



Durham
Wildlife Trust
From Tees to Tyne



Dragonfly Survey 2023
Vice County 66
Durham Wildlife Trust Region



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Summary

The British Dragonfly Society (BDS) works in conjunction with the Durham Wildlife Trust (DWT) to actively survey the region between the River Tees and the Tyne. This approach allows us to pay particular attention to a wide range of known sites and collect via iRecord any other sightings within the region.

The very wet summer and the frequency of storms meant that observations (as opposed to how many Odonata emerged) were down by 47% from 3932 to 2089. The lack of days on which even the most diligent observers could venture out and make sightings means that “quantity year on year” comparisons are somewhat meaningless.

In recent years, it has been apparent that there are 19 resident species in VC66, plus the occasional visitor that gets the local Odonata spotters excited. In 2023, we are now reasonably confident that Willow Emerald Damselflies are breeding at [Joe's Pond](#) (Rainton Meadows) as they have now been observed at the same spot two years in a row, and this year, both a male and a female were spotted. This brings the number of species breeding in VC66 to 20.

Another high point was once again a large number of breeding Small Red Eyed Damselflies at [Brasside Pond](#) just outside Durham, and for the second year, there were sightings at the pond in front of the [Quadros Centre](#) just off the A19, which makes it the most northerly breeding site in the UK.

The season might have started on 19th March with an unconfirmed sighting of a Common Blue Damselfly. However, the observer is unknown to the author and did not submit a photo of a species that otherwise was not seen until May 20th, so the sighting is somewhat suspect. The author did, however, see a Large Red Damselfly at [Twizell Woods](#) on April 18th, and Ian and Elaine Burnell saw one at [Thornley Woods](#) on the same day, so we will take that as the official start to the season (two days earlier than 2022).

The Large Reds were then seen by many once May arrived, and the first Blue Tailed Damselfly was observed at Brasside Pond on 10th May.

The dragons arrived earlier again in 2023 (this has been a trend) with a Four Spotted Chaser at [RSPB Salthome](#) seen by the author and John Humble on the 9th and 10th of May. That same sheltered pond just outside the visitor centre then proved to be a great site for early emergence, and many spotters went to see them.

In 2022, many smaller ponds were dry for the latter half of the season, meaning that the prospect of any Odonata in 2023 was thought to be zero. Last year's report covered diapause, where either an egg or larvae can delay moving onto the next stage, and it was discussed if some seemingly dry ponds might still have eggs buried deep in the hardened mud cracks at the bottom. It was, therefore, both a treat and something of a conundrum when a Common Darter was seen emerging from a small path-side pond at [Rainton Meadows](#) that was known not to have water from July to late November of 2022.

Once again, we missed out on **Beautiful Demoiselles**, which are often tantalisingly close to our borders but don't stray across the River Tees or Tyne. Luckily, though, the River Wear provides an ideal habitat for the **Banded Demoiselle**, and they were spotted on 97 occasions, which was a surprising increase from 93 in 2022.

Golden Ringed Dragonflies were seen by 10 different spotters (up from 8) at 11 sites, so bearing in mind how poor the weather was, it is likely that this species is increasing its foothold in the region.

As mentioned, following a sighting of a **Willow Emerald Damselfly** at Joe's Pond in 2022, some keen observers scoured the site, photographing anything that vaguely resembled one. After a few close calls, a female was photographed by Ian and Elaine Burnell on 13th September, and then Joe Finlay got close-up photos of the Male on 9th October. It could be next spring before any scarring appears on willow branches, some of which were cut down in October, so we will need to look closely again in 2024.

The most common species in VC66 was, once again, the **Common Darter**, observed on 283 occasions. As they were spotted in 2022 on 494 occasions it clearly shows the impact the weather had on spotting Odonata in 2023. The **Common Blue Damselfly** was the next most frequently observed (203 occasions), followed by the Large Red Damselfly (181), so no real surprises there. **Azure** and **Blue Tailed Damselflies** were not far behind (170).

Southern Hawkers continue to be common in VC66 (140 sightings).

Despite the weather-related drop in numbers, **Emperor Dragonflies** were still observed more frequently (109 occasions) than they were 5 years ago, and their bold territorial patrolling right next to some of the tours we ran made observation easy.

Autumn brought the **Migrant Hawkers** as usual, and they were seen on 112 occasions, including at [Oakenshaw NR](#), where a mass emergence occurred in 2022. Sadly, no such emergence was observed in 2023. However, Migrant Hawkers continue to be well-established there.

The **Black-Tailed Skimmers**, which were hardly seen four or five years ago, continue to spread around the region, and they were observed on 77 occasions.

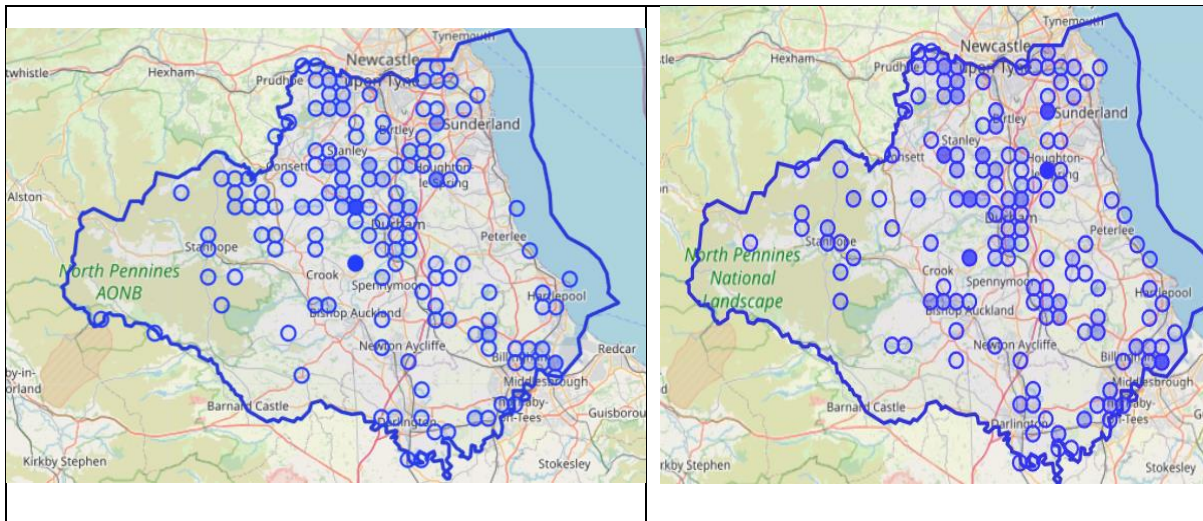
Black Darter sightings were down again this year, with their main stronghold continuing to be the very unassuming and boggy [Greencroft NR](#) in Anfield Plain, where a German bomb formed one pond. It was, however, nice to see sightings at Rainton Meadows and RSPB Salthome, where hopefully they will become established, albeit they do prefer heathland boggy areas, so they might just have been on a migratory journey.

Brown Hawker numbers have been up and down recently, with Rainton Meadows having many one year and none the next. It was, therefore, good to see them return to Rainton despite weather-related challenges. During a tour of [Pity Me Carrs NR](#) with a youth group, the author showed them a Brown Hawker enthusiastically laying eggs into a rotting log.

The season ended on November 5th when Ian and Elaine Burnell, who were also the first to see Odonata in 2023, spotted a Common Darter at [Barnston Pond](#) in Washington. After

that date, the winter storms started, and so there was little prospect of *Odonta* being spotted. The season ended 2 weeks earlier than in recent years but with ponds full of water. The rain since November bodes well for spring 2024 as, in theory, the ponds should easily sustain the larvae, ready for the new season in April 2024.

Despite the storms and continual rain in 2023, which substantially lowered the number of sightings, the locations of *Odonata* were comparable to previous years, with a few more observers venturing out to the less accessible sites in the west of the region. The North Pennines could well be hosting some hotspots, but we just don't know them at this point. With the Durham Wildlife Trust purchasing [Cuthberts Moor](#) on the eastern edge of the North Pennines, we hope to get a little more insight into the species that like boggy and heathland areas.



2022 Sightings

2023 Sightings

The sightings in VC66 continue to primarily come from the central region, although there were more from near the coast this year. Spotters are encouraged to look in the areas that do not have circles on this summary map.

The benefit of visiting a site regularly was clearly shown at [Barlow Burn](#), a beautiful small DWT reserve that typically has 3 or 4 species. By visiting more regularly in 2023, 9 species were spotted. Sites to visit in 2024 if you want to spot a wide variety of species are Rainton Meadows, Low Barns, Twizell Woods, Oakenshaw NR, RSPB Salthome, Washington Wetlands Centre and Daisy Hill LNR. To see the best sites in VC66, [use this link to view a Google Map](#) that includes directions, parking information and a little detail on what you might see. Record sightings on iRecord or [via this app](#).

In 2023, three BDS/DWT guided walks were run, and it is hoped that far more will go ahead in 2024. Events will be on the [Durham Wildlife Trusts Events page](#) and circulated by the BDS. My thanks, as always, to those who submitted sightings.

Cover photo Kathryn Athey. Survey tool courtesy of [Protostar Surveys](#)

Detailed Analysis

Background

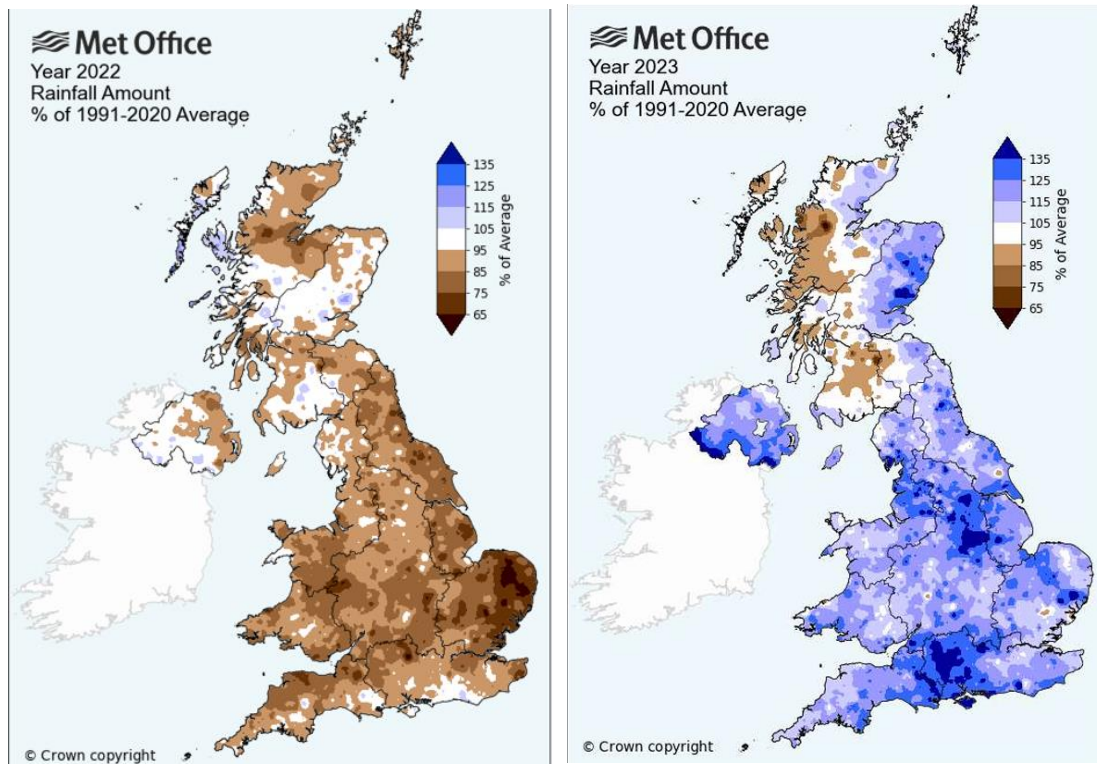
The Durham Wildlife Trust owns and manages 50 nature reserves throughout the former County Durham region (VC66), between the River Tyne and the River Tees.

(<https://durhamwt.com/reserves/>). For some years, the DWT has surveyed Odonata at those sites along with ones in nearby nature corridors. That survey is now combined with the records submitted via iRecord to create this joint BDS/DWT report.

The northeast of England generally has a cooler climate than the rest of England as the weather is impacted by air masses, that in turn are influenced by very cold winds from the Arctic. The VC66 region is also very close to the coast, and sea surface temperatures vary from about 5°C in winter to 13°C in summer (compared to a range of 8 °C to 18 °C off SW England).

However, the annual temperature has been increasing in recent years and rainfall has become less predictable, with long dry spells often followed by flooding. Possibly due to global warming, since 2001, five species, Migrant Hawker (*Aeshna mixta*), Emperor Dragonfly (*Anax imperator*), Ruddy Darter (*Sympetrum sanguineum*), Willow Emerald Damselfly (*Chalcolestes viridis*) and Hairy Dragonfly (*Brachytron pratense*), have moved progressively north, and four of those species were observed as part of this survey.

While 2022 was memorable for the very hot Summer that left many ponds and streams dry, 2023 was the exact opposite, which, while good for maintaining the wet areas needed for the Odonata life cycle, made observing them very difficult. As a result, sightings were down 47%. It is easy to see why if you compare these two Met Office summaries showing average rainfall compared to the national average since 1981. In the left-hand graphic, you can see the propensity of brown, indicating that in 2022, most areas of the UK, including the North East, had less than the typical average rainfall. In 2023, the blue colour shows how the UK had far more rain than is typical. While sightings were down as a result, ponds were full as we entered the winter, and they have maintained that water, which bodes well for 2024.



In the 2022 report, the author discussed how Odonata survive in hot countries and how diapause might play a role in that. Diapause is the ability of eggs and larvae to hold off developing to the next stage. It was suggested that as many of the smaller ponds in VC66 had been completely dry from June onwards, there was no chance of Odonata in 2023 unless somehow the eggs had paused their development. It was, therefore, both very positive and confusing when Common Darter were seen emerging (exuvia present) at one shallow path side pond at Rainton Meadows that was completely dry from July to late November 2022.

Following further research into accounts of Odonata surviving during droughts, it is probably more likely that the larvae survived deep down in the muddy cracks despite the lack of water or food. An example of this can be found in the [1999 paper by Damme and Dumont](#) where a segment of a pond that had been dry for several months was taken to a lab. To the researcher's surprise, they found a male Skimmer larva (*Pantala flavescens*), which they wetted, and found that it started to develop as would normally be expected under wet conditions. While there does not appear to be evidence of Common Darter doing the same, that could be because similar dissections of a pond base have not been made. It is still possible, though, that eggs injected into vegetation might have remained there until the pond had water again in the winter of 2022/23. More observations are required.

To read more about the various methods by which Odonata lay eggs, [see the 2022 report](#).

Method

There are two methods by which sightings were recorded. Firstly, using an application developed by the author for reporting sightings at DWT sites and other hotspots.

For 2024, use this URL to access it <https://survey.protostarsurveys.com/zs/hRCOJV>



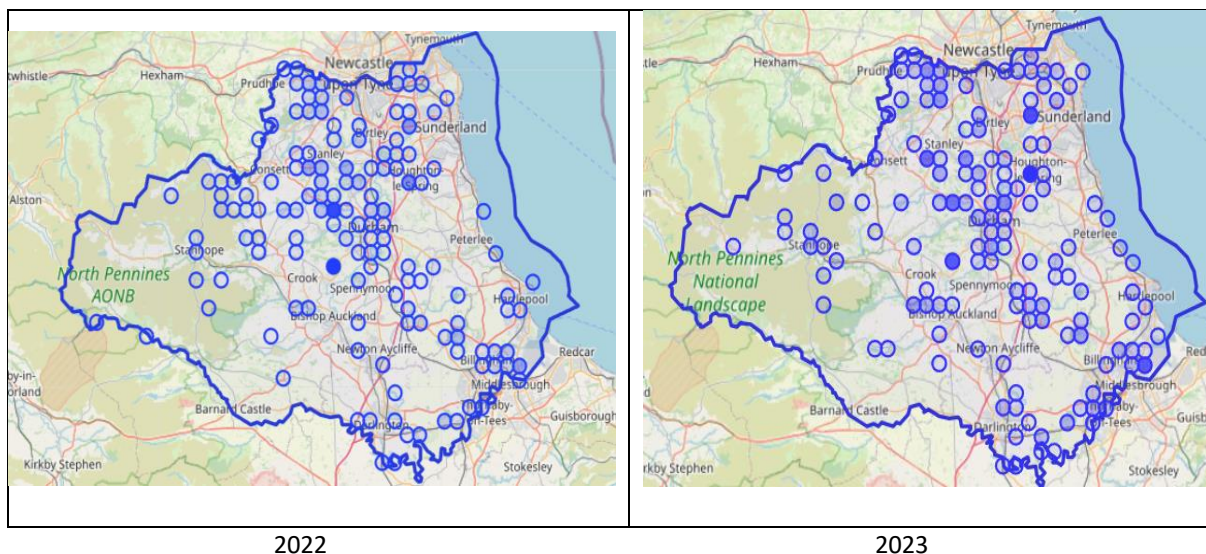
Or use this QR code.

The other method is via [iRecord](#), into which all the DWT data is uploaded at the end of the season. While the iRecord data is used in national studies, it has pretty limited reporting capability compared to the DWT app, hence the two methods in our region. Several people also report sightings via the iNaturalist app, which, as of 2022, also links with [iRecord](#).

Whatever the submission method, photographic evidence is encouraged even for the common species, as it is so easy to make a mistake, and it provides us with a great source of images. If a record was submitted by a new observer for a “scarcer” species, if no photographic evidence was provided, the author would usually visit the same location to confirm. As this is not always possible, photographic evidence is encouraged, especially for rarer species.

Locations

2022 was a bumper year for sightings, so with the wet weather in 2023, it was no surprise that sightings were down 47%. What was heartening, though, was that spotters still managed to survey a similar range of locations. NB: A darker colour indicates more sightings or sightings from sites nearby.



2022/23 Odonata Sightings in VC66

Only seven DWT reserves were surveyed, down from thirteen in 2021, so in 2024, spotters are urged to visit DWT reserves more often.

The British Dragonfly Society (BDS) denotes a site in the North East to be a “Priority Site” if it has:

- Nationally scarce species breeding (Joes Pond Willow Emerald Damselfly)
- Locally scarce species breeding (Brasside Pond – Small Red Eyed Damselfly)
- 14 or more species

Within VC66, the following sites are considered “Priority”; however, as other great DWT sites were hardly surveyed, it is quite possible that they also meet the criteria.

- Brasside Pond – Small Red Eyed Damselfly (and 9 species)
- Boldon Business Park Pond A184 - Small Red Eyed Damselfly
- Oakenshaw Nature Reserve (18 species)
- Rainton Meadows/Joe’s Pond (18)
- Langley Park Wetlands (16)
- RSPB Salthome (14)
- Low Barns (14)

Coatham Woods (13), Cowpen Bewley NR (12), Greencroft BR (12) Bowes Valley NR (12) Twizell Woods (12), Washington Wetland Centre (12) and NT Gibside (12) are not far behind.

The dramatic increase in sightings at Low Barns was not some ecological event but because spotters visited more regularly, thus restoring the reputation of this great site for Odonata.

Account of Species

Species by Number of Recorded Sightings (Times Observed)

NB: A sighting/record means at least one was seen, it is not the quantity observed.

Accepted name	Common name	No. of records	First record	Last record
1. <i>Sympetrum striolatum</i>	Common Darter	283	26/04/2023	05/11/2023
2. <i>Enallagma cyathigerum</i>	Common Blue Damselfly	203	17/05/2023	21/09/2023
3. <i>Pyrrhosoma nymphula</i>	Large Red Damselfly	181	18/04/2023	20/08/2023
4. <i>Coenagrion puella</i>	Azure Damselfly	176	11/05/2023	09/09/2023
5. <i>Ischnura elegans</i>	Blue-tailed Damselfly	171	10/05/2023	08/09/2023
6. <i>Aeshna cyanea</i>	Southern Hawker	140	17/06/2023	16/10/2023
7. <i>Libellula quadrimaculata</i>	Four-spotted Chaser	123	10/05/2023	21/09/2023
8. <i>Aeshna mixta</i>	Migrant Hawker	112	24/07/2023	22/10/2023
9. <i>Libellula depressa</i>	Broad-bodied Chaser	110	21/05/2023	09/09/2023
10. <i>Anax imperator</i>	Emperor Dragonfly	109	11/06/2023	27/09/2023
11. <i>Lestes sponsa</i>	Emerald Damselfly	100	11/06/2023	11/09/2023
12. <i>Calopteryx splendens</i>	Banded Demoiselle	97	03/05/2023	31/07/2023
13. <i>Orthetrum cancellatum</i>	Black-tailed Skimmer	77	23/05/2023	13/09/2023
14. <i>Aeshna grandis</i>	Brown Hawker	74	21/06/2023	25/09/2023
15. <i>Aeshna juncea</i>	Common Hawker	50	24/06/2023	16/10/2023
16. <i>Sympetrum sanguineum</i>	Ruddy Darter	38	07/07/2023	23/09/2023
17. <i>Sympetrum danae</i>	Black Darter	18	06/08/2023	12/10/2023
18. <i>Cordulegaster boltonii</i>	Golden-ringed Dragonfly	14	13/06/2023	09/09/2023
19. <i>Erythromma viridulum</i>	Small Red-eyed Damselfly	10	06/08/2023	08/09/2023
20. <i>Chalcolestes viridis</i>	Willow Emerald Damselfly	3	13/09/2023	09/10/2023

Species in VC66 in order of Emergence

Accepted name	Common name	No. of records	First record	Last record
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3. <i>Calopteryx splendens</i>	Banded Demoiselle	97	03/05/2023	31/07/2023
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20. <i>Chalcolestes viridis</i>	Willow Emerald Damselfly	3	13/09/2023	09/10/2023

Azure Damselfly (Coenagrion Puella)



Azures were spotted on 176 occasions, which, like most species in 2023, was way down on last year. However, they were seen at 55 locations, up from 44.

Azures were seen in good numbers at Langley Park Wetlands, Oakenshaw Wildlife Reserve, Rainton Meadows, Washington Wetland Centre and Twizell Woods, and across the region's centre.

And a special mention to Carol Spencer, who has diligently been visiting School Aycliffe Wetlands (NZ 25874 24098) because, in theory, it is the perfect site for Odonata, but hardly anything appears there. Well, in 2024, Carol spotted an Azure!

Sightings started on 11th May and ended on 9th September, which is virtually identical to the previous two years.

Azure females are *polychromatic*, meaning that they can be seen in two distinct colour forms, with green being the more common (90% of all UK sightings) and the less frequent blue form. In last year's report the author suggested looking out for the blue form of female Azures but it does not appear that any were photographed.

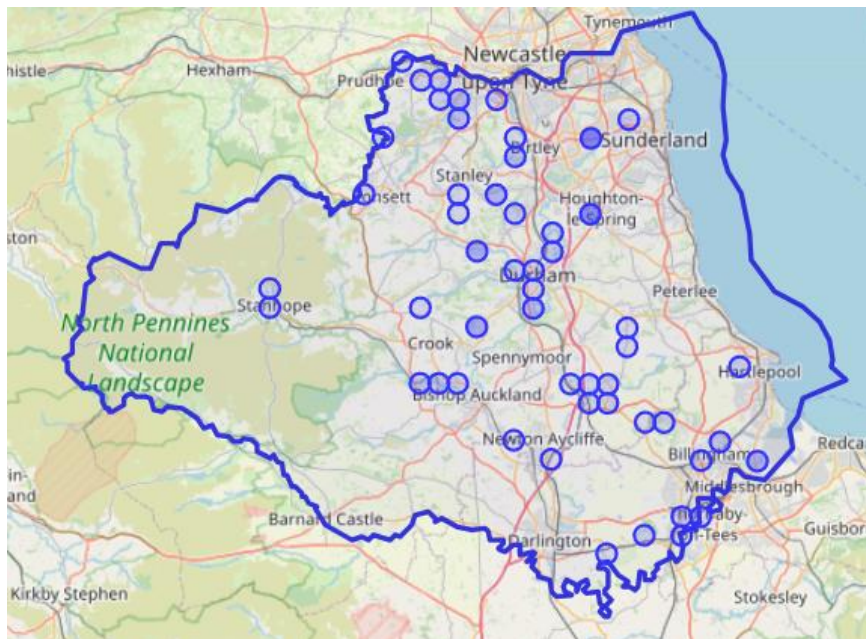


So, what are you looking for? In the photo above, the green form female's S4-6 are dark on the upper abdomen with concentric blue segment dividers. However, those blue dividers are much more pronounced in the blue form female.





There is a commonly held view that damselflies often mate on floating leaves, possibly to form a discrete territory. However, this great photo by Joe Finlay (no blue-form females) shows that Azures are not territorial.



As the map clearly shows, most sightings were in a central corridor, so in 2024, spotters are also asked to go further west.

2023 Azure Damselfly Sightings VC66

Banded Demoiselle (*Calopteryx splendens*)



The Banded Demoiselle is a particularly striking damselfly, which is probably why, in some countries, it is called a Banded Jewelwing. They have metallic blue or green bodies and partly tinted wings. The males have a distinct dark band in their wings (see photo).

- The Banded Demoiselle is a common species and is not considered at risk.
- The species is susceptible to pollution and is an indicator of clean water.
- Female Banded Demoiselles lay their eggs on the leaves of aquatic plants, trapping a layer of air in their wings to allow them to breathe underwater .
- Male Banded Demoiselles are very territorial and perform fluttering display flights to win over females.

Their flight style is distinctive, with a slow fluttering flight and their wings can be distinctly seen to flick with each beat. Spotters may well also see groups of Banded Demoiselle, and it is well worth watching them for some time if it is at the edge of a river. Males fly in front of the females and display an exaggerated wing flicking action, and they might then fly down to the water with their abdomen pointing upwards. This is thought to be a means of suggesting to the female that it's a good place to mate and lay eggs. If this approach works, then coupling is brief and the female will fly off to lay eggs inside vegetation.

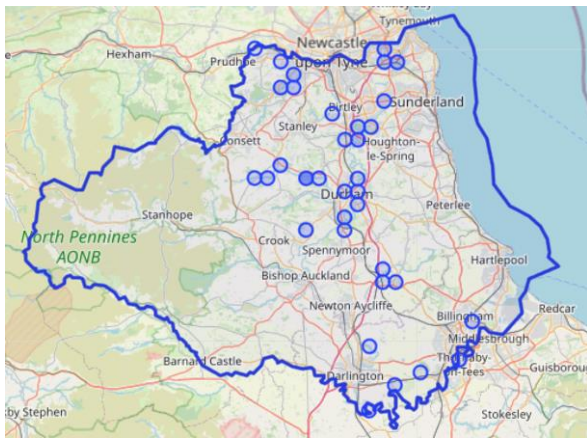
You can see this happening in this great video <https://youtu.be/gKadVX7lkv0> and in episode three of the recent David Attenborough Wild Isles series.

They prefer slow-moving rivers or streams, and so possibly as a means of scaring children from going into the water, an old name for damselfly or dragonfly is “ether’s nild” or adder’s needle, and children were warned the nild (particularly Banded Demoiselles) would sew up

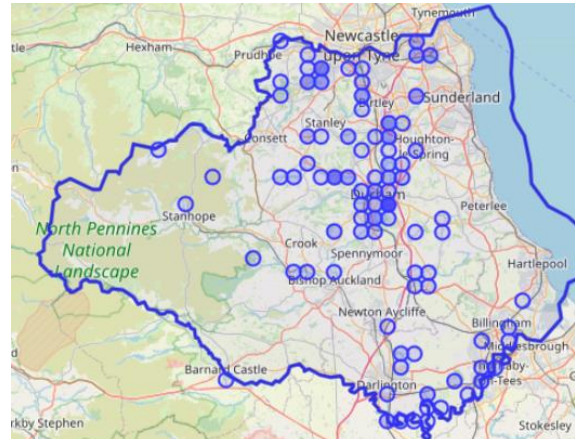
their eyelids and lips if they saw or said what they shouldn't. Also called "ether's mon", or adder's man, the viper's lookout, these insects were described as tools of punishment with demonic connections.

Their stick like larvae typically do not emerge for two years, and when they emerge they can travel to shrubs and trees as far as 100m away from water. Only when they are fully mature (at around day 12) do they venture out over streams.

The season started earlier than normal (3rd May) and they bowed out earlier too on the 31st July. They were however, seen at more locations than in 2022. Sadly, once again we did not see any Beautiful Damsellies.



2022 Banded Demoiselle Sightings VC66



2023

Black Darter (*Sympetrum danae*)



Black Darters were seen less often and at fewer sites, partly because they emerge late in the season and that meant it was raining most days after they emerged. The weather also made observing them in their preferred heath and moorland sites even harder than usual.

They were still common at their stronghold at Greencroft NR (Anfield Plain) and were also seen at Rainton Meadows, Malton Ponds and Oakenshaw NR.

Mal Wilkinson visits Greencroft throughout the season and gets fantastic photos, such as the male on the previous page and this male and female.



The photos show the distinct difference between the sexes. They are characterised by short, erratic flight patterns. The males will often be seen perching at different heights and angles due to their black markings having a thermo-regulatory function. Male flight occurs when their body surface is between 20 and 40 degree C, so earlier in the day it is easier to see them on undergrowth.

Both sexes are golden in colour when immature, which can lead to misidentification. With immature males and females, look for dark markings on the top of S8-10. Males have a nipped “waist” around S3, and their legs are completely black.

As can be seen in the distribution map, there are relatively few accessible sites in VC66 where they are likely to be observed.



2023 Black Darter Sightings VC66

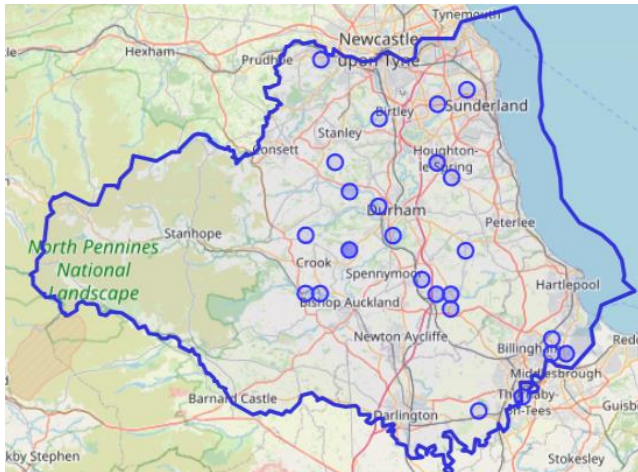
Black-Tailed Skimmer (*Orthtrum cancellatum*)

Black Tailed Skimmers were spotted on 77 occasions at various sites, including Oakenshaw NR, Langley Park Wetlands, and Rainton Meadows. RSPB Salthome also had this lucky individual saved by the author using the equipment normally used to save people!



This female had got caught up in floating vegetation, probably while ovipositing with a male who had fled the scene. Once it was cleaned off, it was possible to see black banding and the appendages spaced apart hence it is a female rather than an immature male.

They were first seen at Oakenshaw NR on 23rd May, where they remained until the end of June.



2023 Black Tailed Skimmer Sightings VC66

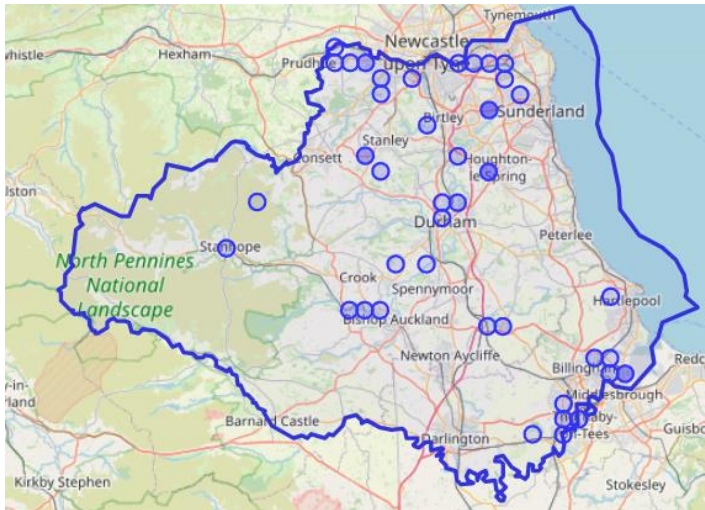
Blue Tailed Damselfly (*Ischnura elegans*)



In the recent [BDS State of Dragonflies report](#) that summarises the last 50 years of records, it was apparent that the Blue Tailed Damselfly has been in decline in the previous 10 years.

Bearing in mind that the Blue Tailed Damselfly is one of the most pollution-tolerant species and will even be found in brackish water, they may have been impacted in recent years by the use of neonicotinoid pesticides (Barmentlo et al., 2019) which were introduced in 1991. Therefore, the Blue Tailed Damselfly is one to watch closely.

One of the interesting characteristics of the Blue Tailed Damselfly is that they have a range of colour forms, which also vary with age. Males appear dark, with a metallic black abdomen, a bright blue segment 8 (the blue "tail"), and a blue thorax. This makes the males easy to identify. The females, however, can have a black, green, orange or violet colouration, with immature females starting as either *rufescens* (reddish pink) or *violacea* (violet) changing after about a week to their adult colours, thus making the females great to photograph and to try and see all colourations. Luckily, the coloured S8 still makes them easy to identify. As their name incorrectly suggests that the whole "tail" is blue, it is interesting that outside of the UK, they are called "Common Bluetips", which frankly is a better name.



2023 Blue Tailed Damselfly Sightings VC66

171 sightings occurred between 10/05/2023 and 08/09/2023, with many seen at Washington Wetlands Centre, Rainton Meadows and RSPB Salhome.

Broad Bodied Chaser (Libellula depressa)



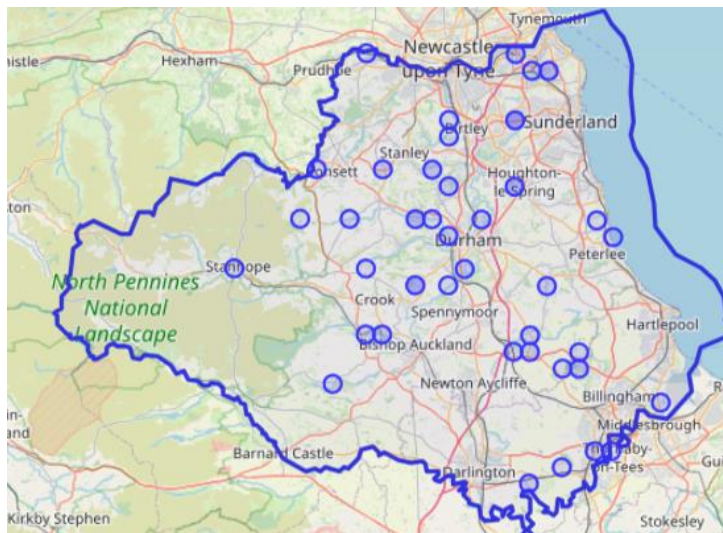
VC66 represents the northernmost area where these highly distinctive dragonflies are frequently observed. They were spotted at 42 sites (up from 27) on 110 occasions.

They first appeared at RSPB Salhome on May 25th, two weeks later than in 2022. They were also seen in good quantities at Rainton Meadows and Greencroft NR; however, Washington Wetlands Centre seems to have been the main stronghold.

The larvae develop over 1-3 years. With such slow development, they are known to survive in mud during short droughts, and that might help explain why, despite them preferring shallow ponds (most of which dried out in 2022), their numbers remained strong, and the

variety of locations increased. The species is a wanderer and migrates, so this might have occurred in 2022 when their usual ponds dried out.

Broad Bodied Chasers are often relatively easy to photograph at rest, as the males, in particular, remain for long periods on prominent perches. This is the male's mating technique; rather than mobbing a mating pair, males wait for a female to pass by, sometimes for days on end. Once ovipositing starts, the male will typically hover close to the female, just in case a male breaks the pattern just described.



2023 Broad Bodied Chaser Sightings VC66

Brown Hawker (*Aeshna Grandis*)



VC66 is about as north as these large Hawkers get in England. Luckily, they are breeding successfully in the south of our region, particularly at Oakenshaw NR, Cowpen Bewley NR, Langley Park Wetlands, Joe's Pond, and Coatham Woods.

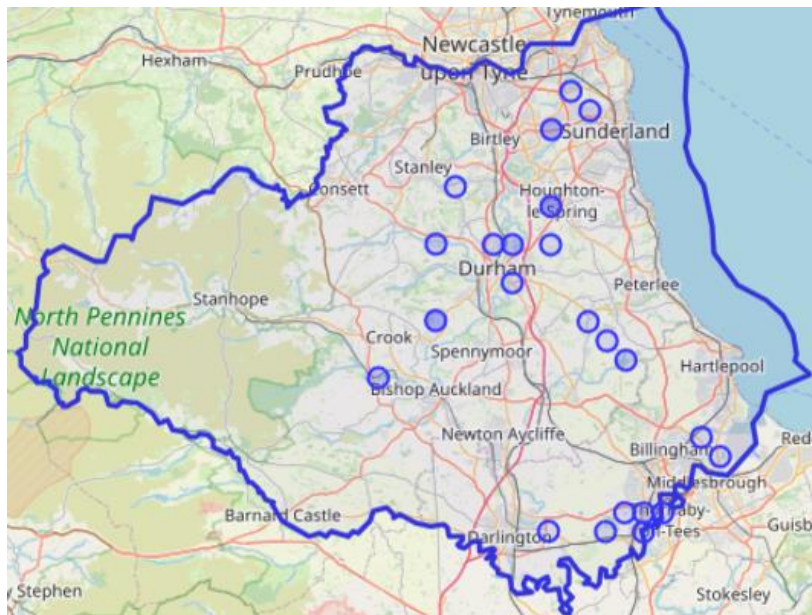
The photo on the left was taken at Joes Pond, where they made a welcome return, and going by the Ovipositing here, they should be present in 2024. This female shows the typical wing damage that Odonata have after a few weeks of life.

It was nice to see them diligently laying eggs into rotting wood that the Pity Me Carrs NR ranger had placed into the various shallow pools at that site. If you have not visited the reserve, it is worth doing so. A lot is compressed into a very small reserve, and the generally untouched vegetation and natural flooding seem to be very attractive to Odonata.



Brown Hawkers are easy to identify, partly due to their large size, but also because they are the only predominantly brown species. Their amber wings are also very easy to see even in flight.

While both genders are brown with amber wings, the male has a nipped waist and blue-tinted eyes, while the female's eyes are yellowish brown. If in doubt about the sex, get a photo of S10 and consult a field guide, as their appendages are quite different.



They were probably less impacted by the 2022 drought as the eggs are laid in rotting wood and will have gone into diapause until the following spring.

They were observed on 74 occasions between 21/06/2023 and 25/09/2023, with some of the later sightings most likely being migrants from Europe.

2023 Brown Hawker Sightings VC66

Common Blue Damselfly (*Enallagma cyathigerum*)



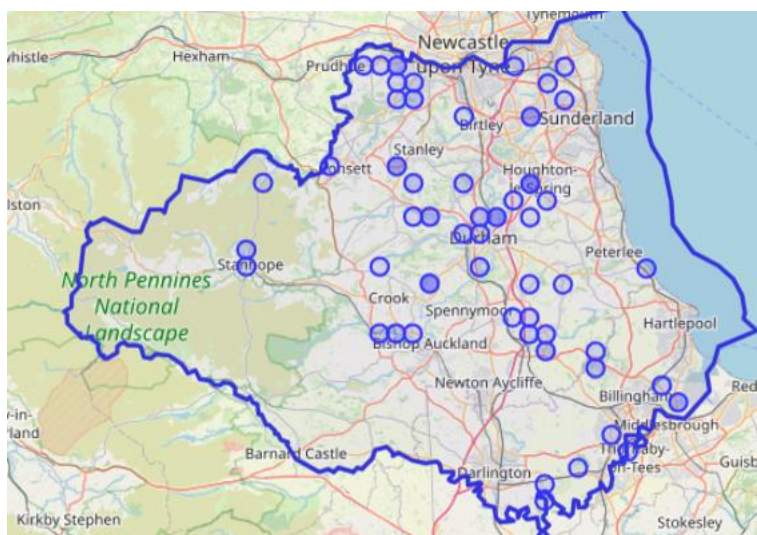
While generally regarded as the UK's most commonly seen damselfly, in 2022 they were the 6th most common Odonata in VC66. However, in 2023, they returned to second place, with 203 sightings between 17/05/2023 and 21/09/2023.

It is possible, though, that their distinctive colour and due to them typically being on the wing during even short gaps in showers might have made them more visible, rather than their numbers having increased.

Now that Small Red Eyed Damselfies are established at two sites in VC66, it is important to not only check for the discontinuous antehumeral stripe of the similar looking Azure but also the bright red eyes of the Small Red Eyed. Particularly if observers see large groups of blue damselflies,

it is worth getting detailed photos and checking for these three likely contenders.

Females come in two colour variations. Some are blue, matching their male counterparts, although most opt for a more understated dull green adorned with distinctive black "torpedo" shaped markings on top of each segment.



2023 Common Blue Damselfly Sightings VC66

When dragonflies and damselflies first emerge, they often appear duller in colour—a state known as "teneral." It takes a few days for them to transform into their brilliant hues. For instance, Common Blue Damselflies start off pinkish-brown and later turn sky-blue.

Common Darter (*Sympetrum striolatum*)

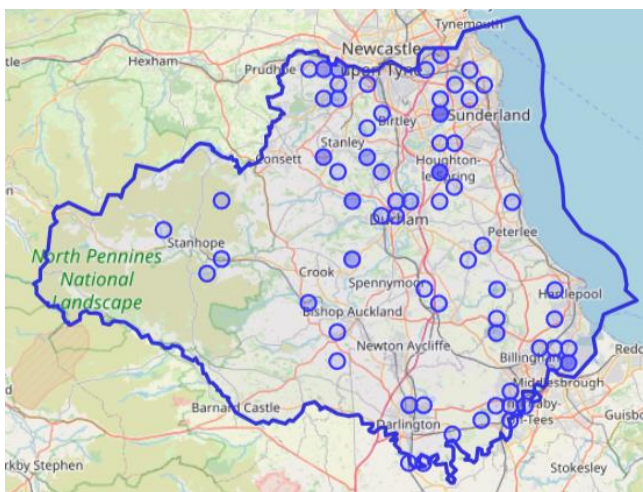


Common across the UK, this was, once again, the most frequently observed Odonata in the VC66 region.

There were 283 sightings between 26/04/2023 and 05/11/2023, which means that once again, Common Darter were the last to be seen in the region. This is partly because they are common in numbers but also because they can withstand temperatures below 12 Centigrade, which other

species cannot, and they perch on surfaces that will help them to soak up the heat. In previous years, they have been seen at Rainton Meadows all the way into December; however, in 2023, harsh early winter frosts meant that the season ended early.

Common Darters are also migratory, both within the UK and during the Summer, from mainland Europe to the UK, thus swelling their numbers.



2023 Common Darter Sightings VC66



A single Darter was spotted on April 26th, but it was mid-June before they were seen at various sites. The last were seen in the Washington area on 5th November. As mentioned earlier, a Common Darter was seen emerging at Rainton Meadows from a pond that was known to have dried up the year before, so it would appear that either the eggs went into diapause or the larvae survived in the deep cracks at the base of the dried out pond.



Odonata are highly effective hunters of insects and are even known to eat other Odonata; however, they are often predated by birds, fish and, in this instance, two Water Boatmen who saw the Darter trying to make its way to the shore of a small pond at Rainton Meadows.



Common Hawker (*Aeshna juncea*)



Despite their name, they are not common in VC66. However, they are well established at Greencroft NR, where this ovipositing female was photographed. That is unsurprising as they prefer acidic bogs, pools, lakes and moorland, which is why they are often called a “Moorland Hawker”.

They were seen in VC66 on 50 occasions between 24/06/2023 and 16/10/2023.

As they are relatively rare, spotters are advised to visit Greencroft NR, and they are frequently seen at Langley Park Wetlands, Oakenshaw NR, Coatham Wood, and out in the

moorland areas to the west of the region e.g. Waskerley Reservoir.



2023 Common Hawker Sightings VC66

Their first winter is spent in the egg stage, and they often remain as larvae for at least another year, so, along with a preference for laying eggs in boggy ground, the impact of the 2022 drought might have been mitigated.

Emerald Damselfly (*Lestes sponsa*)



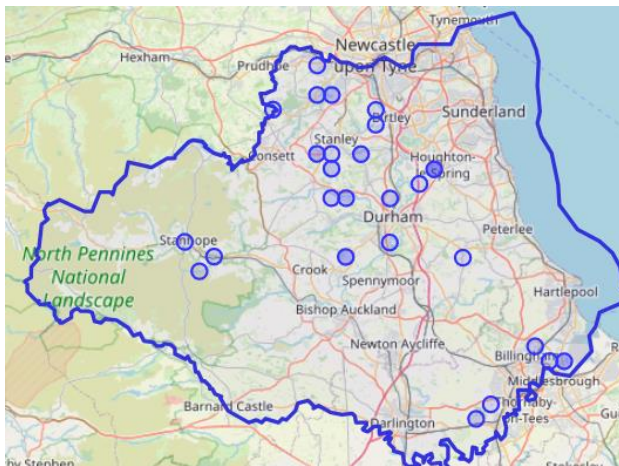
Easily identified when in its adult state due to the bright iridescent emerald colouring of its upper thorax, and as you can see here in Peter Swan's great close-up photo, the female has brown eyes and is dark green from S3 onwards (as opposed to males with blue eyes and blue S2/3). The photo also clearly shows the hairs and spines on its legs, plus the claw at the end of its tibia and femur.

The photo clearly shows this, so it is probably appropriate to say more about the legs of Odonata.

Odonata possess three pairs of legs, all converging at the base of the abdomen. The first pair, the shortest, facilitates walking; the second, slightly longer, aids in perching; and the third, the longest, is employed for grasping prey.

These legs are marvellously adapted to their specific functions. The first pair is adorned with tiny hairs, enhancing the dragonfly's ability to traverse smooth surfaces. The second pair boasts spines that provide a firm grip when perching, while the third pair, being the strongest, is adept at seizing and crushing prey. This leg configuration is an adaptation that empowers the dragonfly as a proficient predator. The varying leg lengths enable seamless transitions between perching and hunting, and the specialised functions efficiently ensure the capture and demise of prey. These legs are versatile, serving tasks such as grabbing food and self-cleaning, particularly its eyes.

Returning to the Emerald Damelflies, 100 sightings were made between 11/06/2023 and 11/09/2023. They are typically widespread around the region; however, they were not seen in much of the south of our region, for instance, near Bishop Auckland. They were most frequently spotted at Rainton Meadows, Gibside NT, and Oakenshaw NR.



2023 Emerald Damselfly Sightings VC66

Emperor (Anax imperator)

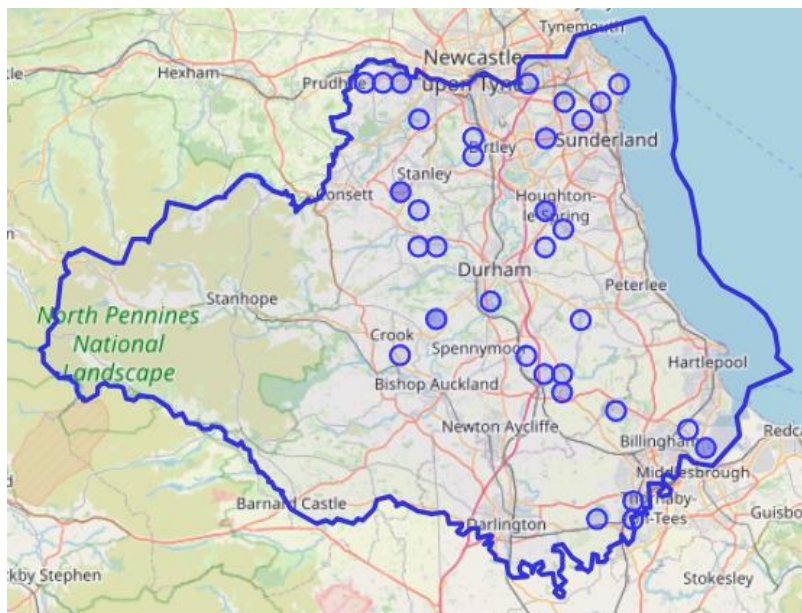


It is easy to identify, as it is the UK's largest dragonfly. Both sexes have an apple-green thorax without any noticeable black markings. The photo on the left shows the female laying Endophytic eggs by inserting them into vegetation just under the water line.

Emperors are becoming more common in VC66 and are frequently spotted patrolling up and down small ponds, making them very easy to spot.



109 sightings of Emperors were recorded between 11/06/2023 and 27/09/2023. Greencroft NR, Oakenshaw NR and Rainton Meadows had the most sightings. None were recorded in the west of the region, which might be partly as so few spotters venture there. However, national distribution maps also show that this far north, they tend to be nearer to the coast, possibly as it is warmer.



2023 Emperor Dragonfly Sightings VC66

Four Spotted Chaser (*Libellula quadrimaculata*)



While the author found these exuvia at RSPB Salthome on May 7th, it was May 10th when their former occupants were spotted on the wing there and identified as Four Spotted Chasers.

Four Spotted Chasers are very striking due to their wing colouration near their thorax, and of course, the distinctive four spots. They are quite aggressive and territorial, so expect some action if you see more than one. While none of our spotters saw more than ten at any one time, in mainland Europe they have been known to swarm with up to 2.5 billion of them. Apparently, these swarms, which were first studied in detail in 1971 by [Dumant and Hinnekint](#), happen about every ten years, so maybe one day we will be on the trail edge of such a swarm.

The male and female are difficult to differentiate. The female, particularly when immature has more gold on its thorax and upper abdomen than the darker males, however primarily you need to see (and ideally photograph) the anal appendages from different angles, and from a side view look for a secondary genitalia.



Male



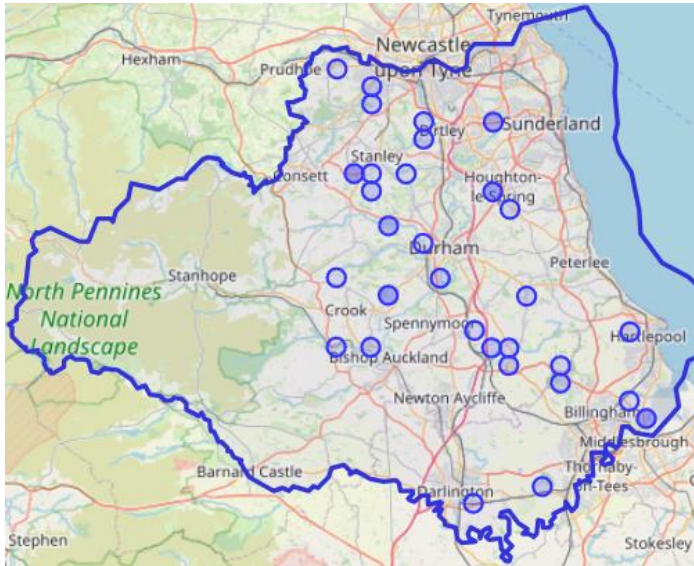
Male



Female



Female



After the early emergers at RSPB Salthome, they were spotted on 123 occasions between 10/05/2023 and 21/09/2023. They were frequently seen at Rainton Meadows, Oakenshaw NR, Greencroft NR, Washington Wetlands Centre, and of course RSPB Salthome.

2023 Four Spotted Chaser Sightings VC66

Golden Ringed Dragonfly (*Cordulegaster boltonii*)



The Golden-Ringed Dragonfly is one of the largest dragonflies in Europe, with a wingspan ranging from 8 to 10 centimetres.

The adult dragonflies have a striking appearance, featuring a black body with bright yellow rings around their abdomen. This colouration gives them their distinctive name. They are commonly found near clean, fast-flowing streams and rivers. They prefer well-oxygenated water bodies with rocky substrates.

Adult Golden-Ringed

Dragonflies are known for their agile and acrobatic flight. They often patrol along watercourses, exhibiting swift and dynamic movements. The lifespan of the Golden-Ringed Dragonfly can vary, with the nymphal stage lasting several years. The adult stage typically lasts a few weeks to a couple of months, depending on environmental conditions.

Golden-Ringed Dragonflies engage in an elaborate mating ritual. Males establish territories along water bodies, and when a female approaches, the male performs an aerial display to attract her attention. Once paired, they can engage in a tandem flight.

These distinctive but elusive Dragonflies were only spotted on 14 occasions, mainly to the region's west. In 2022 they were spotted at:

Black Plantation	Longfordham Quarry
Blackburn	Malton Picnic Site
Browney Bridge	Oakenshaw Wildlife Reserve
Burnthill reserve Waskerley	Partridgeclose Mill Bridge
Coalgate	Ragpath
Durham University Botanic Gardens Meadow	Ramshaws nr Blanchland
Edmundbyers	Redburn Wood
Far Sandyford	Sharnberry Gill
Harehope Burn	Stuartfield Bridghead
Horsleyhope Burn	Tunstall House Farm
Houselope Bridge	Twizell Woods
Langley Park Wetlands	Longfordham Quarry

Whereas in 2023, sightings were at:

Black Plantation	Sharnberry Gill, Teesdale, North Pennines
Copley Lane	Stotfield Burn near Rookhope
New Kyo South, Stanley Burn NZ 18266 51111	Waskerley Reservoir & Moor NZ 02307 44394
Oakenshaw	West Pasture Quarry NY 98702 40993
Satley	

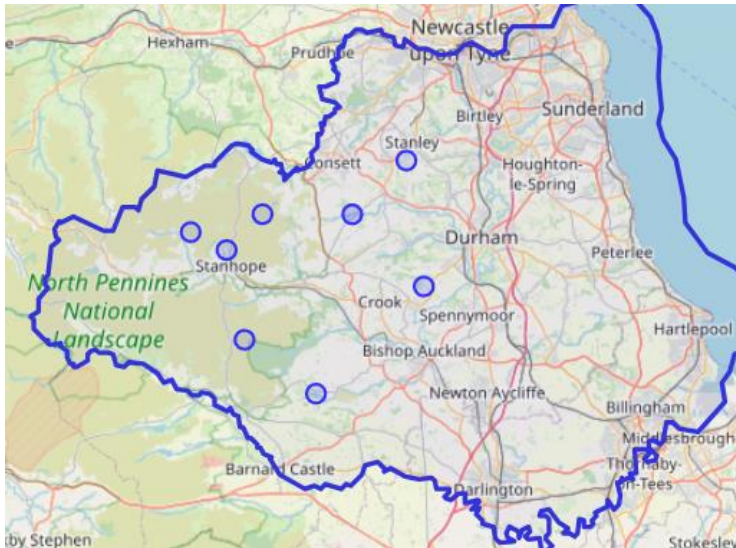
Including this poor specimen found by Peter Lawson at Stotfield Burn.



While they are sexually *dimorphic*, meaning that males and females have a different body shape and size, plus their black and yellow patterning also varies, there is no mistaking this species. Females are larger and

longer than males, with a very long ovipositor.

Males have a nipped “waist” (see the dead one above). If you do get to see one up close (either sex), take a look at the eyes from above. Unlike most dragonflies, where the eyes meet along a broad edge of each eye, with this species, they meet at a small single point.



2023 Golden Ringed Dragonfly Sightings VC66

Large Red Damselfly (*Pyrhosoma nymphula*)



The author was delighted to see the region's first Odonata at Twizell Woods on 17th April 2022, so he visited again on 18th April 2023, and sure enough, the first sighting of the season was made.

This was also the first sighting of Odonata in the north of England in 2023. They are always the first to arrive, which is undoubtedly why they are also called "Spring Redtails".

So, how do they always emerge first? They grow in the previous year to the final instar (larval growth stage), and then they diapause over winter, allowing emergence to happen often synchronously. Other species would moult and reach the final instar after winter, thereby delaying their emergence.

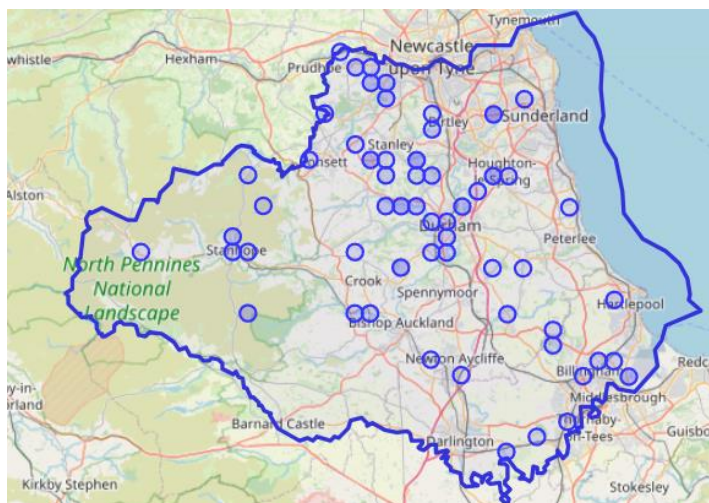
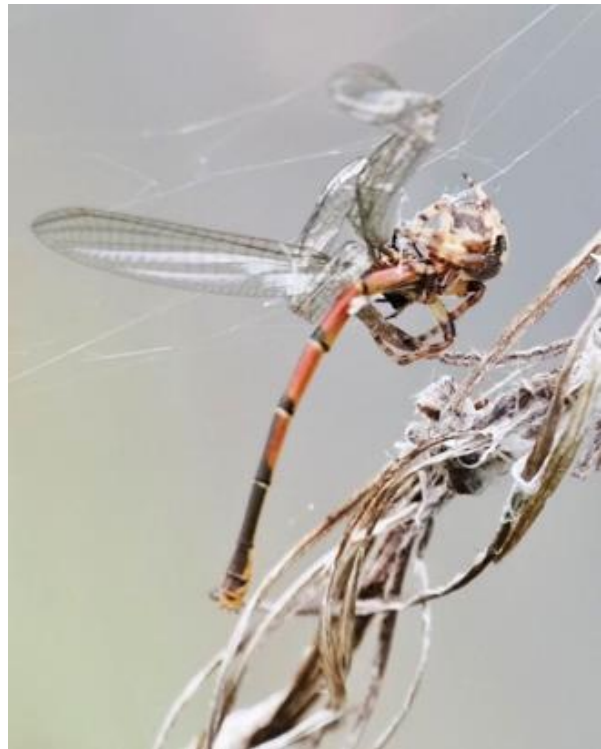
When they first emerge, they are very pale and lack the red colouring, making them look like green plant stems. So, if you want to see the first Odonata in 2024, look very carefully.

When they mature, the female has three colour forms:

1. melanotum (mainly black abdomen)
2. intermedia (S1-5 red, S6-10 black)
3. fulipes (S1- 6 red, S7-10 black)

Large Red Damselflies were common around the region, with many at RSPB Salthome, particularly in the raised pond next to the visitor centre. The pond is also home to a range of spiders, and this early emerger did not last long.

Large Reds were spotted on 181 occasions between 18/04/2023 and 20/08/2023. Their distribution is more widespread than that of other species, and they are the most frequently sighted species in the west of our region.



2023 Large Red Damselfly Sightings VC66

Migrant Hawker (Aeshna Mixta)



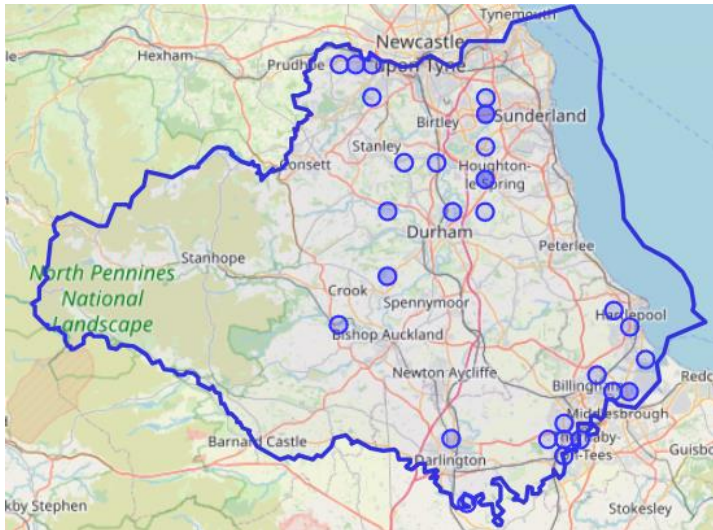
Often called the Autumn Hawker, they are traditionally found further south than VC66; however, their numbers have steadily increased nationally since 1970.

The larvae can tolerate low temperatures, which might explain why they are increasingly being seen in our region.

Although they are now residents, they are also migratory, and therefore, with a strong wind from the south, we could be benefiting from continental migrants.

A great indicator that autumn is fast approaching or is upon us, the Migrant Hawkers often perch on autumnal leaves, making them particularly beautiful to watch.





Migrant Hawkers were seen on 112 occasions between 24/07/2023 and 22/10/2023.

They were seen in good numbers at Rainton Meadows, Oakenshaw NR, Brasside Pond, Washington Wetland Centre and RSPB Salthome.

2023 Migrant Hawker Sightings VC66

Ruddy Darter (*Sympetrum sanguineum*)



Occasionally confused with male Common Darters, observers are getting better at spotting this striking species.

The key differentiators can be seen in this photo taken at RSPB Salthome, where an uninhibited pair landed on the author's hand. Ruddy Darters are a deep red, with solid black legs (no white stripe) and have a nipped "waist".

In 2022 they were only seen at 10 locations on 28 occasions, and in 2023, they countered the general trend and rose to 15 locations on 38 occasions, between 07/07/2023 and 23/09/2023.



2023 Ruddy Darter Sightings VC66

If you want to see a Ruddy Darter, they are most often seen at Rainton Meadows, RSPB Salthome, Oakenshaw NR, and Cowpen Bewley Woodland Park.

Small Red Eyed Damselfly (*Erythromma viridulum*)



The author has visited the same spot on Brasside Pond at around the same week (late July/early Aug) for the last 3 years and Small Red-Eyed Damselflies were there in good numbers.

They are, therefore, breeding successfully at this site. However it is no longer the most northerly location as they were seen

for the second year at the pond in front of the Quadros Centre Boldon. They were also seen at Ropner Park in Stockton.

It is possible that while very rare, they might have been seen more often than we suspect, as to the casual observer, particularly if they are looking at a group of damselflies, they can easily be mistaken for Blue Tailed Damselflies.

The key is to look for the distinctive red eyes in the males. Females do not have red eyes, nor do they have a blue or coloured ring on s8-10. Once mature, they have a much broader black shoulder stripe than any of the colourations of the female Blue Tailed. Fortunately, as with most Odonata, where there is a female, there is likely to be a male, so spotters should first look for the male, and then photograph any likely female and consult the guidebooks.

Southern Hawker (*Aeshna cyanea*)



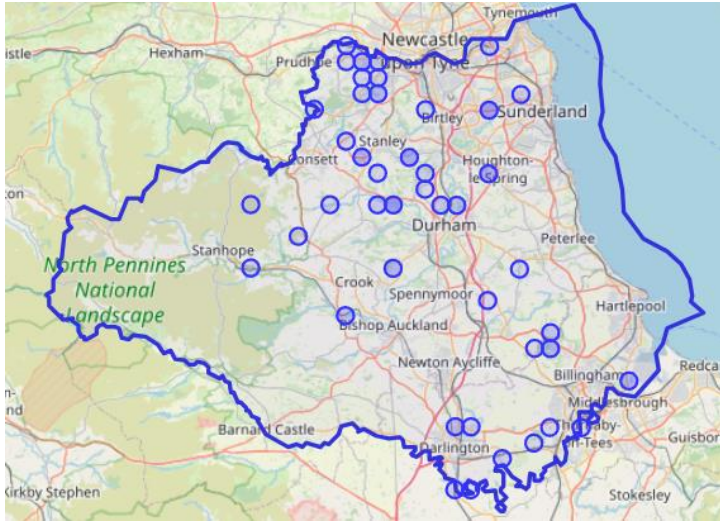
Despite their name, Southern Hawkers are present even in the north of Scotland, and in 2023, they were observed at 48 locations in VC66 on 140 occasions between 17/06/2023 and 16/10/2023.

They were the second most common Odonata in VC66, having been third last year.

Usually solitary, they fly consistently up and down their territory at about one meter above the ground, examining anything that breaks that flight pattern.

In flight, the body is held horizontally, and the abdomen has a slight curve.





2023 Southern Hawker Sightings VC66

Willow Emerald Damselfly (*Chalcolestes viridis*)



As mentioned earlier, some of our most dedicated spotters scoured Joes Pond each week, looking for Willow Emerald Damselflies, as one had been seen there in 2022. The effort paid off, and Ian and Elaine Burnell saw the female shown on the left and delegated getting the photo to a passing birder, Matthew Harrison.

Due to its rarity, the experts at the BDS confirmed the identification, along with Joe Finlay's sighting of a male a week later (Photo on next page). These are the most northerly sightings in the UK.

The key to identifying them is that the male has very pale, almost white anal appendages with tiny dark interior appendages. There is a very pale marking on the tip of its wings. They lack the powder blue pruinescence that can be seen on the male Emerald Damselfly, and also, if you look at their thorax from the side, there is an irregular dark spur.



This male was also seen at Joes pond, so the hope is that they were a breeding pair. The evidence for that will not be clear until Spring 2024 when the eggs exit the soft willow branches and the branch heals, leaving a telltale scar.

Unfortunately, as the site is a SSSI, it has to be maintained not with any one species in mind. This meant that in October 2023, Willows were to be cut back. Following a discussion between the author and the Director of

Conservation at DWT, it was agreed that the Willow trimming would be light and the branches left at the water's edge. Hopefully, this will be enough to ensure any eggs still have a chance. The next step is to examine the branches at the start of the season and look for the markings shown below.



Discussion Points

In recent years, a greater number of people submitted sightings via [iRecord](#), but a smaller number submitted large amounts of data. While it is wonderful news that so many different people are submitting records, it does increase the reliance on their photographs to confirm the species (as they are unknown to the author), and also, the BDS has less influence over where they go and survey. A small group of spotters originally from the DWT survey have continued to submit large numbers of sightings and have been proactive in trying to reach all the 60+ hotspots. However, a few have moved away or have stopped submitting sightings, and so we are now dependent upon a core group of 8 regulars.

The Google map that shows the hotspots in VC66, along with directions, parking information and a guide to what you might see, can be found at <https://tinyurl.com/rdr75zd>

As mentioned earlier, in 2024, it would be great if more DWT reserves could be surveyed so that we have long-term data and can use it to influence management plans. In addition, two of the recently acquired sites have the potential for Odonata but have not been surveyed at

all. Cuthberts Moor might have Golden Ringed Dragonfly and Black Darters, while Ricknall Carrs could be an ideal site for Banded Demoiselle.

While [iRecord](#) is an excellent tool for submitting sightings, as mentioned, the DWT app is better in that it allows easier recording of behaviours, and it encourages spotters to visit the key sites. A revised version is available via this link

<https://survey.protostarsurveys.com/zs/hRCOJV>

Acknowledgements

The author would like to thank all those who submitted sightings, and in particular, Keith Walton, Joe Finlay, Ian and Elaine Burnell, Christopher Bill, John Humble, Malcolm Short, Julie Hogg, Mal Wilkinson, Carol Spencer, Vivien Kent, Daphne Aplin and Mark Newsome. Otherwise, my thanks go to all the many people who submitted records and some great photos, apologies if your name has not been mentioned.

Lastly, thanks also go to the DWT volunteers and staff who maintain the reserves and create new habitats for these iconic creatures.



The Author, Michael Coates.

Photo Acknowledgements

Page	Subject	Photographer
1	Male Migrant Hawker	Kathryn Athey
11	Male Azure Damselfly	Malcolm Short
11	Female Azure Damselfly eating	Michael Coates
12	Multiple Azure Damselflies	Joe Finlay
13	Male Banded Demoiselle	Mal Wilkinson
14	Male Black Darter	Mal Wilkinson
15	Female and Male Black Darter	Mal Wilkinson
16	Female Black Tailed Skimmer	Michael Coates
17	Male Blue-tailed Damselfly	Joe Finlay
18	Male Broad-Bodied Chaser	Mal Wilkinson
19	Female Brown Hawker	Joe Finlay
20	Female Brown Hawker	Michael Coates
21	Male Common Blue Damselfly	Unknown
22	Male Common Darter	Joe Finlay
22	Female Common Darter	Michael Coates
23	Common Darters	Carol Spencer23
23	Female Common Darter/Water Boatman	Joe Finlay
24	Female Common Hawker	Mal Wilkinson
25	Female Emerald Damselfly	Peter Swan
26	Male Emerald Damselfly	Michael Coates
26	Female Emperor	Christopher Bill
27	Male Emperor	Joe Finlay
28	Exuvia (probably Four Spotted Chaser)	Michael Coates
28	Male and female Four Spotted Chasers	John Dawson, Mal Wilkinson , Joe Finlay
29	Male Golden Ringed Dragonfly	Carol Spencer
30	Headless Male Golden Ringed Dragonfly	Peter Lawson
31	Large Red Damselfly	Michael Coates
32	Large Red Damselfly in web	Michael Coates
33	Male Migrant Hawker	Carol Spencer
33	Male Migrant Hawker	Joe Finlay
34	Male and Female Ruddy Darters	Michael Coates
35	Male Small Red Eyed Damselflies	Michael Coates
36	Male Southern Hawker	Helen Jefery
36	Female Southern Hawker	Carol Spencer
37	Female Willow Emerald Damselfly	Matthew Harrison
38	Male Willow Emerald Damselfly	Joe Finlay
38	Willow Scarring	BDS website