Dragonflies

of Norfolk

Norfolk & Norwich Naturalists' Society

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Cover illustration: Ruddy Darter

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Banded Demoiselle

Calopteryx splendens

Common on most of the larger Norfolk rivers with well-vegetated banks, together with some of their smaller tributaries. Also found on canals and around the edges of many of the main Broads. The species flies from May to late August, with occasional records in early September.

Larvae develop over two years and require rivers with muddy bottoms where they can overwinter in the sediment. They often emerge some distance away from water. Their exuviae (shed larval cases) can sometimes be found on shrubs or trees up to 100m away from the nearest river.

Males have indigo wing patches and iridescent blue bodies. They use emergent or floating vegetation from which to display to the females, using a fluttering courtship flight.

Females have green tinted wings and metallic green bodies. Only the females have a white, false pterostigma near the wing tips.

Tony Howes

David Kitching

Tim Melling

John Burton

Beautiful Demoiselle

Calopteryx virgo

Beautiful Demoiselle can be found on fast-flowing waters in southern and western Britain. It is a rare and occasional migrant to Norfolk. On the wing from May to August.

A clear side view, particularly of the wings in either sex, is required to distinguish this species from Banded Demoiselle.

Males have metallic blue bodies and iridescent, wholly dark wings.

Females have olive-brown wings and a metallic green body, often turning bronze towards the tip. The white, false pterostigma is further away from the wing tip than in Banded Demoiselle.

Emerald Damselfly

Lestes sponsa

Widespread in the county where there are shallow, well-vegetated standing waters. Often common on ponds and in grazing marsh ditches. However, the species can be difficult to locate, because it tends to fly only short distances and frequently remains hidden in the vegetation. Unlike other damselflies, it usually perches with wings well-spread. This is a late-flying damselfly on the wing from late June through to September.

Eggs are laid into emergent vegetation, hatching the following spring. Larval development is rapid, allowing this species to inhabit temporary waterbodies.

Males are metallic green. With maturity they develop blue pruinescence (waxy blue bloom) on abdominal segments 1, 2, 9 and 10. The key identification feature is the inner pair of abdominal appendages which are straight when viewed from above. Males are distinguished from Scarce Emerald Damselfly by the more extensive areas of blue on the abdomen, including all of segment 2.

Females are also metallic green, but do not develop pruinescence. They have a small pair of triangular, tear-drop shaped marks on the first abdominal segment. There is an isolated metallic green spot just above the base of the middle leg.

Male inner anal appendages are straight.

David Kitching

Scarce Emerald Damselfly

Lestes dryas

This species was once thought to be extinct in Britain, but was rediscovered in Norfolk in 1983. It is now known from many sites within the county, particularly in Breckland, but remains Near Threatened on the Odonata Red Data List (2008). It inhabits densely vegetated, shallow ponds and lakes, including temporary waterbodies. The main flight period is June to August.

Eggs are laid into emergent vegetation, hatching the following spring. Larval development is then rapid.

Males are similar to Emerald Damselfly, but are generally more robust. They are distinguished by the reduced amount of blue on the second abdominal segment and by the incurved inner anal appendages.

Females are also similar to Emerald Damselfly, but they lack the isolated metallic spot above the middle leg and have square-shaped marks on the first abdominal segment.

Male inner anal appendages are incurved.

Paul Richie

Willow Emerald Damselfly

Chalcolestes viridis

A recent coloniser first recorded in Norfolk in 2009 at Strumpshaw Fen, when a single individual was photographed and a pair reported. The following year up to three pairs were present in late August-September and ovipositing into overhanging willows was observed. By 2014 there were at least three established colonies in Norfolk and the species is now widespread throughout the county. It is a late-flying species, on the wing from mid-July to October.

Eggs are laid into the overhanging branches of several tree species, as well as a few other plants. Willows are favoured, but Alder, Hawthorn and birches are also commonly used. The trees form scars over the eggs that remain clearly visible even after the eggs have hatched. Larvae appear the following spring and subsequent development is rapid.

This species is distinguished from other emerald damselflies by the elongated ‘spur’ on the side of the thorax and the pale coloured wing-spots of both sexes. However, caution is needed, because immature emeralds of other species also have pale wing-spots. Males have a particularly long abdomen. The outer anal appendages are pale and the inner pair short and stubby. Males generally lack pruinescence. In females the underside of the ovipositor has both pale and dark sections.

Hans Watson

Adrian Riley

Typical ovipositing scars left on a small branch

Southern Emerald Damselfly

Lestes barbarus

Andy Musgrove

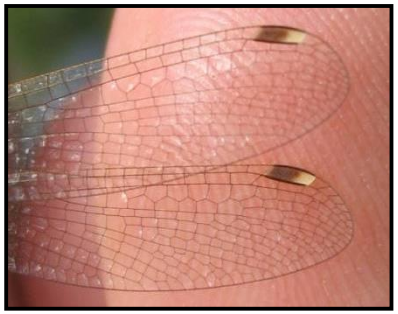
Jerry Hoare

A migrant species whose first British record was at Winterton Dunes, Norfolk on 30 July 2002. Two further males were found a few days later. A female was present the following summer and there have been further reports from the same site in most years ever since. At least five were present and breeding behaviour was observed for the first time in 2012. The number of repeated sightings suggests a small breeding population may be present.

The species normally breeds in ponds and ditches. The eggs hatch the following spring and larval development is rapid.

This damselfly is distinguished from other emerald damselfly species by the bi-coloured wing-spots of both sexes (see below), although immature adults lack this feature.

Males lack pruinescence, which distinguishes them from Emerald and Scarce Emerald Damselflies. The outer anal appendages are pale with dark tips. The inner pair are small, pointed and out-curved. Females have an entirely pale ovipositor.



Peter Neal Taylor

Large Red Damselfly

Pyrrhosoma nymphula

This is usually the first damselfly to be seen each spring. It usually appears in the second half of April, occasionally earlier, or at the beginning of May. Numbers peak early in the season, but a few individuals can be found throughout the summer until the end of August. It is widespread across Norfolk and can be found in all wet habitats except fast-flowing rivers and streams. It can often be seen around garden ponds.

Larvae normally hatch two to three weeks after the eggs are laid and take an average of two years to develop.

Males are red with black markings. Females have both black and gold markings, as do immatures of both sexes. There are three female colour forms with varying amounts of black. Both sexes have black legs which distinguishes this species from Small Red Damselfly.

Peter Neal Taylor

Peter Neal Taylor

David Smallshire

Small Red Damselfly

Ceriagrion tenellum

This species is known from just two sites in Norfolk, both of which are vulnerable. It is an acid water species of small pools, seepages and runnels. It does not colonise new sites easily and is a weak flier, rarely moving far, and settling readily. It flies from June to the end of August, with late June and early July the best times to find it.

Eggs hatch after approximately a month and normally take two years to develop.

This is one of our smallest British damselflies. Males are mainly red in colour, with red wing-spots and a totally red abdomen. Both sexes have pinky-red legs, which distinguishes this species from our only other red damselfly, the Large Red. Female Small Red Damselflies come in three colour forms. The normal '*typica*' form having a bronze-black and red abdomen. The other colour forms are '*erythrogastrum*' with an entirely red abdomen and '*melanogastrum*' which has an almost entirely dark abdomen and pinkish legs.

This species is Nationally Scarce.

Azure Damselfly

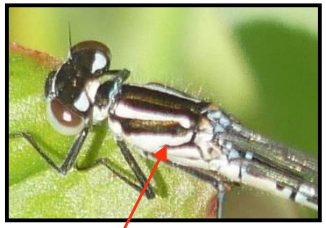
Coenagrion puella

This is a common damselfly in Norfolk, occurring in almost any still or slow moving body of water, including garden ponds, grazing marsh dykes and other, usually small, waterbodies. It flies from May to August.

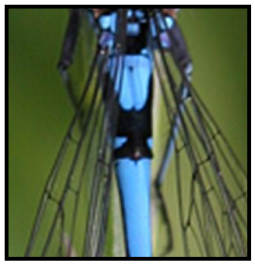
Eggs hatch after a few weeks and take one to two years to develop, depending on water temperature.

Males are blue and black; one of three species with similar colouring in Norfolk. Distinguishing features include narrow, but complete, stripes on the top of the thorax and a black mark shaped like a whisky tumbler on the second abdominal segment. Also look for the '*Coenagrion* spur' on the side of the thorax in both sexes, a feature shared with Variable Damselfly. Females are generally green, with extensive black markings on the abdomen. Blue-form females also have small blue marks at the top of abdominal segments 4 to 6.

Male whisky tumbler mark on second abdominal segment.



Wine glass mark on second abdominal segment



Variable Damselfly

Coenagrion pulchellum

This species is Near Threatened on the Odonata Red Data List (2008). It has a patchy and localised distribution, but can be abundant at some sites, particularly in the Broads. It is a species of well-vegetated ponds and grazing marsh dykes, often in alkaline waters. It flies from May until mid-August.

Larvae hatch about a month after the eggs are laid and probably take one year to develop.

Males are similar to, but often appear slightly darker than, male Azure Damselflies. They usually have broken stripes on the top of the thorax and a wine glass mark on the second abdominal segment. However, these features are variable, as the name suggests. Both sexes have a line between the eye-spots, a feature usually lacking in Azure Damselflies. The two female forms both resemble Azure females, but the blue-form Variable female shows more blue on the abdominal segments than is present in Azure females. However, the only reliable way to separate Azure and Variable Damselflies is by studying structural features such as the pronotum, the small shield-shape behind the head. This is deeply three-lobed in Variable Damselflies.

Common Blue Damselfly

Enallagma cyathigerum

This species is abundant and widespread in Norfolk. It can be found in a large range of habitats in both still and slow-flowing waters. It often prefers larger waterbodies, so is the most likely blue/black damselfly at lakes and rivers. It flies from May to early October, usually out-lasting other confusion species.

Larvae take one to two years to develop, depending on water temperature.

Males can be confused with the preceding two species, but tend to be a paler shade of powder-blue. The stripes on the top of the thorax are broad and complete (in both sexes) and there is no '*Coenagrion* spur' on the side of the thorax, because this species belongs to a different genus. Males have a black circular or mushroom-shaped mark on the second abdominal segment, and segments 8 and 9 are completely blue. Females occur in a blue form and a dull greenish-buff form, although newly emerged individuals can appear pinkish with black markings. The shapes on the female abdomen resemble 'rockets' or 'bullets'.

Blue-tailed Damselfly

Ischnura elegans

This is a common and frequently encountered damselfly in Norfolk. Able to withstand some degree of pollution, it is sometimes the only species to be found in unsavoury areas. It flies from May until September.

Eggs are laid directly into plant material, with the female usually ovipositing alone. Larvae take one or two years to develop, depending on water temperature.

Males are distinctive, largely black with thin blue stripes on the top of the thorax and a blue segment 8 near the tip of the abdomen. Females come in five colour forms. Immature females with a rose-pink thorax and blue segment 8 (*rufescens*) mature to have a light brown thorax and brown segment 8 (*rufescens-obsoleta*). Immature females with a violet thorax (*violacea*) mature to have either the male-type blue thorax and blue segment 8 (*typica*) or a green thorax with brown segment 8 (*infuscans*). Both sexes have diamond-shaped bi-colour wing spots.

Male and *typica* female colouration

rufescens colour-form

Violacea transforming to *infuscans* colour-form

Scarce Blue-tailed Damselfly

Ischnura pumilio

From time to time small colonies of this species are discovered in Norfolk, but they are often only transient in nature. This is mainly due to the species preference for shallow and sparsely-vegetated areas, that are themselves prone to change. Sites are often associated with heathland, but alkaline sites can also be tolerated. This species flies from late May to early September.

Eggs hatch after just two to three weeks and larvae take one or perhaps two years to develop.

Males are similar to Blue-tailed males, but may appear more greenish. The blue abdominal band is nearer the tip of the abdomen in Scarce Blue-tailed, being mainly on segment 9 and just the lower end of segment 8. Both species and sexes have the diamond-shaped bi-colour wing spots. Immature females are an unmistakable bright orange with black markings, while mature females are greenish with a greenish-blue and black abdomen.

This species is Near Threatened on the Red List (2008).

Erland Refling Nielsen

Above - Immature female *aurantiaca* form

Christophe Brochard

Geoff Nobes

Red-eyed Damselfly

Erythromma najas

This species is quite widespread in gravel pits, lakes and larger ponds with floating waterlilies or other similar surface vegetation, on which it likes to perch. It is often seen around the edges of larger broads and along rivers, where suitable vegetation is present. This species flies from May to September, so is usually the first of our two ‘red-eyed’ species to appear.

Larvae take two years to develop, but can occasionally emerge later in the season after just one extended year, leading to a small second emergence peak in warmer waters.

Red-eyed Damselfly is a larger than average damselfly species, but when viewed at distance, bears a superficial resemblance to Blue-tailed Damselfly. The bright red eyes, lack of thoracic stripes, and blue on segments 1, 9 and 10 of males, on an otherwise dark abdomen, are diagnostic. However, slight pruinescence (waxy blue bloom) can develop in older individuals. There is no noticeable blue on the underside of segment 8, which helps to distinguish this species from Small Red-eyed Damselfly.

Females have green sides to the thorax and very fine, partial thoracic stripes. The abdomen is yellowish-green below and dark above, with blue divisions to the last few abdominal segments.

Small Red-eyed Damselfly

Erythromma viridulum

This species was first recorded in the county in August 2001 when several hundred appeared on the coast at Winterton Dunes. Since then the species has spread to many inland waters, often sharing the same sites as Red-eyed Damselfly. This is because its habitat preferences are similar. There is often competition between the two species for perches on individual waterlily leaves. It flies from June to September.

Larvae usually take just one year to develop and the peak of emergence is in July, after that for Red-eyed Damselfly.

Small Red-eyed Damselfly is similar in overall appearance to its relative, but can be noticeably smaller. Also, males have scarlet, rather than burgundy eyes. However, the main distinguishing marks on the male are the blue sides to abdominal segments 2 and 8 and the black ‘x’ over blue on the upper surface of segment 10.

Females are also similar to Red-eyed Damselfly females, but the pale thoracic stripes are complete. These stripes, like the thorax and the tip of the abdomen, can be yellow, green or blue.

Dave Smallshire

Dick Waters

Dick Waters

Hairy Dragonfly

Brachytron pratense

Although generally scarce throughout most of its range in the southern half of Britain, it is fairly plentiful in Broadland and becoming more widespread elsewhere in Norfolk. This species particularly favours dykes and pools with abundant fringing vegetation, where males can often be found patrolling short lengths of the water's edge. Hairy Dragonfly is one of the earliest species on the wing, flying from the end of April to July.

Eggs hatch after three to four weeks and larvae normally take two or three years to develop.

Hairy dragonfly is the smallest of our hawker species. Both sexes have a distinctly hairy thorax with green sides. They also have a yellow leading edge to each wing and pairs of small triangular spots on every abdominal segment. Males have blue abdominal spots and well-marked yellowy-green stripes on the top of the thorax. Females have yellowy-green spots on the abdomen and more restricted greenish stripes on the thorax.

Bruce Hyde

Tony Howes

Southern Hawker

Aeshna cyanea

This species is common and widespread in Norfolk, frequently breeding in garden ponds, but rarely being seen in large numbers. It can be found in a wide variety of habitats, often away from water, because it wanders far and wide. Adults can sometimes be found hawking in woodland rides even late into the evening. It is on the wing from June, with some individuals persisting into October and occasionally, even early November.

Eggs are often laid into moss, woody debris and other plant material near the edges of ponds, lakes and dykes. The eggs hatch the following spring, with larvae then taking one to three years to develop.

Both sexes can be distinguished from other spotted hawkers by the coloured bands on segments 9 and 10 at the tip of the abdomen. The top and sides of the thorax also have far larger coloured stripes and patches than any other hawker except Hairy Dragonfly. At the top of the abdomen there is a large, conspicuous coloured triangle. Males are dark with apple-green and blue markings. Females are brown with yellowish-green markings.

Common Hawker

Aeshna juncea

This species is scarce in Norfolk, occurring mainly in the east of the county, with a few sightings along the north coast, which are thought to predominantly involve migrants. In the east, its preferred habitats include grazing marsh dykes and freshwater pools in coastal dunes, as well as the more usual acid heathland. It flies from late-June to October.

Eggs are laid in the second half of the year and don't hatch until the following spring. Larvae then take three or more years to develop.

Both sexes are similar in appearance to Migrant Hawker, however, Common Hawkers have a bright yellow leading edge to each wing and two coloured bands, instead of one, at the top of the abdomen. Males have paired blue spots and yellow flecks on the abdomen, with complete, but narrow thoracic stripes. Females are brown with yellow, occasionally green and rarely blue spots on the abdomen. In females the thoracic stripes are restricted or absent.

Male Common Hawker far left vs Migrant Hawker left.

Tony Howes

Migrant Hawker

Aeshna mixta

This species is common and resident throughout the county, with migrant arrivals often boosting numbers during autumn. While other hawkers are usually seen individually or in small groups, Migrant Hawkers can form large feeding swarms, sometimes containing hundreds of dragonflies. It is a generalist species, breeding in a wide range of well-vegetated dykes, ponds, lakes and gravel pits. It is a late-flying species, on the wing from July to November, with a peak in early autumn.

Eggs hatch the following spring. Larvae then take just a few months to develop, before emerging later in the same year.

Similar to Common Hawker, but the leading edge of each wing is brown, not yellow. There is only one band of colour near the top of the abdomen (see previous species), but the triangle above this is more prominent than in Common Hawker. The thoracic stripes are faint or absent in both sexes. Males appear dark, with paired blue spots and yellow flecks down the abdomen. Females have yellow spots (occasionally blue) which are smaller than those on the male. In both sexes there is a dark halo around each abdominal spot. This is more obvious in females.

Southern Migrant Hawker

Aeshna affinis

Until 2019, this species was a rare migrant to Norfolk. In recent times, single individuals were seen in 2006, 2010 and 2012. However, in 2019, at least three males were present at East Winch Common during July and another seen at Redgrave and Lopham Fen. Both of these sites also held the species in 2020, with a female seen ovipositing at East Winch Common. In addition, the species was also seen at Horsey, Winterton Dunes, Beeston Common and Thompson Common in 2020, with at least eight males and two females present at the latter site. Following colonisation of the Thames Estuary area, it appears that Norfolk is now part of the normal range for this dragonfly. It flies June to early September.

Eggs hatch the following spring, with larvae taking one or two years to develop.

Both sexes can be told from the similar Migrant Hawker by the extent of colour on the sides of the thorax. Males have entirely blue markings on the abdomen, with greeny-blue on the thorax. Females are similar to males, but the abdominal markings are smaller and yellow. There is a prominent triangle on segment 2, reminiscent of Norfolk Hawker.

Left: Thorax patterns of Migrant Hawker top vs male Southern Migrant Hawker below.

Neil Phillips

Female egg-laying.

Brown Hawker

Aeshna grandis

This species is common and widespread in Norfolk, breeding in a wide range of still or slow-flowing waters. It is often seen away from its breeding sites, sometimes hunting small insects such as thunderflies (Thrips species) over cereal crops. It is often active late into the evening. It flies from June to October.

Eggs are laid into mud or both living and dead plant material, either near or below the water's surface. They hatch the following spring, with larvae taking two to four years to develop.

This is the only British dragonfly species to have brown, rather than clear wings, although it should be remembered that both demoiselle species also have coloured wings. Care is needed however, because other hawkers can have discoloured wings as they age. Brown hawkers are mainly brown, with lemon-yellow stripes on the sides of the thorax. Both sexes lack thoracic stripes. Males have small blue dots at the top and along the sides of the abdomen, but these are only obvious when settled. The eyes are brown, with a hint of blue. Females have yellow or pale blue markings on the sides of the abdomen and yellowish-brown eyes.

Paul Richie

David Kitching


Male


Female

Norfolk Hawker

Aeshna isoceles

This species was once confined to east Norfolk and the north-east corner of Suffolk, but can now be found at several locations in the west of the county as well. Since 2011 it has even colonised sites in other counties, including Cambridgeshire, Kent and Hertfordshire. Currently listed as Endangered on the Odonata Red List (2008), its official status is likely to change when the list is next reassessed. This species flies from May to July, with a few individuals persisting into August.

Eggs hatch after three to four weeks and larvae take two years to develop. Sites containing Water Soldier (Stratiotes aloides) are often favoured as breeding habitats, but other well-vegetated dykes and ponds can also support the species, provided water quality is good.

Norfolk Hawker is more gingery-brown than Brown Hawker, although adults do dull with age. The wings are clear, sometimes with a hint of gold. There are no coloured markings on the abdomen, other than a yellow triangle on segment 2. This species has bright apple-green eyes, which are even obvious in flight. Both sexes have two yellow stripes on the side of the thorax, although these may be less prominent in females. The thoracic stripes are either faint or absent.

David Kitching

Dennis Swaby

Emperor Dragonfly

Anax imperator

This is the largest resident species in Britain. It is widespread across Norfolk favouring still or slow-flowing ponds, lakes, dykes and rivers. Males are highly territorial and each small pond will usually only support one male at a time. It is noticeable that males almost constantly patrol and rarely land during this stage of their life cycle. This species is on the wing from May to October.

Females lay eggs alone into pondweed and the eggs hatch after about three weeks. Larvae then take two years to develop, although if conditions are favourable, emergence later the following year is possible.

Both sexes can be told from all other hawkers by the bulky, unmarked, apple-green thorax and the solid colour bands down the length of the abdomen. This abdominal colour is divided by a dark line from segments 2 or 3 to 10. Males have a blue abdomen and irregular black line, while females have a green abdomen, occasionally pale blue, and a dark brown line. In flight the abdomen is often held drooped. The leading edges of the wings are yellow, although these dull with age.

Lesser Emperor

Anax parthenope

Lesser Emperor was first recorded in Britain in 1996 and was once a rare migrant. The first Norfolk record was from Titchwell in 2002, followed by an east coast record from Eccles in June 2003. In July of that year there were reports from Lound Waterworks on the Norfolk/Suffolk border, with occasional records since. 2006 saw reports from three Norfolk sites, then in 2007 records came from four different places and ovipositing pairs were observed for the first time at Felbrigg Lake. There was then an apparent gap in Norfolk sightings until 2014, since when the species has been seen every year, with colonies now established at Felbrigg Lake, the Trinity Broads and possibly other locations. This species flies from June to early September.

Eggs hatch after a few weeks and larvae take one or two years to develop.

Although a large hawker, it is slightly smaller than Emperor. It has green eyes and a brown thorax with greenish sides. Males have a bright blue saddle on segments 2 and 3, topped by a brown segment 1 from which the blue is separated by a yellow line. The sides of abdominal segments 4 to 10 are olive or a dull blue-green. Females are similar to, but duller than males. One important point to note is that while Emperor females oviposit alone, Lesser Emperors usually egg-lay in pairs.

Jean-Francois Bousquet

Greg Osborn

Vagrant Emperor

Anax ephippiger

Vagrant Emperor is a long-distance migrant mainly of African and Middle-Eastern origin. It now breeds regularly at sites along the Mediterranean coast in southern Europe and has been a known vagrant to Britain since 1903. The first Norfolk record dates to October 2011 when one was photographed in Great Yarmouth. The second confirmed record came in 2016 from Gun Hill in North Norfolk. In 2019 there were then reports from at least ten locations with some holding multiple specimens. Most notable were a group of twenty-eight seen near Wells. This species can arrive in almost any month of the year.

Vagrant Emperor has become a more regular migrant to Britain in recent decades, so although there were only three Norfolk records in 2020, all from coastal sites, we can expect more to arrive in future.

Males have a yellowish-brown abdomen with a blue saddle that is more restricted than in Lesser Emperor, and of a more violet hue. The thorax is brown or greenish and the eyes are brown above and greenish below. Females are similar, but darker and duller than males with just a hint of violet-blue on the second abdominal segment.

Christophe Brochard

Above - the first Vagrant Emperor to be recorded in Norfolk was photographed almost by chance by someone attending a photography course at Great Yarmouth library. Only when the course photographs were examined a few days later, did the significance of this particular photograph become apparent.

David Kitching

Kees Waterlander

Downy Emerald

Cordulia aenea

This is one of the rarest dragonflies in the county, being known from only a few sites in north-east Norfolk. There is no public access to the main breeding areas, but the species has been seen regularly in recent years on public sites nearby. This species is unusual, because it prefers ponds and lakes that are fringed with trees. The larvae have particularly long legs to cope with life in the leaf litter that is found around the shallow edges of these waterbodies. It is an early flying species, being on the wing mainly from May to July.

Eggs hatch two to three weeks after being laid. The time taken for larvae to develop is unknown, but when mature, the larvae often climb to the highest point possible before emerging. This can be high in the canopy of the surrounding trees.

This is a medium-sized dragonfly with a metallic shine. The whole body appears dark at a distance, but is in fact bronze with a green sheen. The eyes are bright green in mature adults. As with all emerald dragonflies, the face pattern is distinctive. This species has a dark frons (face) with yellowish jaws. Males have a distinct ‘waist’ on segment 3 of the abdomen, which is lacking in females.

This is currently the only emerald dragonfly species found in the county.

Four-spotted Chaser

Libellula quadrimaculata

This species is widespread and common in Norfolk, occupying a wide range of still and slow-flowing waters, where males can be aggressively territorial. It is often most abundant in acidic waters at heathland sites, but can also be found in some garden ponds. This species is on the wing from May until September, with peak numbers usually seen in June or July.

Adult females oviposit alone by flicking the tip of their abdomen over the water surface to scatter the eggs. Larvae normally take two years to develop.

The sexes are similar in appearance, with females having a slightly broader abdomen than males. This species has brown eyes and a brown thorax. The abdomen is also brown, with a black tip covering the last third. There are yellow dashes down the sides of most abdominal segments and an orangey-brown suffusion along the leading edge of each wing. The species gets its common name from the four additional dark spots at the halfway point of each wing. These, and the normal wing spots near the wing tip can sometimes smudge down further into the wing in a colour-form known as *praenubila*. In common with other chaser species, there are dark triangles at the base of the hind wings.

Geoff Nobes

Broad-bodied Chaser

Libellula depressa

This species is widespread, but rarely common in the county. It has a preference for newly created or recently restored ponds and small lakes, where vegetation is sparse. It is often the first species to arrive and colonise new ponds, but can also be found at well-vegetated sites, including dykes. It is a spring species, with peak numbers in May to July. There is now some evidence of a second small emergence in the autumn, possibly as a result of climate change.

Eggs hatch in two to three weeks, with larval development taking between one and three years, depending on conditions.

This is a medium-size, chunky dragonfly that often returns to the same perch between territorial disputes or hunting forays. Both sexes have large dark triangles at the base of the hind wings and smaller dark patches at the base of the forewings. Mature males have a blue abdomen and bluish thoracic stripes that darken with age. The eyes and thorax are brown. Females are golden-brown, going darker with age, and have large yellow markings on each side of the broad abdomen. The thoracic stripes are pale yellow. Immature males resemble females in colour, but as they mature, the powder-blue pruinescence (waxy blue bloom) that develops obscures the golden colours, including most of the yellow on the sides of the abdomen.

Scarce Chaser

Libellula fulva

This was once a scarce dragonfly, but in recent times it has started to spread to new locations. However, it is still very localised and is listed as Near Threatened on the Odonata Red List (2008). This species has a preference for slow-moving rivers with lots of cover along the banks. It also sometimes breeds in mature ponds and dykes, such as those found in some fen and marsh habitats. It is on the wing from early May to late July.

Due to the riverine preferences of this species, it is unclear how long eggs take to hatch, but it is believed the larvae take two years to develop.

Mature males have a blue abdomen with a black tip, similar to that of Black-tailed Skimmer. However, Scarce Chaser has a darker, almost black, thorax and dark wing bases, although these are less obvious than in other chasers. The eyes are bluish, but they darken with age. Females and immature males are particularly striking with an orange-brown body and black triangles in the centre of each abdominal segment. The eyes are brown. While males gain blue pruinescence as they mature, the females darken with over-maturity. Most females have a dark smudge at each wingtip.

Mark Tyrrell

Peter Neal Taylor

Black-tailed Skimmer

Orthetrum cancellatum

This species is common and widespread in the county, being found at almost any type of standing or slow-flowing water. It is frequently encountered along broadland rivers and around the edges of even the largest Broads. It also inhabits dykes, gravel pits and garden ponds. It can often be found basking on bare mud, wooden boardwalks and fishing platforms, as well as areas of cut grass and paths. When disturbed, it often flies low above the ground, ‘skimming’ to its next resting place. Flies from May to September or October.

Eggs are laid by females flicking their abdomens to dislodge and scatter balls of eggs across the water’s surface. Eggs hatch in five to six weeks and larvae take two to three years to develop.

Both sexes have an olive-brown thorax and yellow leading edge to the wings. Males develop a blue pruinescence on the abdomen as they mature, with a black tip on segments 7/8 to 10. The top two segments of the abdomen are brown. Similar in appearance to Scarce Chaser, Black-tailed Skimmer lacks dark wingbases and has completely clear wings. Females have a yellow abdomen, with two black stripes running down the length and forming an unmistakable ladder pattern. Over-mature females may develop a little pruinescence, turning the abdomen greyish. Immature males resemble females.

Keeled Skimmer

Orthetrum coerulescens

A few decades ago, this species was known from just one location in Norfolk, at Holt Lowes, and that was under threat from scrub encroachment. Habitat restoration work greatly improved conditions for this species and following expansion of that single population, Keeled Skimmer has now spread to several acid heath and mire sites, including Buxton Heath, Beeston Common, Roydon Common and Grimston Warren. It is on the wing from late May to September, with peak numbers in June, July and August.

It is unclear how long the eggs take to hatch, but larvae normally take two years to develop.

This species gets its name from the dark line or ‘keel’ running down the centre of the abdomen. Both sexes have a brown thorax, with pale thoracic stripes. However, the thorax dulls with age and the stripes can become far less obvious. Males develop blue pruinescence on the abdomen with little, if any, black at the tip. Superficially similar to both Scarce Chaser and Black-tailed Skimmer, they lack the dark wing bases of chasers and are much smaller than either of these other two species. Mature females are golden-brown and given their size, can be mistaken for female darters. However, the thoracic stripes and abdominal keel should serve to distinguish them. Dull, over-mature females may be the hardest to distinguish.

David Kitching

Christian Fischer

Simon Harrap

David Paull

Common Darter

Sympetrum striolatum

Common Darter is widespread and common in the county and can be found almost anywhere from garden ponds, to fens, heaths and even woodland, when water is nearby. They settle frequently and, later in the day, particularly later in the season, they will choose warm, flat, often light-coloured surfaces on which to rest. It is mainly a late summer and autumn species, but can emerge as early as late-May or June and persist even into December in some years.

Eggs are usually laid by the pair in tandem, but occasionally, females will oviposit alone. Depending on the season, eggs may hatch in a few days, weeks or even the following spring, with larvae taking just one year to emergence.

Mature males are a brick-red colour, rarely deepening to scarlet, with a brown thorax. There are two yellow panels on the side of the thorax bordering a reddish panel between. The sides of the abdomen are parallel and both sexes have grey-brown legs with a pale line down them, although this dulls with age. Females are golden-brown with pale thoracic stripes. The eyes of both sexes are brown above and green below. Immature males resemble females and older females may become reddish.

David Kitching

Ruddy Darter

Sympetrum sanguineum

This species is more localised than Common Darter, but has recently become more widespread across the county, often sharing locations with the latter species. Ruddy Darter likes well-vegetated water in which to breed, ranging from ponds and lakes to dykes and slow-flowing rivers. It can often be found near woodland. It flies from June until October, although some may emerge in late May.

Eggs can hatch within a few days, but may not do so until the following spring. Larval development is then fairly rapid, with emergence occurring the year after eggs are laid.

Although size ranges overlap, this species is usually slightly smaller than Common Darter, and both sexes have a more shiny appearance. There is a small area of yellow in the wingbases and the wings may turn golden with age. The legs of Ruddy Darter are completely black and there is a dark ‘T’-shape at the front of the thorax. Males have a distinct ‘waist’ when viewed from above. When mature they have a scarlet abdomen and a red-brown thorax. The eyes are red-brown on top and green below. Females and immature males are ochre, with eyes that are brown above and yellow-green below. Like Common Darter, there are dark marks on segments 8 and 9 of the abdomen in both sexes.

Black Darter

Sympetrum danae

This species is scarce in Norfolk, occurring only on the acid heaths and bogs to the west of the county. The main breeding sites include Roydon Common, Grimston Warren and Dersingham Bog. In Norfolk this species is restricted to acidic shallow pools and ditches, often with a surrounding fringe of sedges and rushes, within the heathland. It flies from June until the end of September, sometimes later if the weather is warm.

Eggs hatch the following spring and subsequent larval development is rapid, taking only two to three months before emergence.

This is Britain's smallest species of dragonfly. Mature males are glossy black, with black legs and wingspots. They have a distinct 'waist' around segment 4 of the abdomen. Females and immature males are darker than other darters, with black legs, a distinctive black and gold abdomen, black triangle on the thorax (see below left) and four yellow spots between the golden panels on the side of the thorax (below right).

David Kitching

David Kitching

Bruce Hyde

Red-veined Darter

Sympetrum fonscolombii

Red-veined Darter was once a rare migrant from the continent, but sightings have become more frequent over the last couple of decades. There has also been some evidence in recent years of local breeding, with egg-laying attempts noted at several sites. Additionally, there have repeat records over the last few years at Felbrigg Lake and Kelling Water Meadows and immature individuals have been found at a private site in the Brecks and at Beeston Common. Finally, exuviae (shed larval cases), proof of successful breeding, have been recorded at Felbrigg Lake. The picture is far from clear though, because records from coastal sites such as Beeston Common, Winterton and Kelling could also indicate fresh immigrations. That was certainly the case when at least twenty arrived near Wells in the company of other migrants during 2019. Mainly on the wing from June to September.

On the continent there are two generations each year, but the true situation here is unknown.

Both sexes have eyes that are blue, not green, below. The wing-spots are pale and heavily outlined in black. Males have conspicuously red veins on the inner portion of each wing and abdomens that are pinkly-scarlet and relatively unmarked, compared to other darters. Females are ochre, with yellow veins on the inner section of each wing.

Yellow-winged Darter

Sympetrum flaveolum

Yellow-winged Darter is now a rare migrant from the continent. Once a more regular visitor than Red-veined Darter, records have become few and far between in the last couple of decades. Back in 1995, Great Yarmouth cemetery briefly hosted several hundred, newly arrived Yellow-winged Darters. In subsequent years a few small colonies were found in the county, but none persisted for long.

On the continent, eggs hatch the following spring and larval development takes just a few months.

The main distinguishing features of this species are the bright yellow veins and the extent of orange-yellow suffusion in the basal half of each wing. Poorly marked individuals might be confused with other darters, but the lower half of the eye is yellowish, rather than blue or green. Mature males have a red-orange abdomen, reddish-brown thorax and pale lines down each leg. Females are yellowy-brown and have an unbroken line running down each side of the abdomen. They too have a pale line on each leg.

Bill Furse ARPS

Frederic Barszezak

Paul Riordan – Scarlet Darter at Hickling Broad 5/7/2016

Bruce Hyde

Scarlet Darter

Crocothemis erythraea

There has been just one Norfolk record of this rare vagrant so far. A male was photographed at Hickling Broad on 5th July 2016, but this was unknown until a photograph was posted on Facebook two years later, requesting identification.

Prior to 1995, the only records for this species were on the Channel Islands, then in that year one was seen and photographed in Cornwall. There have been a handful of records in mainland Britain since then, together with further spread on the continent. It is likely that this species may colonise soon.

Future possibilities

Eight new species have arrived in Britain since 1995 and there are several more whose ranges now extend to the north-west coasts of France, Belgium, Germany, the Netherlands and Denmark. Situated on the east coast, Norfolk is in a prime position to receive new migrant species.

David Walsh

Large White-faced Darter *Leucorrhinia pectoralis*

This species has already reached Suffolk a few times, so is a distinct possibility for Norfolk. The photograph shows a reddish-brown mature male. Females and immature males have more yellow on the abdomen and females do not go reddish-brown with age. **Northern White-faced Darter** *L. rubicunda* is a similar species, but it has yet to be reliably recorded in Britain.

Banded Darter *Sympetrum pedemontanum*

This species was recorded in Gwent, Wales during the exceptional immigrations of 1995. The species is spreading westwards in Europe, so should conditions be favourable, it could arrive on the east coast.

Violet Dropwing *Trithemis annulata*
Orange-winged Dropwing *T. kirbyi*

These two African species have been spreading rapidly northwards in recent decades and both have now reached France. Either or both could reach Britain soon.

For more information on British dragonflies visit the British Dragonfly Society website at:

www.british-dragonflies.org.uk

Under the Recording tab, you will find details of the national BDS Recording Scheme and details of how to submit your sightings via the iRecord website (brc.ac.uk)

Alternatively, you can request a recording spreadsheet from Pam Taylor, the County Dragonfly Recorder for Norfolk, by emailing:

pam.taylor@british-dragonflies.org.uk

Please note - all records of rare or unusual species should be accompanied by photographs wherever possible. Photographs can be included on the iRecord website or sent directly to the County Recorder.