West Country Buzz

Nature Recovery Networks initiative

End of year report
April 2021 – March 2022

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Bumblebee Conservation Trust

With thanks to our funders

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Background

The objectives of the project are to i) survey and monitor populations of S41 bumblebee species; ii) provide advice and support to raise awareness; and iii) provide habitat management assistance.

The project has been carried out by Trust Project Officers Cathy Horsley and Daisy Headley; and from March 2022 by Jamie Buxton-Gould and Cathy Horsley.

Our focus area is a 5km strip along the North Devon coast in which we have piloted an approach towards development of a Nature Recovery Network (NRN), benefiting a broad range of pollinating insects. This NRN is being used to create, restore and join up pollinator habitat at a landscape scale, and integrates a wide variety of landowners, farmers, volunteers and organisations in the area.

The project focuses on the Brown-banded carder bee (*Bombus humilis*), Moss carder bee (*Bombus muscorum*), and the Ruderal bumblebee (*Bombus ruderatus*), which are all S41 priority species. The Brown-banded carder bee is also a Devon Special Species; a species that the county should take particular responsibility for. These species are known from just a few sites on the North Devon coast. Remaining habitat is under threat, such as from coastal erosion, conflicting land use pressures, and fragmentation. It is essential that landowners, farmers and the general public are made aware of the plight of bumblebees, and how management decisions can impact on their survival.

Wildflower reseeding at Middleborough Hill was part-funded by the project in 2020. Two queen Brown-banded carder bees were recorded here on Red clover in August 2022

Summary of achievements April 2021 – March 2022

Targeted **bumblebee surveys** have taken place across North Devon. Male and summer queen **Brown-banded carder bees** (S41) were recorded at three new sites

BeeWalks at 2 **case study sites** are ongoing to gather evidence on effectiveness of conservation measures

The Big Bumblebee Blitz took place across North Devon, generating 189 records

22 active BeeWalks in and around the project area generated **968 bumblebee records** in 2021. **Brown-banded carder bees were recorded on 4 BeeWalk transects**

46 landowners have received in-depth **management advice** and follow-up support across **55 sites**

1,250 ha of land has been advised on

15.95 ha of pollinator habitat has been created in 2021, bringing the project total to 67.48 ha so far

We have collaborated with **27 partner organisations and voluntary groups**

11 farmers attended two farm days in partnership with Braunton Facilitation Fund Group and the National Trust

137 people attended 1 identification workshop, 2 refresher sessions, 2 field practice sessions, 2 guided walks, and a meadows day event

5 people attended a scything training course, run by Somerset Scythe School

The **project's profile has been raised** via Twitter, 3 articles, and 5 talks (with a total audience of 90)

£4500 funding was awarded from the North Devon AONB towards a cut and collect mower and wildflower seeds for Braunton's road verges, and for an orchard

£900 was awarded from TeeMill for wildflower seeds and plug plants across the project area, and **£400 from Will Bees Bespoke** for Yellow rattle seeds.

Project objectives[1]

1. Survey and monitor: establish the abundance and distribution of bumblebees, with a focus on S41 species

1.1 Training

To achieve the outcome of an increase in bumblebee records and trained recorders, we are establishing a network of skilled volunteers and BeeWalkers (participants in the Trust's BeeWalk, a national bumblebee recording scheme) in North Devon. **We reached a total of 92 people through training events between April 2021 and March 2022.** We delivered an **advanced bumblebee identification course (9 attendees)**, which was postponed in 2020 due to Covid-19 restrictions. As the project has run multiple beginners workshops in previous years, and due to restrictions on meeting indoors, we ran **two outdoor refresher sessions (28 attendees)** for bumblebee recorders to refresh their skills and connect with other volunteer recorders. A further **two follow-up field sessions were attended by 55 people.** A high number of beginners at our events informed us that there is continued new interest in bumblebees in the project area, and a demand and need for more beginners sessions.

Left: Attendees at the advanced bumblebee identification course (photo credit: Mary Breeds). Right: Participants on an id skills refresher workshop at Brownsham

A survey of participants from the advanced bumblebee identification course and the refresher workshop at Brownsham was conducted, which received 11 responses. The events were rated as Excellent or Good (Figure 1). Eight participants considered themselves Likely or Very likely to record ad hoc sightings of bumblebees. Eight participants thought they were Likely or Very likely to take part in BBCT's BeeWalk scheme.

"A really great workshop - couldn't have been better"

"Thoroughly enjoyed the day, thank you very much!"

"Many thanks to the team for the session. Really enjoyed it. I am someone who prefers being out and about and observing in "life" so to speak but welcomed the chance to do some microscope-based work too to help with my ID in the field"

[1] See Appendix for a summary of the project objectives achieved against the work plan

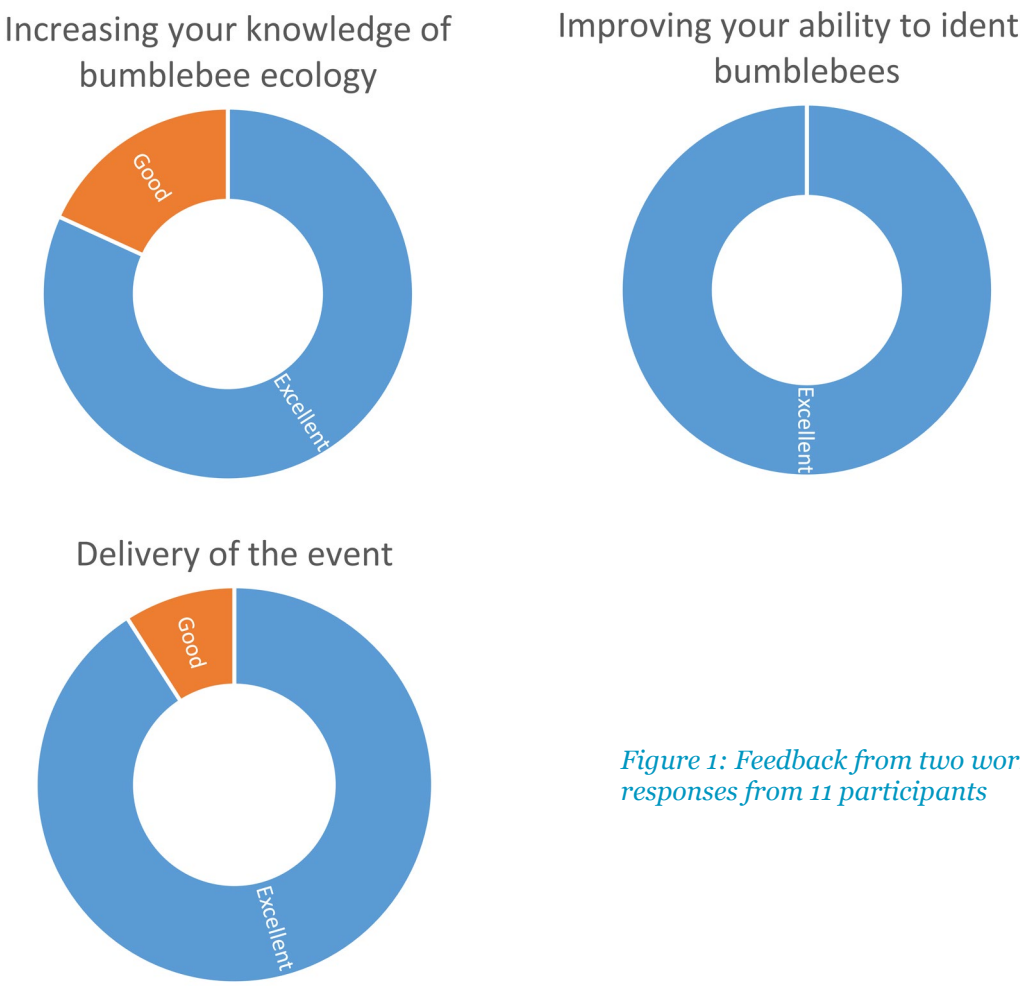

Figure 1: Feedback from two workshops, with responses from 11 participants

We hosted a **scything workshop** (right), which was subsidised by the project, and **attended by 5 people**. The course was run by the Somerset Scythe School and our aim was to upskill landowners with a different tool for managing wildflower meadows, in particular, to upskill people experiencing difficulties in securing contractors because of the small size or inaccessible location of their land.

1.2 Surveys 2021

Bumblebee surveys have taken place across North Devon as part of advisory visits (described below), and as part of a co-ordinated Big Bumblebee Blitz event, where participants recorded bumblebees at a location of their choice on 19th August. This blitz yielded 189 records submitted directly to BBCT, and others submitted to recording databases such as iRecord (which will be shared with BBCT).

Brown-banded carder bees were discovered at three new sites. At Ruda holiday park in Croyde, five males were found nectaring on Tufted vetch in an area of tall ruderal vegetation. In a different area of the same site, two males were found nectaring on Water mint (pictured, right), along with the solitary bee *Andrena pilipes*. A new meadow was created at Middleborough Hill by the National Trust in 2020, with assistance from WCB. In 2021, two summer queens were found here on Red clover. A male was also found on Baggy Point, nectaring on Bramble. The species has not been seen on the Point since 2000. It is likely that in all cases, the bees originated from Braunton Burrows or its immediate vicinity, as this is the only known breeding population in North Devon. With further habitat creation through the project, it is hoped that the bees will be able to colonise following their dispersal from Braunton Burrows, and new populations can establish.

The Brown-banded carder bee was absent from the Hartland Peninsula for a third consecutive year, and may now be lost from the area. Suitable habitat here is very fragmented. Populations exist on the Cornwall coast, and could repopulate Devon from here if conditions improve in future.

There were no new records for either the **Ruderal bumblebee** or the **Moss carder bee**, which is very alarming and highlights how vulnerable these species are.

Above: Water mint at Ruda holiday park is supporting Brown-banded carder bees. Below: A Brown-banded carder bee (photo credit Mike Symes)

1.3 Bumblebee records

Since the start of the West Country Buzz project in 2018, bumblebee records in and around the target area have increased dramatically. The map below (Figure 2, left) shows all bumblebee records for North Devon from 1900 - 2017. On the right, the number and distribution of records made during the West Country Buzz project, 2018 - 2021, shows a marked increase, particularly around the target zones of Braunton and the Hartland Peninsula. The project area has become one of the best recorded areas of the county for this genus.

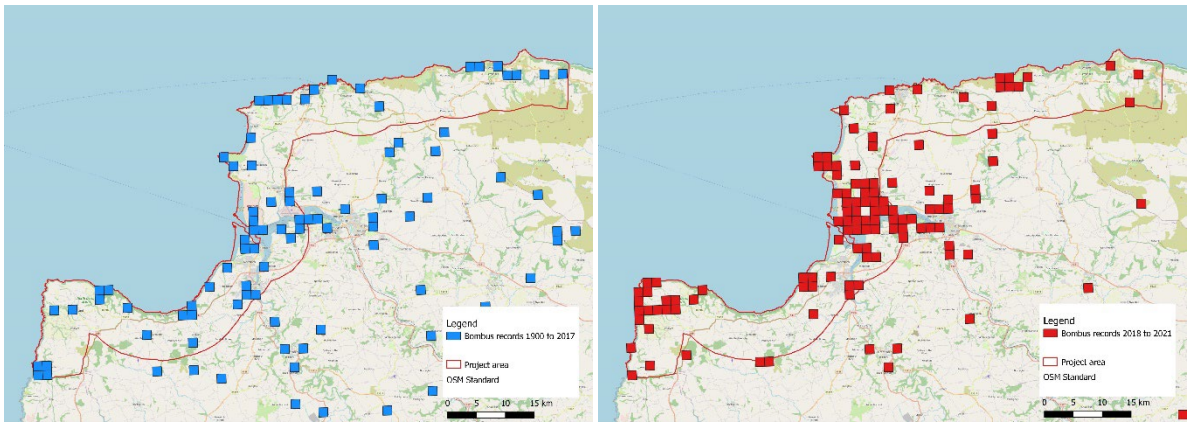

Figure 2: Bumblebee records at 1 km scale **(left)** (blue squares) in and around the WCB project area (red line) from 1900 to 2017, and **(right)** (red squares) from 2018 to 2021 when the project has been active. Contains OS data © Crown copyright 2022

1.4 Case study monitoring sites

To measure the success of the Nature Recovery Network and the impact of changes in management on the target species, two case study sites are being monitored; Baggy Point and Braunton Burrows. Bumblebee populations are monitored monthly using BeeWalk, and vegetation surveys are conducted in May, July and late August/September to record early, mid and late season forage. Long term monitoring is essential for securing the most appropriate management and ensuring that best practice for the species is being implemented.

Project Officer Daisy Headley on a site survey

Baggy Point case study: highlights

Nine bumblebee species have been observed at Baggy Point since 2018 (when WCB moitoring began): Buff-tailed, White-tailed, Red-tailed, Garden, Common carder, Brown-banded carder, Early, Forest cuckoo, and Southern cuckoo. A Brown-banded carder male was observed by NT volunteer Hannah Carney in 2021, which is the first time this species has been seen here since 2000.

Right: 2021 saw the first sighting of Brown-banded carder bees on Baggy Point since 2000. Photo credit: Hannah Carney. Far right: Route of BeeWalk and flower sampling transects

Monitoring has highlighted a lack of late season forage at Baggy Point, which has considerable negative implications for supporting populations of the late-flying Brown-banded carder bee. The data has therefore been used to make management recommendations to reinstate cattle grazing as soon as possible, to trample the Bracken dominating the northern slope to give space for the flower-rich sward to re-establish; and to cease sheep grazing in spring and summer as their presence has reduced floral abundance on the western area of the Point.

BeeWalk

BeeWalkers were advised by the Trust to only undertake surveys in line with Covid-19 restrictions.

Lack of data is a major barrier to implementing a successful species recovery plan, and to assessing the success of habitat interventions. Recording bumblebees requires a level of skill and experience. The project's workshops, training events, and tailored support for volunteers is aimed at filling this knowledge gap within the project area, and sustaining recording for the long term.

Prior to WCB, there were only two BeeWalk transects in the vicinity of the project area, one of which was inactive. In 2021, there were 22 active BeeWalks in and around the project area[2] (Figures 3 and 4). BeeWalks are being carried out by volunteers and organisations such as the National Trust (who adopted BeeWalk to monitor their land at four sites in North Devon from 2019) and the Gaia Trust (who use it to monitor Home Farm Marsh).

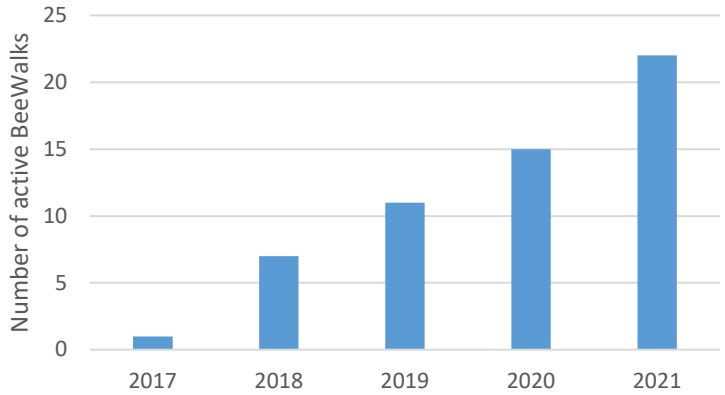

Figure 3: Number of active BeeWalks in and around the project area between 2017 (prior to the start of WCB) and 2021

A total of 968 bumblebees were recorded on 22 BeeWalk transects, in 2021. Eleven bumblebee species were recorded; Buff-tailed, White-tailed, Tree, Garden, Heath, Early, Common carder, Red-tailed, Forest cuckoo, Southern cuckoo, and Brown-banded carder bee. The latter was recorded on four BeeWalk transects – Croyde Lakes, Croyde Burrows, Baggy Point and Braunton Burrows.

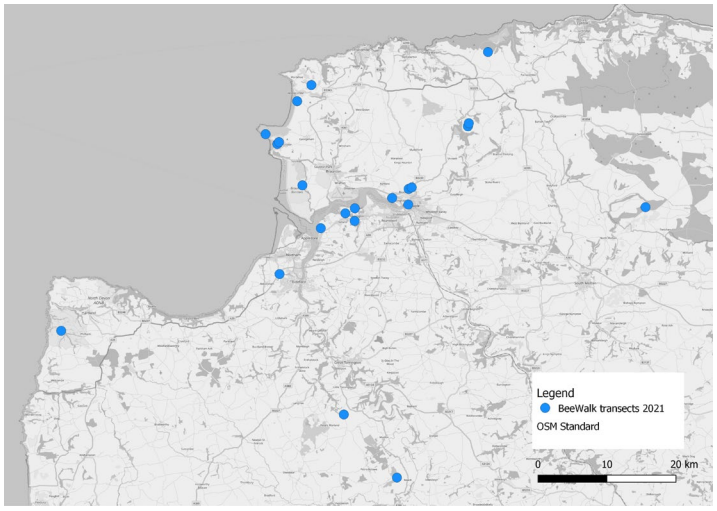

Figure 4: Distribution of 22 BeeWalk transects in North Devon in 2021 Contains OS data © Crown copyright 2022

To encourage more BeeWalkers and to help retain them, BeeWalk kits (net, pot, bee marking cage, identification guide and hand lens) have been supplied through the project for new and existing BeeWalkers in the vicinity of the project area. Project staff are providing mentoring and extra training to new BeeWalkers to build skills and confidence, and have helped individuals to set up their transect. There is also support from BBCT centrally for using the BeeWalk website. Two of the more experienced BeeWalkers, who joined through the project, are now acting as mentors to new volunteers.

[2] BeeWalks within ~15 km of project area included because they were established as a direct result of the project

2. Advice and support: raise awareness of what pollinators need to survive and thrive, with landowners, farmers, and the general public

Between April 2021 and March 2022, **55 sites were given management advice and support,** which were **owned or managed by 46 different landowners** (the target was 30 landowners) (Figure 5). Of these, 21 sites were new to the project in 2021. It was not possible to visit some landowners due to Covid-19.

In 2021, we advised on approximately 1,250 ha of land. Of this, 213 ha was new to the project in 2021, and the remaining 1,037 ha reflects ongoing advice given to landowners already involved with the project. Advice includes help with management plans and procurement of materials such as locally harvested seed.

Kale, grown as part of a crop rotation, is helping to support Brown-banded carder bees and other pollinating insects

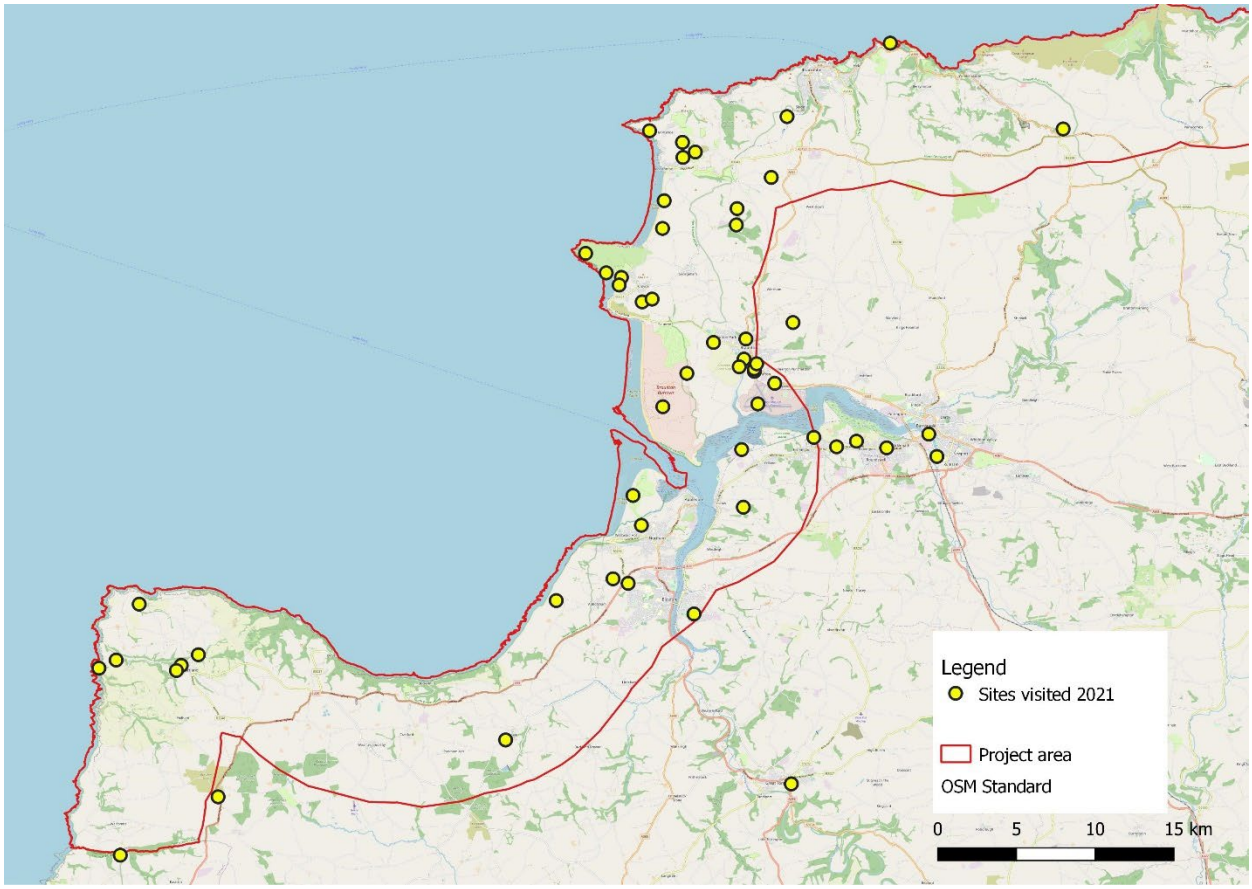

Figure 5: Distribution of sites receiving advice from the West Country Buzz project in 2021 (yellow dots). Red line denotes project area. Contains OS data © Crown copyright 2022

2.1 Events

Talks

Five talks were delivered, reaching a total audience of **90 people**. These were on *Farm Habitats for Pollinators* for the Taw Valley Facilitation Fund Group (16 people), *Exploring the World of North Devon's Bumblebees* for the Georgeham and Croyde Garden Group (13 people). Online talks delivered were on the *West Country Buzz project* for the Devon Local Nature Partnership (44 people), *Bumblebees of Braunton* for the Braunton Facilitation Fund Group (6 people), and *Bumblebees in the Farmed Landscape* for Devon Association of Small Holders (11 people).

The Christmas social event was moved online due to Covid-19, and was attended by 9 people.

Farm Days

A farm day was delivered for **6 members of the Braunton Facilitation Fund Group on the management of ditches for invertebrates**.

A second farm day was delivered in collaboration with the National Trust, on green haying, attended by 5 people. The session covered how to prepare the receptor site, demonstrations on how to collect green hay from the donor site, and follow-up management and after care. Participants then took green hay to spread at their land holdings where they had prepared an area in advance. A short educational video was made on the subject, which is due for publication shortly.

Left: Cut and collect mower demonstration, and right, green hay being spread on a receptor site (photo credit Letty Glaister)

Other events

A meadows day, hosted by NT, was open to the public at Baggy Point and included bumblebee surveys (**12 participants**) and scything demonstrations. Over the course of the summer, **two guided walks,** at Northam Burrows and Greencliff farm, **were attended by 33 people**.

Bumblebees and flowers art competition

To help raise awareness of pollinators across a wider section of the North Devon community, an art competition was launched for primary schools in the project area. Winners of each of the three categories (reception, years 1 and 2; years 3 and 4; and years 5 and 6) received bumblebee friendly plants for their school grounds, vegetable seeds and activity sheets for their class, and a goodie bag including a BBCT youth membership.

Left: The winning entry from the Years 3 and 4 category in the Bumblebees and Flowers art competition. Right: Winner of the Years 5 and 6 category, and her year group participating in planting spring bulbs won in the competition

2.2 Articles

Articles have been published in Devon Live; in the National Trust's magazine Acorn, and their internal newsletter; The Crydda (Croyde's monthly newsletter); BBCT's Buzzword magazine; and on The Meadow Maker's forum. An article in collaboration with Braunton Parish Council is due for publication.

3. Habitat management: increase the area of suitable habitat and habitat connectivity around existing populations of target species

The overall habitat target for the four-year project is 160 hectares to be restored, created or under improved management for the target bumblebee species and other pollinators. Between April 2021 and March 2022, **15.95 ha of habitat has been created** by direct intervention, restoration or due to improved management (Table 1). This includes creating new areas of flower-rich grassland or enhancing existing ones by oversowing, planting orchards, and changing grazing or cutting regimes to allow spring and summer flowering (Table 1).

This brings the total to **67.48 ha created since the start of the project** (14.12 in year 1, 27.4 in year 2, 10.01 in year 3, 15.95 in year 4)**.**

We anticipate at least a further 16.57ha of bumblebee habitat will be created in 2022, based on changes that have been agreed in principal with the owner/manager. Habitat creation in 2022 will also include other work with new and other existing sites, and follow up work to find out how much of the advice given since the start of the project has resulted in management changes. A landowner questionnaire has been written and will be issued during 2022, to gather information on habitat creation (it is anticipated that this will capture further hectarage of land under improved management), as well as to evaluate the WCB project's impact and where it can be improved.

We are **supporting the National Trust's grassland project,** which is currently under development, and **aims to create 500 ha of species-rich grassland in North Devon by 2025, and 1,200 ha by 2030**. This has huge potential benefits for pollinators, and could massively facilitate further recovery of our target bumblebee species.

Table 1: New bumblebee habitat created in 2021 by direct intervention, restoration, or due to improved management

Site Name	Habitat Management	Habitat Created	Area (ha)
Braunton BMX track	Seed sowing	Forage	0.22
Broadlands Farm	Advice on plant species to support S41 bumblebees	Flower-rich plots	0.8
Godborough Castle	Oversowing field with yellow rattle, plug planting and seed sowing around pond	Flower-rich grassland and increased forage around pond	0.554
Greencliff Farm	Green haying	Increased sward diversity	0.0004
Kenwith Care Home	Plug planting	Forage	0.003
Longlands	Orchard creation and seed sowing	Orchard and flower-rich grassland	0.129
Middle Spreacombe	Seed sowing and comfrey	Increased sward diversity and forage	0.0805
North Devon Royal Golf Club	Seed sowing and plug planting	Forage	0.05
Roylands riding stables	Cessation of summer grazing on species rich grassland	Forage	5.04
Roylands riding stables campsite	Orchard creation and seed sowing	Orchard and flower-rich grassland	0.067
Spreacombe manor	Cessation of summer grazing and switching to hay meadow management	Forage	4.45
Watermead	Green haying, oversowing with local seed	Increased sward diversity and creation of flower-rich wet grassland	1.621
West Titchberry Farm	Seed sowing	Increased sward diversity	0.08
Widemouth cottage	Seed sowing	Forage	0.1
Woolacombe Warren	Oversowing with locally harvested seed	Increased sward and dune diversity	1.97
Slade reservoir	Reduced grassland cutting in summer	Forage	0.547
Pearce homes	Planted attenuation pond edges	Forage	0.03
Buttercup Lodge	Seed sowing	Forage	0.07
Braunton road verges	Seed sowing	Forage	0.01
Sticklepath, Southmead and Bluecoat primary schools	Spring bulbs and shrubs in school grounds	Forage	0.0136
Travel Chapter offices	Spring bulbs and meadow creation	Flower rich grassland and forage	0.034
West Bursdon Farm	Green hay	Flower rich wet grassland	0.05
Braunton memorial gardens	Seed sowing	Forage	0.0005
Ruda holiday park	Reduced mowing to leave long grass areas	Nesting	0.03
		Total	**15.95**

The overall quality of sites advised upon since 2018 are categorised as Poor (few resources for bumblebees), Good – improving (an intermediate level of flowers and nesting habitat), or Excellent (well-managed bumblebee forage available throughout the nesting season, nesting habitat present) (Figure 6). There has been a small increase in the number of sites reaching Good – improving, which were previously rated as Poor; and an improvement of some sites that were previously Good – improving moving into Excellent, since 2020 (Figure 6).

Often, particularly lacking is late season forage. Few sites are rated as Excellent, but this has improved since 2020. It is vital that sites around Braunton in particular, are kept in excellent condition or that their current condition is improved, if the Brown-banded and Moss carder bees, and the Ruderal bumblebee are to survive and recover. Figure 6 demonstrates how the project is targeting work at a landscape scale to join up pollinator habitat. Habitat management work has been targeted to connect up habitat, particularly near to existing records of target species.

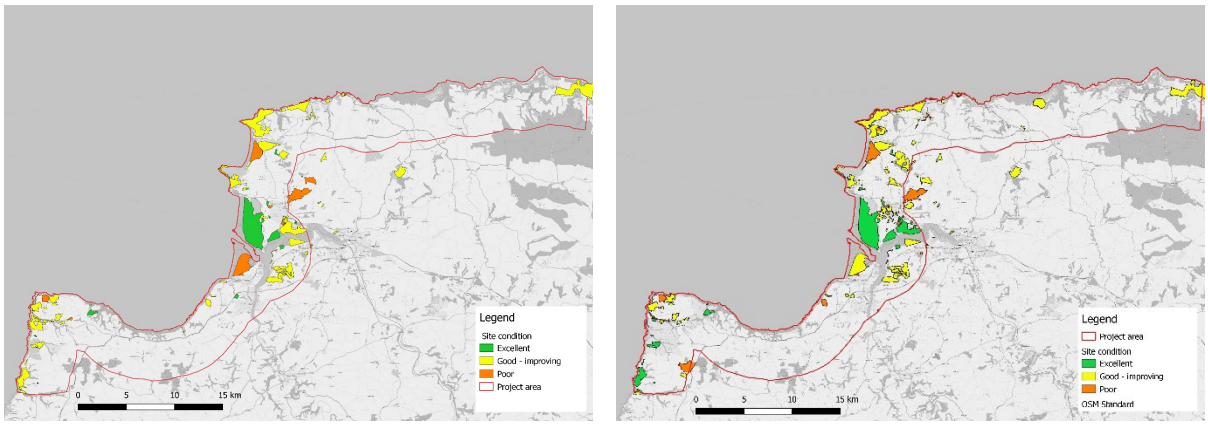

Figure 6: Left: Sites advised on between 2018 and 2020, rated as Poor (orange; few resources for bumblebees), Good – improving (yellow; an intermediate level of flowers and nesting habitat), or Excellent (green; well-managed bumblebee forage available throughout the nesting season, nesting habitat present). Right: Sites advised on between 2018 and 2021, showing changes in quality since 2020.

Habitat creation through local seed harvesting and spreading

Sand dunes provide excellent habitat for some of our rarest bumblebee species. This is particularly true of Braunton Burrows, in the heart of the West Country Buzz project area, where most records for the Brown-banded carder bee have been found in recent years. It is the only known site for the Ruderal bumblebee in Devon. Further north are two smaller dune systems at Croyde Burrows and Woolacombe Warren. Both have become dominated by Marram grass and scrub and do not currently support any priority bumblebee species.

In 2020, the National Trust began managing plots at Woolacombe Warren, and with assistance from WCB, sowed seed harvested from Braunton Burrows to increase plant diversity. This process was repeated in 2021, and expanded to include seed harvested from RMB Chivenor, which was then sown over an area of 1.97 ha at Woolacombe Warren.

Left: Brush harvesting at Braunton Burrows. Right: Seed spread out to dry, in preparation for spreading at Woolacombe Warren (photo credit Joshua Day)

Habitat creation through changes in verge management

Braunton Parish Council is responsible for 32,000 m^2 of road verges. Some of these verges have been adopted by local people and planted with bumblebee friendly plants, including plug plants and seed provided by WCB.

The remaining verges are cut frequently and the arisings are left in situ, due to a lack of equipment to collect them. This adds to the nutrient levels, making it hostile for most wildflowers, and therefore also for pollinating insects. Building on the work that began with the North Devon Biosphere's Life on the Verge project (now ceased), WCB collaborated with Braunton Parish Council to secure £4000 from the North Devon AONB's Nature and Climate Challenge Fund to help Braunton Parish Council purchase a cut and collect mower. This simple solution will enable a change in management of the verges, where the arisings can be removed and frequency of mowing can be reduced. This will help establish a more diverse network of corridors of wildflowers through the town, which will have far-reaching benefits for pollinating insects. In addition, the new equipment will be available for loan to neighbouring parish councils, increasing the amount of pollinator habitat even further.

The gradual removal of nutrients through taking away the cuttings will take time to increase plant diversity. To help speed up this process, on selected verges, WCB, Braunton Parish Council and local volunteers sowed a specially selected wildflower mix (containing species more able to tolerate higher nutrients), with £200 secured from the aforementioned AONB fund for the seed.

Habitat creation using yellow rattle

Yellow rattle is a useful tool in wildflower meadow restoration. As it is hemi-parasitic on grasses, it suppresses their growth which creates room for wildflowers to grow.

The team at Godborough Castle Reserve, a County Wildlife Site, identified a field on the reserve where plant diversity was low but previous efforts to oversow it with wildflower seeds had not been particularly successful. A survey revealed that it was heavily dominated by grasses, but some wildflowers were present in the sward in low abundance. In autumn 2021, the field was prepared to receive Yellow rattle seed using a power harrow to create bare ground. This bare ground is essential for successful germination of the seed, as is sourcing fresh seed since it has a very short shelf-life. Locally sourced freshly harvested Yellow rattle seed was then hand sown over the field, and trampled in by sheep to help the seed make contact with the ground and increase the chance of germination success. Seedlings are expected to appear in spring 2022, and will increase in abundance over the next few years, making space for wildflowers already in the sward, as well as providing bumblebee forage itself.

Many thanks to Will Bees Bespoke and TeeMill for generously funding the seed.

Left: Finch field was prepared using a power harrow to create bare soil (photo credit Philip Marlow). Right: Volunteers sowing Yellow rattle seed across the field

Table 2 describes how the project funded habitat creation, and why this funding could not be secured through countryside stewardship. This was largely for sites ineligible for a scheme. Our funding includes hiring a local contractor to power harrow Godborough Castle Reserve prior to receiving Yellow rattle seed; and for wildflower seed and plant plugs. We also purchased 10 BeeWalk kits (nets, pots, hand lenses), described above, to help support and encourage BeeWalkers in the area.

Table 2: Items bought for landowners and farmers to create habitat for pollinators using funds from the West Country Buzz project, April 2021 to March 2022

Item bought	Habitat created	In a scheme?	Why was it needed?
Yellow rattle seed	Wildflower meadow	No	For a nature reserve to help create species rich grassland
Comfrey plants	Forage	N/A	To give out on farm days and for allotment holders
Wildflower seed and plug plants	Flower-rich grassland	No	For road verges in Braunton. Funds also received from the N. Devon AONB Nature and Climate Challenge Fund
Subsidy for scything course	Flower-rich grassland	N/A	To encourage participation and make it more accessible, to improve grassland management
Wildflower seed and plug plants	Flower-rich grassland and forage	No	For holiday cottages, care home, and office grounds (not eligible for a scheme)
Vegetable seeds, spring bulbs, perennials	Forage	No	Schools art competition prizes
Plug plants	Forage	No	To increase bumblebee forage at allotments, not eligible for a scheme
Contribution to cut and collect mower	Flower-rich grassland	No	For Braunton Parish Council road verges, to improve management. Also funded by Braunton Parish Council and N. Devon AONB Nature and Climate Challenge Fund
Wildflower seed	Flower-rich grassland	No	Park community school meadow creation, not eligible for a scheme
Contractor to use power harrow	Flower-rich grassland	No	To prepare nature reserve to prior to sowing Yellow rattle (cost split between WCB and reserve)

4. Scaling up Partnerships

Partnership work and collaborations are essential for landscape scale working. We have worked with over **27 partner organisations and local groups** in the project area, including Natural England, Devon Wildlife Trust (DWT), North Devon AONB, National Trust, the Ministry of Defence and RSPB. For example, we have sourced local seed from partners landholdings; and have collaborated with Braunton Parish Council and the North Devon AONB to deliver improved road verge management. We have been working closely with the National Trust around the Woolacombe area, who have ambitions for large-scale meadow creation and restoration work. We have provided seed and advice to assist this endeavour and will continue to collaborate in 2022.

These partnerships are essential for a co-ordinated effort across the project area. Whilst landscape scale work is vital, we also need to work at a more local level in order to create high quality, joined up pollinator habitat, and to build up a relationship with the local community. By encouraging local participation and ownership, we hope to leave a legacy after the end of the project. This is evidenced by members of the local community already using their own initiative to promote pollinator habitat management with their Parish council; and other organisations adopting BeeWalk as a way of monitoring their own habitat management.

Organisations, local groups and volunteers have been encouraged to sign up to the Trust's *Bee the Change* pledges, and the North Devon Biosphere's *Pledge for Nature* campaign, to encourage people to take action to support bumblebees.

5. Conclusions

- Despite a challenging year, we have achieved and even exceeded our targets for 2021/22.

- Progress has been made towards achieving our final hectarage target of 160 ha. Of this, approximately 90 ha remains, although we have consistently exceeded our target number of landowner advisory visits and have also brought in substantial additional funding for equipment and seed to carry out habitat works. We also continue to collaborate with 27 partners. The shortfall has been caused by many factors including the long lead-in to make changes, time to alter long held beliefs/attitudes, and seasonality of habitat creation.
- A fifth and sixth year will help us meet and even exceed this final target, in part through providing support for a large scale grassland restoration project in development with the National Trust.
- One-to-one repeated visits are essential for planning, implementing and giving landowners the confidence and guidance needed to create positive land management changes.
- Building up a presence and reputation in the area takes time and needs a local scale focus.
- Targeted small-scale work inspires local action and ownership, leaving a lasting legacy.
- Using a flagship species to create resilient pollinator networks inspires people to get involved and helps create a story to capture interest. This interest has subsequently unlocked many opportunities, such as permission to survey, implementing habitat changes and getting people to volunteer and record bumblebees.
- It takes time to understand the project area - learning where the key sites are, finding contacts and resources, and reaching an agreement on management.
- Habitat creation work has a long lead-in time before it can be implemented.
- Whilst good progress has been made species recovery takes longer than the lifetime of this 4-year pilot NRN project.

Next steps for 2022/2023:

1. Prioritise habitat creation, working to join up key areas created through the project, facilitating pollinator movement at a landscape scale.
2. Upskill land managers, local groups and members of partner organisations through events such as advisor training workshops.
3. Help facilitate a network of neighbouring landowners to work in a joined-up approach, and encourage farmer cluster groups.
4. Use contacts and donor sites identified in 2021 to provide green hay to more landowners.
5. Maintain relationships with existing landowners and pursue links with new landowners identified in 2020/21, whilst being aware that changes can require a long lead-in time.
6. Support existing BeeWalkers to continue with their surveying and identification training, and encourage BeeWalk mentors to help support new volunteers.
7. We hope to work more closely with NE for referrals of farmers and landowners interested in applying for Countryside Stewardship and specifically around the farm cluster approach.
8. Continue to engage the local community through delivery of bumblebee talks, guided walks and other relevant events.

7. Nature Recovery Networks

What have we learnt?

Landscape scale working is essential for pollinator conservation given their need to move through the landscape for food, mating, and hibernation sites. To achieve this however, work must be done at a **local scale to create sustainable, long-lasting and habitat network**. It requires repeated visits and events to engage with the local community, build up trust and identify sites suitable for changes in management. These areas can then be expanded upon to connect isolated populations across the landscape. By working with all the various landowners in a local area such as holiday parks, local schools, farmers and, on road verges we can provide continuous resources for pollinators, which is vital for the recovery of the Brown-banded and Moss carder bees.

Collaboration is also crucial. The project is currently **collaborating with 27 partner organisations**, volunteers and local groups which has enabled the delivery of objectives across a large scale in a relatively short time period. For example, we have been working closely with the National Trust around Braunton and Woolacombe to create and restore habitat. This has been enabled by the sharing of contacts, expertise, resources and manpower. Volunteers have been a key element in this, not only to achieve habitat works but also in the monitoring and recording of our target species.

For species to recover, it takes longer than the 4-year lifespan of this pilot project. The first year involved identifying opportunities, laying the foundations for change and building relationships in the local area. Whilst this work continued in subsequent years, years two, three and four primarily focused on habitat delivery. West Country Buzz has found that to get to a point at which change can be implemented is often a lengthy process. This is because of the time it takes to identify suitable sites, overcome barriers to change, alter attitudes, complete the works and ensure appropriate on-going management. **Building up a presence and reputation in the area needs a local focus**, creating trust and therefore shortening this process. It can take a disproportionately long time to improve small sites, such as planting community amenity spaces, compared to large scale operations such as over-sowing meadows, but are just as valuable.

There is a **lack of stewardship options for grassland farms providing enough incentive and recognition of the importance of diverse grasslands in the South West**. More is needed to encourage and facilitate rotational grazing, in particular resources for set-up costs (drinkers, fencing etc.). More flexibility is needed in existing AES options, particularly around timing of hay meadow cut to provision for late flowering habitat, which is a major barrier for late-flying insects such as the target S41 bumblebees.

What has helped the project be successful?

1. Being able to provide one-to-one visits to build relationships, provide bespoke ongoing support, as required, and to change attitudes. Finding what is achievable for each individual and being flexible in what can be delivered is key to creating suitable sustainable habitat.
2. Funds to provide resources to landowner's ineligible for AESs, or to improve land outside of AESs. This small provision of resources has been instrumental in building trust, demonstrating the project's commitment to the cause, and in offering an easy and accessible way for people to become actively involved in the project. This has opened up further opportunities for more habitat creation, networking, and in engaging volunteers, landowners and farmers.
3. Support to landowners, farmers and volunteers through engagement events, talks and workshops to keep the momentum going, provide skills, and inspire local action independent of the project.
4. Using a flagship species to create resilient pollinator networks inspires people to get involved and creates a story to capture interest.
5. Targeted small-scale work has inspired local action, support and importantly ownership which will leave a lasting legacy. This is evidenced by members of the local community using their own initiative to promote pollinator habitat management e.g. with their Parish council.
6. West Country Buzz has focused its efforts at a local scale approach to then expand out and join up these areas. Starting at this smaller scale has helped the project to create high quality, appropriately managed and long-lasting habitat.

Appendix

Objective	Outcome	Output	Actions required by partner (or NE) to deliver output & staff responsible for delivery and reporting	Date of output completion
1. Survey and monitor the abundance and distribution of bumblebees, with a focus on S41 species	An increase in bumblebee records and trained recorders in Devon	Gather evidence on bumblebee distribution and abundance in North Devon, with a focus on Brown-banded carder bee and Moss carder bee, and the newly discovered Ruderal bumblebee. Identify opportunities for habitat and species connectivity.	Produce a map of bumblebee records to demonstrate abundance of records and distribution of recording effort	**Complete** March 2021
			Pledges of commitment to bumblebee conservation efforts from local groups	**Ongoing** March 2022
			1 advanced identification session 2 refresher sessions, to address reduced training last year due to Covid-19 2 field practice sessions	**Complete** Sept 2021
			1 bioblitz	**Complete** August 2021
			Develop a strategy for a species recovery plan	**Ongoing** March 2022
			3 case study sites - ongoing monitoring	**Ongoing** (reduced to 2) March 2022
			Provide land management training to key partner organisations to upskill staff and provide confidence in decision making for bumblebees. This will ensure land management for bumblebees is integrated into sites beyond the project lifespan	**Ongoing** March 2022
			16 BeeWalk transects, both new and existing, continuing to submit data for long-term monitoring in accordance with Covid-19 restrictions	**Ongoing** March 2022
			Continue to add to baseline distribution data for Brown-banded, Moss carder and Ruderal bumblebees to monitor their recovery	**Ongoing** March 2022

Objective	Outcome	Output	Actions required by partner (or NE) to deliver output & staff responsible for delivery and reporting	Date of output completion
2. Advice and support; raising awareness of what pollinators need to survive and thrive, with landowners, farmers and the public	Raise awareness and identify actions needed. Engage with landowners and local communities to deliver outcomes for habitats and species	Greater uptake of positive measures and a joined-up, integrated approach Focused training / events and practical 1-to-1 land management advice	Ongoing support and land management advice (including site visits) for 30 landowners and farmers. To be carried out in line with current Covid-19 guidelines Encourage formation of a Farmer Cluster group 2 farm days (online or in person) with guest speakers, in collaboration with facilitation fund groups Write 3 articles for farmers and landowners, and post project updates on BBCT website/social media 4 virtual or real-life talks. 2 virtual or real-life guided walks Communicate with and work in partnership with local NGOs and other parties in the project area, and try to embed bumblebees into work plans Work towards producing a Grassland Management factsheet Engage with local primary schools to improve school grounds for bumblebees, through an art competition	**Ongoing** **Ongoing** **Complete** August 2021 **Complete** November 2021 **Complete** December 2021 (5 talks, 2 guided walks) **Ongoing** **Ongoing** **Complete** November 2021
3. Habitat management, increasing the area of suitable habitat and connectivity around existing populations of target species, using an	High quality and targeted habitat management for pollinators and broader ecosystem restoration	Landscape scale habitat creation and connectivity, and species recovery	Focus on working with current landowners rather than actively seeking new contacts, but continue to engage with new landowners who approach the project, to create suitable habitat in the project area, whilst adhering to latest Covid-19 measures	**Complete** March 2022

Objective	Outcome	Output	Actions required by partner (or NE) to deliver output & staff responsible for delivery and reporting	Date of output completion
integrated, landscape scale approach			Map pollinator habitat and review ways to join up habitat and where to target efforts. Create habitat for bumblebees and wild pollinators through ongoing advice, promoting Countryside Stewardship, voluntary measures, work party days and providing seed. Continue to work with existing and planned projects in line with Covid-19 measures. Work towards overall project habitat target (160ha created/restored/ under improved management by March 2022).	**Complete** March 2022 **Ongoing** **Ongoing**
Review project	Review evidence for a targeted landscape scale delivery	Project review	Review Nature Recovery Network Pilot Record number of landowners given 1-to-1 advice, number of repeat visits, ha's of land advised upon, and ha's of land that positive measures for wild pollinators have been achieved on (including ongoing management of existing Countryside Stewardship agreements, new Countryside Stewardship agreements, and voluntary measures) Review case study sites Measure consolidation of habitat and connectivity through mapping habitat improved or created across the landscape Landowner evaluation questionnaire Review project's success through evaluation of survey and monitoring data, including presence of S41 species in new sites	**Ongoing** **Complete** March 2022 **Complete** March 2022 **Complete** March 2022 **Ongoing** **Complete** March 2022

Objective	Outcome	Output	Actions required by partner (or NE) to deliver output & staff responsible for delivery and reporting	Date of output completion
Report on progress made	Effective flow of communication	Progress reports	Regular communications and internal updates to BBCT, and to Bees Needs Short interim progress report Quarterly update End of project report	**Complete** March 2021 **Complete** September 2021 **Complete** June 2021 **Complete** March 2022