

Dragonfly Survey 2019

Durham Wildlife Trust Region

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Photo. Banded Demoiselle Male, Joe Finlay

Background

The Durham Wildlife Trust owns and manages 35 nature reserves throughout the former County Durham region, covering an area of almost 800 hectares situated between the River Tyne and the River Tees. (<https://durhamwt.com/reserves/>)

The North East 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 DWT 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).

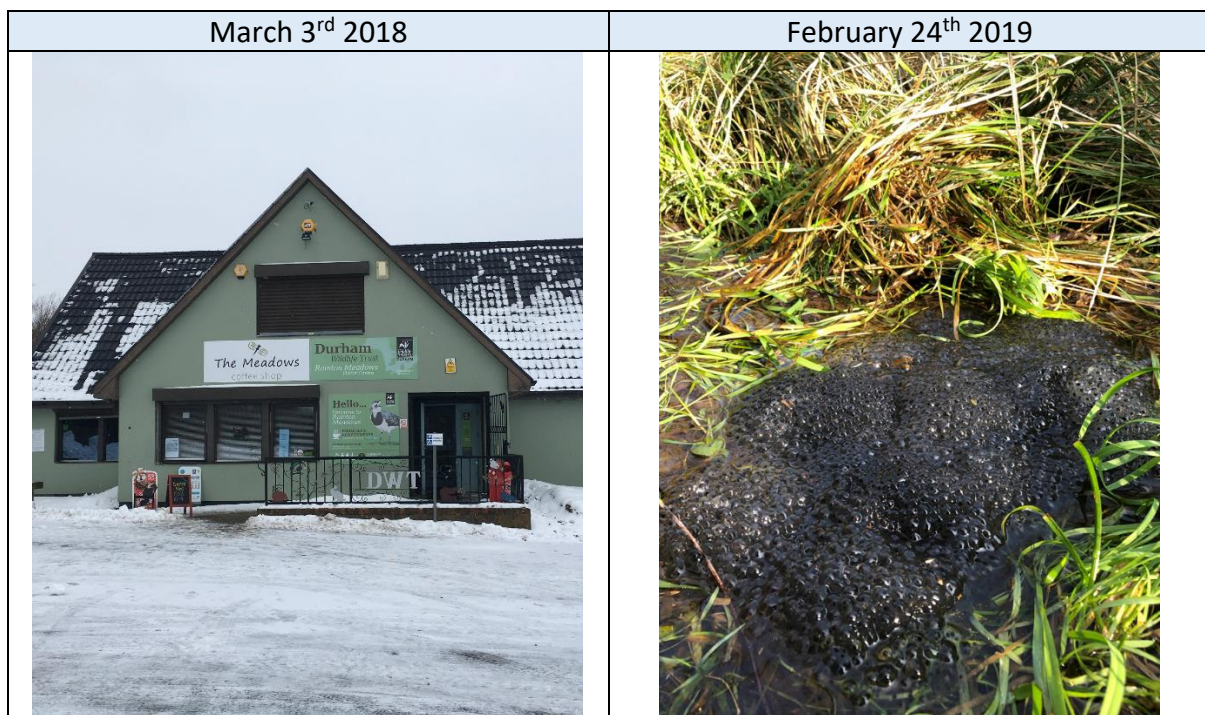
“This, coupled with extensive areas of upland, means that temperatures, relative to elsewhere in England, are generally cool throughout the year. In the low-lying areas, mean annual temperatures over the region range from around 8.5°C to around 10°C.”¹

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 four species, Migrant Hawker (*Aeshna mixta*) Emperor Dragonfly (*Anax imperator*), Ruddy Darter (*Sympetrum sanguineum*) and Hairy Dragonfly, (*Brachytron pratense*), have increased their distribution to the north of England, and three of those species were observed as part of this survey.

The previous year, 2018, was a year of extreme weather with a significant impact on dragonflies in the DWT region. Firstly, during the whole of March, a large arctic air mass with anticyclonic structure, stretched from Russia and the Far East to the British Isles (the “Beast From The East”) and brought significant snowfall and icy conditions. As mentioned above, frost impacts the larvae of some species. Then, June 2018 was the hottest on record since 1915, and the hot weather continued well into September resulting in many wetland and pond areas drying up completely, giving no hope to the eggs that had been laid up to that point. This was particularly disappointing to spotters at Rainton Meadows as the ponds in which Common Darters typically bred in large numbers, were devoid of all visible life by September. Overall, a combination of a long cold winter and a very hot summer created poor conditions for breeding dragonflies.

The weather in 2019 was very different as can be seen from these two photos. The first shows the extreme cold of March 2018 and the second shows how at the end of February 2019 the 16 degrees temperature was encouraging amphibian egg laying.



In light of this, it was expected that sightings of dragonflies emerging in the north east of England would also occur earlier than in 2018, but this did not happen. In fact, while there were reports of Odonata both north and south of the region, dragonflies in particular (as opposed to damselflies) still appeared later than expected. This might be a statistical outlier, or it could be that the species most impacted by the dry ponds on our survey list would have been the first to emerge.

Method

Four identification training sessions were run at Low Barns Visitor Centre and at Rainton Meadows, plus specialist sessions at Malton Ponds and Moor House Wood. In total, 45 individuals attended and of those, many indicated an interest in contributing to the survey. As a result, the number of spotters rose from 8 in 2018, to 21 in 2019. The number of spotters who collected or photographed exuvia, rose from 1 in 2018, to 9 in 2019 (including this great handful – Mal Wilkinson)



As a number of the spotters were new to dragonfly identification, a request was made that where possible, photographic evidence should back up any sightings. A detailed recording form was issued via an online application to each surveyor. This same application allowed the easy upload of photos to support each observation.

In the event of a record being submitted by a new spotter for a “scarcer” species, such as Black Tailed Skimmer, if no photographic evidence was provided, then the author would visit the same location to confirm. If neither was possible, then the records were not included in the report this year but will form part of guidance for where to survey next year.

Exuvia were collected and submitted to the author.

All confirmed sightings were submitted to the BDS online, in December 2019.

Location

14 DWT reserves were surveyed (highlighted below) and they remain the priority for survey work as we have direct control over any environmental improvements. In addition, 32 other locations were surveyed. The reason for the wider spread this year was partly to see the living landscape as a corridor for Odonata rather than just site specific, but also as the region had not formerly submitted records to the BDS in 2018, so the national data set was lacking. The sites surveyed were:

Site Name	OS Location	Number of records submitted (excluding nil sightings)
Barlow Burn Reserve (DWT)	NZ 15989 62061	14
Black Plantation (DWT)	NZ 13634 44994	None
Boldon Colliery Pond	NZ 35268 62211	1
Bowes Valley NR	NZ 2505655984	8
Brasside Pond, Durham	NZ 29149 45477	12
Burdon Moor	NZ 21580 57413	4
Burnhope Ponds (DWT)	NZ 18467 48272	62
Chapman's Well Pond	NZ 18115 49169	7
Clockburn Lake, Winlanton	NZ 18438 60277	22
Coatham Woods	NZ 39805 15884	11
Daisy Hill North Pond	NZ 24717 49371	5
Durham Baths Bridge to Maiden Castle	NZ 2847541644	2
Far Pasture Ponds, Derwent Valley	NZ 17250 59138	4
Forest Park, Stillington	NZ 37532 23740	2
Gibside NT	NZ 18087 58769	23
Greencroft LNR, Annfield Plain	NZ 16357 51228	79
Grove Rake Mine	NY 89902 44147	None
Hardwick Park	NZ 34536 29104	9
Hartburn Beck	NZ 42917 17545	3
Herrington Country Park	NZ 33889 53308	2
Hetton Bogs	NZ 34615 48578	2
Houghall Pond	NZ 28089 40759	35
Hesleden Dene Nature Reserve (DWT)	NZ 44168 37924	None
Kynren Ponds Bishop Auckland	NZ 20861 30689	None
Lady Haugh (Derwent Walk Country Park)	NZ 17735 59484	1
Lamelsley Pastures NR (DWT)	NZ 25235 57636	2
Low Barns (DWT)	NZ 15908 31498	48
Low Newton Junction NR	NZ 28425 44931	4
Malton Ponds (DWT)	NZ 18246 45810	46

Middleton St George water park	NZ 3419 13782	4
Milkwellburn Wood (DWT)	NZ 10734 57753	13
Moor House Wood NT	NZ 30609 45832	3
New Kyo South, Stanley Burn	NZ 18266 51111	18
Rabbitbank Beck (DWT)	NZ 11505 48124	1
Rainton Meadows (DWT)	NZ 32526 48367	195
Rainton Meadows Joes Pond (DWT)	NZ 32846 48657	48
Rising Sun Park	NZ 30012 69361	3
Saltholme RSPB reserve	NZ 50403 23051	1
School Aycliffe Wetlands	NZ25874 24098	7
Shibdon Ponds (DWT)	NZ 19314 62877	18
Stargate Ponds	NZ 16411 63231	2
Sunderland Academy Pools	NZ 39411 60901	2
Thornley Woods	NZ 17933 60288	8
The Whinnies (DWT)	NZ 34893 13897	21
Tudhoe Mill NR (DWT)	NZ 25213 35510	None
Twizell Woods	NZ 22615 51590	16
Warden Law NR		None
Washington Wildfowl Reserve	NZ 33656 56448	58
Wingate Quarry	NZ 37223 37638	2
Wingate Welfare Park	NZ 39820 36388	2
Winlanton Mill (Hagg Hill Wood)	NZ 18594 61130	1

It is obvious from the above table that some sites were rarely visited, if at all, while others such as Rainton Meadows, Greencroft NR, Burnhope Ponds and Washington Wildfowl Trust Reserve were visited on many occasions. This makes valid comparisons difficult and it also means that some sites may well have been under surveyed, including a number of DWT reserves. Therefore, in 2020 a more definitive list of locations will be set at the start and spotters will be allocated to some of the sites that were hardly visited in 2019. The author will also contact sites such as Gibside (National Trust), Saltholme (RSPB) and Washington Wildfowl Trust to see if they are also surveying their Odonata. If they are, then those sites will be removed from our survey.

It became apparent as the season progressed that not all spotters were familiar with each site and therefore did not know how to visit or what they might see. In 2020, a Google map will be available online <https://tinyurl.com/wmpybjw> (see image) highlighting each location, with directions and the latest information on what has been seen. It is hoped that this will encourage spotters to venture to unfamiliar sites.



Fig 1: Sites Surveyed in 2019 available at <https://tinyurl.com/wmpybjw>

2018 Compared to 2019

Ordinarily the data gathered in 2018 would be compared to 2019, however the massive difference in quantity and rigour in the data sets means that any comparison is of little value. For instance, in 2018 there were few reports of Azure Damselflies, but after specific training in 2019, spotters submitted Azure records from 18 locations. The wide difference in sites covered also makes many of the differences no more than headline data. Those headlines being:

2018	2019
8 observers	21 observers
17 locations	46 locations
81 records submitted	387 records submitted
Approx. 324 sightings of multiple Odonata	Approx. 1296 sightings
15 species recorded	17 species recorded
Most widespread species "Southern Hawker"	Most widespread species "Blue Tailed Damsel" at 27 locations
5 collections of Exuvia (all by Author)	50 records of exuvia, 9 spotters

Summary of 2019

Spring 2019 was very warm, and as mentioned earlier, frogs were spawning in February. It was also not long until a prolonged period of rain started and ponds that had dried out during 2018 were full and ready to receive egg laying Odonata early in the season. Interestingly, at an ID training session at the previously dried out ponds at Rainton Meadows in May 2019, mayfly exuvia were found in large quantities. After some initial confusion as to what they were (confirmed by the Riverfly Partnership) it was apparent that the ponds had contained water for a sufficient period for Mayfly egg laying and emergence (well before any Odonata had been spotted there).



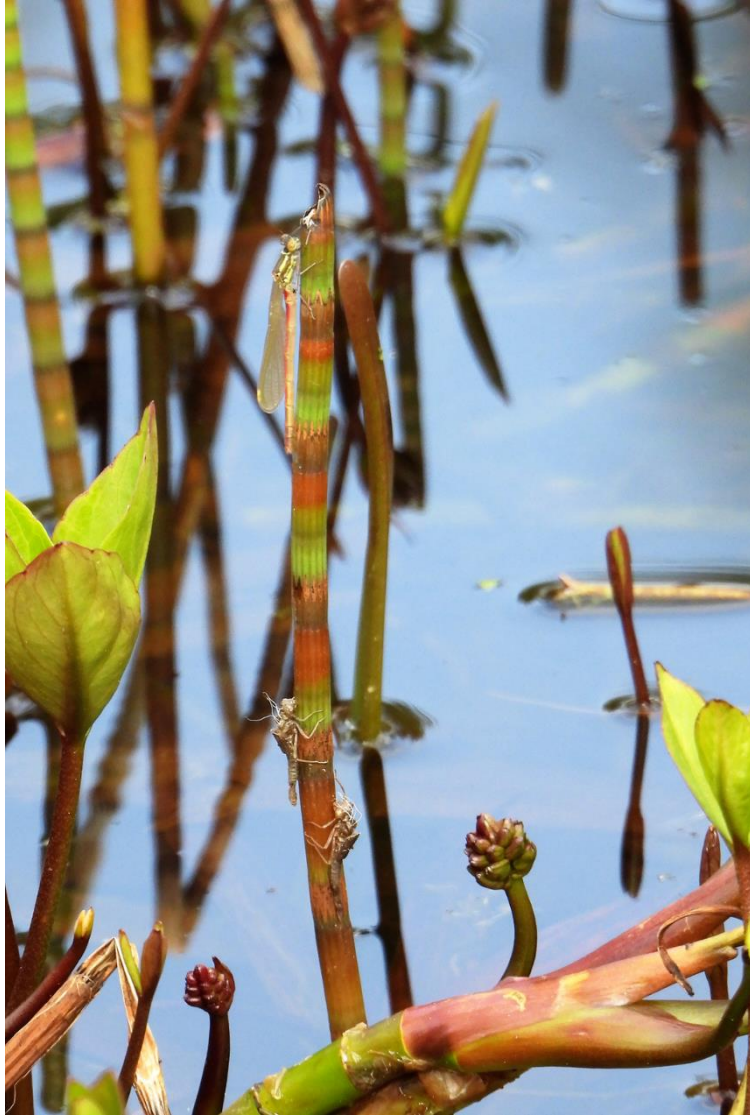
Mayfly Exuvia – Rainton Meadows May 2019

The training events were well attended and throughout the year we were very lucky on each occasion, as the weather was ideal, and the dragonflies appeared in large numbers. At one event at Rainton Meadows, 12 species were spotted, and they also landed on two of the attendees.

The use of an app to record sightings also appeared to increase the number of recorded sightings. It was apparent that some people were using the app in the field and sending the results in real time. This enabled the author to respond to queries and point other spotters to key sites in a timely manner.

A number of new sites became very popular in 2019, including Greencroft LNR near Annfield Plain, that turned out to be the best for Black Darters. Despite being a rather unkempt reserve (seemingly spoiled by trash and small fires) a wide range of species were spotted in

good numbers. Coatham Woods at the south of our region was also highlighted as ideal for a wide range of species, partly due to the range of landscape but also due to a series of recently made newt ponds that appear very popular with Odonata. A wetland area near New Kyo South, serviced by Stanley Beck, also proved to be a great site that even locals appeared to be unaware of. Twizell Woods was another hidden gem, with a set of small easily circumnavigated ponds at the end of a relatively short walk.



The first observed Odonata was a Large Red (John Craig Humble) on 27th April with the first formerly recorded sighting and emergence at Malton Ponds on April 28th (Michael Coates).

Malton continued to be a wonderful site for seeing Odonata emerge, in particular the Large Red Damselfly and Southern Hawkers.

An ID talk at Malton was well attended and resulted in 2 additional ponds being pointed out that had previously gone unrecorded. Both of these ponds proved to be ideal locations for observing a wide range of species.

Large Red Damselfly Emerging April 27th, 2019 (Michael Coates)

The last recorded sighting in the DWT survey region, was of a Migrant Hawker at Rainton Meadows (Joe Finlay) on 2nd November. This was particularly impressive as there had been heavy frosts during the previous two weeks.

The male Blue Tailed Damselfly was the most widespread with 106 sightings at 27 sites (each sighting had an average of 6 damselflies). Male Common Darters were seen at 26 locations on 148 occasions, with the female being seen on 126 occasions at those locations. The male Common Blue was also seen at 26 locations.

New species for the DWT survey included the Black Darter, Black Tailed Skimmer and surprisingly the Emperor. Conspicuous by its absence this year was the Golden Ringed Dragonfly.

The North East is the furthest north you might see a Banded Demoiselle and the BDS typically require photographic evidence when records are submitted. Therefore, an event was arranged by the author to take spotters to a difficult to reach site called Moor House Wood. While this event proved to be successful, by then records were coming in from a range of far easier access sites including, Clockburn Lake at Winlaton, where a beginner's ID training event was held. The number and frequency of observations would seem to indicate that this species is far more common than the field guides tend to suggest. One photograph potentially shows a Beautiful Demoiselle and again as the North East is at the far reach of its known region, this will be a focus of attention for 2020.



Considerably more exuvia were collected in 2019, partly as in 2018 only the author did so, while in 2019, nine spotters provided examples. There were also far more observations of egg laying and coupling in 2019, however, this is probably down to better trained observers than any change in habits.

One Bull Rush at Joes Pond, (see left) had approximately 30 damselfly exuvia on it, (Emerald most likely) which was interesting as there were many other suitable stems for emergence. It is not clear why a mass emergence happened on one single stem.

The season ended with the collation of results and it was soon clear that the format of the data exported by the app, was very different to that

required by the BDS to submit large uploads of sightings to iRecord. Considerable data manipulation was required to submit the findings, so in 2020, the app's output will be altered as much as is possible to be closer to the format required by the BDS.

All ponds were full of water at the end of the season and the wet winter means that it is very likely that Odonata will emerge next season at all listed locations.

Account of Species

Azure Damselfly (*Coenagrion Puella*)



Azures were spotted at 18 separate locations, a vast increase on 2018. That is partly due to specific training being given on how to differentiate the Azure from the Common Blue.

They were seen in large numbers at Bowes Valley NR, Washington WFT, Rainton Meadows and Houghall Ponds.

BDS³ suggested distribution - widespread from mid-May to mid-August. Our sightings started on 23rd May (later than reports from other regions) and ended on 12th August. They were seen coupling at all 18 sites and laying eggs at 10 sites. As all ponds remained full of water, it is likely that Azures will also be highly visible in 2020.

Banded Demoiselle (*Calopteryx splendens*)



While only one was spotted at a DWT site (Whinnies), for some years, they have been seen at the same riverside location near Black Wood, which is a National Trust location adjacent to Moor House Wood (off the A690 near the Scout Centre). At an organised walk on July 7th, 15 were observed. However, by then they had also been recorded at 10 other sites, plus

anecdotally at two others. The best sites were along the rivers near, Moor House Wood, Clockburn Lake, Thornley Woods, River Skerne (Barmpton/Ketton), Lady Haugh and near Maiden Castle, Durham.

BDS suggested distribution – widespread from the north east of England and further south, during May - end of August. Our sightings were from 6th June to 4th August. One photo of a female shows white wing spots further away from the wing tip than all other photos. That could indicate it was a Beautiful Demoiselle, and in 2020 spotters are urged to look particularly carefully for this feature.

Black Darter (*Sympetrum danae*)



The Black Darter was a wonderful new addition to the DWT survey. The only UK Odonata that is completely black, they were observed in large numbers at the Greencroft LNR near Annfield Plain. This rather unassuming location turned out to be a true dragonfly hotspot.

One particularly interesting sighting at Greencroft that almost went unchallenged, was of a male Black Darter attempting to couple with a female Common Darter. Odonata, select their



mate partly by sight but also by feel and are anatomically designed to make mix ups difficult, however, according to the BDS this mismatch is not as uncommon as the field guides would indicate.

Spotters will be encouraged to not assume that the female is of the same species in any coupling they see in 2020 (any species).

The BDS suggested distribution is national between June – November. Our sightings were at 3 sites (mainly Greencroft LNR) between 30th July and 15th October.

While they were observed coupling (not always successfully) they were

not observed laying eggs or emerging. Now that we know they are very common at Greencroft, the challenge will be to spot them at all stages of their life cycle.

Black Tailed Skimmer (*Orthtrum cancellatum*)



Another new species for the DWT survey, they were seen at 3 locations, most frequently at Rainton Meadows where they were often spotted perching on open ground.

At first glance, easily mistaken for the Broad Bodied Chaser, they possess a dark tail (S7-10) and do not have the yellow sides of the Broad Bodied.

BDS suggested distribution is from the north of England to south, from April to October. Our sightings were from 28th June to 15th August. None were seen emerging at Rainton Meadows or laying eggs. As they were seen for only a portion of the likely season, it is not clear if they were simply passing through. This will be an area of study for 2020.

Blue Tailed Damselfly (*Ischnura elegans*)



Blue tails were spotted at 27 sites, in particular the males. As with the Azure it is likely that the less distinctive females were always present at those sites, but they were not recorded. They were seen coupling at 9 sites, which is surprisingly low bearing in mind how many were seen, and they were observed laying eggs at only 5 sites.

Spotters will be encouraged to look for this behaviour in 2020.

BDS suggested distribution – widespread whole of UK. May to

September. Our sightings were from May 14th (last year not until June) and the last was seen on 31st August. Low Barns and Rainton Meadows had the largest numbers, with one bush at Low Barns being “covered” during one visit.

Broad Bodied Chaser (*Libellula depressa*)



While the north east represents the most northerly area where these highly distinctive dragonflies are observed, they were spotted at 10 sites on 23 occasions (considerably more often than in 2018).

It was particularly nice to see them back at Rainton Meadows where they had rarely been seen in 2018.

They were also seen at Malton and the Whinnies in reasonable

numbers, but at all other sites they tended to be solitary.

BDS suggested distribution is north to south England between April to September. Our sightings were between 22nd May and 4th August.

Brown Hawker (*Aeshna Grandis*)



A large Hawker with quite obvious golden-brown wings, it is relatively easy to identify. As was the case in 2018, males and females were spotted at Rainton and Low Barns during August, but they were not seen coupling or laying eggs.

They were, however, very active at Rainton particularly during a very hot dragonfly event on September 1st when they were “dive bombing” the attendees.

They were also observed at Coatham Woods, (see photo) and the Whinnies.

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 from July 23rd to September 1st.

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. 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.

They were sighted at 26 locations on 99 occasions, with an average of 10 per sighting, reinforcing their reputation as the iconic British Damselfly. Many sites had large numbers, and Rainton Meadows and Low Barns had particularly large numbers. As with all other species in the DWT survey, females were spotted less often than males, however, this is most likely due to the females being better camouflaged and also as the Female Common Blue has various colourations, one of which is very similar to the male.

BDS suggested distribution is throughout the UK from April to October. Ours were spotted flying, coupling and egg laying between 30th May and 23rd October. This was a far later observed emergence than in other parts of the country. In 2020, spotters will be tasked with looking for them earlier.

Common Darter (*Sympetrum striolatum*)



Common across all of the UK, this is one of the most frequently observed dragonflies in the DWT region. In previous years they would line the paths of Rainton Meadows, soaking up the afternoon sun, whereas, this year they were observed in smaller numbers, (mainly on the rear paths). This may be due to their main breeding ponds drying out in 2018. The fact that they were still at Rainton in reasonable numbers shows they must be emerging from other ponds.

Male Common Darters such as the one in this great photo, were spotted at 26 locations on 149 occasions. The females were seen on 126 occasions, again probably as they are less colourful.

A few reports came in of Red Veined Darters, and that created interest as they have not been recorded in this survey before. While the north of England is within the likely



distribution, such observations required photographic evidence. It became apparent that at Rainton Meadows there appeared to be a number of Common Darters with red veins (see photo). Their facial features in particular do not match those of the Red Veined Darter.

A few sightings were submitted as Ruddy Darter, however, as the photos did not show the characteristic black legs, they were in fact male Common Darters.

Records were changed accordingly. Next year, greater emphasis will be placed on helping observers to spot the difference.

BDS suggested distribution is, widespread across the UK during June to November, and in this survey, they were spotted between 8th July (later than in 2018) and October 28th. The late start to the season for this species was particularly interesting as they are so easily identified it seems unlikely that they were going unnoticed.

Common Hawker (*Aeshna juncea*)



As the name suggests, they are a Common Hawker, yet in 2018 and 2019 they were seen far less often than in previous years, particularly at Rainton Meadows. Instead, far more Southern and Migrant Hawkers were spotted. Previously it was suspected that the low numbers might be due to misidentification but despite

specific Hawker ID training, observations remained relatively low for a common species.

Common Hawkers were spotted at 10 sites on 27 occasions (compared to Common Darter on 26 sites and 149 occasions). They were however seen coupling at 3 sites and egg laying at 2. In 2020, spotters will be asked to be on the lookout for Common Hawkers. The best sites for spotting them were Burnhope Ponds, Greencroft LNR and Rainton Meadows.

BDS suggested distribution is widespread through most of the UK apart from the south east, during July to September. Our survey sightings were from July 5th to 7th October.

Emerald Damselfly (*Lestes sponsa*)



Easily identified when in its adult state due to the bright iridescent colouring of its thorax, the Emerald is one of the most striking damselflies seen in the region.

Towards the end of the season, many were seen emerging and a number of exuvia were recovered. Males were spotted more often than females, however, that is possibly as the females have a wider range of colourations, as shown in the photo.

There were 81 sightings at 21 locations. Burnhope Ponds had the largest numbers along with Burdon Moor, and Houghall Pond.

BDS suggested distribution, widespread throughout UK between July and September. Our sightings were from 5th July to 2nd Oct.

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.

In 2018, none were recorded in the DWT survey, however, in 2019, they were spotted at 7 sites although on each occasion it appeared to be solitary. They were seen laying eggs at Greencroft LNR (so there must have been two) and therefore that site will be the centre of our focus in 2020 for Emperors.

Four Spotted Chaser (*Libellula quadrimaculata*)



Despite the BDS classifying it as widespread and common, and their very distinctive looks, they were only spotted at 10 locations, in small numbers.

It is possible that spotters were reticent to commit to whether they had seen a male or a female, as they are so similar. Greater emphasis will be made in 2020 on looking at the differences in wing spots and the anal appendage. Interestingly, it would

appear that the bulk of those photographed were male.

BDS distribution indicates widespread throughout the UK during May to August. Ours were seen from June 3rd to August 13th. Burnhope Ponds and Greencroft LNR were the best sites.

Large Red Damselfly (*Pyrrosoma nymphula*)



The first to be observed in our survey and the first to be seen emerging on April 28th at Malton Ponds, a great hotspot for the Large Red.

Seeing them emerge during a training session was also useful for attendees as it was clear that at first, they lack the red colouration and therefore they could be confused with other species. Also, as they

mature the females can be very black. In April though the confusion is minimised as they are likely to be the only damsels in the north east.

There were 48 sightings at 17 different sites, and they were seen coupling and laying eggs at many locations.

20 were spotted in one sighting at Malton, Wingate Welfare Park, Thornley Woods, Greencroft LNR and Gibside.

The BDS suggested distribution is national between March and September. Our first observation was at Malton on 28th April and the last observation on 12th August at Burnhope Ponds.

Migrant Hawker (*Aeshna Mixta*)



Often called the Autumn Hawker, they are traditionally found further south than the DWT area. In 2019, the Migrant Hawker confirmed its steady move north and was spotted at 14 sites on 34 occasions. The average number at each sighting was 3. As can be seen in the photo, they were observed coupling but they were not seen laying eggs.

Rainton Meadows, Coathan Woods, Low Barns and Houghall Ponds had the most sightings.

While surveying in the south of England, the author photographed Migrant Hawkers with violet markings, and as this species appears to be moving north, spotters will be asked to look out for this different colouration.

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

Our sightings were from 5th August to the 2nd November, making it the last species to be seen.

Ruddy Darter (*Sympetrum sanguineum*)



As mentioned earlier, a few sightings turned out to be male Common Darters (hence the need for photographs), however, there were 32 confirmed sightings at 12 sites, including coupling pairs and egg laying.

8 were seen in one sighting at Rainton and also at Greencroft.

Observers are urged to look out for them next year and to get close enough to see the distinctive all black legs and more curvaceous tail.

The BDS suggest that the north east is the furthest north that Ruddy Darters will commonly be seen during July-Sept, and our records were from 16th July to 18th September.

Southern Hawker (Aeshna Cyanea)



Despite its name, Southern Hawkers are present even in the north of Scotland, and in 2018 they were observed at 7 north east locations, making them the most widespread of our observed species. In 2019 they were spotted at 20 locations on 78 occasions, so while it lost its award for the most widespread, it was still common in the north east.

Always a delight to see, they are highly curious and will often hover right in front of you. The downside is that this makes them very difficult to photograph as they are too close to focus on, and when they do fly off, they do so at incredible speed. Thanks to patience and no



doubt a large number of attempts, we had confirmed photographic records from many sites including, Barlow Burn, Burnhope Ponds, Greencroft LNR, Low Barns and Malton ponds. At Malton they were commonly seen emerging both on vegetation in the centre of ponds but also along the banks. They were the only species found emerging outside of a pond. In light of this, observers were warned to be very careful while walking close to pond edges, particularly at Malton.

Another site that proved to be excellent for spotting Southern Hawkers was Twizell Woods, where a set of 5 small ponds can be circumnavigated by foot, making it easy to take photos. Barlow Burn also turned out to be a wonderful site for spotting this species and the number of sightings were probably only low as it is a difficult pond to find. Better directions will be issued.

Discussion Points

Despite the far larger number of experienced spotters, they were spread too thin across a wide range of sites. In particular, some of the DWT reserves had very few, if any recordings. For instance, while Rainton Meadows had 149 records, Black Plantation and Haselden Dene had none. As this survey was originally set up to monitor Odonata at DWT sites, we must ensure that core set of locations is surveyed.

At the start of the season the app listed the sites the author wished to be surveyed. However, the keen spotters soon found other great sites and the list expanded. As this is not the formal country record, care must be taken that we limit the records in 2020 to a

definitive list and only add more if they appear to be hotspots such as Greencroft or Coatham Woods. Ad hoc sightings, unless of a scarce species, will be discouraged.

None of the spotters, including the author have any knowledge related to nymphs and very little concerning exuvia. The latter being a particular concern as so many excellent examples were collected. Therefore, in 2020, a suitable expert will be sought and hopefully training provided.

Acknowledgements

The author would like to thank all those who attended the dragonfly identification days, and in particular, the 21 spotters who then contributed to the survey data; plus, the author's daughter Karyan, whose eagle eyes spotted so many of the exuvia. Joe Finlay submitted 137 of the 387 records, a fantastic effort, particularly as they were from many different sites and were always supported by photographs. John Craig Humble, not only delighted us with his excellent photographs but also introduced us to Coatham Woods, a dragonfly hotspot. Similarly, Mal Wilkinson and his intrepid son Lewis, surveyed Greencroft LNR on a regular basis and it proved to be a very important site. Vivien Kent and Bob Robson took up the challenge to go to less popular sites and without their help the range of locations would be diminished. As can be seen from the photo credits, many other spotters also provided great images and rather like the Oscars, the author would like to send out thanks to all who submitted sightings and photos.

Thanks also go to Robin Major from Shropshire Wildlife Trust for helping with the mapping.

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

Photo Credits

Page Number	Subject	Photographer
1	Male Banded Demoiselle	Joe Finlay
2	Weather conditions	Michael Coates
3	Exuvia	Mal Wilkinson
7	Mayfly exuvia	Michael Coates
8	Large red Damsel emerging	Michael Coates
9	Exuvia on single stem	Joe Finlay
10	Male Common Blue Damsel	Joe Finlay
10	Male Banded Demoiselle	Joe Finlay
11	Male Black Darter	Malcolm Wilkinson
11	Black Darter and Common Darter coupling	Malcolm Wilkinson
12	Male Black Tailed Skimmer	Christopher Bill
12	Blue Tailed Damselflies Coupling	Joe Finlay
13	Male Broad Bodied Chaser	Malcolm Wilkinson

13	Brown Hawker	John Craig Humble
14	Male Common Blue Damselfly	Joe Finlay
14	Male Common Darter	John Craig Humble
15	Female Common Darter	Joe Finlay
15	Common Hawker	Vivien Kent
16	Emerald Damselflies coupling	John Craig Humble
16	Male Emperor	John Crag Humble
17	Male Four Spotted Chaser	Vivien Kent
17	Male Large Red Damselfly	Nick Brischuk
18	Migrant Hawkers coupling	Carol spencer
18	Male Ruddy Darter	Joe Finlay
19	Female Southern Hawker	Malcolm Wilkinson
19	Emerging Southern Hawker	Michael Coates

References

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