OUSEBURN FARM

BUTTERFLY & DRAGONFLY

SURVEY, 2022

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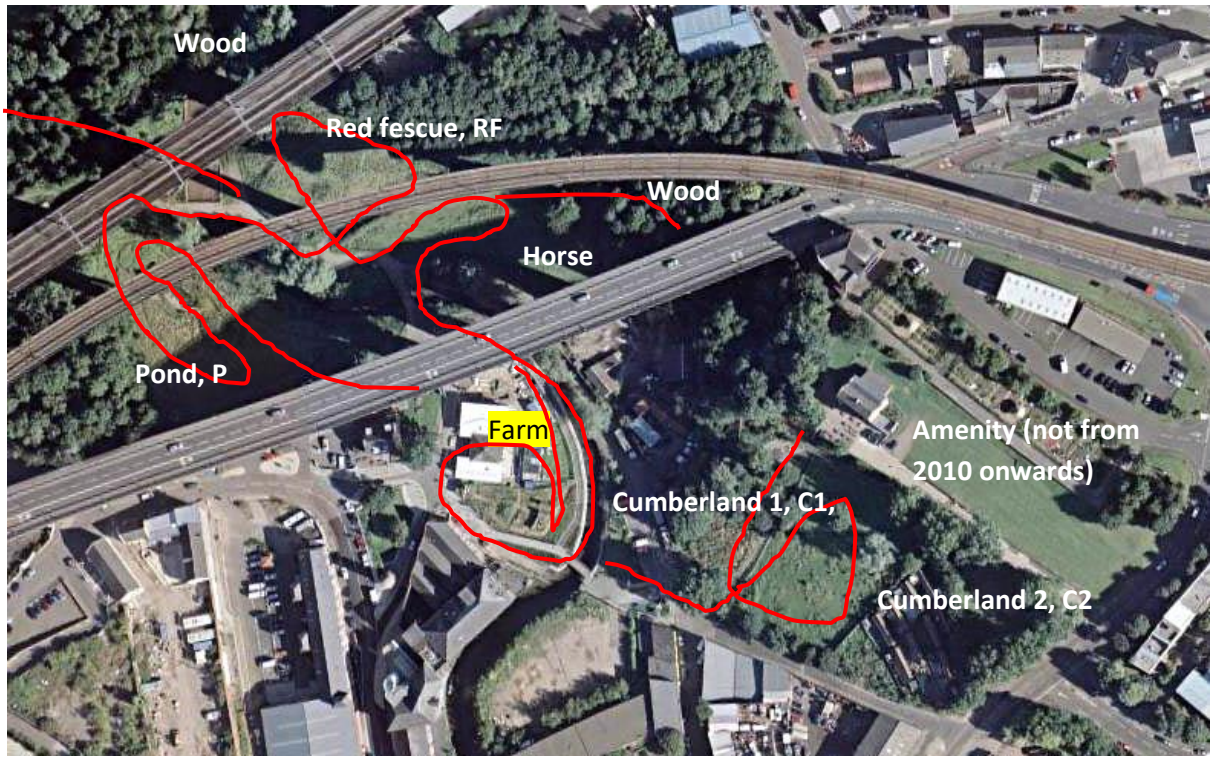
2022

Ouseburn Farm Butterfly, dragonfly and damselfly summary report 2022.

Butterflies, dragonflies and damselflies in and around the Ouseburn Farm were surveyed regularly in 2022, from late spring through to early autumn.

Similar surveys have been carried out in 2006 to 2021 (Jeffries, 2006 - 2021), making the 2022 survey the 17th survey since the farm re-opened. In 2022 twenty-four walks were carried out, the first on the 8th March, the last on the 13th 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 meadow below the Cumberland Arms. Surveys were carried out where possible on warm, sunny days. In the Farm grounds cabbages and nasturtiums were also checked for eggs and caterpillars of small and large whites

Figure 1. The Farm environs, meadows and butterfly recording walk. The red line shows the approximate route used in 2022. 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 cabbage plants were searched for eggs and caterpillars of white butterflies too. Numbers of Burnet moths and dragonflies and damselflies were also counted. In addition the vegetation around the pond was searched for dragonfly exuviae. 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 form a site.

In addition the Ouseburn Festival included pond dipping in the main pond and the animals recorded were used to rate the quality of the pond using the Big Pond Dip, a citizen science tool devised by the Freshwater Habitat Trust (Freshwater Habitats Trust, n.d.). This uses the same scoring system as the OPAL water quality survey (Imperial College , n.d.) used previously on the pond, (summarised Jeffries, 2020b) allowing easy comparison. In both 2010 and 2018 the pond scored as "Very healthy" (OPAL category, = "Brilliant" in Big Pond Dip). The pond had been largely cleared of choking vegetation in the first week of October 2021.

Results.

Butterfly species richness.

Sixteen species of butterfly were recorded in 2022, compared to fourteen in 2020, 2019 and 2018, sixteen in 2017 and fifteen in 2016 (2021 is omitted for comparison due to the absence of surveys June – September).

A new species, the white letter hairstreak, *Satyrium w-album*, was found in the pond meadow on the 24th June. Cain Scrimgeour, from *Wild Intrigue,* has also had some sightings since then suggesting the butterfly is a resident. The caterpillars feed on various elm species, especially wych elm. This butterfly is often described as hard to see, flying high in the tree canopy so the sighting at ground level may not be a new arrival but a rare chance to spot an existing resident. This butterfly is in decline in the UK, and is near its northern limit. Fingers crossed this was not just a fleeting encounter with a passing individual.

The numbers of individuals of each species fluctuate markedly between the years. Table 1 shows the highest counts made on any visit from 2013 to 2022.

Table 1. The highest counts of selected butterflies made on any single site visits between 2013 and 2022, in any meadow (no counts were made in June through to August 2021 so this year is omitted). In all years the counts were made on a weekly basis from spring to early autumn, on sunny days so should be broadly comparable.

	2013	2014	2015	2016	2017	2018	2019	2020		2022
Small skipper	1	15	1	1	1	3	1	2		4
Orange tip	5	10	8	12	12	9	6	8		11
Ringlet	2	20	17	5	5	14	13	2		3
Meadow brown	14	18	18	5	5	3	5	8		8
Speckled wood	8	14	10	8	8	12	12	4		3
Comma	3	5	4	2	3	5	4	1		1

The overall feel for the butterfly fauna is one of continuing slight decline in numbers, certainly in the pond meadow (= orchard) which for the 2010s was regularly home to the highest numbers of classic meadow species such as ringlet and meadow brown. Table 2 shows the maximum counts of main

meadow species from the pond meadow, Cumberland arms main meadow and red fescue meadow since 2013, which suggest the pond meadow is becoming much less attractive for these species.

Table 2. Maximum counts of classic meadow grassland butterflies) in the three main meadows; pond, red fescue and Cumberland, starting in 2013 after the very poor year, likely due to extreme rainfall, of 2012 years. No counts were made in June through to August 2021 so this year is omitted.

	2013	2014	2015	2016	2017	2018	2019	2020		2022
Small skipper										
Pond	1	10	1	1	5	3	1	1		
Red fescue		1					1	1		
Cumberland	1	5	1					1		4
Ringlet										
Pond	2	18	11	5	8	9	9	1		1
Red fescue		2	1		1		1			1
Cumberland	1	3	6							3
Meadow brown										
Pond	11	16	9	5	3	3	5	7		
Red fescue	1	8	5	1		2	1	3		3
Cumberland	1	9	5			1				7

Common blues were still present in the main meadow below the Cumberland after their welcome return in 2020 and holly blues had a good year too, with a maximum count of 3 on 8th August, not having been spotted in 2020

Dragonflies and damselflies.

Damselflies and dragonflies were also recorded. Numbers had peaked in in early 2010s following the restoration of the pond in 2010, but had declined substantially by 2019. The pond has been restored again in 2021 and adult dragonflies were conspicuous throughout much of the summer. A fleeting visit by the blue coloured damselfly (very like the Azure damselfly) was spotted but could not be accurately identified. Cain also spotted a banded demoiselle by Crawshaw Bridge on the 16th august, a remarkable find for this damselfly of clean, slow, vegetated rivers. One has been found previously in 2006. Both are likely to be dispersing adults and the river is very unsuitable for them due to tidal influence, water quality and lack of submerged plants.

Red darters were particularly visible at the pond, with mating pairs and egg laying observed. On 19th July a large dragonfly flew in and spent a short time egg laying. The size, colours and behaviour matched the emperor dragonfly but the low early evening light made definite identification from photos uncertain. It will be worth checking possible larvae next year.

Table 2 shows the maximum counts of dragonflies and damselflies, on any single survey date, from 2007 to 2022.

Table 2. Maximum counts of adult damselflies and dragonflies between 2007 and 2022. 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
Damselflies																
Large red														1		
Blue tailed				1	2	33	7	14	5							
Azure					5	28	7	87	54	29	2	20				
Banded demoiselle																1
Common emerald								1	2							
Dragonflies																
Southern hawker (exuviae)			1			(2)	1	1	2 (18)	1	1	1 (2)		(16)		2
Migrant hawker								1			1		1			
Board bodied chaser				2	2	3	2	4	5	4	5	3	2	1		1
Red darter dragonfly		7	2	1	1	2	3	34	8	3	4	1	1			11
Emperor dragonfly																1

Results from the Ouseburn Festival pond dips rated the pond as “good”, (Big Pond Dip Score = 28) as did an earlier check by Mike on 8th July (again score = 28) and one on 3rd November 2021, soon after the clean out, (score = 28). The taxa missing that had been present in earlier years were larvae of dragonflies and damselflies. Large numbers of juvenile newts were found and adults had been observed doing courtship dances in spring. The submerged plant life also returned with swards of milfoil (*Myriophyllum* sp.) and stonewort (*Chara* sp.). Both did well in the years immediately after the previous clean-out in 2010, before being lost as reeds and sedges choked the pond in recent years. They are evidently capable of re-appearing following clean outs.

In addition to the ponds, though probably less welcome, the water butts by the long poly tunnel on the main Farm site were home to conspicuous, wriggling rat tailed maggots, the strange larvae of *Eristalis* hoverflies, plus lots of mosquito larvae.

Counts of butterflies and dragonflies 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 section of the farm allowing comparisons between meadows.

References.

Freshwater Habitats Trust, (n.d.) https://freshwaterhabitats.org.uk/get-involved-2/big-pond-dip/.

Jeffries, M.J. (2006) – (2021). 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. (2020b) Ouseburn Farm Ponds, 2020. History and Data compilation. Department of Geography, Northumbria University, Newcastle upon Tyne.

Imperial College, (n.d.) https://www.imperial.ac.uk/media/imperial-college/research-centres-and-groups/opal/WATER-16pp-booklet_legacy.pdf.

Table 3. Total numbers of butterflies, burnet moths, dragonflies and damselflies counted during 2022. 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.

	1st Mar	16th Mar	13th Mar	18th Mar	19th Mar	24th Mar	3rd April	6th April	14th April	16th Apr	20th April	29th April	7th May	14th May
Small skipper														
Large skipper (none seen in 2022)														
Green veined white														
Small white						1		1			1	1	1	
Large white														
Orange tip									2	5	11	3	9	3
Unid. white									1	6	6	11	8	4
Small copper														
Holly blue											1	1		
Common blue														
White letter hairstreak														
Tortoiseshell				1	1						2			
Comma						1	1				1			
Peacock					1	1			1			1		
Painted Lady (none in 2022)														
Red Admiral														

	1st Mar	16th Mar	13th Mar	18th Mar	19th Mar	24th Mar	3rd April	6th April	14th April	16th Apr	20th April	29th April	7th May	14th May
Small heath (none in 2022)														
Wall (none in 2022)														
Meadow brown														
Ringlet														
Speckled wood											3	3		1
6 spot burnet moth														
Red darter dragonfly														
Migrant hawker dragonfly (none in 2022)														
Southern hawker dragonfly														
Broad bodied Chaser dragonfly														
Large red damselfly (none in 2022)														
Blue tailed damselfly (none in 2022)														
Azure damselfly (none in 2022)														
Common Emerald damselfly (none in 2022)														

Table 3 continued

	28th May	10th Jun	20th Jun	24th Jun	4th Jul	7th Jul	13th Jul	27th Jul	8th Aug	15th Aug	23rd Aug	28th Aug	2nd Sep	13th Sep
Small skipper					4	2	3							
Large skipper none seen in 2022)														
Green veined white				1	1	1	1	3	4	1			1	
Small white		1		1	1	1		1	2	1	1		2	4
Large white						1				1	1			1
Orange tip	1													
Unid. white	1	1	2	3	5	10	8	2	8	13	11		6	5
Small copper								1						
Holly blue									3					
Common blue				1			1							
White letter hairstreak				1										
Tortoiseshell					1									
Comma					1		1							
Peacock														
Painted Lady (none in 2022)														
Red Admiral		1	1	2	2	2	1							

	28th May	10th Jun	20th Jun	24th Jun	4th Jul	7th Jul	13th Jul	27th Jul	8th Aug	15th Aug	23rd Aug	28th Aug	2nd Sep	13th Sep
Small heath (none in 2022)														
Wall (none in 2022)														
Meadow brown			3	5	6	8	8	3	2	3				
Ringlet			1	1	3	3								
Speckled wood		1	3	2	1	1	1			1		1	4	2
6 spot burnet moth				1										
Red darter dragonfly						1	1		4	2	11	1	6	10
Migrant hawker dragonfly (none in 2020)														
Southern hawker dragonfly														2
Broad bodied Chaser dragonfly							1							
Large red damselfly (none in 2022)														
Blue tailed damselfly (none in 2022)														
Azure damselfly ((one in 2022)														
Common Emerald damselfly (none in 2022)														

Table 4. Numbers of butterflies, dragonflies, damselflies and burnet moths counted within individual sections of the farm, 2022. 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.

	1st Mar	16th Mar	13th Mar	18th Mar	19th Mar	24th Mar	3rd April	6th April	14th April	16th Apr	20th April	29th April	7th May	14th May
Small skipper														
Large skipper (& unidentified skippers)														
Green veined white														
Small white						RF 1		RF 1			RF 1	RF 1	H 1	
Large white														
Orange tip									P 1, H 1	P 3, H 2	P 2, RF 3, H 1, F1, C2 1, W 3	H 1, F1 W 1	RF 2, H 2 W 5	P 1, H 1 W 1
Unid. white									H 1	P 3, RF 1, W 2	P 1, RF 1 H 1, C2 1 W 2	P 2, RF 1 H 3, F 1, W 4	P 1, RF 1 H 3, C1 1 C2 1, W 1	H 1, C1 1 C2 1, W 1
Small copper														
Holly blue											W 1	W 1		
Common blue														
White letter hairstreak														
Tortoiseshell				H 1	P 1						F 1, W 1			
Comma						RF 1	RF 1				W 1			
Peacock					P 1	RF 1			P 1			F 1		
Painted Lady (none in 2022)														
Red Admiral														

	1st Mar	16th Mar	13th Mar	18th Mar	19th Mar	24th Mar	3rd April	6th April	14th April	16th Apr	20th April	29th April	7th May	14th May
Small heath (none in 2022)														
Wall (none in 2022)														
Meadow brown														
Ringlet														
Speckled wood											P 1, W 2	W 3		W 1
6 spot burnet moth														
Red darter dragonfly														
Migrant hawker dragonfly (none in 2022)														
Southern hawker dragonfly														
Broad bodied Chaser dragonfly														
Large red damselfly (none in 2022)														
Blue tailed damselfly (none in 2022)														
Azure damselfly (none in 2022)														
Common Emerald damselfly (none in 2022)														

Table 3 continued

	28th May	10th Jun	20th Jun	24th Jun	4th Jul	7th Jul	13th Jul	27th Jul	8th Aug	15th Aug	23rd Aug	28th Aug	2nd Sep	13th Sep
Small skipper					C2 4	C2 2	C2 3							
Large skipper (none in 2022)														
Green veined white				W 1	F 1	RF 1	F 1	RF 3	P 1, F 2 W 1	RF 1			P 1	
Small white		C1 1		P 1	F 1	F 1		F 1	P1, W 1	F 1	RF 1		P 1, f 1	P 1, rf 1 f 2
Large white						W 1				F 1	F 1			P 1
Orange tip	H 1													
Unid. white	H 1	H 1	F 1, W 1	P 1 C2 2	P 1, F 2 C2 2	P 3, RF 1 H 1, F 4 C2 1	P 1, RF 4 H 1, F 1 C2 1	P 1, RF 1	P 2, RF 2, H 1, F 2 C2 1	P 2, RF 4 F 2, C1 1 C2 3, W 1	P 2, RF 3 F 3, C1 1 C2		P 2, F 1 C2 3	P 1, RF 1 F 1, C2 2
Small copper								RF 1						
Holly blue									RF 1, F 1 C1 1					
Common blue				C2 1			C2 1							
White letter hairstreak														
Tortoiseshell					RF 1									
Comma					P 1		P 1							
Peacock														
Painted Lady (none in 2022)														
Red Admiral		P 1	W 1	P 1, C2 1	RF 1, F 1	F 2	P1							

	28th May	10th Jun	20th Jun	24th Jun	4th Jul	7th Jul	13th Jul	27th Jul	8th Aug	15th Aug	23rd Aug	28th Aug	2nd Sep	13th Sep
Small heath (none in 2022)														
Wall (none in 2022)														
Meadow brown			C2 3	C2 5	RF 1, C2 5	RF 1, C2 7	RF 2, F 1 C2 5	RF 3	RF 2	RF 2, C2 1				
Ringlet			W 1	C2 1	P 1, RF 1 W 1	C2 3								
Speckled wood		W 1	RF 1, C2 1 W 1	C1 2	W 1	F 1	RF 1					P 1	P 4	F 1, w 1
6 spot burnet moth				C2 1										
Red darter dragonfly						F 1	P 1		P 3, RF 1	P 2	P11 oviposit	P 1	P 6	P 10 oviposit
Migrant hawker dragonfly (none in 2020)														
Southern hawker dragonfly														P 2
Broad bodied Chaser dragonfly							P 1							
Large red damselfly (none in 2022)														
Blue tailed damselfly (none in 2022)														
Azure damselfly ((one in 2022)														
Common Emerald damselfly (none in 2022)														

2022 photos

Early spring comma basking on fence post

Springtime tortoiseshell on buckthorn blossom

Small skipper, increasingly scarce in the pond meadow but present in Cumberland

Common blue in Cumberland meadow

Meadow brown in Cumberland meadow

Red mason bee collecting wet mud from damp holes around pond in spring

A new butterfly record for the Farm; white lettter hairstreak

Green veined white in poly tunnel

Small white, also benefiting from poly tunnel warmth

Small copper on yarrow

Rosemary beetle, a rainbow jewel coloured beetle about the size of a large ladybird, on lavender in the garden

Soldier beetles, very abundant in high summer on plants like this yarrow

The choked pond, September 8th 2021

The recently cleared pond, 10th October 2021

Pond 14th April 2022

Pond 24th Jun 2022, extensive duckweed and filamentous algae, which are often rampant in newly restored ponds

Pond 8th August, duckweed and filamentous algae are receding

Pond 13th September, water very clear, duckweed and algae much reduced

Stonewort sward in pond, 8th August

The large dragonfly egg laying on 19th July that looked like an Emperor but flew away very quickly

Honey bee drinking at edge of pond during heatwave

Mosquito larvae in the poly tunnel water butt; the paler, grey shapes in the black water

Pond meadow, 24th June increasingly shaded by orchard trees

Red fescue meadow. The lower slopes were very burnt off during the hot summer weather, seeming to coincide with where of shade from Metro bridge stopped

Showing the Metro bridge shade on red fescue meadow

Male red darter by the pond

Female red darter basking by pond

A pair of mating red darters on the fence alongside the pond