Dragonflies and Damselflies
of
Northumberland and Durham

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INTRODUCTION

The Odonata – dragonflies and damselflies – are some of the most popular insects. Their bright colours, relatively large size and active flight make them conspicuous, and it is with some justification that they have been dubbed “the bird watchers” insects. Odonata are also of interest to ecologists for several reasons - for instance they can be used as indicators of water quality - and as a result their behaviour patterns have been widely studied. Thus, although there are few species of Odonata in Britain, there is much interest in the group and we know more about their distribution and ecology than we do of most other insects.

In terms of distribution, several species are at the northern extreme of their British range in Northumberland and Durham, and this may be of interest to those entomologists monitoring the spread and decline of insect species. Just over half (24) of the 43 or so species found in Britain have been reported from the North East, but several of those 24 are rare migrants or other aliens that are likely to be seen very infrequently. In fact no more than a dozen species are common enough to be frequently encountered in the North East. Ironically, although there are published studies of the regional distribution of much larger groups of insects, such as Coleoptera (beetles), Lepidoptera (butterflies) and Diptera (flies), and despite the interest of Odonata to naturalists and ecologists, the dragonfly and damselfly fauna of the North East has not previously been reviewed other than briefly. Lucas (1901) listed the fauna of north Northumberland based on Bolam’s records, and Ball (1985) mapped the species by 10 km squares and summarised their distribution.

The aim of this publication is to review the distribution of dragonflies and damselflies in the former counties of Northumberland and Durham in a way that is of use to general naturalists. Summaries are provided of the distribution of all species reported from the area together with maps of the more common species arranged by tetrad (2 km x 2 km square). The distribution of each species is described in relation to its national distribution, but as this publication is not intended as a general introduction to the Odonata, no information is included on ecology or morphology, although some comment on habitat preference is included.

DRAGONFLY NATURAL HISTORY

Dragonflies and damselflies are amongst the most ancient of aerial creatures: fossils are known that date back 325 million years, to the Upper Carboniferous Period when the oxygen content of the atmosphere was far higher than today and the air considerably denser. These early dragonflies had wingspans of up to 75 cm; one theory about the reason for how they grew to such a gigantic size is that it was due to the oxygen levels present. Adult insects breathe differently from mammals: they have no lungs but breathe through a series of holes called spiracles, there being two of these on each segment of their abdomen, and the air is passed around the body of the insect via tubes that permit oxygen to be absorbed into the cells of the insect. A rather imperfect way of breathing, but it apparently works for these and all other insects.

These large early dragonflies, Protodonata, eventually died out, but not until smaller species had started to evolve. Odonata ruled the skies for 175 million years until the first flying reptilian competition emerged. Fossils of currently extant genera have been found in Triassic strata and all modern species appear to have evolved from them. These insects must therefore be considered as amongst the greatest survivors of all this planet’s living creatures.
Although the area south of the River Tees is technically outside our traditional recording area, records in some recent local atlases have included the fairly recently created county of Cleveland. Unfortunately, such political creations tend to be rather short-lived and eventually end up as mere postal districts. Therefore I have retained the names of the traditional counties of Northumberland and Durham as used by local naturalists for nearly 200 years.

The topography, climate etc., of the North East in relation to its natural history have been described in detail elsewhere, such as by Graham (1988) and Swan (1993). The geology of VC67 and VC68 was described by Johnson (1972) and of VC66 by Robson (1965). Eyre, Ball and Foster (1985) discussed water bodies of the North East.

Topographically, there is broadly speaking high ground to the west of the area and low-lying land to the east, with river systems draining west to east. This trend is complicated in County Durham by a raised mass of limestone called the East Durham Plateau which causes the River Wear to flow northeasterly and the Skerne to flow to the south. In Northumberland it is complicated by a complex of raised ground among which the River Till and the Tyne tributaries Rede, North Tyne, South Tyne and Allen lie in north-south trending valleys.

The highest altitude in the area is found in The Cheviot (815 m.a.s.l.), while peaks of 600 m.a.s.l are not uncommon among the North Pennines. The East Durham Plateau averages 100-150 m.a.s.l and is 215 m.a.s.l at its highest point. Much of the high ground is not particularly steep-sided; indeed the broad hump of the summit of The Cheviot is often a disappointment to those who have made an effort to climb it. The innumerable peat hags and small pools that form in such conditions are not known to support a large dragonfly population, but it is not impossible that boreo-montane species such as Azure Hawker *Aeshna caerulea*, Northern Emerald *Somatochlora arctica* and White-faced Darter *Leucorrhinia dubia* could occur at altitude in our area, although there are still no valid records of these species despite extensive survey work in the uplands of both counties in the past 25 years.

The low-lying ground forms a north-south trending band in the eastern part of the area, comprising, from the south, the lower part of the Tees basin, grading into the Wear Lowlands (lying between the Pennines and East Durham Plateau) which are practically continuous with the low coastal plain of Northumberland, extending as far north as Berwick. This lowland band is no more than about 25 km wide at its greatest extent, and narrows somewhat northwards.

**ODONATA HABITATS**

Dragonflies and damselflies occupy a range of aquatic habitats most of which occur in our area, the exceptions being canals and fens of which we have none. Otherwise every other aquatic habitat from rivers to garden ponds to upland peat bogs are worthy of examination by an enthusiastic Odonata recorder between April and October. The more remote some of these sites are, the greater is the chance of discovering a species new to these counties. Ordnance Survey maps of both counties will show a large number of lakes, ponds, rivers and streams, bogs and mires, all of which hold some species. Operational reservoirs tend to be devoid of breeding Odonata because of the fluctuating water levels which prevent water weed growth, but many reservoirs do have small ponds around their periphery and these can sustain several resident dragonfly species and occasionally accommodate migrant visitors, which with luck may breed.

The farm ponds of my youth, in the late 1940s and early 1950s, have nearly all gone today, most having been drained or otherwise filled in. Cattle, sheep and pigs now have mains fed water troughs which are automatically regulated as to water height. A careful study of the Ordnance Survey maps available for both counties will show a considerable number of lakes and ponds still extant. Some of these are natural, for example the loughs along the line of the Roman Wall which are several thousands of years old. Others were formed by land subsidence especially in former coal mining areas. Quarrying has created additional ponds. The Ministry of Defence on the Otterburn Ranges in Northumberland has for over a century been creating large shell and bomb craters which naturally fill up with water fed by the surrounding wet peat bogs. These hold several Odonata species, both large and small, but not many in species numbers. It should be pointed out that accessing these “impact areas” is very dangerous indeed, and civilians are not usually permitted access to them because of the considerable amount of old and very sensitive unexploded ordnance present.

The Forestry Commission has created numerous ponds throughout its extensive land holdings in both counties, although access to these can be difficult. Another large company with numerous landholdings throughout the North East is Northumbrian Water which has created ponds for Odonata around many of its reservoirs, water treatment and sewage treatment works. I was
fortunate to work on most of these ponds during my long and very happy association with the Conservation Department of this company. Apart from ponds there are a small number of species that are riverine in habitat. Some common damselflies can occasionally be found in small backwaters out of the main river current. The most beautiful river dweller locally is the magnificent Banded Demoiselle Calopteryx splendens. The large Golden-ringed Dragonfly Cordulegaster boltonii is another local species, although it likes slow moving streams rather than rivers.

Some specimens of all species can be found a large distance from where they bred. These, it is presumed, are expanding their range or looking for new habitats to colonise. Migratory species may fly several thousand kilometres, often in large swarms that split up on reaching a new destination. Migration also accounts for some species being recorded many miles from their usual habitat. For example the Black Darter Sympetrum danae is a natural inhabitant of acid bogs and mires, yet it has been found, sometimes in numbers, around ponds on magnesium limestone ground and in coastal ponds, apparently totally unsuitable habitats for breeding purposes. These are today considered as migrant specimens.

The possibility of successful breeding of these migrant species in such unsuitable places has not however been studied, and would make an interesting project for postgraduate research or work by an enthusiastic amateur entomologist. Not all new scientific discoveries are made by professionals; amateurs can still make names for themselves in this field. There is still much we do not yet understand about Odonata.

The breeding of nymphs to the adult stage in an aquarium at home is an excellent way of involving and instructing children into some of the mysteries of the natural world.

**SPECIES IDENTIFICATION**

Prior to the 1930s there were few publications in Britain on dragonfly and damselfly identity, but in 1937 Cynthia Longfield (affectionately known to older Odonatists as “Madam Dragonfly”) published the first colour-illustrated book on British dragonfly identification in the Fredrick Warne Rwayside & Woodland series of volumes on various forms of British wildlife. The publication of this book and the lack of records in our region prompted Dr J W H Harrison, then a sub-editor of The Vasculum, to write to Longfield complaining about this matter and listing a number of species which he said were recorded in The Vasculum. This letter and the replies were published in the letters section of The Vasculum volume 25 and continued in a couple of later editions.

Longfield’s book spurred an interest in Odonata and was followed by Dragonflies (Corbet, Longfield and Moore 1960) published in the New Naturalist series. Since then there has been a plethora of books on British Odonata, their identification, biology, flight period and habitat preferences. Someone wishing to learn about Odonata identification today has a vast choice of books to select from as well as online guides and apps.

As of 2016, there are 43 resident species of Odonata in Britain, records of three species that are now extinct in Britain, and occasional records of 19 vagrant species.

**COLLECTING**

Many visitors to museums who have an interest in dragonflies and damselflies are rather disappointed to find little, if anything, on display of local Odonata. This is because sadly they are rather delicate, and their colours do not preserve well if specimens are pinned and set like many other insects; usually after a week or two on a setting board they lose their natural colours and turn black. Preservation of the specimen in absolute alcohol will keep the colours for a few years if stored in the dark, but even then they fade eventually. The only successful way of preserving most of the colouration is to use the “freeze drying” process. This is usually outside the realm of the amateur naturalist due to the expense of the equipment needed.

In 1963 I was given access to a piece of early such equipment for a single day at Newcastle University. The specimen (in this case a teneral Southern Hawker Aeshna cyanea) had been kept alive for over 24 hours to let it evacuate its gut. It was then instantly killed by a lethal injection, and set on a short length of setting board. The sternites on the underside of the abdomen were punctured by a fine pointed needle and the set insect was placed in a deep freeze. After a couple of hours the setting board was rapidly placed into a vacuum desiccator containing a moisture-absorbing acid and the air in the desiccator was immediately evacuated using an oil vacuum pump. When no further air could be extracted the taps were closed preserving the vacuum. After several hours air was very slowly admitted to the desiccator until the pressure inside the desiccator was equal to the outside atmosphere. The specimen was removed from the setting board, given a data label and is still in my collection. No loss of colour was noted except a change in the colour in the compound eyes. Today it looks as good as when first preserved.

Collecting specimens has of course fallen from favour in recent decades, having been replaced by photography using digital cameras, especially those with a macro or double-macro capability. These are very useful when taking pictures of adult specimens in the wild and can be used to verify the identity of the species. Digital photography can produce large numbers of pictures, which makes for easier identification and verification by experts if necessary.

A newcomer to Odonata recording may run into problems of identification because some species of teneral damselfly have several different colour forms, but these are generally described in good books of identification. Help can also be obtained from the Odonata County Recorders and also from The British Dragonfly Society, the national recording organisation.

**RECORDING ODOONATA IN THE NORTH EAST**

It is possible that the earliest records of dragonflies and damselflies in Northumberland and Durham are the earliest published records of Odonata in Britain. The first list of insect species in Northumberland was published by the Rev Wallis in 1769, but many of his records did not include precise localities. Wallis did not use binomial nomenclature, but he gave a short description of each species. His Odonata are:

Number 9: The large bluish-black and yellow Libella is frequent by brooks and rivers in June and July. It is a beautiful insect. The face is of a bright yellow, with two narrow transverse lines of black, and one larger of black on the upper part. The scutellum is black, with golden specks. The wings are of a yellowish-white, transparent, and full of nerves. The body is thick and cylincllde, of a bluish black on the upper part, and yellow underneath: the two colours meeting on the sides in elegant denticulations.
In a footnote, Wallis equated this dragonfly with a species in Linnaeus’s *Fauna Svecica* that is now known as Downy Emerald *Cordulia aenea*. This is plainly a misidentification: the most likely species to fit Wallis’s description is Golden-ringed Dragonfly *Cordulegaster boltonii*, or (less probably) Common Hawker *Aeshna juncea*. The footnote gave the common names “Dragon Fly” and “Adder Bolt”.

Numbers 10, 11 & 12: The bluish-green Libella with yellowish-brown wings; the mazarine-blue Libella with bluish-black wings; the green Libella with yellowish-brown wings with a white spot at each of the apices, are common by shadowy running streams in the warm summer months, with many others of considerable beauty.

Organised national dragonfly recording in Britain started in the 1960s when the national Biological Records Centre was set up in Cambridgeshire. The early way of recording was by using computer punch cards. These were filled in by the recorder and submitted. The card went into a device that punched holes in the card and thus converted the data from handwritten information into a form that a computer could read. These were then fed into the computer in batches. It was very labour intensive for both the recorder and the computer operator. Fortunately, rapid advances in computer technology have made things much simpler. Today the British Dragonfly Society is the national organisation for the recording, conservation and preservation of dragonflies and damselflies.

Both Northumberland and Durham have a very long history of recording different sorts of life forms present in both counties. One of the exceptions however was Odonata. No one apparently considered collating the record data that existed, simply because so little was known about them. Local records of Odonata were very intermittent. Many early naturalists were members of the clergy, who had enough spare time to indulge in such matters and who also had a grounding in Latin, which was helpful in understanding natural history texts at that time. It was not until the twentieth century that attempts were made to record these species more systematically.

In 1995 Leslie Jessop, working at the Hancock Museum, wrote an article in a museum-issued news sheet called *Recording News*. He appealed for records of local Odonata to be sent in and I and others sent our records. I believe he had some 3,000 records in total (including the historical data I had located) and shortly afterwards he wrote up a provisional local list. But he was working full time and trying to study for a doctorate in his spare time, so as the County Recorder for Northumberland Odonata I volunteered to take the work over. County Durham was covered by Ian J Waller who a few years later moved out of the area and passed his data on to me. I also inherited his mantle of Recorder for County Durham. Interest was growing in Odonata and many bird watchers took up recording them. The Durham bird watchers in particular have been very helpful in gathering records.

In 1995 Leslie Jessop had 3,000 records to deal with. Today the Environmental Records Information Centre (ERIC) North East has a database of over 31,000 dragonfly and damselfly records, gleaned from many sources, many hundreds of which were previously unknown to me. These took a considerable time to sort out and verify where possible. It is the records held on the ERIC Recorder database that have been used to generate the distribution maps in this publication. These maps show the presence of a species in a 2 km x 2 km square (tetrad).

Despite a massive increase in records of Odonata over the past 20 years there are still areas of the North East where there are no records and where species are most likely present. It is probable that some readers of this publication will have Odonata records that could add to our knowledge, and I would encourage them to submit such records to the British Dragonfly Society or to the Environmental Records Information Centre North East. This can be done online, by email or on paper.

Common Darter (teneral), Newcastle by Christopher Wren
Banded Demoiselle *Calopteryx splendens*

**Regional status**
Common where it occurs in unpolluted lowland rivers and streams. This species is currently the only one of the two *Calopteryx* species to occur within our two counties. Because of its size and distinctive colouring, the Banded Demoiselle is one of the easiest of all dragonflies to identify. The males have a broad deep blue band across all four wings, with a metallic green/blue thorax. The females lack the blue bands on the wings and tend to be a slightly lighter shade in body colouring.

**Habitat and life cycle**
Banded Demoiselle is a riverine species which needs a flowing water environment in the nymphal stage. The nymph also prefers a sandy or muddy bottom to the river bed. Nymphs are most easily found in and around emergent vegetation at the river’s edges. The need for slow flowing water precludes them from occurring in the uplands, where there are high water flows. Small streams are prime habitat and should not be overlooked as long as they have a constant flow of water. Durham and south Northumberland have a host of such streams but they are sadly lacking in Northumberland north of the River Aln. Certainly there are several small rivers coming off the Cheviot Hills but these swing northwards, eventually combining to form the River Till, which at the end of its journey flows into the mighty River Tweed. The nymphal stage lasts usually two years.

Flying from May to the end of August, males are to be seen searching tall emergent vegetation along the sides of slow moving rivers and streams throughout both counties where it occurs, seeking out mature females. It is one of the few dragonfly species in which the males do a pre-mating aerial dance display.

**Distribution**
The Banded Demoiselle is currently found throughout the UK as far north as southern Scotland. It has expanded northwards in the last six decades especially on the eastern side of Britain, and is now found throughout the lowlands in our area wherever there is suitable habitat.

**History**
If we accept the description by Wallis (1769) as being *C. splendens*, his is the earliest known record of this species locally, but this is supposition. The next known record was made by Mr J B Nicholson on 22 June 1940 at Middleton One Row, County Durham. The same recorder took it again in 1946 at Skerningham, VC66, on two different dates. There was a lapse in records for 39 years until it was found at Aislaby, VC66, on 13 July 1985 by a Mr J P Warbrook.

**Present status**
After its rediscovery in the mid-1980s the Banded Demoiselle spread rapidly throughout County Durham appearing on most suitable water courses. The first VC67 record came on 31 July 1988 from Marlish Farm close to the River Wansbeck, near Middleton. This was a considerable jump northwards and the author suspected that it was to be found in suitable waters south of this location. This proved to be correct once streams and the upper reaches of some lowland rivers and streams had been examined.

In 2003 came the first two records from north of the River Coquet, from Wagtail Farm to the east of Rothbury on 26 June 2003 by Mr S Hackett and from Rothbury itself by Dr Mike Jeffries, unfortunately just giving the year as a date. After that it took until 30 June 2010 for this species to reach Newton Braes, Fouldon, in the north of VC68, when the Berwick Wildlife Group recorded it there. Later on 4 August 2012 it was reported by the same group at the confluence of the Rivers Till and Tweed.

It has taken this species 76 years to travel from the River Tees to the River Tweed, a very slow progression northwards compared to other species that are recent arrivals in our counties. Nevertheless it is perhaps the first species whose move northward into our region was triggered by global warming.

**Future outlook**
This species is close to the edge of its northern range in our area and so its future here may depend on the climate; a return to cooler conditions could see a retreat, while with further warming the population could consolidate/increase. This species is also vulnerable to pollution, so the continued health of our rivers and streams is also important.
Emerald Damselfly *Lestes sponsa*

**Regional status**
Very common. A pond and lake dweller. It is the only one of the four British “Emerald Damselflies” to occur within our boundaries, therefore identification is easy; the three other species are distinctly southern in their distribution, and two of them are recent additions to the British List. A very easy species to identify, as like all the “Emerald Damselflies” it perches with its wings slightly open at approximately 30-40 degrees to the side of the abdomen, whereas all other British damselflies hold their wings closed over the top of their abdomen.

**Habitat and life cycle**
As with most of our local damselflies, this species is to be found in almost every well-vegetated pond throughout both counties, but its occurrence appears to decrease with higher altitude. The nymphs usually have an annual life cycle, but a long and cold spring may delay the reproduction of their food and this may lead in some areas to nymphs taking an additional year to become adults. The adults fly from very late May through to late September locally. This species is very tolerant of a range of water types, from very acidic to alkaline.

**Distribution**
A very common species throughout Great Britain from Lands End to John o’ Groats wherever suitable habitat occurs. In our region the exception is apparently the North Pennines and Cheviot Hills, though this may be due to the lack of recording in these mountainous areas where upland ponds are very few and far between. As will be seen from the distribution map it is widespread over both counties.

**History**
First recorded from Gibside, VC66, in 1919 by J W H Harrison, it was only occasionally reported until the 1950s, since when there has been a slow but steady flow of records from Northumberland and Durham.

**Present status**
A common species throughout both of our counties. Currently records of this species’ occurrence total around 1,800 individual reports.

**Future outlook**
This is a species that is widespread and under no threat. It is found in a wide variety of habitats from ponds on open moorland to ponds in dense coniferous forests, gardens and within a short distance of the North Sea. As ubiquitous a species as one is ever likely to find.
Large Red Damselfly *Pyrrhosoma nymphula*

**Regional status**

Very common on ponds and open still waters. It is very occasionally found in backwaters along streams and small rivers. It is often one of the first of the dragonflies that will be seen by a beginner, but identification can be somewhat difficult for the learner as there are several colour forms of the female. These are well described in *Britain's Dragonflies* (Smallshire and Swash 2014). This book is very helpful to the beginner as an inexpensive aid to identification and it covers all of our local species.

**Habitat and life cycle**

Currently the only red-bodied damselfly to occur in Northumberland and Durham. Usually the first Odonata of the year to appear, often in April in a warm spring, and it is on the wing until August. Like the Emerald Damselfly it is to be found almost everywhere. It usually has an annual life cycle but this may occasionally change to a two-year cycle according to the weather conditions prevailing during the nymphal stage.

**Distribution**

It is found throughout the UK and is perhaps the most commonly found of all the local damselflies with over 2,000 individual local records. Records are sparse in the higher Pennines and Cheviot Hills, where ponds are few, but elsewhere it is to found wherever there is suitable habitat. Like most of our damselflies it can handle a large range of water on the Ph scale.

**History**

The first mention of this species locally is to be found in *The Vasculum* for 1916; no author’s name was given. Subsequent records were fairly sparse until after World War Two when records appeared more frequently. By 1950 records were available from all three of our Vice-Counties. I have little doubt that, like its fellow damselfly species, it has been a resident breeding species here for centuries, and it was only the lack of manuals of identification that kept the records at a low level.

**Present status**

Possibly the commonest of all the damselflies in our two counties.

**Future outlook**

The Large Red Damselfly is under no threat currently or in the foreseeable future. Dragonflies are persistent, which perhaps explains to some degree why they have been such great survivors over hundreds of millions of years.
Azure Damselfly *Coenagrion puella*

**Regional status**
Very common except at higher altitudes. At lower altitudes it frequently shares ponds with several other species of damselfly including the Common Blue Damselfly with which it is sometimes confused. Beginners should learn the differences between these two species as soon as possible to avoid incorrect identification.

**Habitat and life cycle**
One of two mainly blue and black damselflies to be commonly found in Northumberland and Durham although records from higher altitudes in both the North Pennines and the Cheviots are lacking. Those that exist in these areas tend to be from ponds in valley bottoms. Like most of the damselflies, this species likes a well-vegetated pond where there is an abundance of the very small life forms they feed on. When present on a large pond (which is seldom) they stay close to the margins and apparently do not like to fly out over open water, and ovipositing also takes place in close proximity to the sides of the ponds. Locally it is to be seen flying from May to August. It has an annual life cycle.

**Distribution**
This species is to be found throughout both counties except at the highest altitudes, and it is usually found in large numbers wherever it occurs. It is a common species throughout Britain up to central Scotland but it is not currently found north of the Great Glen.

**History**
One of the earliest of the damselflies to be detected, it was first reported by the Rev Ornsby (1846) in his *Sketches of Durham*, although unfortunately without giving a specific locality. Additional records did not appear until the 1930s after which the numbers of sightings grew with some rapidity.

**Present status**
A very widespread and abundant species in our area but it is absent from ponds at higher altitudes. There are well over 1,400 individual site records in our counties, some of which include good numbers.

**Future Outlook**
The Azure Damselfly is under no threat currently or in the foreseeable future.
Common Blue Damselfly *Enallagma cyathigerum*

**Regional Status**
Very common in Northumberland and Durham. This is a species that is occasionally confused with Azure Damselfly, but with a little experience it can be easily identified.

**Habitat and life cycle**
This is a damselfly found in a large variety of habitats ranging from small ponds to very large lakes, slow moving streams and even farm drainage ditches, where it seems able to cope with certain low levels of pollution from agricultural chemicals applied to adjacent fields. Locally there is apparently only a single brood a year. In warm springs it starts emerging in April and can continue emerging until early October. The eggs are deposited into weed wherever these plants can reach the water’s surface. The males are particularly aggressive to others of their species especially when seeking a mate. As its name implies it is a very common species indeed throughout both counties wherever there is suitable habitat.

**Distribution**
Very widespread throughout both counties, only absent from the very highest ponds in north Northumberland and County Durham.

**History**
Amazingly it was unrecorded until the 1930s, after which this common species was rapidly found throughout Northumberland and Durham.

**Present Status**
This is the commonest of the damselflies to be found in Northumberland and Durham, with over 2,700 records.

**Future Outlook**
The Common Blue Damselfly is under no threat currently or in the foreseeable future.
Blue-tailed Damselfly *Ischnura elegans*

**Regional status**
Very common throughout Northumberland and Durham. It will be one of the first damselfly species encountered by a beginner. It is almost impossible to misidentify the mature adult form of this beautiful species, but beginners should be aware that there are several colour forms in the immature females. These colour forms are given specific names and they change with the specimen's age; reference to a good book on identification is therefore recommended.

**Habitat and life cycle**
An inhabitant of almost every pond and lake in both counties provided they are well vegetated. This species usually has an annual life cycle provided climatic conditions permit it. The eggs are laid into aquatic plant material, as with almost all damselfly species. Locally it flies from May to early September. It can tolerate some degree of pollution in its habitat that may not suit other damselfly species.

**Distribution**
One of the commonest of the damselfly species throughout both counties. Its presence does thin slightly with altitude although it is uncertain whether this is due to the more acidic waters of the uplands of both counties, or if records are less forthcoming from these areas because the uplands are less well visited.

**History**
This species was first reported by George Bolam (1901) from Chathill in north Northumberland (VC68). Bolam was an expert naturalist from the early twentieth century who published extensively on Northumbrian wildlife until the late 1920s and who recorded insects widely in north Northumberland. Unfortunately, without readily available books on identification, little work took place on any of the dragonflies until Longfield (1937) published *The Dragonflies of the British Isles*. After this there was a steady increase in the reporting of all dragonflies and the Blue-tailed Damselfly was found to be almost everywhere people looked for dragonflies. The author has little doubt that this species was as widespread in the nineteenth century as it was in the twentieth.

**Present status**
Very widespread locally, and very common over virtually all of both counties. There are currently well over 3,000 individual records of this species on local record databases; this makes it the most recorded of all our local damselfly species.

**Future outlook**
The Blue-tailed Damselfly is under no threat currently or in the foreseeable future. That it can tolerate a higher level of pollution than other species means that it is least likely to be affected by any decline in water quality.
Hairy Dragonfly *Brachytron pratense*

**Regional Status**
Scarce; most records unverified or outside the accepted flight period by several weeks. The common English name comes from the fact that it has a hairy thorax. These hairs are short and sparsely distributed but are apparently easily seen. This is the only hairy dragonfly found in Britain.

**Habitat and life cycle**
A dweller of very slow-moving water which is well vegetated. It also likes broad drainage ditches, again with floating vegetation, into which its eggs are laid. It occasionally turns up at ponds, but it is not known if it only breeds in these if there is a flow of water feeding into the pond and an overflow drain to carry away water surplus, thus regulating a constant head of water in the pond. This species is the smallest of the larger dragonflies and it flies early in the season, from April through to June, disappearing in early July. The males set up a territory which they are reported to defend with great vigour, even attacking larger dragonflies that invade their airspace.

**Distribution**
A species with a very scattered distribution, being commoner on the English east coast, south of the Wash. North of this there is just a scattering of records in Yorkshire and in Durham and Northumberland. There are no known local sites where this species has a breeding population. Currently the most northerly records on the east coast are from Northumberland, but on the west coast it has advanced up to and beyond the Great Glen in Scotland. This species appears to favour the Atlantic-influenced weather climate of the west coast of Britain rather than the east coast.

**History and present Status**
Prior to the early 1990s this was a scarce British species mainly confined to the south of England; since then it has extended its range northwards, although its progression has been slow. Its status in Northumberland and Durham is uncertain with two sightings well into August, long after its supposed flight period is over. The author has yet to hear of local specimens being captured for examination or of photographs being taken.

The first local record was published in volume 5 of *The Vasculum* in 1919 in which it was reported from Gibside, VC66, although no recorder’s name or a date was given. The next record was not until 1983 when one specimen was reported from Hauxley Nature Reserve, VC68, which was included in Ball (1985). Then in August 1991 there was a report from a pond in St Aidan’s College Durham by S Goodyear. The late date of this record makes it somewhat uncertain, but the North East has much colder weather than southern England and so the local flight period may be later; this is something that we may be able to establish if there are more records in the future.

**Future Outlook**
The Hairy Dragonfly is seemingly extending its range northwards in response to climate change. Provided there are some unpolluted slow-moving, well-vegetated streams that provide the habitat they require we are likely to see more of this species locally if the climate continues to warm, although a return to cooler conditions would make future records in our region unlikely.
Common Hawker *Aeshna juncea*

**Regional status**
A very common large dragonfly. Such is its powerful flight, this species may turn up almost anywhere, but it seems to be more partial to the uplands of both counties as this is where the majority of records have been made. It is a very wary species and is difficult to net for examination.

**Habitat and life cycle**
In our region the Common Hawker breeds in natural and fire ponds in and around forests on acidic soils. These are typically pine forestry plantations on former peat-based moorland. The nymphs can spend three or possibly four years in this stage depending on temperature and on food supply. If food is scarce they will not hesitate to become cannibalistic. Emergence takes place very early in the morning. It is equally at home in moorland ponds where it is the dominant species.

Forestry rides and firebreaks are used by immature specimens of both sexes for feeding purposes. Hanging from the branches of pines, they await suitable prey to pass along these open spaces; anyone who has been in these pine forests will know from experience just how prolific the small fly life is! The adults fly from late June until October.

**Distribution**
A common species in the upland pine forests, for example the Wark, Kielder, Redesdale, Harwood, Simonside and Hamsterly Forests, and in many other pine woodlands throughout both counties. As already mentioned it is a powerful flyer and can turn up unexpectedly anywhere, but as the distribution map shows, it is biased in its preference for pine forests and partially wooded acid moorland.

**History**
This species was first recorded by George Bolam in 1913 from the Cheviot Hills, VC68. This was followed by a record from the Rev J E Hull from West Allen, VC67, in 1918, and in 1919 by J W H Harrison at Birtley in Gateshead, VC66. Records were sparse until 1980 with only 40 in total; since then they have become much more frequent.

**Present status**
The commonest of our larger dragonflies with currently 3,560 individual records.

**Future outlook**
The Common Hawker is under no threat now or in the foreseeable future. Although the pine forests where it breeds are subject to felling and replanting this work does not seem to disturb these magnificent insects. Peat bogs are now a recognised and protected habitat, so it is unlikely that future permissions would be granted for the peat extraction that has caused so much damage in the past. This will benefit all the upland acid water-loving dragonflies.
Migrant Hawker *Aeshna mixta*

**Regional status**
Not at all common in most of the areas where it is found.

**Habitat and life cycle**
This is a smaller species of *Aeshna*, but unlike the Common Hawker it is not put off by the presence of humans. It breeds preferably in ponds but is also typically found in slow-moving but well-vegetated rivers and streams. Locally all the records appear to be pond based. Little is recorded about its breeding locally but elsewhere it appears to have an annual life cycle. It flies from August into November and so may be one of the last dragonfly species seen each year. It is not tolerant of acidic waters and so is not found breeding in the uplands of either county.

**Distribution**
It is to be seen commonly in the Teesside marshes and elsewhere in County Durham, VC66. Virtually all the records are towards the coast and not the western uplands of either county. It is not yet recorded from north Northumberland, VC68. It is another species that may be expanding its range northwards in response to global warming, wherever it can find suitable ponds in which to breed, and in 2003 it crossed into Scotland on the west coast. Not by any means a common species with only 387 records, many of which are from the same ponds.

**History**
A fairly recent arrival to our area, the first acceptable record was from C Simms, who found it while undertaking a survey on Roman Wall farms, VC67, in 1994. There is an earlier report of several individuals of this species seen flying in the Team Valley, VC66, by J W H Harrison (1936), but these records have been discounted (see page 62).

**Present status**
Best described as uncommon at present. It seems to have a firm foothold in County Durham but it is less well distributed in south Northumberland and is currently absent from north Northumberland, although this may be due to a lack of recording.

**Future outlook**
This species is close to the edge of its northern range in our area and so its future here may depend on the climate; a return to cooler conditions could see a retreat whereas further warming could see the population consolidate/increase.
Southern Hawker *Aeshna cyanea*

**Regional Status**
A fairly common species here in the north, despite its name.

**Habitat and life cycle**
A pond dweller, preferring ponds with neutral to alkaline water. It can often be seen even in very small garden ponds of just two square metres. It is absent or scarce in the uplands where the waters are more acidic. Ova are laid into moss or vegetation overhanging the water’s edge so that emerging nymphs can drop into the water below. On one occasion a female tried to oviposit into the end of the author’s suede shoes that were slightly overhanging a garden pond.

The nymphal stage can last two or three years depending on temperature and food present, and like other large dragonfly nymphs they can be cannibalistic when food is in short supply. They appear to be unafraid of humans and will fly up close and examine us with interest. On occasion they will use humans as a perching place while they look for flying prey to catch, and as long as one remains still they will return time and time again. The adults fly from late June through to October and occasionally early November.

**Distribution**
In Britain it is found throughout England and Wales and its range extends well into Scotland. There is an indication, as seen on the map, that this species is commoner in the eastern half of both counties. When seen in the uplands these specimens may be looking to expand their range, but most of the water to the west of both counties is a lot more acidic and the author has not heard of it successfully breeding in such waters.

**History**
This insect was unknown in our counties until it was reported by George Bolam (Lucas 1901) from north Northumberland, VC68. It was 31 years until the next record on 9 July 1932 from Birtley, VC66, by J W H Harrison. It was next seen by Dr Statton in Chopwell Wood bomb ponds – also VC66 – in 1950, 1951 and 1952 (ERIC 2016). Thereafter sightings increased rapidly with records coming in from all three vice-counties.

**Present status**
Generally a common species wherever suitable neutral or alkaline ponds and small lakes occur, which is mainly the eastern areas of both counties. There are 1,437 local records.

**Future outlook**
The Southern Hawker is under no threat currently or in the foreseeable future.
Brown Hawker *Aeshna grandis*

**Regional status**
Sparse and thinly distributed with most records coming from County Durham and south Northumberland. The adult is predominantly dark brown with fewer markings than most *Aeshna* species. It is readily identifiable as its wings have prominent golden-brown veining.

**Habitat and life cycle**
This species can be found in lakes, large ponds and slow-moving water. It ranges widely away from water, but this may be just during its maturation period. Larval development depends much on food supply and can be between two and four years. Ova are laid into vegetation just below the surface and the nymphs feed in vegetation or debris on the bottom of the pond. Its main food is reportedly “midge” larvae. Emergence is at night and the adults fly at first light, before the sun breaks the horizon. It flies mainly from June to the end of September.

**Distribution**
The Brown Hawker is relatively common in central and eastern England to the south of mid-Yorkshire but is absent from much of Wales and the West Country. In the North East we are close to its northern limit and it does not appear to be expanding its range as so many other species are. It can be found at both low and high levels in our counties; perhaps it is currently most numerous in the Tees Valley area.

**History**
One of the earliest dragonflies to be discovered, it was noted by the great local naturalist John Hancock at Prestwick Carr in 1827, VC67, and at Gibside, VC66, in August of the same year (Hancock 1826-27). It was to be 129 years before it was reported again, in Durham City in 1966 by Dr J H Lawton; after that records were more forthcoming, if somewhat slowly. The author netted nymphs in lakes at Cragside, VC68, on 14 January 1968, which were bred out so that their identification was not in any doubt.

**Present status**
As can be seen from the distribution map of this species, it is not common anywhere, but its presence is apparently fairly constant, if at a fairly low level of concentration. Where it is found it forms small breeding groups and is never abundant, but this does not appear to diminish its ability to maintain a constant, if small, breeding population. Some sites have been known to have been occupied for over a century. Only 308 local records are known in total.

**Future outlook**
Given that this species has been known to be present in our counties for at least 189 years and has apparently survived through industrial pollution and some of the effects of global warming, it seems likely that it will keep its presence here well into the foreseeable future.
Emperor Dragonfly *Anax imperator*

**Regional status**
Thinly distributed on the eastern half of both counties with only one record in VC68. The largest of the British species, this is a difficult dragonfly to misidentify because of its size and colour.

**Habitat and life cycle**
The Emperor seems to prefer large ponds that are very well vegetated with a variety of pondweeds. Emergent vegetation is also important in the pond margins for use as emergence posts. In our area it is likely to have a two-year life cycle. It can stand brackish and alkaline waters but not, apparently, acidic waters, hence the easterly bias in Northumberland and Durham. Although emergence of the adult specimens has not been recorded locally, in the south of England the nymphs leave the water *en masse* during the hours of darkness and depart from the area of the pond if at all possible before there is enough light for their predators to find them easily.

**Distribution**
During most of the author’s lifetime it was never seen north of the River Humber; then in 2000 it suddenly started to expand its range northwards at a very rapid pace and is now to be found in central Scotland. It also managed to establish itself in Ireland for the first time in 2004. Not all ponds are suitable for its breeding purposes; those that are suitable tend to be occupied permanently and the rest are ignored, although they may be used temporarily by adults for feeding purposes before moving on.

**History**
Previously unknown in our area until 25 August 1980, when one was seen at Neasham Brickworks, VC66, by M Rebane. After that no other specimens were seen until 25 June 1999 when I J Waller saw a female at Stillington Pond, VC66, after which records became more frequent. It was first recorded in VC67 on 4 July 2003 at Cramlington Pond by D Feiger. The first VC68 record was made by M Thurner who saw it at Quarry House Moor on 2 July 2009; this currently remains the only VC68 record.

**Present Status**
A breeding species locally, but not at all common; it may just need more people to be looking for it. Currently we have 203 local records for this species.

**Future outlook**
The Emperor Dragonfly has seemingly extended its range northwards into our area as a result of global warming. If recent climatic trends continue then this magnificent species could establish itself over a larger area of both counties, but a return to cooler conditions could see it decline; in 2010 a very cold winter apparently killed off all the nymphs in certain ponds in Scotland at the most northerly extent of its range.
Lesser Emperor *Anax parthenope*

Regional status
A very occasional and rare migrant.

Habitat and life cycle
An inhabitant of well-vegetated ponds and small lakes during its nymphal stage. The nymphs can tolerate brackish water. It has been reported as breeding in Cornwall but there is no evidence of this occurring in the North East. Ovipositing was observed in County Durham but unfortunately this was apparently not followed up in the following year to see if any developing nymphs were present. The nymphs reportedly have a two-year life cycle.

Distribution
The Lesser Emperor is widely distributed in the south of Europe, most of the countries surrounding the Mediterranean Sea and parts of Africa and Eurasia. It is likely that migrants arriving here came from the Mediterranean area or North Africa. It is by no means an annual migrant to Britain and its visits are very sporadic. It can turn up anywhere unexpectedly, as is the case with most of the migrant species, and seeing them is often a matter of luck, especially in areas where dragonfly recorders are thin on the ground.

History
This species was totally unknown locally until 27 June 2000 when a specimen was recorded at Boldon Flats, VC66, by D Foster. In 2001 it occupied a small number of ponds in VC66, virtually all at Rainton Meadows Nature Reserve, but out of the six ponds present here only “Joe’s Pond” was mentioned twice by name. Specimens remained present for some three months. Apparently no record was kept of where oviposition took place. The author has only seen one specimen, which was in a pond at Kittythirst above Kielder Village, VC67, not far from the Scottish Border on 30 August 2003.

Present status
A rare migrant that could turn up anywhere when weather conditions are suitable. It is not however a regular visitor. In all we have 31 records for this species but a good percentage are repeat records from the same sites, and are likely of the same individuals. Its numbers are so low that finding one is very much a matter of luck. It is not to be seen every year by any means.

Future outlook
The future status of any occasional migratory species is difficult to gauge. We may have an influx in any year, or a decade or more may go by before we see any. In reality we must wait and see what the future holds. Should this species visit us again and females are seen to oviposit then there would be an opportunity to research their progress and see if it can successfully breed in the North East.
Golden-ringed Dragonfly *Cordulegaster boltonii*

**Regional status**
Relatively common in upland bogs, mires and wet moorland where there is suitable habitat but uncommon away from these areas, although being an exceptionally powerful flyer it can turn up anywhere during its maturation period.

**Habitat and life cycle**
Acidic mires of all types wherever there is some flowing water leaving the site; in our region this habitat is found in the uplands. Natural food in streams and ditches is sparse in the uplands and this may lead to an extended nymphal life span. Nymphal life is often quoted as being between two and five years, but having worked for many years on the Northumberland mires the author believes it is possible that an eight-year nymphal stage may occur in some areas. The nymphs bury themselves in fine gravel or silt with only their heads showing and wait for anything edible to be swept by them. Emergence is at night and the adult insects are ready to fly by first light provided the temperature is high enough. Unfortunately in our uplands it is seldom warm enough before mid-morning for flight to take place, but the adults are well hidden from above being low down in the heather. In our counties the adults fly from early June until early October although these flight times are very dependent on weather and temperature.

**Distribution**
Nationally the distribution of the Golden-ringed Dragonfly closely matches the distribution of bogs, mires, heaths and moors. It is absent in eastern England from central Yorkshire south to the River Thames. It is common in Scotland, Wales and along the south coast of England from Dover to Land’s End. As can be seen on the map, most of the local records are from areas of upland bog in both counties. Those records outside these areas are stray specimens, usually in their maturation period.

**History**
The author believes that this was the species described by the Rev Wallis in 1769 for Northumberland, VC67/68, although he did not give a specific location. If so, this must be one of the earliest dragonfly records in Britain. In the mid-nineteenth century it was reported from Durham, VC66 (Ornsby 1846), but not again until the beginning of the twentieth century, when it was recorded from Carlington Moor, VC67, by Mr Woodcock on 3 July 1911 (Bagnall 1913). Records were scarce until after World War Two, when they became more frequent as dragonfly recording increased.

**Present status**
Widespread in both counties on suitable habitat, there are currently 472 local records.

**Future outlook**
There are few mires in Northumberland which the farmer has not made some attempt to drain in the past, but many of our local mires are now designated in order to protect them. This magnificent and very large dragonfly is widely distributed on the bogs and mires of both counties and under no foreseeable threat.
Four-spotted Chaser *Libellula quadrimaculata*

**Regional status**
Thinly distributed across both counties. The identification is straightforward as there is no other British dragonfly species that is remotely similar.

**Habitat and life cycle**
This species occurs at a wide range of ponds with the largest number of records coming from acidic waters, although locally it can be found in non-acidic waters. In our area the nymphs have two years in this stage before emerging. Teneral specimens take some time to develop the full adult wing and body colouring. The males are very defensive of their chosen territory, although they roost communally on tall reed stems at the edge of the pond. To see several hundred grouped together in just a few metres is a sight that one never forgets. Locally the adults can be seen from May to August.

**Distribution**
This species is thinly distributed in all three vice-counties with a bias towards south Durham in site numbers, although this may be due to the preponderance of birdwatchers in the Teesside area who also record dragonflies.

**History**
One of the earliest dragonfly species recorded in our area, it was found by John Hancock at Prestwick Carr, VC67, on 18 July 1826; Axwell Park, VC66, on 10 June 1827, and Marsden, VC66, on 13 July 1827 (Hancock 1826-27). Other records from County Durham occurred in the mid-1800s. The first record from north Northumberland, VC68, was from Berwick-upon-Tweed in 1901 by George Bolam (Lucas 1901). There was then a gap in the records until 1961 when it was reported from Wolviston, VC66, by J W H Harrison (1961). Since then it has been reported in most years.

**Present status**
Somewhat thinly distributed but with annual repeat records from most of the ponds where it is known to occur. Currently there are 284 records of this species but it may well be found further afield if looked for.

**Future outlook**
The current population is apparently fairly stable and under no known threat.
Broad-bodied Chaser *Libellula depressa*

**Regional status**
Has increased in distribution and number over the past 30 years but is still thinly distributed and is probably under-recorded.

**Habitat and life cycle**
An inhabitant of ponds and small shallow lakes. It is said to occur in and along slow-moving ditches but no such records have been reported locally. It is often one of the first species to adopt a newly dug pond. The larvae have a two-year life underwater before emerging. The adults fly from May until August after which sightings rapidly taper off.

**Distribution**
The Broad-bodied Chaser has expanded its British range northwards in recent decades and has reached the River Forth in Scotland. It is found in both our counties and is widely but somewhat thinly distributed. It is found from the coastal lowlands to the western uplands. It would appear from the records that it is still expanding its range in our area.

**History**
The earliest record we have dates from 1833 when it was reported from Castle Eden Dene, VC66, but it is not known by whom, or where the record appeared; unfortunately, during the movement of record files between various recording agencies some historic data seems to have been eliminated. The next record in the files was from Newham Bog, VC68, in 1982 and finally from a pond in the grounds of Whickham View School Newcastle upon Tyne, VC67, on 25 August 1996. Since 2000 records have increased but somewhat slowly. It is likely that this species is under-recorded and only needs to be looked for in areas where it has not been reported for its records to increase.

**Present status**
It has been sparsely recorded, but despite the small number of local records the population appears to be increasing and expanding, and further recording effort is required to give a better idea of its current distribution and status in Northumberland and Durham. There is a total of 96 local records for this species.

**Future outlook**
The Broad-bodied Chaser has seemingly expanded its range northwards through our area in response to global warming. If recent climatic trends continue then this species could establish itself over a larger area of both counties, but a return to cooler conditions could see it decline.
**Black-tailed Skimmer Orthetrum cancellatum**

**Regional status**
A recent addition to our region, it is very scarce.

**Habitat and life cycle**
This species seems to favour sites at low altitude but it occupies a wide range of habitat types from peat bog to sand and gravel pits, and slow-moving rivers and streams. The nymphal stage is two or three years in length before the adult emerges. The adults like to bask on horizontal places such as boardwalks over ponds or on stones, particularly in places that hold and radiate heat, where it needs to spend less time between flights (dragonflies are reliant on external heat to raise their body temperature to an optimal level for flight). Adult specimens fly from May through to the middle of August.

**Distribution**
Currently only found in the eastern halves of both counties, with records being more numerous from Durham. From Northumberland it is only known in VC67. So far it is unrecorded in north Northumberland, VC68, but it has been found across the border in Berwickshire and there are recent records as far north as Fife in Scotland.

**History**
This species was first recorded locally on 26 August 1984 at Witton-le-Wear Nature Reserve, VC66, by R L Quigley. The first south Northumberland record appears to be by S Sexton, who found it at Summerhouse Lane Pond at Newbiggin-by-the-Sea, VC67, on 13 July 2009.

**Present status**
A scarce species over most of both counties, with a total of only 58 local records. It must surely be found in VC68 if significant recording effort was devoted to this area.

**Future outlook**
The Black-tailed Skimmer has extended its range northwards into our area and beyond over the past 30 years, seemingly in response to global warming. If recent climatic trends continue then this species could establish itself, but a return to cooler conditions could see it decline.
Keeled Skimmer *Orthetrum coerulescens*.

**Regional status**
Extremely rare; its status in our area is not yet understood.

**Habitat and life cycle**
A species of peat bogs and mires where there are pools, ditches and runnels, especially when bog mosses are present. Teneral specimens disperse widely and are to be found 20 km or more from their breeding site (Smallshire and Swash 2004). This puts the single specimen recorded from the west of our region well within flight range of breeding sites in Cumbria where this species can be regularly found.

**Distribution**
This is a species that has a western bias in Britain, although there is a sparse distribution on the east coast as far north as South Yorkshire. On the western side of Britain it is to be found as far north as the Flow Country in northern Scotland.

**History**
Locally there is a single record from Muckle Moss, VC67, by A J Richards on 31 July 1982 (Ball 1985).

**Present status**
Not currently thought to be present in either county although a search of the Northumberland border mires may be productive, as well as additional visits to the original site. Muckle Moss is a Site of Special Scientific Interest and access permission should be sought from Natural England’s local office as it is also on privately owned land.

**Future outlook**
It is possible the Keeled Skimmer may be occupying quality mires in western Northumberland where all the species’ habitat requirements can be very easily met. The difficulty is generally one of access, as a long trek or mountain bike ride is required to reach these remote sites. Further recording effort is needed to give a better idea of its present status in our region.
**Common Darter Sympetrum striolatum**

**Regional status**
Common over both counties.

**Habitat and life cycle**
This species has a catholic view of habitat, being found in all kinds of ponds, lakes and slow-moving water in ditches and streams. Even small garden ponds are used for breeding. Locally adults fly from late May through to October. Where they occur, especially on larger ponds, it is not unusual to see dozens of pairs in tandem, flying low over the water with the female flicking her tail into the surface film to wash off eggs she has extruded from the tip of her abdomen. The nymphs can complete their life cycle in a single year.

**Distribution**
Very common across our region, with a recording bias towards the eastern half of both counties. It is recorded on the western side except from the very highest hills; it is not known if the lack of records from these hills is due to an absence of Common Darters or an absence of dragonfly recorders.

**History**
John Hancock found it at Tynemouth on 13 August 1826, and at Prestwick Carr the same year, both in VC67. He also found it at Marsden on 13 July 1828, VC66. It was recorded by George Bolam at Chathill, VC68, in 1901 (Lucas 1901). Over the next 70 years only an additional nine records were made, but in 1980 records really took off and have increased in number virtually every year since.

**Present status**
Common almost everywhere in both counties, wherever recorders have ventured. Currently there are 2,995 local records.

**Future outlook**
The Common Darter is under no threat currently or in the foreseeable future.
Red-veined Darter *Sympetrum fonscolombii*

**Regional status**
An occasional migrant that does not appear every year. Counties on the east coast from the Wash to the Forth benefit from these beautiful visitors when they do appear.

**Habitat and life cycle**
An inhabitant of ponds, preferably those that are well vegetated, but occasionally found at ponds with little pond weed present. There are records from ponds on acid, neutral and alkali ground. Breeding has not been proven, although ova have been seen being deposited; no one has followed this up locally by checking for nymphs or adults the following year. Adults can be found from late May through to October.

**Distribution**
The Red-veined Darter is well established in all countries bordering the Mediterranean Sea and it seems likely that this is the origin of the migrants that reach us. When migrations of this species occur it travels to much of western Europe and has been found as far north as Denmark and Finland. Being a migrant species it can turn up anywhere but it is more likely to be seen on ponds and lakes near the coast, although it does turn up inland sometimes many kilometres from the sea. The map of records of this species show where it has been found, but there is no guarantee that others will appear in subsequent years on the same site.

**History**
The first local record is dated 1945 from Ouston near Birtley, VC66. The name of recorder and source is not given. It was not reported again until 24 August 1998 when it was seen on Holy Island, VC68, by P Davey. The first VC67 record was made by the author, who netted one on the Causeway Pond on Bell Crag Flow, on 10 July 1999. This is an unlikely site, but with migrant species it should not be surprising as they can turn up anywhere. Since 1998 this species has been seen in small numbers in most years at ponds predominantly near the east coast, from the south of VC66 to Holy Island in VC68. Numbers of specimens present on any site can be difficult to count if they are in flight as they could be recorded more than once.

**Present status**
This is a migrant species whose presence in our counties varies from year to year. Seeing one is perhaps a matter of waiting until a migratory swarm of these magnificent dragonflies arrives in Britain and distributes itself around the country. The east coast of Britain is a popular migration route for many insect species, so we are likely recipients whenever a migration takes place. There are 71 local records, although some of these are duplicates coming from the same location over several consecutive days.

**Future outlook**
If the climate continues to warm, then it is possible that this species could become a permanent breeding resident in Britain and a more regular migrant to our counties; however a return to cooler conditions would likely see it become rarer. As a migrant, the number found in our area also depends on suitable weather conditions and so any changes in climate could also have a bearing on this.
Yellow-winged Darter *Sympetrum flaveolum*

**Regional status**
A migrant dragonfly very rarely found in our counties. It is not too difficult to identify due to its small size and weak fluttering flight.

**Habitat and life cycle**
This species has a range of habitats: bog pools, marshy pools, ditches and occasionally rivers. It is tolerant of acidic waters. It is supposed to have an annual life cycle but the author understands that it has only been found breeding in southern England, where it is considerably warmer. On the northern limit of its range this may well extend to a two-year life cycle.

**Distribution**
Unlike most other migrant dragonflies the Yellow-winged Darter is not found over southern Europe or the western Mediterranean. The nearest breeding sites are in eastern Europe and it seems likely that this is where those specimens turning up in Britain probably originated. Its range extends eastwards to encompass Turkey, western Siberia, Mongolia, China and then south to Korea and Japan. In Britain, Northumberland is probably the northern recorded limit of its distribution; there are two records from Scotland but some people regard these as misidentifications. In our area it is very thinly spread with only one site in VC68, another in VC67 and six sites in VC66. It is much more common further south in Britain where it is to be found in most years.

**History**
Our first record, of three specimens, was from the Rev J E Hull (1932) who found them at Coldmartin Lough in VC68. The first VC66 record came in 1945 from J W H Harrison (1946) who claimed it for Birtley where he lived. The first record for VC67 came from C Simms, who found one on the Redesdale Experimental Husbandry Farm in 1988. Three males appeared at Malton Nature Reserve near Lanchester in VC66 from 18-21 August 1995.

**Present status**
This is a very rare visitor to our counties with just 15 records. It would appear that finding one is really a matter of luck. Ideally any reports of Yellow-winged Darter should be accompanied by photographs in order to help validate the record.

**Future outlook**
With so few records in our counties this is hard to assess. As with other migratory species it may come here more often if temperatures continue to rise but could become scarcer if there is a return to cooler conditions.
Ruddy Darter *Sympetrum sanguineum*

**Regional status**
Fairly common in the lowlands of both counties but thinning out in north Northumberland due to the lack of ponds.

**Habitat and life cycle**
Found in the eastern half of both counties, it is not currently known from any upland areas of either county. A dweller in well-vegetated ponds, slow-moving streams and ditches. It is not averse to breeding in woodland ponds provided the pond is not heavily shaded. Eggs are laid, like most of the darter species, by the female flying low over ponds and ditches dipping the tip of her abdomen in the surface film, mostly in tandem with the male, but occasionally alone. The adults can be seen from mid-June until October but most commonly from July to September. It is reported to be able to tolerate acidic waters but there are currently no local records from such a site.

**Distribution**
In Britain the distribution of the Ruddy Darter reaches its northern limit in Northumberland in the east and Cumbria in the west. There is a single isolated record from Berwickshire in 2003 which has not been repeated. It is apparently absent from mountainous areas such as the Cheviots, Pennines and much of the higher parts of the Lake District. It is scarce in western Wales and the West Country. There has been a northerly expansion in range in recent decades and since its local rediscovery in 1992 it has spread rapidly though the eastern half of County Durham and south Northumberland. It is found in a few localities in north Northumberland.

**History**
First reported as a local species by George Bolam (Lucas 1901) for Chathill, VC68. It was not seen again until it was rediscovered by J Hope at a small pond in Burnopfield Wood, VC66, on 27 August 1992. The first record for south Northumberland, VC67, was made in Priestclose Woods on 17 August 2000 by I J Waller and J Hope.

**Present status**
Since its rediscovery in 1992 it has expanded through the eastern halves of both counties and is apparently increasing in numbers every year. It is most often seen when flying over ponds ovipositing, and where it occurs it can sometimes be seen in numbers. Ponds to the west of both counties need examining to establish if it has expanded its range to those areas. Currently there are 611 local records.

**Future outlook**
The Ruddy Darter has extended its range northwards into our area and beyond over the past 30 years, seemingly as a result of global warming. If recent climatic trends continue then this species could establish itself, but a return to cooler conditions could see it decline.
Black Darter *Sympetrum danae*

**Regional status**
Widespread over bogs and mires in both counties it was until recently unrecorded in the eastern half of either. This has changed in the past 20 or so years with specimens turning up in coastal areas where there are no acidic ponds. So far no one has tried pond dipping for nymphs in the coastal areas to establish whether breeding is taking place.

**Habitat and life cycle**
The true home of this delightful, predominantly black and yellow dragonfly – the smallest of the British *Anisoptera* – are the acidic bogs and mires in the west of both counties; all the early records of this species come from these areas. Ova are laid in typical “darter” style by the female dipping the tip of her abdomen into the surface water film, not over open water but instead in sphagnum margins around the pond where the water may just be seen in small patches between the moss clumps. The nymphs hatch in the spring and have a very rapid development; adults can emerge just two or three months later. Adults are to be found from late June until late October.

**Distribution**
The distribution map shows that the vast majority of records are from the west side of the counties, but some come from north Northumberland where there are suitable bogs and mires within a mile or two of the coast. In southeast Durham acid moorland does not exist, and the surface geology is Magnesian Limestone which is a totally unsuitable breeding habitat for this species. Currently the coastal records are believed to be migrants originating from European countries that border the North Sea. A flight of 300-400 miles is well within the ability of a darter dragonfly.

**History**
First recorded in Chathill, VC68, by George Bolam in 1901 (Lucas 1901). It was not recorded again until 1941, this time at Newton Hall, Stocksfield, VC67, by H Tully and by J W H Harrison for Birtley, VC66, both reported in *The Vasculum* in 1946. Since the ending of World War Two there has been a slow but steady flow of records from the uplands.

**Present status**
A relatively common dragonfly in acid moorland ponds in the west of Durham and south Northumberland, and on mires within a mile or so of the coast in the north of Northumberland. Specimens seen on coastal sites on unsuitable habitat are almost certainly migrants. There are 560 local records.

**Future outlook**
There are not considered to be any immediate threats to this species in our region. There are a large number of bogs and mires in Northumberland and the Black Darter is to be found on the great majority of them. Durham has very few bogs although plenty of acidic moorland where ponds have formed. A known site for this species, the Dodd Terrace Pond on the outskirts of Annfield Plain, VC66, was reported to have been destroyed during building works, but when this was checked in 2016 the site was still present, along with Black Darter (L Moore, pers. comm., 2016).
Vagrant Darter *Sympetrum vulgatum*

**Regional Status**
Unknown but probably currently absent. It can be easily mistaken for a Common Darter; photographs should accompany any claims that this species has been found.

**Habitat and life cycle**
An inhabitant of ponds and slow-moving streams.

**Distribution**
This is an exceptionally rare migrant only recorded once in our area. Unlike most other migrant dragonflies the Yellow-winged Darter is not found over southern Europe or the western Mediterranean. From eastern Europe its range extends eastwards to encompass Turkey, western Siberia, Mongolia, China, Korea and Japan. In Europe it has been slowly extending its range westwards in recent years and is now found in Scandinavia, southern France, northern Italy and the Balkans. It has recently expanded its range into the Netherlands and in future there may be further migrants found. The record from our area is the most northerly of the very few known British records.

**History**
The first mention of this species is from J W H Harrison (1939). This was an unspecific second hand record and is now discounted. In 2001 a single specimen was found and photographed by J Duffy at Dormans Pool, North Tees Marshes, VC66; the pictures have been seen and the record accepted by the British Dragonfly Society and the record published in the latest National Atlas.

**Present status**
A very rare migrant that could turn up anywhere along the eastern coasts of England.

**Future outlook**
The Vagrant Darter appears to be expanding its European range in response to global warming, potentially bringing it closer to the UK. If this trend continues it is possible that this species could occur more frequently in the future, although at this stage we do not know if it is commonly prone to migration. A reversal of global warming could see it retreat into Europe, away from the UK.
It is the responsibility of the County Recorders for the British Dragonfly Society to pay attention to records that appear to be unusual or peculiar. This applies to species that appear far from their normally accepted range or are so unusual that investigation of the record has to take place. Those people that the author has contacted have been interested in the query regarding their record.

In most cases misidentification has occurred because the person has been using an identification guide that illustrates only a sample of species, so that many species are not illustrated at all. Those people wishing to identify dragonflies and damselflies and submit their records should use the best possible books on identification, in particular those that focus entirely on Odonata. Smallshire and Swash (2014) is an excellent guide for the beginner as it gives very good details of the colouration of the males and females of all the species. It is also inexpensive compared to other books. Several other good guides on Odonata identification are available through the British Dragonfly Society.

The following local records have been claimed but are considered to be unacceptable.

**Beautiful Demoiselle Calopteryx virgo**

There are three reported records of this species. The first is from 1846 on the River Wear without data on where it originated or indeed who saw the specimen. The other two records are from the River Wear on 6 July 1985 and 8 July 2001. These two records were investigated by the author who spoke to the individuals concerned. Both were beginners without any previous experience of this species and when shown a female of Banded Demoiselle *C. splendens* that is present on the River Wear they agreed that they could have been mistaken. The nearest known breeding colony for Beautiful Demoiselle on the eastern side of Britain is in South Yorkshire, and it has shown no inclination to expand northward from there. Unfortunately, the River Wear records reached the British Dragonfly Society via a route that bypassed the County Recorder and appeared in the 2014 National Atlas before the error could be picked up. There are also records of this species in Ormsby (1846) from the River Browney Valley, but the author is not at all sure that the identification is correct given the lack of detailed description or other evidence of its occurrence, the lack of subsequent records and the known current national distribution of this species.

**Azure Hawker Aeshna caerulea**

There are four records of this species – in one instance of over 20 specimens – made in 2008, 2009, 2011 and 2013. Three are from sites in the vicinity of Newcastle upon Tyne and the other from between Hauxley Nature Reserve and Amble, on the Northumberland coast. The Azure Hawker is a boreo-montane species, an upland acid bog dweller that is confined to northern Scotland with a very small outlier on Silver Flow, Galloway. It is not known for being a free moving species and essentially belongs to the colder regions in Britain and Europe. It is believed that the Galloway population may possibly have been lost to forestry operations. There are however similarities in colouring with the Common Hawker and the author considers that a misidentification with this species has occurred in these instances. With rarities like this species, or any unfamiliar insects, photographs must be taken or a specimen obtained before the identity can be positively established.

**Migrant Hawker Aeshna mixta**

There is a report of several individuals of this species being seen flying in the Team Valley, VC66, by J W H Harrison (1936) but these records have been discounted (see page 62 for reason). His record reads “Normally, Aeshnid dragonflies in the Team Valley are great rarities, and I know of no locality where they breed. Nevertheless, in the last week in August, my father and I saw several hawking along the edge of the Brooms’ Wood. We were unable to catch any as they kept so high, but there is a strong suspicion that they may have belonged to the immigrant horde of *Aeshna mixta* reported for that week.- GEORGE HESLOP HARRISON.”. As there is no mention of a close sighting, capture or photograph this does not constitute a valid record of a positive identification.

**Variable Damselfly Coenagrion pulchellum**

There are reports of eight records of this species from County Durham and south Northumberland over a period of 84 years. On the east coast of Britain it has not been recorded north of south Yorkshire where colonies did occur, but have not apparently produced records since 1991. It favours the western influenced Atlantic type weather, so that it occurs close to the west coast all the way north as far as the Great Glen. In southern Britain it is very much a fen-loving species, but it also likes stagnant water, ponds and ditches. It does not apparently favour moving water. Many of the blue and black damselflies can be identified by examining the second segment of the adult male’s abdomen where distinctive black markings can be a positive guide to identification, but on this species – as its name implies – this marking can vary, and this may have led to misidentification. Another reason for suspecting erroneous identification is that only single specimens have been reported. It has been the author’s experience that in damselfly populations there are usually a good number of specimens in a given area and that singletons of another species are not found. The author believes that these records are simple identification errors, and would like to stress once again that photographs or a specimen should accompany any records.

**Yellow-legged Club-tail Stylurus flavipes**

There is only one British record, of a male near Hastings, East Sussex, in 1818, and no other records have been accepted since. One was reported to the Eye Project website by a Year Six student on 9 July 2008 from the Morpeth area. There is no evidence to back up this record and the author believes the student made an error in identification.

**Highland Darter Sympetrum nigrescens**

A species long believed to be different from the Common Darter *Sympetrum striolatum* and confined to northwest Scotland has now been genetically proven to be simply a colour variant of the Common Darter (Pilgrim and Von Dohlen 2007). A specimen was reported by the national Biological Records Centre for the NZ 26 O/S grid square (Newcastle area) in 1955. The record is now invalid, and is included here for information. There is even doubt about its locality, as this was given as “Newcastle, Durham”. As Dr Jessop (1996) pointed out there are many places in Britain that are named Newcastle. There is obviously some confusion here which will never be satisfactorily sorted out since the original author of the record passed away many years ago.
THE RECORDS OF HESLOP HARRISON

This subject, usually discussed by northern naturalists in hushed tones, concerns John William Heslop Harrison (1881-1967), who was born in Birtley, County Durham, and lived there all his life. Academically a brilliant scholar, he was awarded a degree for his work on sallows and willows in 1916 and the following year a doctorate for his work on wild roses. Made a Fellow of the Royal Society in 1928 he later became Professor of Botany at what is now Newcastle University. He was very active in the publication of The Vasculum, a journal of the Northern Naturalists Union, and led many field trips over several decades.

His work on one of his theories was carried out on the Scottish island of Rum, which he believed was ice-free during the last glaciation, and he set out to prove it. Records started to appear of plants allegedly found on Rum that were only known from alpine areas of Europe, all claimed by Harrison as his discoveries. These were added to the British List. However, no one else could get access to Rum, which was privately owned, except for Harrison and a small party of students who were given sole access during the summer months. An investigation produced evidence of fraudulent records and justifiable suspicion of plants being introduced. All of this can be read in detail in A Rum Affair by Karl Sabbagh (1999); the story is as gripping as any detective novel and the conclusions as dramatic. Botanists were not the only people to have doubts; many of his entomological records were being queried by the author and several other local entomologists as early as the 1970s. As a consequence, there is a reluctance to give credence to any record of scarce or rare dragonflies and damselflies claimed by J W H Harrison. In this publication the author has accepted his records of common species, as they were no doubt present, but not his records of rare species, judging that they are not to be trusted.

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The compilation of a database of records requires a large input of data from over a wide area accumulated over many decades, as well as archive records covering perhaps a couple of centuries. The larger the number of records, the larger the number of people contributing records. Given the number of records involved here, it is not possible through space restrictions to name every single contributor; some have added a small handful of records, others in excess of 1,000 or more. While the author’s grateful thanks go to every contributor, he has had to restrict personal names to a those of a few recorders who have made major contributions to the records data, some over several decades. These are: S G Ball, T Coult, P Davey, I Douglas, J Durkin, H A Ellis, M D Eyre, D Green, D I Griss, J Hope, M Hunter, D Hutt, M Jeffries, J H Lawton, D McCutcheon, J A Morton, R Norman, B Pollinger, M Rebane, G Simpson, M Turner, D Wainwright and I D Waller.

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SUGGESTED READING


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WALLIS, J (1769). The natural history and antiquities of Northumberland and so much of the County of Durham as lies between the rivers Tyne and Tweed; commonly called North Bishopr! Volume I. London.
Azure Damselflies at Bellasis Bridge by Mike S Hodgson

Emperor Dragonfly at Cramlington by Dorothy Bennett

Female Broad Bodied Chaser at Far Pasture by Michael Eccles

Female Black Tailed Skimmer at Kibblesworth by Michael Eccles
Female Blue-tailed Damselfly at Dinnington by Christopher Wren

Female Ruddy Darter at Cowpen Bewley by Michael Eccles
Dragonflies and Damselflies of Northumberland and Durham describes the history, status, habitats, life cycle, distribution and future outlook of 24 species of dragonfly and damselfly found in the northeast of England up to 2016. Species accounts are accompanied by photographs and distribution maps.

Dragonflies and Damselflies of Northumberland and Durham has been written and researched by Harry T Eales and published by the Natural History Society of Northumbria as Volume 81 of the Northumbrian Naturalist.

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