

Addingham Environment Group



Bumblebee and Butterfly Observations - 2022 Season Report

The AEG Bee and Butterfly Team

Contents

Executive summary	3
Introduction	4
Transects	4
Methods	5
Results	6
Transect 1: Main St and Pocket Gardens	7
Transect 2: Sidebeck, Dalesway and Wine Beck	9
Transect 3: Sugar Hill, Old First School Site and Methodist Graveyard	10
Transect 4: The Garth and Primary School	11
Transect 5: Marchup, Crossbank Road and Silsden Road Allotments	11
Transect 6: Old Station Way, Newtown Allotments and Memorial Recreational Field.....	14
Transect 7: Church Field and Hoffman Wood Field	16
Transect 8: Low Mill Lane, Low Mill and Old Ilkley Road	17

AEG 2022 Bumblebee and Butterfly Season End Report

Transect 9: Golf Course and Skipton Road Bank.....	19
Transect 10: Southfield, The Street, Steg Holes and Lumb Ghyll	21
Comments and Conclusions.....	23
Abundance and diversity	23
Year on Year comparisons.....	26
Distribution amongst transects.....	27
Distribution over the season.....	28
Distribution amongst zones	29
Host plants	30
AEG wildflower sites	31
Plans for 2023	32
Authors and the team.....	33
Appendix A: Primary data	33

AEG 2022 Bumblebee and Butterfly Season End Report

Executive summary

1. In 2022 volunteer observers recorded bee and butterfly populations along ten village transects at approximately monthly intervals from 1st April to 30th September (bees) and 1st April to 31st October (butterflies).
2. In 2022 transects were walked on average 0.9 times a month (2021: 2.8).
 - There were 55 bee walks in 2022 (2021: 152); and
 - 63 butterfly walks (2021: 149).

On average there were 40% fewer walks in 2022 than in 2021 as a result of the decision to reduce walk frequency from fortnightly to monthly.

Transect 1 was not started until July, and we have very limited data for Transect 4 with only two zones walked, for June and July respectively. There were also some months missed for some of the transects due to holidays and unsuitable weather conditions.

3. As expected with fewer walks per transect this year the total number of bees and butterflies recorded were lower with 1,010 bees and 511 butterflies sighted. In 2021 there were 1,536 bees and 895 butterflies. But as in previous years, analysis focussed on numbers seen per walk (i.e. per transect and per zone) and on relative abundances. Both metrics enabled meaningful year on year comparisons to be made regardless of the number of walks. On this basis the average numbers of both bees and butterflies seen per transect in 2022 were mainly higher than in 2021
4. For 2022 an additional procedure was adopted whereby ‘hotspot’ zones were designated and observers requested to spend a further 10 minutes in those zones recording any species missed by the standard walk through. These are marked with an “X” on the transect maps. However, in many of the transects our hotspot protocol was not always followed. On the occasions where the protocol was successfully followed no additional species were seen in some instances, but in the case of Old Station Way additional species were indeed sighted.
5. Six species of bumblebee and sixteen species of butterfly were identified. The most common bumblebees were the white/buff-tailed, common carder, tree, buff-tailed and white-tailed. The most common butterflies were the small white, large white, ringlet, small tortoiseshell and meadow brown.
6. No new species of bee was observed but there were two species of butterfly sighted, the holly blue and gatekeeper, that had not been recorded on any transect walk before. The white-letter hairstreak was not recorded on a formal walk but it was seen in the Old First School site (Transect 3, Zone C) on an occasional visit to the site. This sighting brings the total butterfly species count in the village to 21, the same number and same species reported for the parish by the Wharfedale Naturalist Society official recorder in 2019.
7. Two new zones were added in 2022, one, the Church Orchard, was added to Transect 7 (Zone F) and the other, the Mill Fold Field, to Transect 8 (Zone H).
8. We now have three full years of data for both bee and butterfly records. Whilst there is variation in total numbers per walk and per zone there are considerable similarities between years with respect to the species seen, their relative abundance and their geographical distribution. Although it is too soon to detect trends these between year similarities suggest that we are creating a robust baseline against which future change can be measured.
9. There were variations in total bee and butterfly numbers seen over the season. As in previous years bee numbers were highest in June and butterfly numbers highest in July. However, unlike 2021, both bee and butterfly numbers increased in September, probably reflecting the unusual warmth of that month in 2022.
10. Each transect comprises zones passing through streets where pollinator numbers are expected to be very low, although in some instances counts were boosted by sightings of bees and butterflies associated with garden flowers (e.g. in Transect 2 along Wharfe Park and Transect 8 through Low Mill village). These zones connect other sites where numbers are expected to be higher. As in 2021 the standout site was the Old First School site which had a greater diversity of bees and butterflies than any other site. The sighting of white-letter hairstreaks at this site further underlines the importance of protecting this site from development.

AEG 2022 Bumblebee and Butterfly Season End Report

11. As observers become more skilled in identifying both wild and garden flowers along their transects we now have increasingly reliable data on the plants most frequently visited by bees and butterflies. Blackberry (bramble) is the most important. Comfrey is also favoured especially on allotments. Late-flowering common knapweed supports pollinators at the end of the season whereas dandelion is an important food plant in spring. These observations underline the value of delaying the start of the grass mowing season for lawns and verges in spring and strongly support the “no mow May” campaign. They also show the importance of delaying the last cut of the year to allow late season species to flower.
12. The pollinator transects include our six village wildflower sites. The data show that the Old Station Way and Skipton Road Bank sites continue to perform well. However, there are only a few pollinators visiting the Memorial Recreation field triangle site and this reflects the difficulty we have had in establishing a wildflower population at that site. Two new wildflower sites, Craven Crescent Green and the Primary School Entrance, will be added to our transects from 2023.
13. The 2023 season is scheduled to start on the 1st April and our intention is to continue following the same transect routes and protocols, including the more detailed inspection of hotspot zones. We say thanks to Diane Morris for being our butterfly adviser over the last few years and welcome to Nyree Fearnley, the Wharfedale Naturalists Society butterfly recorder, who has kindly agreed to take over.

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 2022 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) and all were walked during 2022, although not all were walked every month. We have limited data for Transect 4. 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. Where relevant the changes are described below in the notes for each transect.



Bees and Butterflies All Transects

- | | |
|---------------------------------------|---|
| T1 : Main Street (Ian Grant) | T6 : Old Station Way (Jessica Penrose) |
| T2 : Sidebeck (Julia Tomlinson) | T7 : Hoffman Wood (Margaret Longden) |
| T3 : Old First School (Peter Miller) | T8 : Low Mill (Mark Penny / Patricia Breen from July) |
| T4 : Garth and School (Claire Godden) | T9 : Skipton Road Wildflower Site and Golf Club (Maire O'Donnell) |
| T5 : Marchup (Mick Dunne) | T10 : The Street and Stegg Hole (Sara Arrowsmith & Jackie Olive) |

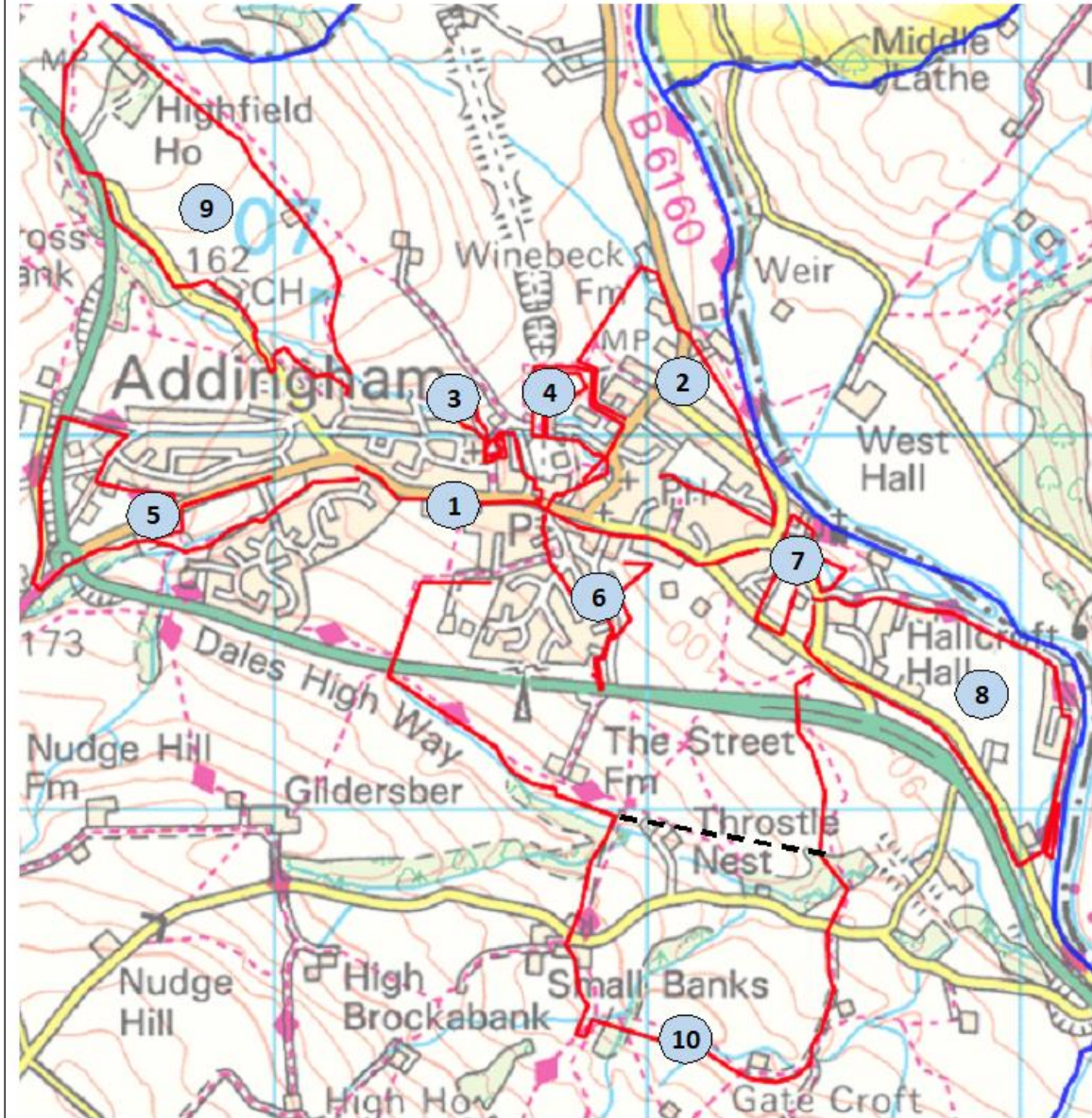


Figure 1: Addingham bee and butterfly transects

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 month during the season defined as 1st April to 30th September for bumblebees and 1st April to 31st October for butterflies. This differed from previous years when transect walks were made at approximately fortnightly intervals. A further change was the designation of “hotspots” on each transect, marked “X” on the maps.

AEG 2022 Bumblebee and Butterfly Season End Report

We defined a “hotspot” as the zone on each transect with the greatest abundance of bees and butterflies based on the experience of previous years. At these sites we asked observers to walk through the zone as usual but then spend an extra 10 minutes searching for additional species before continuing along the walk.

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 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 abundance of different species of bees and butterflies recorded in each zone.

Transect 1: Main St and Pocket Gardens

Observer – Ian Grant

No changes were made to the route of this transect in 2022. However, the Hen Pen Garden (Zone H) was selected as a hotspot (“X”, figure 2).

Owing to indisposition earlier in the year walks were not started until July when Ian Grant became the observer.

The transect (Fig. 2) runs 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.

Ian writes:

No comparison can be made with 2021 as the transect was not walked.

Bees were recorded at all sites along the transect except for the Lay-by garden (Zone A) and the Sailor Corner Garden (Zone C), possibly due to the types of plants present and, in the case of the Sailor Corner Garden, the lack of light. The most common species were the Common Carder and the Buff-tailed Bees.

Most bees were found on garden plants such as Lavender and Calamintha nepeta, rather than wildflowers. This is not surprising as the transect covers mainly front gardens and other cultivated areas.

Zone H (Hen Pen Garden), the defined hotspot of Transect 1 was particularly good for bees, additional time being spent there to record additional species during a second sweep. Inadvertently, however, these were not separately recorded.

Zones B and I were also particularly attractive to bees, presumably due to the plant mix, i.e. Lavender, Aster, Echium (Viper’s Bugloss) and corn marigold in Zone B, Lavender and Calamintha nepeta in Zone I.

Buff-tailed bees were the commonest species at the start of summer but by the end Carder bees were dominating.

Butterfly numbers were considerably lower than bees with the greatest number and variety seen in the Cottages Garden (Zone E). No butterflies were seen in Zones C, F or J.

The commonest species were Small Whites, Red Admiral and Commas. A slightly greater diversity of species was seen in July compared to August and September, with no butterflies being seen in October.

About 50% of the butterflies were seen on plants, commonly buddleia and ivy.

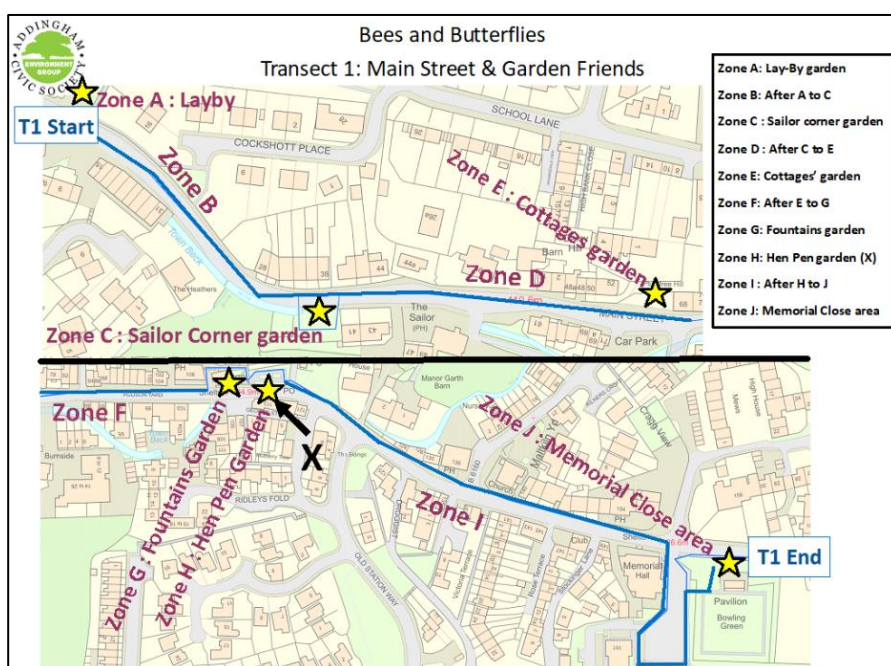


Figure 2: Transect 1

AEG 2022 Bumblebee and Butterfly Season End Report

Transect: 1	Zones										
Bees	Total	A	B	C	D	E	F	G	H	I	J
Total	111		23		6	17	2	11	18	27	7
Common carder	54		15		5	14		2	8	9	1
Buff-tailed	41		3		1		1	9	6	15	6
Red-tailed	6		4							2	
Tree	3		1			1			1		
White/Buff-tailed	3					2				1	
Unknown	2								2		
White-tailed	2						1		1		

Transect: 1	Zones										
Butterflies	Total	A	B	C	D	E	F	G	H	I	J
Total	35	2	1		5	16		1	7	3	
Small White	13	2			3	3		1	4		
Red Admiral	11		1		1	6				3	
Comma	4					3			1		
Small Tortoiseshell	4				1	2			1		
Holly Blue	2					2					
Large White	1								1		

Table 1: Number of individuals observed in Transect 1 by zone

Transect 2: Sidebeck, Dalesway and Wine Beck

Observer - Julia Tomlinson

No changes were made to the route of this transect in 2022. Zone E was selected as the hotspot.

Julia writes:

My first walk for Transect 2 was on 20th April. Zone A is across Sidebeck meadow which was re-seeded with a flower mix, probably sometime in April. The first flowering plants I saw were on my August walk. I counted at least 25 different plant species including Poppy, Candytuft, Marigold, Stocks and Borage. Vipers Bugloss and Meadow Vetchling attracted the greatest number of bees. It was a very poor Butterfly count, only 4 in total. It will be interesting to see which plants regrow next year.

Zone B is Wharfe Park. It has a variety of garden plants, and this zone had my biggest bee count, thanks to the Lavender. This zone had my second highest butterfly count at 16.

Zone C includes garden plants on High Mill Lane, best for bees in July.

Zone D starts from Wine Beck, and is mostly short, unproductive farmed grassland.

Zone E includes my "hotspot", the pond and scrapes alongside the school. This area is proving valuable to both bees and butterflies, having my highest butterfly count. The highlight for me was being able to film two Peacock butterflies mating.

I intend to keep the zones and my hotspot the same for next year."

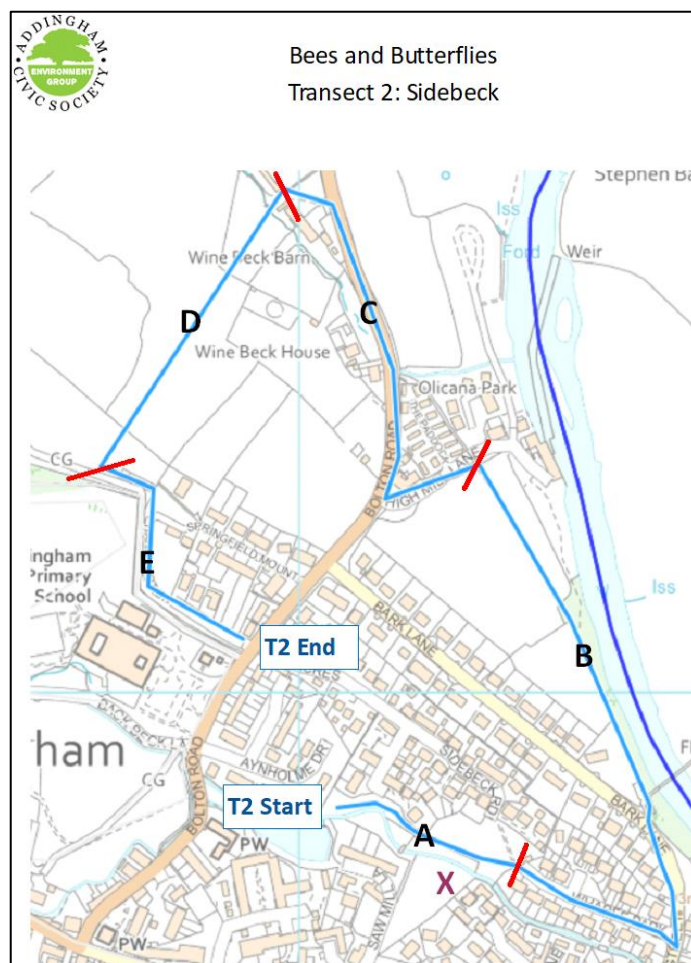


Figure 3: Transect 2

Transect: 2		Zones				
Bees	Total	A	B	C	D	E
Total	146	33	42	35	4	32
Common carder	42	17	14	4	2	5
Buff-tailed	39		7	16		16
White/Buff-tailed	33	9	15	5		4
Red-tailed	23	7	5	7	2	2
Tree	9		1	3		5

Transect: 2		Zones				
Butterflies	Total	A	B	C	D	E
Total	53	4	16	9	6	18
Unidentified	21	3	8	3	1	6
Large White	7	1	3	1	1	1
Orange-tip	7		2	2		3
Small White	6			2	4	
Meadow Brown	3		1			2
Speckled Wood	3					3
Peacock	2					2
Red Admiral	2			1		1
Small Tortoiseshell	2		2			

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

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

Observer: Peter Miller

No changes were made to the route of this transect in 2022. Two hotspots were selected, Zones C and E.

Peter writes:

Numbers of bees and butterflies seen per walk were similar to those seen in previous years. The transect was again one of the most prolific for butterflies observed but less so for bees this year. As in 2020 and 2021 most pollinators were seen in July after relatively fewer sightings in earlier months.

Zone C, the old First School site, a local green space valued for its biodiversity, has a greater number and diversity of pollinators than elsewhere along the transect. The area with its long, uncut grass, could be even more attractive to pollinators throughout the season if there were a larger variety of wildflowers.

The Methodist Church graveyard (Zone C) is managed to promote wildflower populations. The upward trend in numbers and species observed in 2021 was not maintained this year with four species of bumblebees and five species of butterflies. However, work continues in managing the area so, hopefully, an increase will be seen in future years.

Transect hotspot visits (X1, X2) produced no additional sightings. A highlight for the season though came in late July during an occasional visit to the old First School site. Three White-letter Hairstreak butterflies were seen feeding on thistle towards the back of the site. Elm is the sole food plant of this species and one tree is growing in the back line of trees. It is an elusive butterfly that is only reported a few times each year by Wharfedale Naturalists. It may be under reported but it is certainly in serious decline.

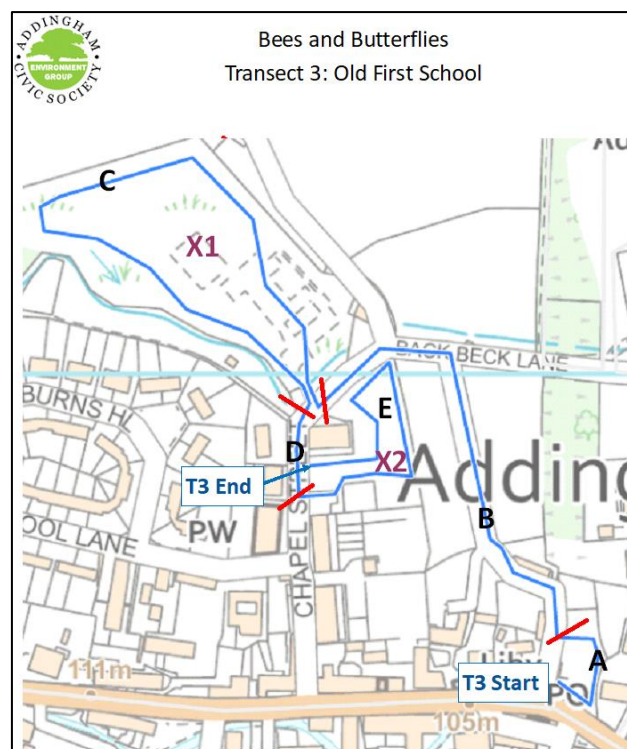


Figure 4: Transect 3

Transect: 3		Zones				
Bees	Total	A	B	C	D	E
Total	60	3	9	40		8
White/Buf-tailed	26		6	16		4
Common carder	13	2		10		1
Buf-tailed	8			8		
Tree	8		3	3		2
Unknown	3	1		1		1
Red-tailed	2			2		

Transect: 3		Zones				
Butterflies	Total	A	B	C	D	E
Total	78	1		63	4	10
Ringlet	18			16		2
Small White	16	1		10	2	3
Red Admiral	12			9	1	2
Meadow Brown	7			7		
Peacock	7			7		
Speckled Wood	7			4	1	2
Small Copper	4			4		
Comma	2			2		
Orange-tip	2			2		
Small Tortoiseshell	2			1		1
Large White	1			1		

Table 3. Numbers of individuals in Transect 3 by zone

AEG 2022 Bumblebee and Butterfly Season End Report

Transect 4: The Garth and Primary School

Observer – Claire Godden

Due to unavoidable reduced observer availability this year there is minimal data for this transect.

This year, a new wildflower patch planted by Primary School children in spring has been included in Zone B. Zones F and I were selected as hotspots.

Transect: 4		Zones									
Bees	Total	A	B	C	D	E	F	G	H	I	
Total	3							1		2	
Red-tailed	2									2	
White/Buf-tailed	1							1			

Transect: 4		Zones									
Butterflies	Total	A	B	C	D	E	F	G	H	I	
Total	1					1					
Peacock	1					1					

Table 4. Number of individuals in Transect 4 by zone

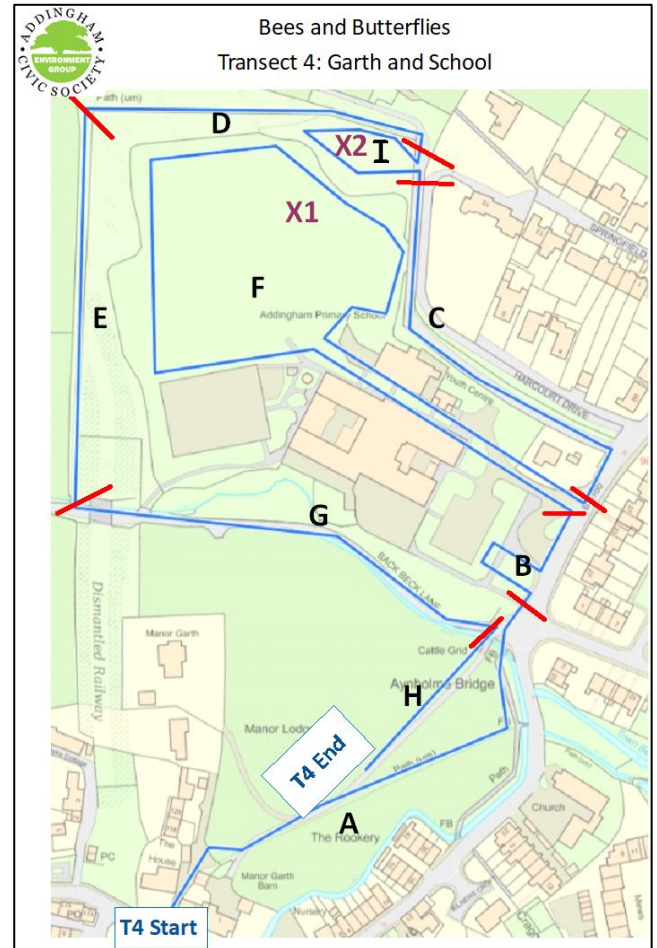


Figure 5: Transect 4

Transect 5: Marchup, Crossbank Road and Silsden Road Allotments

Observer: Mick Dunne

No changes were made to the route of this transect in 2022, but Zones C, G and H were selected as hotspots (Figure 6).

Transect 5 begins at the Townhead Trading Estate and follows the public footpath alongside Marchup beck (Zones and B) and 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).

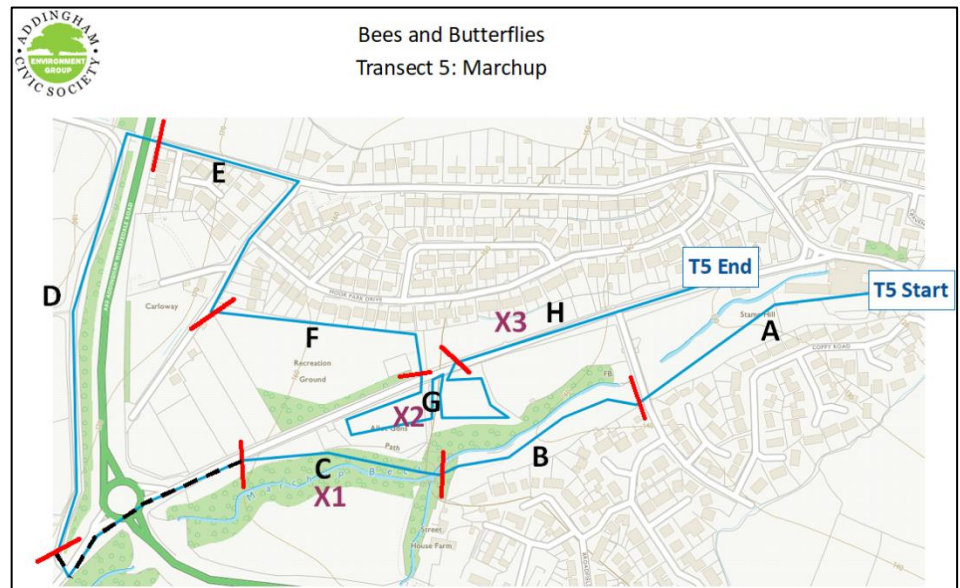


Figure 6: Transect 5

Mick writes:

Very cool spells in both May and October resulted in very few observations being recorded during these months.

Overall, compared with the previous year and although fewer observations took place due to the switch to monthly recording, more individual bumblebees were observed. However butterfly numbers were down across the whole year. Six different species of bumblebee were observed and nine different species of butterfly indicating good levels of diversity. Zones E, G & H for bumblebees and zones C & G for butterflies provided the greatest species range reflecting the diverse range of flowering plants available on this transect. Key plant species include common comfrey, bramble, sedum, brassicas, legumes, clover and knapweed.

Zone A – The presence of both butterflies and bumblebees were very much dependent on flowering thistles and garden flowers e.g. Buddleia.

Zone B – Only a few individuals seen. It's a cool, shaded zone with bramble as the key flowering species.

Zone C – A good range of both butterfly and bumblebee observed primarily associated with knapweed and clover.

Zone D – Fewer observations recorded than in previous years. I usually observe quite high numbers of ringlet butterflies but noticeably fewer seen in 2022.

Zone E – This is one of two hotspots for bumblebees mainly due to the presence of many common comfrey plants on both roadside verges.

Zone F – The recreation ground. No butterflies were recorded here in 2022. There is a distinct lack of pollinator attractive flowering plants even along the garden boundary.

Zones G and H – These allotment sites remain strongholds in terms of both the abundance and diversity of both bumblebees and butterflies. The challenge with both sites but particularly with the allotment on the east side is capturing accurate data on days when bumblebees in particular are very active. Huge numbers of individuals can be found on comfrey and sedum plants so double counting and missing individuals is likely to happen. As one would expect the variety of attractive flowering plants (legumes, brassicas, sedum, fruiting plants...) available to pollinators is huge hence the high numbers being recorded here.

AEG 2022 Bumblebee and Butterfly Season End Report

No additional species were recorded at hotspot sites.

Transect: 5		Zones							
Bees	Total	A	B	C	D	E	F	G	H
Total	199	12	10	15	11	50	16	55	30
White/Buf-tailed	66	8	7	7	2	13	7	17	5
Common carder	60			3	4	18	4	14	17
White-tailed	27	1			2	8	1	12	3
Buf-tailed	18		2	2		3	1	9	1
Tree	14	1	1	3	3	3		2	1
Unknown	8	2					3		3
Red-tailed	6					5		1	

Transect: 5		Zones							
Butterflies	Total	A	B	C	D	E	F	G	H
Total	49	8	1	9	2	3		22	4
Large White	18	1		1		1		14	1
Ringlet	7			4		2			1
Speckled Wood	6	4	1			1			
Small White	5					1		4	
Red Admiral	3			1				2	
Small Tortoiseshell	3	2							1
Meadow Brown	2			2					
Peacock	2							2	
Unidentified	2	1		1					
Orange-tip	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

No changes were made to the route of this transect in 2022.

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.

Jess writes:

Five bee and six butterfly walks were completed over the 2022 season.

As in previous years, the best zones for bees were B (Old Station Way meadow) with 35 sightings,

and F (allotment site) with 45 sightings, during the peak flowering season (June to September). Once the OSW meadow was cut in September no bees or butterflies were seen there.

It was interesting focussing on the Hot Spots (X1 and X2) early in the season as extra species were seen, but later in the season there were no additional sightings.

Zone C continues to be disappointing, after the clearance of bramble and nettle on the Mt Pleasant bank. Plant species that used to be abundant there such as vetch and rosebay willowherb have not returned. The main sightings in that zone were on a small patch of sown wildflowers in front of Storiths.

Generally in Zone D sightings were low as the grasses noticeably dominated there this year, with less of the wildflowers such as vetch and meadowsweet seen in previous years. There is a small area of yellow rattle just where Zone D turns into Zone E, which will hopefully spread eventually.

On the allotment site (Zone F) there tends to be a good mixture of cultivated flowers, herbs, flowering vegetables and a small amount of 'feral' plants at the edges and on the pathways. The pathways are generally mown but there can still be some longer areas in front or down the side of individual plots (those these areas are technically meant to be kept free of long grass and 'weeds' too). A small percentage of cultivated flowers is permitted on plots. Flowering veg that is popular with bees include climbing beans, peas and courgettes. Blackberries and strawberries are good, as are herbs such as marjoram, sage and chives. The best herbs seem to be borage and comfrey, and these have the added benefit of a fairly long flowering season (and comfrey also makes great compost).

Cultivated flowers and shrubs that I see being regularly visited by bees and butterflies on the allotments include hebe, sea holly, cosmos, marigolds, nasturtiums, foxgloves, sunflowers, verbena bonariensis and cornflower.

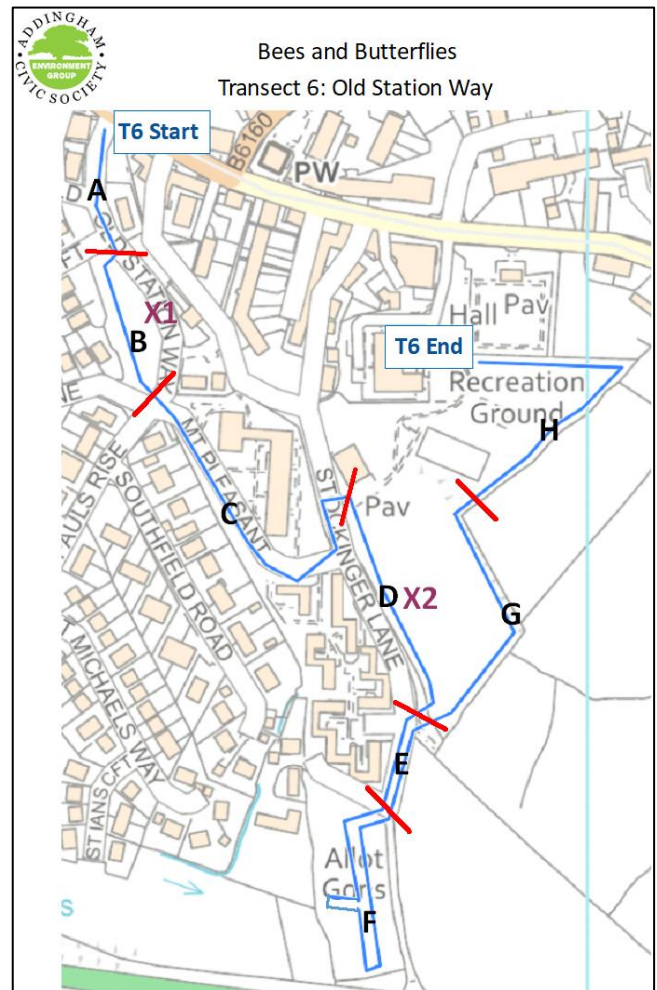


Figure 7: Transect 6

AEG 2022 Bumblebee and Butterfly Season End Report

I have perennial (wild) flowers on my plot which include ox-eye daisies, campion and scabious, all of which are popular with pollinators.

There were no sightings of bumblebees at all in Zone H, and only four butterfly sightings there in the whole season. There is some bramble and other flowering scrub at the edge of this zone, but otherwise it is largely just grass and bare earth, especially at the bottom end. Sadly, the 'wildflower triangle' does not have much left in terms pollinator friendly plants, possibly because of rabbits and indiscriminate mowing, as well as recreational use.

Overall, the most seen species for bumblebees were White/Buff-tailed, closely followed by Common Carder. Sightings of Tree bees were down on previous years. The most seen butterfly was Large White, but more Speckled Wood were seen this year. Sightings of other species, such as Red Admiral, Tortoiseshell and Ringlet, were generally much lower than in previous years.

Transect: 6		Zones							
Bees	Total	A	B	C	D	E	F	G	H
Total	136	9	35	9	19	17	45	2	
White/Buff-tailed	67		20	6	6	12	22	1	
Common carder	40	6	10		7	4	13		
Red-tailed	13	1	5	3	1		3		
Tree	8	1			2	1	3	1	
Buff-tailed	3				1		2		
Early	2	1			1				
White-tailed	2						2		
Unknown	1				1				

Transect: 6		Zones							
Butterflies	Total	A	B	C	D	E	F	G	H
Total	36	1	5	2	3		21		4
Large White	19		1	2	1		15		
Speckled Wood	7				1		2		4
Small White	3	1	2						
Red Admiral	2						2		
Meadow Brown	1		1						
Orange-tip	1						1		
Peacock	1						1		
Ringlet	1		1						
Small Tortoiseshell	1				1				

Table 6. Numbers of individuals in Transect 6 by zone

Transect 7: Church Field and Hoffman Wood Field

Observer: Margaret Longden

New this year - The Church Orchard included as zone F

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 then enters the Church Orchard (Zone F), crosses the road to Hoffman Wood Field and goes around the boundary of the field (Zone G and H). Zones B and part of G (the north boundary) include AEG wildflower enhancement plots and Zone H passes alongside a hedge, planted by AEG in early 2019.

Margaret writes:

Once again, the weather was an influence, but the reduction in the number of walks meant that it was much easier to wait for a dry sunny day than when we were aiming for roughly twice the number of walks. New for this transect this year was the inclusion of the Church Orchard (Zone F). This proved initially disappointing as the blossom seemed to attract few bumblebees, but at the end of the season some good numbers of butterflies attracted by the large amount of fruit, particularly on the ground, were seen. The orchard is well shaded when the trees are out, and this may account for the small number of bees seen there. Otherwise, things much as the previous year, with bramble providing the starring role on the Church Field. As the uncut borders are developing there, it is becoming harder to see towards the back of the larger bramble and shrub areas. I think the field was mown a little earlier this year, plus the lack of rainfall reduced the overall number of wildflowers over the field. In the Hoffman Wood field, I noticed a gradual increase in the number of wildflowers seen and a corresponding increase in bees and butterflies, but numbers are still low.

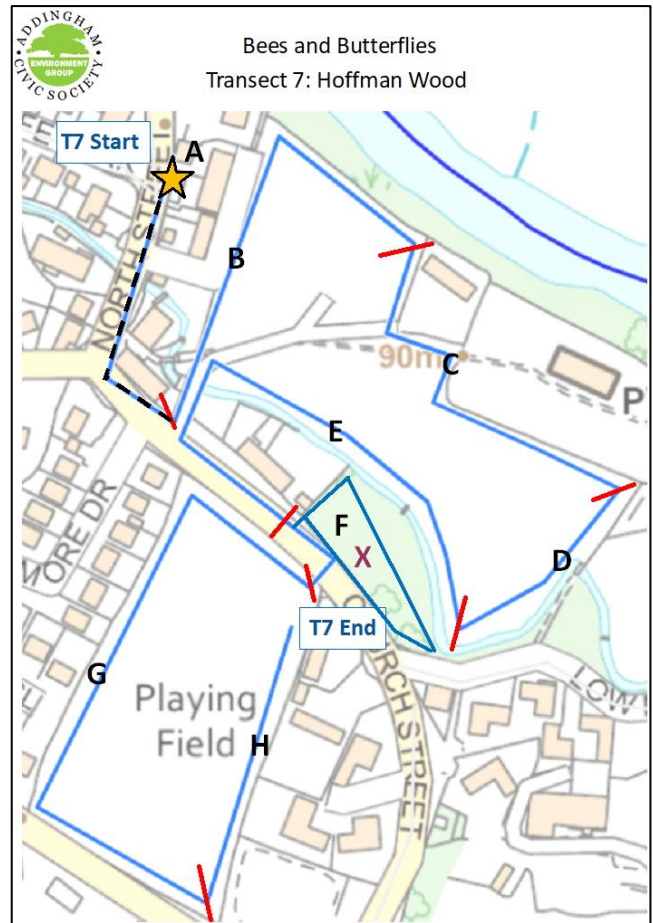


Figure 8: Transect 7

Transect: 7		Zones							
Bees	Total	A	B	C	D	E	F	G	H
Total	147	7	62	3	36	4	3	30	2
White/Buff-tailed	101	1	48	2	21		1	27	1
Tree	26		9	1	8	4	2	1	1
Common carder	11	5	4					2	
Red-tailed	3	1	1		1				
Unknown	3				3				
White-tailed	2				2				
Garden	1				1				

Transect: 7		Zones							
Butterflies	Total	A	B	C	D	E	F	G	H
Total	88	1	29	2	8	8	29	10	1
Small White	30		10		6	3	8	2	1
Red Admiral	14		3					11	
Ringlet	11		8					3	
Orange-tip	9		1			2	3	3	
Speckled Wood	7		2	2			3		
Large White	6	1	2			3			
Small Tortoiseshell	6		1						5
Peacock	2				2				
Unidentified	2		1					1	
Brimstone	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 / Patricia Breen from July

New this year, the existing Zone D was 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 was added as a new zone H.

Transect 8 starts in Church St and follows Low Mill Lane (Zones A and B) down to Low Mill Village (Zone C). It then enters the field behind Mill Fold (new Zone H), returns to Old Lane and follows a detour into the field between Old Lane and the R. Wharfe (Zone D). From Zone D it meets the Old Ilkley Road at Sandbeds and turns back towards Addingham (Zone E) and continues along Old Ilkley Road (Zones F and G) to Church St.

Patricia Breen took over the transect from Mark Penny in July. The transect wasn't walked in June.

Patricia writes:

"I was unfortunate with the weather on occasions and might have seen more if I had been able to go out always on sunny, calm days. But I absolutely loved doing the count. The bees were a revelation to me and completely fascinating. I especially like the busy carder bees. The butterflies I saw were mainly in flight and there weren't as many as I expected.

There were few bees or butterflies in Zones A and B, but bees especially were abundant in Zone C, mainly visiting garden plants, such as Buddleia, Lavender and Fuchsia, through Low Mill village. However, there were few butterflies in this zone.

The hotspots for both bees and butterflies were Zones D and H. Zone D, the field next to the river, was also a good site last year. It is an unmanaged grassland with long grass and wildflowers. Ringlets were seen on knapweed and small skippers on field scabious. Zone H, the Mill Fold field, had good populations of bees later in the year attracted especially by common knapweed which is the most abundant wildflower in the field".

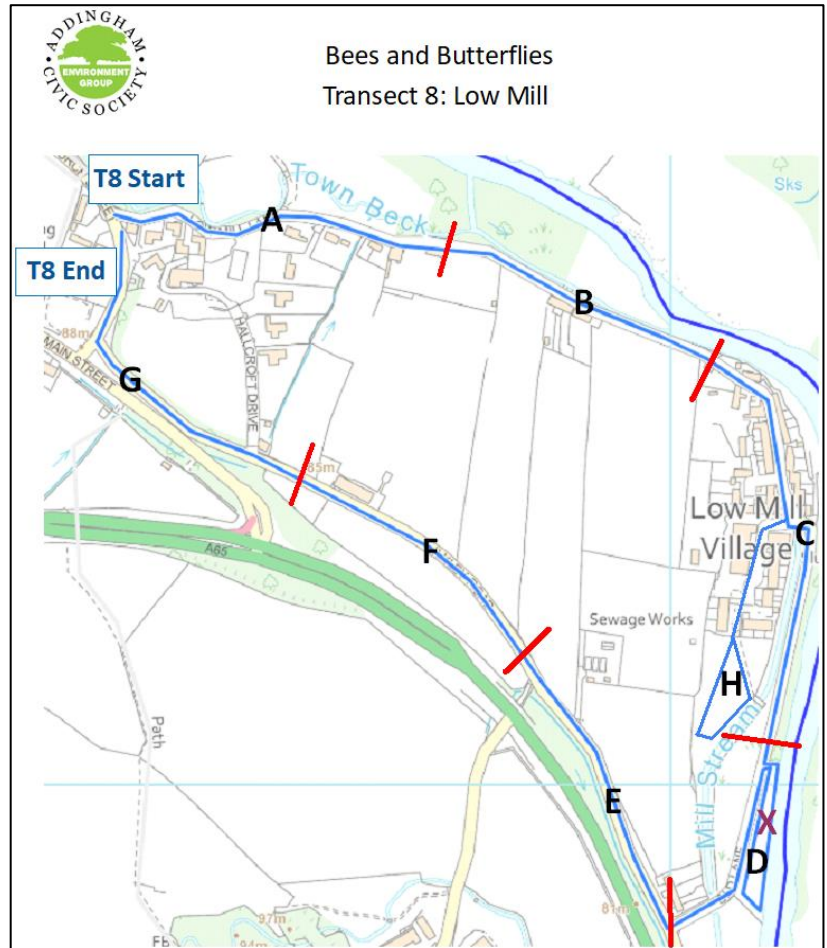


Figure 9: Transect 8

AEG 2022 Bumblebee and Butterfly Season End Report

Transect: 8		Zones							
Bees	Total	A	B	C	D	E	F	G	H
Total	139	3	8	50	26	21	9		22
Buff-tailed	72	3	1	33	7	18	8		2
Red-tailed	21				10	1			10
Common carder	20		2	7	5	2			4
White-tailed	15		4	7	1				3
Tree	5		1	1	1		1		1
Unknown	3			1	2				
Garden	2			1					1
White/Buff-tailed	1								1

Transect: 8		Zones							
Butterflies	Total	A	B	C	D	E	F	G	H
Total	30	2	1	5	12				10
Meadow Brown	6	1							5
Small White	5			3	2				
Unidentified	4				2				2
Orange-tip	3				2				1
Small Skipper	3				2				1
Holly Blue	2		1		1				
Ringlet	2				2				
Small Tortoiseshell	2			2					
Large White	1	1							
Peacock	1				1				
Red Admiral	1								1

Table 8. Numbers of individuals in Transect 8 by zone

Transect 9: Golf Course and Skipton Road Bank

Observer: Maire O'Donnell

No changes were made to the route of this transect in 2022.

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.

Maire writes:

“This transect remains interesting in terms of topography and manoeuvring around between groups of golfers. It is not always manageable due to time and weather.

Because of the change this year from fortnightly to monthly transect walks it is obvious to me that walking the transect 6 times this year led to fewer observations, certainly of bees. I knew at the time that I had somehow missed the flowering of the two very large cotoneaster bushes (trees) in section A thus missing the hundreds of bees feeding there normally in July and August specifically.

The most productive Zone is B, the Skipton Road bank, now abundant with wildflowers, grasses, and brambles. I understand Rick identified a bee orchid further along the bank from the first one I identified last year and which did not re-appear in the same spot.

Zone A has been particularly hard to cover this year because of the difficulty in getting in between groups of golfers, despite trying at the beginning and end of each walk.

Overall, as well as the fewer times I visited during 2022, the management of the course and its environs appear still to have effects on the sites and numbers of Bees and Butterflies observed.

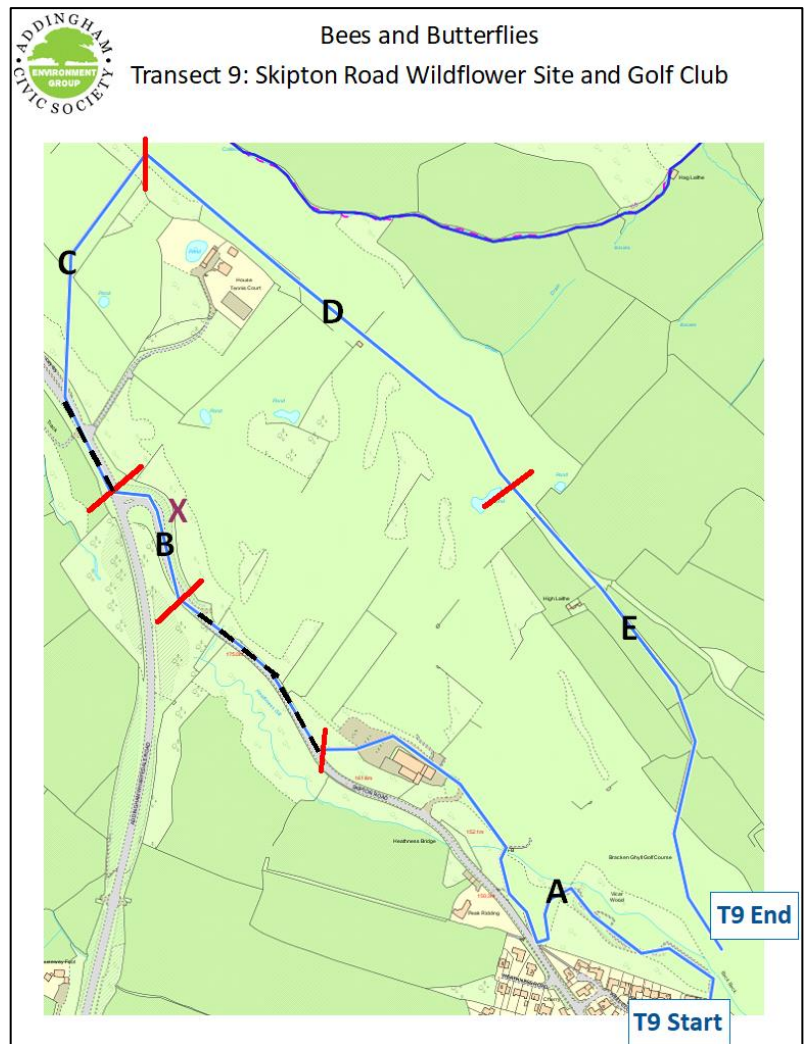


Figure 10: Transect 9

AEG 2022 Bumblebee and Butterfly Season End Report

Transect: 9	Zones					
Bees	Total	A	B	C	D	E
Total	16	9	1	2	4	
White/Buff-tailed	7	3		1	3	
Common carder	4	3			1	
Red-tailed	2	1	1			
Unknown	2	1		1		
Buff-tailed	1	1				

Transect: 9	Zones					
Butterflies	Total	A	B	C	D	E
Total	48	2	23	4	14	5
Ringlet	14		7	2	5	
Small White	14	1	5	2	5	1
Unidentified	5				2	3
Orange-tip	4		4			
Red Admiral	3		2		1	
Large White	2		2			
Meadow Brown	2		1		1	
Speckled Wood	2		1			1
Peacock	1		1			
Small Tortoiseshell	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

No changes were made to the route of this transect in 2022.

Transect 10 runs from the top of Southfield Terrace, along the medieval trackway (Zone A), up the field (Zone B) and over the Bypass, turning left along The Street (Zone C) to Street Farm (Zone D), turning right down Cat Steps to Small Banks (Zone E) and across Cocking Lane towards Stegholes (Zone F), a detour around the Stegholes bank (Zone G), then southeast towards Overgate (Zone H), back down to Cocking Lane (Zones I and J), across Cocking Lane and through Lumb Gill Wood (Zones K) and back across fields to cross the Bypass again (Zone L), a total of 3.5 miles divided into 12 zones for recording purposes.

The transect covers a mixture of woodland and farm fields.

For practical purposes the transect 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 as for 2021 was observed in Zones C and D in the Street LWS. Only three bees were seen, all unidentified and 19 butterflies, six butterfly species, including five ringlets and four speckled woods.

For Transect 10B Jackie writes:

“The Common Carder was the most commonly identified bee in this transect and the Meadow Brown the most commonly identified butterfly, though my identifying skills have not improved significantly and I doubt the validity of my records.

As last year, 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, when occupied by cattle, I do not find conducive to studying B & Bs.”

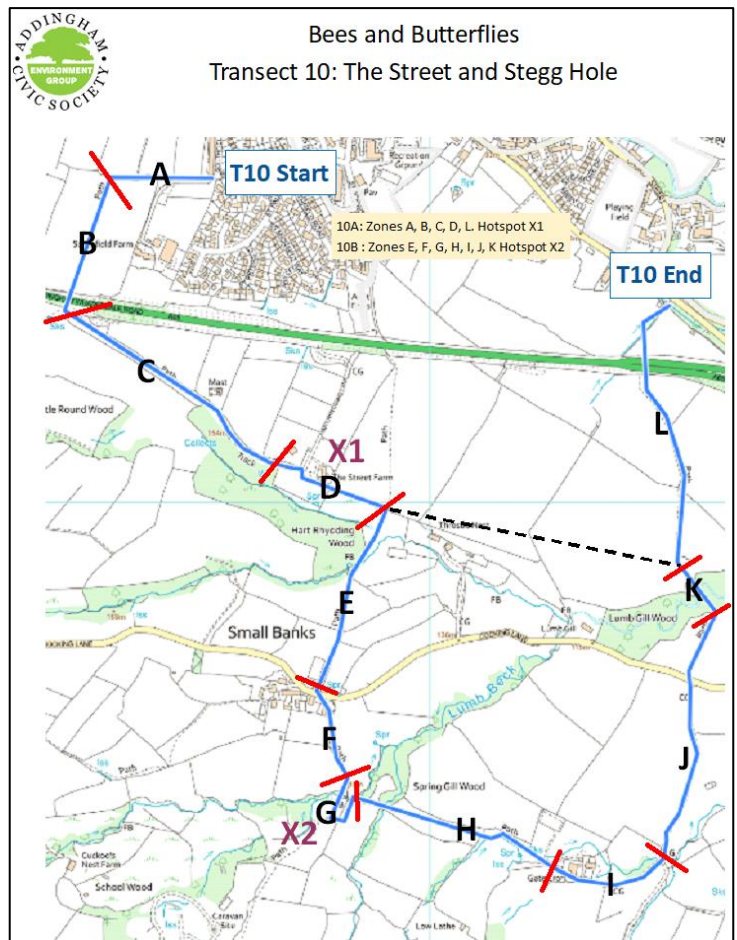


Figure 11: Transect 10

AEG 2022 Bumblebee and Butterfly Season End Report

Transect: 10		Zones											
Bees	Total	A	B	C	D	E	F	G	H	I	J	K	L
Total	53	1		2		6	15	7	2	2	10	2	6
Common carder	17						6	3			3		5
Unknown	15	1		2		3	5			1	1	2	
White/Buff-tailed	8					1	3	3			1		
White-tailed	6					1		1	2		2		
Buff-tailed	5					1	1				3		
Red-tailed	2									1			1

Butterflies	Total	A	B	C	D	E	F	G	H	I	J	K	L
Total	93	4	3	10	2	12	7	28	11	8		3	5
Unidentified	16					6		10					
Large White	14			2			1	5		5			1
Meadow Brown	10						3	5	1	1			
Orange-tip	9			1	1	1		1	3	1		1	
Small White	9	1			1	2						2	3
Speckled Wood	8			4		2		1	1				
Ringlet	6	3	1	1				1					
Small Tortoiseshell	5						3		1	1			
Gatekeeper	3							1	2				
Red Admiral	3			2					1				
Brimstone	2					1	1						
Painted Lady	2		2										
Peacock	2								1				1
Small Copper	2							2					
Comma	1								1				
Small Skipper	1							1					

Table 10. Number of individuals in Transect 10 by zone

Comments and Conclusions

Our bees and butterflies recording 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 in 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. In 2022 we retained all 10 transects, although we were unable to complete a full programme of walks for Transect 4. Transect 7 was modified by adding in Church Orchard (Zone F) and Transect 8 was modified by adding in the residents' field at the rear of Mill Fold at Low Mill (Zone H).

Our methodology of recording has remained constant throughout, although in 2022 we reduced the frequency of walks from fortnightly to monthly. Although the total number of individual pollinators observed per transect and per zone cannot therefore be compared between years we can make comparisons of average numbers per walk and per zone between years. This monthly frequency is in line with the Bumblebee Conservation Trust "BeeWalk" national recording scheme and is a walk frequency that was most convenient for most of our observers. However, having conducted the walks in previous years more frequently there is some concern that some populations are being under-estimated. From his four years of experience our Transect 5 observer pointed out that by walking at monthly intervals he may have missed the optimum flowering period of comfrey and brambles, both species associated with high pollinator numbers in previous years.

A further modification in 2022 was the introduction of a 10 minute search for additional species conducted at designated hotspot zones along the transects. These are marked on the transect maps as "X" and defined either as the zone along the transect with the highest abundance of bees and butterflies and/or a zone of special interest such as a zone including on our managed wildflower sites.

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.

Abundance and diversity

The total number of bees and butterflies recorded over the 2022 season is 1010 (2021 : 1536) bees and 511 (2021: 895) butterflies (Table 11). Of these 37 (2021: 80) bees and 50 (2021 : 75) butterflies were recorded as unidentified. The decrease in abundance in 2022 is mainly due to the change from fortnightly to monthly walk frequency, as noted above, although new Zones were added to Transects 7 and 8 (see above) which potentially increased numbers of bees and butterflies recorded for these transects.

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 31% (2021 : 22%) of those recorded. Common carder, buff-tailed and red-tailed bees were the next most abundant species seen. There were eight unidentified bees. The most common reason for no ID was that the insect was in flight.

The most common butterflies were the Large and Small Whites comprising approximately 33% of the total (Table 11). Other common species were the Ringlet, Red Admiral, Speckled Wood, Orange-tip, Meadow Brown, Small Tortoiseshell and Small Skipper. Only two Painted Lady were seen in 2022 (2021 : 3). Altogether 16 species were identified.

AEG 2022 Bumblebee and Butterfly Season End Report

Bees (8 species)	No.	Butterflies (16 species)	No.
White/Buff-tailed	313	Small White	101
Common carder	262	Large White	69
Buff-tailed	187	Ringlet	59
Red-tailed	80	Red Admiral	51
Tree	73	Speckled Wood	40
White-tailed	54	Orange-tip	36
Garden	3	Meadow Brown	31
Early	2	Small Tortoiseshell	26
		Peacock	19
		Comma	7
		Small Copper	6
		Holly Blue	4
		Small Skipper	4
		Brimstone	3
		Gatekeeper	3
		Painted Lady	2

Table 11. Abundance of species recorded

AEG 2022 Bumblebee and Butterfly Season End Report

Bumblebees photographed and sent on WhatsApp from the transects during 2022



Buff-tailed bumblebee
(Anne Hodgson)



Red-tailed bumblebee
(Jess Penrose)



Early bumblebee
(Anne Hodgson)



Carder bumblebee
(Patricia Breen)



Carder bumblebee
(Anne Hodgson)



Garden bumblebee
(Patricia Breen)



Garden bumblebee
(Julia Tomlinson)

Butterflies photographed and sent on WhatsApp from the transects during 2022



Comma
(Jessica Penrose)



Small copper
(Julia Tomlinson)



White letter hairstreak
(Peter Miller)



Meadow Brown
(Patricia Breen)



Speckled wood
(Ian Grant)



Comma
(Mick Dunne)



Comma
(Patricia Breen)



Red admiral
(Patricia Breen)

AEG 2022 Bumblebee and Butterfly Season End Report

Year on Year comparisons

Comparisons between records for 2020, 2021 and 2022 are shown in Table 12. There are strong similarities between the years. The same species of bee were seen in all three years. The combined group of White and Buff-tailed bees were the most common, followed by the Common Carder and Tree bees. We have only three years of data but the results to date suggest that the relative abundance of Carders is increasing.

The species list for butterflies in 2020, 2021 and 2022 is also very similar. Sixteen different species were recorded in 2022 compared with 18 in 2021 and 17 in 2022. The slight reduction in 2022 possibly reflects the shift from fortnightly to monthly walk frequency. However, two species not recorded before, the Holly Blue and Gatekeeper, were seen in 2022 bringing the species pool seen over three years to 20 (not counting the White-letter Hairstreaks sighted separately in Transect 4, see above). If we add in the White-letter Hairstreak the total is 21, matching exactly the number and composition of butterflies reported for the village by Diane Morris in 2018. This compares to a species total of 27 recorded by Wharfedale Naturalist Society for the whole of Wharfedale.

The rank order of abundance of butterflies between years (Table 12) is also very similar. The Whites are the most abundant followed by the Ringlet and Small Tortoiseshell. The Ringlet is especially common in the Old First School Zone of Transect 3 (16 individuals were observed in the long grass on one occasion) and along the western edge of Church Field (Transect 7, Zone B) where the brambles are a specially important food plant. Fewer Small Skippers were seen in 2022 but Red Admirals were more common than in previous years, mainly due to their abundance in the Old First School site and in the Church Orchard (Transect 7, Zone F), although in this latter case the numbers were boosted by a single sighting of 11 individuals feeding on fallen fruit on the 14th September.

All species of butterfly recorded along the transects are common in the UK. However, the White-letter Hairstreak identified by Peter Miller in the Old First School site (Transect 3, above) on an occasional visit to the site is a protected species in the UK under the Wildlife and Countryside Act, 1981 and a Priority Species under the UK Post-2010 Biodiversity Framework. It breeds in elm trees, which are also now rare.

	2022	2021	2020
Bees (8 species)	Ranking	Ranking	Ranking
White/Buff-tailed	1	1	1
Common carder	2	2	6
Tree	5	3	2
Buff-tailed	3	4	4
White-tailed	6	5	3
Red-tailed	4	6	5
Early	8	7	8
Garden	7	8	7

	2022	2021	2020
Butterflies (18 species)	Ranking	Ranking	Ranking
Small White	1	1	2
Large White	2	2	1
Ringlet	3	3	7
Small Tortoiseshell	8	4	3
Meadow Brown	7	5	6
Orange-tip	6	6	4
Small Skipper	13	7	15
Speckled Wood	5	8	5
Peacock	9	9	8
Red Admiral	4	10	9
Comma	10	11	13
Small Copper	11	12	11
Wall	-	13	-
Green-veined White	-	14	12
Brimstone	14	15	10
Painted Lady	16	16	14
Small Heath	-	17	17
Large Skipper	-	18	16
Holly Blue	12	-	-
Gatekeeper	15	-	-

Table 12. Comparison of year on year abundance ranking

AEG 2022 Bumblebee and Butterfly Season End Report

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 and between 2022 and 2021 that is the case for some months, with greater numbers of bees observed per walk in June, August and September. Butterfly numbers per walk were noticeably greater in April, May and June.

There were, as already noted, in 2022 40% of the number of transect walks in 2021, but the figures below are standardised by expressing the numbers as 'per walk'. Much of the differences between years could be due to natural variability, especially related to weather patterns, but higher numbers per walk might be expected as the switch to monthly walks for 2022 provided observers more flexibility to go out on warmer, sunnier days when pollinators are more likely to be seen. The numbers for Transects 7 and 8 are also likely to be boosted by the addition of an extra zone respectively. In almost all cases the data support these conjectures. Numbers of bees per walk were higher in all transects except for Transect 9 in 2022 and butterfly numbers were higher in all transects except for Transects 6, 8 and 9 in 2022.

Observed per walk											
Bees 2022						Bees 2021					
BY TRANSECTS						BY TRANSECTS					
Observed per walk	1	2	3	4	5	6	7	8	9	10	
April	5.3	6	4		8		15		2	2	
May	2.3	6	2			3		2	1	1	
June	28.2	14	13	2	82	79	30			11	
July	22.0	45	27	21	1	37	30	12	56	4.5	
August	18.1	49	28	8		59	9	7	19	4	5.3
September	30.3	17	39	12		13	15	54	62		
Totals	18.7	37	21	10	1.5	40	27	25	28	3.2	5.3
Butterflies 2022						Butterflies 2021					
BY TRANSECTS						BY TRANSECTS					
Observed per walk	1	2	3	4	5	6	7	8	9	10	
April	7.6	7	8		1		17	1	5	17	
May	4.7	7	7			3		3		4	
June	6.5	3	3	1	12		5.5			11	
July	14.2	13	7.5	36		20	16	17	20	16	1
August	9.1	10	9	9		10	12	16	4	5	8.3
September	9.9	12	12	15		6	5	27	2		
October	0.1									1	
Totals	8.1	8.8	7.6	11	0.5	8.2	6	13	5	6.9	8.5
Observed per walk	1	2	3	4	5	6	7	8	9	10	
April	2.2	0.7	2		8	4	3.3	1.5	3.5	1.5	
May	2.2	0.3	2.5		0.3	2.3	1.8		14	1	
June	2.7	0.3	2.3		2	2.3	2	1	5.5	3.3	
July	12.8	2	38		22	8.5	3.7	12	16	9.2	
August	9.0	19	7.7	0.7	35	21	5.7	4.3	11	3.5	
September	7.6	5	4		21	6	5.5	3	11	7	
October	1.3				2				1		
Totals	6.0	2.6	10	0.2	13	6.1	3.5	6.2	8.3	3.6	

Table 13. Average numbers observed per walk by transect, month, and total for the season

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. Transects 7 and 8 have been extended in 2022, as described above. As in 2021 Transect 5 had the highest number of bees, especially on comfrey at the top of Moor Lane and in the allotments on Silsden Road. High numbers of bees were also recorded in Transect 1, along Main St, associated with garden flowers, and in Transects 6, 7 and 8 (Table 13). In contrast there were few bees in Transects 9 and 10 and we have very little data for Transect 4. Transect 4 includes the School grounds both within the playing field and in the newly created wetland nature reserve.

The transects with high butterfly numbers do not correspond to those with high bee numbers. Most butterflies were seen in Transects 3 and 7, fewest in Transect 8 (Table 13).

AEG 2022 Bumblebee and Butterfly Season End Report

Distribution over the season

Overall numbers of both pollinator groups increased and decreased over the season but in contrast to 2021 when both bee and butterfly counts peaked in July bee numbers in 2022 reached an early peak in June and a later maximum in September (Figure 12). Butterfly numbers peaked in July but also show a secondary peak in September, probably reflecting the relatively warm conditions that month. 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 (Figure 12).

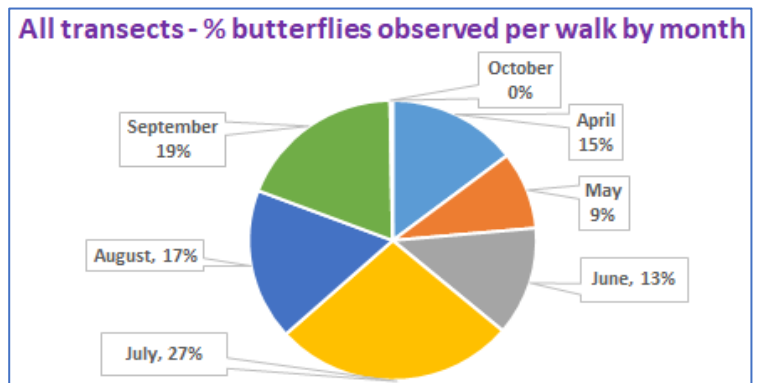
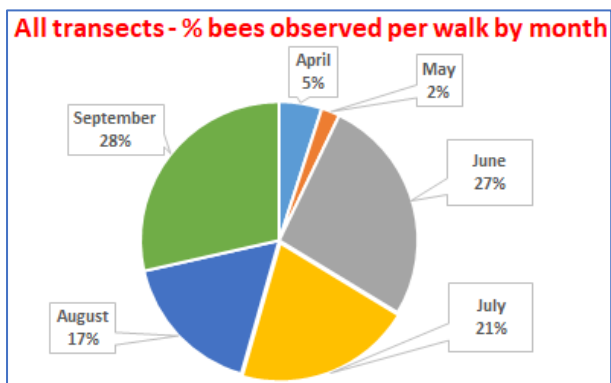
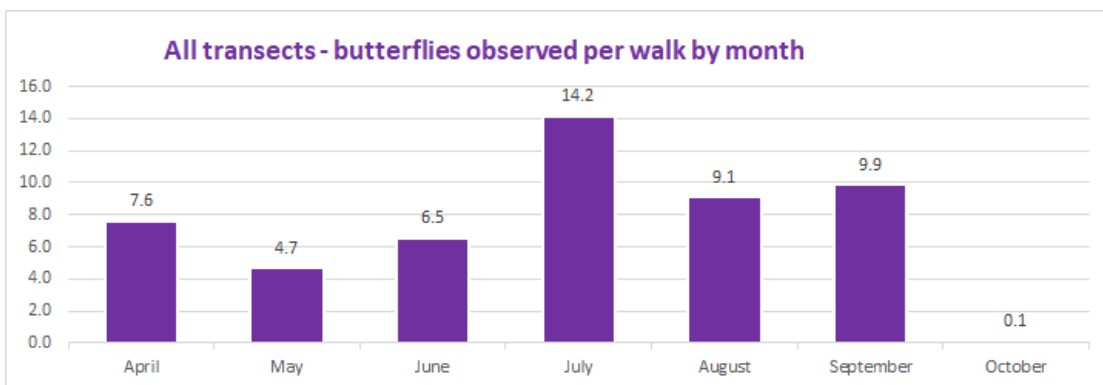
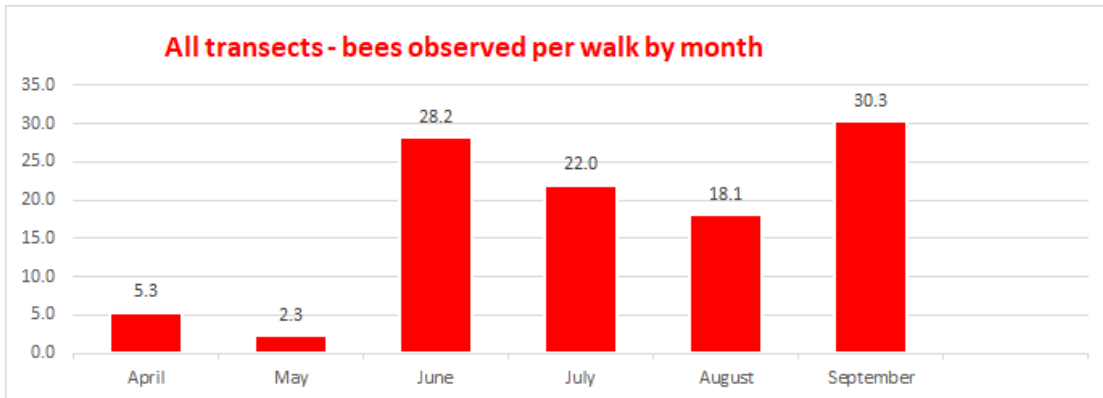


Figure 12. Average numbers and percentages observed on all transects per walk by month.

AEG 2022 Bumblebee and Butterfly Season End Report

Distribution amongst zones

Several zones within different transects had relatively high pollinator populations. These stand out for a range of different reasons. Most have been designated as hotspots and marked as such on the Transect maps (see above).

In Transect 1 the Cottages Garden and the Hen Pen stand out for both bees and butterflies possibly because they have a bigger population of pollinator friendly flowers and maybe because they are warmer, sunnier sites compared to the other small garden along the Main St, as they both have a southerly aspect. In contrast no bees or butterflies were recorded from the very shady Sailor Corner Garden.

The Zone in Transect 2 with the largest population of pollinators was Zone B which runs along the front gardens of houses in Wharfe Park where garden flowers and shrubs provide good supplies of pollen and nectar. Zone A, however, is one of our designated hotspots for this transect as it is being managed by the Sidebeck community as a wildflower meadow. In 2021 there was very little to see as the site had been extensively treated with herbicide to kill off a large population of broad-leaved docks. Re-seeding took place in early 2022 resulting in the appearance of wildflowers in July and August with meadow vetchling and vipers bugloss attracting common carder and red-tailed bees in particular. An increase in numbers should be expected in 2023 as the wildflower populations become more established. The last Zone of the Transect, Zone E, is also a hotspot where good numbers of bees and butterflies are observed associated with the new school Jubilee wetland reserve.

In Transect 3, Zone C, the Old First School site, continues to be the best site in the Transect for both bees and butterflies, and remains the best site in the village as a whole. Eleven of our 16 species of butterfly were seen there and large numbers of bees occur especially feeding on brambles. The long grass at the back of the site is a good habitat for Ringlet butterflies, and the rare White-letter Hairstreak was sighted during an occasional visit to the site.

We were not able to complete a full programme of walks for Transect 4 in 2022. It remains, however, an important transect as it takes in the Primary School grounds. We are managing the boundary of the playing field within the security fence both for wildflowers and shrubs (Zone F) and have created a wetland nature reserve just beyond the security fence (Zone I). Both are good sites for pollinators, so walking this transect in 2023 is one of our priorities.

As in 2021 Transect 5 had the highest number of bees in 2022 mainly on account of the number of bees seen on comfrey at the top of Moor Lane (Zone E) and in the allotments on Silsden Road (Zones G and H). The Stamp Hill allotments (Zone G) are especially good with bees often more associated with marginal wildflowers, especially comfrey, rather than allotment vegetables, although butterflies were seen on runner beans, broadbeans and broccoli in Zone H. One of our designated hotspots on the transect, the Daniel Palmer Nature Reserve (Zone C) had relatively low numbers of both bees and butterflies but ringlets were seen on brambles and meadow browns on red clover.

Transect 6 takes in two hotspots, Old Station Way (Zone B) and the Football Field bank (Zone D) as well as the Newtown Allotments (Zone F). Bees were seen on the Old Station Way site on red clover, bird's foot trefoil, common knapweed and yellow rattle, all species that have flourished in recent years since we have been managing the site to encourage wildflower populations. The Football Field bank had fewer bees than in 2021 but nevertheless six different species were seen especially on vetch, creeping buttercup, rosebay willow-herb and clover. In contrast to the bees, butterfly numbers were relatively low in both zones. The highest number of bees and butterflies along the transect occurred in Newtown Allotments. Although pollinators were attracted by some of the vegetables, such as globe artichoke, in allotment plots, most were associated either with cultivated flowers such as *Helianthus*, sunflower, cosmos and lavender or wildflowers such as foxgloves and brambles growing in the common areas.

In Transect 7 three zones are of special interest, Zone B, along the western margin of Church Field, Zone F, the Church Orchard, and Zone G, Hoffman Wood Field. Of these Zone B had the largest population of bees and butterflies. White/buff-tailed, tree and common carder were the most abundant bees and there were eight different species of butterfly mainly associated with the bank of brambles along the Beacon St boundary. The Church Orchard also had a good population of butterflies, including red admirals feeding on one occasion on fallen

AEG 2022 Bumblebee and Butterfly Season End Report

fruit, but bee numbers were relatively low. Pollinator numbers in Hoffman Wood Field remain low, mainly occurring along the western boundary adjacent to local gardens rather than along the northern edge wildflower site.

Last year Zone D, the field by the Wharfe, was the standout zone in Transect 8 on account of its butterfly populations, rivalling those seen in the Old First School Site (Transect 3). Whilst butterflies were not as abundant in 2022, perhaps because the transect wasn't walked in June, it remains the best site in the Transect for the range of species seen. Bees were particularly abundant in Zone C, attracted by garden flowers. Zone H, the Mill Fold Field, surveyed for the first time this year, had good populations of both bees and butterflies, especially later in the season, attracted mainly by the abundance of the late flowering common knapweed in the field.

Transect 9 includes the Bracken Ghyll Golf Course and the Skipton Road Bank (Zone B). The Skipton Road Bank, one of our wildflower sites in the village, had the highest number and diversity of bees and butterflies on the Transect, indicating we are having some success in attracting pollinators to the site.

Although Zones C and D of Transect 10 pass through the Street Local Wildlife Site there were few bees or butterflies sighted there. A good range of butterflies, however, was seen in Zone G (Stegholes), also a Local Wildlife Site.

Overall and as for 2021 the richest Zone was the Old First School Site with 63 butterflies (11 species) and 40 bees (5 species). These numbers reflect the undisturbed nature of the site and the diversity of habitats available.

Host plants

Many butterflies and some bees were only sighted in flight. However, many bees and some butterflies were observed on plants, either cultivated garden varieties, allotment vegetables or wildflowers. In total bees were sighted on 79 different host plants and butterflies on 34 species. Table 14 shows the ten most visited species for bees and butterflies respectively and for bees and butterflies combined.

Taking bees and butterflies together our observations show that blackberry (*Rubus fruticosus*, brambles) is the most important wild plant for pollinators in the village. Brambles occur in almost all zones, the largest patch being along the Beacon St boundary in Church Field (Transect 7, Zone B). Other important wildflower species are common knapweed (*Centaurea nigra*), grasses (Gramineae), comfrey (*Symphytum officinale*), white and red clover (*Trifolium repens*, *T. pratense*) and dandelion (*Taraxacum officinale*). Knapweed occurs in many sites, but especially in the Mill Fold Field (Transect 8, Zone H). As a late-flowering species this observation illustrates the value of delaying the summer grass cut until late August or early September. Similarly the importance of the very early flowering dandelion illustrates the importance of "no-mow May" and delaying the first cut of the season.

Most transects pass along the front gardens of houses along village streets where garden plants especially lavender (*Lavandula angustifolia*) attracts pollinators. Gardens on Wharfe Park (Transect 2, Zone B) and in Low Mill Village (Transect 8, Zone C) were especially good for bees in 2022.

AEG 2022 Bumblebee and Butterfly Season End Report

BEES		BUTTERFLIES	
Unique flowers	Instances	Unique flowers	Instances
Bramble	37	Grasses	21
Knapweed, Common	24	Bramble	13
Lavender	23	Knapweed, Common	10
Comfrey species	20	Buddleia	8
Clover, White	15	Ivy	5
Dandelion	12	Dandelion	3
Clover, Red	11	Fleabane, Common	3
Foxglove	11	Lavender	3
Ivy	11	Nettle, Stinging	3
Raspberry	11	Sedum	3

BEES and BUTTERFLIES	All
Unique flowers	Instances
Bramble	50
Knapweed, Common	34
Grasses	27
Lavender	26
Comfrey species	21
Clover, White	15
Dandelion	15
Clover, Red	13
Raspberry	13
Foxglove	11

Table 14. The ten most visited species for bees and butterflies

AEG wildflower sites

The AEG manages several wildflower sites in the village. As one of our aims is to increase the number of pollinators visiting these sites they have all been incorporated as zones in one or more of the pollinator transects (Table 15). A new site, the Craven Crescent Green, was adopted in 2022. We plan to designate this site as a pollinator zone and incorporate it into a transect from the 2023 season onwards.

Name	Year Adopted	Pollinators seen per walk (n)					
		Trans	Zone	2019	2020	2021	2022
Old Station Way	2015	6	B	4.9 (7)	1.5 (15)	4.1 (13.5)	4.3 (5.5)
Football Field Bank	2016	6	D	4.1 (7)	2.8 (15)	1.9 (13.5)	4.0 (5.5)
Memorial Rec Triangle	2016	6	H	0.7 (7)	1.1 (15)	0.6 (13.5)	0.7 (5.5)
Skipton Road Bank	2016	9	B	N/A	4.1 (19.5)	4.7 (15.5)	5.3 (6.0)
Hoffman Wood North	2018	7	F	1.1 (5.5)	0.01 (17.5)	0.12 (17)	4.9 (6.5)
Church Field West	2018	7	B	0.7 (5.5)	1.7 (17.5)	4.8 (17)	14.0 (6.5)
Methodist Graveyard	2018	3	E	0.7 (3)	1.9 (16)	3.2 (16.5)	2.8 (6.5)

Table 15. Wildflower sites managed by AEG, start date of management, transect number and zone, number of pollinators observed per walk, (Number of walks).

AEG 2022 Bumblebee and Butterfly Season End Report

The data show broadly similar numbers between years for most sites. The Memorial Rec Triangle had the lowest number of pollinators as in previous years reflecting the difficulty we have had in establishing wildflower populations there. This contrasts with Old Station Way and the Skipton Road Bank sites where we have had most success. The increase in numbers in 2022 for Hoffman Wood North is misleading as Zone F in Transect 7 also includes the western boundary of Hoffman Wood and it was along this boundary that most pollinators were observed. The data for Church Field West are also anomalous as the Zone B walk in Transect 7 goes between a bramble hedge on one side and a wildflower meadow on the other. This high number of pollinators (mainly bees) recorded for this zone reflects the influence of the brambles and not the wildflower meadow.

Plans for 2023

The records for 2022 build on those from previous years. In 2023 we are planning to repeat the 2022 programme as closely as possible with monthly walks so that year on year comparisons can continue to be made. However, several modifications will be made as follows:

1. Transect 1: Ian and Sue Grant will now take over Transect 10, leaving a vacancy for Transect 1;
2. Transect 2: Julia Tomlinson will liaise with Clive Brook over the management of the Sidebeck wildflower meadow (Zone A);
3. Transect 3: Peter Miller will continue to look out for White Letter Hairstreak butterflies in the Old First School site (Zone C). This transect could be extended to include the new Craven Crescent Green wildflower site;
4. Transect 4: Melanie Taylor will take over from Claire Godden, with assistance from Jess Penrose
5. Transect 5: No change anticipated;
6. Transect 6: Zone C (Mount Pleasant) has not recovered from the bank being cleared of scrubby vegetation in 2021. The possibility of planting the bank with pollinator friendly wildflowers and shrubs will be discussed with Bradford Council, Incommunities and Southfield House residents;
7. Transect 7: The bramble bank in Zone B may be uprooted by the Church as there is a possibility the Church and local residents may agree to re-position the boundary line of the field along Beacon St. For Zone F (the Church Orchard) the timing of the transect walk in spring should if possible coincide with the timing of the apple blossom peak and the boundary between Zones G and H in Hoffman's Wood field should be moved to the southwest corner of the field;
8. Transect 8: No change;
9. Transect 9: No change;
10. Transect 10: To be taken over by Ian and Sue Grant.

As our understanding grows we are now in a better position to advise landowners on measures that could be taken to protect or enhance pollinator populations in the village both along the lines of our transects and more widely. For example, we have seen how the destruction of vegetation along the Mt Pleasant road bank has caused the loss of bees and butterflies there and our failure to establish a wildflower meadow in the Memorial Recreation Field triangle is the probable reason for poor pollinator numbers in Transect 6, Zone H. Alternatively, the relatively high numbers of pollinators in our most successful wildflower sites, such as Old Station Way and the Skipton Road Bank, illustrate the importance of wildflowers for bees and butterflies and thereby the need to continue our efforts encouraging landowners to establish wildflower populations throughout the village along verges, in our green spaces and in our garden lawns.

We can also demonstrate the importance of individual host plant species such as dandelions in spring, comfrey along roadsides and in the common areas of allotments, knapweed in late summer and brambles everywhere as nectar and pollen sources. These and others are species that deserve special protection as the 2023 spring approaches and as we support calls for "no-mow May" and "let-it bloom June".

Authors and the team

Malcolm Secrett*, Rick Battarbee, Claire Godden, Diane Morris, Ian Grant, Jackie Olive, Jessica Penrose, Julia Tomlinson, Maire O'Donnell, Margaret Longden, Mark Penny, Maurice White, Mick Dunne, Patricia Breen, Peter Miller & Sara Arrowsmith

*Contact for enquiries malcolm.secrett@outlook.com

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, together with other resources.

End