

# Addingham Environment Group



## Bumblebee and Butterfly Observations - 2021 Season Report

The AEG Bee and Butterfly Team

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### Executive summary

1. In 2021 volunteer observers recorded bee and butterfly populations along nine of the ten village transects at approximately two weekly intervals from April 1<sup>st</sup> to September 30<sup>th</sup> (bees) and April 1<sup>st</sup> to October 31<sup>st</sup> (butterflies). Transect 1 was not included.
2. In total 1,536 bees and 895 butterflies were recorded.
3. Eight species of bumblebee and eighteen species of butterfly were identified. The most common bumblebees were the White/Buff-tailed, Common carder, Tree, White-tailed and Red-tailed, with the Common carder being significantly more abundant in 2021 than in 2020. The most common butterflies were the Small White, Large

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White, Ringlet, Small Tortoiseshell and Meadow Brown. The Ringlet in particular was more abundant in 2021 than 2020.

4. In 2020 the greatest numbers of bumblebees were observed in the Sidebeck estate wildflower meadow that had been newly created by the housing developers that year. However, very few bees and butterflies were seen at this site in 2021 owing to the demise of the wildflower population following the use of herbicides to treat a large population of broad-leaf docks in the early part of the season. Elsewhere the richest sites in 2021 were the Old First School site and the field alongside the Wharfe near Low Mill. The village allotments also had relatively abundant populations of bees and butterflies.
5. There is increasing evidence that the efforts of the Addingham Environment Group (AEG) to convert a number of designated sites in the village from regularly mown grassland to wildflower rich meadows are being successful. Most notably these include the Old Station Way and Skipton Road Bank sites.
6. Some of the bee and butterfly sightings along the transects are from cultivated plants such as lavender, buddleia and cotoneaster, but most are from wildflowers especially blackberry, comfrey, ragwort, vetch, clover, foxglove, field scabious, nettles and knapweed.
7. Modifications to the design of the recording programme for the 2022 season include walking the transects less frequently (monthly), spending more time at defined hotspots to search for additional species and adding new zones along some of the transects, pending permissions from landowners. Changes will be made to enable year on year data comparisons to be preserved including numbers of species observed ( overall, per transect and per zone) and average number of individuals recorded (per transect and per zone).

### Introduction

The AEG began recording bees and butterflies along defined village transects in July 2019. The transects were designed not only to document the abundance and diversity of bees and butterflies generally in the village but also to assess the effectiveness of efforts being made to increase wildflower populations in village green spaces as a means of enhancing their attractiveness for pollinators.

This is our report for the 2021 season. It summarises the results of the season's observations transect by transect. All primary data that form the basis of the report are contained in a comprehensive interactive spreadsheet, available to [download here](#).

### Transects

There are ten transects (Figure 1), of which all except Transect 1, were walked during 2021. Some modifications were made to individual transects based on the experiences from the previous year. These have been kept to a minimum to ensure comparability between years and between zones. The changes are described below where relevant for each transect respectively.



## Bees and Butterflies

### All Transects

T1 : Main Street (Not walked)

T2 : Sidebeck (Julia Tomlinson)

T3 : Old First School (Peter Miller)

T4 : Garth and School (Claire Godden)

T5 : Marchup (Mick Dunne)

T6 : Old Station Way (Jessica Penrose)

T7 : Hoffman Wood (Margaret Longden)

T8 : Low Mill (Mark Penny)

T9 : Skipton Road Wildflower Site and Golf Club (Maire O'Donnell)

T10 : The Street and Stegg Hole (Sara Arrowsmith & Jackie Olive)

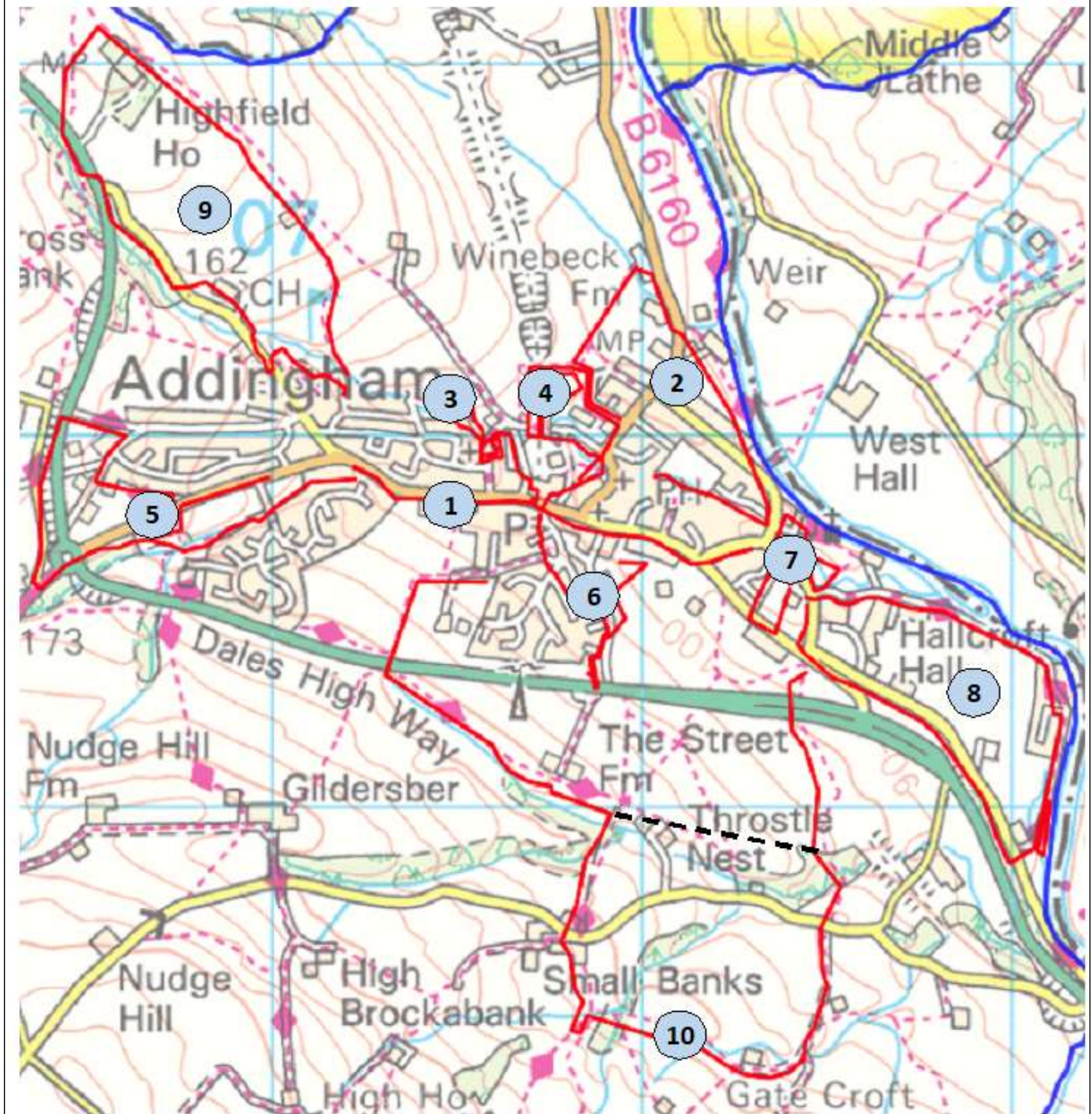


Figure 1: Addingham bee and butterfly transects



## Methods

Each transect is sub-divided into zones, each zone representing a different habitat. Observers were provided with a proforma on which to record their sightings on a zone-by-zone basis. As far as possible transect walks were made once every week or two during the season defined as 1<sup>st</sup> April to 30<sup>th</sup> September for bumblebees and 1<sup>st</sup> April to 31<sup>st</sup> October for butterflies. The method of recording observations followed the guidance provided by the Yorkshire Dales Millennium Trust in 2019. Advisers Maurice White (Bees) and Diane Morris (Butterflies) provided help with identification. Separate WhatsApp groups for bees and butterflies were set up and moderated by Maurice and Diane respectively to share photographs and to confirm IDs.

For data entry a simple online spreadsheet mirroring the recording forms was used, one for each transect. Observers without online access handed in their field proformas to the recording co-ordinator, Malcolm Secrett, who entered the data on their behalf. Numerical analysis was carried out in Excel (see below Appendix A for details).

## Results

Here we summarise the results transect by transect. The transect maps show the route walked and the division of the transects into zones. The tables summarise the numbers of different species of bees and butterflies recorded in each zone.

### Transect 1: Main St and Pocket Gardens

Owing to indisposition this transect was not walked in 2021.

It runs (Fig. 2) from the top of Main Street down to the Memorial Garden and includes the gardens in the care of Addingham Garden Friends: Lay-By Garden opposite Townhead Trading Estate; Sailor Corner Garden; Cottages Garden; Fountain Garden; Hen Pen Garden; the Memorial Hall car park and the Memorial Close area.

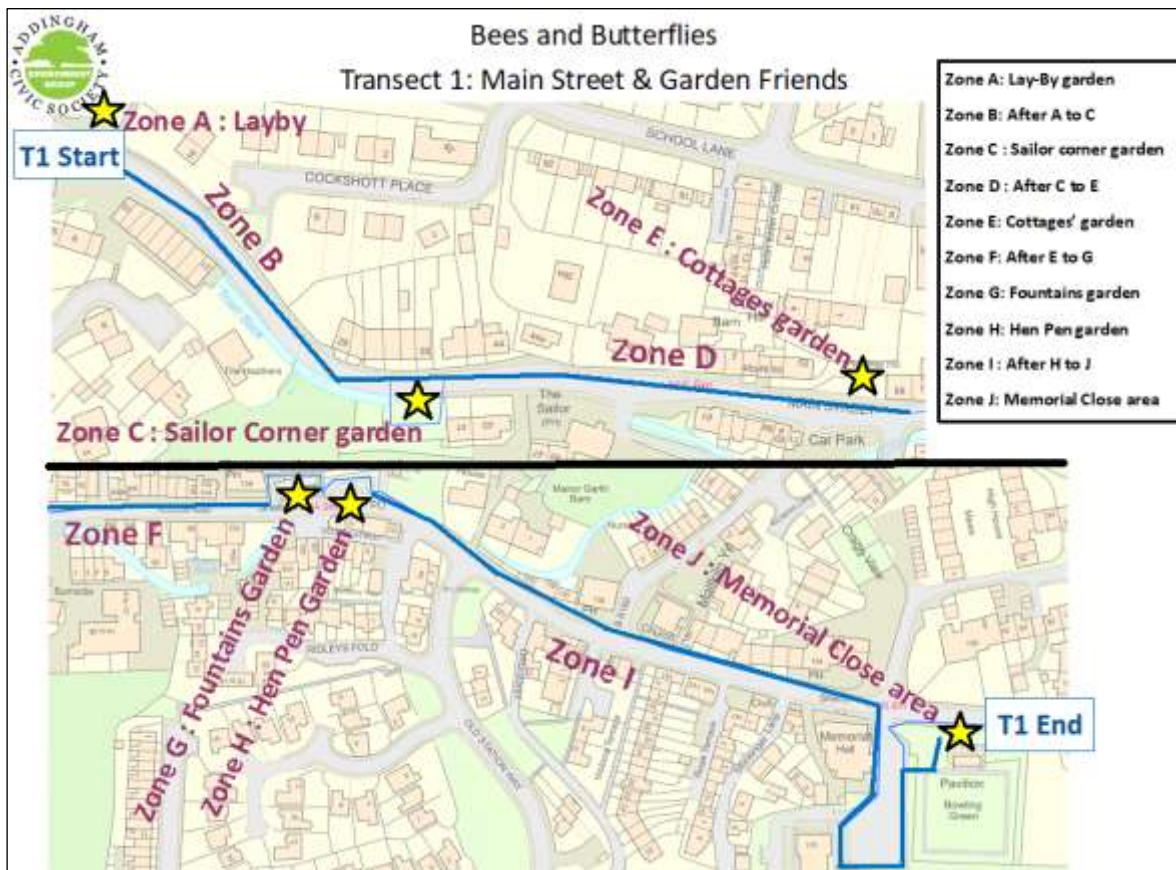


Figure 2: Transect 1

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### Transect 2: Sidebeck, Dalesway and Wine Beck

**Observer - Julia Tomlinson**

No changes were made to the route of this transect in 2021.

Julia writes:

*“A very cold start to the season saw few bees anywhere until the end of June.*

*The transect starts at Side Beck. Zone A, principally the Sidebeck wildflower meadow was very disappointing this year compared to last as the whole field had been heavily sprayed to kill broad-leaf docks. It appeared that the spraying also killed many wildflower species. However, meadow vetchling grew quite well and attracted a variety of bees, mainly common carder and tree bees, but not in large numbers. Very few butterflies were observed.*

*Zone B goes along Wharfe Park and benefits from garden plants, particularly lavender.*

*Zone B continues along North St on to Bark Lane. Just before the Suspension Bridge there are snowberry shrubs, that were extremely attractive to Tree bees in June. The river path along the Dalesway has little to attract bees and butterflies.*

*Zone C goes alongside the main Bolton Abbey road down towards Winebeck where there is only a flowering currant bush to attract bees.*

*Zone D had very few bees and butterflies. Zone E, along the track around part of the school periphery was, except for flowering cherry trees, also poor.”*



Bees and Butterflies  
Transect 2: Sidebeck

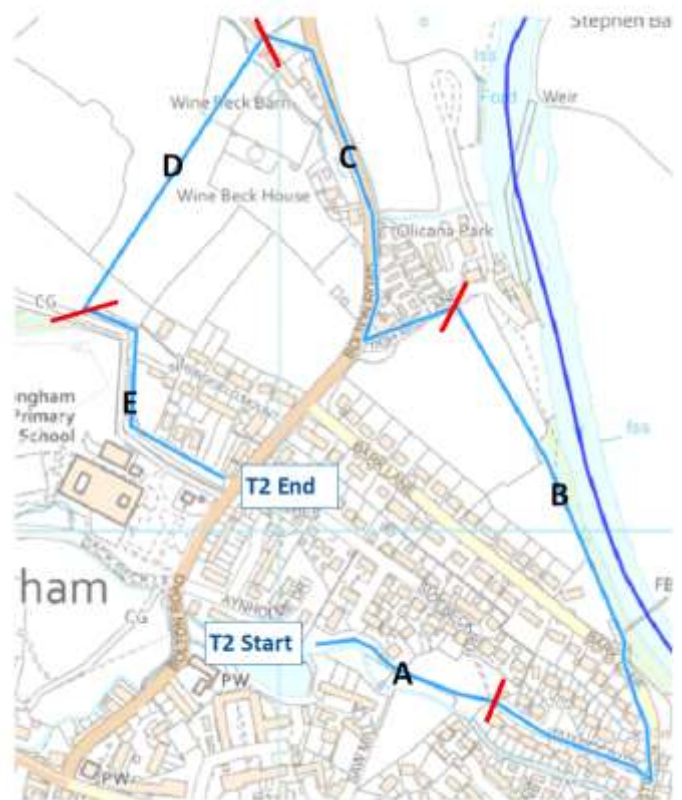


Figure 3: Transect 2

Bees						
Transect: 2	Zones .....					
Bees	Total	A	B	C	D	E
Total	155	22	69	37	11	16
White/Buff-tailed	58		25	23	3	7
Common carder	38	9	21	4	2	2
Buff-tailed	19		4	5	5	5
Tree	19	3	12	1	1	2
Red-tailed	14	8	3	3		
Unknown	7	2	4	1		

Butterflies						
Transect: 2	Zones .....					
Butterflies	Total	A	B	C	D	E
Total	37	5	17	9	4	2
Unidentified	21	3	9	5	4	
Small White	6	1	4			1
Small Tortoiseshell	5	1	4			
Speckled Wood	2			1		1
Orange-tip	1			1		
Peacock	1			1		
Red Admiral	1			1		

Table 2: Number of individuals observed in Transect 2 by zone

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### Transect 3: Sugar Hill, Old First School Site and Methodist Graveyard

**Observer: Peter Miller**

Peter writes:

*“Butterflies*

*Transect 3 has again recorded high average numbers of butterflies per walk. Total numbers were low in April, May and June. However, in July there was a major increase. Twelve different species were identified. Compared to the previous year this represents an increase in both total numbers and species present. Again, the old First School site (Zone C) was the most prolific. Meadow Brown and Ringlet were the most abundant.*

*The Methodist Church graveyard (Zone E) also had a significant increase in both numbers and species. Sixteen records of seven different species, when compared to numbers in both 2019 and 2020, shows a very strong uplift in numbers. The locally rare Wall butterfly was seen once at this site.*

**Bumblebees**

*As in previous years the old First School site zone recorded the highest number with seven different species. Early in the season (April) many Queens were seen. Numbers then decreased but increased again in July and for the rest of the season. Six species were recorded in the Methodist Church graveyard which is an increase from previous years.”*

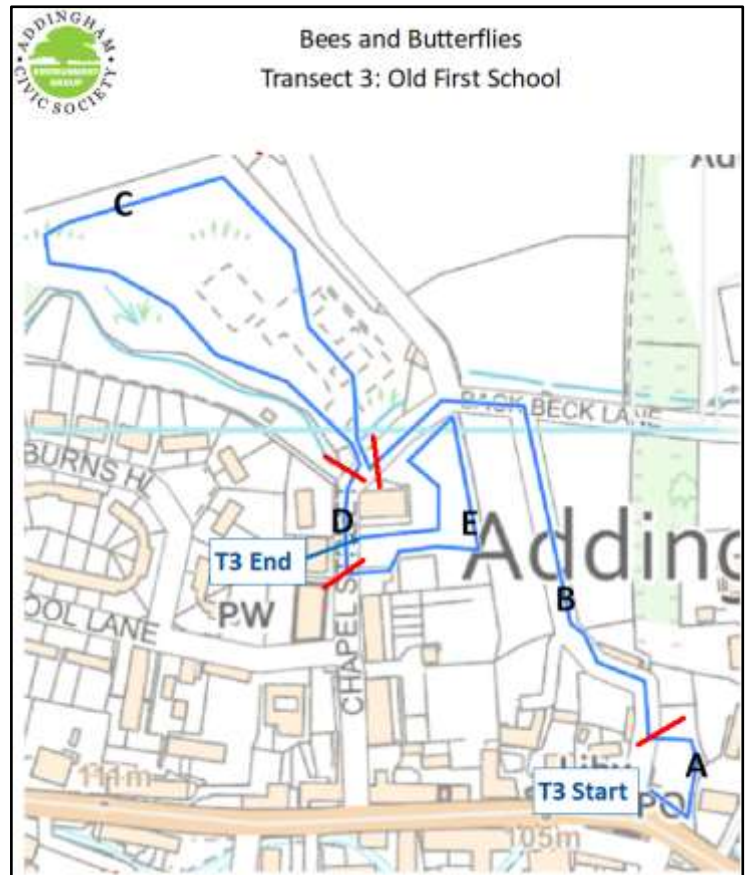


Figure 4: Transect 3

Transect: 3		Zones .....				
Bees	Total	A	B	C	D	E
Total	157	15	29	77		36
Buff-tailed	47	4	11	14		17
Common carder	35	5	10	17		3
White/Buff-tailed	32	2	2	26		2
Tree	22	3	1	10		8
White-tailed	13		5	4		4
Red-tailed	6	1		5		
Early	3			1		2

Transect: 3		Zones .....				
Butterflies	Total	A	B	C	D	E
Total	162	11	6	129		16
Meadow Brown	46			43		3
Ringlet	41			39		2
Small White	38	6	5	21		6
Orange-tip	6	2		4		
Red Admiral	5	1		4		
Speckled Wood	5	1	1	1		2
Small Copper	4			4		
Small Skipper	4			3		1
Comma	3			3		
Large White	3	1		1		1
Peacock	3			3		
Small Tortoiseshell	3			3		
Wall	1					1

Table 3. Numbers of individuals in Transect 3 by zone



## Transect 4: The Garth and Primary School

**Observer – Claire Godden**

Transect 4 begins at the entrance to the Garth on Main St, crosses the Garth (Zone A) onto Bolton Road, enters the School grounds (Zone F) and goes round the playing field, then along the track to the east of the school (Zone C) to the new Jubilee Wetland Reserve in the north east corner (Zone I). It returns to Back Beck Lane around the school perimeter (Zones D and E) back to the Garth. The transect is the same as for 2020 except for Zone I that was added in 2021 to include potential bee and butterfly observations inside the School Reserve. However, due to the Covid-19 pandemic access to the School grounds was limited.

Although 12 walks were completed during the season very few bees and butterflies were seen. The only observation of note was the occurrence of Common Carder Bees in Zone E.

Numbers of bees and butterflies were also low in 2019 and 2020. It is hoped that the improved access to the school grounds (Zone F) and the impact of wildflower planting that has taken place in the school reserve in 2021 (Zone I) will see increased numbers of both bees and butterflies in 2022.

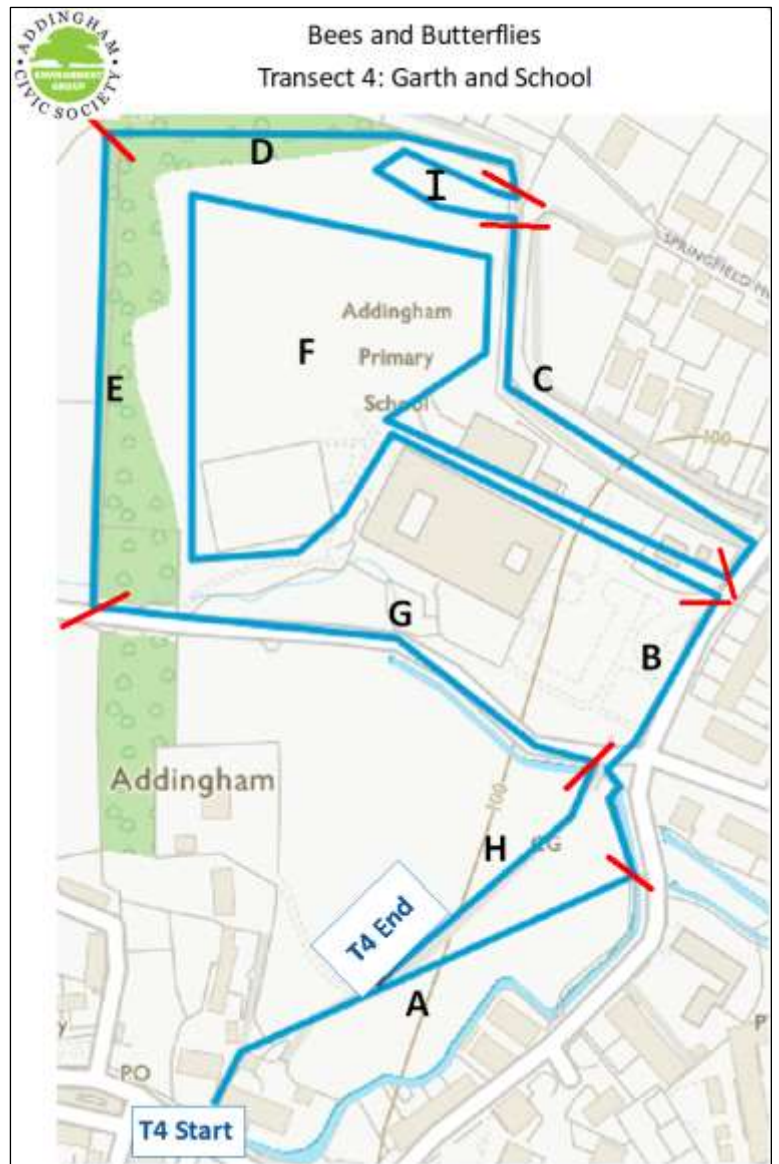


Figure 5: Transect 4

Transect: 4		Zones .....								
Bees	Total	A	B	C	D	E	F	G	H	I
Total	22	1	7		2	4	6	1		1
Common carder	9				2	3	2	1		1
White/Buf-tailed	6		5			1				
Buf-tailed	4		2				2			
Red-tailed	2	1					1			
Unknown	1						1			

Transect: 4		Zones .....								
Butterflies	Total	A	B	C	D	E	F	G	H	I
Total	2						2			
Small Skipper	1						1			
Small White	1						1			

Table 4. Number of individuals in Transect 4 by zone

## Transect 5: Marchup, Crossbank Road and Silsden Road Allotments

**Observer: Mick Dunne**

Transect 5 begins at the Townhead Trading Estate and follows the public footpath alongside Marchup beck (Zones E and B), takes in the Daniel Palmer Nature Reserve (Zone C). It crosses the bypass and goes along Crossbank Road (Zone D), down Moor Lane and along Turner Lane (Zone E), through the Silsden Road Recreational Ground (Zone F), into the Upper Stamp Hill allotments (Zone G) and finishes in the Silsden Road allotment (Zone H).

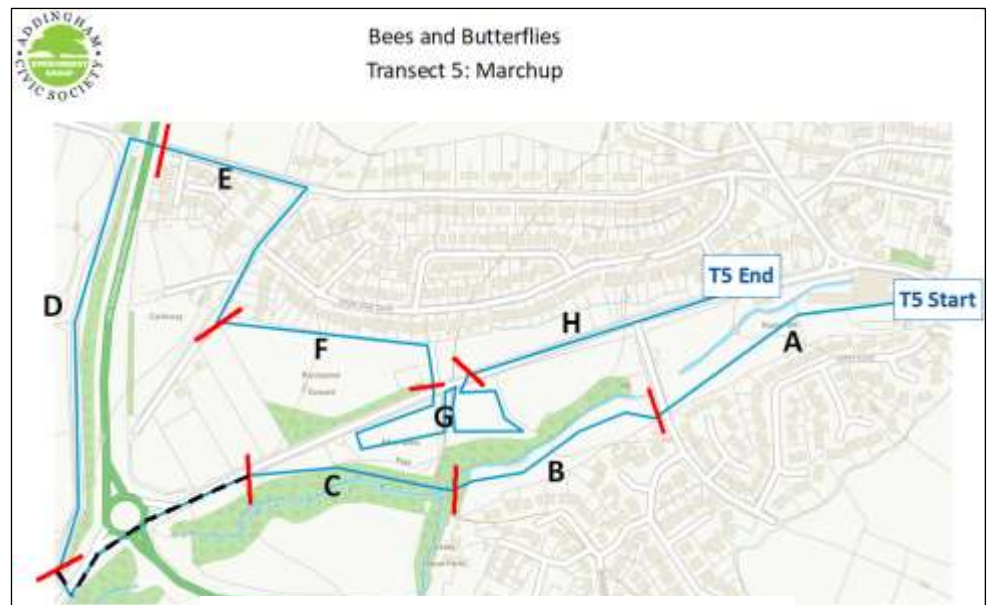


Figure 6: Transect 5

Fifteen bee and 17 butterfly walks were made in 2021.

Mick writes:

*“An interesting and variable year and, as one would expect, highly influenced by weather patterns. This is my third full year completing transect 5 and although it is hard to be certain, patterns are emerging.*

*Zone A – Always slow at the beginning of the season. Things improve as the number of flowers on thistles develop. A few gardens bordering the footpath help increase numbers spotted.*

*Zone B – As reported previously this is a shaded and cooler section compared to my other sections. Although records are low in the early part of the season things do improve as yellow rattle, blackberry etc. flower. I expect to see more speckled woods here but rarely the case.*

*Zone C – Includes the Danny Palmer reserve - A good range of both butterfly and bumble bee sightings reflecting a good range of pollen producing flowering plants. Late season mowing does seem to have a negative effect especially when we have brighter periods of weather.*

*Zone D – As reported before Crossbank Road often provides interesting surprises e.g. peacocks sunbathing on the road and regular sightings of ringlets often in groups of more than one. Once again the flowering of blackberry plants draws in both bumble bees and butterflies.*

*Zone E – This is one of two hot spots for bumble bees mainly due to the presence of many common comfrey plants that are now in full flower. High levels of both bumble bee diversity and abundance can be regularly observed. It is not uncommon now to record 5 different species and 15+ individuals of our common species. Bramble, honey suckle, rhododendron, ragwort, meadow buttercup, yellow vetch, common comfrey, apple blossom... all contribute to ensuring lots of insect activity and therefore a challenging time capturing reliable data. My first comma butterfly spotted here.*

*Zone F – The recreation ground. Disappointingly few butterflies are recorded here. Often those seen are mobile and hard to confirm their identity. Little diversity recorded for both butterflies and bumble bees.*

*Zone G – Allotment on the east side of Silsden Road. Consistently good for both bumble bees and butterflies. Large numbers observed often associated with particular plant species e.g. comfrey, brassicas, sedum (attracting huge numbers of bumble bees late in the season)*



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*Section H - Allotment on the west side of Silsden Road. Less diversity and lower numbers than the previous section. This may be linked to the route I take through the allotment. Fewer recordings of pollinators this year.”*

Transect 5		Zones .....								
Bees	Total	A	B	C	D	E	F	G	H	
Total	413	13	15	21	38	131	9	165	21	
White/Buf-tailed	183	6	3	6	7	64	5	85	7	
Common carder	102	2	8	7	16	27	1	31	10	
White-tailed	47		2	2	1	22	1	18	1	
Buff-tailed	34	4	1	3	5	9		11	1	
Tree	30				3	7	2	17	1	
Red-tailed	9	1		3	1	2		2		
Unknown	8		1		5			1	1	

Transect: 5		Zones .....								
Butterflies	Total	A	B	C	D	E	F	G	H	
Total	217	23	30	7	29	11	19	50	48	
Large White	69	4	7		3	3	8	20	24	
Small White	64	4	11	3	6	2	4	15	19	
Small Tortoiseshell	36	10	1		2	3	5	11	4	
Ringlet	15				13			2		
Peacock	7	2	1		1	2	1			
Speckled Wood	7		2	1	4					
Meadow Brown	5	2	1	2						
Red Admiral	5	1	4							
Wall	4						1	2	1	
Orange-tip	3		2	1						
Comma	1		1							
Painted Lady	1					1				

*Table 5. Numbers of individuals in Transect 5 by zone*

## Transect 6: Old Station Way, Newtown Allotments and Memorial Recreational Field

**Observer: Jessica Penrose**

Transect 6 begins at the bottom of Old Station Way (Zone A), crosses the AEG wildflower meadow (Zone B), goes along Mt Pleasant (Zone C) to the Memorial Recreation Ground. It follows the AEG wildflower bank along the western side of the football field (Zone D) continues up Stockinger Lane (Zone E) into the Newtown Allotment (Zone F), returns to the football field and follows round the boundary of the field to the MUGA (Zone G), and around the AEG wildflower triangle finishing at the carpark.

Thirteen bee and 14 butterfly walks were completed over the 2021 season.

The most abundant bee was the White/Buff Tailed bee mainly seen in Zone F, the allotment site, Zone B, the Old Station Way wildflower meadow and Zone D, the football field bank. As for 2020, the bees in the allotment were commonly associated with cultivated plants whereas bees in Zone B were associated with yellow rattle and other wildflower species. In Zone D they were seen mainly on vetch and blackberry.

Most bee species occurred in Zone F where seven different species were seen. White/buff-tailed, common carder and tree bees were the most common. Red-tailed bees, relatively common in 2020 were rare in 2021. Five different species were seen on the Old Station Way meadow. As for 2020 few bees were seen in Zones G and H in the Recreational Ground. In contrast to the AEG managed wildflower meadow on Old Station Way wildflowers in the Recreational Ground (part of Zone H) have not been successfully established. New attempts to grow wildflowers in the triangular patch of grass in the north-east corner of the field will be made in 2022.

Zone F, the Newtown allotment site, was also the zone where most butterflies and most butterfly species were seen. Large and small whites were the most abundant, probably as for other allotment sites in the village, attracted by brassicas being grown on the allotment plots.

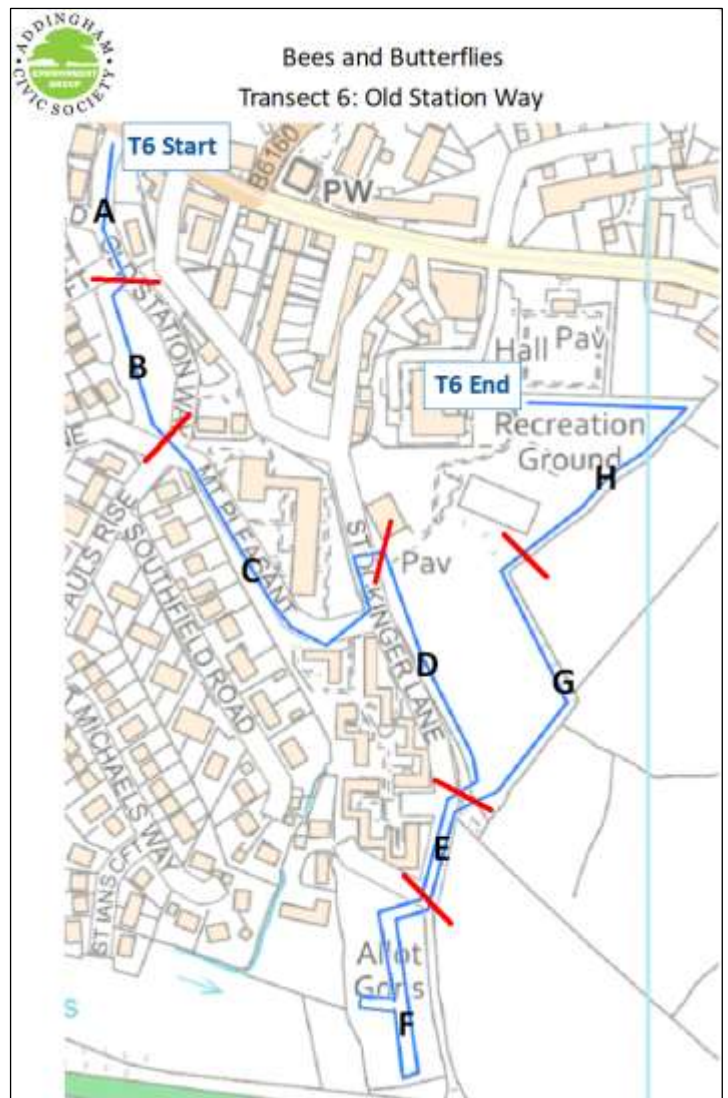


Figure 7: Transect 6

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Transect: 6		Zones .....							
Bees	Total	A	B	C	D	E	F	G	H
Total	211	32	47	17	26	6	72	7	4
White/Buf-tailed	80	5	15	5	10	3	39	2	1
Common carder	55	10	19	6	8	1	11		
Tree	31	11	4	2	2		8	3	1
White-tailed	22	3	4	1	2	1	7	2	2
Red-tailed	11	1	4	2	3		1		
Buff-tailed	7	2	1	1	1	1	1		
Early	3						3		
Garden	1						1		
Unknown	1						1		

Transect: 6		Zones .....							
Butterflies	Total	A	B	C	D	E	F	G	H
Total	83	2	9	8		2	49	9	4
Large White	42	1	2	6		2	29	1	1
Small White	15		2				7	6	
Small Tortoiseshell	12	1	4	1			3		
Orange-tip	5						3	2	
Speckled Wood	3								3
Unidentified	3						3		
Peacock	2		1				1		
Ringlet	2			1			1		
Meadow Brown	1						1		
Red Admiral	1						1		

Table 6. Numbers of individuals in Transect 6 by zone

### Transect 7: Church Field and Hoffman Wood Field

**Observer: Margaret Longden**

Transect 7 begins in North Street, enters Church Field from Church St and circumnavigates the boundary of the field (Zones B, C and D) returning along the edge of Town Beck (Zone E) back to Church St. It crosses the road to Hoffman Wood Field and goes around the boundary of the field (Zone F and G). Zones B and F include AEG wildflower enhancement plots and Zone H passes alongside a hedge, planted by AEG in early 2019.

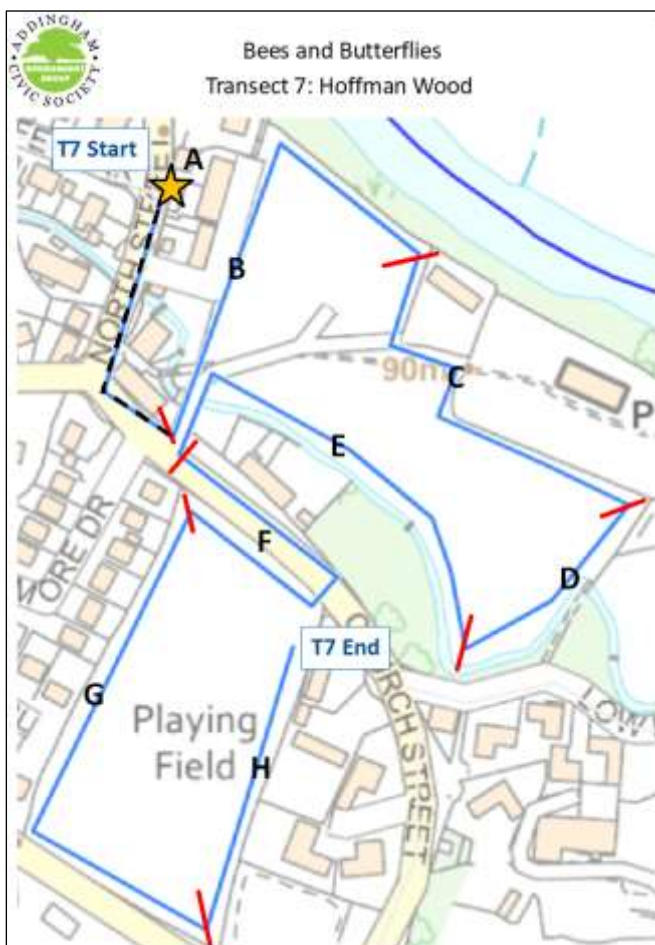


Figure 8: Transect 7

Seventeen bee and butterfly walks were conducted during 2021. Margaret writes:

*“I would describe my walks as feast or famine. A good number of walks produced almost nothing, especially in the earlier half of the season, but then a sunny day in the latter half would produce a great number of sightings, mostly as in the past where the brambles were blooming. I did notice this year for the first time that meadowsweet was also very attractive - there seemed to be a very good showing of it this year on the Church Field. I note that the North Street garden is the most reliable sight for any sightings, albeit small in number.*

*A recurring problem for me has been having the time to do a walk when the weather would be most favourable to seeing bees and butterflies. Another problem has been in the latter half of the season when the grass and brambles in the corner of the Church Field running parallel to North Street become very overgrown and it is not possible to get close enough to see or count the bees, when earlier in the season there is access, so artificially reducing the sightings. I do notice that I am seeing bees more widely spread over the field than before due to the increased number of flowers on the field. In the past the great majority of sightings has been round the periphery.”*

This transect will be modified in the 2022 season to include a zone in the Church Orchard where there are very well established patches of wildflowers as well as fruit trees. In addition St Peter’s Church has plans from 2022 to manage

Church Field as a wildflower meadow, delaying mowing until after the middle of July.



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Transect: 7		Zones .....							
Bees	Total	A	B	C	D	E	F	G	H
Total	196	21	61	31	53	14		3	13
White/Buff-tailed	90	7	24	13	33	7		1	5
Tree	55	7	16	14	6	4		1	7
Common carder	36	5	16	3	10	2			
White-tailed	6		5		1				
Unknown	4	1				1		1	1
Garden	3				3				
Red-tailed	2	1		1					

Transect: 7		Zones .....							
Butterflies	Total	A	B	C	D	E	F	G	H
Total	60	5	20	11	4	8	2	3	7
Small White	17	2	4	2		5	1		3
Large White	11	1	5	2	1	1		1	
Small Tortoiseshell	10	2	3		1		1	2	1
Orange-tip	6		1	4					1
Peacock	4		1	1		2			
Small Copper	3		3						
Unidentified	3		1	1	1				
Red Admiral	2			1					1
Ringlet	2		1		1				
Brimstone	1		1						
Speckled Wood	1								1

Table 7. Numbers of individuals in Transect 7 by zone

### Transect 8: Low Mill Lane, Low Mill and Old Ilkley Road

**Observer: Mark Penny**

Transect 8 starts in Church St and follows Low Mill Lane (Zones A and B) down to Low Mill Village (Zone C). Following a detour into the field between Old Lane and the R. Wharfe (Zone D) it meets the Old Ilkley Road and turns back towards Addingham (Zone E) and continues along Old Ilkley Road (Zones F and G) back to Church St.

Most bees were seen in Zone D and C. The common carder bee was the most abundant species, especially found on common knapweed and field scabious. Only a few bees were seen in other zones.

Butterflies were only commonly seen on Zone D where ringlets and small skippers were the most abundant. Most observations were of butterflies in flight. Those on flowers were mainly on knapweed, scabious and blackberry. Three green-veined whites were also seen in Zone D, one on hogweed and two flying.

The small number of butterflies recorded for Zone C, a peacock and several small tortoiseshells, were all seen on a buddleia bush in the latter part of the season.

We plan to include the Mill Fold field in the transect in 2022. The field is owned by the residents of Mill Fold who are managing the field as a wildflower meadow.

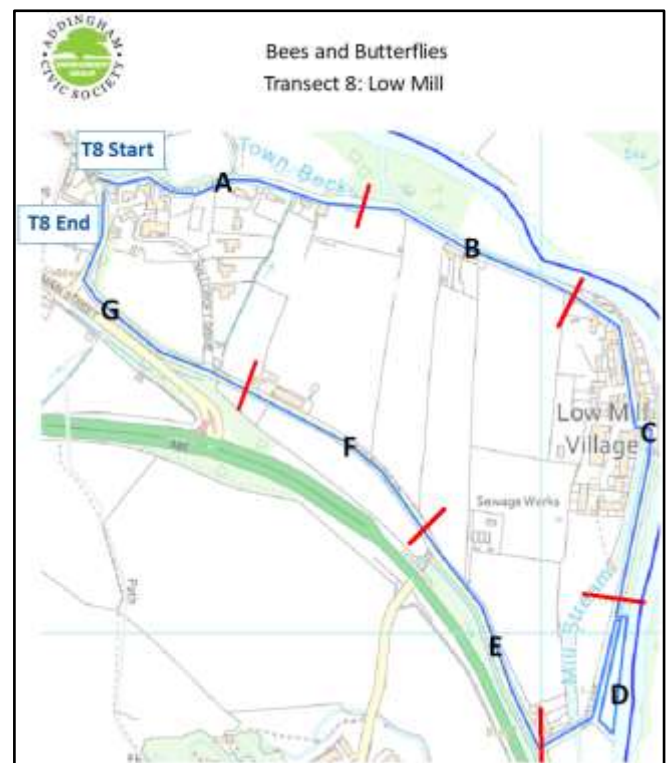


Figure 9: Transect 8

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Transect: 8		Zones .....						
Bees	Total	A	B	C	D	E	F	G
Total	155	6	5	39	90	8	6	1
Common carder	74	4	2	18	46	2	2	
White-tailed	40	1		6	27	4	2	
White/Buf-tailed	17		2	10	3	1	1	
Buf-tailed	13			4	7		1	1
Tree	9	1	1	1	5	1		
Unknown	2				2			

Transect: 8		Zones .....					
Butterflies	Total	A	B	C	D	E	F
Total	105	1	2	6	90	2	4
Small Skipper	37				37		
Ringlet	28				28		
Small White	12				10		2
Small Tortoiseshell	10		1	5	2	2	
Meadow Brown	4				3		1
Comma	3		1		1		1
Green-veined White	3				3		
Large White	3				3		
Peacock	3			1	2		
Large Skipper	1				1		
Speckled Wood	1	1					

*Table 8. Numbers of individuals in Transect 8 by zone*

## Transect 9: Golf Course and Skipton Road Bank

**Observer: Maire O'Donnell**

Transect 9 was designed in 2020 to take in the Bracken Ghyll Golf Course (Zones A, C, D and some of E) and the Skipton Road wildflower bank (Zone B), a site being actively managed to enhance wildflower populations by AEG.

The transect was walked 16 times in 2021.

Maire writes:

*“This transect remains interesting and varied in topography with some changes noted in the management of wild areas of the golf course thereby possibly affecting pollinator species (especially the occurrence of orange-tip butterflies in zone D)*

*The cutting back of nettle patches earlier in the year affected bee and butterfly counts although there seemed to be a resurgence in some areas later in the year when new nettle shoots were growing.*

*Most of the path through the golf course is bounded by woodland, bushes and fairways and whilst there are areas that appear to be bereft of bees or butterflies, it is often the case that the ones noticed are too far away to identify accurately.*

*In Zone A there is the old quarry area with many wild and cultivated plants, flowers and trees. On warm days one part can be swarming with insects, including bees and some butterflies, all of which are either too high or too far away to identify.*

*In later parts of Zone A alongside hole 18, with an open fairway one side and wooded area the other, there are two cotoneaster bushes at the edge of woodlands, which, when in flower, are alive with (what seems to be hundreds) of bees.*

*Zone B is the Skipton Road bank, filling delightfully now with a multitude of wildflowers, grasses, one bee orchid and brambles. This zone will be one of the new ‘hot spots’ for observation.*

*The rest of the transect (Zones C, D, and E) continues across the golf course, as mentioned above, and processes alongside fairways, trees, hedges and fields containing varieties of thistles, nettles, brambles, knapweed, willowherb amongst other natural flora. Eight different species of butterfly were seen in Zone D, including one painted lady.”*

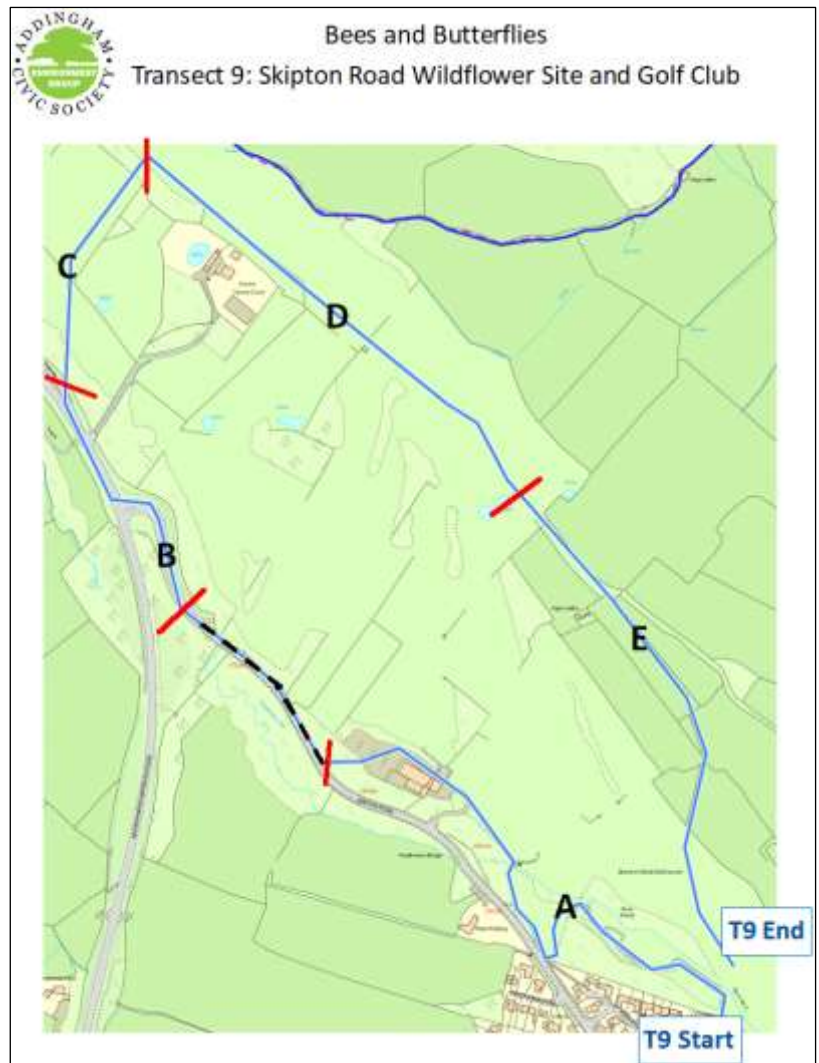


Figure 10: Transect 9



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Transect: 9		Zones .....				
Bees	Total	A	B	C	D	E
Total	147	73	35	1	9	29
White/Buff-tailed	81	41	15		5	20
Unknown	43	27	9	1	4	2
Common carder	16	4	7			5
Red-tailed	6	1	4			1
Buff-tailed	1					1

Transect: 9		Zones .....				
Butterflies	Total	A	B	C	D	E
Total	132	37	38	5	40	12
Unidentified	34	12	8	2	7	5
Orange-tip	22	9	7		6	
Meadow Brown	18	2	10		3	3
Small White	18	3	6	2	5	2
Speckled Wood	12	4			7	1
Ringlet	8	1	2		5	
Small Tortoiseshell	6	3		1	1	1
Red Admiral	5				5	
Large White	3	1	2			
Brimstone	2	2				
Peacock	2		2			
Green-veined White	1		1			
Painted Lady	1				1	

*Table 9. Numbers of individuals in Transect 9 by zone*

## Transect 10: Southfield, The Street, Steg Holes and Lumb Ghyll

Observers: Sara Arrowsmith and Jackie Olive

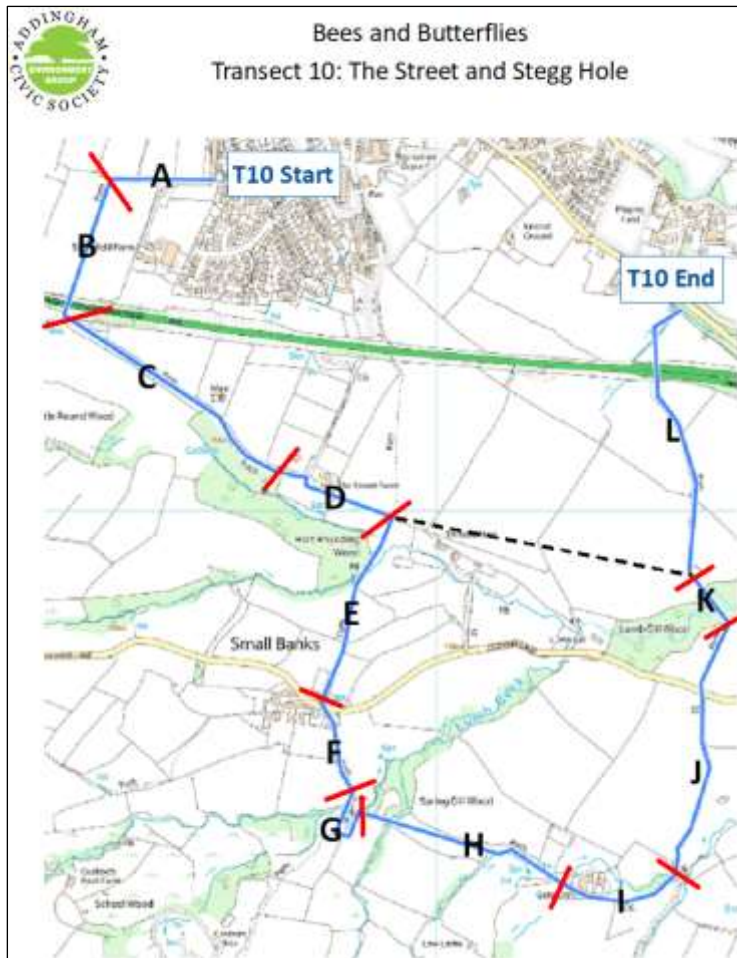


Figure 11: Transect 10

Transect 10 runs from the top of Southfield Terrace, through the small woodland, up the field and over the Bypass, turning left along The Street to Street Farm, turning right down the Cat Steps to Small Banks and across Cocking Lane towards Steg Holes, turning left and round to cross Cocking Lane again lower down, through Lumb Gill Wood and back across fields to cross the Bypass again, 3.5 miles in total and divided into 12 zones for recording purposes.

The transect covers a mixture of woodland and agricultural fields.

Transect 10 is divided into 10A and 10B. 10A zones are A-D and L (Sara Arrowsmith), 10B zones are E-K (Jackie Olive). Two Local Wildlife Sites (LWS) are included in the transect: the Street (Zones C and D) and Stegholes (Zone G).

The data shown in Table 10 are compiled from the records provided by both observers with Sara Arrowsmith walking and recording through Zones A, B, C and D, before taking a short cut (see map) to the beginning of Zone L. Jackie Olive walks on different days along the same route to the end of Zone D but then follows the main transect line and starts recording at the beginning of Zone E and stops recording at the end of Zone K.

There were relatively low numbers of bees and butterflies seen on the walks. For Transect 10A the greatest abundance was observed in Zones C and D in the Street LWS. The common carder was the most frequently seen bee and the small tortoiseshell, speckled wood, red admiral and small heath the most common butterflies.

For Transect 10B Jackie Olive writes:

*“There was very little to report until late April for butterflies and late May for bees. Butterflies were seen on most visits from June to September but mainly when in flight and so very hard to identify conclusively.*

*Bees were seen mainly in sections E, F and surprisingly, on one occasion, J which was usually barren.*

*Zone G around Stegholes was the best section for butterflies when a good selection of wildflowers were in bloom.*

*The transect crosses several fields which are largely empty of bees and butterflies but often occupied by cattle which I did not find conducive to studying B & Bs.”*

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Transect: 10		Zones .....											
Bees	Total	A	B	C	D	E	F	G	H	I	J	K	L
Total	78	1	3	18	9	9	8	12	3	3	5	5	2
Common carder	27		2	6	5	1	2	7		1	1	1	
Buff-tailed	17	1		2	1	3	1	3	2	2		2	
Unknown	14			8	2	1	1		1			1	
Tree	8				1	2		2			1	1	1
Early	4			1				3					
Red-tailed	3					1	1						1
White/Buff-tailed	3					1					2		
White-tailed	3		1	1							1		

Transect: 10		Zones .....											
Butterflies	Total		B	C	D	E	F	G	H	I	J	K	L
Total	94	10	2	10	10	8	7	14	9	5	5	13	1
Meadow Brown	19					3	4	5	1		1	5	
Small Tortoiseshell	14	2			4	2	1	1	1	1	2		
Unidentified	14	4	1	1	2		1	1	3			1	
Large White	12				2				1	3		5	1
Small White	9	1	1			1	1	1		1	2	1	
Speckled Wood	7	1		3				1	2				
Red Admiral	6	2		3		1							
Peacock	4							4					
Ringlet	3				1				1			1	
Small Heath	3			3									
Orange-tip	2				1	1							
Painted Lady	1							1					

*Table 10. Number of individuals in Transect 10 by zone*

### Comments and Conclusions

Our bees and butterflies monitoring programme began part way through the summer of 2019 with seven transects. In 2020 we expanded the network to 10 transects, included both bees and butterflies on all transects and completed a full season of observations. In 2021 we retained all ten transects, although some were slightly modified based on our experience in 2020 and we were unable to walk transect 1 due to the ill health of the observer. Our methodology of recording has remained constant throughout, affording reliable comparisons between transects and years to be made. Identification skills are gradually improving not only for bees and butterflies but also for the plants being visited. The help of our two advisers, Maurice White (bees) and Diane Morris (butterflies) is much appreciated in this respect.

### Abundance and diversity

The total number of bees and butterflies recorded over the 2021 season is 1536 (2020: 1400) bees and 895 (2020: 1092) butterflies (Table 11). Of these 80 (2020: 138) bees and 75 (2020: 90) butterflies were recorded as unidentified. For bees it was often difficult to separate White from Buff-tailed Bees. Where there was doubt these were recorded as a combination of the two as “White/Buff-tailed” bees. White and Buff-tailed bees, whether separately identified or not, made up 22% (2020: over 50%) of those recorded. Common carder, tree, red-tailed bees were the next most abundant species seen.



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Bees (8 species)	No.	Butterflies (18 species)	No.
White/Buff-tailed	550	Small White	180
Common carder	392	Large White	143
Tree	174	Ringlet	99
Buff-tailed	142	Small Tortoiseshell	96
White-tailed	131	Meadow Brown	93
Red-tailed	53	Orange-tip	45
Early	10	Small Skipper	42
Garden	4	Speckled Wood	38
		Peacock	26
		Red Admiral	25
		Comma	7
		Small Copper	7
		Wall	5
		Green-veined White	4
		Brimstone	3
		Painted Lady	3
		Small Heath	3
		Large Skipper	1

*Table 11. Abundance of species recorded*



White-tailed bumblebee  
(Maurice White)



Tree bumblebee  
(Maurice White)



Red-tailed bumblebee  
(Maurice White)



Garden bumblebee  
(Maurice White)



Buff-tailed bumblebee  
(Maurice White)

The most common butterflies were the Large and Small Whites comprising approximately 20% of the total (Table 11). Other common species were the Ringlet, Small Tortoiseshell, Meadow Brown, Orange-tip, Small Skipper, Speckled Wood, Peacock and Red Admiral. Only three Painted Lady were seen. Altogether 18 species were identified. Butterfly adviser Diane Morris commented that it was a poor year for the Painted Lady but that was the

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case more widely for the north of England. She noted that only 13 sightings had been received by the Wharfedale Naturalists Society for the whole of Wharfedale in 2020 in comparison to 2037 recorded in 2019.



Comma - Peter Miller



Green-veined white - Diane Morris



Orange tip Chris Acomb



Painted lady - Diane Morris



Peacock - Diane Morris



Small copper Peter Miller



Orange tip Chris Acomb



Small Skipper Peter Miller

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### Year on Year comparisons

Comparisons between records for 2020 and 2021 are shown in Table 12. There are strong similarities between the two years. The same species of bee were seen in both years, the main difference being the greater relative abundance of the common carder bee in 2021. It was the second most common bee seen in almost all transects and was especially abundant in Zone D of Transect 8 (the field next to the Wharfe in Low Mill) where it was seen on a wide range of flowers.

The species list for butterflies in 2021 is almost exactly the same as for 2020, the only difference being the lack of sightings of the Wall butterfly in 2020. The relative abundance of butterflies between years was also very similar with the Small and Large Whites being the most abundant in both years. The main difference was the increased showing of Ringlets and Small Skippers in 2021. Whereas the Ringlet was common at many sites, most notably in the Old First School zone of Transect 3, the Crossbank Road zone of Transect 5 and the Low Mill Field zone of Transect 8, the rise in the ranking for the Small Skipper (Table 12) is entirely due to its abundance at the Low Mill Field zone of Transect 8 where it was seen throughout the season on a range of flowers, including knapweed, field scabious and thistle. It is probable that Small Skippers were abundant there in 2020 but the site (Transect 8, Zone D) was rarely visited in 2020 due to access difficulties. This problem of access also accounts to some extent for the rise in the ranking of Ringlets.

Both Small Skippers and Ringlets favour grassland habitats, with adults laying eggs on grass stems and caterpillars feeding on leaves. The Small Skipper is known to favour Yorkshire fog (*Holcus lanatus*) as a caterpillar food plant. It is notable, however, that Ringlets are common at the Old First School but not Small Skippers despite the extent of long grass there.

	2021	2020		2021	2020
	Ranking	Ranking	<b>Butterflies (18 species)</b>	Ranking	Ranking
<b>Bees (8 species)</b>			Small White	1	2
White/Buff-tailed	1	1	Large White	2	1
Common carder	2	6	Ringlet	3	7
Tree	3	2	Small Tortoiseshell	4	3
Buff-tailed	4	4	Meadow Brown	5	6
White-tailed	5	3	Orange-tip	6	4
Red-tailed	6	5	Small Skipper	7	15
Early	7	8	Speckled Wood	8	5
Garden	8	7	Peacock	9	8
			Red Admiral	10	9
			Comma	11	13
			Small Copper	12	11
			Wall	13	-
			Green-veined White	14	12
			Brimstone	15	10
			Painted Lady	16	14
			Small Heath	17	17
			Large Skipper	18	16

Table 12. Comparison of year on year abundance ranking

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The years can also be compared according to the number of individual bees or butterflies recorded per walk and per transect (Table 13). There is likely to be significant inherent year on year variability in bee and butterfly populations but the numbers seen over the year on each transect in 2021 are quite remarkably similar to those from 2020.

<b>Observed per walk</b>											
<b>Bees 2021</b>											
BY TRANSECTS .....											
Observed per walk	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>	
April	<b>3.4</b>		4	8.7	1	6	3.5	1	3.3	4	1.9
May	<b>1.8</b>		0.3	1.5	0.5	3.7	5.3	0.3	1	2	1.2
June	<b>11.9</b>		12	3		47	17	5	2	13	1.3
July	<b>22.0</b>		27	15	2.5	43	38	44	14	22	11
August	<b>9.7</b>		24	12	3.3	21	25	13	5.9	8	0.3
September	<b>10.1</b>		14	12	2.5	28	13	5.5	1.3		
<b>Totals</b>	<b>10.1</b>		<b>11</b>	<b>9.3</b>	<b>1.8</b>	<b>28</b>	<b>16</b>	<b>12</b>	<b>6</b>	<b>9.8</b>	<b>3.4</b>
<b>Bees 2020</b>											
BY TRANSECTS .....											
Observed per walk	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>	
April	<b>3.6</b>	7	7.3	1.7	1.7	7.5	3.3	0.8	2.6	2	7.3
May	<b>4.8</b>	10	2.5	3	4	18	5	0.7	0.7	2	2
June	<b>16.9</b>	71	7	7.7	2.5	41	18	28	8.7	4	8.7
July	<b>13.2</b>	15	38	11		14	30	7.3	6.7	15	9.5
August	<b>5.4</b>		21	5.3		8	8	2	1.7	5.5	1
September	<b>4.3</b>	10	7.5	3.5		16	6.5	0.5	1	2.5	
<b>Totals</b>	<b>8.2</b>	<b>20</b>	<b>12</b>	<b>5.1</b>	<b>1.6</b>	<b>18</b>	<b>10</b>	<b>6.8</b>	<b>3.7</b>	<b>5.6</b>	<b>4.8</b>
<b>Butterflies 2021</b>											
BY TRANSECTS .....											
Observed per walk	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>	
April	<b>2.2</b>		0.7	2		8	4	3.3	1.5	3.5	1.5
May	<b>2.2</b>		0.3	2.5		0.3	2.3	1.8		14	1
June	<b>2.7</b>		0.3	2.3		2	2.3	2	1	5.5	3.3
July	<b>12.8</b>		2	38		22	8.5	3.7	12	16	9.2
August	<b>9.0</b>		19	7.7	0.7	35	21	5.7	4.3	11	3.5
September	<b>7.6</b>		5	4		21	6	5.5	3	11	7
October	<b>1.3</b>					2				1	
<b>Totals</b>	<b>6.0</b>		<b>2.6</b>	<b>10</b>	<b>0.2</b>	<b>13</b>	<b>6.1</b>	<b>3.5</b>	<b>6.2</b>	<b>8.3</b>	<b>3.6</b>
<b>Butterflies 2020</b>											
BY TRANSECTS .....											
Observed per walk	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>	
April	<b>3.4</b>	3.5	4.7	3.3	1.3	5	3.5	4.5	1.3	5.7	5
May	<b>7.2</b>	5	8	2.3	0.7	30	6.7	4	2.3	6.5	7
June	<b>5.5</b>	2	7.7	2	0.5	5.3	3.5	2.7	1	9.5	17
July	<b>9.4</b>	12	5	15		14	8	3	2.4	23	6.5
August	<b>11.2</b>	20	5.5	9.7		33	3.5	6	2	7.5	14
September	<b>5.6</b>	8	2	3.5		15	2.5	3.5	3.3	16	5
October	<b>0.2</b>							2			
<b>Totals</b>	<b>6.4</b>	<b>5.7</b>	<b>5.6</b>	<b>5.6</b>	<b>0.5</b>	<b>15</b>	<b>4.6</b>	<b>3.8</b>	<b>2</b>	<b>11</b>	<b>8.6</b>

*Table 13. Average numbers observed per walk by transect and month.*

### Distribution amongst transects

The transects were designed to be approximately equal in length and to pass through areas of the village where pollinator populations were thought to be relatively abundant. In 2021 transects 5 and 6 had the highest numbers, the same as in 2020 (ignoring Transect 1 for which we have no 2021 data), whereas Transect 4 had the lowest. We expect numbers in future years to increase in Transect 4 as the flowers in the marginal areas of the school grounds and in the school Jubilee reserve become more abundant and varied.

Transect 5 had high numbers of both bees (Table 13) and butterflies (Table 13) in both years associated with wildflower-rich sites on the Daniel Palmer Nature Reserve and Moor Lane and with both wildflowers and cultivated plants on the Silsden Road allotments. The relatively high numbers in Transect 6 are associated mainly with sightings from the Newtown allotment and the Old Station Way zones.

### Distribution over the season

Overall numbers of both pollinator groups increased and decreased over the season as expected with bees being most abundant in June and July and butterfly numbers peaking in July and August (Fig. 12), as for 2020. Recording of bees stopped at the end of September, whereas the butterfly season continued to the end of October. However, very few butterflies were seen in October.



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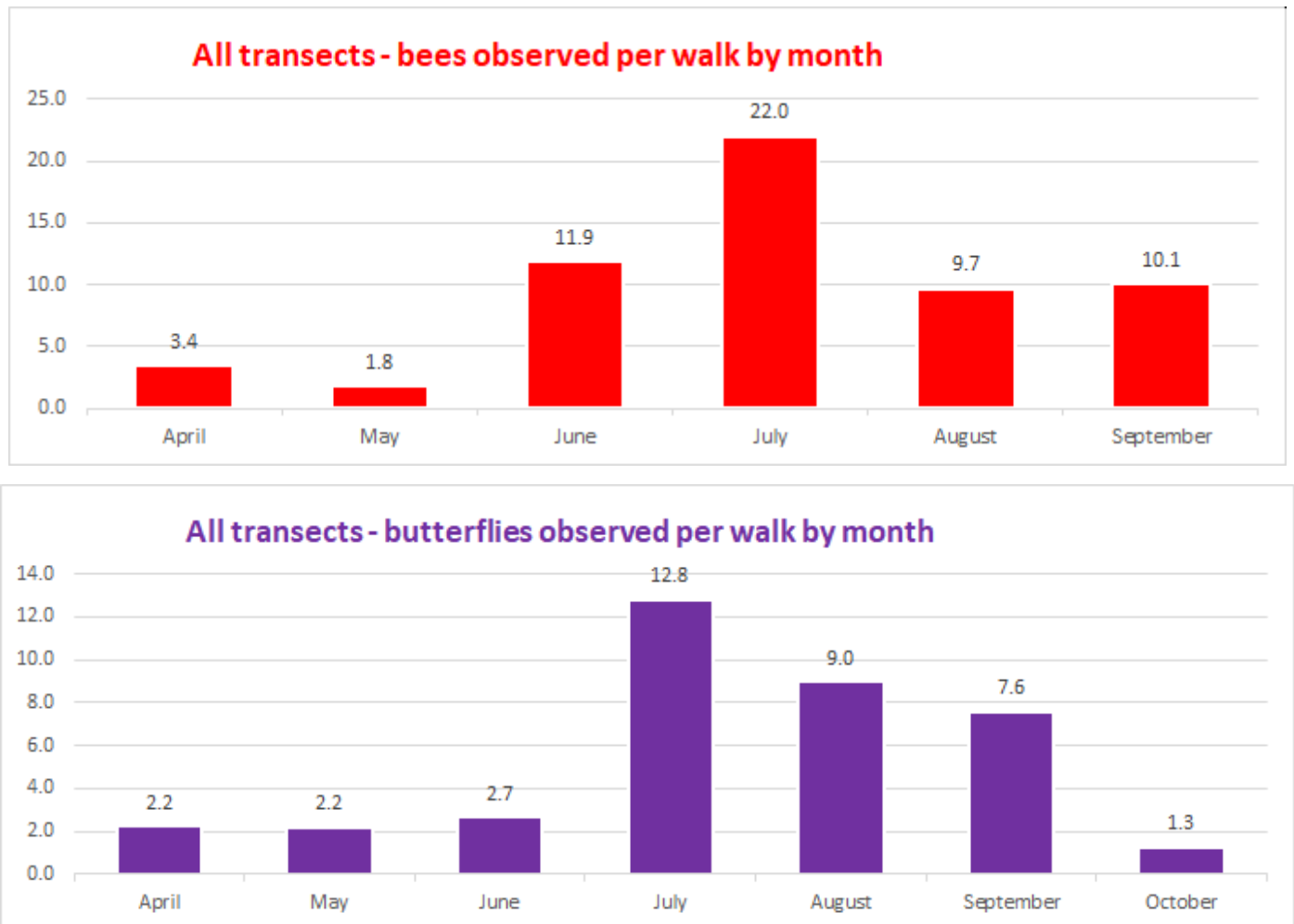


Figure 12. Average numbers observed on all transects per walk by month.

### Distribution amongst zones

Several zones within different transects had relatively high pollinator populations. These stand out for a range of different reasons.

Transect 3 Zone C is the Old First School site, a site with a variety of different habitats that has been rewilding over the last twenty years. It has one of the highest diversities of both bee and butterfly populations and the long grass provides an especially good habitat for Ringlets. Meadow browns were also common. This is probably the best site for bees and butterflies in the village.

In Transect 5, Zone E, at the top of Moor Lane, was a good location for bees, but not butterflies, whereas Zone D (Crossbank Road) was a good site for common carder bumblebees and the ringlet butterfly. The allotment sites (Zones G and H) also had relatively high numbers of pollinators. Zone G is the Stamp Hill allotment site where comfrey and blackberry are the main hosts for bees. Zone H, the Silsden Road Allotments, on the other hand, had fewer bees. The numerous butterflies recorded were mainly Whites attracted by cultivated flowers and vegetables, especially cabbages, runner beans and sweet peas.

The Newtown allotment (Transect 6, Zone F) also had good populations of bees and butterflies. As for 2020 butterflies were mainly recorded in flight but bees were especially observed on cultivated plants. Bees, but not butterflies, were more abundant in the Old Station Way meadow site (Zone B) in 2021 than 2020, perhaps reflecting the increasing success of AEG's efforts in managing the site for wildflowers.

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In Transect 7, Zones B, C and D, around the borders of Church Field, had higher populations of bees, mainly observed on brambles, than in 2020.

In 2020 none of the zones of Transect 8 had good populations of pollinators. In 2021, however, owing to improved observer access, Zone D has been identified as a site with high abundance and diversity of both bees and butterflies. It rivals Zone C in Transect 3 (The Old First School site) in importance. Both sites are characterised by the presence of extensive patches of unmanaged grassland.

Transect 9 includes the Bracken Ghyll Golf Course and the Skipton Road Bank (Zone B). Except for Zone C which is a zone that crosses fairways, all the zones (A, B, D, E) had relatively good pollinator populations. Zones A and B had good numbers of both bees and butterflies and good diversity of butterflies.

Numbers of both bees and butterflies were relatively low in Transect 10. Although both are local wildlife sites noted for their wildflower populations, neither The Street (Zones C and D) nor Stegholes (Zone G) stood out as pollinator rich.

Zones with low numbers of pollinators in 2021 were very similar to those in 2020 being zones that lacked flowers. These include woodlands, e.g. along parts of the Dalesway or along the wooded path around the school, and grasslands, especially frequently mown (e.g. Hofmann Wood Field, Golf Course fairways) or grazed (e.g. farm pastures along Transect 10) grassland.

The relative abundance and diversity of bees and butterflies at the Old First School site and the Low Mill field in transect 8 illustrate the value of leaving grassland uncut.

### AEG wildflower sites

The AEG manages six grassland sites in the village aiming to enhance their wildflower populations and thereby encourage a greater abundance of pollinators. Consequently all six sites have been incorporated as zones in one or more of the pollinator transects (Table 14).

#### 2021 (2020)

Name	Year	Trans	Zone	No. Bees	Spp.	No. But	Spp.
Old Station Way	2015	6	B	47 (19)	6 (5)	9 (3)	4 (3)
Football Field Bank	2016	6	D	26 (30)	6 (5)	0 (12)	- (4)
Memorial Rec Triangle	2016	6	H	4 (7)	3 (3)	4 (9)	2 (7)
Hoffman Wood North	2018	7	F	0 (0)	0 (0)	7 (1)	5 (1)
Church Field West	2018	7	B	61 (3)	4 (2)	20 (27)	8 (6)
Methodist Graveyard	2018	3	E	36 (23)	6 (4)	16 (9)	7 (4)
Skipton Road Bank	2016	9	B	35 (26)	3 (4)	38 (54)	7 (9)
MEAN ALL ZONES				23 (18)	0.8 (0.7)	13 (14)	1.4 (1.2)

*Table 14. Wildflower sites managed by AEG, start date of management, pollinator transect number and zone, total number of bees observed, number of bee species observed, total number of butterflies observed and number of butterfly species observed in 2021 compared to 2020 (in brackets).*

The data show broadly similar numbers both of individuals and species observed between 2021 and 2020. Where differences between years are apparent these can be most readily explained by natural variability. However, the low values for the Memorial Recreation Ground triangle may be due to our failure to establish wildflower populations there. It is tempting to think the higher numbers of both bees and butterflies in the Methodist Graveyard in 2021 are due to our management of that site, especially with respect to reduced grass cutting. Likewise, although we have no

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data in support, the relatively high numbers at the Old Station Way and Skipton Road Bank sites may be due to our successful introduction of wildflowers in the three or four years leading up to the first pollinator surveys in 2019 and 2020.

### Plans for 2022

The records for 2021 build on those from 2020 and 2019. In 2022 we are planning to repeat the 2021 programme as closely as possible, so that year on year comparisons can be made. However, several modifications will be made as follows:

1. Transect walks will be monthly allowing observers more chance to conduct walks on warm, sunny days;
2. Hotspot zones on each transect will be identified. Observers will spend an extra ten or more minutes systematically searching for any species not recorded on their immediately previous walk through the zone;
3. At sites where locally rare or interesting species were observed in 2021 a thorough search will be made for those species in the same locations in 2022. These include the Wall butterfly seen in the Methodist Graveyard.
4. Transect 1: The Hen Pen will become a hotspot;
5. Transect 2: The Sidebeck estate meadow will become a hotspot;
6. Transect 3: Hotspots will include the Old First School Site and the Methodist Graveyard;
7. Transect 4: A new wildflower patch to be planted by Primary School children in spring will be included as Zone B. Hotspots will be Zone F, especially the north-east corner where shrubs attractive to butterflies have been planted, and Zone I, the new school wetland reserve;
8. Transect 5: The Daniel Palmer Reserve will become a hotspot;
9. Transect 6: Hotspots will be Old Station Way and the Football field bank. The field owned by James Turner will be surveyed from 2022 if permission is granted;
10. Transect 7: The Church Orchard will be included as a new zone in this transect and will become a hotspot;
11. Transect 8: The riverside field (Zone D) will become a hotspot. The existing Zone D will be divided into two to separate the small woodland to the west of Old Lane from the riverside field to the east. The field behind Mill Fold will be added as a new zone, if permission is granted by the residents;
12. Transect 9: Zone B, Skipton Road Bank, will become the hotspot;
13. Transect 10: Stegholes (Zone G) will become the hotspot;
14. An attempt will be made to identify the earliest emergence of different bee and butterfly species in spring anywhere in the village, using the respective WhatsApp groups to report.

The observations recorded here are likely to be a good record of bee and butterfly populations occurring in and around the village. They do not, however, represent populations occurring in the parish not covered by the transects. We hope from 2022 to add sightings of butterflies made by others from the within the parish boundary, especially those reported to and recorded by the Wharfedale Naturalists Society.

As our understanding grows about bee and butterfly populations in the village our ambition remains to consider how best to protect and enhance them. This requires continued effort to increase the abundance of wildflowers in our grasslands both in village green spaces and in surrounding agricultural land. We hope in 2022 with the help of the Bee Together Project and the Yorkshire Dales Millennium Trust to create a new wildflower zone in front of the Primary School and enhance wildflower populations on farmland on Addingham Moorside and elsewhere in the wider parish.

We also wish to encourage householders to plant more garden flowers and bushes that are attractive to pollinators and, inspired by recent research from the University of Bristol (Tew et al., 2021), intend to draw up a list of such plants to help gardeners select appropriate species.

## Reference

Tew, N.E., Baldock, K.C.R., Vaughan, I.P., Bird, S. & Memmott, J. 2021 Turnover in floral composition explains species diversity and temporal stability in the nectar supply of urban residential garden. *Journal of Applied Ecology*, DOI: 10.1111/1365-2664.14094.

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## Appendix A: Primary data

All primary data are contained in a comprehensive interactive spreadsheet, available to [download here](#) or to be requested by clicking on [Request for the bumblebee and butterfly 2020 season end analysis spreadsheet](#). Guidance on using the spreadsheet is contained within it.

The spreadsheet includes:

- Overall analysis of numbers and species with averages per transect walk.
- Analysis of numbers observed, the number of walks by month and the average numbers observed by walk and month.
- Numbers observed by species in each zone of each transect.
- The plants pollinators were visiting at the time of the observation.
- Transect dashboard in which numbers and species observed are shown.
- Zone dashboard with numbers of species by transect zones.
- Both of the dashboards have links to the transect maps, along with other resource folders.

End