

British
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Society



Dragonfly News 78

The Magazine of the British Dragonfly Society
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The Magazine of the British Dragonfly Society

Published twice a year, in April and October, *Dragonfly News* covers all aspects of the British Dragonfly Society's field, recording, monitoring, research, conservation and social activities, as well as information from the wider dragonfly, natural history and conservation world. The emphasis is on dragonflies recorded in the UK.

The British Dragonfly Society aims to promote and encourage the study, conservation and understanding of dragonflies and their natural habitats, especially in the UK, and to raise public awareness of dragonflies.

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Editor's Notes

Fiona McKenna

What an unusual but busy summer it has been. Our face-to-face activities may have been cancelled due to the pandemic but we have been busier than ever with online communications. Dragonflies have been receiving well-deserved high levels of appreciation, which is great.

This issue of Dragonfly News somewhat reflects the changed world that we find ourselves living in, you will notice that our annual meeting and AGM have moved online and that our new Dragonfly Hotspot launches were also virtual. As our chair, Brian, reports we are embracing the online world through necessity but it will no doubt become the norm for some time to come. We do hope to be able to meet you again in person at our events but only once it is safe to do so.

Our team, just the same as the wider population, have faced struggles with different aspects of lockdown life. We have all appreciated access to local greenspace and some of us are lucky enough to have a garden. I explore this topic a bit further on, and our friend **Allan Archer** from **Talk Wildlife** has written a beautifully honest account of how wildlife helps him to keep his mental health in good shape, highlighted by a remarkable encounter with a dragonfly. It is such an important topic to talk about, even more so now than ever before.

We have a jam packed Young Naturalist section again, with an interview from **BBC Springwatch's Iolo Williams**, RHS Youth Ambassador (and wildlife pond obsessed) **Green Fingered George** and nature writer **Lucy Colclough** tells us all about **Working With Wildlife**. We have great guest articles, a bumper 'Notes and Observations' section and a new feature written by our wonderful volunteers.

We hope that you are all looking after yourselves and doing well in these strange times.



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Cover Image:

Marc Heath captured the beauty of THE dragonfly of summer 2020 - the **Southern Migrant Hawker**. Marc found mating pairs at Sandwich Bay in Kent whilst carrying out surveys. Please take a look at his excellent website for more photos of 'Old Blue Eyes':

<http://marcheath.blogspot.com/>

@ MarcHeathym007



Chairman's Report

Brian Walker



I had no idea of how our plans and indeed our lives were about to be affected when I wrote my Chairman's piece for the spring edition of Dragonfly News. At that time I was looking forward to the successful launch of Dragonfly Hotspots at some very interesting sites this summer. Then, suddenly everything changed and by the time Dragonfly News dropped through your letter boxes the comprehensive list of events that it contained had disappeared along with much else. We were in a very different world, but a world where dragonflies still played a part and indeed helped many people to cope with some of the challenges of lockdown. Garden ponds suddenly assumed a much greater importance and source of interest in a world with horizons which had shrunk dramatically. We know this because we received lots of feedback about what people were seeing in their gardens. Fascination and interest shone through in these reports, with many people mentioning that they had never before noted the species they were now seeing.

Large Red Damselfly was predictably the initial star, but Broad-bodied Chaser rapidly became the most regular species reported. I am unsure whether the species has had a remarkably good year or whether

the frequency of reports reflects the greater time that people have had to watch their garden ponds and other sites close to home. I suspect that it is a combination of these factors as the extremely good weather during the early stages of the lockdown was very favourable for this early emerging species. As the summer progressed I was surprised by the number of Golden-ringed Dragonflies being seen in gardens. It is not a species that I would normally associate with gardens but it is very distinctive and perhaps more likely to be identified and remarked on.

We have not just received reports of relatively common species. I have been rather envious of those who have reported some surprising species in their gardens, including Scarce Chaser and Southern Migrant Hawker. Reports started to come from a wider range of sites once some of the restrictions were eased but I have been pleased to see that there has remained a strong interest in what is emerging from garden ponds and indeed a strong interest in creating new ponds or enhancing those that already exist. As a number of people have reported, it does not take long for dragonflies to find a new pond. Hopefully this greater level of interest in garden ponds and the dragonflies they support will be an unexpected benefit from what has happened.

Records are being analysed for our report on the State of Dragonflies 2020 as I write this article and we are considering the best way of launching this report and ensuring that the messages that it contains reach the widest audience in the new conditions which we now face. It would not be possible to produce a report like this or understand

what is happening to our dragonfly populations without the records which are submitted by so many people. The publication of this report is not an end in itself, but just a progress report and we (and our dragonflies) need everyone to continue to submit their records via iRecord so that we can continue to monitor any changes. This includes the species you have seen in your gardens.

We were concerned that recording would fall away after completion of recording for the Atlas but this has not happened and we encourage everyone to continue recording. If you don't already submit records then please think about doing so. Not only will you benefit the dragonflies, but I have found that recording adds to the interest of being out and makes me note things that I might otherwise overlook.

It is always helpful to attach a photograph of the dragonfly you saw to your record if you managed to get a picture of it, particularly if you are not 100% sure of the identification or you are a new recorder. This helps the BDS verifier behind the scenes to check the record and ensure that our data is as accurate as possible, so that we have confidence in conclusions drawn from it.

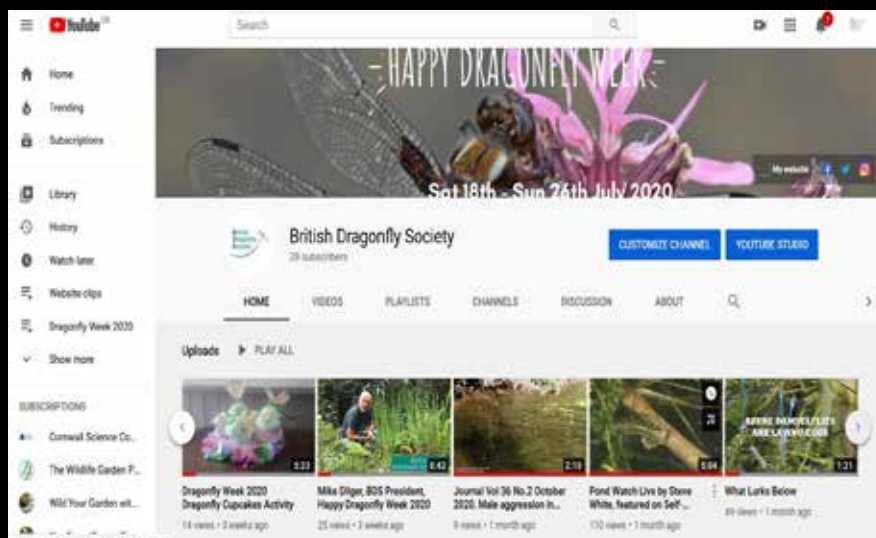
It is hard to imagine how much more difficult it would have been to cope with the restrictions imposed by the pandemic without the current abilities of communication technology. I am old enough to remember when the majority of people did not even have a phone in their house and while there were good field guides for birds, what was available for other groups was very basic. Now, identification help is readily available both electronically and in print and this has undoubtedly helped to drive interest

in the natural world. Indeed, almost everyone now has a smart phone providing internet access.

Visits to our website surged, particularly to the pages providing dragonfly identification help, after the lockdown was imposed. This revealed a few issues which we had not spotted and we are currently working very hard to update this feature to eliminate the glitches and improve the way it works. We are also addressing a number of other issues that have been identified as a result of the increased level of use of our website, so look out for the improvements.

Many of us have had to get up to speed in using virtual means for meetings and other tasks. It is amazing how quickly we learn to adapt and from suddenly finding my diary empty as face to face meetings and events were all cancelled, I have become very busy as virtual meetings have taken over in my various activities and in some cases have been so successful that they will become the norm for the future. I am sure that there will be a desire to return to more familiar methods but unexpected emergencies often speed longer term changes. The current emergency has emphasised how important conserving natural spaces is with the benefits they bring in terms of exercise and pleasure.

We will continue our work but ways and means may need to continue to change as the situation evolves. Safety of staff, volunteers and everyone else has to be a priority. Please watch our website for the latest news about our activities and check in Hawker, our monthly e-newsletter, for updates.



We Are Now On YouTube!

We now have our own YouTube channel. Head over to YouTube, search for British Dragonfly Society and you will find us.

We have created playlists to make it easy to find what you need. A 'Journal' playlist will house videos relating to articles in our journal, the video title will correspond to the edition that it accompanies. You will find a #PondWatch playlist and a Dragonfly Week 2020 one on there too.

We will keep our channel updated regularly. Please spread the word, as we would like to reach as wide an audience as possible.

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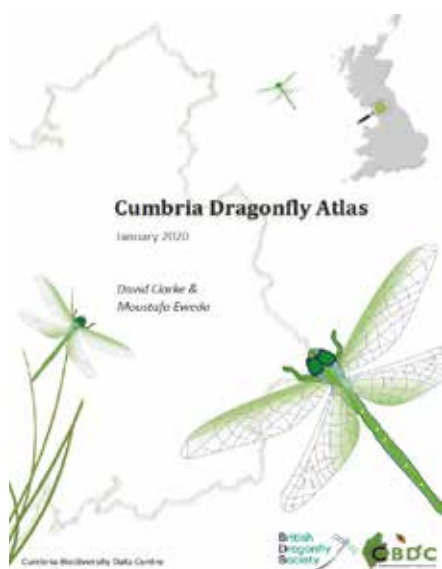


The Cumbria Atlas, 2020

County Recorder David Clarke introduces a new online guide to Cumbria's dragonflies

There were various hints in David's article on p.21 of DN76 that there was an online atlas of Cumbria dragonflies. The map on that page even claimed to be from the atlas - which was a little premature! However, as from March 2020 that situation has been rectified, as he now explains ...

The Cumbria Atlas project is essentially a collaboration between the county's Local Records Centre (Cumbria Biodiversity Data Centre - CBDC) and myself as county recorder. The Data Officer at CBDC, Dr Moustafa Eweda, has been responsible for the challenging task of creating maps and charts for each species from the database of some 16,500 records. The maps are all updated to include 2018. It is planned to revise them at regular intervals.



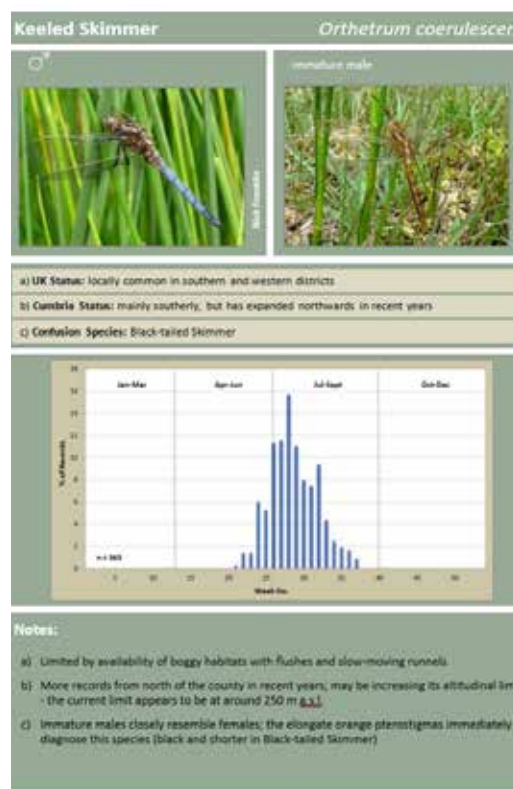
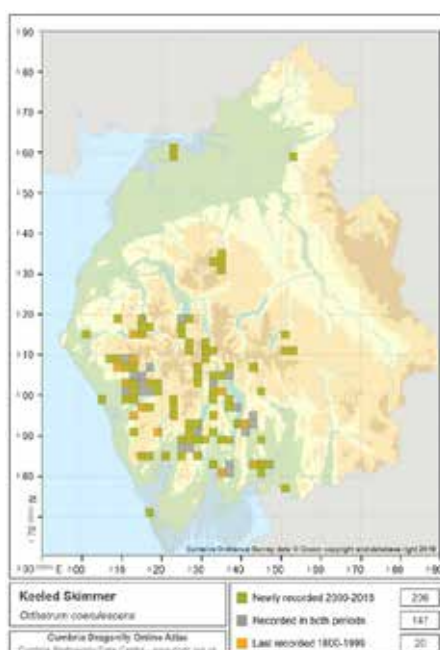
All 29 species recorded from the county are included. Each species has a brief account, focusing on key facts about distribution, national

and local, and recognition issues.

The species accounts are designed to help recorders, especially those who may be relatively new to dragonflies. They can be viewed in page pairs, with the map on the right. Flight period charts are a particular feature, though necessarily relate to a large and diverse geographical area. The maps are plotted in three date classes, which show some noticeable changes in some species. An Interactive map, with the options to zoom, search data and to define boundaries of areas of interest is a special feature.

In addition to the main accounts, a 9-page introductory section gives background history, explanations and includes a 3-page selection of sites of interest. There is also a useful reading and resources section at the end.

The base-maps have been created under the Ordnance Survey OpenData Licence. Their topographical nature is a useful aspect, since where certain species occur can be very much affected by the terrain, which in Cumbria's case varies from sea level to almost 1000 metres above!



The Atlas effectively covers VCs 69 and 70, Westmorland and Cumberland, which together form a much more 'natural' area than either does separately.

This Atlas is available only online, with various options to view, including a format browse-able on portable devices and easily downloadable pdfs. As a new and experimental venture, we welcome comments and criticisms from BDS members. To view, visit: www.cbdc.org.uk/wildlife-in-cumbria/cumbria-dragonfly-atlas_main

David Clarke
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#PondWatch New Online Campaign

During the strictest part of lockdown, many people had no access to greenspace or ponds. We wanted to remedy this by bringing the magic of ponds to them. We all know that gazing into a pond takes your mind into a completely new world of wonder. That world beneath the water's surface is utterly fascinating, it is the equivalent of an underwater Serengeti Plain: with herbivorous snails, tiny fly larvae and water slaters all the way up to the top predators: dragonfly larvae, newts and diving beetles and then you have the army of pond skaters who patrol the surface itself.

We wanted to bring the drama, the magic and the joy of this amazing ecosystem to everyone to lift a bit of the lockdown gloom. We set a date and started contacting partners to invite them to take part – we had no idea if anyone would join in but hoped for the best.

What a pleasant surprise we had during that weekend in June: we were inundated with notifications of people sharing pond related videos, photos, and people liking what we had posted too. We saw brand new ponds, old ponds, community ponds, ponds of all shapes and sizes and the huge diversity of life that they all supported. You can watch our #PondWatch films on our new YouTube channel, search for British Dragonfly Society. Outreach volunteer and film maker Steve White created a dramatic short film for us titled 'What Lurks Below' and it is well worth a watch.

The national i Paper also noticed our campaign and wrote a story on how many people were creating ponds to help them through lockdown. We were all pleased with how it went and #PondWatch will now be an annual feature every June.

We cannot wait to do it again.



News from Scotland

by Scotland Recorder Pat Batty

The Black Mount Estate in Argyll, stretches from Loch Etive in the west across Rannoch Moor to near Rannoch in the east.

The **Azure Hawker** breeds in small bog pools which contain sphagnum and cotton grass, some as small as 1 x 2m, others are long and narrow but often not more than a metre wide and 30cm deep. There are thousands of such pools on Rannoch Moor and only a small area has been sampled. The bog pools in the Loch Ba area NN3249 to NN3148, on both sides of the main road, have a good population, of the Azure Hawker and are one of the best Scottish sites for the species.

A recent survey found 17 larvae across 11 pools; excellent news after one of the driest springs on record. The larvae were of a range of sizes representing

some survival across three development years. There are other known sites scattered over the moor, but with larvae found in the small number sampled, it is likely to be widespread in the area.

Sphagnum filled runnels and ditches are the habitat of the **Northern Emerald** dragonfly and it is often seen in woodland.

Crannach Wood and Doire Darach (photo below) are large surviving western remnants of the old Caledonian Pine woodland. They contain the main breeding sites for the Northern Emerald but it has also been found in pools on the open hill. Adults hunt in the woodland as does the Azure Hawker. The Northern Emerald is part of the SSSI citation for Crannach Wood, but in fact because of the topography

Doire Darach is a better site for the species. At both sites the erection of enclosures for pine regeneration has increased the vegetation and sphagnum growth in the runnels which are now not as good a breeding habitat, but breeding still takes place and survival of the woodland is most important.

The **White-faced Darter** needs bog pools with sphagnum lawns that are often deeper than those for Azure Hawker, though the species have been found together. The White-faced Darter has been known from the Bridge of Orchy area since early 1900. A very good breeding site was found on the roadside before Doire Darach, NN295411, in 1998 and the species continues to breed here in good numbers. The site however is gradually infilling with sphagnum and would benefit from a small





Bridge of Orchy, White-faced Darter Site.

dam at the outflow to maintain water levels. Northern Emerald and Azure Hawker larvae have also been found here.

Recently White-faced Darter has been found in several pools near Loch Ba and on Druim na Slat NN395473 and is also likely to be more widespread as there is extensive breeding habitat.

Other dragonfly species are present on the estate: the Golden-ringed Dragonfly breeds on the burns; Common Hawker, Four-spotted Chaser and Black Darter in the bog pools. Large Red, Emerald and Common Blue Damselflies are in larger pools and lochs along with Common Darter.

The Black Mount Estate because of its extent and number of breeding rare species is an excellent site for dragonflies. However, because of the fickle weather in western Scotland you need luck to see adults flying.



Rannoch Pool



Migrant News

Following rather dramatic years for migrant dragonflies in both 2018 and 2019, it was perhaps too much to expect another high-profile season, and events during the first half of 2020 were indeed much more low key. They were, however, certainly not without interest.

One of the highlights of the early season was the discovery of immature Red-veined Darters at a number of sites during late May and June; these sites ranged as far north as Brockholes Nature Reserve in Lancashire and Langley Park Wetlands in Co. Durham. Given the mild winter of 2019/20, the dragonflies seem likely to have been locally-bred individuals, and exuviae were indeed discovered at two sites in Kent. As yet there is no clear indication as to whether the dragonflies stayed around to breed, but it will be interesting to see if any long-term breeding colonies do become established as a result of these spring emergences. In addition to the local individuals, a small immigration of mature adults was also noted during the hot weather towards the end of June, with sightings as far north as Papa Westray in the Orkney Islands – this being the most northerly record of Red-veined Darter ever made in Britain.

Our other regular migrant, the Lesser Emperor, had a fairly quiet start to the season, though one found dead on the shoreline on the Isles of Scilly near the start of June was an interesting record. During the last days of June and first half of July a surge in records then took place, with roughly 25 sightings. Although a degree of fresh immigration no

doubt occurred, almost 50% of the records came from sites that also held the species in 2018 or 2019, and with a number of the dragonflies clearly being immature it seems likely that many sightings involved locally-bred individuals. In Britain, Lesser Emperors do at long last seem to be becoming more widely established as residents as well as migrants.

Many of the other highlights during the early part of the year also seemed to relate to the legacy of previous migrations. What appears very much like an established colony of Norfolk Hawkers was discovered in the Radipole area of Dorset during June, with up to seven individuals being seen mid month. Although there were no reported sightings from Dorset that year, this colony was perhaps founded during 2018 at the same time as when a male Norfolk Hawker was discovered in Devon. Southern Migrant Hawkers also continued to

be in the news, with the first records for Oxfordshire being made in mid June when a number of immatures were discovered at a site on Otmoor. These probably result from local breeding in 2019, the adults again having gone un-noticed at the time.

Although genuine migration was seemingly quite low key during early 2020, some interesting records were never-the-less still made. In addition to the Red-veined Darter and Lesser Emperor arrivals mentioned already, Southern Emerald Damselflies were noted at Sandwich Bay in Kent during early summer and a male Norfolk Hawker was discovered at Spurn in East Yorkshire on 17 July. A Scarlet Darter seen on Jersey in the Channel Islands on 7 June was also of note. I wonder what events will be in store for the second half of the 2020 flight season.



Southern Migrant Hawker by Jim Baldwin, Isle of Wight, August 2020.

First Dates for 2020

Compiled by Adrian Parr

In much of Britain, both winter 2019/20 and spring 2020 were noticeably milder than the long-term average, with early April in particular seeing some high temperatures. As a result, this year's dragonfly season got off to an early start – though not quite as early as during the record-breaking times of spring 2011. Several records of Large Red Damselfly were received during the last days of March, and by the end of April no less than 13 species had been seen on the wing. Both Blue-tailed Damselfly and White-faced Darter set new all time earliest-ever dates, if only by one day. And all this was despite the restrictions imposed by the COVID-19 pandemic, which meant that recording effort was reduced in many areas (though conversely it was probably increased at quite a few garden ponds!). As the season progressed, first dates for many species continued to be early, with Scarce Blue-tailed Damselfly, Scarce Emerald Damselfly and Black Darter all producing particularly notable records. The final species to be reported during the year was Migrant Hawker, the earliest record currently to hand being from 5 July, a fairly typical first date. Full details of sightings are given below:

SPECIES	FIRST DATE	PLACE	OBSERVER
Banded Demoiselle	22-Apr-20	Middlesex/Warwickshire	M. Kempa/P. Dooley
Beautiful Demoiselle	08-Apr-20	Devon	via D. Smallshire
Southern Emerald Damselfly	25-May-20	Isle of Wight	P. Hunt
Scarce Emerald Damselfly	18-May-20	Essex	G. Oakes
Emerald Damselfly	18-May-20	Gloucestershire	I. Twissell
Willow Emerald Damselfly	23-Jun-20	Kent	M. Heath
Azure Damselfly	20-Apr-20	Hampshire	T. Crow
Variable Damselfly	22-Apr-20	Kent	F. Partridge
Red-eyed Damselfly	01-May-20	Glamorgan/Northants.	K. Byrnes/L. & S. Lonsdale
Small Red-eyed Damselfly	16-Jun-20	West Sussex	A. Thrasher
Large Red Damselfly	25-Mar-20	Hampshire	J. Iddenden
Common Blue Damselfly	15-Apr-20	Hampshire	P. Hutchins
Blue-tailed Damselfly	15-Apr-20	Hampshire/Lincolnshire	P. Hutchins/F. McKenna
Scarce Blue-tailed Damselfly	07-May-20	Norfolk	L. Rowe
Small Red Damselfly	02-Jun-20	Hampshire/Bucks	S. Hewitt/C. Lamsdell
White-legged Damselfly	07-May-20	Kent	R. Price
Southern Migrant Hawker	13-Jun-20	Essex	T. Caroen
Southern Hawker	25-May-20	Cambridgeshire	M. Twinn
Brown Hawker	28-May-20	Hampshire	S. Colenutt
Norfolk Hawker	09-May-20	Hertfordshire	S. Fox/P. Wood
Common Hawker	06-Jun-20	Perthshire	D. McCulloch
Migrant Hawker	05-Jul-20	Essex	P. Day
Emperor Dragonfly	03-May-20	Hampshire	P. Winter
Hairy Dragonfly	19-Apr-20	Somerset/S. Yorkshire	S. Phelps/D. Wozencroft
Common Club-tail	24-Apr-20	Oxfordshire	G. Wyatt
Golden-ringed Dragonfly	16-May-20	Hampshire	M. Nesbitt
Downy Emerald	24-Apr-20	Dorset	L. Johns
Brilliant Emerald	01-Jun-20	West Sussex	S. Riley
White-faced Darter	22-Apr-20	Denbighshire (VC50)	M. Sokolowski
Broad-bodied Chaser	09-Apr-20	Wiltshire/C 50	R. Gill
Scarce Chaser	02-May-20	Hampshire	P. Winter
Four-spotted Chaser	19-Apr-20	Gwynedd	E. Urbanski
Black-tailed Skimmer	06-May-20	Worcestershire	A. Warr
Keeled Skimmer	12-May-20	Hampshire	J. Cross
Black Darter	02-Jun-20	Dorset	P. Swann
Ruddy Darter	25-May-20	Isle of Wight	P. Hunt
Common Darter	20-May-20	Northamptonshire	G. Bentley



Banded Demoiselle - a Photographic Study

Matt Bingham

I have always enjoyed watching dragonflies and damselflies and must confess that Banded Demoiselle are one of my favorites. I was lucky enough one summer to see a female Banded Demoiselle fully submerge to lay her eggs. This sparked an idea to photograph the lifecycle of the Banded Demoiselle during one summer.

Over the winter I built an underwater camera housing which I hoped to use to take a photograph of a female Banded Demoiselle ovipositing underwater.

I chose to undertake the project on the River Soar as it was near my home and had good numbers of Banded Demoiselle. One of the tributaries in particular had very clear water which would be a good location for the egg laying shot. I made a list of the photographs I wanted to take and scouted out the locations in preparation.

The following summer I spent a lot of time in chest waders in the river as photographing insects at eye level adds impact and gives a much more interesting perspective.

The males were quite aggressive, they would not tolerate other males in their territory and would chase them away before returning to their favoured perch. If a female flew along the river it resulted in mob behavior from the males as they all tried desperately to grab her. The males seemed to spend more time chasing each other though, as there were far fewer females.

Once a male had latched onto a female they would fly in tandem into the bushes to mate. Generally after mating the male would remain



Male Banded Demoiselle (above)

Female (below).



attached to the female but in some cases the female would oviposit on her own.

From my observations, the female would only completely submerge to egg lay if she were continually mobbed by males. I never spotted both a male and female submerge, in tandem, so from what I observed, I assume this doesn't happen. I also never spotted a female completely submerge if she wasn't being mobbed. Completely submerging must expend more energy so this behavior only happens as a last resort.

Towards the end of the season I was lucky enough to observe a female submerge right in front of me. She stayed submerged for about 30 minutes egg laying in amongst the vegetation about 2 feet below the surface of the water. Her body was covered in tiny air bubbles which gave a metallic blue appearance. These air bubbles are presumably absorbed into the body to enable the female to breath underwater and also help her remain positively buoyant.

Although it was July the water was relatively cold so I expected her to

climb out on a plant stem, dry off and warm up but to my surprise she let go of the plant she was laying eggs in and shot up to the surface like a cork. Once at the surface she immediately flew away, her eggs safely deposited.

Walking along the riverbank at dawn, I would often find the previous days casualties trapped in spiders webs. The spiders would leave the wings as they presumably have very little nutritional value and so, the beautiful wings would remain trapped on the webs.

Male and female in tandem with female egg- laying and being mobbed by another male

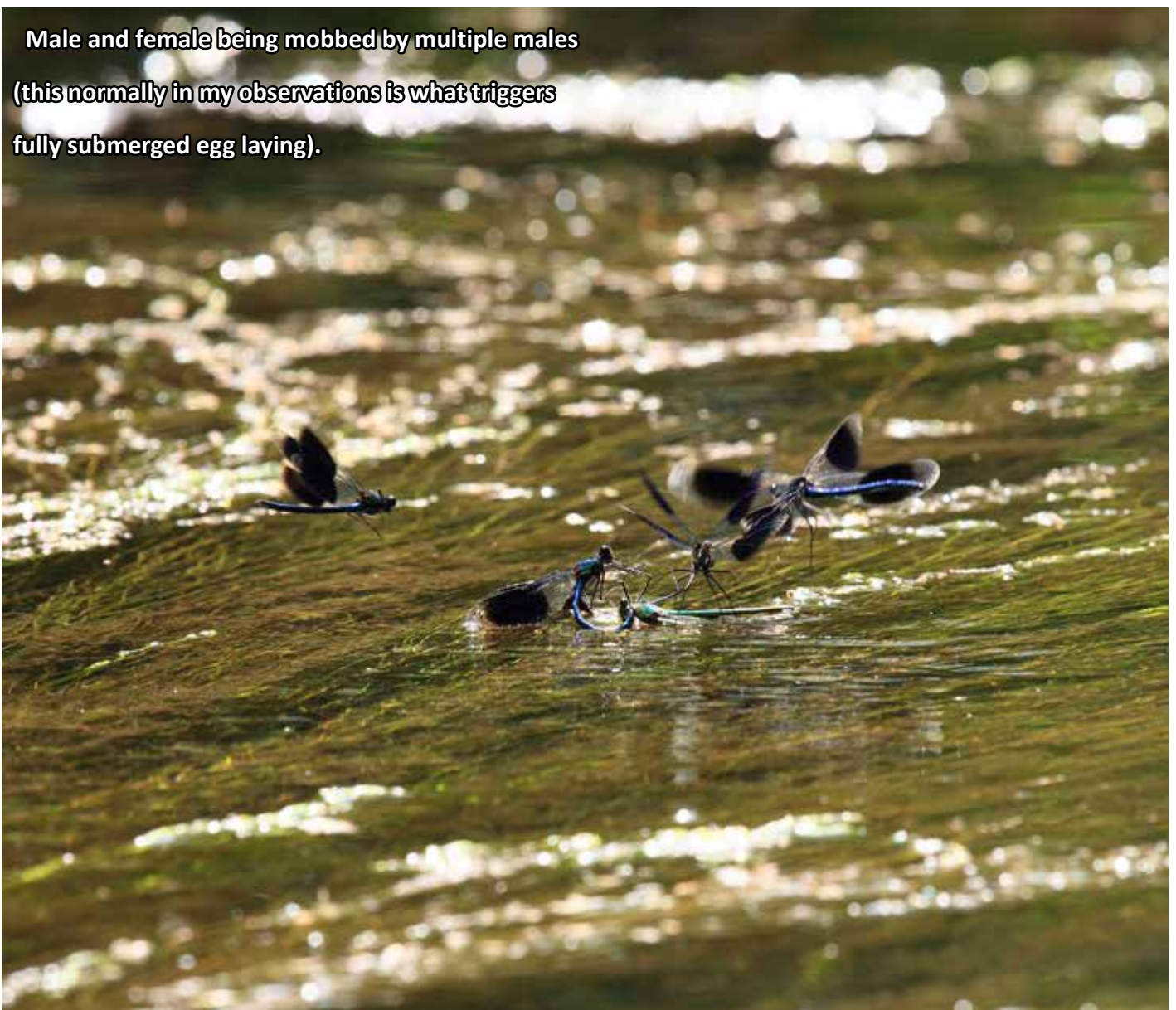




Male Banded Demoiselle in threat posture



Two male Banded Demoiselle fighting over a perch (above)



Male and female being mobbed by multiple males
(this normally in my observations is what triggers
fully submerged egg laying).

Fully submerged female egg laying
(note tiny air bubbles trapped on the thorax)



All that is left by the spiders.



All photos copyright of Matt Bingham



SPOTLIGHT ON

Paxton Pits Dragonfly Hotspot

Mike Thomas

Paxton Pits by Sophie F Baker

Paxton Pits Nature Reserve is a rich mosaic of wildlife habitats, with beautiful lakes, riverside, meadow, reedbed, scrub and woodland. It is situated in the Great Ouse valley in Little Paxton village, between St Neots and Huntingdon, and just off the A1.

There's loads to see at Paxton Pits all year round. It's a well-loved place for bird watching, with many overwintering wildfowl and regular sightings of kingfishers – as well as the famous nightingales in spring. But you'll also see plenty of other evidence of a healthy ecosystem here, including elusive mammals such as otters and weasels, plus a wide range of wildflowers, dragonflies, damselflies and butterflies in the summer. The site is home to an impressive **26 species of dragonfly and damselfly**. Hayling Lake is a good place to spot **Norfolk Hawker** and our growing population of **Willow Emerald Damselfly**.

The nature reserve is managed by Huntingdonshire District Council in partnership with the Friends of Paxton Pits, who support the Reserve through volunteering and fundraising activities, to improve visitor facilities and maintain habitats for wildlife.

The Reserve is also home to the Wildlife Trust for Bedfordshire, Cambridgeshire and Northamptonshire's Environmental Education Centre. The Trust runs events for children and families, giving everyone the chance to get involved with wildlife whatever their age.

For more information on the reserve have a look at our website: paxton-pits.org.uk/

Getting Here:

By car or bike

Paxton Pits is located just five minutes from the A1. The entrance to the Reserve is at grid reference TL 196 629. Use postcode PE19 6ET for GPS devices. Parking is free and there are racks provided for bicycles.

By rail

St Neots railway station is about two miles south-east from Little Paxton. You can walk most of the way from the station along the Ouse Valley Way.

By bus

The number 66 bus stops nearby in Little Paxton. Bus timetables can be found on the Traveline East Anglia website.



Norfolk Hawker on Hayling Lake by Graham Taplin



Young Naturalist

Welcome to the Young Naturalist's section of Dragonfly News! Here, you will find articles written by other young people, interviews, fascinating facts and much more.



Dragonflies and me....

Iolo Williams

We chatted to Welsh naturalist and BBC Springwatch presenter Iolo Williams about his lifelong love of dragonflies:

Why did you first become interested in dragonflies?

As far back as I can remember my first memories at about 3-4 years old, I've always been into wildlife and dragonflies were a part of that. Although my earliest memories are mainly garden memories and birds' nests, flowers and a few reptiles – I remember when we moved up to Lake Vyrnwy when I was 4.5 years old (I think I was) and watching a **Golden-ringed Dragonfly** hunting over a small pond and it caught a wasp. I remember watching this, I could hear the dragonfly eat the wasp from the sting up, and when it had eaten the wasp's abdomen, the legs were still moving. I remember thinking, wow, what a cool insect that is! So that's got to be my first memory of a dragonfly.

What is your favourite species of dragonfly/damselfly and why?

Golden-ringed Dragonfly. Its because it was the biggest one we would see up at Llanwddyn village. Also I used to make money because people thought, because they had black and yellow bands, that they would sting, of course I knew that they wouldn't. So I would ask people to give me 10p and I would hold the Golden-ringed Dragonfly in my hands for five seconds. I would gently hold one in my cupped hands, scream 'Oww oww', and then let it

go. People would think I was brave and give me the 10p and I'd say thank you very much! That is part of the reason I like them so much but the other thing really is the fact that they were the biggest ones we would see and they are really impressive. I remember finding out more about them as the years went on, such as them spending up to four years as a larva underwater, their amazing mouthparts, their compound eyes, I was in awe of them really.

I live in the South Valleys of Wales now and we see Emperors, some of the Hawkers, Chasers and more but the one I always remember from up on the moors and in the peaty water is the Golden-ringed Dragonfly. So that's my favourite, always has been and always will be.

What is your best memory of a dragonfly encounter?

The most memorable one has to be that first encounter with a **Golden-ringed Dragonfly** eating a wasp from when I was a child.

I also remember digging around in an open cast coalmine down in South Wales, not far from Merthyr and opening a bit of coal and finding a section of a dragonfly wing. I remember thinking, wow, I'm the first one to see this for about 300 million years, since Carboniferous times. Then when you hear that in those days that they would have had a wingspan of around 70cm, it's just really cool. The other cool thing is that for those 300 million years or so they are largely, other

than size, unchanged. It is the same format, the big compound eyes, the beautiful wings, really impressive. Everything that I learnt about them made me admire them more and more and more. We also found several of the ancient relatives of the Mare's-tail plant, these fossilised equisetids were large trees reaching to 30 metres tall.

What is your favourite dragonfly fact?

The Alien from the sci-fi film by Ridley Scott was inspired by a dragonfly nymph, particularly the prognathous (protruding) jaw. People saw the Alien and thought it was amazing, especially the jaw that fired out, but what's more amazing is that it was based on fact, the dragonfly nymph.

BDS: What is your favourite place to watch dragonflies?

It's not the best place but it is my favourite place, my garden pond. We get **Large Red Damselflies**, **Common Blue Damselflies**, **Broad-bodied Chasers** and **Migrant Hawkers** – it's not an impressive list, I've not even seen Golden-ringed Dragonfly there, but it's my favourite place because it's home. And it's my pond and I created that pond and the dragonflies and damselflies are there because of something that I did. That really gives you a sense of satisfaction.

The pond is home to so much life, from Palmate Newts, to Whirligig



Beetles, Great Diving Beetles, Water boatmen and the amazing dragonfly and damselfly nymphs. Along the stems of the marginal plants like the flag iris, over the period of a long weekend in the summer you get half a dozen or so of the exuviae left behind (the cast larval skins) and it's just amazing to think, this is my pond. I made a home for all this wildlife.

What one thing do you think people should do for dragonflies?

Ponds! Just ponds, ponds, ponds, ponds, ponds. If everyone put a pond in their garden, it would make a massive difference. The bigger the better is the usual rule but mine is only 2m x 1.5m and supports lots of life. Of course, there are huge countryside issues but the simplest thing to do to help dragonflies is if everybody dug ponds.

It has been great to see so many people putting ponds in during the lockdown period and not mowing their lawns too. The more that we can help insects the more food there

will be for dragonflies, so it's really good to see that.

Any advice for aspiring young naturalists?

Just get out there. Get up off your sofa and get out there and don't be afraid to make mistakes. We all do. I'm just getting into bees and I made a mistake, I called a Grey-patched Mining Bee a Tawny Mining-Bee and they are quite different. It doesn't matter though, it really doesn't. You are not going to learn much sitting on your backside on the sofa. So just get outside as much as you can and be a sponge, soak all of this in. This is advice to all ages too: never ever lose that childlike enthusiasm for wildlife. I can't walk past a log without lifting it to see what is underneath. I can't walk past a pond without spending at least a few seconds having a scan around to see if a dragonfly or damselfly is perched on the vegetation; or to see if there's a newt in the water... So never ever, lose that childlike enthusiasm for wildlife. Never lose it.



**Golden-ringed Dragonfly by
Iain Leach.**



My name is Lucy Colclough, I'm 26 and I'm the founder of workWILD a Nature Connection Consultancy based in London.

I was made redundant in April due to covid-19 and it was the perfect time to launch workWILD which fuses my passion for nature with my previous career as a brand and business strategist. As a Nature Connection Consultant, I help organisations emulate the ideas, processes and systems found in nature to build businesses that function like healthy, resilient, living organisms. With over 3.8 billion years of strategic experience the natural world knows a thing or two about communication, collaboration, problem solving and coming back after a crisis!



What is the best thing about your work?

That it's so new and exciting! Bio-inspired business is an emerging field with a community of likeminded consultants all over the world starting to apply nature's principles to the companies that they work with. This is definitely where I think the future is heading and to be in at the beginning of such an important movement is a great feeling. I get to study how nature works and apply it to real business challenges to try and craft a better, more sustainable world. It's something I'm really passionate about.

What does a typical day/week involve?

I work from a studio at the bottom of our garden where I craft workshops to help clients tackle their business challenges. A key part of the process is to ask 'what would nature do?' Due to covid-19 some common questions clients have are around remote working, leadership, staff wellbeing and restructuring. It's very varied – I can be looking at how fungi communicate in huge underground networks in the morning and explaining how a forest eco-system recovers from crisis in the afternoon. Taking teams outside to experience the power nature has to boost our mental health is also a key part of my work.

Describe the most challenging aspect of your work?

I think the hardest thing is challenging the fixed views of some business owners. Crafting a bio-inspired business often means being brave and doing things differently to other businesses. We're very used to doing things the way they've always been done and running our organisations like machines with the focus more on profit than people. Working WILD often means making significant positive changes to the way we think and work and requires an open mindset to embrace doing things differently.

Do you have any advice for anyone wanting to start a career in Wildlife Conservation?

I would say that you don't have to work out in the field with animals or plants to have a career that supports wildlife. At workWILD we promote building a strong connection with nature for the good of your business – this encourages people to learn about and, ultimately, care more about the natural world and its wonders.

Perhaps you could be a graphic designer that works with wildlife charities to promote their campaigns? Or maybe you're great at writing so you train to be a journalist that tackles environmental topics? There are lots of ways to save the planet indirectly.

Finally, what, or who inspired you to want to save species for a career?

I've always been interested in wildlife and was lucky enough to grow up in a house with a big garden. I would spend hours watching the frogs in our pond, the fox cubs playing on next door's lawn and the birds from

our kitchen window. My favourite book was (and still is) My Family and Other Animals by Gerald Durrell which was so inspiring to me as a young naturalist. I also loved watching wildlife documentaries on TV - everything from The Really Wild Show to Life on Earth, it all contributed to my love of nature..

How can we keep in touch with you?

As the year progresses and many people start heading back to the office, I'll be helping businesses evaluate their crisis strategy in the wake of covid. There's so much that we can learn from nature about responding to a 'negative' event and coming out stronger.

I'm also going to be helping clients bring their team back together by using nature as a tool to work on their wellbeing and better define their purpose in a post-covid world.

If this sounds interesting you can find out more and get in touch with me at <https://workwild.org/>

 WORK WILD





DRAGONFLY

HIDE AND SEEK!

A fun garden game that teaches you about Dragonfly larvae and where they live.



You can find more games and activities in the 'resources' section of the BDS website:

WWW.BRITISH-DRAGONFLIES.ORG.UK



HOW TO PLAY

- Read your species page. Then tell the group the name of your dragonfly, what it looks like.

- Cut out your dragonfly larvae.



- Collect leaves, sticks and other materials to use to camouflage your larvae.

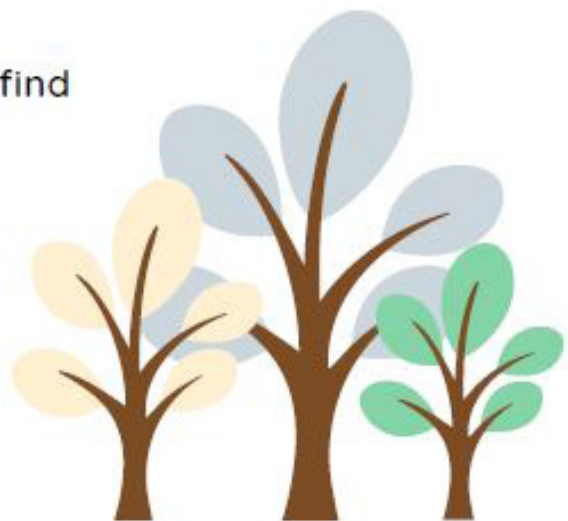


- Stick your materials to your larva.

- Hide your larva outside.

- Now the group has to try and find all the larvae together.

- At the end they vote for the one they think was the best.



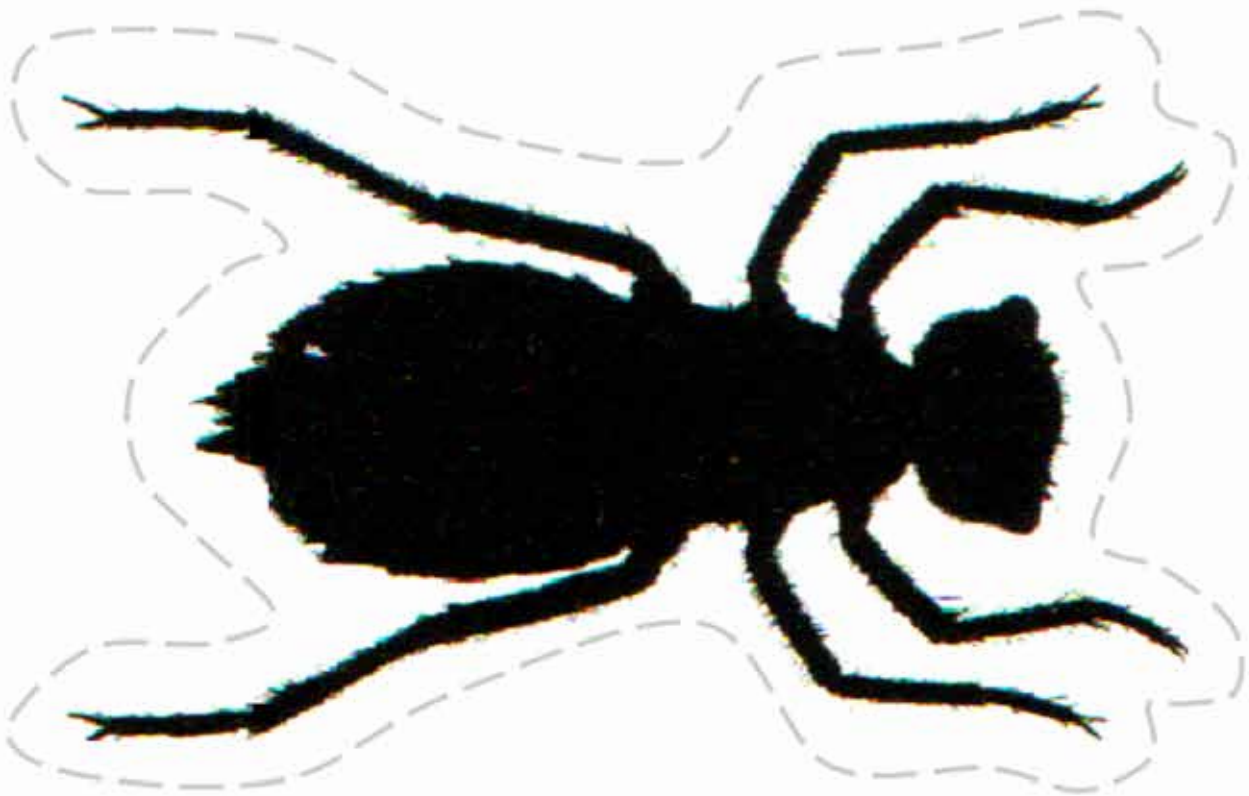
BROAD-BODIED CHASER

Adult Broad-bodied Chasers have very wide bodies. The males are blue and the females are yellow. The larvae live in weeds that grow underwater in ponds and lakes. Broad-bodied Chaser larvae have small beady eyes and short bodies.

ADULT



LARVA





Please cut out this page
to enjoy the
hide and seek activity



LARGE RED DAMSELFLY

Adult Large Red Damselflies are small and red with black markings.
The larvae can be found in lots of different types of wetlands and hide under dead plant material. Large Red Damselfly larvae are small and have three fins that have dark markings.





Please cut out this page
to enjoy the
hide and seek activity



Green Fingered George

Hi, I'm George, I'm 15 and I absolutely love wildlife gardening and don't mind describing myself as a 'nature nerd'. Wildlife gardening gives me so much pleasure and watching the wildlife we attract in our garden makes me feel really calm and chilled. I've been helping my Dad in our garden at home since the age of 4; at the same time my Mum set up a community gardening scheme and I've been involved in that ever since. My primary school had a gardening club led by an amazing teacher, Sarah. In 2004 at the age of 8, I won the RHS Young School Gardener of the Year Award and was later made the first RHS Young Ambassador. My job is to inspire others – especially children – to give gardening a go.



Our garden at home was originally on a steep slope which we converted to 3 more accessible levels. Dad started the landscaping from scratch when I was really young: it wasn't quite a blank canvas, more an overgrown mess! Amongst many gardens we visited, a trip to a café at Monsal Head, Derbyshire inspired the stepped planting levels that would suit our garden, rather than a traditional grass garden, surrounded by a border. I've always liked water, it's that simple. The pond was going to be the last thing Dad intended to do, but because I love ponds so much, I managed to talk my Dad into it being one of the first things we did!

We started pond number one (there are 3!) back in 2013, pictured above. Digging it out was a real nightmare; the ground below was full of debris, rubble, glass, and deep-set roots. We used a formed pond at this stage because of the ground below and at that point it was going to be the only pond we would create – WRONG! We were thrilled with the outcome: pretty soon water beetles were settling in and making it their home and there were already frogs hopping round the garden. Within no time we started to think about another pond shaped around the first one, creating a reed and beach area, with more plants to create an even more diverse habitat. Originally, it was going to be 3 buckets with some plants in. It just shows, you can get a bit carried away with ponds and no sooner had we finished that, than we already had thoughts of a third!

Pond number 3 isn't quite finished – this will be deeper still. In fact, we started digging it out on the first weekend of lockdown. Like most things in our garden, there's always something else to do, before you can carry on with the actual job! That's a tip really – if you're going to create a pond, just have a think about the surrounding area, for example completion of an area that you won't be able to reach once the pond's established.

Here's some of the pond plants we have: Marsh Marigold - good for pollinators, Iris - great for emerging dragonflies to climb up so they can take off from a height, oxygenators - help to oxygenate the



water (we haven't got a filter system in the pond, we just rely on mother nature to keep it clean), Purple Loosestrife - another great native plant and Greater Spearwort. Although, just to note Greater Spearwort and Flag Iris are a bit of a beast and can be out of control in no time.



Pond life – from the smallest organisms, water fleas, which are the start of the food chain, to mosquito larvae and pond snails which eat algae. There are the predators of the pond, dragonfly and damselfly nymphs and tadpoles & frogs. There are also the visitors to the pond such as birds, who bathe and drink there and we had a fox visit once.

Dragonflies in particular are such a beautiful insects; they are so fast but when you get to watch them up close you can see the intricate patterns on their wings, like stained glass windows. With their beautiful jewel like bodies and

big dark eyes, it's hard to believe that they're really vicious predators. It's incredible how they live most of their life in ponds as carnivores, so well adapted and the way they change like something out of Dr Who, when they shed their skin and metamorphose right before your eyes.

The pond became my classroom during lockdown; I was incredibly lucky to watch 40+ Large Red Damselflies emerge from our pond. What a privilege to see them transform and fly off and better still, we witnessed them mating a couple of weeks later, ensuring the next generation of damselflies. We also counted eight Broad-bodied Chasers transform too (pictured above), they completely dwarfed the damselflies. It took nearly 3 hours for them to transform and fly off; it was absolutely fascinating. We've had Blue-tailed Damselflies (pictured below) and darters visit this summer, and fingers crossed they'll make their home in our pond too.



I'd recommend creating a pond, whatever size, as they are a great thing to look at and you'll see wildlife pretty much within the first few days. On a sunny day, when the water's clear and the sun is shining on it, just sit by and look at the wildlife, there's just nothing better.

George keeps a regularly updated blog about his love of the natural world.

Visit: greenfingeregeorge.com

Twitter: @GreenFGeorge

Facebook: GreenFingeredGeorge

Instagram: GreenFingeredGeorge



Dragonflies in Lockdown

Conservation Officer Eleanor Colver reflects on a dragonfly season spent in lockdown:

At the time of writing my previous article for Dragonfly News, for the 2020 spring issue, we were in the middle of laying out our plans for the dragonfly season. You will not be surprised to hear that these plans, which included a calendar packed with outreach events, did not go quite as we had expected!

So how has life at the BDS changed since lockdown began back in March. Well, to start with the staff, including myself, had to give up one of our favourite aspects of our job: visiting dragonfly sites and working with fellow dragonfly enthusiasts! We have been well and truly grounded at home over the summer, relying on regular online catch-ups to help fight cabin fever.

Unfortunately, many of our usual summer activities had to be put on hold in order to protect BDS staff, volunteers and the public. As wildlife recording was classified as a non-essential activity, recording projects such as the White-legged Damselfly Investigation had postponed; although we still encouraged recorders to keep their eyes peeled for the species during outings.

Many of our conservation and outreach project activities which we had planned, such as Southern Damselfly habitat creation in the Purbeck Heaths, and the launch of new Dragonfly Hotspot partnerships, were also cancelled for the year. Thankfully our funders have been very understanding and we have been granted extensions for all our project work.

However, what I found particularly disappointing in 2020 was the cancellation of all our planned events, from bio-blitzes to wildlife festivals. Our staff and volunteers work very hard each year to put together a calendar of field meetings and family events for the dragonfly season and it is such a shame they were unable to go ahead. As I mentioned, meeting fellow wildlife fans and working with our amazing volunteers is one of the best parts of this job and is something I have sorely missed this year.

With many of our big plans cancelled, and activities restricted, the BDS has had to adapt rapidly in order to stay active. This has predominantly involved moving all our activities online, which has definitely had a silver lining. While we may not have had the fun of interacting face to face with crowds at our events, online outreach provides the opportunity to reach new audiences whose ability to attend our usual events may be limited by income, transport or accessibility. We counted our lucky stars the BDS had invested in a new website the previous year, which made going 100% virtual a whole lot easier for staff! Lockdown provided an opportunity to give the website some real TLC, which included adding new features like the 'where to see dragonflies' interactive map and a public photo library, with the help of John Winterbottom and David Hepper.

With the world stuck at home, a large proportion of our communications focused on encouraging the public to make their local green spaces, whether that's a garden or allotment, more dragonfly friendly. The feedback from the public truly exceeded our expectations! Over the summer we were inundated by people wanting to share photos of their garden activities and dragonfly sightings. Gardening has definitely seen a boom during 2020; the Royal Horticultural Society reported it received a fivefold increase in queries this year. With more time spent at home we can only assume people have had more time to appreciate their green spaces, as well as the plants and animals that live there. In June 2020 the Royal Institution of Chartered Surveyors residential market survey noted a sharp increase in the public's desire for homes with gardens or access to green spaces. Despite the havoc that lockdown has caused in the world of wildlife conservation this potential shift in public perception of green spaces provides a golden opportunity to engage communities in nature conservation on a local level. Anyone who has built a pond knows that even a small garden can support an abundance of dragonflies as well as other wildlife. We need to take control of this opportunity and build on people's appreciation for the outdoors, from its mental health to recreational benefits. While some aspects of modern living are set to return at the eventual end of lockdown the way we interact with our green spaces and care for wildlife does not have to return to the previous status quo. Let's use this year to improve our relationship with nature.

If you would like to learn more about gardening for dragonflies, please visit the resources page under the get involved section of our website.



Rewild Your Brain

Fiona McKenna



I have never craved green, soft landscapes more so than during the strictest part of lockdown. I only had the hard city streets to walk along, with only fleeting glimpses of the distant countryside that was off limits. Unlike many city dwellers though, I had access to a garden for which I was extremely grateful.

I have always known that spending time in nature, outdoors, feeling the soil, touching leaves, drinking in the sights and sounds of wildlife has made me feel good, grounded, and less anxious. I have never really thought about why though. I have just accepted it, embraced it and known to listen to my brain when it craves time in wild spaces. I think of it as needing to reset my brain, to recalibrate.

It was fascinating to see this subject featured on both BBC Springwatch and the Self-Isolating Bird Club (online) during lockdown. They explored the various ways spending time in nature can have a calming effect on us. In Japan Shinrin-yoku - forest bathing, has been prescribed to improve wellbeing and to combat anxiety and depression for many years. Most research so far has focussed on the visual aspects of nature experiences. However, a growing area of research is now focusing on how non-visual pathways deliver benefits from nature experiences; such as the inhalation of natural oils that trees release, called phytoncides. Mindfulness is thought to play a key role in Shinrin-yoku too. To get the full benefit we need to take our time, be mindful and switch off our devices allowing us to engage

all of our senses and truly connect with our surroundings. In the UK, there has been a shift towards social prescribing recently by GPs, to prevent illness and tackle problems in a holistic way by referring people to non-clinical services. It is hoped that forest bathing may be widely prescribed here just as it has been in Japan. This could help in protecting woodlands which would be good news for wildlife too.

Another interesting topic explored was how contact with soil can lift your mood. This is due to non-pathogenic bacteria called *Mycobacterium vaccae*, which naturally occur in soil. When we absorb these bacteria, they activate a group of neurons that produce the brain chemical serotonin. A lack of serotonin in the brain is thought to be a cause of depression. This could explain why so many of us enjoy gardening and habitat management activities where we can get our hands dirty.

The growing research into the cognitive benefits of being by water, or “blue mind science”, was also discussed. Being by the sea has been believed to be restorative for a long time, and I find I always feel happier after a trip to my local coast at any time of year. Staring out across the seemingly endless sea draws you out from within the confines of your head, and leaves you in awe of the vast beauty in front of you, somehow putting everything into perspective. However, research has shown that water of any kind can promote good mental health. This is an exciting area of research as the findings could

help in the battle to protect our freshwater habitats: in the name of mental health and wellbeing in addition to saving species and protecting vital resources. Wouldn't it be amazing if urban ponds were prescribed so that more people could experience the benefits of being by water whilst benefitting wildlife at the same time?

Finally, another fascinating topic to mention is fractal patterns and the positive impacts they can have on our brains. Fractal patterns are common in nature. Trees for example: you see the pattern of the trunk splitting off into limbs, then down into smaller branches and down to the pattern on the leaves themselves. These repetitive patterns are pleasing to look at. Artists have known about this for some time and some include fractal patterns in their work. Researcher Richard Taylor recorded a 60% decrease in stress levels after study participants viewed fractal patterns in artwork by Jackson Pollock. Why this stress reduction happens is still not clear, but it is being investigated further by scientists. Dragonfly wings also contain fractal patterns so perhaps this is why we find it so pleasing to look at them. This is a great excuse (if one was needed) to include some dragonfly art on your walls.

More contact with nature could benefit us all. Making sure that we all get our daily dose of nature, by rewilding our brains and not becoming nature deficient, could definitely help to keep our mental health in good shape.



It Was “One of Those Days” Until...

Allan Archer

Eyes that present numerous shades of green. Delicate wings with paddy field like patterns. Outstretched abdomen pulsing to the rhythm of my heartbeat. A connection. A mood lifted.



Have you ever had “one of those days”? You feel tired, fed up and just can’t be bothered. There does not seem to be a reason for it, you just “got out of the wrong side of bed”.

On June 1st, I had just that. However, because I suffer from depression, it was particularly bad. Depression does that to you sometimes. One day you are fine and the next you struggle to get out of bed, whichever side you chose. You feel exhausted, your whole-body aches, the muscles in your face tighten and your senses dull. You don’t want company, but you don’t want to be alone! Your mood is very low.

I guess I have had depression all of my life but it is in the last 20 years that I have suffered with it. I now believe that I have got it under control. By that, I mean that I understand it and I know how to manage it. The instruction on the box of tablets says “take ONE daily”. I still do this but I am on a tiny fraction of the medication I used to take. My preferred prescription is “take NATURE often”.

So, what of June 1st?

Feeling terrible, I knew I had to get out of the house. I decided to go to Lower Wood, Ashwellthorpe. An ancient woodland known for its gnarled Oaks, towering Hornbeams and a wealth of flowers. It certainly isn’t well known for its water-filled ditches and fens containing patches of Water Soldier. This is probably due to the fact that it has none of these. In fact, it holds no similar habitats, not even a small stream.

So, when I left home that morning, the last thing I would have expected to see was a Norfolk Hawker. True, they are expanding their range. But all the books and my experience of this species tells me a dry, mixed woodland ride would not necessarily be the place to look for this much sought-after species.

I had been in the woods about half an hour. My mood had been lifted slightly by the bird-song and butterflies. Turning into a ride, I saw a hawk ahead of me. In such circumstances, your mind goes to Southern Hawker – a bit early, but not impossible. Closer examination through binoculars revealed a Norfolk Hawker. At this point my previously dulled senses sharpened. Then it landed on a tree in plain sight.





Green eyes sparkling in the sun. Ridiculously delicate wings, given the life it will lead. Its abdomen pulsating gently suggesting a sense of calm.

I contemplate those green eyes; they look like mung beans and yet they are one of nature's best inventions, capable of seeing in ultra-multicolour and in all directions at the same time. They are not just "green", but many shades of green with sometimes a hint of yellow.

Tissue-paper thin wings, that will become increasingly shredded with age, look immaculate and prepared for an aerodynamically challenging lifestyle. The network of veins providing stability to the membrane.

However, it is the pulsing abdomen that I become attuned to. To begin with it is at a fast pace but as I watch this seems to slow. It may have been my imagination, but soon it is keeping time with my heart. Whether it was this or the fact that for those few minutes my only thoughts were about the amazing insect before me, seen out of context, that lifted my mood I can't say.

A lot has been said and books written, about how nature and being outdoors can help combat depression. After three-hours in the woods, I certainly felt so much better, thanks, in large part, to an unexpected encounter with a pioneering Norfolk Hawker.

Follow Allan's wildlife adventures and interviews with wildlife conservationists via **Talk Wildlife:**



www.talkwildlife.net/



Review

Carolyn Cooksey

I was eagerly awaiting the publication of the new guide to the **dragonflies of Europe**, and I was not disappointed when it finally arrived!

Those who already own Britain's Dragonflies by **Smallshire and Swash** will find the layout reassuringly familiar, with a logical structure to the book, comprising an introduction, a section on damselflies, presented species by species, followed by a similar section on dragonflies. Species are grouped together by genus, and these are ordered in a way that means similar looking dragonflies are presented near each other within the guide.

Each species is given its own page, and key information such as geographical location, flight period, size, identifying features, and several photographic images of both males and females, is included.

On further inspection, there are a number of innovations and improvements in the layout that means even more information is packed in about each species. There's an example image of the type of habitat it is likely to be found in, and the use of cut-out images on occasion maximises the size of each insect image, and the number of images, that can be included on each page.

Each section on a group of damselflies or dragonflies is preceded by an introductory spread, setting out the key features of that group, and showing the adults side by side. For example, in the introduction to Hawkers, the three main groups of Hawkers, Spectres and Emperors are described, followed by a double spread of perched males, and then females, with the key identifying features highlighted. The following pages

EUROPE'S DRAGONFLIES

A field guide to the
damselflies and dragonflies



Dave Smallshire and
Andy Swash



show the comparison in flight, invaluable as that is often the way hawkers are first spotted.

The photographs have been very carefully chosen to show the range of variation within each species. Examples that particularly stand out are the three variants for the Large Red female, and the blue and dark female forms for Azure and Variable damselflies. The images used are taken from the same perspective, and presented side by side, which enables the reader to very easily see the differences.

Where there are very similar dragonflies that may be easily confused, comparison photographs and diagrams help differentiate.

Additional images on the White and Blue Featherleg (White-legged damselfly) pages very helpfully show the different markings on the mid and hind tibiae in the clearest comparison I have seen, and those showing the differences in the end

of the abdomen of the Red-eyed and Small Red-eyed damselflies provide confidence in identification from any angle.

Immature dragonflies can often cause confusion and this guide includes examples of immature and intermediate individuals, allowing the reader to see the spectrum of variation they might see. The Black-tailed Skimmer page helpfully illustrates this well, showing the male markings, an immature and a 'half way house' where the pruinosity has partially developed.

This has been a work many years in the making, but it has been well worth the wait. The images have been compiled from numerous trips including those Dave has led – I even recognise one of the Green Snaketails from a trip to Bulgaria in 2014! In summary this is an excellent guide for both the novice and the seasoned enthusiast, useful in both the UK and throughout Europe.

ISBN 978-0-691-16895-1



A Closer Look at Southern Migrant Hawkers

Steve Cham



For those of you who have been lucky enough to see a Southern Migrant Hawker *Aeshna affinis* there can be no doubt that they are one of Britain's most attractive dragonflies. Since their arrival in this country one of the strongholds has been the Canvey Island ditch in Essex which has become a Mecca for those wishing to see the species at close quarters. The ditch from an initial anthropomorphic viewpoint is a very uninviting looking habitat. Most summers it virtually dries up leaving dried cracked mud with at best a few areas of damp mud. Look closer however and it has a wealth of wildlife including large colonies of Scarce Emerald Damselfly, Ruddy Darter and Southern Migrant Hawker.

This year a few Southern Emerald were also reported. During my visit the numerous male SMH were patrolling and clashing along the ditch allowing good views of their behaviour. On 21st July I walked the entire length of the ditch for over five hours watching and taking photographs of flying males. At one place a male was patrolling, interspersed with bouts of hovering, over a suitable looking area of dry ditch that could attract females. I photographed this male at 11.15 for around 30 minutes (Photo 1) before I decided to wander off to investigate other areas. When I walked back I again photographed a flying male at 13.10 (photo 2) in the same area of dry ditch where the first male had been photographed.

It was not until later, when I viewed the images on the computer, that a very interesting discovery was made that I had not appreciated at the time. The images revealed these to be the same male, identified by a very distinctive mark on the front of its head (frons to be specific). Such markings have been noted before by various people on several *Aeshna* species and maybe due to physical damage or possible infection. These markings offer a very interesting possibility to identify specific individuals and record aspects of 'unseen' behaviour merely by taking photographs. The male referred to here was successfully defending this area of ditch for nearly two hours and maybe even longer. That's some going for a dragonfly to defend and occupy such an area against all incomers.

This opens up scope for further study if someone wants to take up the challenge. SMH is probably one of the easiest dragonflies to photograph in flight but can also be done with other species of Hawker dragonfly (photo 3) whenever such marks are visible, either when settled or in flight. It does not even need expensive cameras and lenses. The flight photographs shown here were taken with a relatively inexpensive mirrorless camera (Canon M6 mk2 which costs less than £900) fitted with a zoom lens. I had originally bought this camera as a backup to my DSLRs but its autofocus is impressive and provides more than 12 frames per second and has so far proved to offer better performance, so much so that it is now my preferred 'go to' option for now.

Image 1 (opposite page) SMH frontal view showing distinctive mark (arrowed).

Image 2 (below) SMH side view showing distinctive mark.

Image 3 (bottom image) Southern Hawker ovipositing showing distinctive marks (arrowed).



Notes & Observations



"I saw this Emperor with damaged wings, I also saw a Damselfly with a similar thing from garden pond. I was concerned that natural algae treatment may have caused this."

Holly Marie

Our answer: "Dragonflies emerging with shrivelled or missing wings will have suffered damage to their wing sheaths, either underwater before emergence (possibly by a newt – I saw an Emperor larva being attacked by Palmate Newts a few weeks ago), or during or very soon after emergence (I've seen ants dismember an emerging Large Red Damselfly soon after emergence). Anything that punctures the wings (or embryonic wings) before inflation will prevent their expansion." **Dave Smallshire.**



Four-spotted Chaser by Jon Mee

Jon sent us these images of a Four-spotted Chaser with green blobs on it's wings.

We at first thought it was some form of algae, but then realised that it could be haemolymph* escaping from damaged areas of the wings.

***Heamolymph** is the fluid in insects equivalent to blood in mammals.



Notes & Observations Continued...



Mistaken Identity

Dragonflies and damselflies can only mate successfully with their own species, however this does not stop them trying their luck with other species. We get tagged into quite a few posts along these lines online. Here are just two examples that we were sent this summer:

Left:

Emerald Damselfly attempting to mate with a pair of Large Red Damselflies, very unusual sighting by Dave Smallshire

Right:

Emperor attempting to mate with a Southern Hawker female, spotted by Jon Mee at his garden pond



"I photographed a weird **Scarce Chaser** on 25 June 2020 beside the River Clyst, near Exeter, Devon. I've never seen one like this before. Mating 'scars' are typically restricted to just where the female's legs hold on to the male abdomen, but this pattern is much more widespread and uniform. I have no explanation!"

Dave Smallshire



Dr Ian Senior tagged us into a fascinating but gruesome post on Twitter this summer. An opportunistic wasp dismembered a newly emerged Southern Hawker Dragonfly. Ian photographed the sequence of the wasp coming back and taking one section of the dragonfly's abdomen at a time, until there was just the head left. You can't help but feel a bit sorry for the unfortunate dragonfly – although larger dragonfly species do eat many wasps so perhaps this evens things out a bit.

If you photograph anything unusual or of interest please let our editor know:
fiona.mckenna@british-dragonflies.org.uk



Dragonfly Week 2020 - A Virtual Celebration!

It was our first ever online Dragonfly Week and we were delighted that so many of you joined in. Our network came together to provide online learning resources, new craft activity resources, photography tips and even baking recipes – all in order to celebrate and promote our favourite insects. Check out some of the highlights below:



We did a virtual launch of our newest **English Dragonfly Hotspot: Paxton Pits Nature Reserve**, by sharing a virtual tour of a different part of the reserve each day. Huge thanks to the Friends of Paxton Pits for recording the footage for this and to partners Huntingdonshire District Council and Bed, Cambs and Northants Wildlife Trust for making the virtual launch happen.



Andrea and Daniele visited new **Scotland Dragonfly Hotspot Argaty Red Kites**, as they were unable to hold a physical launch event this year. Instead they chatted to ranger Ross and gave us a mini tour of this purpose built dragonfly haven and just some of its many ponds. Watch the video on our YouTube channel.



Huge thanks to **Our Brother Wolf** for putting together some beautiful colouring sheet designs and providing prizes for our colouring competition. Here is Cotty aged 6 who our panel selected as the winner of the 5-9 years age category. We were all impressed with her imaginative design.

If you would like to treat yourself to one of these sustainable t-shirts too then £5 from the sale will be donated to us to fund dragonfly conservation. Thanks again to the family team at Our Brother Wolf for their generous support.



Author and dragonfly guru **Dave Smallshire** recorded a brand new talk to help share knowledge. An introduction to Britain's dragonflies and damselflies takes you through everything you need to know about these wonderful insects and includes some top tips on how to recognise common species too.

Dave's talk is freely available to watch on our **YouTube** channel.



We put together some new fun activities to celebrate dragonflies, including a new stencil activity and cake baking by Ellie. Fiona also put together a seed bomb activity, planting wildflowers is a great way to provide food for dragonflies by attracting in the insects that they prey upon. Watch both videos over on our YouTube channel.

We also released a fun new top trumps game, comparing dragonflies to other top predators and ancient creatures. You can find all the Dragonfly Week resources on our website.



We had Dragonfly Week video messages from our President **Mike Dilger** and BBC wildlife presenter Iolo Williams. Dragonfly researchers from around the world shared their favourite facts, funny local names and folklore tales for species in our Travel Tuesday special.

All of the major wildlife conservation charities posted Dragonfly Week content and top photographers shared tips for getting great photos of these magnificent insects too. **Huge thanks to everyone who took part, shared content, liked posts and made it such an enjoyable week.**



Fond Farewell to Dragonfly Hero Tom

We wave goodbye to Tom Cunningham (pictured left) from Morton Lochs when he retires at the end of June.

Morton Lochs, near Tayport in Fife, is one of our Scottish Dragonfly Hotspots and has thousands of visitors every year. It's a superb place to see ten common dragonfly and damselfly species. In addition Emperor Dragonflies and Red-veined Darters have been recorded here, with these being among the most northerly sightings on record. It's also a fantastic spot to see Red Squirrels, Kingfishers and other water birds.

Tom has worked at Morton Lochs, which is part of Tentsmuir National Nature Reserve, for many years and retired at the end of June. He has been very supportive of the Dragonfly Hotspot concept and we have jointly run many dragonfly events there over the years – from training courses to recording sessions, to pond management days with volunteers. He always made sure that there were lots of refreshments on practical volunteer days to keep everyone going, with veggie sausage rolls a guaranteed winner!

A dragonfly transect has also been running here for a few years thanks to Tom and the site volunteers.

We wish Tom a very happy retirement and are really pleased to hear that he has signed up as a volunteer so we can continue to work with him and hopefully pay him back for all his help and tasty refreshments! We look forward to seeing you soon Tom, as well as working with Marijke Leith who is the new reserve manager.





featuring George Guthrie, BDS Scotland Volunteer

RECORDING DRAGONFLIES AT DRAGONFLY HOTSPOT PORTMOAK MOSS, BY GEORGE GUTHRIE:

With lockdown this year we were unable to survey the Moss during the glorious warm sunny weather we had in May, and as a result we missed the peak of the Four-spotted Chasers and Large Red Damselflies. However we got the go-ahead from The Woodland Trust when the lockdown was eased to the 5 mile travel distance. As long as we stayed 2 metres apart and sanitised before and after we could now start our surveys again.

Well, our first survey was on the 11th of June and we found that most of the ditches were dry, with only about a third still having some water in them. The new pond we dug as a volunteer day in November last year had also dried up.

Another new pond, found about 50m to the east, was dug with a mini- digger by the contractors who were doing some work on-site over the winter. It still had some water in it and we recorded a single Large Red there on the 24th of June.

- On the first survey on the 11th of June we recorded 16 Large Reds with 1 pair ovipositing, 5 Four-spotted Chasers and an Azure Damselfly.
- On our second survey on the 17th of June we recorded 29 Large Reds with 3 pairs ovipositing and 4 Four-spotted Chasers.
- On our third survey on the 24th of June we recorded 40 Large Reds, with 2 pairs ovipositing, 1 Common Hawker and 2 Four-spotted Chasers.
- On our fourth survey on the 2nd of July we recorded 2 Large Reds and 1 Common Hawker.
- On our fifth survey on the 8th of July we recorded 10 Large Reds and 2 Four-spotted Chasers.
- On our sixth survey on the 15th of July we recorded 5 Large Reds.
- On our seventh survey we recorded 5 Large Reds and 2 Common Darters.

With the recent rain the ditches are filling up now and hopefully the Damselflies and Dragonflies will continue to oviposit in them, meanwhile we shall carry on with our surveys and hopefully record a lot more Damselflies and Dragonflies on the Moss.

**Daniele Muir, Scotland Officer
says:**

"It's due to George's surveys over the past few years that we were able to identify losses of dragonfly populations on the site. His data enabled us to work with the site owners, the Woodland Trust, to identify where the populations had been lost, and where further work would best be carried out to improve the habitat for dragonflies."

Huge thanks to George for all his hard work volunteering to save Dragonflies. If you volunteer for us and would like to feature here, or know an unsung hero who deserves some recognition, then please let us know. Volunteers are the life blood of our charity and we want to celebrate them.

Thank you For Your Generous Donations

We would like to thank the donors who left us a legacy gift recently. These generous donations are greatly appreciated and allow us to continue our vital conservation and outreach work to protect dragonflies and their wetland homes.

For example, on average an information board at a Dragonfly Hotspot site cost £1000-£1500.

These boards will inform thousands of people over a number of years and help to educate and encourage more people to take a closer look at dragonflies. Ultimately encounters with these boards may inspire people to submit records to us, send us photos and even volunteer with us. Your kind donations will enable this vital work to continue and increase.

WANTED Journal Articles

Do you have a paper that could go in our Journal?

Or perhaps you would like to write a review of your favourite Dragonfly species?

If you have anything for inclusion please contact our editor Peter Mill.

Peter Mill
Email: gpmill@supanet.com

8 Cookridge Grove,
Leeds
LS16 7LH





Leave a Lasting Legacy

A legacy to the British Dragonfly Society will provide a lasting gift. Dragonflies and damselflies are beautiful insects which have inhabited Earth for over 300 million years. With your support, by remembering the British Dragonfly Society in your will, we can safeguard our dragonflies and damselflies to provide a lasting legacy that will ensure future generations enjoy these fascinating insects

Gifts, in wills, make a positive difference. Legacy gifts enable The British Dragonfly Society to:

- Conserve dragonflies and their wetland habitats.
- Conserve Nationally-Important species.
- Record and monitor the distribution and populations of dragonflies.
- Encourage the scientific study and research of dragonflies.
- Undertake education projects.

Please consider leaving something to British Dragonfly Society when you write or update your will. We are so grateful for your continued support.

You may like to use the following wording to include in this legacy:

“I give the sum of £..... to British Dragonfly Society (Registered Charity No. 1168300), Ashcroft, Brington Road, Old Weston, Huntingdon, PE28 5LP for its general purposes.”

A Gift in Memory

Celebrating and commemorating the life of your loved one with a gift in their memory is a fitting tribute that helps to support our work for dragonflies and damselflies. We're always incredibly touched and grateful to receive donations large or small, which will have a lasting impact for generations to come.

BDS Business Update

The 37th Annual Meeting of the Society will be held **online** on:

Saturday November 14th 2020

The physical meeting has been cancelled but you will be able to participate online instead. Please check our website for full sign up details and the finalised programme nearer the time.

www.british-dragonflies.org.uk



Brackenhurst Hall Pond © NTU

AGM 2020

Notice is hereby given that the 4th CIO Annual General Meeting of the British Dragonfly Society will be held on:
Saturday 14th November 2020

Also online as part of the Annual Meeting as detailed above.



Checklist of the Damselflies & Dragonflies of Britain & Ireland

Last Revision: 11/8/20. The sequence and nomenclature follow Schorr and Paulson, July 2013:

<http://www.pugetsound.edu/academics/academic-resources/slater-museum/biodiversity-resources/dragonflies/world-odonata-list>

Table 1. Category A: resident and/or regular migrant species recorded since 2000

This category comprises species with well-established breeding populations and migrant species that have been recorded regularly since 2000, the latter often attempting to establish temporary breeding populations.

ZYGOPTERA	Damselflies	ANISOPTERA (cont'd)	Dragonflies (cont'd)
Lestidae	Emerald Damselflies	<i>Anax ephippiger</i>	Vagrant Emperor
<i>Chalcolestes viridis</i>	Willow Emerald Damselfly	<i>Anax imperator</i>	Emperor Dragonfly
<i>Lestes barbarus</i>	Southern Emerald Damselfly	<i>Anax parthenope</i>	Lesser Emperor
<i>Lestes dryas</i>	Scarce Emerald Damselfly	<i>Brachytron pratense</i>	Hairy Dragonfly
<i>Lestes sponsa</i>	Emerald Damselfly	Gomphidae	
Calopterygidae		<i>Gomphus vulgatissimus</i>	Common Club-tail
<i>Calopteryx splendens</i>	Banded Demoiselle	Cordulegastridae	
<i>Calopteryx virgo</i>	Beautiful Demoiselle	<i>Cordulegaster boltonii</i>	Golden-ringed Dragonfly
Platycnemididae		Corduliidae	Emeralds
<i>Platycnemis pennipes</i>	White-legged Damselfly	<i>Cordulia aenea</i>	Downy Emerald
Coenagrionidae		<i>Somatochlora arctica</i>	Northern Emerald
<i>Ceragrion tenellum</i>	Small Red Damselfly	<i>Somatochlora metallica</i>	Brilliant Emerald
<i>Coenagrion hastulatum</i>	Northern Damselfly	Libellulidae	Darters, Chasers, Skimmers
<i>Coenagrion lunulatum</i>	Irish Damselfly	<i>Leucorrhinia dubia</i>	White-faced Darter
<i>Coenagrion mercuriale</i>	Southern Damselfly	<i>Libellula depressa</i>	Broad-bodied Chaser
<i>Coenagrion puella</i>	Azure Damselfly	<i>Libellula fulva</i>	Scarce Chaser
<i>Coenagrion pulchellum</i>	Variable Damselfly	<i>Libellula quadrimaculata</i>	Four-spotted Chaser
<i>Coenagrion scitulum</i>	Dainty Damselfly	<i>Orthetrum cancellatum</i>	Black-tailed Skimmer
<i>Enallagma cyathigerum</i>	Common Blue Damselfly	<i>Orthetrum coerulescens</i>	Keeled Skimmer
<i>Erythromma najas</i>	Red-eyed Damselfly	<i>Sympetrum danae</i>	Black Darter
<i>Erythromma viridulum</i>	Small Red-eyed Damselfly	<i>Sympetrum fonscolombii</i>	Red-veined Darter
<i>Ischnura elegans</i>	Blue-tailed Damselfly	<i>Sympetrum sanguineum</i>	Ruddy Darter
<i>Ischnura pumilio</i>	Scarce Blue-tailed Damselfly	<i>Sympetrum striolatum</i> *	Common Darter
<i>Pyrrhosoma nymphula</i>	Large Red Damselfly		
ANISOPTERA	Dragonflies		
Aeshnidae	Hawkers		
<i>Aeshna affinis</i>	Southern Migrant Hawker		
<i>Aeshna caerulea</i>	Azure Hawker		
<i>Aeshna cyanea</i>	Southern Hawker		
<i>Aeshna grandis</i>	Brown Hawker		
<i>Aeshna isoceles</i>	Norfolk Hawker		
<i>Aeshna juncea</i>	Common Hawker		
<i>Aeshna mixta</i>	Migrant Hawker		

* - includes dark specimens in the north-west, formerly treated as a separate species *Sympetrum nigrescens* Highland Darter

Table 2. Category B: vagrant species

Since 1998 records of these species have been assessed by the Odonata Records Committee.

ZYGOPTERA	Damselflies	ANISOPTERA (cont'd)	Dragonflies (cont'd)
Lestidae	Emerald Damselflies		
<i>Sympecma fusca</i>	Winter Damselfly	Libellulidae	Darters, Chasers, Skimmers
ANISOPTERA	Dragonflies	<i>Leucorrhinia pectoralis</i>	Large White-faced Darter
Aeshnidae	Hawkers	<i>Crocothemis erythraea</i> †	Scarlet Darter
<i>Anax junius</i>	Green Darner	<i>Pantala flavescens</i>	Wandering Glider
Gomphidae		<i>Sympetrum flaveolum</i>	Yellow-winged Darter
<i>Gomphus flavipes</i>	Yellow-legged Clubtail	<i>Sympetrum pedemontanum</i>	Banded Darter
Corduliidae		<i>Sympetrum vulgatum</i>	Vagrant Darter
<i>Somatochlora flavomaculata</i>	Yellow-spotted Emerald		

** - has bred.

† - has bred in the Channel Islands.

Table 3. Category C: former breeding species now locally extinct in the UK

Any further records of these species will be assessed by the Odonata Records Committee.

ZYGOPTERA	Damselflies	ANISOPTERA	Dragonflies
Coenagrionidae		Corduliidae	Emeralds
<i>Coenagrion armatum</i>	Norfolk Damselfly	<i>Oxygastra curtisii</i>	Orange-spotted Emerald

Continued on the next page.



Table 4. Category D: species recorded only in the Channel Islands

ANISOPTERA	Dragonflies
<i>Orthetrum brunneum</i>	Southern Skimmer
<i>Sympetrum meridionale</i>	Southern Darter

Table 5. Category E: exotic species introduced accidentally

These records have come principally from aquatic nurseries (Parr, 2000).

ZYGOPTERA	Damselflies	ANISOPTERA	Dragonflies
<i>Argia fumipennis</i>	Variable Dancer	<i>Anax gibbosulus</i>	Green Emperor
<i>Ceragrion cerinorubellum</i>	Painted Waxtail	<i>Anax guttatus</i>	Lesser Green Emperor
<i>Enallagma signatum</i>	Orange Bluet	<i>Crocothemis servilia</i>	Oriental Scarlet
<i>Ischnura posita</i>	Fragile Forktail	<i>Erythemis simplicicollis</i>	Eastern Pondhawk
<i>Ischnura senegalensis</i>	Marsh Bluetail	<i>Rhodothermis rufa</i>	Spine-legged Redbolt
		<i>Tramea transmarina euryale</i>	Ocean Glider
		<i>Urothemis bisignata</i>	

End.

Guidelines for Contributors

All material should be sent to the Editor at the email address on the inside front cover. If in doubt, please contact the Editor to discuss potential contributions and to advise on presentation and format. By contributing to ***Dragonfly News*** you give permission for the work to be used in other ways with the same attribution including reproduction on the BDS website. All contributions on any aspect of the British and Irish dragonfly fauna are welcome for consideration at any time. Contributions on continental European and other species are also considered for inclusion. Contributions by naturalists based in Britain or Ireland travelling overseas are also welcome.

Articles requesting information or providing news of forthcoming events are welcome. The editor is happy to receive material by email, preferably in MS WORD (DOC file extension, not DOCX) or txt format. Typed material requiring rekeying is less welcome (unless very short!) but will still be considered. The Editor reserves the right to make changes without prior reference to the author, but will endeavor to contact the author if a lot of editing is required. Please provide contact details with anything you send and note the copy deadlines printed on inside front cover if you want something to appear in a particular issue. Photographs should be high quality jpg format with the quality setting at its highest, please do not embed in a document as this compromises quality. Please use a file sharing service such as drop box or 'Wetransfer' to send large files. Thank you.



BDS Shop

Dragons & Damsels An Identification Guide to the British & Irish Odonata

This is a comprehensive and user-friendly photographic identification guide to all species, sexes and forms of British and Irish dragon- and damselflies, with essential field notes and habitat photographs.

Review:

In the main, most field guides follow the same pattern, with species accounts laid out in taxonomic sequence. The new guide by Adrian Riley does indeed have two chapters of species accounts covering damselflies and then dragonflies separately. Where this new guide differs, however, is in its approach to the identification of individual insects.

Again, damselflies and dragonflies have their own chapters, but within these, species are grouped according to their appearance, with males and females often treated separately due to their differing colours and patterns. This makes sense when you understand that early dragonfly observers actually thought that, for example, male and female Banded Demoiselles were of two different species because they looked so dissimilar.

Adrian Riley's meticulous approach to each species, sex and colour-form throughout the book should leave no-one in doubt of an identification. There is no question at all that this new guide, with its fresh approach, detailed descriptions and clear photographs, will find a place on the bookshelf of many dragonfly watchers and recorders, no matter how experienced. –
Dr Pam Taylor, British Dragonfly Society

Price £22 plus £3.00 P&P

Les Larves de Libellules de Die Libellenlarven von Paul-André Robert

Paul-André Robert and his life's work on dragonfly larvae

Compiled by Christophe Brochard

Language: Bilingual in French and German

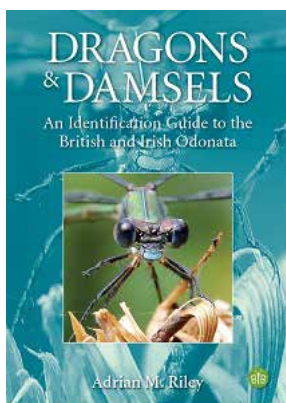
Paul-André Robert (1901-1977) was a Swiss artist and naturalist. In Europe Robert is best known for his book *Les Libellules* ('Dragonflies'), which appeared in 1958. Less well-known is the fact that Robert began to work on a monumental monograph on European dragonfly larvae at the age of sixteen. Producing the manuscript, containing text as well as illustrations, consumed most of his life and was only just completed at the time of his death.

This magnificent work remained unpublished until now. This book finally presents Robert's 107 watercolour illustrations of dragonfly larvae, all in their original size and of unparalleled beauty and scientific precision. In addition, the book features his numerous line drawings and pencil sketches of morphological details, descriptions of species and an identification key.

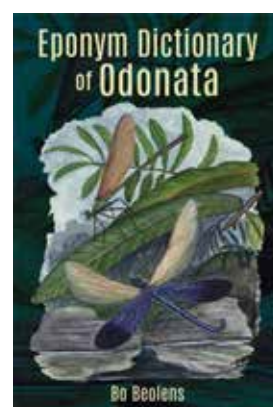
This book, which is bilingual (French and German), is a unique combination of art and science. It is an invaluable resource for entomology professionals and a significant collector's item for admirers of high-quality entomological books. It is also a stunning piece of artwork that will please anyone with an interest in natural history, realistic art and illustration.

As an honorary tribute to Robert, an international team of dragonfly experts added an extensive introduction to the book.

Price £75.00 postage £6.50 or via the shop page



To order goods, please contact Peter Brown, Hill House, Flag Hill, Great Bentley, Colchester, Essex, CO7 8RE, Tel 01255 823400 e-mail: shop@british-dragonflies.org.uk or visit www.british-dragonflies.org.uk to order online. When ordering please include your name, address and telephone number. Postage prices are indicated, but if you are ordering more than one item the highest postage price only (within reason) should be paid. Please allow at least 28 days for delivery. Cheques should be made payable to: British Dragonfly Society.



The Eponym Dictionary of Odonata

by Bo Beolens

The Eponym Dictionary of Odonata is a comprehensive listing of all people after whom damselflies and dragonflies have been named in scientific or common names. Each entry provides details of the species and a brief biography of the person. It is also cross-referenced so that the relationships between scientific authors, entomologists and others can be followed. Many entries have been contributed by the people so honoured who are not necessarily odonatologists, entomologists, zoologists or even great men of science. Many damselflies and dragonflies are named for the author's family members, friends and those who collected the species holotypes, while others are figures from myth or history. In fact, it could be anything from the author's mother to a favourite musician! Because entries may include details of dates, places, educational and work institutions, it is possible to discover information about each person and for a picture to be built of how the science sometimes follows groupings of colleagues or those significantly influenced by charismatic teachers. The Dictionary includes other names which might, at a glance, be thought to be eponyms yet are not in the truest sense. These may be species named after characteristics embodied in characters from literature, whole peoples, acronyms or toponyms, etc. To some extent it can read like a canon of the great women and men of science over the last several centuries. Interestingly there are species named after as many as three generations of the same family, veiled references to old lovers, sycophantic homage, financial patronage, etc., as well as all the more 'legitimate' reasons for naming species. Not surprisingly, odonatologists exhibit a range of opinion on the practice, from naming all species after people, to wanting all eponyms banned; they can be totally humourless and pedantic or full of fun and irreverence. Like all of us they have as many reasons for their naming's as ordinary folk have for naming their children or pets! Underlying all this, however, is the value of this volume in cataloguing this fascinating aspect of science for all users, whether scientists or interested lay readers.

Price £38.00 plus £5 P&P or via the shop page

