

BeeWalk Annual Report 2021

Richard Comont, Sally Luker, and Helen Dickinson



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About BeeWalk

BeeWalk is a standardised bumblebee-monitoring scheme active across Great Britain since 2008, and this report covers the period 2008-20. The scheme protocol involves volunteer BeeWalkers walking the same fixed route (a transect) at least once a month between March and October (inclusive). This covers the full flight period of the bumblebees, from queens' emergence from overwintering through to nests finishing at the end of the season. Volunteers record the abundance of each bumblebee species seen in a 4m x 4m x 2m 'recording box' in order to standardise between habitats and observers.

It is run by Dr Richard Comont, Dr Sally Luker, and Helen Dickinson of the Bumblebee Conservation Trust (BBCT). To contact the scheme organisers, please email beewalk@bumblebeeconservation.org.

Acknowledgements

We are indebted to the volunteers and organisations past and present who have contributed data to the scheme or have helped recruit or train others in connection with it. Thanks must also go to all the individuals and organisations who allow or even actively promote access to their land for bumblebee recording.

We would like to thank the financial contribution by the Redwing Trust, Esmée Fairbairn Foundation, Garfield Weston Foundation and the many other organisations, charitable trusts and individuals who have supported the BeeWalk scheme in particular, and the Bumblebee Conservation Trust in general. In particular, the Biological Records Centre have provided website support and data storage free of charge.

Finally, we would like to thank the photographers who have allowed their excellent images to be used as part of this BeeWalk Annual Report.

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This report can be downloaded from www.bumblebeeconservation.org
Further information on the scheme can be found on the BeeWalk website, www.beewalk.org.uk.

Cover design by Tilly Hopkins. Cover photo: A BeeWalk in progress as part of the Short-haired Bumblebee Reintroduction Project (photo Nikki Gammans)

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BeeWalk and Covid-19

Obviously history will remember the year 2020 chiefly for the global Covid-19 pandemic. In Britain, an unprecedented series of lockdowns and restrictions on movement and gatherings was imposed in order to control the virus.

This inevitably meant that some BeeWalks could not be carried out during some or all of 2020.

Although going out for exercise remained possible throughout, some sites were closed to the public, some BeeWalkers were shielding, and some transects were too far away to travel to (particularly in Scotland and Wales where movement restrictions were more clearly defined). For instance, April 2020 was the only month of the BeeWalk season which was entirely under lockdown, and the lockdown was the strictest to date. Consequently only around 35% of the transects we'd have expected to be walked were actually able to submit data that month.

All face-to-face BeeWalk training after the 23rd March 2020 was cancelled. Across the Trust we ran a series of virtual training sessions, and increased the amount of video resources, but inevitably the combination of this and the Covid restrictions will have affected recruitment to the scheme.

Throughout 2021 things have gradually returned to a form of normality. However, it has taken a considerable amount of time working with the data to ensure that the effects we were seeing were derived from changes in the bee populations themselves, not simply the effect of the hugely different patterns of recording. For most species we're now happy that the effect seen is down to the bees, but there are a couple of exceptions (particularly the Bilberry bumblebee, *B. monticola*, which is generally recorded on our more remote transects). These effects have been flagged up where appropriate in the species profiles. It's interesting to note that we didn't find evidence of the much-trumpeted increase in wildlife numbers during lockdown 1: it's likely that much of this (for bumblebees at least) resulted from more people spending time outside during the warm spring of 2020.

We look forward to seeing more of you in person as things return to some semblance of normality.

Keep safe

The BeeWalk Team

News and Research

BeeWalk highlights in numbers

505

Despite Covid, 505 sites were able to submit records during 2020, behind only 2018 & 2019 & approximately level with 2017.

630

The most transects walked in a single year, in 2019.

174,851

The total number of records submitted to BeeWalk up to the end of the 2020 season.

21,083

Records submitted for 2020, behind 2017-19 & approximately level with 2016.

557,781

The number of individual bees recorded on BeeWalk so far

105,280

The most individual bees recorded in a single year on BeeWalk – in 2019

BeeWalk mentoring

There are 21 BeeWalk Mentors covering around 15 counties across Britain. These are experienced BeeWalkers who volunteer to be local points of contact for new volunteers. Mentors can offer a variety of help, including finding a suitable transect location, helping out with setting up transects online, basic bumblebee identification and how to record your data in the field.

To find out if your area is covered by a Mentor, please see the BeeWalk Mentors map on page 10 and our Mentors tab on the BeeWalk website for an up-to-date list of areas covered. If you would like to be put in touch with your local Mentor, or would like to offer your assistance as a Mentor please email

beewalk@bumblebeeconservation.org.

Adopt-a-transect

We have over 50 established transects currently available for adoption. These transects are fully set up on the website but are currently unwalked and we are extremely keen to find new BeeWalkers to take these over.

We have already had nine transects adopted in early 2021, could you help us with more?

Additionally, we are particularly keen for BeeWalkers to take on existing transects or establish new ones in the following postcodes: KW10, IV32, LA6, HX7, TA7, BS28.

Contact us on

beewalk@bumblebeeconservation.org if you can help.

Pollinator Monitoring Scheme (PoMS)

BBCT are part of the national Pollinator Monitoring Scheme (PoMS), which aims to better understand how all pollinating insects are doing nationwide. Data from BeeWalk is feeding into the new scheme, but there's also scope for anyone to contribute directly, either by carrying out short FIT counts (watch a patch of flowers for 10 minutes and see what turns up) or by taking on monitoring a 1km square – for details, see pages 6-7 of this report.

Research and collaborations

BeeWalk was established with the twin aims of collecting data (abundance and distribution data on Britain's bumblebees), and using this data as widely as possible (particularly to analyse population trends). BBCT carry out some of this research in-house, but we also collaborate widely with other researchers on shared projects such as the State of Nature reports and the national Pollinator Monitoring Scheme (PoMS – see more below).

Additionally, we make the BeeWalk data freely available on the National Biodiversity Network (NBN) Atlas website for others to use (as long as they acknowledge us as the source of the data): our profile is viewable at <https://bit.ly/NBNbeewalk>. We also share our data with the national Bees, Wasps and Ants Recording Society, BWARS, and with several Local Environmental Records Centres.

We are keen to work with students at all levels, and can both help with project ideas and provide data. An updated selection of previous students and ideas for new projects can be seen at <https://www.bumblebeeconservation.org/our-science-research/>. The Trust are currently collaborating with undergraduate, Masters and PhD students on a range of topics, with BeeWalk projects generally concerned either with elements of phenology (seasonal timings) and flower visitations.

Major ongoing collaborations

UK Pollinator Monitoring Scheme (PoMS)

PoMS was set up to better understand the fortunes of Britain's pollinators by working with existing recording schemes and collecting more data.

For 2021 the scheme has been refreshed with a new website and a recording app. The new site can be found at <https://ukpoms.org.uk/> and the FIT Count app can be downloaded from the Apple Store or Google Play.

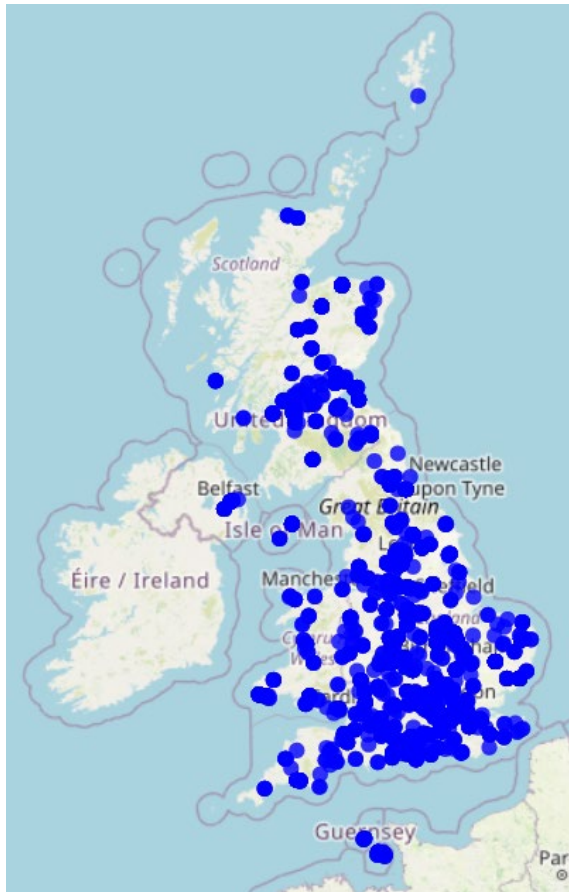


The Trust supplies BeeWalk data to PoMS as part of an analysis project which aims to pull together all the data that is currently collected separately, in order to analyse it all together and thus get a better picture of pollinators as a whole.

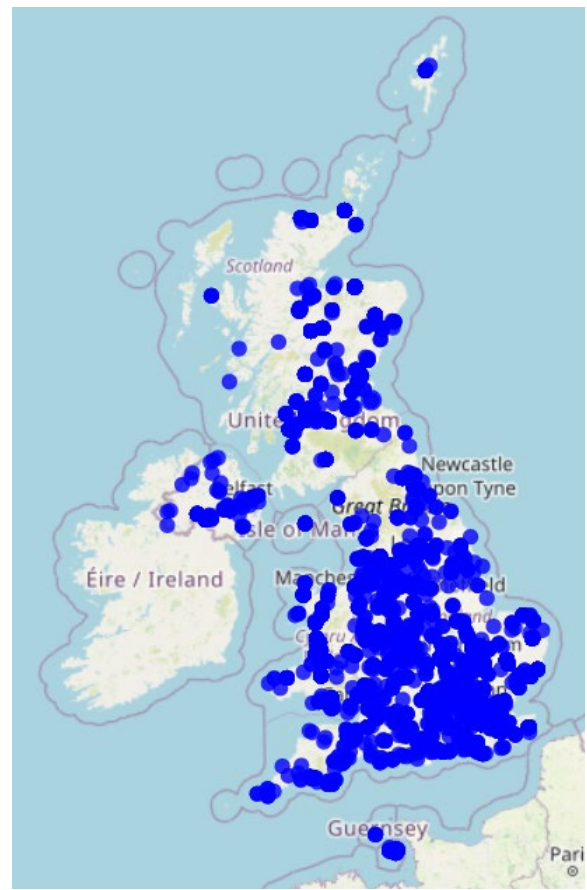
But you can also get involved directly. PoMS includes two new surveys, FIT Counts (for anyone, anywhere), and a more in-depth 1km grid square survey.

FIT Counts

Short for 'Flower-Insect Timed Counts', FIT counts involve watching a small patch of flowers (ideally a species from the PoMS shortlist) for 10 minutes and recording the insects that visit the flowers themselves. The insect visitors don't need to be identified to species, just broad groups (butterfly, beetle, bumblebee, etc) so you don't need to be an expert. It's a great activity for school groups and bioblitzes, but also to get to know what's visiting your garden while also contributing to pollinator science. You can also now download an app to carry out this survey – search 'FIT Count' in the Apple Store or on Google Play.



FIT counts carried out during 2020

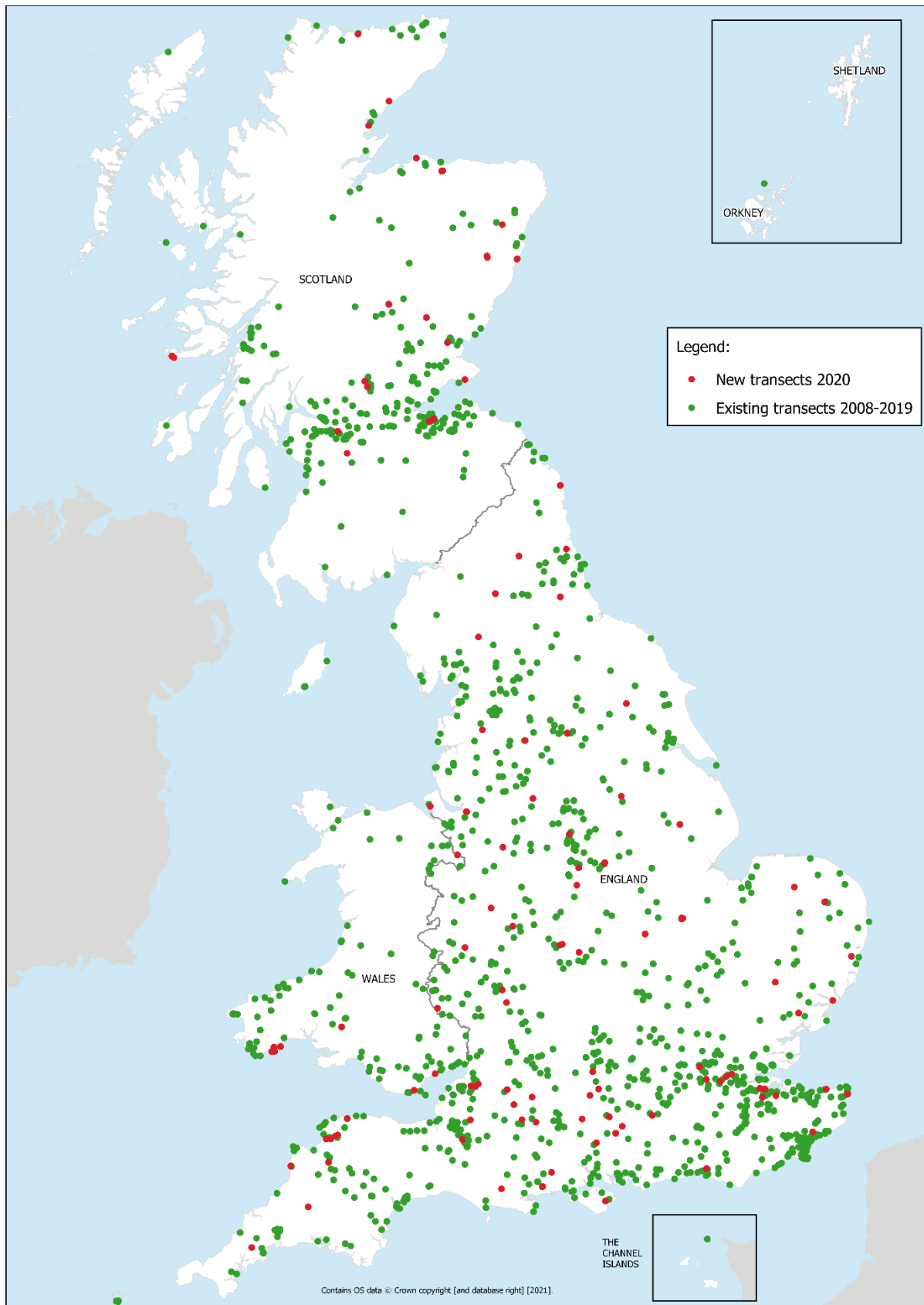


FIT counts carried out during 2021

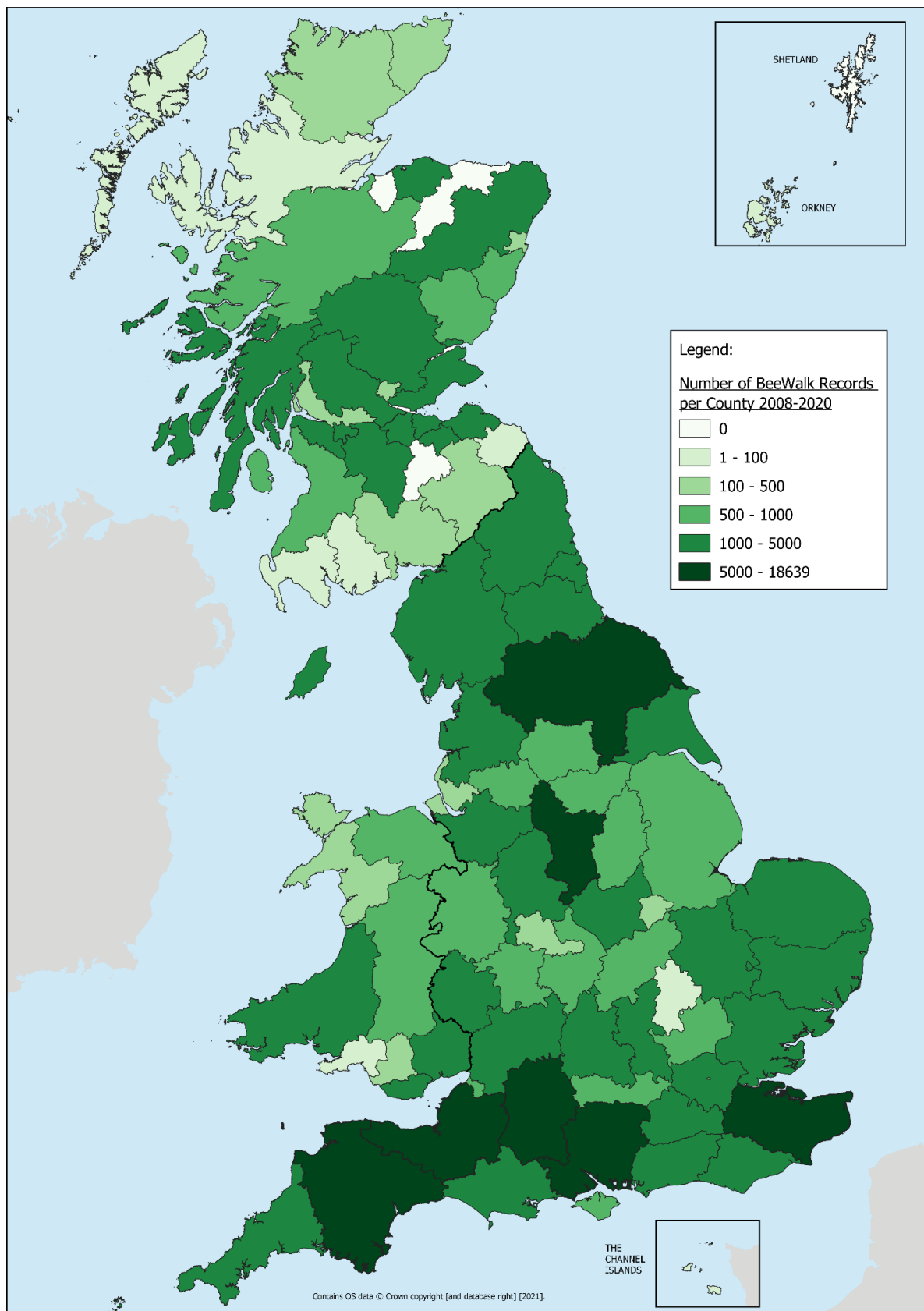
1km square survey

A selection of 1km grid squares across the country have been picked to be monitored in depth for their pollinators. These grid squares are all monitored for other reasons so it will be possible to track pollinator numbers and changes against other wildlife, plants and abiotic factors such as rainfall. This survey would involve up to four day-long site visits across the field season, carrying out FIT counts and pan trapping to get a full understanding of the pollinator species present.

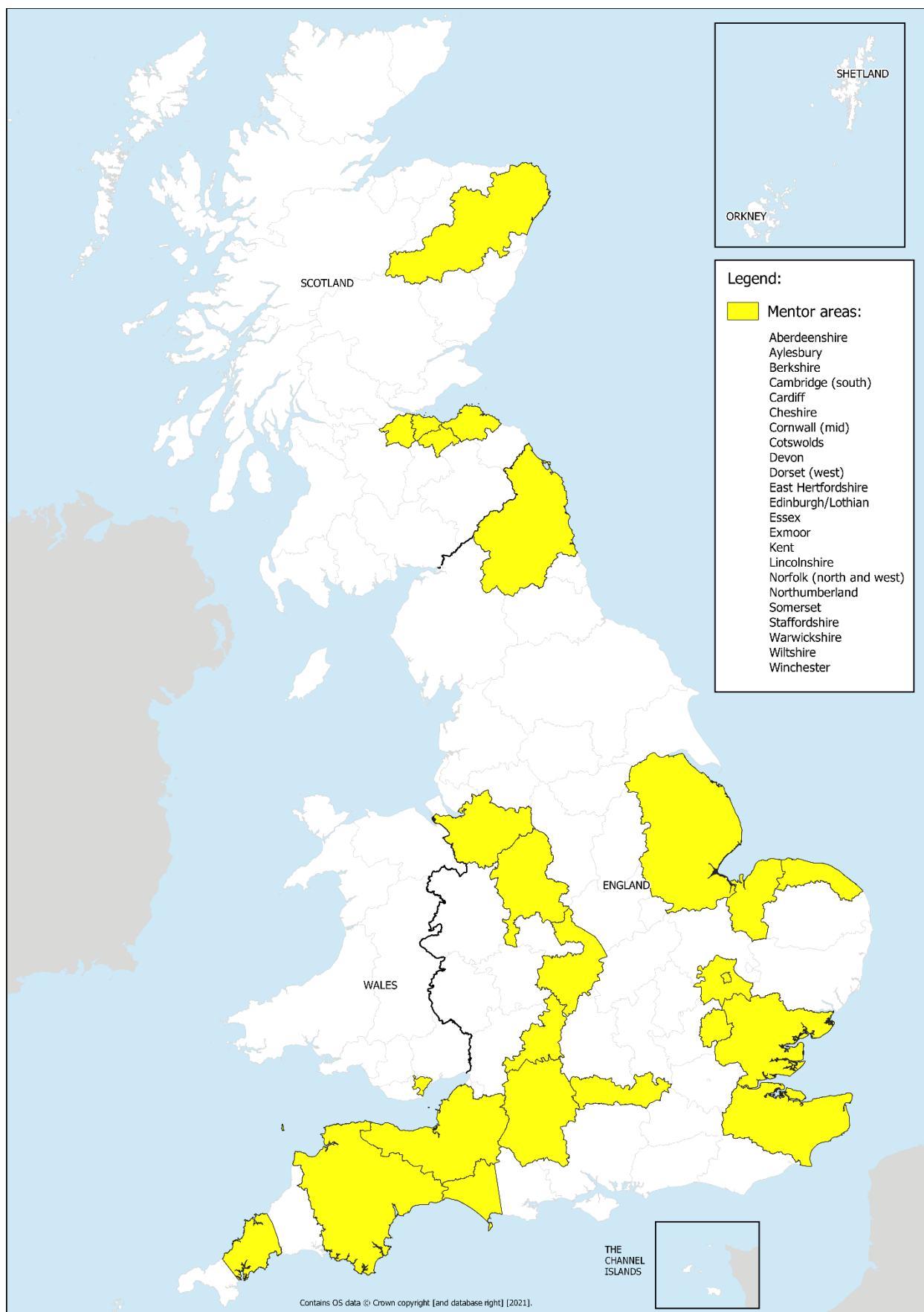
For full details of how to join in with either survey, please visit the PoMS website for more details and survey packs: <https://ukpoms.org.uk/>. The National Pollinator Monitoring Scheme is funded by JNCC and the UK, Northern Irish, Welsh & Scottish Governments.



BeeWalk network growth during 2020. Green dots indicate transects where data was first submitted between 2008 and 2019, red dots show transects which first submitted data in 2020. Although overall the number of



A chloropleth map showing the number of records submitted to BeeWalk for each county, 2008-20. Paler areas need more surveying!



Areas covered by BeeWalk Mentors for 2020 & 2021. Contact beewalk@bumblebeeconservation.org to be put in contact with your local Mentor, or to become one yourself.

Our projects need your help!

The Trust have a range of conservation and science projects across Britain, and monitoring bumblebees using BeeWalk is built into every one of them. Please have a look at the Projects page on the main BBCT website for more details, at <https://www.bumblebeeconservation.org/our-projects/>.

In particular, two new projects have a strong overlap with BeeWalk. Skills for Bees: Cymru and Skills for Bees: Scotland are both aimed at increasing bumblebee recording, both BeeWalk and ad hoc, through training and mentoring.

Skills for Bees: Cymru started in February 2021 and covers the whole of Wales. Project Officer Clare Flynn is working with a range of partner organisations, including National Parks, Natural Resources Wales, Wildlife Trusts, Local Environment Records Centres, and many more to increase bumblebee recording. This is through a series of training courses - face-to-face and virtual, classroom and field-based – and refreshers focused on particular aspects of recording such as difficult species pairs, etc.

Volunteers for the project also have the opportunity to attend field days to practice their identification skills while surveying sites for rare or scarce bumblebee species, with BBCT staff in attendance to help confirm IDs. The project runs until 2024 and is funded by the Moondance Foundation.

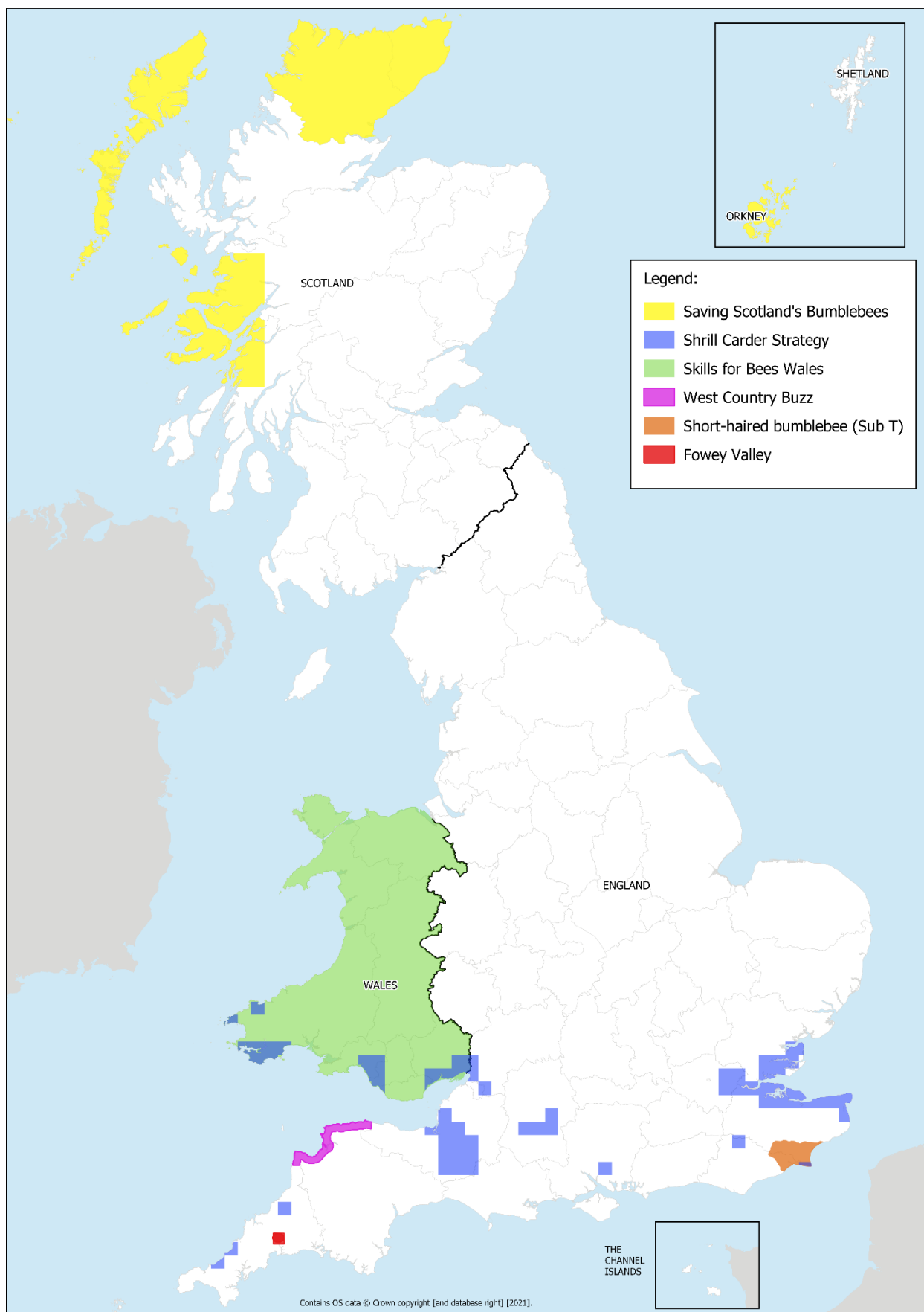
Project webpage: <https://www.bumblebeeconservation.org/skills-for-bees-cymru/>

Skills for Bees: Scotland will start in autumn/winter 2021. It will be focused on the Cairngorms region of central Scotland, where there are comparatively few bumblebee records or BeeWalks but several nationally scarce species are known to occur. These include the Bilberry, Broken-belted, and Moss Carder bumblebees (*Bombus monticola*, *B. soroensis*, & *B. muscorum* respectively).

The project has been developed along very similar lines to Skills for Bees: Cymru, with the same mixture of training, refresher courses and field surveys in collaboration with local organisations. It is currently funded until April 2022 by NatureScot but is intended to be a three-year project.



Socially-distanced carder bumblebee checking at Kenfig National Nature Reserve for Skills for Bees: Cymru.



Bumblebee Conservation Trust in-field project locations, 2020-21.

Background & Methods

Background to BeeWalk

The Bees, Wasps and Ants Recording Society (BWARS) has been collecting data on the distribution of hymenoptera since 1978. This provides a good understanding of the distribution of bumblebee species across the UK, but there has been a significant lack of data on bumblebee abundance. Abundance data, knowing the size of populations and how these change over time, is key to monitoring population trends for bumblebee species, identifying which species are most at risk and acting as an early warning system for significant declines.

The lack of abundance data, alongside the need to better understand what's happening to all our species, not just the rarest, led to the development of the BeeWalk project. BeeWalk collects bumblebee data from across the UK to gain an accurate understanding of current bumblebee populations and distributions. In particular, the scheme aims to:

- Collect long-term data on bumblebee distribution and abundance.
- Analyse data to identify population trends and drivers thereof.
- Use these and other findings to inform policy and conservation interventions by BBCT and others, including improved understanding of forage plants & identification of management impacts.
- Encourage the public understanding of bumblebees.

BeeWalk transects (fixed monitoring routes) are monitored by volunteers using a standardised methodology to ensure accurate and comparable data is gathered. Most transects are roughly 1-2 km in length and take in some flower rich habitat. Transects are walked a minimum of once a month between March and October (the main bumblebee flight period), ideally between 11am and 5pm on days with minimal wind or rain.



A bumblebee identification and survey training day (Photo Nikki Gammans)

Bumblebees are identified to species and caste where possible (and recorded as ‘unknown bumblebee’ or ‘unknown caste’ where not) and the number of each entering the ‘recording box’ on each section of the transect is recorded. The recording box covers an area up to four metres in front of the recorder, two metres either side of them (4m wide in total), and between ground level and two metres up. This is employed in order to standardise between habitats, which may have very different levels of visibility, as well as between recorders (different people will be able to identify bees from different distances, depending on experience) and species (more distinctive species can be identified from further away).

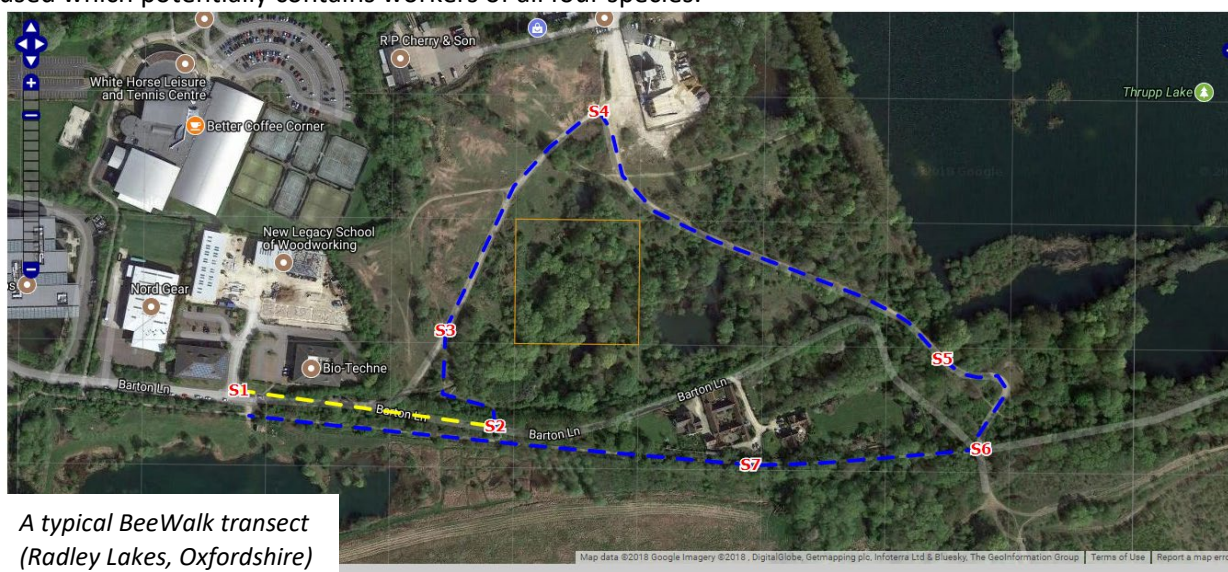
Recorders who are confident of their plant ID skills also have the option to record which flower species the bumblebees are visiting. This provides us with a better understanding of the forage preferences of bumblebee species nationwide and across a range of habitat types, which will allow us to better tailor our flower advice to gardeners and landowners. Holding up-to-date national population data allows us to better target our conservation activities and ensure that the advice we provide, including to governmental organisations, results in policies which reflect the current needs of our bumblebees.

BeeWalk from the beginning

The survey methodology for the BeeWalk scheme is based on existing transect-walking schemes such as the UK Butterfly Monitoring Scheme, with minor changes to reflect the facts that bumblebees are harder to identify than butterflies (so the recording box was made slightly smaller) and that bumblebees are less reliant on good weather to be flying (so the weather criteria were relaxed slightly). Transects are registered and records submitted directly on the BeeWalk website www.beewalk.org.uk, hosted by the Biological Records Centre.

The project was trialled during 2008 and 2009, opened to BBCT members in 2010, and launched as a scheme for the general public in 2011. The first year with more than a thousand records was 2010, and this is taken as the first year of the survey for analysis purposes.

The scheme has a high degree of focus on accuracy, validation and verification in order to meet the high standards required for monitoring scheme data to be viewed as scientifically robust and reliable. After three scoping years and nine in operation as a public recording scheme, the BeeWalk dataset now stands at 174,851 validated records of 22 bumblebee species (records of *Bombus lucorum*, *B. magnus* and *B. cryptarum* are combined as the *B. lucorum* aggregate for analysis as they can only be reliably separated by DNA analysis). Additionally, workers of the *B. lucorum* aggregate cannot be reliably separated from workers of *B. terrestris* in many cases so a further aggregate, *B. terrestris/lucorum* is used which potentially contains workers of all four species.



Bumblebee population trends

The central goal of the BeeWalk programme is to be able to reliably evaluate the trends in British bumblebee populations. Transect counts provide an annual estimation of the abundance of a species. They do not provide an absolute measure of the total abundance, but a relative measure which requires statistical interpretation to evaluate changes over time. This is complicated by the fact that transect locations change over time, allied to the effects of short-term weather conditions, etc (and, more recently, the effect of differing Covid restrictions across the nations of the UK).

Estimates of population trends across the 2010-20 period were calculated using a method similar to the analysis methodologies used by the UKBMS and the BTO's Breeding Bird Survey. First, a list is generated of the sites that each species has ever been recorded on within BeeWalk. This is used to establish the sites that each species could be expected to occur at, and thus the distance walked each month in those areas. This is in order to act as a measure of the area surveyed whilst improving analyses for more range-limited species.

Next the bumblebee counts submitted by BeeWalkers were added up to produce total counts of each caste of each species per month surveyed. The resulting monthly counts were then analysed using a log-linear model. This works out the monthly counts as a rate (bees seen per kilometre walked), which allows for the fact that the distances walked per month varies between months, years, and species. The model estimated abundance trends across the 2010-2020 period.

These data were also used to demonstrate the abundance of each of the species or species aggregates in 2020 against the 2010-19 mean monthly abundance per kilometre surveyed, in order to see whether 2020 was statistically a 'good', 'bad', or 'standard' year for each species.



*The Moss Carder remains a species of concern but Scottish populations, including the Hebridean subspecies *Bombus muscorum agricolae* pictured here, are not yet well surveyed by BeeWalk transects.*

Bumblebee Population & Phenology Trends

2020 was a year of extremes, in terms of the weather as much as anything else: it is the only year to feature in the top ten since records began for all three of rainfall, temperature, and sunshine-hours. Unsurprisingly, bumblebees as a group had a good year, although there was considerable variation between individual species. Overall seven species plus ‘total bumblebees’ and the honeybee increased, while 13 species decreased.

Widespread flooding in the wettest February ever gave way to the sunniest spring on record. On the 23rd March 2020 the UK entered a lockdown. Mixed messages from Government caused considerable confusion over what was and wasn’t legal, with travel restrictions, site closures, and curtailment of group activities. Consequently many transects could not be walked and in April 2020, the only month which was entirely locked down, the number of transects completed dropped dramatically. However, a significant number were still walked, on private land or as part of the permitted ‘daily exercise walk’: 161 in April 2020, down from 474 in April 2019.

This meant that we were still able to evaluate bumblebee populations. Spring bumblebee numbers in March, April and May were all noticeably above average, though there is no evidence of the huge increase in bee numbers mentioned by the media as the UK entered Covid restrictions. This isn’t surprising – the year-long colony cycles of bumblebees always made a reaction over the mooted timescale unlikely – and it is instead almost certain that the combination of lockdown and a warm, sunny spring meant that more people saw bees rather than there being significantly more bees to be seen.

The spring specialist Early bumblebee *Bombus pratorum* had a reasonable, if unexceptional, year. The population reached peaked in an above-average May rather than the usual June and numbers were below average for the second half of the field season. By contrast the Tree bumblebee, another spring-biased species, had a very good year. April, May, June and August all saw significantly above-average counts as the species had one of its best years as a UK species.

The summer of 2020 saw notable warm periods in June and August, although July's average temperature was slightly below average. A heatwave from the 31st July saw the hottest day of the year and six consecutive days exceeding 34°C. Total bumblebee numbers peaked in July before falling to be slightly below average in August, suggesting that many species were able to take advantage of the warmth to complete their colony cycles earlier than normal. This pattern can be seen in the data for the Garden, Heath, Red-, Buff-, & White-tailed bumblebees as well as the Early bumblebee mentioned previously.

Two of the species which showed an increase in abundance are rarities, listed as conservation priority species in England and Wales (neither is present in Scotland). The Shrill Carder bumblebee (*Bombus sylvarum*) is perhaps Britain's most threatened bumblebee but has continued to show the largest increase of any species over the survey period. In part this may be due to increased monitoring in strongholds for the species (particularly through the Back from the Brink and Making a Buzz for the Coast projects), but separate analysis for the Shrill Carder Conservation Strategy shows the species has become more abundant even when only long-term transects are considered. Similarly, the Ruderal bumblebee (*Bombus ruderatus*) is largely monitored in areas which are undergoing bumblebee-focused conservation efforts: the success of these species stands in testament to the ongoing efforts of the staff and volunteers of the many organisations working to conserve them.

The Brown-banded carder (*B. humilis*) has dropped from a net increase to a net decrease in abundance for 2020, with the phenology plot showing the species having a very poor spring before rallying later in the summer. However, recording of this species was significantly affected by site closures, especially during lockdown, with some hotspot sites closed for public access for much of the spring. It will remain a species to which we pay considerable attention, especially for the 2022 analysis.

The two other species which arouse the greatest concern from this analysis are the Bilberry bumblebee *B. monticola* and the Moss Carder *B. muscorum*. Both are already listed as rare conservation-priority species after large-scale distributional declines during the 20th century, and our data shows that they are both continuing to decline in abundance at their remaining sites. However, it is important to caveat this: both species have large Scottish populations which are currently not well covered by the BeeWalk network, and which ad hoc recording suggests continue to do well. The recording of the Bilberry bumblebee in particular was disproportionately affected by Covid restrictions during 2020: movement constraints and limits on group activities severely reduced the number of BeeWalks undertaken in more remote areas such as the high moors.

Hopefully the reduced impact of Covid restrictions will allow recording to bounce back during 2021, but the Scottish Highlands and the Orkney and Hebrides archipelagos remain a high-priority target for transects to help fill in this gap, as well as upland areas in general.

Three species have not been analysed as there is insufficient data for the analysis to be robust. These are the Great Yellow bumblebee *B. distinguendus*, Broken-belted bumblebee *B. soroensis*, & Red-shanked carder *B. ruderarius*.

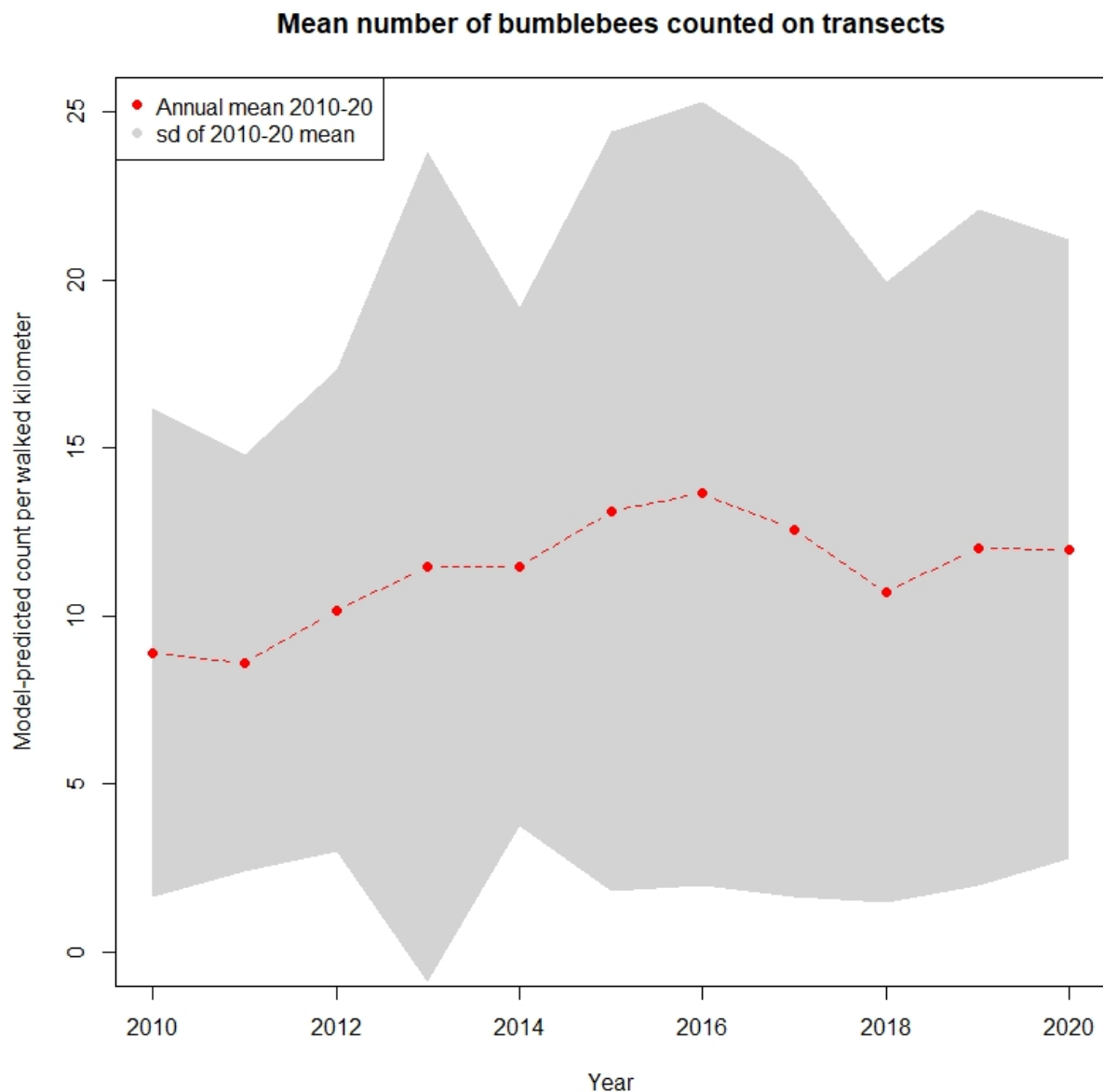
Temperature data taken from Kendon, M., McCarthy, M., Jevrejeva, S., Matthews, A., Sparks, T., & Garforth, J. (2021). State of the UK Climate 2020. International Journal of Climatology, 41 (Suppl. 2), 1–76. <https://doi.org/10.1002/joc.7285>

2010-2020 population trends for the species with sufficient records in the BeeWalk dataset (18 bumblebee species, 3 bumblebee species aggregates, and the honeybee). Species showing population increases are on the left of the table, those showing decreases are on the right. Species are ordered from most positive change to most negative change and ranked accordingly, with last year's rank in brackets for each species. Conservation priority species have been highlighted in blue, cuckoo species in red, and the 'Big 8' common species in green.

	Species	Individuals	Trend		Species	Individuals	Trend
1 (1)	<i>B. sylvarum</i>	669	0.207	10 (12)	<i>B. lapidarius</i>	76,630	-0.009
2 (3)	<i>B. lucorum/terrestris</i> workers	59,577	0.085	11 (11)	<i>B. pascuorum</i>	107,407	-0.011
3 (2)	<i>B. ruderatus</i>	489	0.084	12 (16)	<i>B. hortorum</i>	16,645	-0.031
4 (5)	<i>Apis mellifera</i>	70,565	0.052	13 (15)	<i>B. lucorum</i> agg.	46,984	-0.033
5 (4)	<i>B. hypnorum</i>	17,870	0.046	14 (6)	<i>B. humilis</i>	2,979	-0.034
6 (7)	<i>B. vestalis</i>	3,409	0.032	15 (14)	<i>B. pratorum</i>	23,300	-0.047
7 (8)	<i>B. terrestris</i>	78,270	0.021	16 (13)	<i>B. monticola</i>	276	-0.047
8 (9)	<i>B. jonellus</i>	849	0.004	17 (19)	<i>B. rupestris</i>	673	-0.052
9 (10)	TOTAL bumblebees	474,241	0.010	18 (21)	<i>B. bohemicus</i>	1,173	-0.099
				19 (17)	<i>B. barbutellus</i>	129	-0.104
				20 (20)	<i>B. sylvestris</i>	1,139	-0.115
				21 (18)	<i>B. muscorum</i>	1,669	-0.169
				22 (22)	<i>B. campestris</i>	587	-0.180

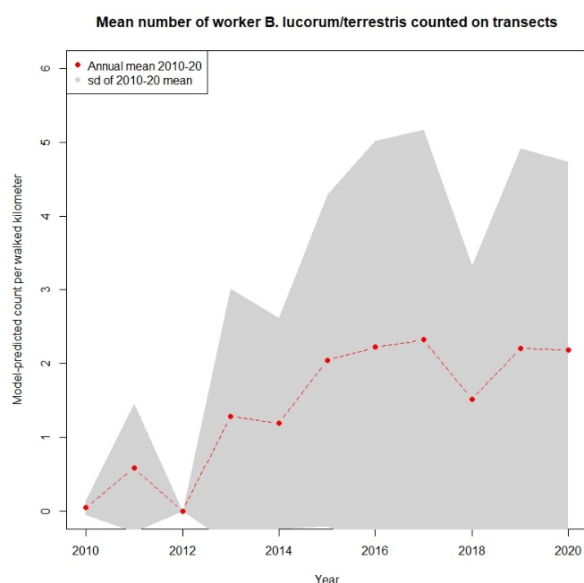
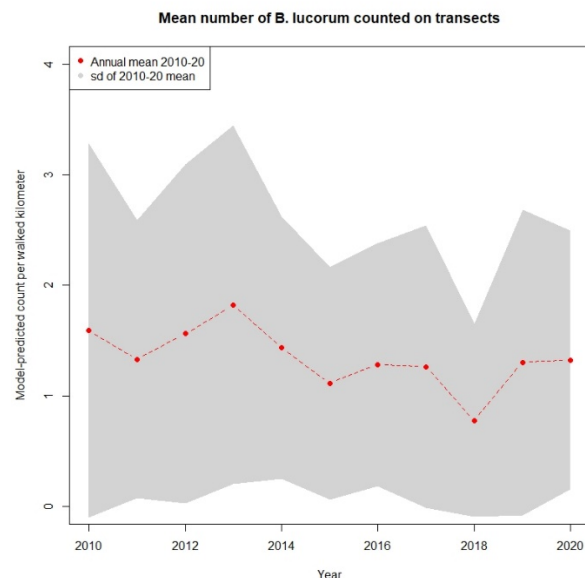
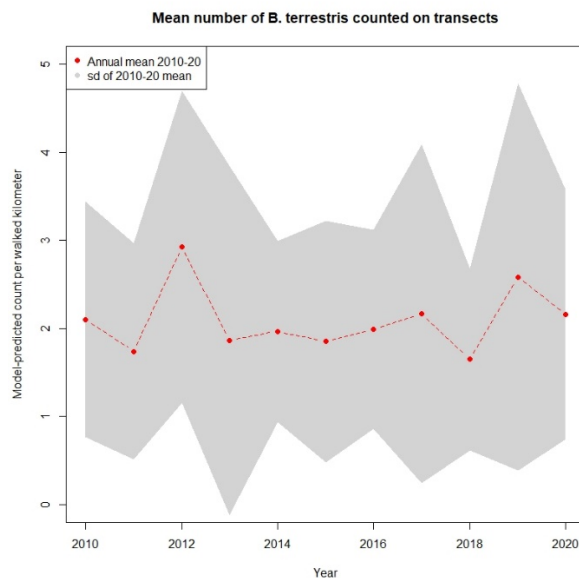
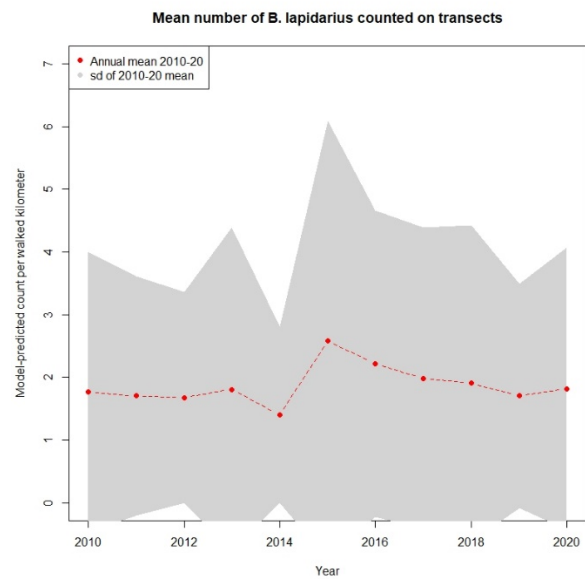
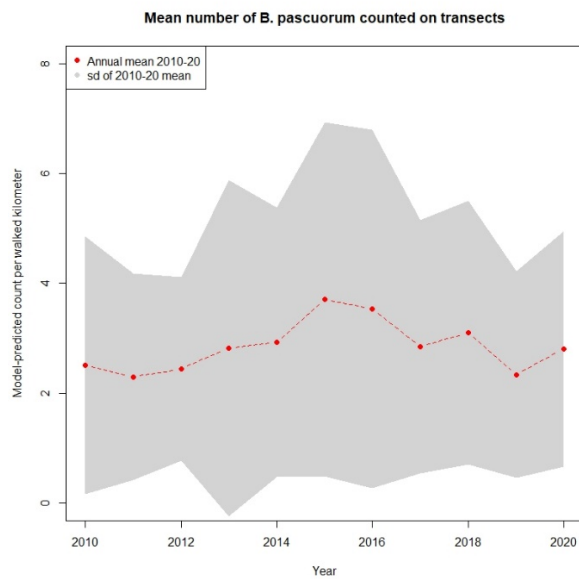
The social bumblebees parasitised by each of the six British cuckoo bumblebee species. Apparent primary hosts are in bold.

Cuckoo species	Host bumblebee species
<i>Bombus barbutellus</i> , Barbut's Cuckoo	<i>Bombus hortorum</i> , <i>B. ruderatus</i>
<i>Bombus bohemicus</i> , Gypsy Cuckoo	<i>Bombus lucorum</i> agg.
<i>Bombus campestris</i> , Field Cuckoo	<i>Bombus pascuorum</i> , <i>B. humilis</i> , <i>B. muscorum</i>
<i>Bombus rupestris</i> , Red-tailed Cuckoo	<i>Bombus lapidarius</i>
<i>Bombus sylvestris</i> , Forest Cuckoo	<i>Bombus pratorum</i> , <i>B. monticola</i> , <i>B. jonellus</i>
<i>Bombus vestalis</i> , Southern Cuckoo	<i>Bombus terrestris</i>



The abundance trend of all bumblebees recorded on BeeWalk transects between 2010 and 2020, including individuals not identified to caste or to species. This is shown as the mean number of bumblebees counted per kilometre walked each year (red line). The grey cloud is a measure of the annual variation around this average (standard deviation)

Widespread bumblebees

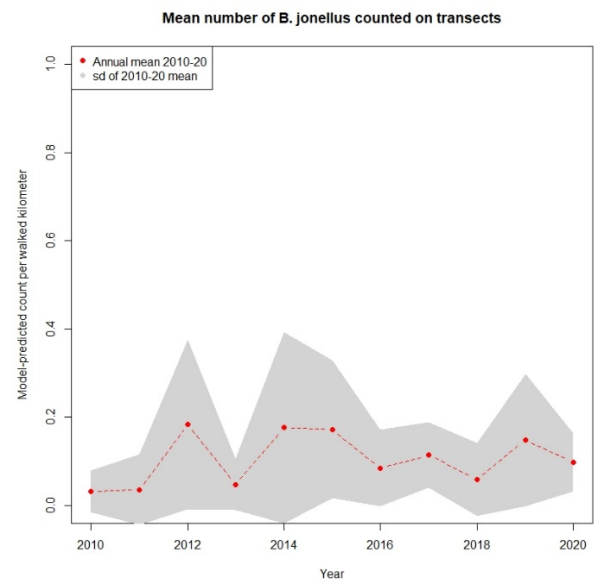
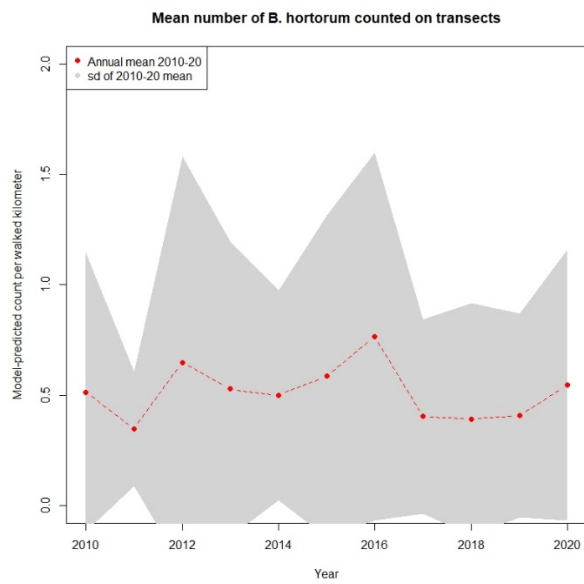
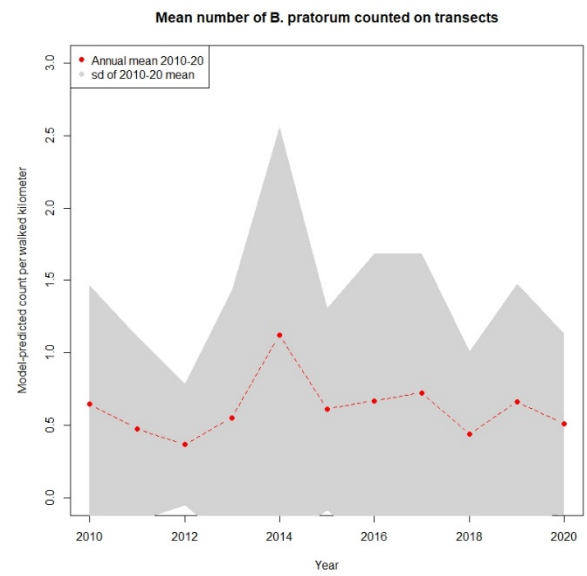
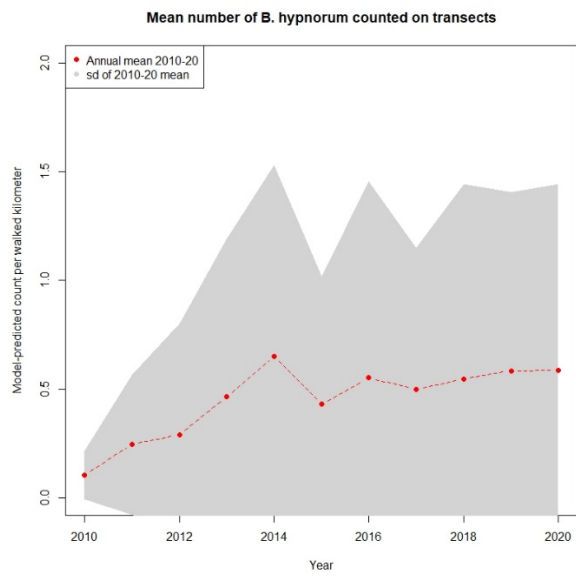


Abundance trends for the eight widespread British bumblebee species 2010-20, shown as the mean number of bumblebees of that species counted per kilometre walked each year on transects where the species has ever been recorded (red line). The grey cloud is a measure of variability (standard deviation).

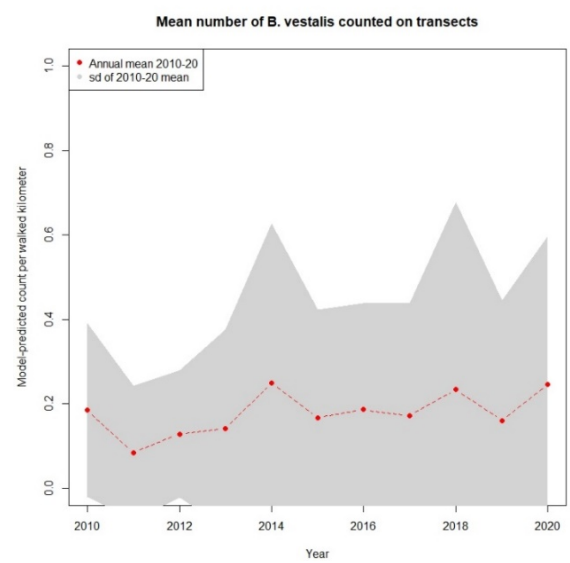
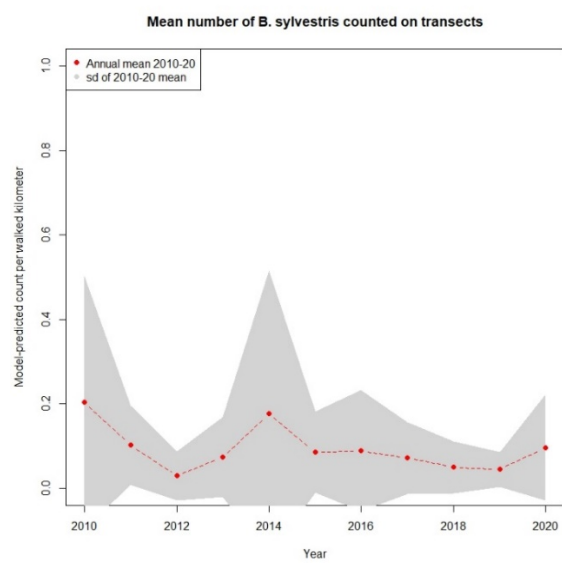
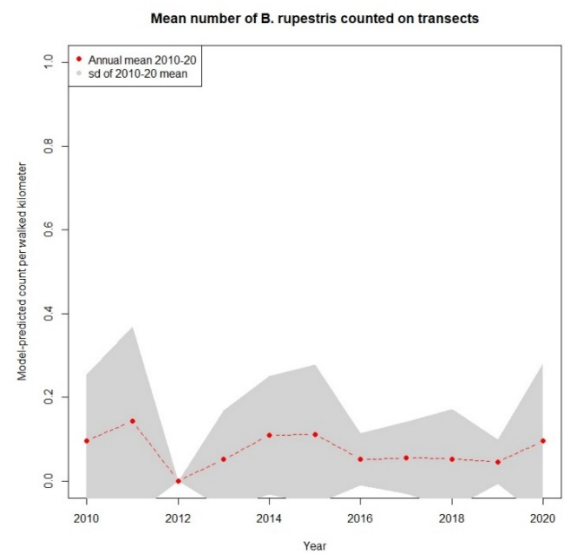
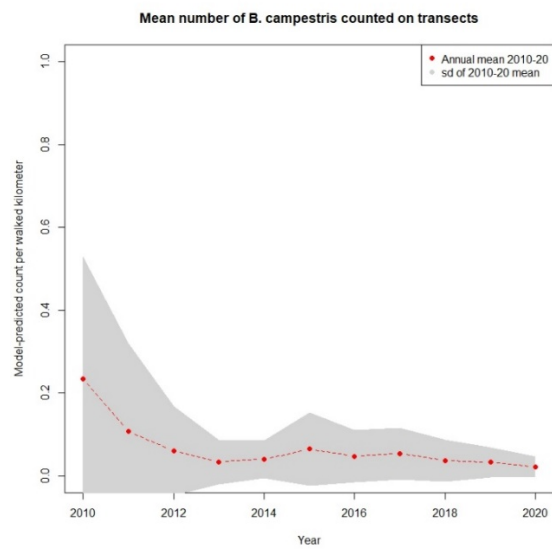
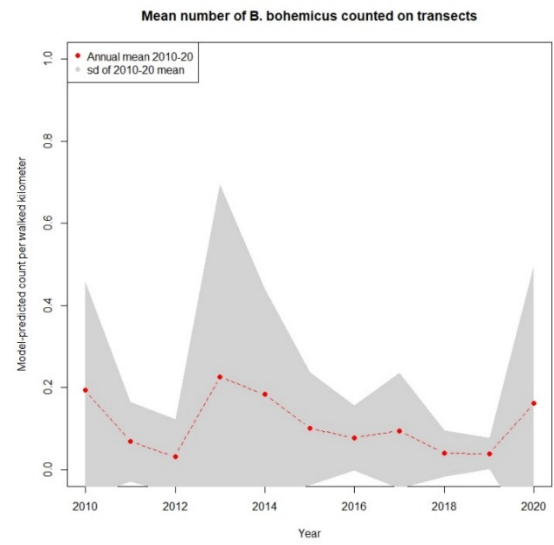
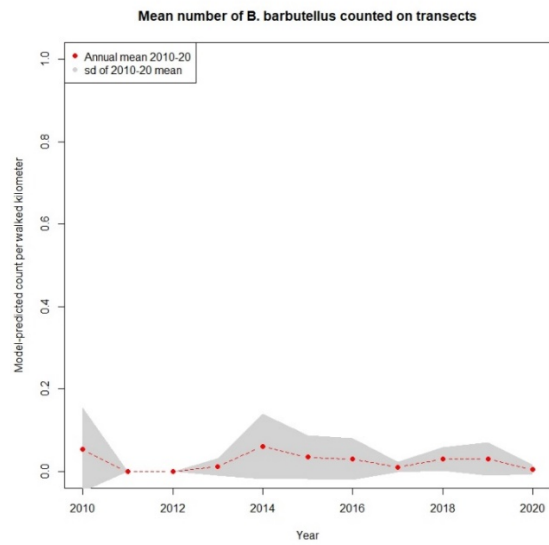
Note: the vertical axis varies with species' abundance and thus differs between plots

Bombus lucorum & *B. terrestris* often cannot be reliably split as workers, so records submitted as '*B. lucorum/terrestris* workers' are plotted in addition to both species.

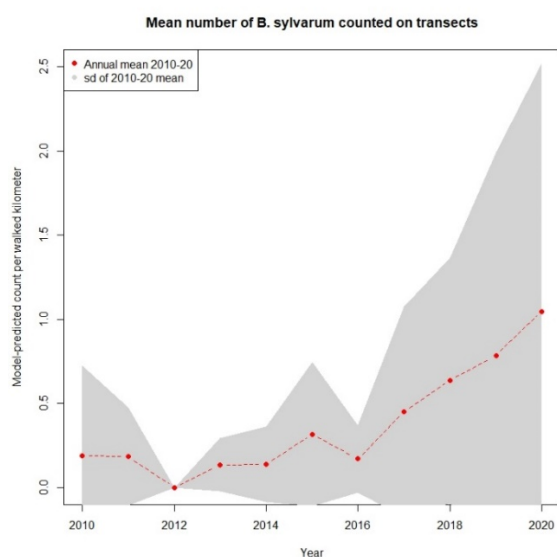
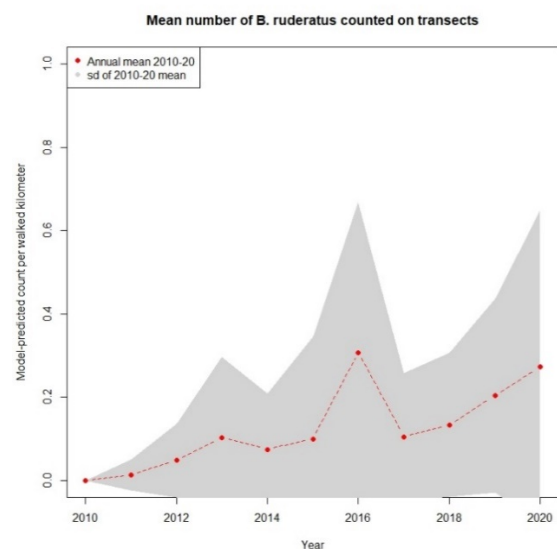
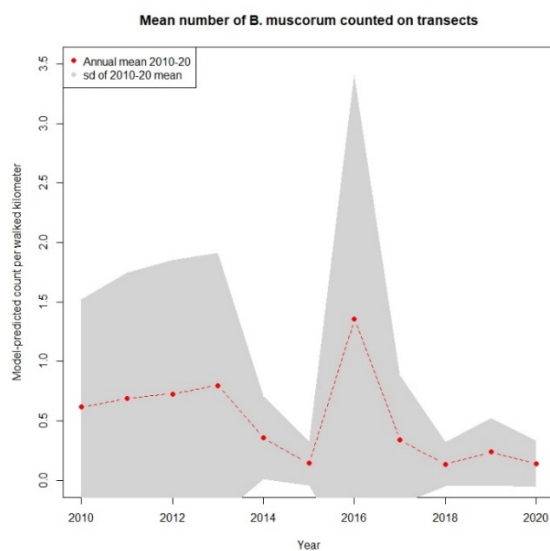
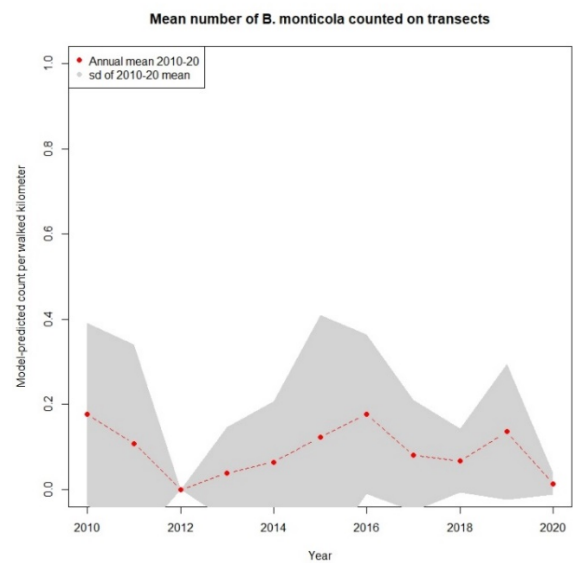
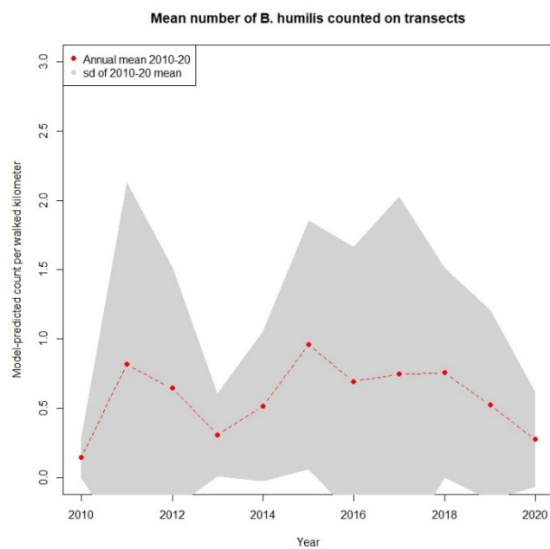
Widespread bumblebee species



Cuckoo bumblebees



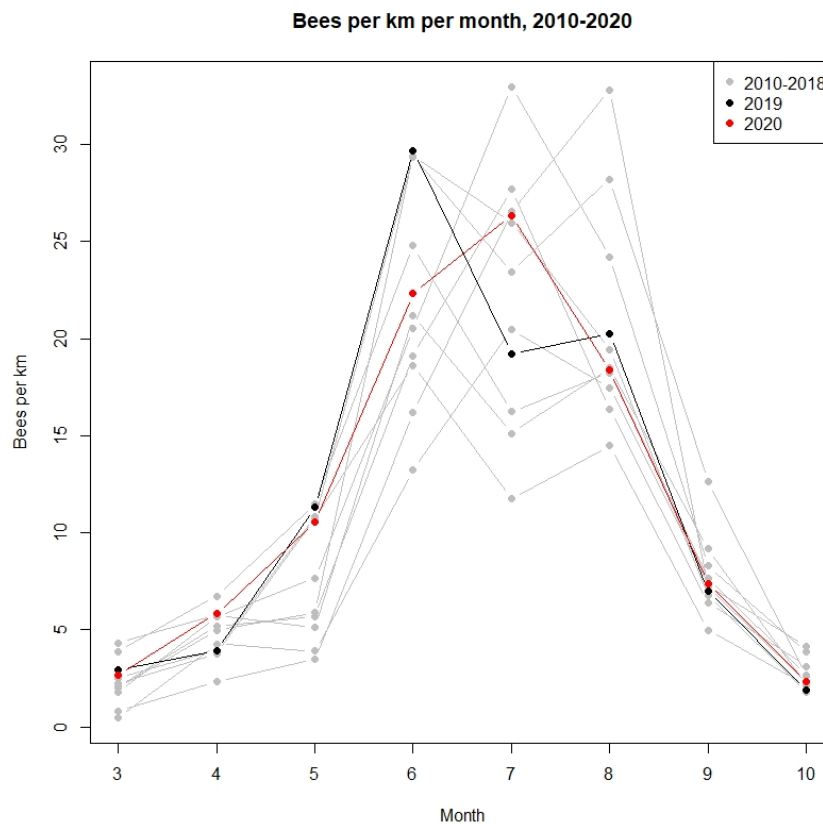
Conservation priority bumblebee species



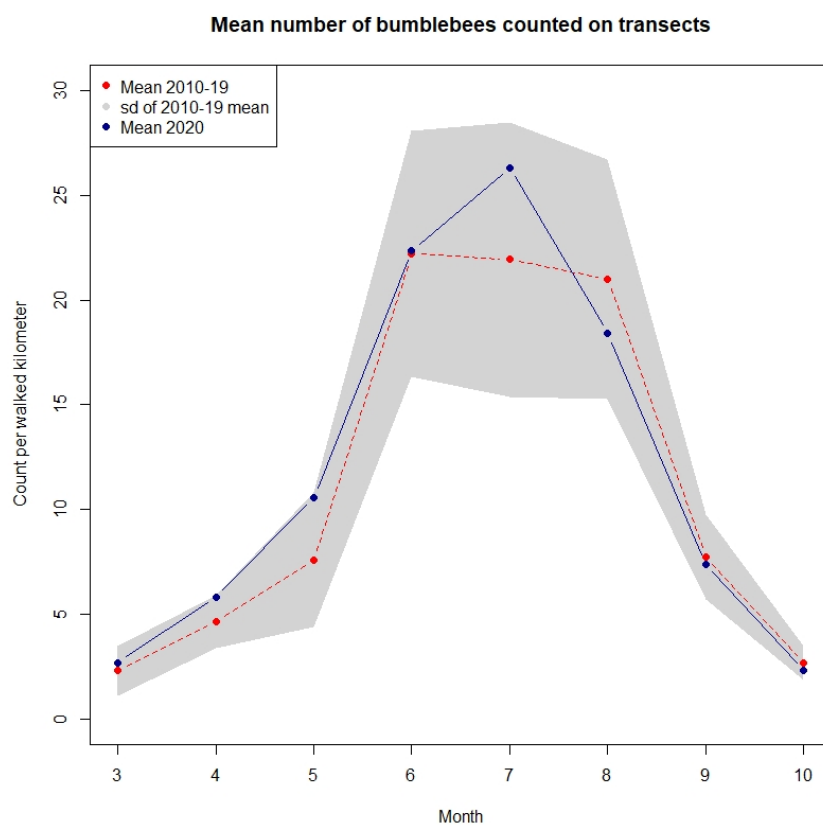
Abundance trends for five rare or scarce British bumblebee species 2010-20, shown as the mean number of bumblebees of that species counted per kilometre walked each year on transects where the species has ever been recorded (red line). The grey cloud is a measure of variability (standard deviation).

Note: the vertical axis varies with species' abundance and thus differs between plots

Bumblebee phenology plots, 2020

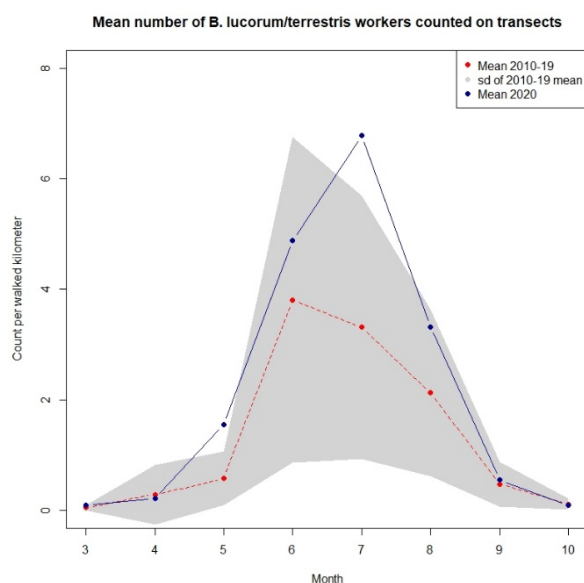
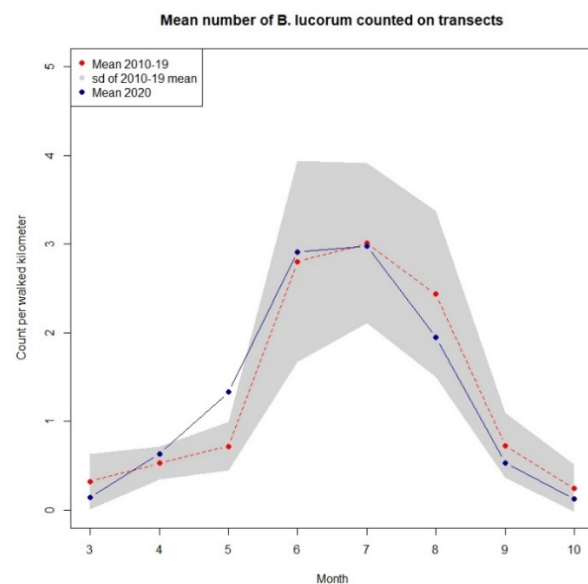
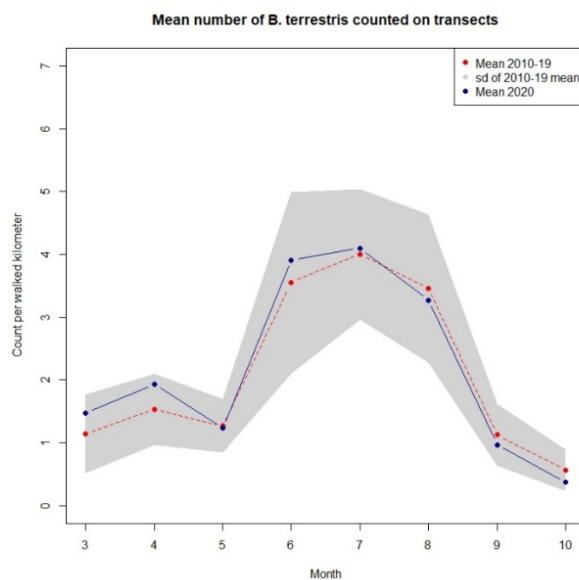
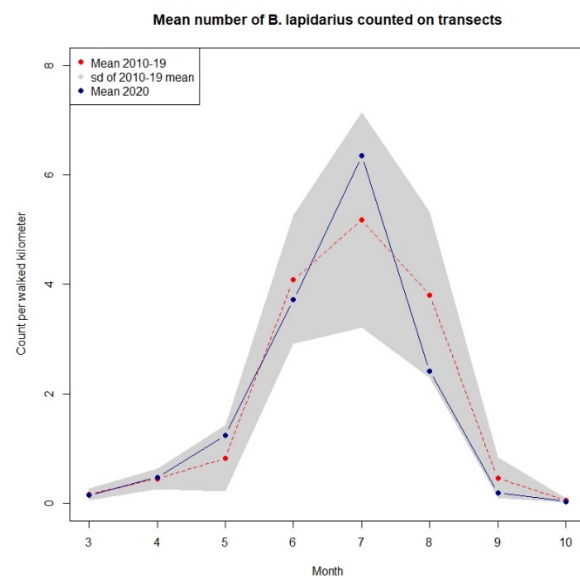
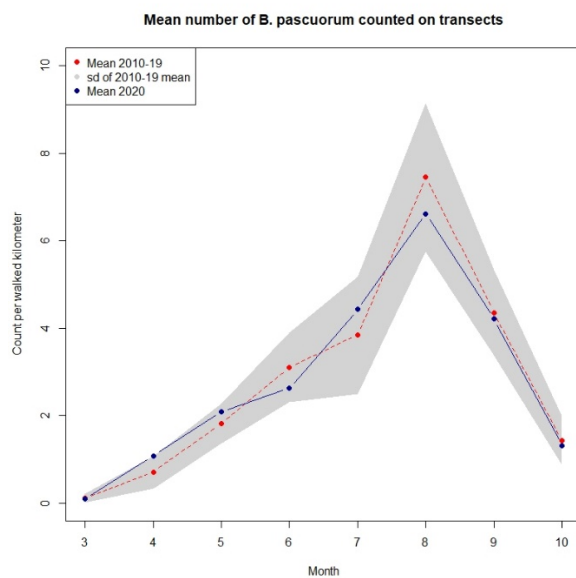


The mean number of bumblebees per kilometre recorded per month (March-October) for each year the BeeWalk survey has been in operation.



The mean number of bumblebees per kilometre recorded per month (March-October). Results for 2020 (blue line) are plotted against the average monthly abundance for the nine-year period 2010-19 (red line). The grey cloud indicates the variability of the 2010-19 average – where the blue (2020) line is outside this grey area the count is significantly different to what would be expected.

Widespread bumblebee species

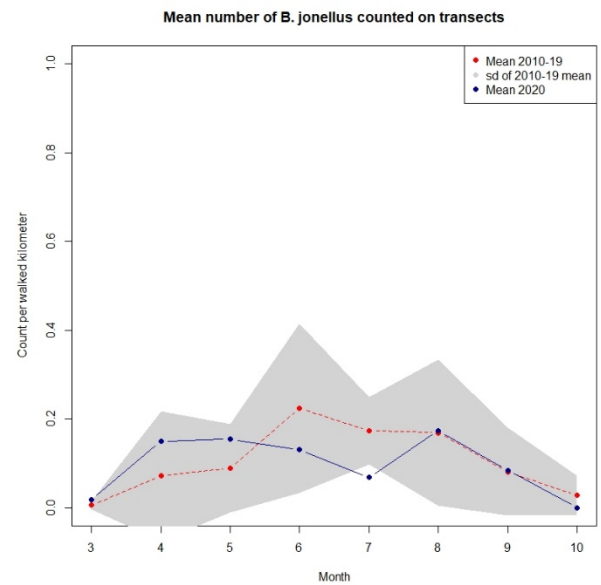
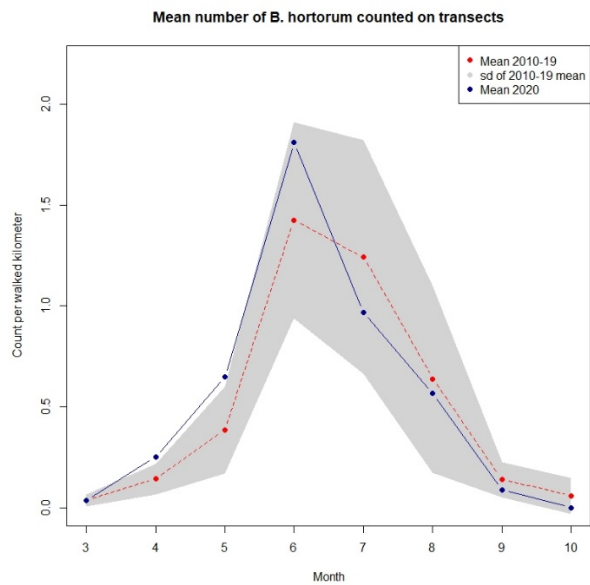
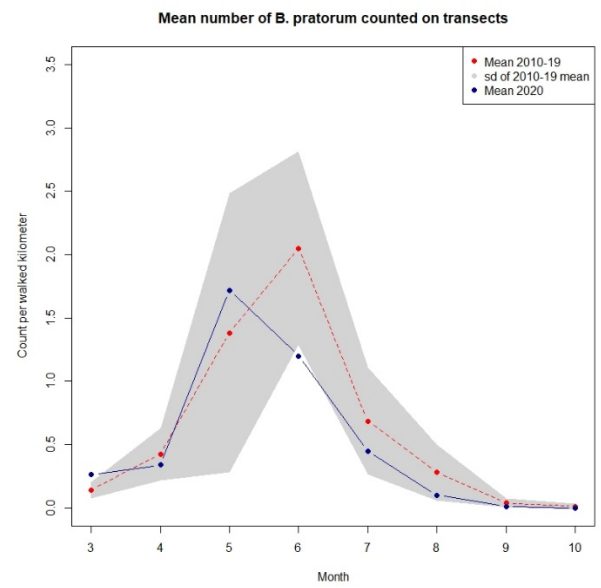
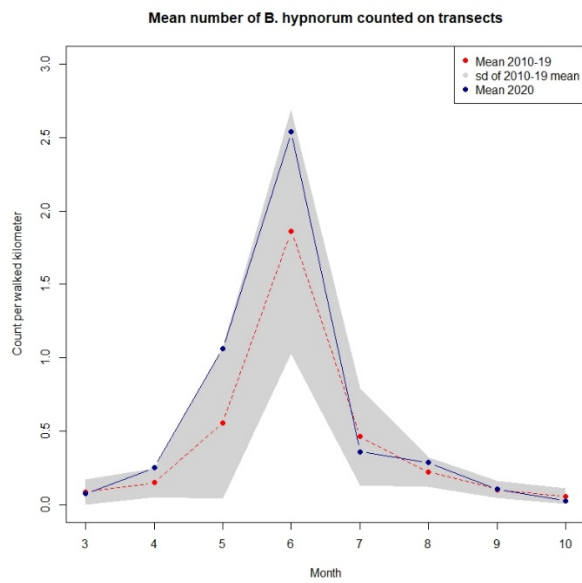


The mean number of bumblebees per kilometre per month between March and October 2020 (blue line), plotted against the average monthly abundance for the nine-year period 2010-19 (red line). The grey cloud indicates the variability of the 2010-19 average (standard deviation).

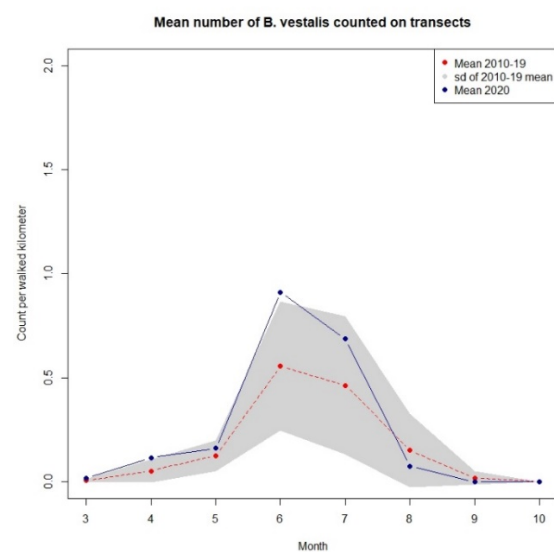
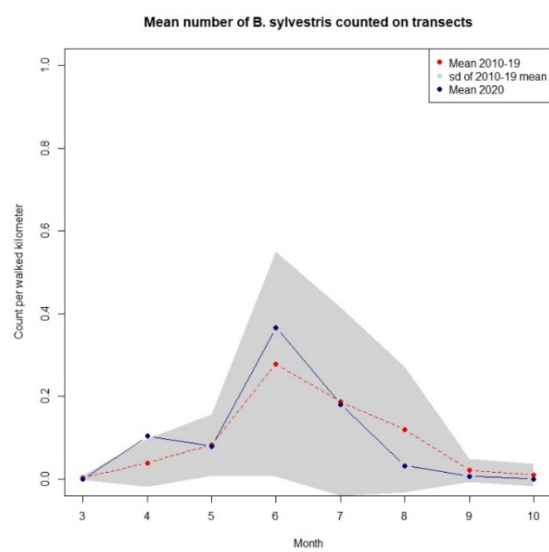
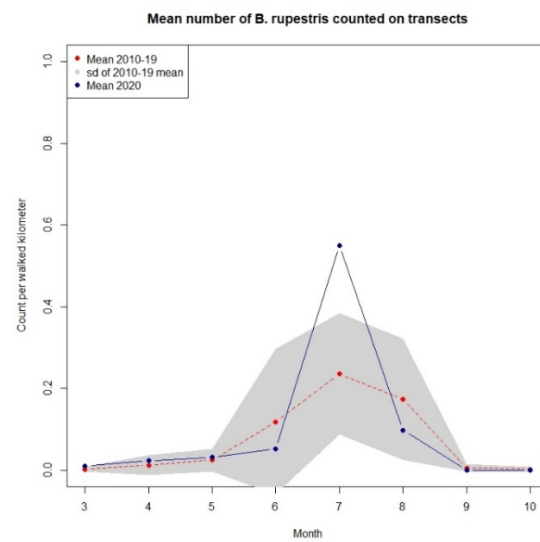
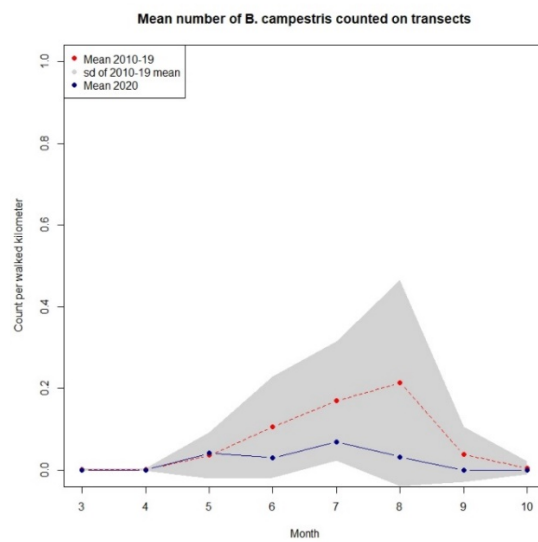
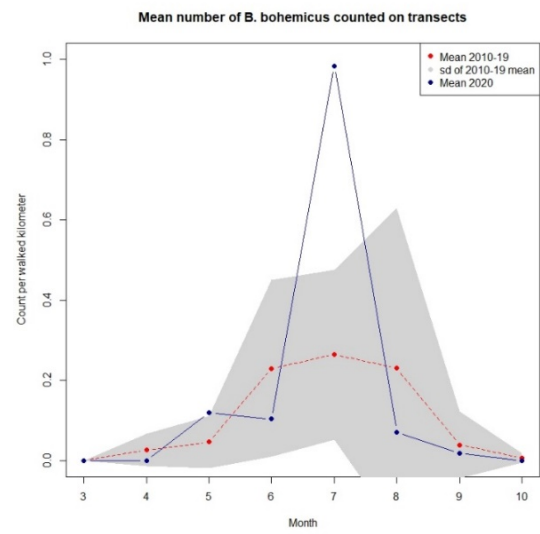
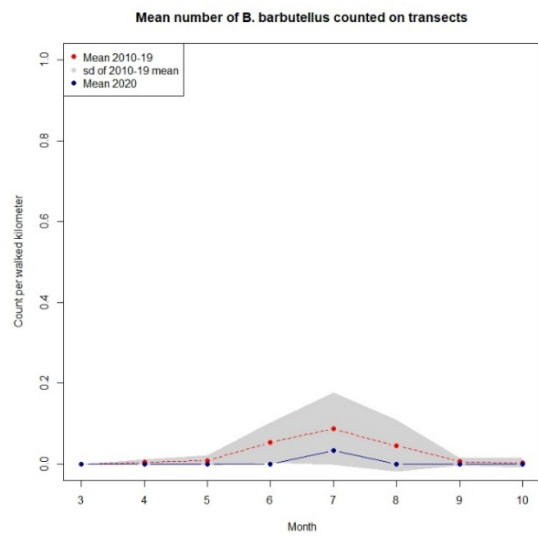
Note: the vertical axis varies with species' abundance and thus differs between plots

Bombus lucorum & *B. terrestris* often cannot be reliably split as workers, so records submitted as '*B. lucorum/terrestris* workers' are plotted in addition to both species.

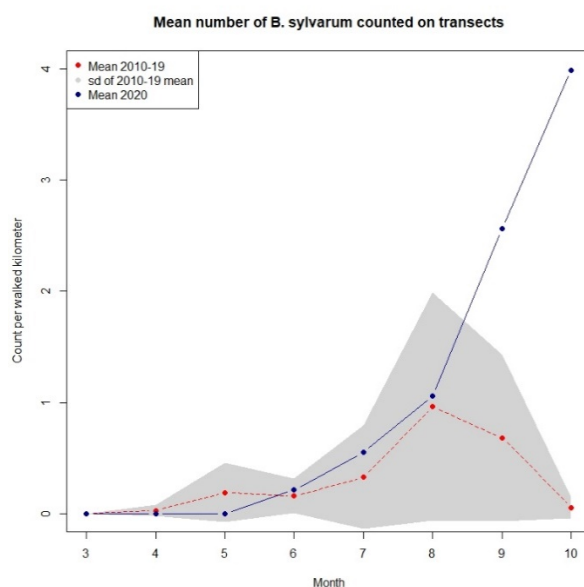
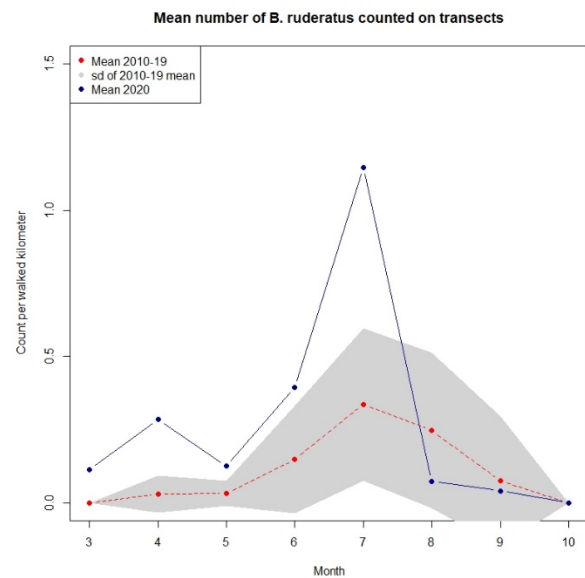
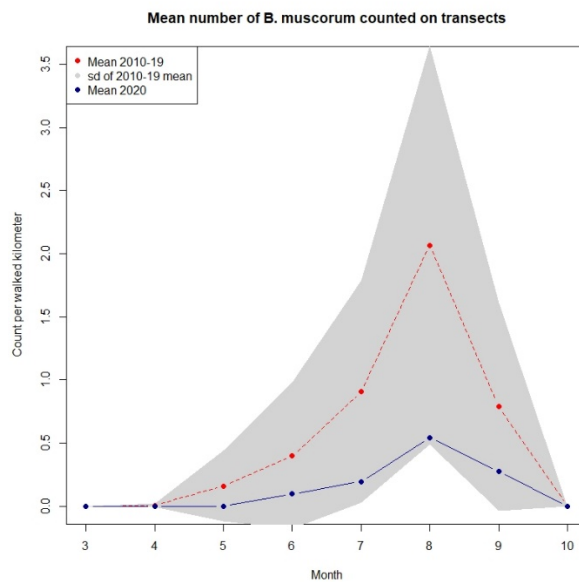
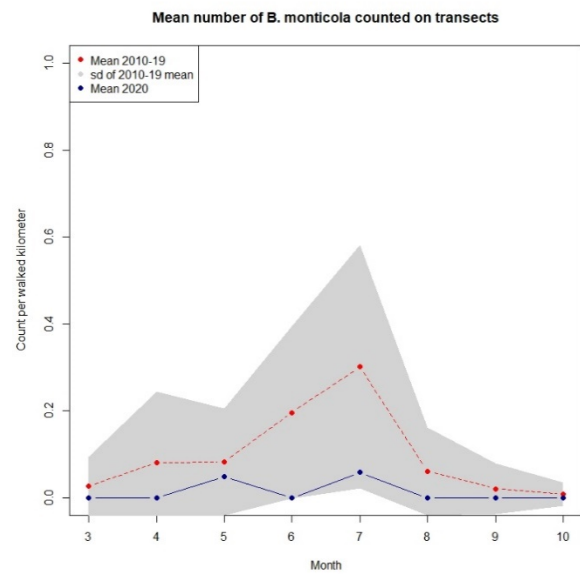
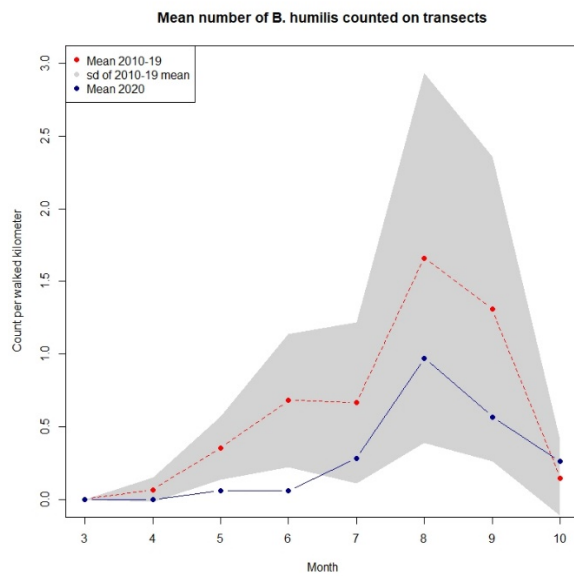
Widespread bumblebee species



Cuckoo bumblebees



Conservation priority bumblebee species



The mean number of bumblebees per kilometre per month between March and October 2020 (blue line), plotted against the average monthly abundance for the nine-year period 2010-19 (red line). The grey cloud indicates the variability of the 2010-19 average (standard deviation).

Note: the vertical axis varies with species' abundance and thus differs between plots



(*Bombus terrestris* photo Les Moore)

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It can be downloaded from www.bumblebeeconservation.org and further information can be found on the BeeWalk website, www.beewalk.org.uk.

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