Dragonfly Survey 2021
Vice County 66
Durham Wildlife Trust Region

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County Recorder VC66

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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. 70% of the recorded sightings came from this organised approach to surveying, and as a result, over 2315 records were submitted. This was a big increase over 2020, where there were 1257 recorded sightings. It is assumed that the increase was a combination of less time in lockdown and a renewed enthusiasm for nature by a few key individuals. While that is very positive, as is the overall increase in the number of people submitting sightings, the number of regular recorders dropped in 2021, and it was clear that were it not for a few very active individuals, both the quantity and the geographic breadth of sightings would have been considerably lower.

Over the years, 24 species have been spotted, but of those, 21 appear to be resident or regular visitors. In 2021, despite the lockdown, 19 species were spotted, which is a great achievement, however, it was 20 species in 2020. This does not appear to be a decline as such, just that some of the rarer species need an element of luck and broad geographic surveying for them to be observed, and the reduction in people recording sightings through the DWT survey, probably meant those species were simply not spotted, as opposed to not being there.

NB: the BTO Garden Birdwatch data has yet to be uploaded to iRecord, so at some point there will be additional numbers for 2021 but it is unlikely there will new species.

The season started in the traditional final week of April, with the first **Large Red Damselfly** being seen at Bowes Valley Nature Reserve 24th April, followed by one sighting per week until Mid-May when the Large Reds seemed to emerge in good numbers across the region. There were 183 sightings throughout the season, with them finally bowing out on 31st August. **Blue Tailed** and **Azure Damselflies** appeared in early May, but surprisingly, on 13th May, a **Broad Bodied Chaser** was spotted at Port Clarence Landfill site, before the region's first **Common Blue Damselfly** on the 15th.

Once again, we missed out on **Beautiful Demoiselles** who are often tantalisingly close to our borders but don't stray across the River Tees or Tyne. Luckily though, the River Wear provides ideal habitat for the **Banded Demoiselle**, and they were spotted on 61 occasions at a variety of locations, between 31st May and 5th August, so a short season for them.

Two species that were in short supply in 2020 were the **Golden Ringed Dragonfly** and the **Brown Hawker**. 2021 saw them return in good numbers and there were 27 and 74 sightings respectively. The Golden Ringed appears to prefer the high moorland areas to the west of our region, and as this is often remote and difficult to access, the increase appears to be due to spotters walking there this year, as opposed to a population increase.

The DWT headquarters is at Rainton Meadows, between Sunderland and Durham, and once again it proved to be a dragonfly hotspot, with 15 (down from 16) of the 19 species seen there, often in very large quantities. There were 275 records from Rainton, and the creation of a new wetland area should mean that it continues to grow as the ideal place to go and

see Odonata. Sadly, we did not see a **Small Red Eyed Damselfly** at Rainton this year, but at nearby Brasside Pond they were in amongst hundreds of damselflies of many species, ovipositing and coupling on the floating weed close to the bank, making them easy to see once you had distinguished them. Having seen them laying eggs, it is hoped they will be residents.

No **Lesser Emperor** sightings this year, but an abundance of the larger cousin, the **Emperor**, and in fact, with 60 sightings, it was a very good year for them. They were seen across the region, and in particular, at Rainton Meadows, Oakenshaw Wildlife Reserve and RSPB Salthome.

Black Darters are typically only recorded at one stronghold, Greencroft NR, and while they are firmly established there, they were also seen at 10 other sites in the north of the region. It is not clear if this is a spread in population or if there were more visits to sites in that part of VC66. One to watch. (Photo Mal Wilkinson).

The **Black Tailed Skimmer** was also more abundant in 2021, with 72 sightings. This is all the more impressive as they are often found stationary on gravel or rough ground, and they are very well camouflaged. They were spotted at 17 sites, with the bulk at Rainton Meadows and Oakenshaw Wildlife Reserve, the latter fast becoming a hotspot in our region, especially if you want to see large numbers of the common species.

Autumn brought the **Migrant Hawkers** and there were 141 sightings across the region but mainly in the northeast of VC66.

Sites to visit in 2022, if you want to spot a wide variety of species are: Rainton Meadows, Brasside Pond, Low Barns, Twizell Woods, Oakenshaw NR, RSPB Salthome, Wildfowl and Wetlands Trust (Washington), Daisy Hill LNR and Boldon Business Park Lake. To see 67 of 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.

In 2021, four BDS/DWT guided walks were run, and it is hoped now that restrictions have eased, that far more will go ahead in 2022. These will be on the Durham Wildlife Trusts Events page and will be circulated by the BDS. My thanks as always to those who submit sightings and keep me on my toes.

Background

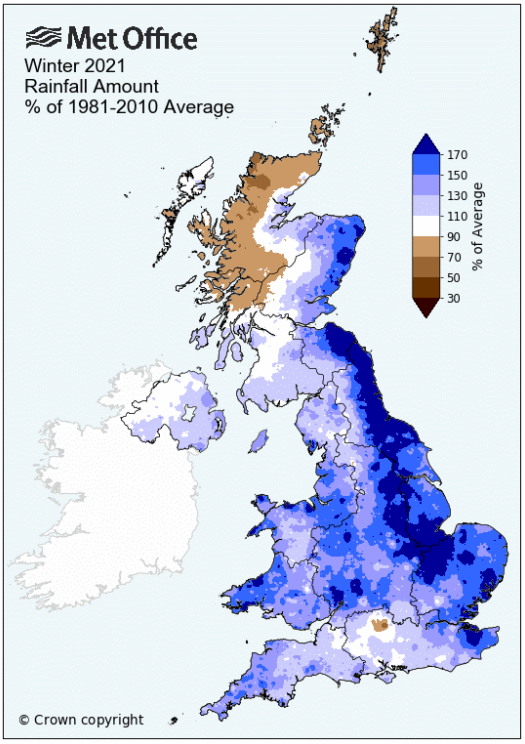
The Durham Wildlife Trust owns and manages nature reserves throughout the former County Durham region (VC66), covering an area of almost 850 hectares situated between the River Tyne and the River Tees. (https://durhamwt.com/reserves/) The aim is to reach 50 reserves by the end of 2021. For some years, the DWT have 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).

"This, coupled with extensive areas of upland, means that temperatures, relative to elsewhere in England, are generally cool throughout the year. In the low-lying areas, mean annual temperatures over the region range from around 8.5°C to around 10°C."[1]

Globally, dragonflies are more common and varied in warmer climates, whereas in temperate climates, adults require moderately warm conditions to enable flight and the rate of development of larvae under water is also affected by temperature. Frosts affect the larvae of some species, a factor limiting their northern distribution.[2] However, 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 once again, three of those species were observed as part of this survey.

One of 3 Ponds at DWT MilkwellBurn Woods



After a great year for dragonfly spotting in 2019, and despite the lockdown a similarly good year in 2020, the winter weather once again provided much needed rain for the Odonata larvae. Overall, winter 2020/2021 saw temperature averages just below normal and rainfall well above average, but there was some notable variation in these parameters, both temporally and geographically. The Eastern side of the UK was especially wet, with Tyne and Wear having its wettest winter on record (319.1mm).

You might also remember that after an incredibly cold January, the last week of February 2021 was very warm and then it snowed over Easter. This made it very difficult to predict if the first sightings would be early or late in 2021.

In the end, the season started in the traditional final week of April, with the first **Large Red Damselfly** being seen at Bowes Valley Nature Reserve 24th April, followed by one sighting per week until Mid-May when the Large Reds seemed to emerge in good numbers across the region. There were 183 sightings throughout the season, with them finally bowing out on 31st August. **Blue Tailed** and **Azure Damselflies** appeared in early May, but surprisingly, on 13th May, a **Broad Bodied Chaser** was spotted at Port Clarence Landfill site, before the region's first **Common Blue Damselfly** on the 15th.

Method

Two online identification training sessions were run, plus four outdoor sessions, and in total about 35 individuals attended. There were a variety of methods to provide sightings. In recent years, the county records were primarily from those involved in the more structured and targeted DWT survey. While that continues to be the case, there are less spotters actively involved in that survey and there has been a big increase in sightings by "unknown" individuals via iRecord.

Despite the drop in regular DWT spotters, the most commonly used submission method was still the app developed for the DWT. Partly, as it is intuitive and has been used for some years by regular spotters, but also because it encourages sightings from about 60 key sites. The data from this app is uploaded later in to iRecord, where sightings can also be posted directly. The third method of recording is via iNaturalist, however, as things stand, they cannot be incorporated into this survey and are only looked at just in case someone spots a

rare species. The reason why the use of iNaturalist is discouraged at the moment for Odonata sightings is that it is primarily a photo sharing site, and as such it does not allow photos to be used by other organisations such as the BDS unless the user changes the default settings. At present, the BDS only works with publicly available data, however, discussions are taking place between the BDS and iNaturalist. **In the meantime, please use either the DWT app or iRecord.**

Whatever the method of submission, 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! In the event of a record being submitted by a new observer for a "scarcer" species, if no photographic evidence was provided, then normally the author would visit the same location to confirm. In 2021, this was not always possible, so greater emphasis was placed on photographic evidence.

Some exuvia were collected, however, due to COVID restrictions early in the season, most were photographed rather than handed in.

Location

Thirteen DWT reserves were surveyed, with sightings at eleven of those, and they remain the priority for survey work as we have direct control over any environmental improvements. In addition, thirty-seven other locations were surveyed using the DWT app, plus a far wider range of others through iRecord than we have seen in previous years. This brought about an awareness of sites that were hitherto unfamiliar to the author and the regular spotters. Such sites include:

Ashes Quarry, Stanhope (NY996397) where many species were spotted on just a few visits.

Boldon Business Park Lake (NZ33906104) had been on the DWT app list for some years, but no one seemed to be able to gain access or were concerned it was private land. A couple of spotters found that it can be accessed without any obvious objection from the business park residents, and a path takes you to the front of the Quadrus building. Eight species were spotted there and the recent sad demise of the swans and other waterfowl (suspected Avian Flu), might mean that larvae do well this winter.

Similar number of species were spotted at:

- Bowes Valley NR (Kibblesworth Brickworks) NZ 2505 655984
- Brierley Wood (West Carr Plantation) Wynyard (NZ 40206 27698)
- Chapmans Well Pond (NZ 18115 49169) visitors to Burnhope Pond can easily get to here.
- Harehope Quarry and the Bolihope Burn, nr Frosterley, North Pennines (NZ 03718 36314) and that general local area, also cropped up often in the sightings and was a great place to see **Golden Ringed Dragonflies**.
- Langley Park, Diggerland (NZ2145)
- Snipe Pond/River Skerne NZ 2869 1234

Considering the wide range of species and the number of sightings, they will either be added to the DWT app list or be emphasised as sites to visit.

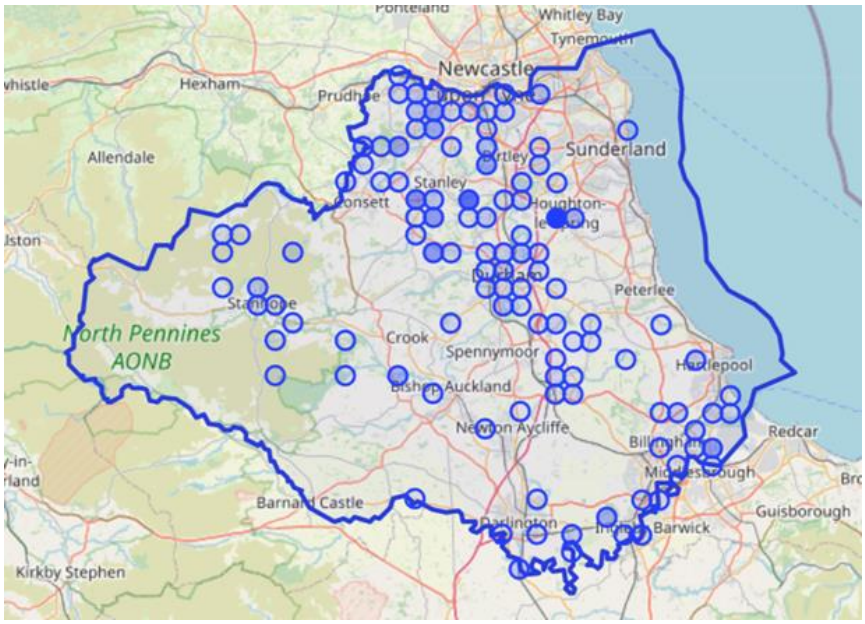
While all of the above is great news, particularly as some of these sites were in underrepresented areas of VC66, ten of the sites on the DWT list were either not surveyed or were not visited often enough to generate any meaningful records. For that we need more spotters prepared to deliberately go to specific sites.

In 2019, it became apparent that not all observers were familiar with each site and therefore did not know how to visit or what they might see. Since 2020, a Google map has been available online https://tinyurl.com/2p8z27zn highlighting each location, with directions and the latest information on what has been seen. This will be updated for 2022, with extra sites and more details of what species to expect. It is hoped that this will encourage spotters to venture to unfamiliar sites.

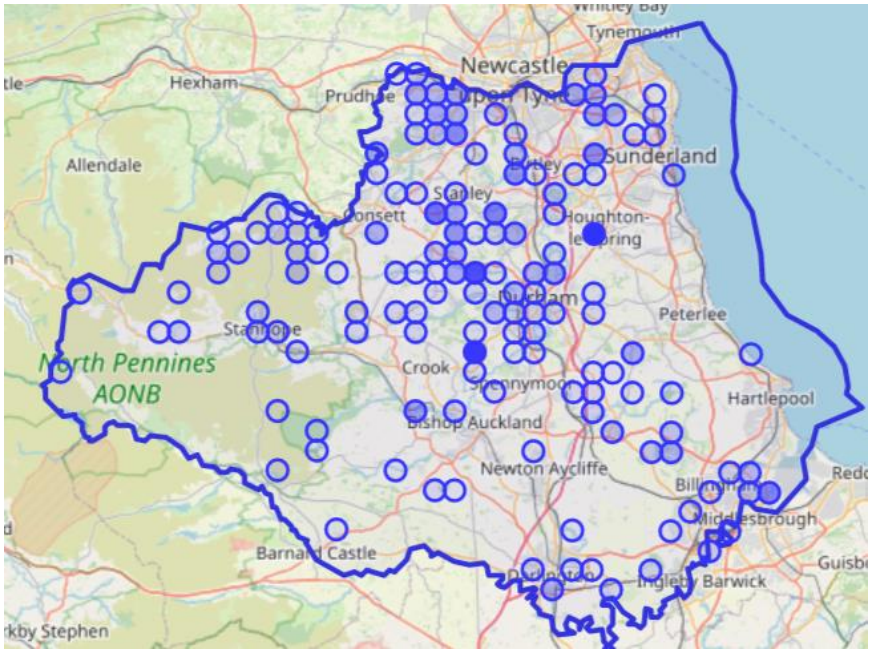
Southern Hawker (Christopher Bill)

Overview of 2021 in VC66

In 2021, Odonata were recorded at a larger number of locations in the region, as shown by the summary maps below. Darker colour indicates more sightings.



2020 Odonata Sightings in VC66

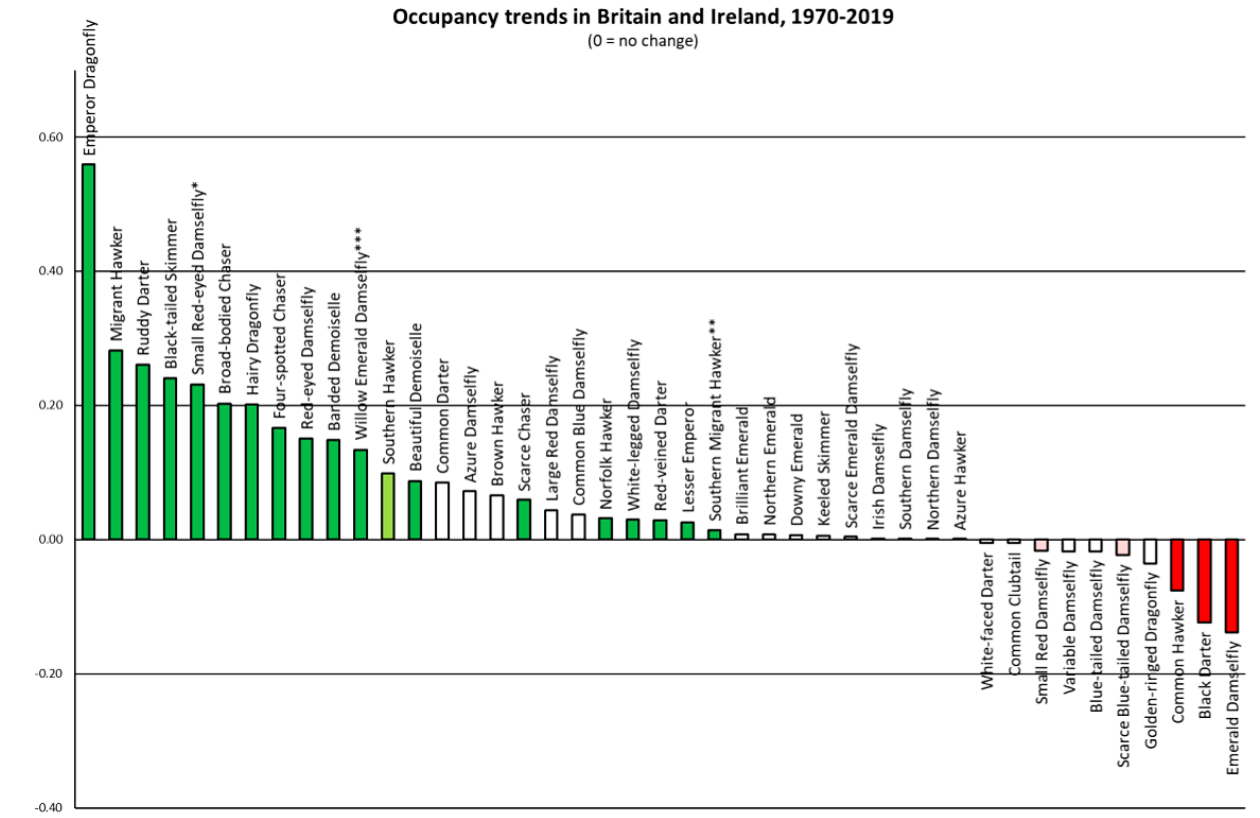


2021 Odonata Sightings in VC66

As can be seen, there was an increase in sightings to the west of the region including the previously under recorded far west, and also in the far northeast. However, we are still short of records for the coastal areas, and this will be a focus in 2022.

Spotters are encouraged to use that map when planning days out and try to visit areas where no circle appears. More coastal sites, nature reserves in south Tyneside and locations in the far west have been added to the DWT app list and the Google map.

2021 also saw the long-awaited publication of the BDS State of Dragonflies report, where fifty years of Odonata sightings have been analysed. This allows us to see the VC66 sightings in a national and long-term context. In particular, we see that some species are in decline, so we need to be particularly on the lookout for them. Others are being seen far more often, such as the Emperor and Black tailed Skimmer, and as you will see later, that was noticed in VC66 last year.



Account of Species (In order of first sighting)

Accepted name	Common name	No. of records	First record	Last record
Pyrrhosoma nymphula	**Large Red Damselfly**	183	24/04/2021	31/08/2021
Ischnura elegans	**Blue-tailed Damselfly**	166	11/05/2021	29/09/2021
Coenagrion puella	**Azure Damselfly**	232	12/05/2021	16/09/2021
Libellula quadrimaculata	**Four-spotted Chaser**	147	13/05/2021	22/09/2021
Enallagma cyathigerum	**Common Blue Damselfly**	196	16/05/2021	22/09/2021
Libellula depressa	**Broad-bodied Chaser**	122	30/05/2021	10/09/2021
Calopteryx splendens	**Banded Demoiselle**	61	31/05/2021	05/08/2021
Orthetrum cancellatum	**Black-tailed Skimmer**	72	03/06/2021	10/09/2021
Aeshna juncea	**Common Hawker**	63	04/06/2021	22/09/2021
Lestes sponsa	**Emerald Damselfly**	132	10/06/2021	26/09/2021
Sympetrum striolatum	**Common Darter**	325	11/06/2021	08/11/2021
Anax imperator	**Emperor Dragonfly**	60	13/06/2021	10/09/2021
Aeshna cyanea	**Southern Hawker**	243	20/06/2021	28/10/2021
Cordulegaster boltonii	**Golden-ringed Dragonfly**	27	22/06/2021	02/09/2021
Aeshna grandis	**Brown Hawker**	74	29/06/2021	24/09/2021
Sympetrum danae	**Black Darter**	32	15/07/2021	10/10/2021
Sympetrum sanguineum	**Ruddy Darter**	36	20/07/2021	26/09/2021
Erythromma viridulum	**Small Red-eyed Damselfly**	3	24/07/2021	03/08/2021
Aeshna mixta	**Migrant Hawker**	141	27/07/2021	02/11/2021

Limitations of IRecord Data

While iRecord is a great tool for recording data, it is not the easiest to report from. Instead, in future years the author will try to use data from the NBN Atlas that includes the data from iRecord. In the meantime, as the DWT app does allow easy reporting and analysis, plus it represents a large proportion of the sightings in VC66, it will be used to cover areas such as gender, life stage and activity. For instance, in the DWT app it is mandatory to state whether the Odonata were emerging, laying eggs, or coupling. This is generally not submitted by users of iRecord, and in any event, it is very difficult to filter the 2300+ records to find that data.

Therefore, for each species detailed below, when you see the number of sightings of coupling etc, that will have come from the DWT app and the actual numbers will have been higher. Fortunately, the DWT app states the percentage of sightings that included an activity such as coupling or egg laying, so it is possible to apply that to the overall records.

Azure Damselfly (Coenagrion Puella)

Azures were spotted on 232 occasions (up from 106) at 45 separate locations, which is up from 22 locations. *(Photo Carol Spencer)*

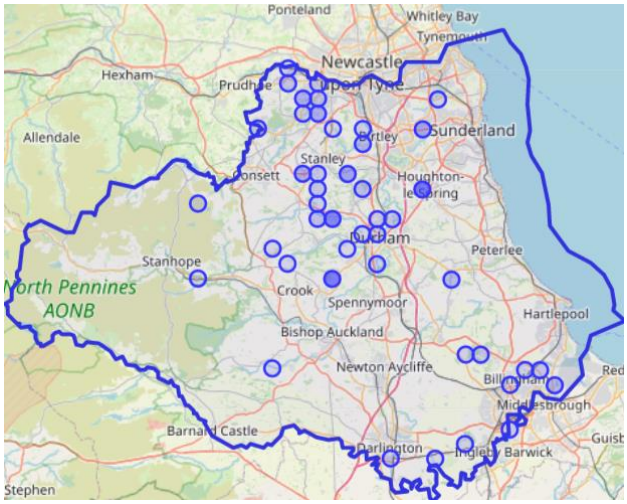
As is the case with all records in 2021, this is not necessarily because the Azures were more prolific, but probably due to the greater ease of human movement and therefore more observations were recorded. More observers meant that there were a greater number of incorrect records for the Azure and Common Blue. Having said that, there were less mis recordings than had been expected.

This is probably an opportune point to remind everyone of the easiest way to tell the difference between the Azure and the Common Blue, however, it is acknowledged that if you are looking at a large group of damselflies, an estimate will have to be made of how the species were split.

Azure Damselfies: Photos Christopher Bill at Twizell Woods

The Azure Damselfly has broader black stripes on the top of the thorax, however, without a Common Blue nearby, that differentiation might not help. Look for the black cup shape on S9 and 10 plus the black half spur on the side of the thorax. The Common Blue has uninterrupted blue at the end of its appendix (S9 and 10) and uninterrupted blue sides to the thorax.

They were seen in large numbers at Langley Park Wetlands, Oakenshaw Wildlife Reserve, Rainton Meadows and Twizell Woods, plus they were seen across the region.



2021 Azure Damselfly Sightings VC66

BDS suggested distribution - widespread from mid-May to mid-August. Our sightings started on 12th May and ended five weeks later than in 2020, on 16th September, so much later than the guides suggest.

Males and females were seen in roughly similar numbers, which is interesting as typically with Odonata, males are observed more often because of their brighter colours.

They were seen coupling (mating) on at least 94 occasions, meaning that for 75% of the sightings, it is likely that at least one pair were coupling. Even more positive news is that on 48% of the occasions when Azures were sighted, at least one female was seen ovipositing (laying eggs). As can be seen from the distribution map, they were still predominantly observed in the centre of our region, however, this is more likely to be due to observer visits rather than species distribution.

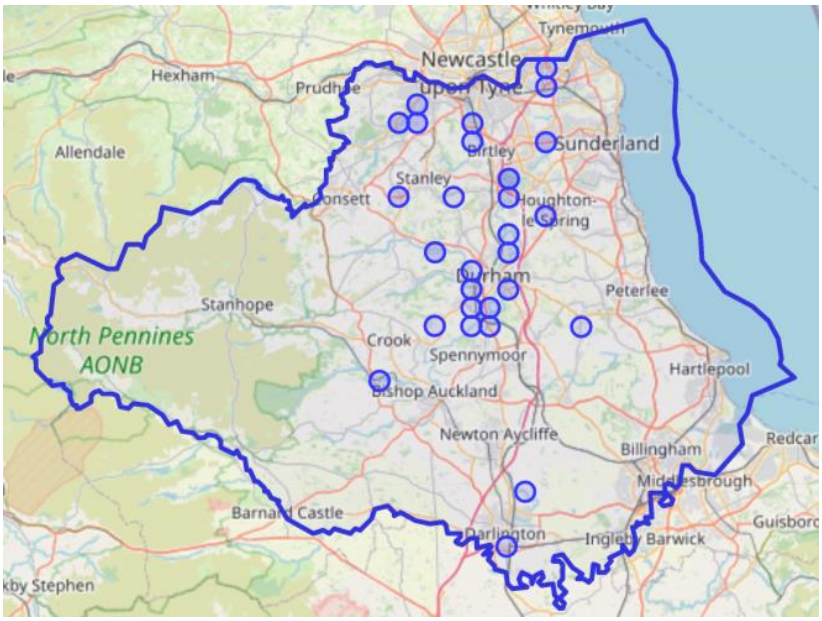
Banded Demoiselle (Calopteryx splendens)

While VC66 and 67 are at the northern most boundary for this species, (according to most field guides), they were spotted at 28 locations (up from 18).

The season started on 31st May when they were seen at NZ315180 near Darlington. They were last seen on 5th August at Brasside Pond.

Photo Ian & Elaine Burnell.

The wider variety of locations could be as a result of more spotters looking for them, however, there is some evidence that they are also becoming more commonplace. A good example being that they were seen at Rainton Meadows on four occasions, and as the Banded Demoiselle is typically found near slow moving rivers, it is likely that these may have bred in the muddy ditches and small burns near to Rainton. Sites where they were seen most often include; NT Gibside, Durham city centre, and the River Wear at various points such as Picktree, plus Brasside Pond, Langley Park Wetlands and Washington Wildfowl Reserve.

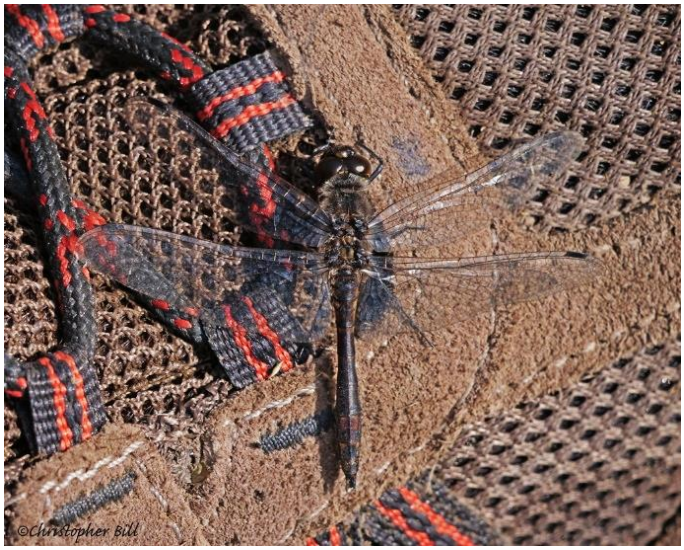


2021 Banded Demoiselle Sightings VC66

BDS suggested distribution – widespread from the northeast of England and further south, during May - end of August, which matched our season.

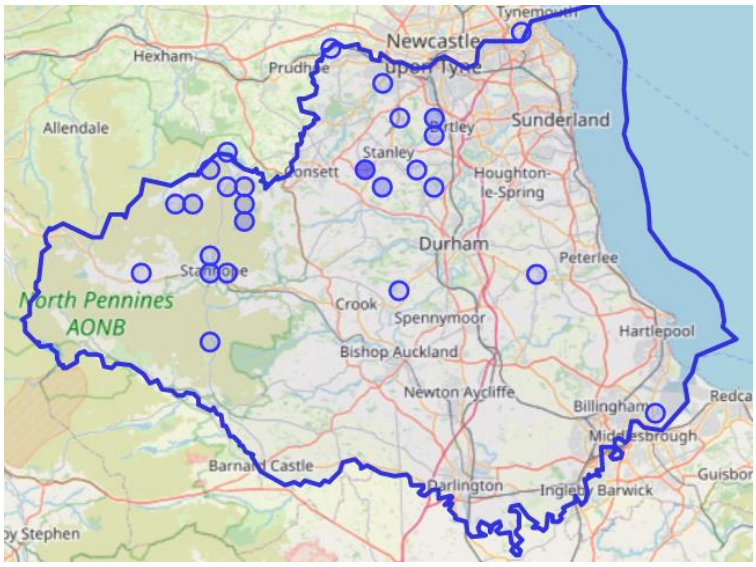
Sadly, we did not see any Beautiful Damselflies, despite sightings just outside of our border.

Black Darter (Sympetrum danae)



The Black Darter, (seen here on Christopher Bill's boot at Kibblesworth Brickworks), were only seen at 3 locations in 2020, and in 2021 at 13, which is an excellent improvement. This was particularly important as the BDS State of Dragonfly report, shows that Black Darter numbers have fallen considerably over the last 50 years and the trend continues. However, as can be seen in the distribution map, there were no records from the west, despite the fact that this Darter likes mires and blanket bogs. Lack of accessibility for spotters to such sites might be the reason.

The Author almost got trapped trying to see them in the boggy ground at Greencroft NR, so do take care if you venture into their preferred areas. Luckily, they were also seen at Burnhope Ponds (a first in recent years), Oakenshaw Wildlife Reserve, Kibblesworth Brickworks, and out towards Stanhope and Waskerley Reservoir.



The BDS suggested distribution is national between June – November. Our sightings started at Greencroft a little earlier than in previous years, on 19th July and they were last seen at Kibblesworth Brickworks on 10th October, so our season is shorter than the national picture.

Interestingly, on the occasions that they were seen, there was often coupling and/or egg laying at the same time, so that bodes well for future years.

2021 Black Darter Sightings VC66

In 2019, Mal Wilkinson, photographed a rather confused Black Darter and Common Darter trying to couple. It would seem that the Darters at Greencroft NR, continue to make this mistake and Mal was there again to capture it.

Correct Coupling

Having just let go of a Common Darter

Black Tailed Skimmer (Orthtrum cancellatum)

Joe Finlay's photo taken at Rainton Meadows, shows one of the reasons why these Odonata often go unobserved. They are found lying still on the ground and they blend in well.

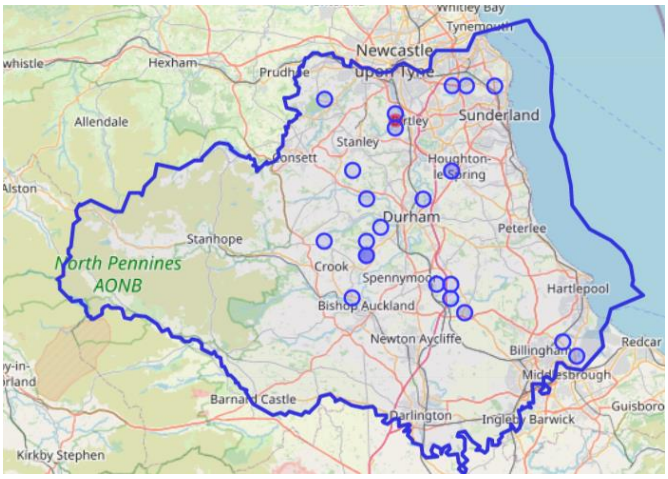
The females are particularly difficult to spot, as the second and third photos (Michael Coates) show.

The DWT used the author's photos as a "spot the" type quiz question, to show how wildlife is often close by, and you just need to slow down and look.

Near the main path at Rainton Meadows, as you would observe it walking by.

A female Black Tailed Skimmer was in the centre of that photo – very difficult to spot.

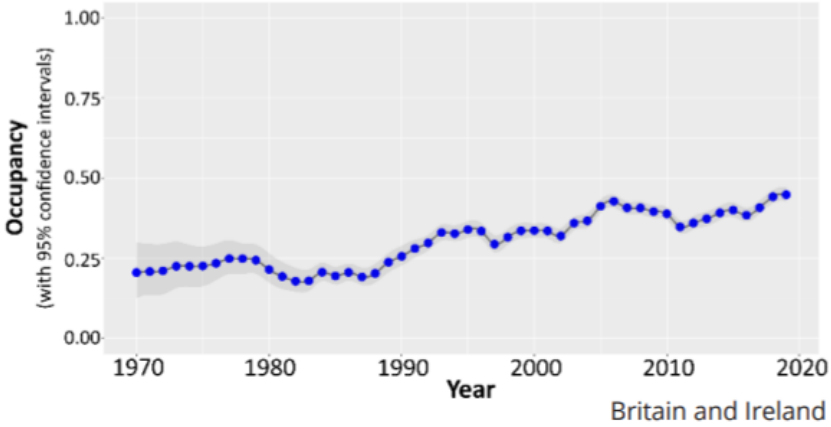
Despite their great camouflage, they were observed 72 times during 2021, which is a big increase. They were first spotted at Oakenshaw Wildlife Reserve on 3rd June and the same spotter recorded them at that location on 10th September. As they were seen in good numbers throughout that time at Oakenshaw, it is likely that this is a well-established breeding site.



2021 Black Tailed Skimmer Sightings VC66

In total, they were seen at 18 different sites (up from 5) and in particular at Oakenshaw, Rainton Meadows, RSPB Salthome, Boldon Business Park and Bowes Valley.

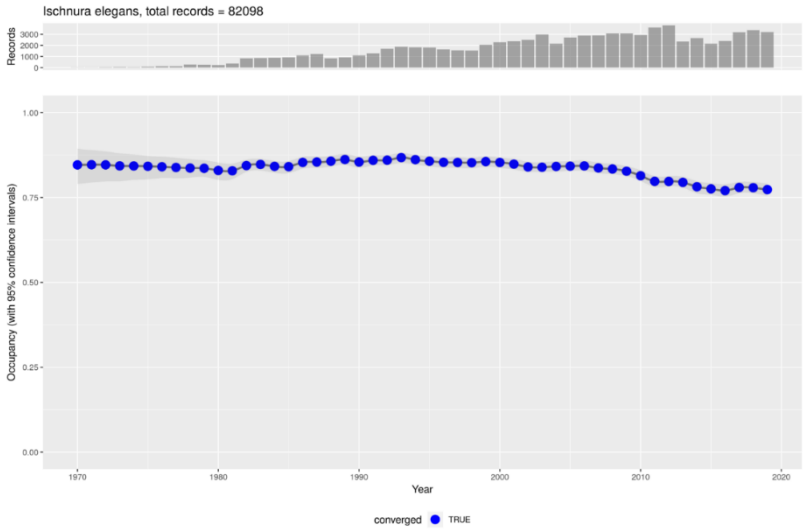
BDS suggested distribution is from the north of England to south, from April to October. Our sightings as mentioned, were for a shorter season.



The big increase in sightings might not just be due to more spotters out in the field, as the BDS also states that there has been a gradual increase over the last 50 years.

Black Tailed Skimmer National Records Last 50 Years

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 seems to be in decline over the last 10 years.

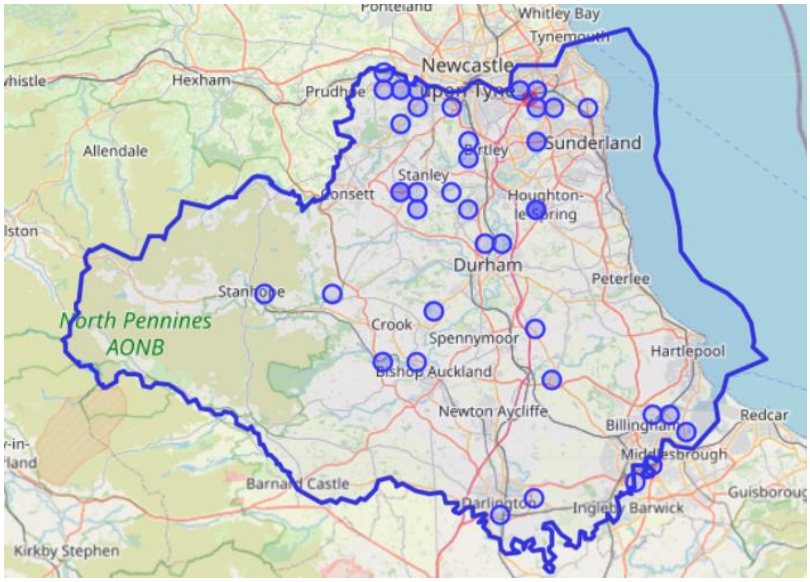
While, it is too early to say if recent VC66 sightings indicate the same, there were 250 sightings in 2019, 146 in 2020 (despite the lockdown), and 166 in 2021. While that is higher than 2020, most species were observed considerably more often due to the additional overall reporting. Bearing in mind that the Blue Tailed is one of the most pollution tolerant species, it is possible that they 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 keep a close eye on.

In VC66 during 2021, there were 166 sightings starting at Boldon Business Park on 11th May, so they were amongst the first to be seen. They hung around until 29th September when they were seen at Stargate Ponds. In total they were seen at over 40 locations, with Rainton Meadows being an obvious stronghold. Greencroft NR, Barlow Burn and Cowpen Bewley NR were also good sites to see them.

While a fair proportion (on 56% of sighting occurrences) were seen laying eggs, that is lower than most of the other damselflies. Males and females were seen in roughly equal numbers. In 2021, the challenge was set to try and see all of the 5 different colourations that the Blue Tailed females display, and the challenge was met with some excellent photos.

This one, (Typica male by Joe Finlay) also shows how hairy Odonata can be!

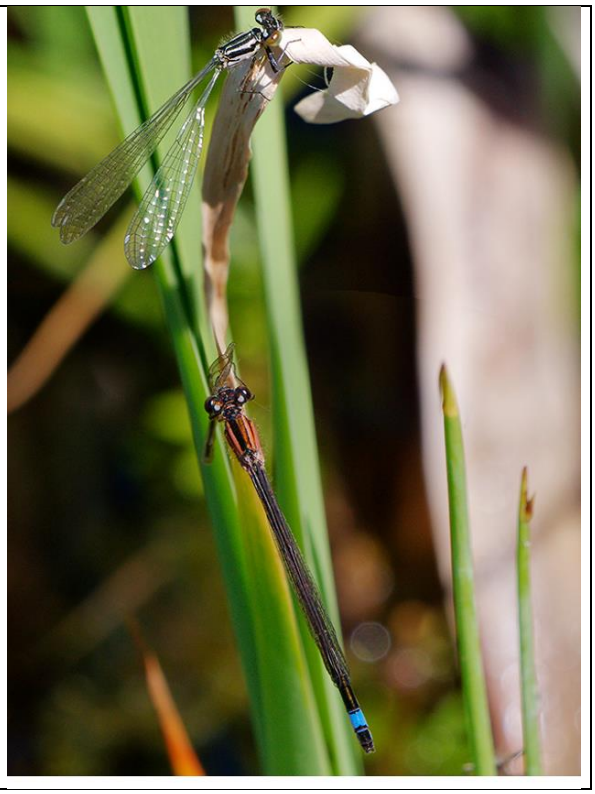
In this next photo by Christopher Bill, you see the distinctive bi coloured pterostigma on the male's forewing, and the rufescens – obsolete form in the female.



2021 Blue Tailed Damselfly Sightings VC66

BDS suggested distribution – widespread whole of UK, May to September. Our sightings reflected that.

A common question is “what do dragonflies eat”? As Joe Finlay saw at Rainton Meadows, the answer includes, other Odonata. On the left, a Blue Tailed Damselfly can be seen in close proximity to an Azure. By the end of a series of photos, the Blue Tailed had bitten off the Azure’s abdomen, just leaving its thorax gripping on to the plant!



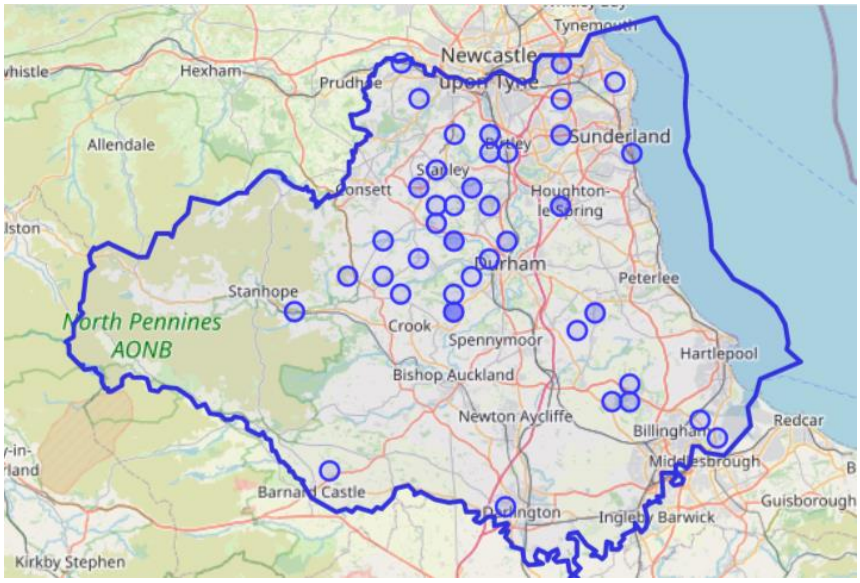
Broad Bodied Chaser (Libellula depressa)

While the northeast represents the most northerly area where these highly distinctive dragonflies are frequently observed, they were spotted at 38 sites (up from 15) on 122 occasions (up from 51).

They first appeared early in the season on 30th May, at Twizell Woods, which as always turned out to be a great hotspot with easy viewing locations. This photo, taken at Twizell Wood, (Carol Spencer) shows a very vibrant coloured female, with an unopened rear wing. It is not known if she could fly, as the shiny, otherwise undamaged wings indicate that she was very young. Odonata are often seen flying

with extremely battered wings, but this was likely to have happened during emergence, and so it would probably stay near the water and not last too long.

They stayed in VC66 until 10th September at Oakenshaw, which was interesting, as none had been seen anywhere in VC66 during August.



One possible reason for the increase, other than more observers, is that Broad Bodied Chasers like newly created ponds as well as existing ponds, lakes and ditches. 2020, saw many garden ponds created during lockdown, plus newt scrapes are increasingly being made as part of construction mitigation.

2021 Broad Bodied Chaser Sightings VC66

So possibly, these Chasers are benefitting. In addition, their steady rise further north is probably due to ongoing climate warming.

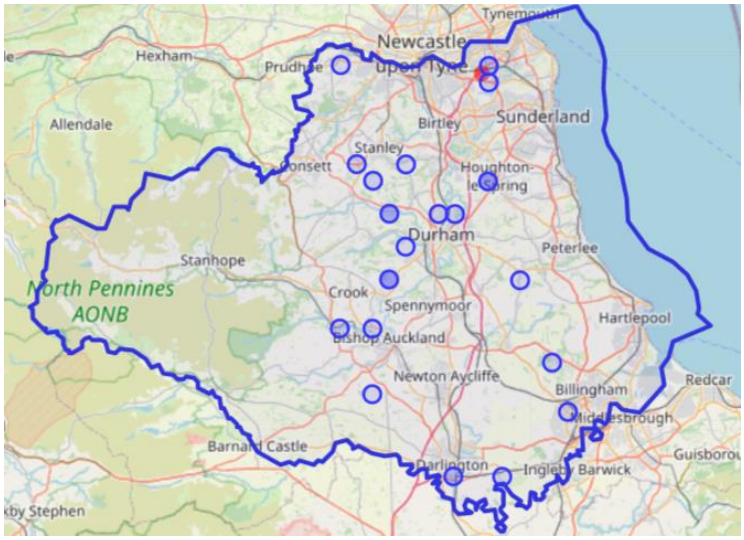
Brown Hawker (Aeshna Grandis)

A large Hawker with quite obvious golden-brown wings, it is relatively easy to identify. Despite the fact that their numbers have grown steadily in the UK over the last 50 years, recently in VC66, there have been relatively few sightings.

In other parts of the north, they have been seen more often in coastal areas and as we have very few records from our eastern side, possibly we are missing them.

Having said that, in 2021, they were first observed near Aykley Head on 29th June, and then on a surprisingly high 73 occasions, until 24th September at Rainton Meadows.

They were observed the most often at Langley Park Wetlands, Oakenshaw Wildlife Reserve, Rainton Meadows, and near Snipe Pond/River Skerne. If you have never seen one of these particularly striking Dragonflies, then those locations should be good for 2022 as they were seen laying eggs too. The photo by Mark Newsome, clearly shows the golden colouration and the common preference for laying eggs in floating vegetation.



BDS suggested distribution is that our region is the most northerly they will be spotted, and that they are most common during July to Sept. Our sightings were in line with that. Once again, the distribution map shows how our observers (or possibly this species) are primarily in a north/south, central strip, with less sightings in the west and east. Another reason for planning day trips to those areas in 2022.

2021 Brown Hawker Sightings VC66

Photo: Mike Abbott

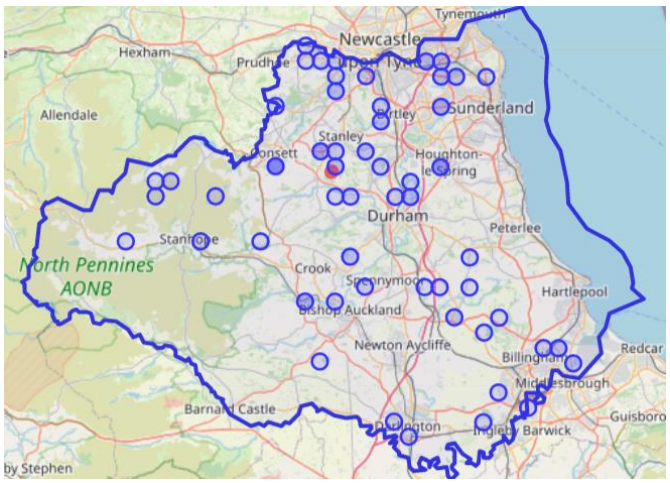
Common Blue Damselfly (Enallagma cyathigerum)

Generally regarded as the UK's most commonly seen damselfly, they are typically spotted at most sites and normally in large numbers. As mentioned earlier, they are difficult to differentiate from the Azure, (unless you get close) but due to their common nature, in the absence of a clear ID it is most likely to be a Common Blue. (Photo Joe Finlay).

With them being so common, even with the 2020 lockdown and restricted movement, they were seen on 137 occasions, so it was somewhat surprising that in 2021, that fell to 121. It is possible that observers feel less inclined to record what they see as "just a Common Blue", but as this report shows, tracking observations over time is essential for habitat management, so if that was an influence, we need it to stop!

The first Common Blue was seen on 17th May, at Cowpen Bewley Woodland Park, the location at which many of the earliest emergences seemed to be happening. They continued to be seen in good numbers across 44 locations until 22nd September at Chapmans Well.

Rainton Meadows, particularly near "Pond One" has long been a stronghold, partly as there are so many wet areas and plenty of nectar giving wildflowers that provide the insect life Odonata need for food. In 2021, only 4 sightings were submitted, which is extremely unusual. Therefore, as Rainton is surveyed so often by a number of spotters, please look out for Common Blues and ensure the records are submitted.



2021 Common Blue Damselfly Sightings VC66

BDS suggested distribution is throughout the UK from April to October. The State of Dragonflies report shows that they have been increasingly steadily across the whole of Britain and Ireland, so let us hope 2021 was just a blip in VC66.

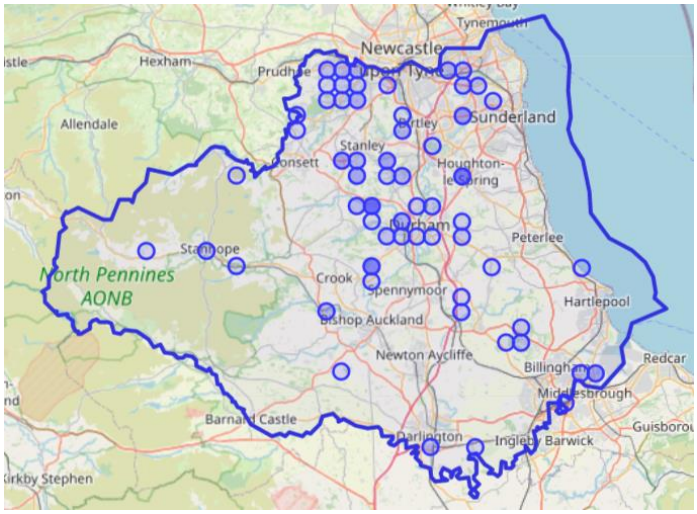
On a visit to Brasside Pond in July, Christopher Bill saw 169 Male Common Blues, and apparently that number was accurate!

Common Darter (Sympetrum striolatum)

Common across all of the UK, this was the most frequently observed Odonata in the VC66 region. (Photo Mark Newsome).

There were 325 sightings (up from 137) sightings at 63 sites. The season started at Oakenshaw Wildlife Reserve on 11th June, and they were still around on 8th November. In 2020, they were seen at Rainton Meadows until 13th November, but this year, the last sighting at Rainton was in early October. This, like the reduction in Common Blue, is very unusual and could be because the main breeding ground has tended to be the small path side scrapes, and they are no longer a consistent wet area and probably need to be dug deeper or placed in the shade. In previous years, the rear path area at Rainton would be awash with Common Darters, but that was not the case in 2021, so while they are doing well across VC66, that particular site did not deliver for once.

They were seen, however, in good numbers at Barlow Burn, Bearpark Woods (NZ242432), Bowes Valley NR, Gibside, Langley Park, Oakenshaw Wildlife Reserve and Twizell Woods, to name but a few locations.



2021 Common Darter Sightings VC66

Apart from the poor female at Greencroft that a Black Darter took a shine to, they were seen coupling and laying eggs at many sites. As Rainton Meadows shows though, those sites need to maintain water for a whole year at least.

BDS suggested distribution is, widespread across the UK during June to November, and that was reflected in VC66.

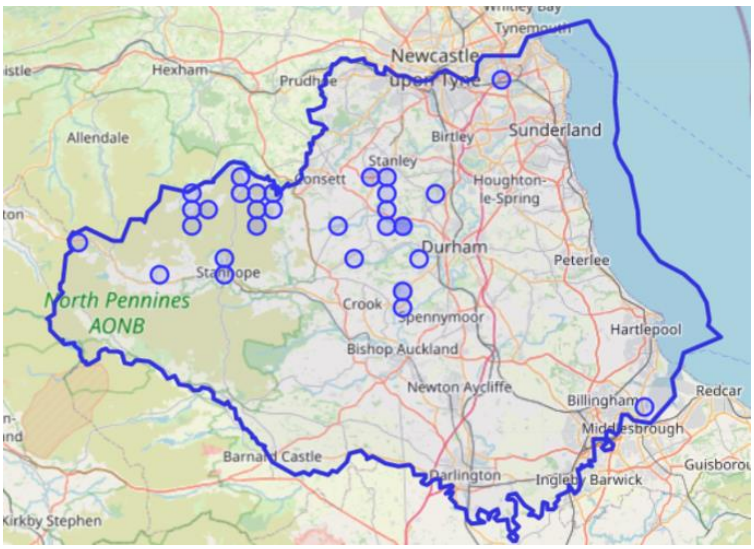
Common Hawker (Aeshna juncea)

Starting with the positve, Common Hawkers were recorded on 63 occasions, a big increase on 27 in 2020.

However, once again, while the name suggests they are common, they are not in VC66, and are in decline across the UK.

The likely reason is that their preferred habitats are acidic bogs, pools, lakes and moorland. Lowland moorland and boggy areas in particular have been a changing habitat in recent years. Those areas are also less easy to access for recording but that would have been the case in previous years too, so is not linked to the decline, but possibly the low numbers of recordings. The distribution map shows that they were mainly seen in the west of the region.

Common Hawkers have a relatively short season, and in VC66 were first spotted at Oakenshaw Wildlife Reserve by Keith Walton on 4th June, and he was also at Langley Park Wetlands to see the last on 22nd September. Between those dates they were seen at 30 other locations, including a single sighting at the DWT's Black Plantation. That reserve is great for butterflies, including the very rare Small Pearl Fritillary, and yet Odonata are hardly seen there. Possibly there is not enough standing water.



2021 Common Hawker Sightings VC66

As many spotters will go a whole season without seeing a Common Hawker, the best sites to visit are, Chapmans well, Greencroft NR, Langley Park Wetlands, Oakenshaw Wildlife Reserve and DWT Malton Reserve.

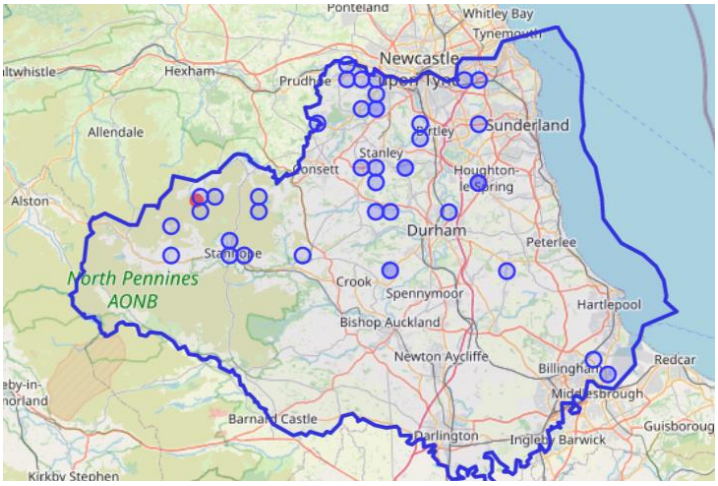
The female can be mistaken later in the season for the Migrant Hawker, so it is good to remember that the Common Hawker has a bright yellow costa (front wing edge), as can be seen in the photo by Ian & Elaine Burnell.

Emerald Damselfly (Lestes sponsa)

Easily identified when in its adult state due to the bright iridescent colouring of its thorax, and as you can see here in Christopher Bill's photo, its bright blue eyes.

Nationally, the Emerald Damselfly is in a steady decline. It is thought that this might be because it emerges late in the season, and as it prefers shallow waterbodies and boggy ground, that the increasingly long dry summers might be drying them out too soon. Similarly, farmers are draining land more effectively, and nature reserve management plans often include removing vegetation from ponds, which benefits other species, but makes the water deeper than Emeralds prefer. A good example is at Shibdon Ponds where in the surrounding trees are often, what can only be described as large puddles or small pools, and yet the Emeralds love them.

Their season started at Oakenshaw Wildlife Reserve on 10th June and continued until 26th September when they were spotted at NT Gibside. Good sites to see them at are, Malton Ponds (particularly the two ponds at the rear of the reserve), Milkwelburn Wood, Rainton Meadows and Twizell Woods.



2021 Emerald Damselfly Sightings VC66

In 2021, for the first time, spotters were asked to look out for the characteristic scarring in flexible branches, that the egg laying of the Willow Emerald creates. None were seen, although a few spotters submitted photos that they hoped were Willow Emeralds, but unfortunately, they still appear to be just south of our border.

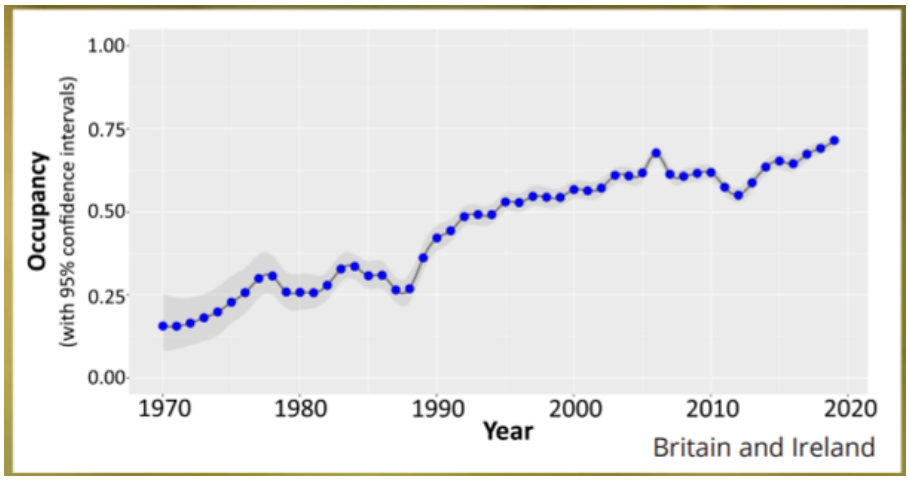
Emperor (Anax imperator)

Easy to identify, as it is the UK's largest dragonfly and both sexes have an apple green thorax without any obvious black markings. While flying, they can sometimes be distinguished due them having a drooping tail. This one photographed by Joe Finlay, shows the typical wing damage that Odonata incur and can cope with.

In 2019, they were recorded in small numbers at 7 sites in VC66, so spotters were asked to pay particular attention in 2020, and they were then seen 15 times. In 2021, that increased

to 60 sightings, which resulted in a number of Games of Thrones memes about the rise of the Emperors.

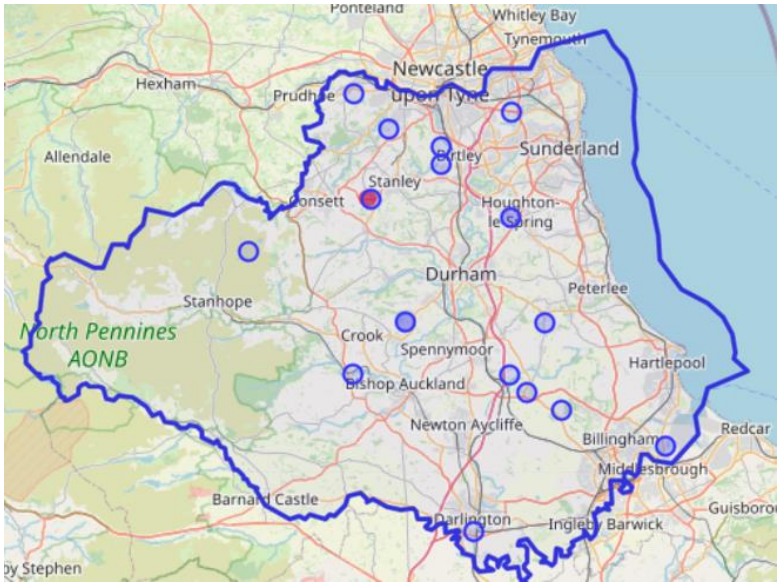
They were first observed at Bowes Valley NR on 13th June and remained until 10th September at Oakenshaw Wildlife Reserve. At 18 different locations the Emperors delighted us with their presence, including one particularly obliging male who continually flew up and down at Rainton Meadows in between a visitor group learning about dragonflies.



Emperor Records Last 50 years

Nationally, the Emperor is the species that has shown the most significant growth in numbers over the last 50 years, and since 1990 it has also spread far more widely. The likely reason for its success is that they are flexible on water location, ranging from ponds to flowing rivers, and they are big and strong so can compete when resources are scarce.

As this photo by Christopher Bill shows, solitary females can often be seen for long periods of time laying eggs just below the water surface, often into underlying vegetation, whereas males generally maintain their grip on the female in other species.



2021 Emperor Dragonfly Sightings VC66

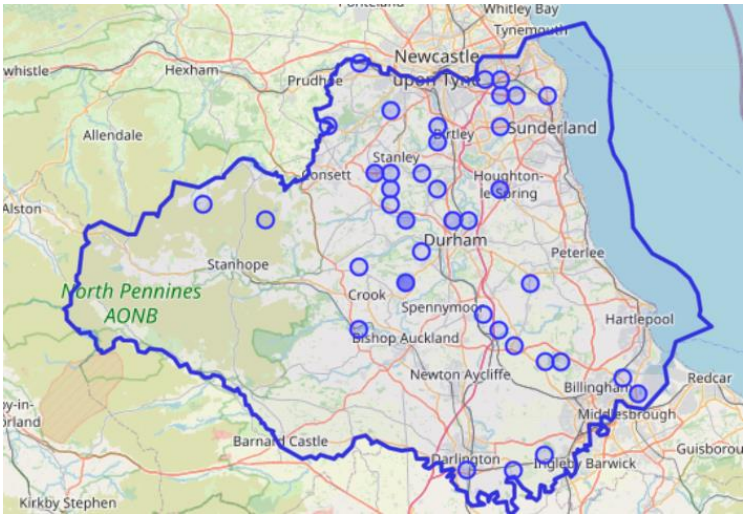
Although they were seen at more locations, they were generally in the same areas as 2020.

Unfortunately, there were no sightings of the Lesser Emperor in 2021, although in 2020 there were only two and one of those was dead! They are very distinctive, with a bright blue “saddle” at the rear of their thorax, so spotters are urged to look out for this relatively rare migrant.

Four Spotted Chaser (Libellula quadrimaculata)

They were spotted at 26 locations (up from 14) on 120 occasions, which is a big increase. While a greater variety of spotters might be the reason, the Four Spotted Chaser is a species that is doing well national. They can quickly make use of new sites, so this could be part of the reason too.

In the photo above (Ian & Elaine Burnell), you can see how as they mature, particularly the males grow far darker, and are not the normal golden colour that we associate them with. They do still have, however, the characteristic four spots on the wings and the black patches at the base of the hindwings.



2021 Four Spotted Chaser Sightings VC66

Great sites to see them at are, Oakenshaw Wildlife Reserve, Rainton Meadows, NT Gibside, Greencroft NR and RSPB Salthome.

In 2021, the season was from 28th May at Coatham Woods, to 22nd September at Chapmans Well.

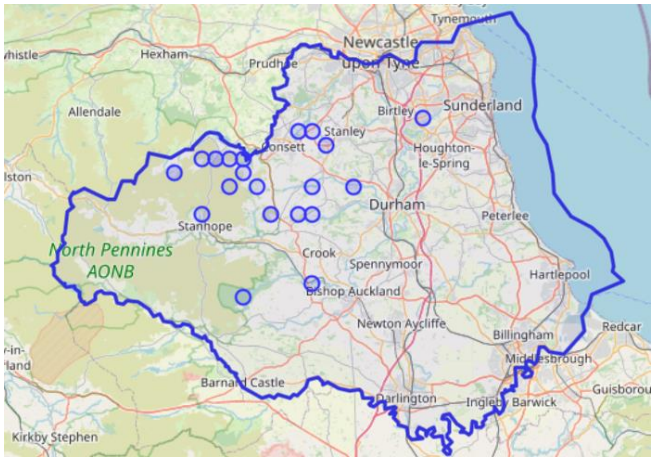
Golden Ringed Dragonfly (Cordulegaster boltonii)

This very distinctive dragonfly is rarely seen in VC66, and yet that is not due to our northerly location as they are often seen in Scotland.

It is also unlikely to be due to misidentification as it looks like no other. It could therefore be that we are simply not looking at sites where they are established. (Photo Ian & Elaine Burnell)

In 2021, spotters were asked to pay particular attention to areas where the Golden Ringed Dragonflies might be found, and Keith Walton rose to that challenge and saw them at 12 different sites!

The season started with Keith seeing one near a burn on Muggleswick Common (NZ0048) on 22nd June, and they were recorded there throughout the season. Keith saw the final one at Langley Park Wetlands on 2nd September. Most of the locations at which they were seen were towards the mid or western part of the region, for instance, Waskerley Reservoir, Stanhope Dene and Edmundbyers.



2021 Golden Ringed Dragonfly Sightings VC66

Apart from one at Greencroft NR, they were generally not seen at formal nature reserves, but instead, along more remote walks. They were typically seen in small numbers.

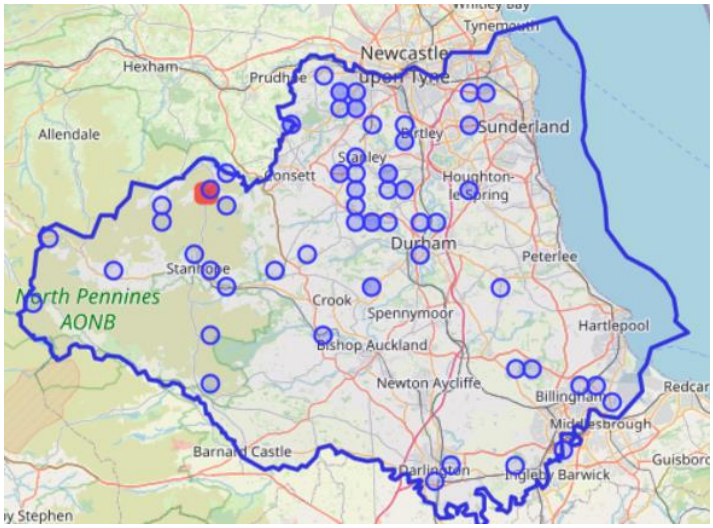
Large Red Damselfly (Pyrrhosoma nymphula)

Once again, the first Odonata to be observed in VC66, this time at Bowes Valley NR by Christopher Bill on 24th April, which is one week later than in 2020. In this region they are likely to be the first to emerge and that helps with identification as they can be very clear and colourless at first.

(Photo Daphne Aplin)

While the males grow redder as they mature, the females can be very black. In 2020, they were spotted at far more sites than in previous years (40), partly as during lockdown people observed them on their garden ponds. In 2021, no garden sightings were submitted, however, 58 larger locations were the home to Large Reds.

Sites with both good quantities and consistent sightings throughout the season include, Thornley Woods, Twizell Woods, Rainton Meadows, Oakenshaw Wildlife Reserve, Milkwellburn Wood, Langley Park Wetlands, and NT Gibside. It was also good to see records submitted from the west of the region.



2021 Large Red Damselfly Sightings VC66

Large Red were also seen on a small pond on the summit of Knoutberry Hill in the North Pennines (just inside VC66) at an altitude of 668 metres, 2,193 feet. This was our highest recorded sighting.

The female has three colour forms, and most photos in 2021 were of the typica colouration, so as suggested in last year's report, spotters should be on the lookout for differences.

However, Christopher Bill did get this great photo of a female in the melanotum without red, colouration, which to the casual observer would be confusing, as there simply is no red despite the name. Luckily, in the northeast the only damselfly with a yellow thorax with a broad black antehumeral stripe, is either an immature male, or a female, Large Red Damselfly.

To sex them, you can also look at the anal appendages, which are curved in like a claw with the male and are spaced and slightly splayed out on the female.

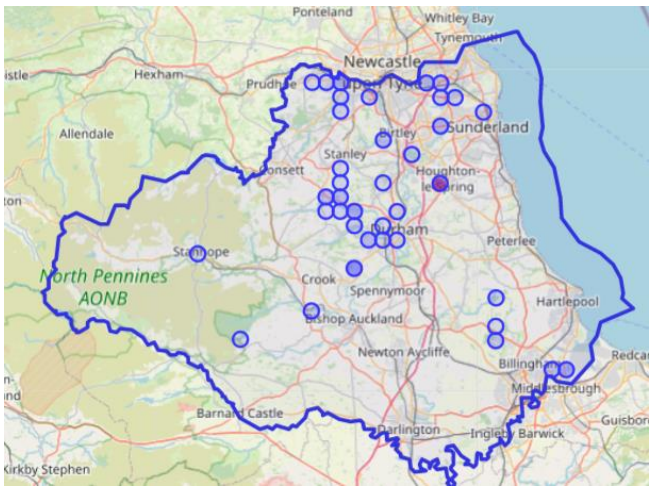
The BDS suggested distribution is national between March and September, which highlights how in the northeast we are typically at least five weeks behind the south for the first Odonata.

Migrant Hawker (Aeshna Mixta)

Often called the Autumn Hawker, they are traditionally found further south than VC66, however, since 1970 their numbers have steadily increased nationally. The larvae can tolerate low temperatures and that might explain why they are increasingly being seen in our region.

Although they are now resident, they are also migratory, and therefore with a strong wind from the south, we could be benefiting from continental migrants. (Photo Mark Newsome).

They were first seen on 27th July at Oakenshaw Wildlife Reserve, and then very frequently throughout August and September, and were still being observed throughout October, with the last on November 2nd.



They were seen at 13 sites in 2020, and 35 in 2021. They are well established at Rainton Meadows, where they like to rest in the young oak trees alongside the path, plus at RSPB Salthome, Langley Park Wetlands and Oakenshaw Wildlife Reserve.

BDS distribution indicates that the northeast of England is their furthest northerly point but does point out that they are being observed increasingly far north during August to October.

2021 Migrant Hawker Sightings VC66

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.

They were seen on 141 occasions in 2021, so they are definitely becoming either more established or easier to spot.

As the photo shows, (Jenna Smith) if you are lucky, you can get close enough to see the violet colours in the female, even though most guidebooks still show this as blue. You can also, just see that another distinctive feature of the Migrant Hawker is the very long anal appendages.

Ruddy Darter (Sympetrum sanguineum)

Occasionally confused with male Common Darters, observers are getting better at spotting this striking species. The key differentiators being that Ruddy Darters are a deeper red, with solid black legs (no white stripe) and have a nipped "waist", as can be seen in this photo by Christopher Bill.

In 2020 they were only spotted at 5 sites and that increased in 2021, to 16. They were seen on 36 occasions, which makes them one of the rarer species in the northeast, albeit as mentioned, they are sometimes mistaken for male Common Darters. They first made an appearance at NT Gibside on 20th July, and were last seen at Twizell Woods on 26th September.

If you did not get to see a Ruddy Darter last year, then it is suggested that in August or September you head to Twizell Woods, Rainton Meadows, Oakenshaw Wildlife Reserve or Langley Park Wetlands.

Very few sightings and photos were submitted of female Ruddy Darters possibly due to spotters having difficulty in identifying them, particularly as their colours darken with age.

The photo below (Joe Finlay) shows the male and female differences. Sexing is not helped by the fact that immature males start with a pale reddish-brown colour, and then the red darkens.

2021 Ruddy Darter Sightings VC66

The females are typically bright yellow, with thin black markings down the side. Their abdomen tapers from the thorax to S10.

The BDS suggest that they have increased their ranges to include both Scotland and the northeast, a change from twenty years ago.

As there were relatively few sightings, spotters are urged to look out for them in 2022.

Small Red Eyed Damselfly (Erythromma viridulum)

Well outside of its known area in the southeast of England, after a single sighting at Rainton Meadows in 2020, they were seen at two closely linked locations in 2021. Brasside Pond next to Frankland Prison, proved to be the most lucrative, with a number of Small Red Eyed being amongst many other damselflies laying eggs on floating vegetation. The hope, having seen them lay eggs is that Brasside could be a regular site for them, which would represent the most northerly breeding ground. Having said that, they were seen in 2019 laying eggs at Cowpen Bewley NR and have not been seen since. (Photo Crozier M).

It is possible that while very rare, that they are 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, but nor do they have a blue or coloured ring on s8-10. 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.

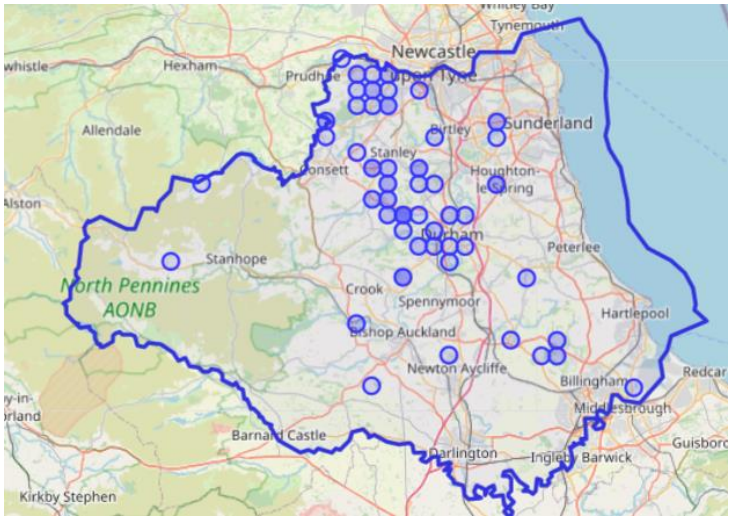
Southern Hawker (Aeshna Cyanea)

Despite its name, Southern Hawkers are present even in the north of Scotland, and in 2021 they were observed at 55 locations (up from 27).

They were the second most common Odonata in VC66, with 243 sightings. Only the Common Darter was seen more often.

Always a delight to see, they are highly curious and will often hover right in front of you. First seen at Twizell Woods on 20th June, they were found at many sites across VC66 and in good numbers. As the season progressed, three Southern Hawkers divided up the three pond territories at Milkwellburn Woods between them. In 2020, one of their forebears had been the last Odonata in VC66, surviving well into November. In 2021, an early frost, even in the sheltered ponds at Milkwellburn Wood, seemed to be too much and they were last seen there on 26th October. The final sighting was two days later by Ian and Elaine Burnell at NT Gibside and is shown in the earlier photograph. Whether it was the final death throws we do not know, but that male appeared to be dipping its abdomen as if ovipositing!

While commonplace, the best sites to see them are, Twizell Woods, Burnhope Ponds, NT Gibside, Greencroft NR, Langley Park Wetlands, and Oakenshaw Wildlife Reserve.



2021 Southern Hawker Sightings VC66

Southern Hawkers are easy to identify by the two yellow "headlight" patches on the front of their thorax.

Nationally, the Southern Hawker has always been common, but has gained stronger footholds in the north since 1988.

Discussion Points

In 2021, 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, 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 be proactive in trying to reach all the 60+ hotspots. However, a few have moved away or have stopped submitting sightings. It is hoped that in 2022, we can re-engage with everyone.

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

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/xSCN2T

As mentioned last year, observers are asked to support the British Dragonfly Society's Willow Emerald Watch. Willow Emerald Watch - British Dragonfly Society (british-dragonflies.org.uk)

This species is slowly making its way up the eastern coast, and in 2019 moved 150 km north into Yorkshire, so in theory we are next, at least at the south of our region. While the species can be easily identified, as it is slimmer than the Emerald and has brown eyes, it also lays eggs on flexible branches over hanging water. These eggs then drop into the water as larvae, leaving a scar on the branch. These oviposition scars are a great indicator that Willow Emeralds are around, even if they have not emerged yet. Observers are asked to look out for them in the south of the region, particularly on over hanging branches near the coast.

Exuvia

While observing Odonata and recording those sightings is great citizen science, strictly speaking, the only way to be sure that they were not simply passing through, is to see them emerge or observe their exuvia. It is unlikely that someone would record exuvia using iRecord unless they were a real enthusiast, and so we are most probably missing a lot of data. The DWT app is better in this respect, in that it encourages the recording either by species if known (or guessed) or just in general. Photos are also requested.

In previous years we have asked that exuvia be collected and handed in at Rainton Meadows, so that we can examine them at the end of the season. The recent mobility restrictions have meant that this has not been happening. So, for 2022, we ask that if you see a particularly striking exuvia, or one that appears to be from a scarce species, you collect it and leave it for Michael Coates at Rainton Visitor Centre. Otherwise, please upload a photo. using the DWT app, or iRecord.

The exuvia shown below, utilised the vegetation in order to emerge during the rain at Milkwellburn Woods. Photo Michael Coates.

Widening the Range of Locations

Eleven new sites have been added to the list on the DWT app and the Google Map.

This is to encourage people to visit sites in South Tyneside, the east coast and to the west of VC66. Those areas have hardly been surveyed in recent years. The new suggested sites are.

- Brierley Wood, West Carr Plantation NZ 40206 27698
- Easington LNR NZ 43947 44280
- Hairhope Quarry/Bolihope Burn, Frosterley NZ 03718 36314
- Hartburn Beck (6 fields NR) NZ 42917 17545
- Marsden Old Quarry NR NZ 39113 64247
- Noses Point NT Durham Coast NZ 43572 48147
- Primrose NR NZ 33218 63856
- Rainton Meadows Farmland NZ 32044 4812
- Stanhope- Ashes Quarry NY 99639 39662
- Tilesheds LNR NZ 36676 62102
- Whiteheaps Dam (Blanchard) NY94564657

Acknowledgements

The author would like to thank all those who attended the dragonfly identification events, and in particular, the DWT observers who visited the DWT reserves and neighbouring nature corridors. Joe Finlay, Keith Walton, Ian and Elaine Burnell, Christopher Bill, Julie Hogg, Mal Wilkinson and Mark Newsome, once again submitted an amazing number of records. Vivien Kent not only submitted records, but she visited some of the less surveyed sites and helped upload records. 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, at DWT Barlow Burn.

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