OUSEBURN FARM

BUTTERFLY & DRAGONFLY

SURVEY, 2024

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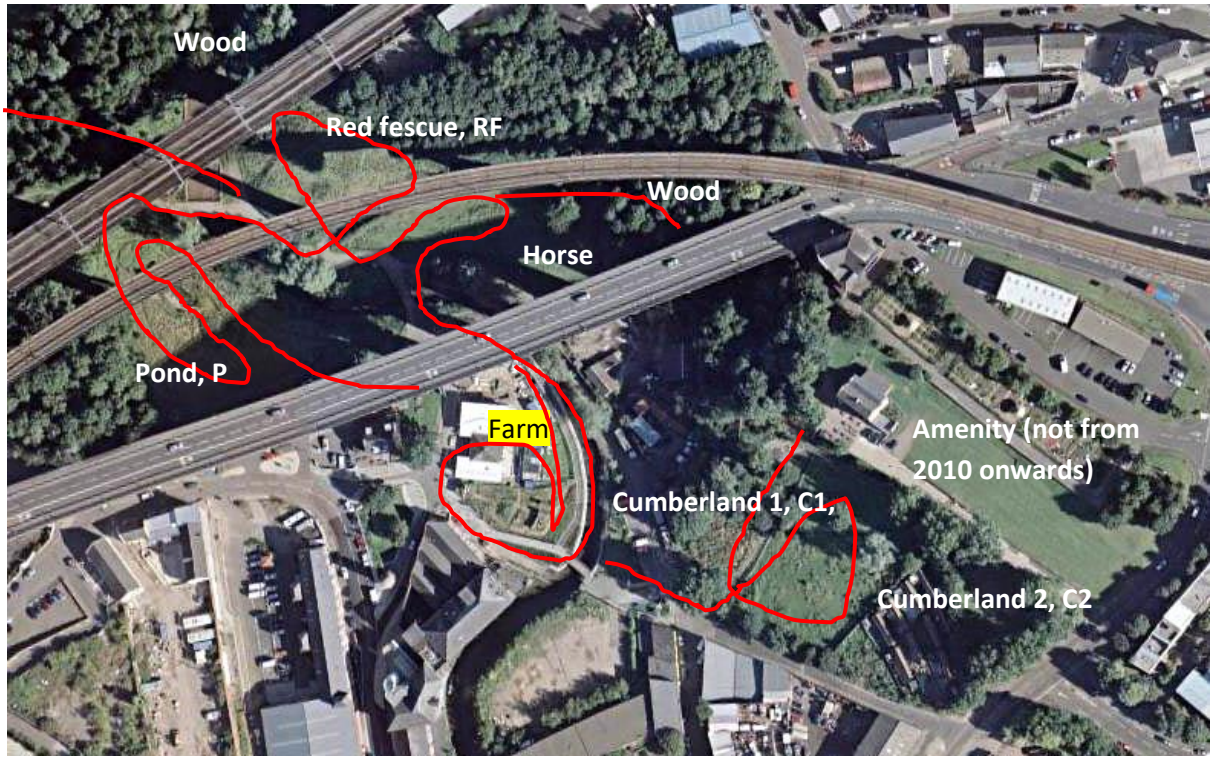
2024

Ouseburn Farm butterfly, dragonfly and damselfly summary report 2024.

Butterflies, dragonflies and damselflies in and around the Ouseburn Farm were surveyed regularly in 2024, from late spring through to early autumn.

Similar surveys have been carried out in 2006 to 2023 (Jeffries, 2006 - 2023), making the 2024 survey the nineteenth survey since the Farm re-opened. In 2024 twenty-four walks were carried out, the first on the 16th March, the last on the 14th September. The surveys covered the pond meadow, red fescue meadow, farm grounds, horse meadow, woodland path from the horse meadow through to the Cumberland Arms, the old orchard, and the meadows below the Cumberland Arms (see map, Figure 1). Surveys were carried out where possible on warm, sunny days. The meadow below the Cumberland was not walked on all survey dates in 2024 because of horses or lambs in the field so the occasional absence of records for some species from this patch is likely to result in some under-recording

Figure 1. The Farm environs, meadows and butterfly recording walk. The red line shows the approximate route used in 2024. The names used for each field are shown.



Butterflies were recorded by walking slowly and noting species seen to either side in front, although this was not so rigorously enforced as the formal national butterfly recording transect scheme walks and quite often butterflies would be followed to check identity. Nonetheless the technique has been consistent on the farm since 2006. Within the Farm the cabbage plants were searched for eggs and caterpillars of white butterflies. Numbers of Burnet moths and dragonflies and damselflies were also counted. The vegetation around the pond was searched for dragonfly exuviae too. Exuviae are the cast skins left behind when the adult emerges from the final larval stage. By counting up the cumulative numbers of new exuviae you get a minimum estimate of the numbers of adults that have hatched from a site.

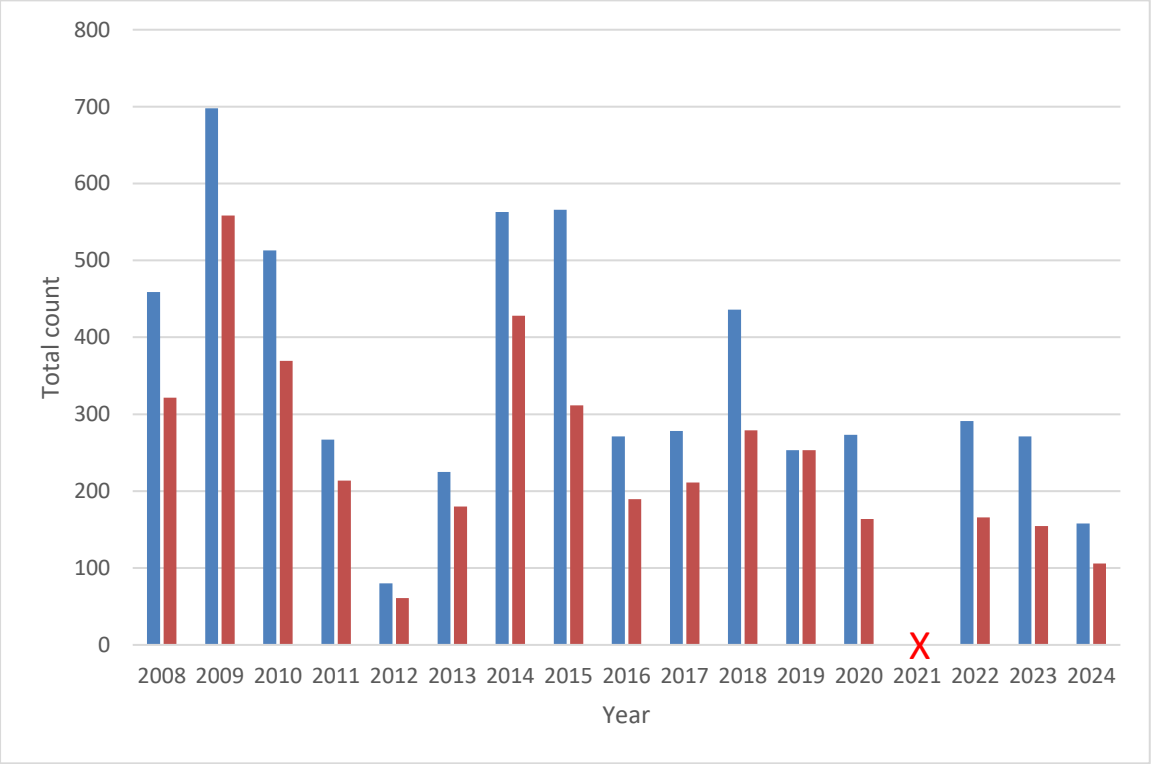
Results.

Butterfly species richness.

As in 2023 only twelve species of butterfly were recorded in 2024, compared to sixteen in 2022, fourteen in 2020, 2019 and 2018 and sixteen in 2017 (2021 is omitted for comparison due to the absence of surveys June – September). Not only is the overall number of species down on previous years but some previously regular species were not found, notably the small skipper. Wild Intrigue's *Wild Ouseburn* project has been running this year and no small skippers were recorded on this additional, wider ranging resource for the valley.

The overall number of individuals across all species also suggests a decline. In 2024 only 158 butterflies were counted during 24 visits. This is the lowest total except for the record breaking wet year of 2012. This compares to 570 from 32 visits in 2015 and 456 from 26 visits in 2008. Figure 1 shows total butterfly counts from 2008 to 2024.

Figure 1. Total butterfly counts. The blue columns are the raw data, the red columns adjusted to allow for numbers of visits, scaled to the year with lowest number of visits, 16 in 2019. Sampling was incomplete in 2021 so no data are used from that year.



The pond meadow (= orchard) was once the core site for meadow species such as ringlet and meadow brown, during the 2010s, but they are now very few in number. Table 1 shows the maximum counts of main meadow species from the pond meadow, Cumberland Arms C2 meadow and red fescue meadow from 2014 to 2024, which suggest the pond meadow is becoming much less attractive for these species.

Table 1. Maximum counts of classic meadow grassland butterflies in the three main meadows; pond, red fescue and Cumberland C2 from 2014-2024. No counts were made in June through to August 2021 so this year is omitted.

	2014	2015	2016	2017	2018	2019	2020	2022	2023	2024
Small skipper										
Pond	10	1	1	5	3	1	1			
Red fescue	1					1	1			
Cumberland	5	1					1	4		
Ringlet										
Pond	18	11	5	8	9	9	1	1	1	
Red fescue	2	1		1		1		1		
Cumberland	3	6						3		3
Meadow brown										
Pond	16	9	5	3	3	5	7		1	1
Red fescue	8	5	1		2	1	3	3	2	1
Cumberland	9	5			1			7		1

Full data for the counts of butterflies and dragonflies throughout 2024 are given in two tables. Table 3 is simply the total of each species seen on each survey date. Table 4 presents data broken down for each meadow or main farm site, allowing comparisons between meadows.

A more detailed analysis of the apparent declines in butterfly numbers is available in Jeffries (2024). Analyses of the trends show that small skipper, meadow brown and peacock are all in significant decline as are the total number of butterflies. Most other species are in decline or the populations are, at best, flat-lining. The main causes appear to be grazing, loss of grassland to increased tree cover and the inherent vulnerability of small sites to occasional pressures such as years with poor weather.

Dragonflies and damselflies.

Damselflies and dragonflies were also recorded.

Following the restoration of the pond in 2021 there is evidence of a return by species that had been lost, notably azure and large red damselflies. The azures had been regulars at the pond but absent since 2019. Large reds had only been recorded on the farm once and that was not at the pond. Both were present in 2024 in higher numbers than 2023 and were observed mating.

The larger dragonflies such as broad bodied chasers and southern hawkers are still scarcer than previously, in particular no southern hawker exuviae having been found. Southern and migrant hawker have been spotted at the new community garden pond in 2024.

Table 2 shows the maximum counts of dragonflies and damselflies, on any single survey date, from 2007 to 2024.

Table 2. Maximum counts of adult damselflies and dragonflies between 2007 and 2024. For the southern hawker counts were also made of exuviae (cast skins left behind once adults emerge) and are shown in brackets.

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2022	2023	2024
Damselflies																	
Large red														1		3	7
Blue tailed				1	2	33	7	14	5								5
Azure					5	28	7	87	54	29	2	20				3	23
Banded demoiselle															1		
Common emerald								1	2								
Dragonflies																	
Southern hawker (exuviae)			1			(2)	1	1	2 (18)	1	1	1 (2)		(16)	2	1	1
Migrant hawker								1			1		1			1	1
Board bodied chaser				2	2	3	2	4	5	4	5	3	2	1	1	6	1
Red darter dragonfly		7	2	1	1	2	3	34	8	3	4	1	1		11	7	12
Emperor dragonfly															1		

References.

Jeffries, M.J. (2006) – (2023). Ouseburn Farm butterfly & dragonfly surveys. Department of Geography, Northumbria University, Newcastle upon Tyne. Copies of all the annual reports by Mike Jeffries can be obtained from michael.jeffries@northumbria.ac.uk.

Jeffries, M.J. (2024) Butterflies of the Ouseburn Farm Species diversity & changes, 2006-2024. Department of Geography, Northumbria University, Newcastle upon Tyne. Copies can be obtained from michael.jeffries@northumbria.ac.uk.

Table 3. Total numbers of butterflies, burnet moths, dragonflies and damselflies counted during 2024. Counts were made on sunny days except where indicated by "cloudy" or "windy". Counts of eggs, caterpillars ("cats") and pupae ("pup") are approximate. "Exuviae" refers to the cast skins left behind when a dragonfly emerges; only new examples were recorded on each date and give a minimum estimate of the numbers hatching on site. "Unid white" refers to adults flying at a distance when precise identification could not be made.

	16th Mar	6th April	19th April	25th April	30th April	7th May	11th May	20th May	25th May	1st June	8th June	13th June
Small skipper (none in 2024)												
Large skipper												
Green veined white						2		1				
Small white										3		
Large white							1					
Orange tip					7	5	6	3			1	1
Unid. white			1		3	1	6	4		1	2	
Small copper (none in 2024)												
Holly blue (none in 2024)												
Common blue (none in 2024)												
White letter hairstreak (none in 2024)												
Tortoiseshell (none in 2024)												
Comma						1						
Peacock					1	1						
Painted Lady (none in 2024)												
Red Admiral												

	16th Mar	6th April	19th April	25th April	30th April	7th May	11th May	20th May	25th May	1st June	8th June	13th June
Small heath												
Wall (none in 2024)												
Meadow brown												
Ringlet												
Speckled wood						1	4			2	1	
6 spot burnet moth (none in 2024)												
Red darter dragonfly												
Migrant hawker dragonfly												
Southern hawker dragonfly												
Broad bodied Chaser dragonfly										1		
Large red damselfly								1	6, mate	5, mate	7, mate	1
Blue tailed damselfly									1	1	5	3
Azure damselfly									8, mate	23, mate	19, mate	8, mate
Common Emerald damselfly (none in 2024)												

Table 3 continued

	17th June	22nd June	27th June	7th July	17th July	24th July	3rd Aug	10th Aug	16th Aug	30th Aug	5th Sept	14th Sept
Small skipper (none seen in 2024)												
Large skipper			1									
Green veined white						1		2	1			
Small white						2	2	2	2	4	1	4
Large white							1	1				
Orange tip												
Unid. white			2	4	1	3	2	9	6	3		2
Small copper (none in 2024)												
Holly blue (none in 2024)												
Common blue (none in 2024)												
White letter hairstreak (none in 2024)												
Tortoiseshell (none in 2024)												
Comma							1	2	1			
Peacock												1
Painted Lady (none in 2024)												
Red Admiral			1	1		1						

	17th June	22nd June	27th June	7th July	17th July	24th July	3rd Aug	10th Aug	16th Aug	30th Aug	5th Sept	14th Sept
Small heath				1								
Wall (none in 2024)												
Meadow brown			2	1		3						
Ringlet			3	1								
Speckled wood		1		1				2	2		5	5
6 spot burnet moth (none in 2024)												
Red darter dragonfly			2	2	1	1	2	7	10	12, ovi	10, ovi	3
Migrant hawker dragonfly								1	1			
Southern hawker dragonfly												1
Broad bodied Chaser dragonfly												
Large red damselfly	4	2, mate										
Blue tailed damselfly	3	3	1	1								
Azure damselfly	9	12, mate	7, mate	1								
Common Emerald damselfly (none in 2024)												

Table 4. Numbers of butterflies, dragonflies, damselflies and burnet moths counted within individual sections of the farm, 2024. The sections are coded as P = pond meadow, RF = red fescue meadow, H = horse meadow, W = woodland on northern slopes, F = farm grounds including adjacent river path, C1 = orchard below Cumberland Arms, C2 = meadow below Cumberland Arms. Counts were made on sunny days except where indicated by "cloudy" or "windy". Counts of eggs, caterpillars ("cats") and pupae ("pup") are approximate. "Exuviae" refers to the cast skins left behind when a dragonfly emerges; only new examples were recorded on each date and give a minimum estimate of the numbers hatching on site.

	16th Mar	6th April	19th April	25th April	30th April	7th May	11th May	20th May	25th May	1st June	8th June	13th June
Small skipper (none seen in 2024)												
Large skipper												
Green veined white						RF 2		Rf 1				
Small white										F 2, C2 1		
Large white							RF 1					
Orange tip					W 1, RF 3, H 2, C2 1	P 2, H 2, RF 1	P 3, RF 1, H 1, C1 1	P 1, H 1, RF 1			P 1	P 1
Unid. white			RF 1		H 1, C2 1, F 1	H 1	P 1, RF 2, H 1, C1 1, F 1	H 2, RF 2		C1 1	H 1, W 1	
Small copper (none in 2024)												
Holly blue (none in 2024)												
Common blue (none in 2024)												
White letter hairstreak (none in 2024)												
Tortoiseshell												
Comma						P 1						
Peacock					P 1	C2 1						
Painted Lady (none in 2024)												
Red Admiral												

	16th Mar	6th April	19th April	25th April	30th April	7th May	11th May	20th May	25th May	1st June	8th June	13th June
Small heath												
Wall (none in 2024)												
Meadow brown												
Ringlet												
Speckled wood						P 1	W 3, C2 1			W 2	P 1	
6 spot burnet moth (none in 2024)												
Red darter dragonfly												
Migrant hawker												
Southern hawker dragonfly												
Broad bodied Chaser dragonfly										P 1		
Large red damselfly								P 1	P 6, mate	P 5, mate	P 7, mate	P 1
Blue tailed damselfly									P 1	P 1	P 5	P 3
Azure damselfly							P 1		P 8, mate	P 23, mate	P 19	P 8, mate
Common Emerald damselfly (none in 2024)												

Table 4 continued

	17th June	22nd June	27th June	7th July	17th July	24th July	3rd Aug	10th Aug	16th Aug	30th Aug	5th Sept	14th Sept
Small skipper (none seen in 2024)												
Large skipper			C2 1									
Green veined white						RF 1		P 1, RF 1	P 1			
Small white						F 1, W 1	RF 1, F 1	F 2	F 2	H 1, F 3	F 1	P 1, RF 1, F 1, W 1
Large white							C2 1	C2 1				
Orange tip												
Unid. white				F 1, C2 1, W 2	F 1	P 1, RF 1, H 1	RF 1, H 1	P 1, RF 2, H 1, F 3, C2 2	RF 2, H 1, F 1, C1 1, C2 1	RF 1, H 1, F 1		F 11, C2 1
Small copper (none in 2024)												
Holly blue (none in 2024)												
Common blue (none in 2024)												
White letter hairstreak (none in 2024)												
Tortoiseshell												
Comma							RF 1	P 1, F 1	P 1			
Peacock												F 1
Painted Lady (none in 2024)												
Red Admiral			P 1	W 1		RF 1						

	17th June	22nd June	27th June	7th July	17th July	24th July	3rd Aug	10th Aug	16th Aug	30th Aug	5th Sept	14th Sept
Small heath				C2 1								
Wall (none in 2024)												
Meadow brown			P 1, C2 1	C2 1		P 1, RF 1, C2 1						
Ringlet			C 2 3	W 1								
Speckled wood		W 1		C2 1				P 1, C2 1	P 2		C1 1, C2 1, W 3	P 2, RF 1, C2 1, W 1
6 spot burnet moth (none in 2024)												
Red darter dragonfly			P 2	P 1, C2 1	P 1	P 1	P 2	P 6, RF 1	P 7, RF 2, C! 1	P 9, RF 1, H 1, F 1	P 8, F 1, W 1	P 3
Migrant hawker dragonfly								C2 1	H 1			
Southern hawker dragonfly												P 1
Broad bodied Chaser dragonfly												
Large red damselfly	P 4	P 2, mate										
Blue tailed damselfly	P 3	P 3	P 1	P 1								
Azure damselfly	P 9	P 12, mate	P 7, mate	P 1								
Common Emerald damselfly (none in 2024)												

2024 photos

A spring time female orange tip.

Comma, another classic springtime show off.

Female orange tip, showing the subtle underside camouflage.

Male orange tip.

The ringlet, increasingly scarce at the Farm.

The meadow brown is also in decline.

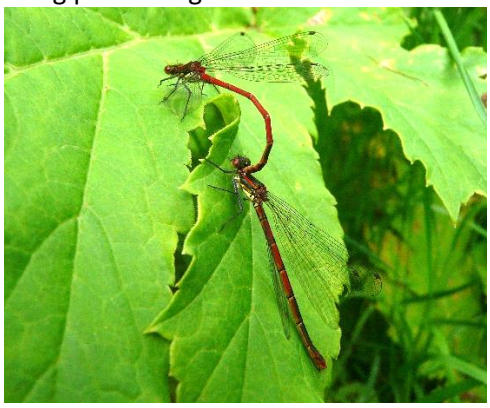
Speckled wood, most often along the sunny edges of woodland.

A slightly battered red admiral, often long distance travellers.

Common red darter, by the pond in late summer.

Large red damselfly, now well established in the pond.

A mating pair of large red damselflies.



A pair of azure damselflies.

A semaphore fly, common on the pond in high summer. They get their name from the wing waving dance the males use to impress a female…..

…..though this male is trying to impress a pond skater. You can see the faint blur of his buzzing wings.

An *Armatorius* parasitic wasp, at a couple of centimetres long an impressive sight.

A female St Marks Fly. Swarms of these black flies hang in the air in early summer for a few days. Males have huge eyes to spot the more elusive females.

The footballer hoverfly (*Helophilus* sp.), so called due to the striped shirt effect of its thorax

A hairy shieldbug, one of several species of shieldbug that are common around the Farm.

The main pond often had milky clouds in the open water, especially in springtime.

Samples from the cloudy water contained large numbers microscopic *Euglena* algae which bloom in nutrient rich water. To the bottom left you might be able to see the thin whiplash flagella that the *Euglena* uses to move.

The pond was still full of life, such as this young greater waterboatman, *Notonecta* sp..
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The pond in July. Mats of filamentous algae are unslightly but the actual water is full of stoneworts, *Chara* sp,.

The pond (=Orchard) meadow in August, now much shaded comapre to 2008.

For comparison, pond meadow in 2010, very open and ungrazed.

Pond meadow, June.

Red fescue meadow, June.

Horse meadow, June. New hedge along northern, reducing open grassland.

Cumberland C1, June. New small copse planted and fenced in

Cumberland C2, June.

The main poly tunnel, often home to small whites later in the summer.