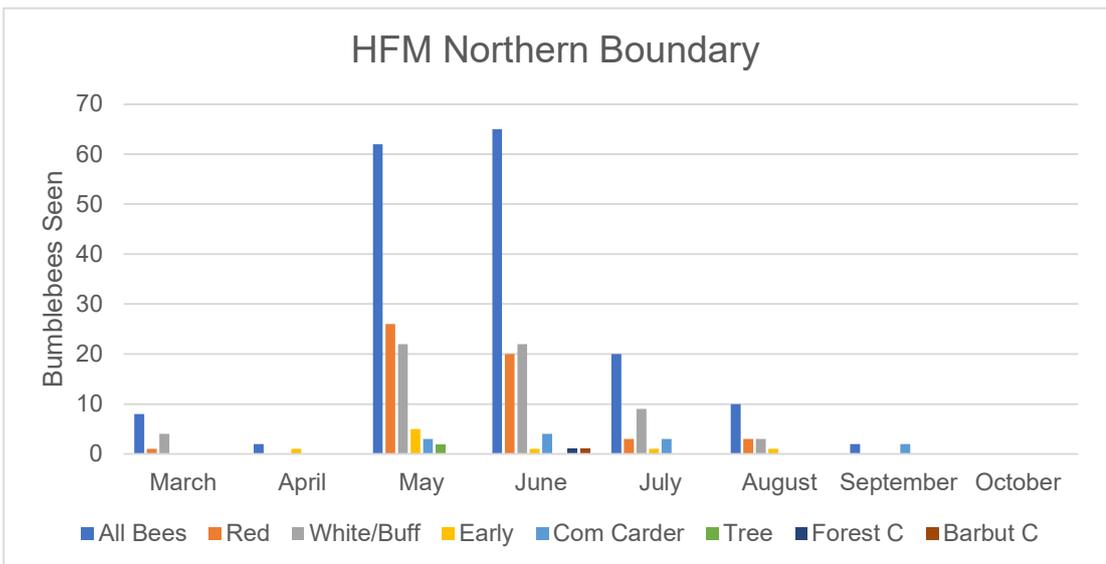


Figure 4 Occurrence of bumblebees by month - HFM Northern Boundary Transect

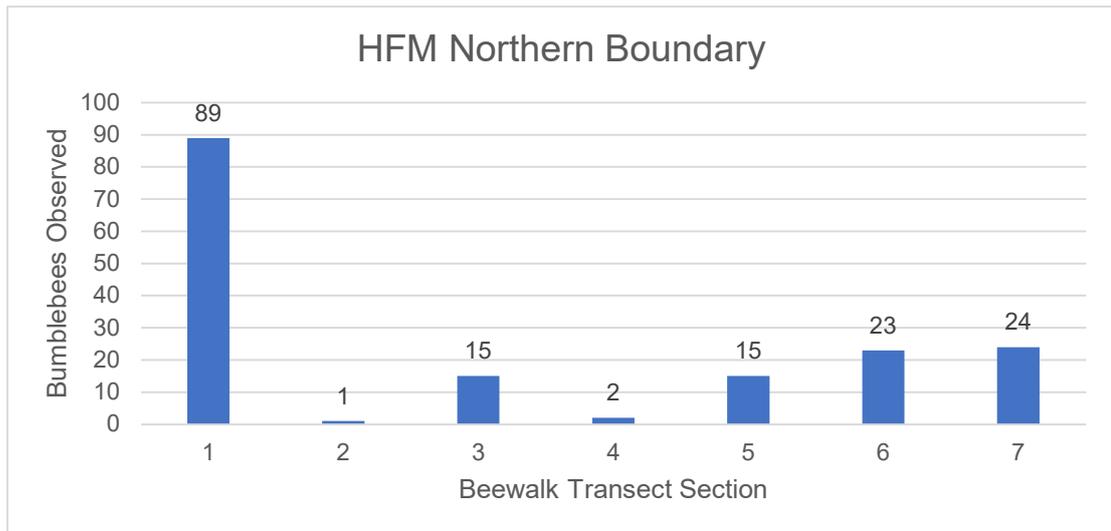


Figure 5 Occurrence of bumblebees by section – HFM Northern Boundary Transect

4.2 Tarka Trail and HFM transect

The observations from the bee walks are summarised in Figures 6 - 8 below and on page 6 of this report. The key points to note are:

- The most abundant bumblebee species were the buff/white-tailed and the common carder. The high number of bumblebees not identified reflects the bumblebees observed crossing the Tarka Trail between HFM and the land to the south of the Trail and vice versa.
- Seven of the more common species were recorded but there were no sightings of the heath bumblebee. One species of cuckoo bumblebee was also noted
- The most prolific months for bumblebees on this transect were July and August.
- Section 4 recorded the highest number of bumblebees across the bee walk season. This borders HFM and runs from the grassland gate to the Gate 1 entrance for HFM.

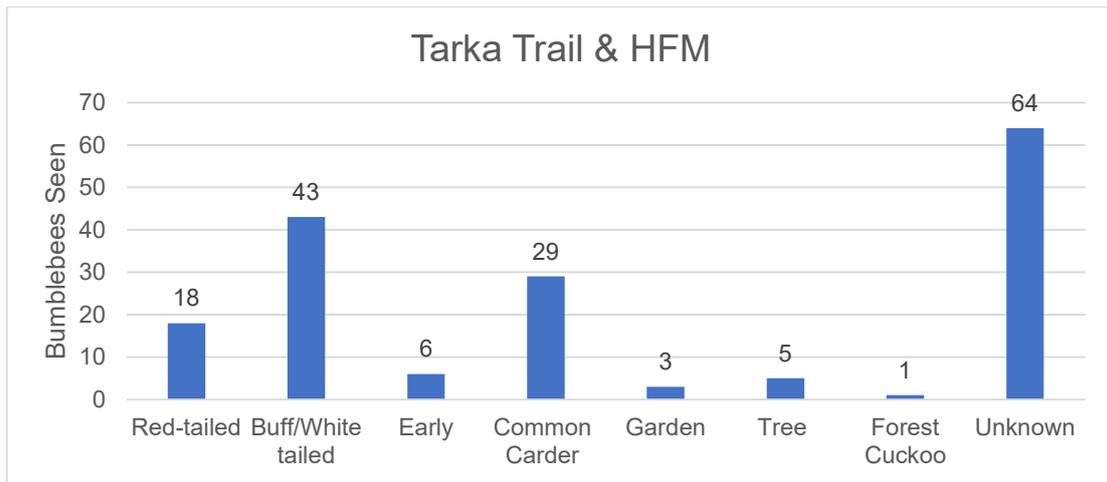


Figure 6 Bumblebees observed – Tarka Trail & HFM Transect

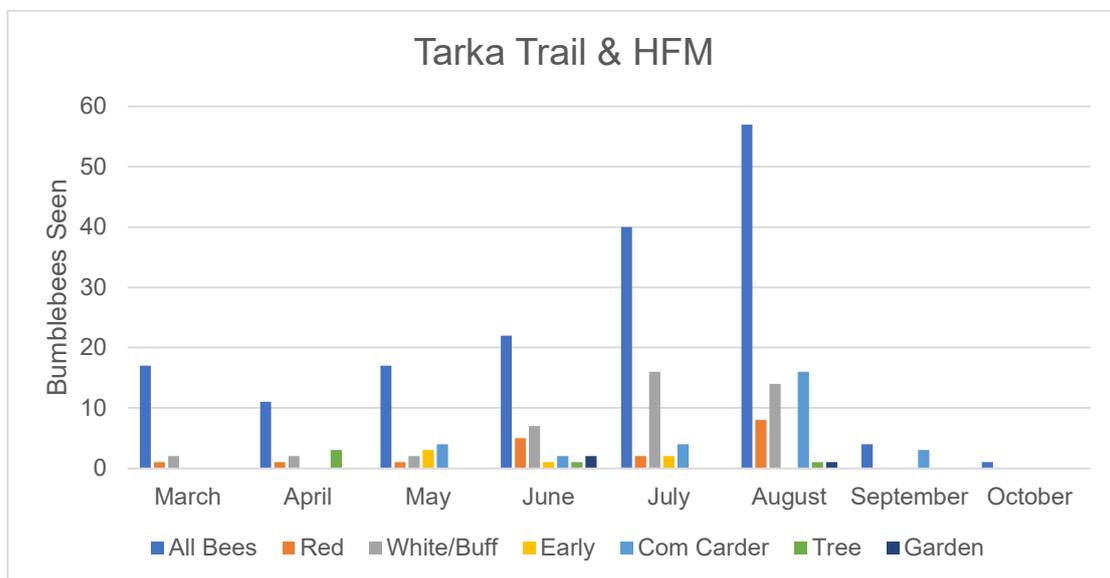


Figure 7 Occurrence of bumblebees by month – Tarka Trail & HFM Transect

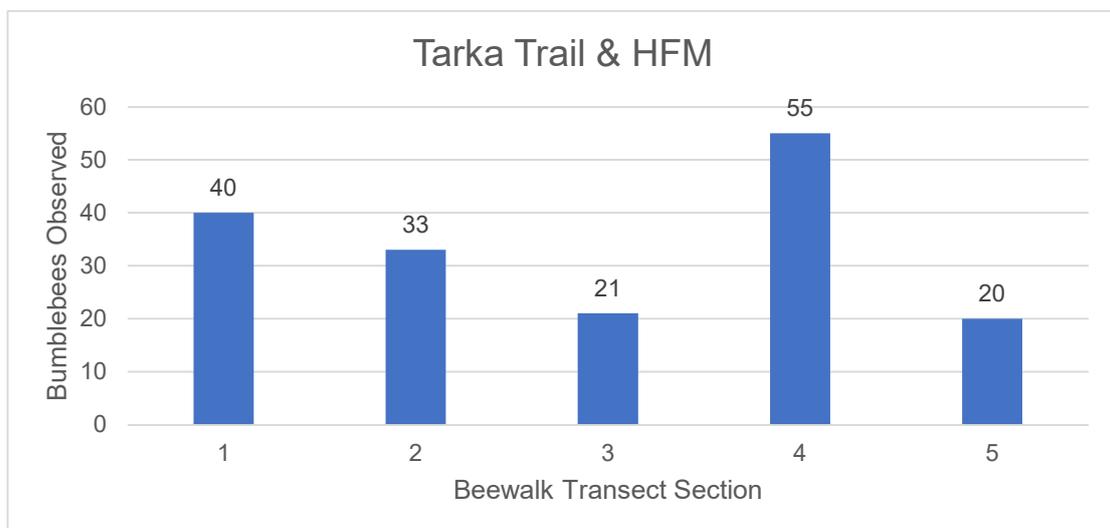


Figure 8 Occurrence of bumblebees by section – Tarka Trail & HFM Transect

5 Habitat management

5.1 Improving forage in 2019

Further work was undertaken to improve forage for bumblebees and other pollinators including:

- The planting of Vipers Bugloss plants and seeds, which should flower in summer 2020, in the field to the east of the Flowery Bank and also in the woodland area established early spring 2019.
- The reseeding of the nectar mix field which flowered in late summer 2019. Evidence from the bee walks identified that this didn't attract bumblebees in significant numbers given that the mix was primarily of non-native species and the sunflowers failed to germinate in large numbers due to the very dry conditions in late April 19 and May 19. White clover was also included within the seed mix which began to flower in small numbers in late autumn. This hopefully will survive over winter and thereby provide a nectar source for the bumblebees in late spring/early summer.
- The planting of an overwintering bird seed mix in the arable field immediately to the west of the new tree area which included a significant number of sunflowers. No surveys for bumblebees were undertaken in this area in 2019 but will be considered for future years where this type of planting is repeated.
- The laying of green hay in two meadow areas to the west of HFM. This will hopefully improve the forage available to the bumblebees and other pollinators over the next couple of years in these areas.



Figure 9 Location of fields (blue) where green hay was spread in 2019

- Ongoing maintenance of the Flowery Bank.

- One unintentional improvement from a bumblebee perspective occurred as a result of one of the arable fields being left fallow in 2019, leading to a large growth of charlock, the seeds of which are in the soil. Whilst undertaking work to create open patches for skylarks, a significant number of bumblebees were observed feeding on the charlock although no formal recording was undertaken. Whilst there is an expectation that this field will be managed to remove the charlock, the intention is to leave a field margin where it can continue to flower thereby providing ongoing bumblebee forage. A survey can then be undertaken to determine just what bumblebee species are using it as a nectar source on HFM.

5.2 Potential bumblebee forage enhancements

In addition to those undertaken in 2019 other enhancements could include:

- Later mowing of the Saltpill flood bank. From the bee walk data this area proved to be the most attractive nectar source for bumblebees. However the forage available to them was significantly reduced when mowing was undertaken by the Environment Agency in July 2019. This maintenance occurred when the common knapweed and wild carrot were just beginning to flower on the bank. An extended period of nectar availability would be of benefit to all bumblebee species but in particular to the later emerging species including the brown-banded carder and moss carder.
- Surveying for the presence of water mint in the margins of the recently enlarged Saltpill with additional planting where appropriate. This is a late flowering plant (July-October) which again would be beneficial to encouraging the brown-banded carder and moss carder bumblebees.
- Improving the forage available to bumblebees on the flood bank to the west of HFM particularly the south-facing side adjoining the Flowery Bank. Currently this area is set aside for overwintering and breeding birds but suffers from intrusion due to members of the public who choose to walk along the flood bank rather than follow the way markers. Whilst the flood bank is an exposed site it is the area closest to Braunton Burrows and Chivenor.
- Enhancing the seed used in the nectar mix field to include more native flowering plant species. The additional cost of this could potentially be mitigated by exploring the seed mixes offered by the BBCT to landowners.

Acknowledgements/references

BBCT Bee Walk Transection Maps for HFM Northern Boundary and Tarka Trail and HFM

BBCT HFM Visit Report June 2018