

# **LEICESTERSHIRE & RUTLAND ENTOMOLOGICAL SOCIETY**

## **Status and distribution of Dragonflies and Damselflies of Leicestershire & Rutland**



Beautiful Demoiselle female, Ullesthorpe, Leicestershire, June 2021

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## Introduction

This report provides an update of the status and distribution of all species of dragonfly and damselfly (Odonata) that have been recorded within the vice-county boundary encompassing Leicestershire and Rutland (VC55). The recent '*State of Dragonflies in Britain and Ireland 2021*' (Taylor *et al.*, 2021) sets out a fascinating summary of national trends over the last fifty years and forms an interesting comparison to the distribution trends observed in VC55, especially in relation to the impact of ongoing climate change; this work is referenced in the following species accounts where relevant. It is satisfying to observe an increase in Odonata recording in VC55 over the last two years with c3000 records per annum submitted; this compare to c2000 records per annum in the five previous recording years. Following on from a previous update of this checklist, the increase in recording effort has facilitated the mapping of some significant changes in the distribution of all three of our recent arrivals as well as several other species.

Of particular note is the continuing expansion northwards of the Beautiful Demoiselle along the rivers Welland, Avon and Swift (including several smaller tributary streams) and significantly onto a tributary of the Soar close to Ullesthorpe. Two 2021 records just to the southeast of Leicester City also demonstrate the potential to colonise areas well beyond its present range. However, all of its current haunts represent sub-optimal habitat with correspondingly sparse populations, a factor which is undoubtedly slowing its rate of expansion.

Also worthy of note is the Scarce Chaser which is now well recorded along the Welland which reveals a somewhat patchy distribution aligned to suitable broad and slow-flowing stretches of the river. On the lower reaches of the Soar it remains confined to the same three 1km squares where, in spite of a strong population, it still appears to have a biannual emergence cycle. Further expansion into suitable habitat within VC55 appears likely as a wealth of seemingly ideal riverine sites exist between these two disjointed populations.

The most significant change in species distribution since the publication of the 2020 checklist is the expansion of the Willow Emerald Damselfly and in particular its range extension westward in 2021. From just six 1km squares in 2020, it has surged to 95 by March 2022, effectively a 1500% increase in a single season. It is also notable that winter recording of oviposition scars (Figure 1) has significantly improved our knowledge of its distribution indicating that this damselfly seems set to become one of our most widespread species in the next few seasons.



**Figure 1: Examples of Willow Emerald Damselfly oviposition scars Winter 2021-2022 (left three on Willow, right on Ash)**

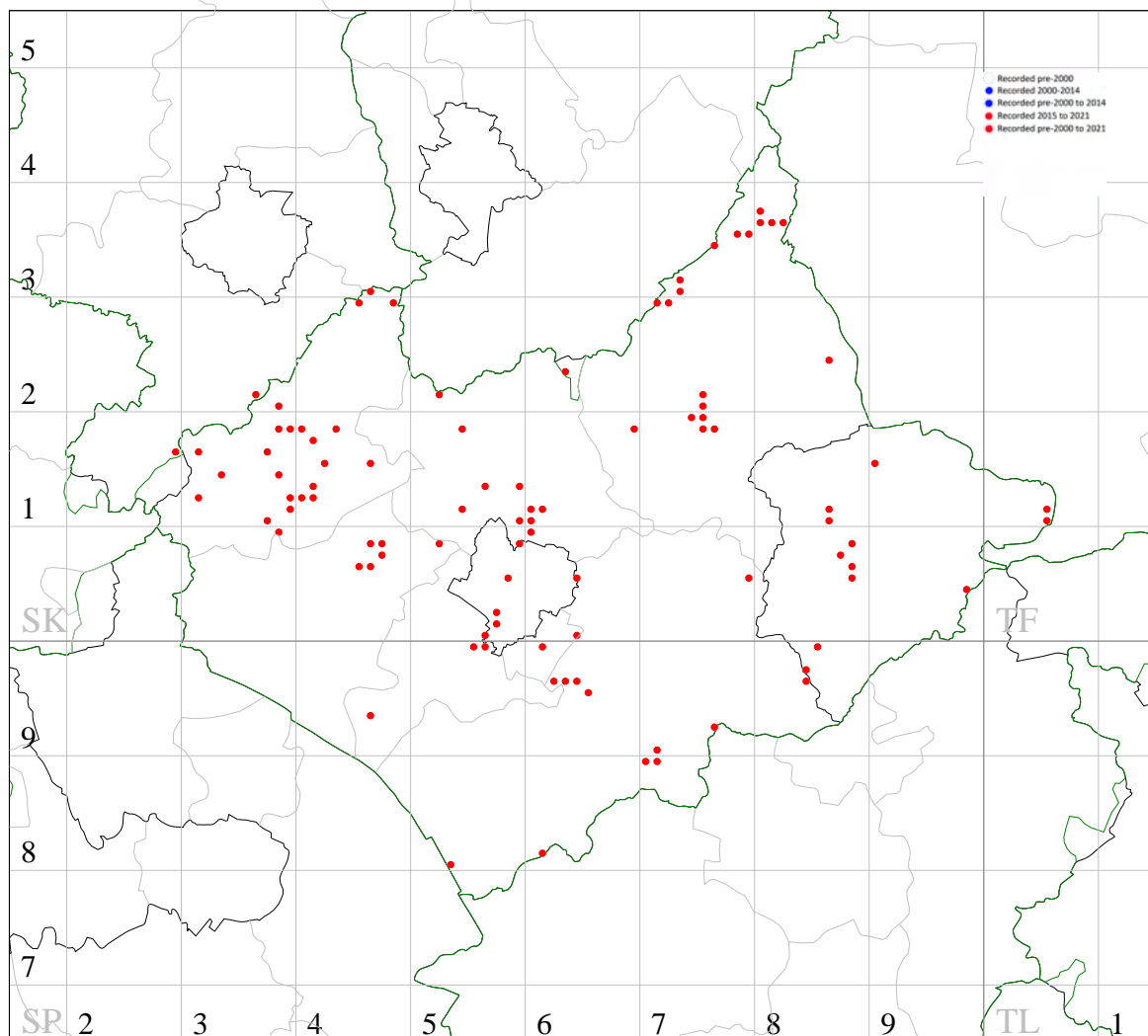
The continued range expansions of the Small Red-eyed Damselfly and the Hairy Dragonfly are also worthy of note with both being relatively new additions to VC55. Compared with 2020 distribution maps, significant infilling and westward expansion is apparent for both species. These recent discoveries illustrate how our understanding of the status and distributions of Odonata in VC55 is constantly evolving and it is hoped that this LESOPS will inspire more prospective recorders to participate in the quest to map and understand these processes and trends.

## Species accounts

The following species accounts are based on distribution maps produced using the MapMate biological recording software. Red dots show records from 2015 to 2021, blue dots 2000-2014, and blue circles show pre-2000 records, all on a 1km basis. A blue circle therefore signifies no records since 1999, a blue dot signifies no records since 2014 and a blue circle around a red dot shows occurrence throughout the recording period. For the purposes of clarity, 10km squares and district administration boundaries are superimposed onto the VC55 base map.

For each species account a measure of VC55 distribution is shown by the number of 10km records post-2000 compared with the 41 part or complete 10km squares covering the vice-county. For example, 35/41 means that 35 of the 41 potential 10km squares are occupied by that species. Alternative vernacular names are given in brackets. Each species account also gives a description of the preferred habitat, a summary of current status and distribution within VC55 and, where relevant, sets this against historic trends.

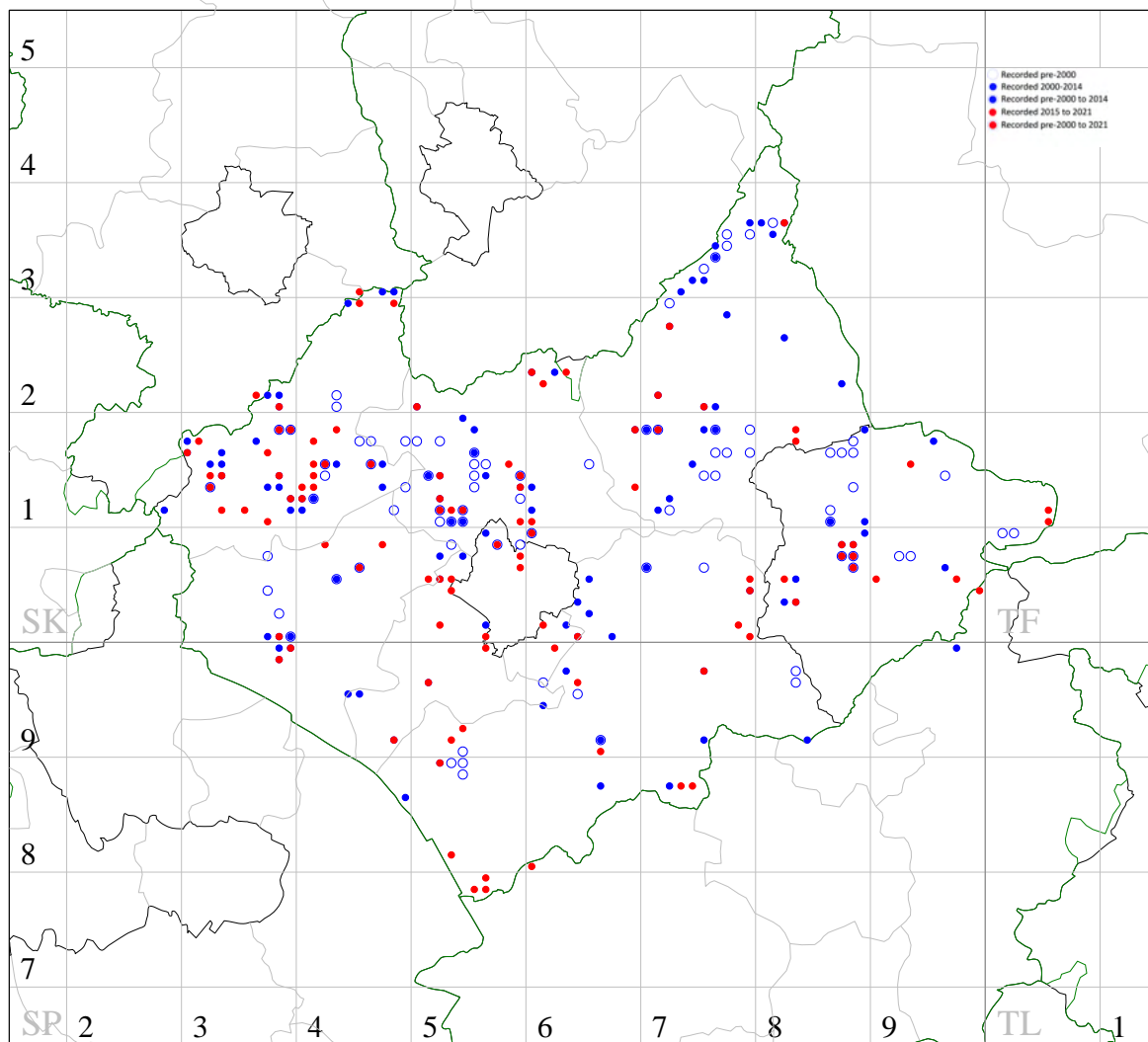
### Willow Emerald Damselfly *Chalcolestes viridis* 10km: 33/41 (Willow Emerald / Green Emerald Damselfly (*Lestes viridis*))



The Willow Emerald Damselfly favours a wide range of shrub or tree-lined habitats, including ponds, lakes, canals and slow-flowing sections of rivers, often perching unobtrusively for long periods in such areas and thereby making the recording of its presence a significant challenge. Uniquely amongst British Odonata, it oviposits directly into the new growth branches of trees and bushes overhanging water. This trait makes it possible to record evidence of the presence of this species even in the winter months, via distinctive oviposition scars (Figure 1), a characteristic which has proved to be an invaluable recording aid.

Since its first appearance in the UK close to Felixstowe in 2007, the damselfly has spread rapidly westwards. It had reached Northamptonshire by 2016 and Lincolnshire by 2017; the first VC55 sightings were made in 2019 at the widely spaced localities of Eyebrook Reservoir and Watermead Gravel Pits. A handful of additional sites were discovered in 2020, followed by an unprecedented range expansion in 2021. Between August 2021 and March 2022 the species was recorded at 89 new sites in VC55. It has now been found as far west as the Ashby Wouds, to the north on the Grantham Canal and Trent Valley gravel pits and as far south as Stanford Reservoir; less habitat is available in the southwest of VC55 and it still appears to be absent from the Ashby Canal. It was also apparent that, at several previously unrecorded sites, oviposition scars from previous years were present, indicating that it may have spread unnoticed to some areas in 2020. Although predominantly ovipositing into willow, scars have also been recorded on ash, alder and hawthorn in VC55.

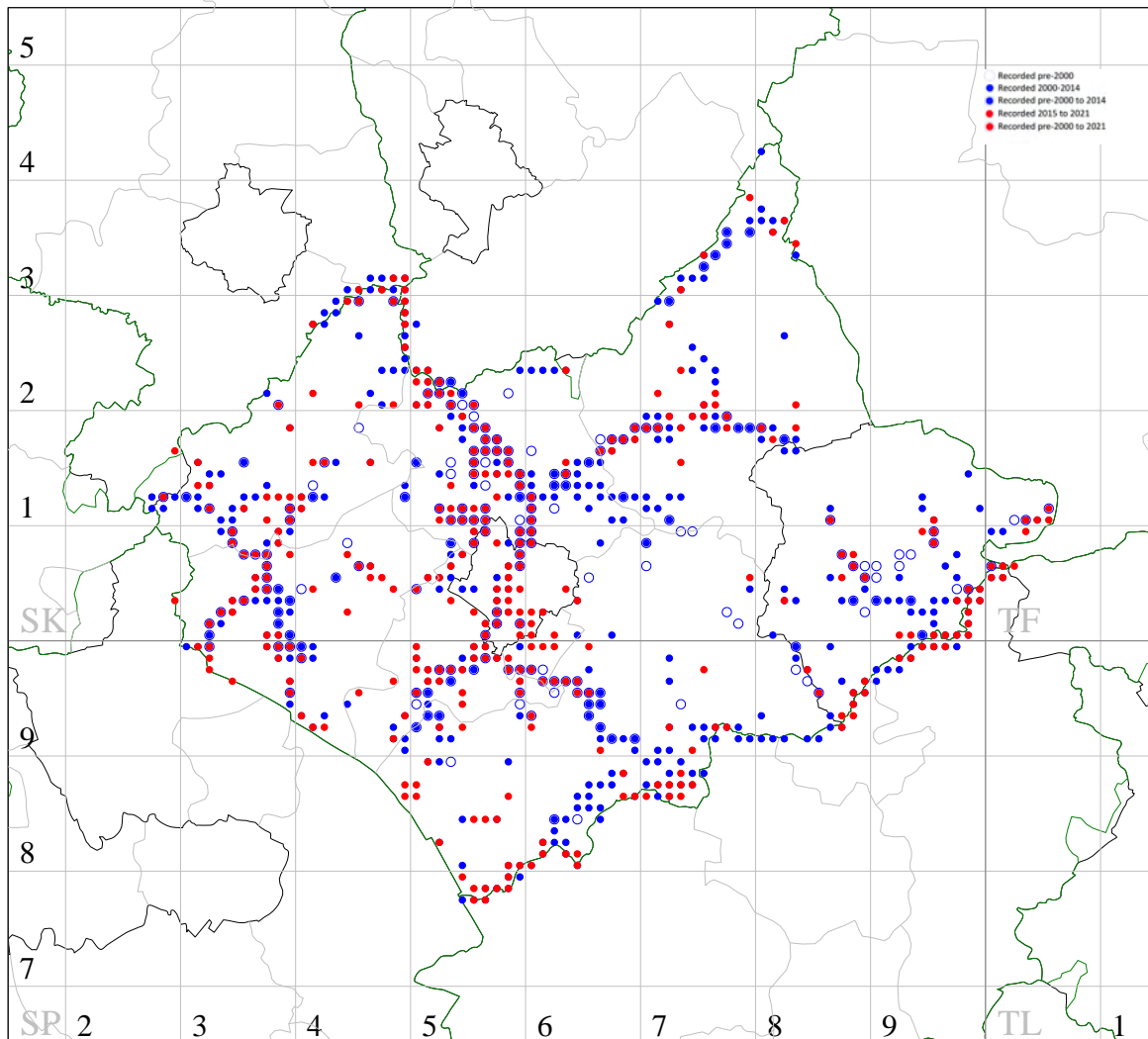
**Emerald Damselfly** *Lestes sponsa* 10km: 37/41  
 (Emerald Damselfly (*Lestes sponsa*))



The Emerald Damselfly inhabits shallow water sites, either standing or very slow flowing, with dense stands of emergent vegetation. Suitable habitat includes shallow margins that support emergent plants with a largely vertical structure, often comprising of rushes, sedges or horsetails. In VC55 Emerald Damselfly is often associated with Ruddy Darter that shares similar habitat requirements, a characteristic also noted in the adjoining county of Northamptonshire VC32 (Tyrrell, 2006). Such specific habitat preferences mean that the Emerald Damselfly has a rather localised and scattered distribution within VC55 where it can be found on suitable ponds, some lakes and, more rarely, canals and rivers. By nature it is a relatively inconspicuous species, prone to perching unobtrusively for long periods which may have lead to under-recording. Historic records suggest that it has always been a local species in Leicestershire (Longfield, 1937).

The species is now known to have declined more than any other UK Odonata species over the last fifty years (Taylor *et al.*, 2021); however, this trend is difficult to discern from its current distribution in VC55. Although some of the smaller shallow waterbodies favoured by this species have disappeared, due to either drainage works or successional growth of plant communities, many new sites have been discovered over the last ten years, particularly within the National Forest. Taylor *et al.* (2021) also cited the drying-out of shallow ponds earlier in the year due to climate change as another potential reason for the decline and continued local monitoring will be useful in corroborating this, or in proving otherwise, as its VC55 position currently appears relatively stable.

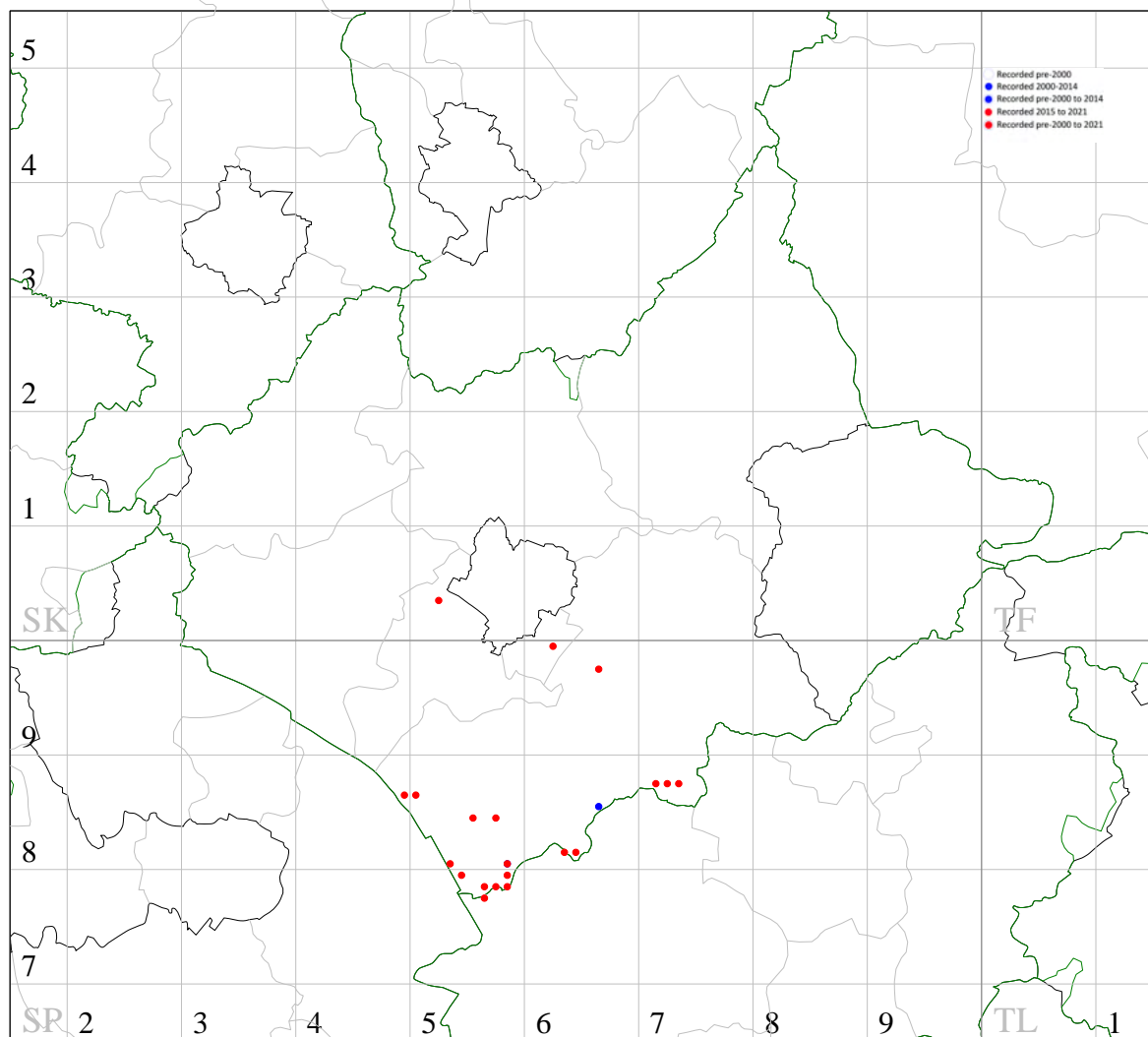
### Banded Demoiselle (*Calopteryx splendens*)



The Banded Demoiselle favours slow flowing rivers, streams and canals. Its preferred habitat requires the presence of muddy or silty bottom substrate in which the larvae may develop, with little tree cover and ideally the availability of lush emergent vegetation. This species is widely distributed throughout VC55 and is found along all of the main river systems, from narrow headwaters to the broadest slow-flowing mature stretches, as well as the semi-static waters of our canals. This distribution is shown in the map closely following the linear nature of these water bodies. Isolated distribution dots serve to confirm that wandering individuals may be found far from suitable habitat; this has resulted in records in all but one of the 10km squares which cover the vice-county.

This is an abundant species in VC55 and historic records indicate that it has always been a common damselfly in the area. Its characteristic flight behaviour and distinctive colouration mean that it is well recorded with the most recent distribution map illustrating the infilling of gaps within its known range. It is difficult not to conclude that this species currently occupies all viable habitat within the two counties. One exception could be its status along the reaches of the Soar corridor where an apparent distribution increase post-2000 could conceivably be linked to improving water quality within the river's urban-influenced catchment.

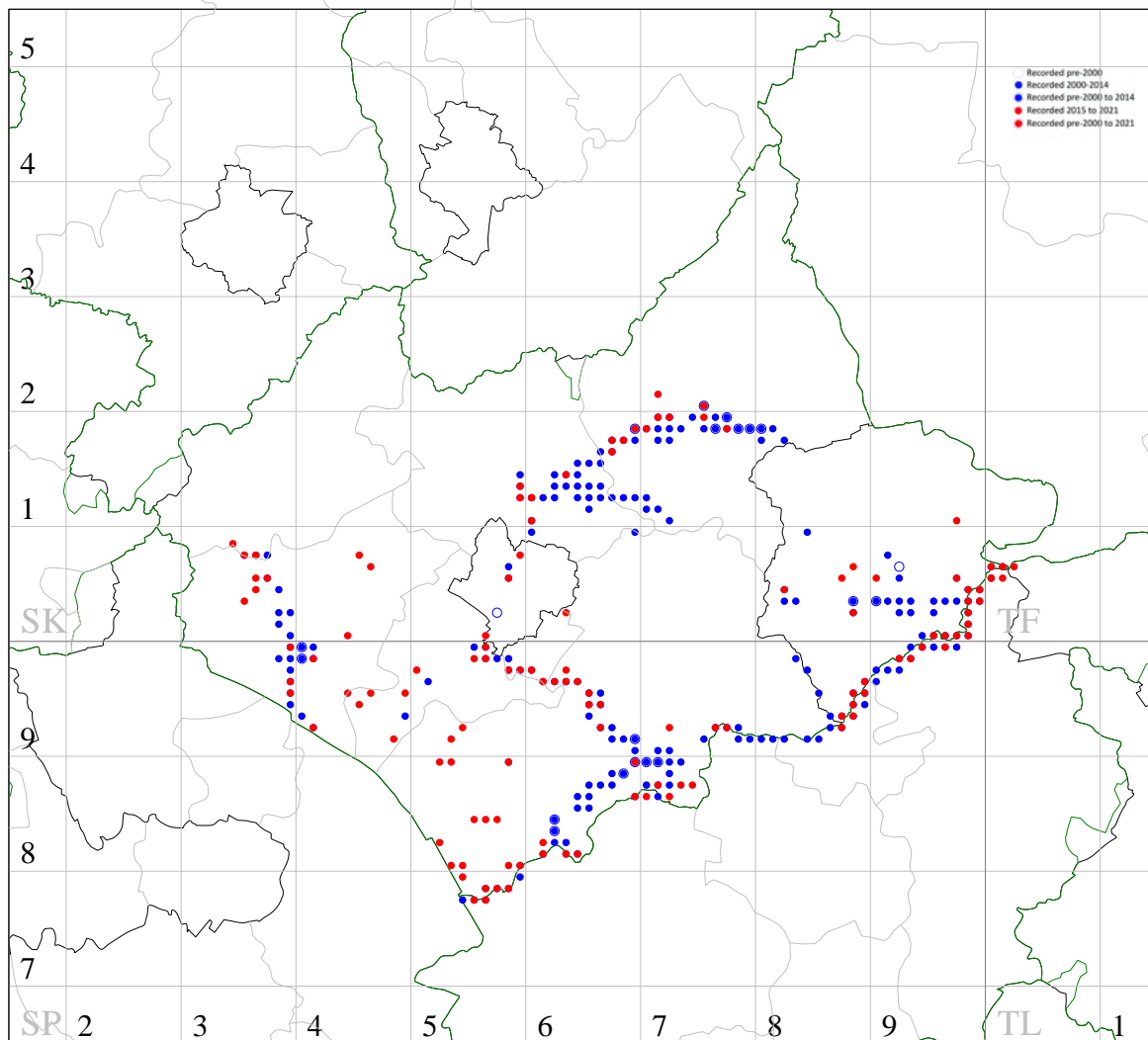
## Beautiful Demoiselle (*Calopteryx virgo*)



The Beautiful Demoiselle is a specialist of fast-flowing streams with clean stony or sandy beds, as the larvae are thought to require water with high dissolved oxygen levels in which to develop (Prendergast, 1988). It is also tolerant of shade and often occurs on streams with margins lined by trees. Nationally this species has a predominantly western and southern distribution (Cham *et al*, 2014) although since 2000 its range in the English Midlands has expanded eastwards (Taylor *et al*, 2021). It was first recorded with certainty in VC55 in 2014 when single males were seen on the upper reaches of the Welland and Avon rivers. Since this time it has become sparsely established on the Welland, Swift and Avon in the far south of Leicestershire; the sub-optimal habitat in which it occurs means that observations remain scarce and erratic.

In 2021 the exciting discovery of a relatively strong colony on a tributary of the Soar, just south of Ullesthorpe, illustrated the northward spread of the species in VC55 as did another confirmed report of a male on the Burton Brook close to Great Glen. Recent records of dispersive individuals as far north as Oadby and Kirby Muxloe show the potential for further range expansion. If Beautiful Demoiselle should bridge the gap formed by the less favourable clay lowlands to colonise more suitable habitat in the Charnwood Forest, a significant population increase could feasibly be predicted. Although Beautiful Demoiselle was cited by various authorities as being historically present in VC55 (Roebuck, 1932; Longfield, 1937; Corbet *et al*, 1960), these early records have no supporting information, cannot be verified and, therefore, are omitted from the distribution maps.

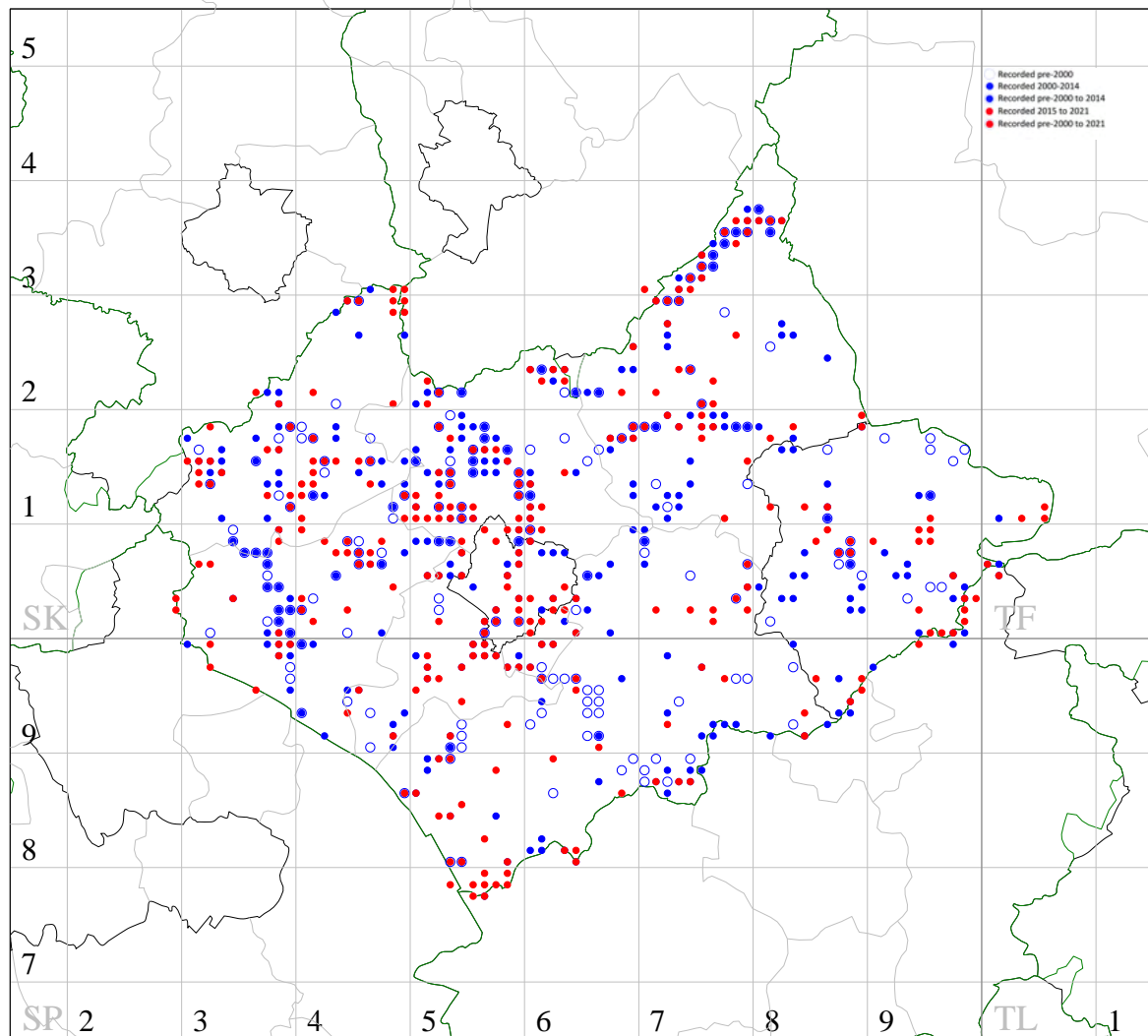
**White-legged Damselfly** *Platycnemis pennipes* 10km: 24/41  
 (White Feathered) **White-legged Damselfly (Platycnemis pennipes)**



The White-legged Damselfly exhibits a preference for unshaded sections of streams, rivers and canals with a moderate to slow flow. However it is present at only a limited number of apparently suitable localities in VC55 suggesting that other, as yet unknown, factors may influence its distribution. In our counties this damselfly is found along the full length of the Ashby Canal and on the Grand Union Canal south of Leicester city. It also occurs along the Wreake and Eye rivers as well as the Gaddesby and Queniborough Brooks in northeast Leicestershire. Its distribution follows the Avon and Welland along the southern boundary of both Leicestershire and Rutland and also the Welland tributaries of the Eye Brook and River Chater.

It is noteworthy that White-legged Damselfly was unrecorded on the Ashby Canal prior to 1997 and is assumed to be a recent colonist to the west of Leicestershire. The highly turbid water of the heavily-trafficked Ashby Canal does not support high populations of any Odonata species, but it is apparent that the species is now relatively abundant at this site having strengthened its hold since the late 2010s; a similar increase has also been noted on the Grand Union Canal (Billings, 2022). The presence of this species on the Swift and Sence are also recent discoveries, post-2015 and may represent further expansions of its range. A series of recent records in the upper reaches of the Soar catchment in the south-west of VC55 suggest there may also be new breeding sites in this area. Historic records show that the White-legged Damselfly has always been uncommon in the vice-county classified as 'extinct or status very uncertain' by Corbet *et al*, 1960.

**Azure Damselfly** *Coenagrion puella* 10km: 38/41  
 (Azure Blue ♀)  
**Azure Damselfly (Coenagrion puella)**

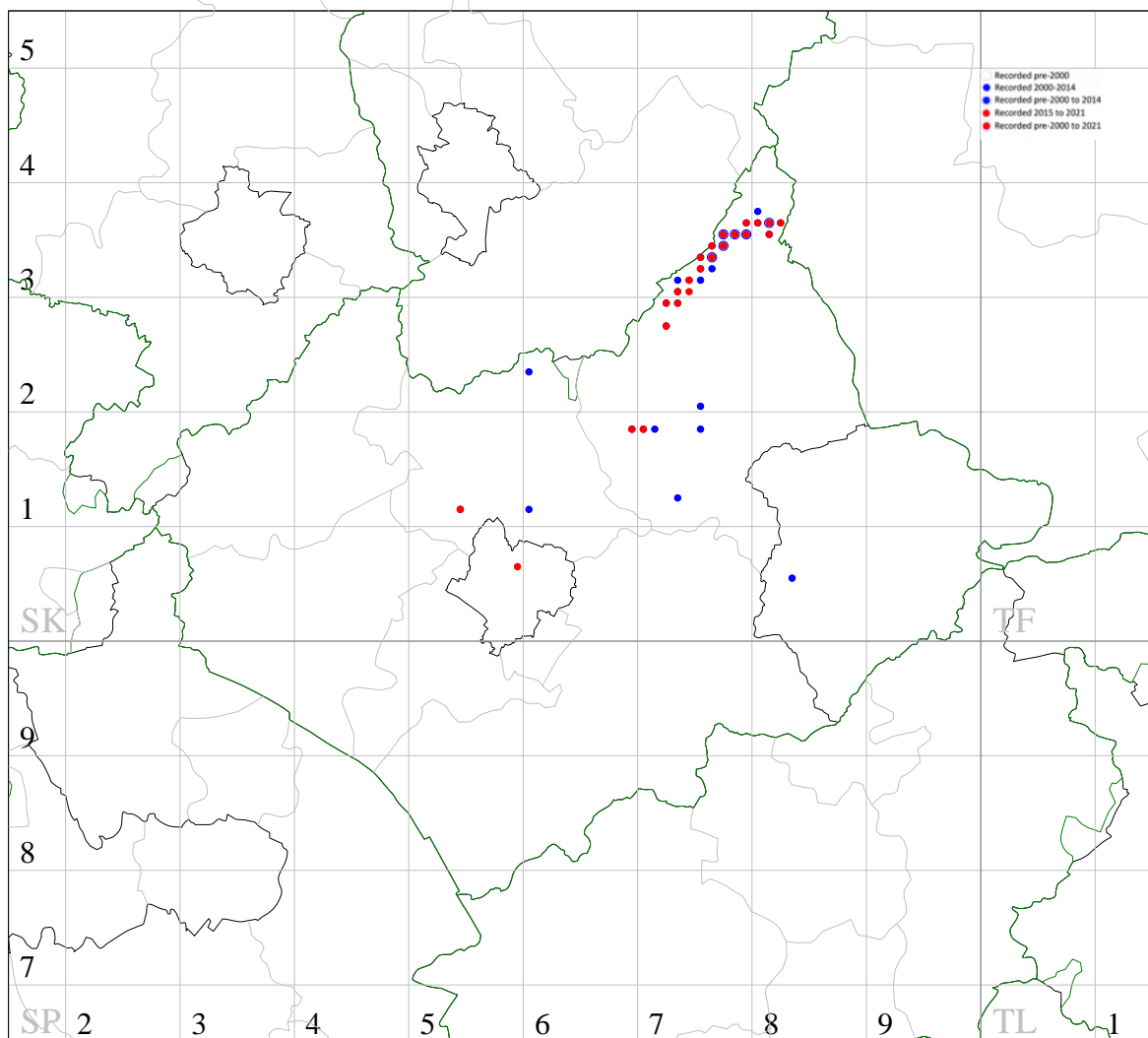


The Azure Damselfly frequents well-vegetated, sheltered habitats, which may take the form of ponds, small to medium sized lakes, slow-flowing rivers and canals; it is also a familiar species at many garden pools. Where Azure Damselfly occurs alongside Common Blue Damselfly, the former species tends to congregate around sheltered and well-vegetated sections of a waterbody while the latter will be found at more open and exposed locations.

The distribution map illustrates the widespread occurrence of this species within VC55, with the Grantham Canal, Welland, Wreake and Soar Valley standing out as favoured localities. Alongside a number of other species, this damselfly seems to be benefitting from the creation of small waterbodies and wetlands within the National Forest of north-west Leicestershire. The distribution map also suggests that it may now be less widespread on the Grand Union and Ashby Canals than it once was although, conversely, its presence on the upper reaches of the Soar is now well established. The latter distributional change aligns with that of Banded Demoiselle where an apparent range expansion in recent years may be attributable to improvements in water quality; it is, however, difficult to rule out the impacts of increased observer awareness and recording coverage. The historical distribution of Azure Damselfly mirrors these preferences in terms of habitat selection; it would appear that it has always been a widespread and relatively abundant species in the vice-county.



## Variable Damselfly *Coenagrion pulchellum* 10km: 9/41 (Variable Blue)



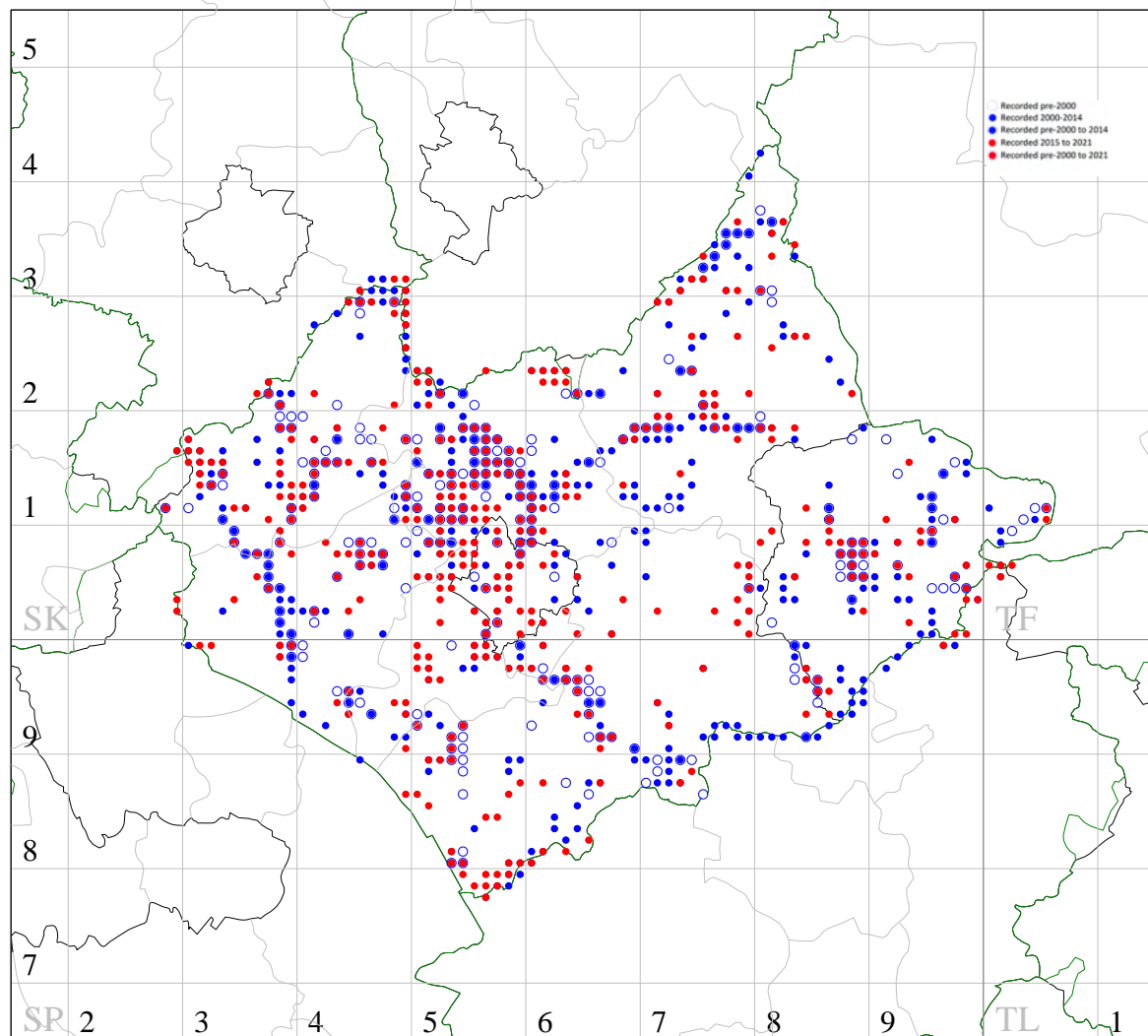
The preferred habitat of the Variable Damselfly is sheltered, still or slow-flowing waterbodies with good water quality and an abundance of aquatic vegetation. Historically, while this species has been confined to the Grantham Canal, over the last twenty years it has been discovered at a number of other localities in the north and east of VC55. From 2007 onwards the presence of a second colony at the Priory Water, Frisby Gravel Pits and Kirby Lakes complex in the Wreake Valley has been proven and the insect seems to be thriving at this locality.

There have also been recent records from several other isolated sites, all within the north-east of the areas, which are more likely to relate to wandering individuals rather than established colonies. It seems that Variable Damselfly is either broadening its distribution within the north and east of VC55 or has simply been overlooked in the past due to its similarity with other blue damselfly species; care, therefore, needs to be taken when recording blue damselflies in northeast VC55.

The increase in range in VC55 seems at odds to its UK status, where there has been a decrease over the last 50 years (Taylor *et al.*, 2021). Site losses due to eutrophication, succession and lack of management are cited as the principle reasons for its national decline, making the future status and use of the Grantham Canal, one of the finest Odonata sites in VC55, of particular importance. This species is categorised as Near Threatened on the British Red List and, thus, qualifies as our most notable resident species in Leicestershire & Rutland.

**Common Blue Damselfly** *Enallagma cyathigerum* 10km: 41/41

(Common Bluet)

**Common Blue Damselfly (*Enallagma cyathigerum*)**

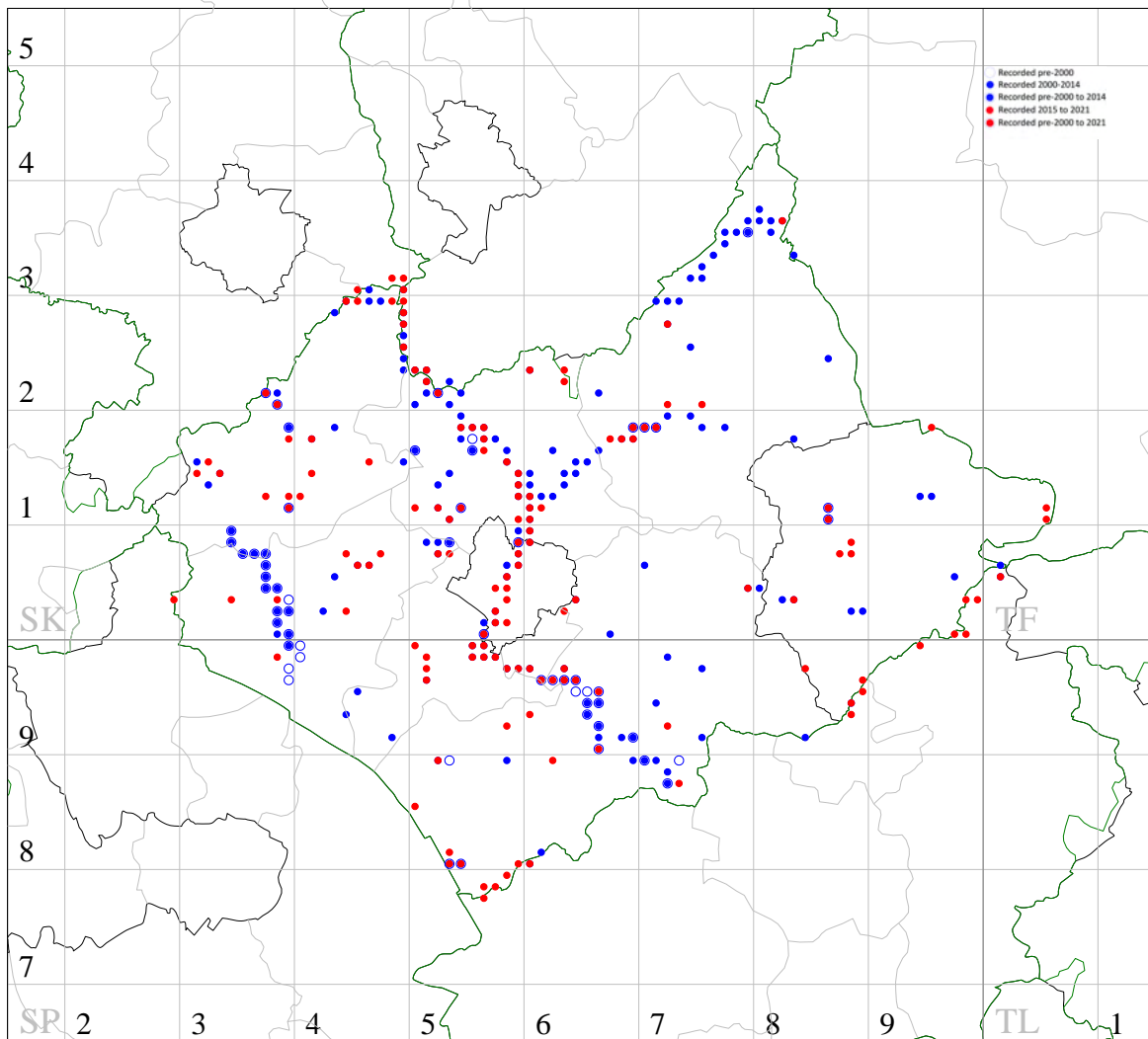
The Common Blue Damselfly will tolerate a wide range of breeding habitats, from slow-moving rivers to reservoirs, lakes and larger ponds. Its preference is for open water conditions. Unlike most other blue damselflies, they can be seen flying well away from the shoreline, often in swarms, over open water. These swarms are formed of males hovering in areas where females are likely to be ovipositing underwater and in anticipation of them coming to the surface again where they can be retrieved.

The distribution illustrates that Common Blue Damselfly is one of our most widespread residents having been recorded in every 10km square that covers some part of VC55. Concentrations of records can be seen around the Trent, Soar and Wreake Valleys, which all host gravel pit systems, and along the Ashby and Grantham Canals. Other isolated dots provide evidence that almost all sizeable waterbodies can play host to this species.

Observer effort is also well-illustrated by the coverage on the current distribution map for the species. The profusion of post-2015 1km sightings in the vicinity of the well-recorded areas of Leicester City, Charnwood Borough, north-west Leicestershire and Rutland Water are very apparent. Rarely visited areas in the north-east, south-east and south-west of VC55 show few new records, although this widespread species should be well represented throughout where suitable habitat exists. Historic records suggest that this species has always been widespread and abundant within Leicestershire and Rutland.

**Red-eyed Damselfly** *Erythromma najas* 10km: 37/41

(Large Redeye)

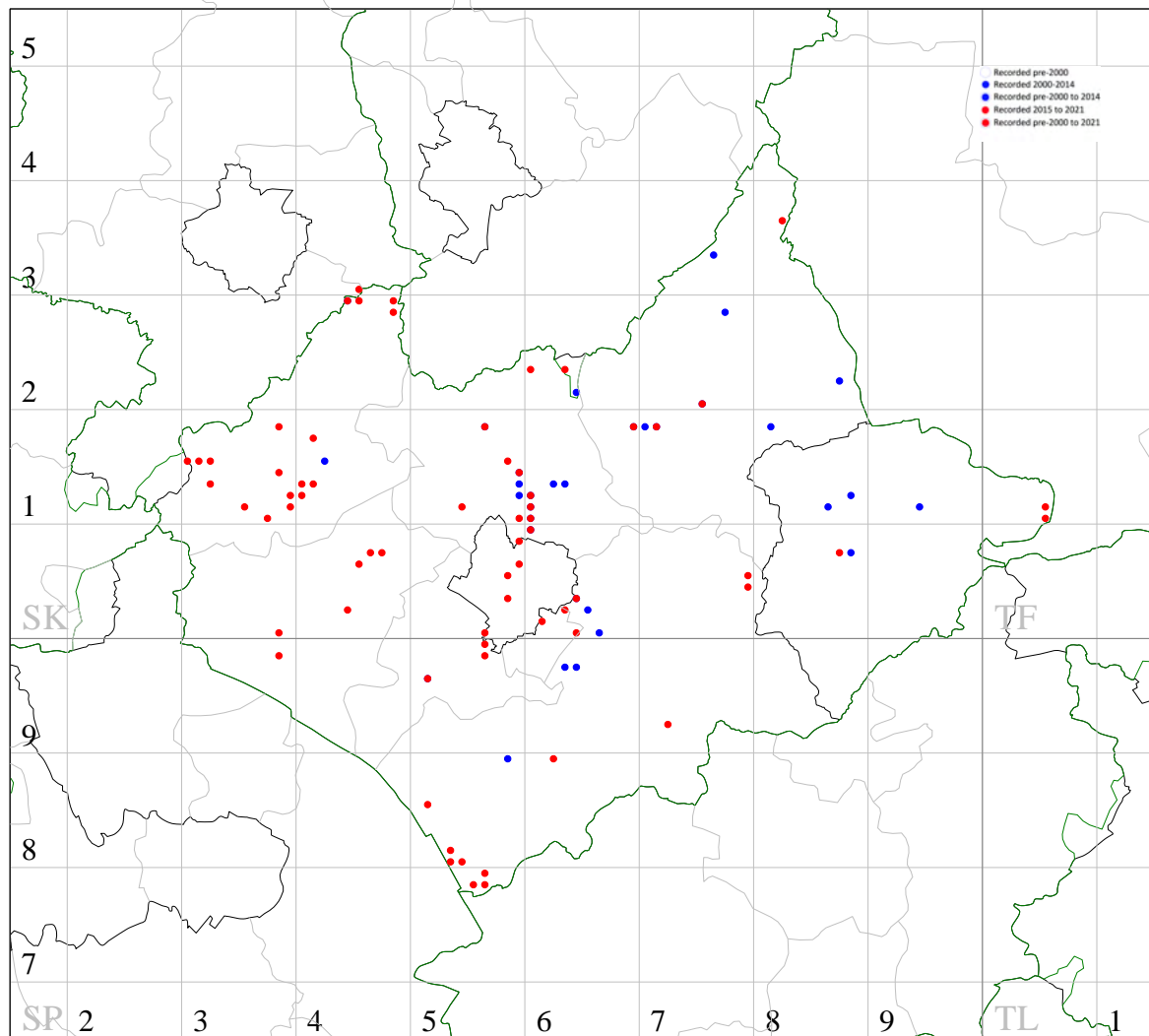
**Red-eyed Damselfly (Erythromma najas)**

For Red-eyed Damselfly the single most important determining factor, with regard to habitat suitability, is the presence of floating vegetation such as water lilies. Ponds, lakes, canals and slow-flowing rivers will all attract this species provided aquatic plants with flat floating leaves are present. The Soar and Wreake are well-populated in VC55 along with many other widely-dispersed lakes and ponds. It has been consistently present on the Ashby and Grand Union Canals although not it was not recorded on the Grantham Canal prior to 2000. Records appear to have diminished from all canal sites post-2015; increased boat traffic on the former two sites and seral succession at the latter may be the reason for this apparent trend although recording effort could also be an influencing factor.

The most recent distribution map illustrates that the Red-eyed Damselfly has consolidated its range on the upper reaches of the Soar, both within and immediately downstream of Leicester City, since 2015. Improving water quality in urban areas is a possible factor determining this distribution change which has been observed at a national level (Taylor *et al.*, 2021). Historic records indicate that this species was 'locally common on the River Soar' in the 1930s (Roebuck, 1932). Following an absence during the latter half of the 20<sup>th</sup> century, the species re-colonised in the late 1990s. It was described as 'abundant, on the Ashby Canal bordering Ambion Wood, Sutton Cheney' in 1963 (Mendel, 1980).

**Small Red-eyed Damselfly** *Erythromma viridulum* 10km: 28/41

(Small Red-eye)

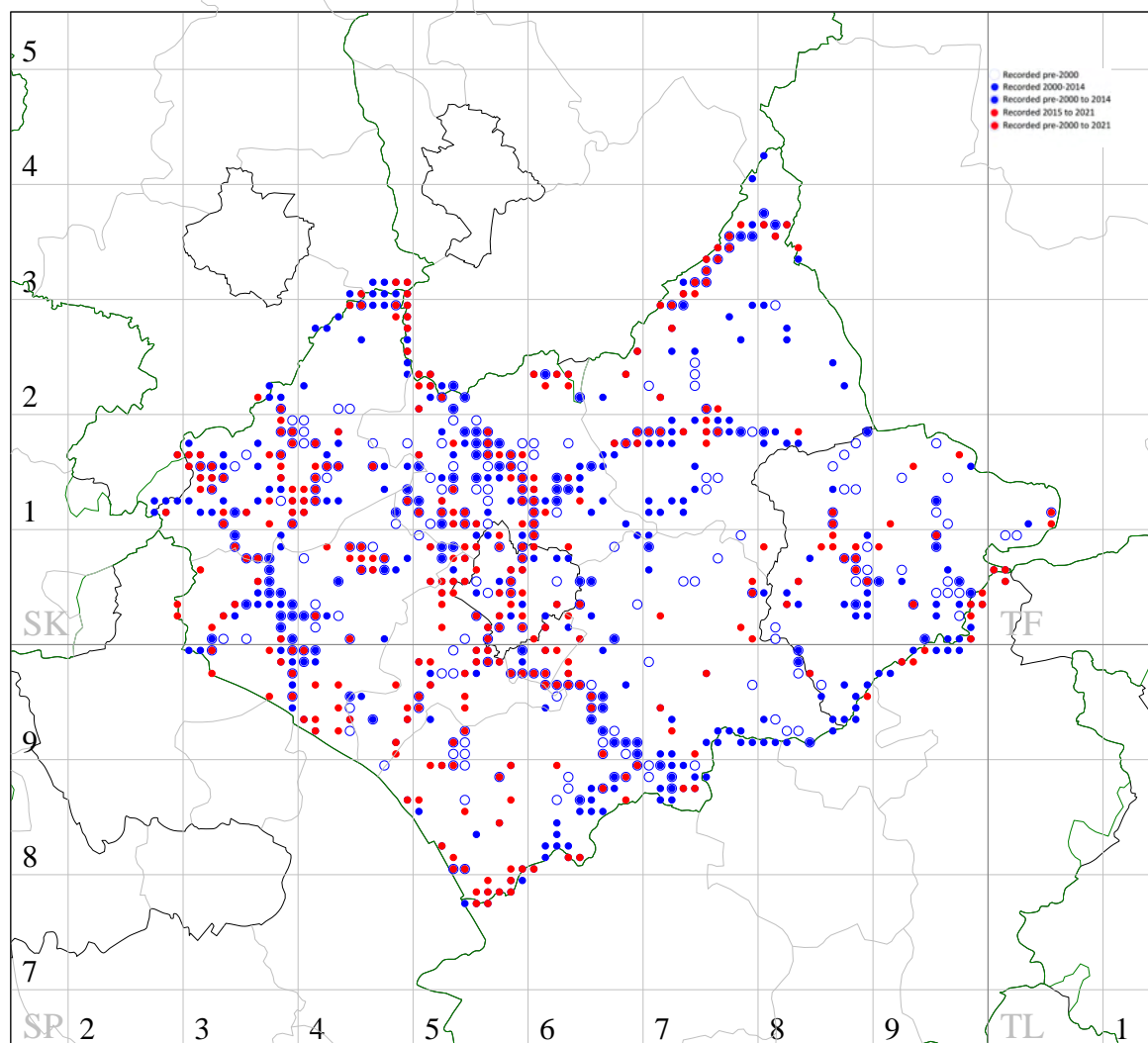
**Small Red-eyed Damselfly (Erythromma viridulum)**

The Small Red-eyed Damselfly breeds in lakes and ponds supporting a proliferation of submerged aquatic plants, which break the water's surface. It is typically seen resting on floating mats of green algae in nutrient-rich waterbodies, a trait which may lead to utilisation of sites that typically hold less appeal to other Odonata species.

Having been recorded in the UK for the first time in 1999, the phenomenal northward spread of this species has been well documented. Its long-awaited arrival in VC55 was in 2006 with the first records at Priory Water in the Wreake Valley. Since then it has colonised many other suitable breeding sites, initially in the central and eastern reaches of VC55 and more recently in the west and south. Its expansion has continued to develop at a slow pace, with a spate of new discoveries in the last five years suggesting resurgence. Worthy of note are a series of sightings within the boundary of Leicester City, including Abbey Park, illustrating the liberal habitat requirements of this species. Newly newly-created habitat within the National Forest has also been colonised.

The colonisation in VC55 aligns with the national trend, which saw a stabilisation in range after 2007, before further increases from 2015 onwards (Taylor *et al.*, 2021). This is attributed to a modelled climate envelope which demonstrated that the Small Red-eyed Damselfly rapidly filled its niche of climate suitability in south eastern areas soon after its arrival then expanded at a slower rate tracking climatic warming.

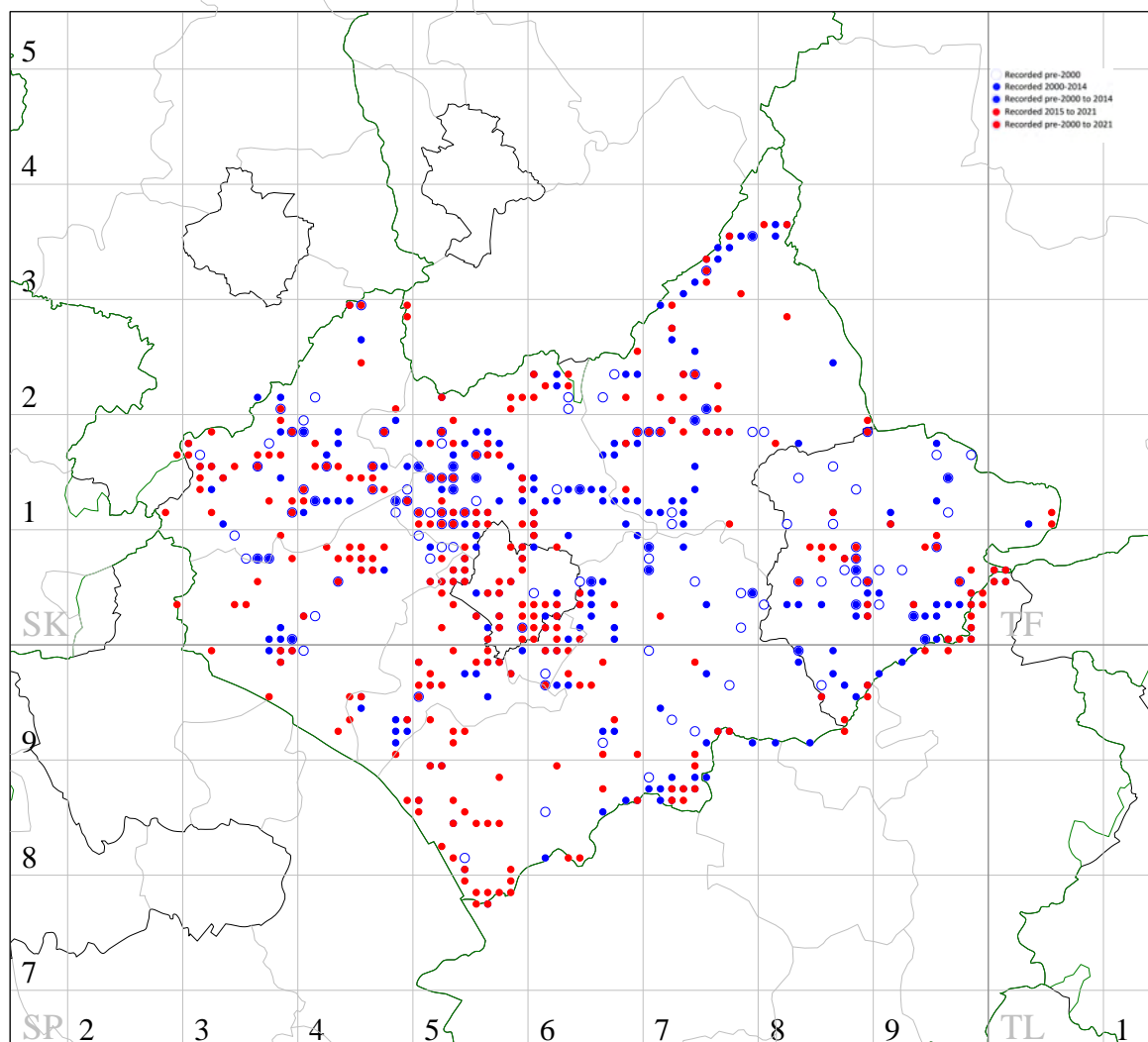
**Blue-tailed Damselfly** *Ischnura elegans* 10km: 41/41  
 Common Blue D (Blue-tailed Damselfly) (*Ischnura elegans*)



The Blue-tailed Damselfly is regarded to be the most pollution-tolerant and habitat-liberal Odonata species in VC55. It can be found at garden ponds, ditches, lakes, slow-flowing rivers and streams as well as canals. Although it prefers an abundance of aquatic vegetation, it will survive at sites supporting minimal plant life. This damselfly is one of our most widely distributed Odonata species having been recorded in each of the forty-one 10km squares which encompass VC55. It is present along all the river and canal systems within the two counties as well as at a large number of still-water localities, ranging in size from huge reservoirs to the smallest garden ponds. To some degree, the plotted range of this species mirrors the distribution of aquatic habitat within the boundary of VC55. The 10km square SK82, for example, is one containing the fewest water bodies, with a corresponding paucity of records clearly visible. Historic records show that the Blue-tailed Damselfly has always been a common species in VC55 with a widespread and abundant distribution.

At a national level it is surprising to note that Blue-tailed Damselfly declined in England between 1993 and 2016 (Taylor *et al*, 2021), a trend which has been linked to the use of neonicotinoid pesticides. These pesticides were introduced to the UK in 1991 and rapidly increased in usage with the majority of our rivers now exhibiting some degree of contamination. Neonicotinoids were banned for a period of time before the government again allowed their use in some regions.

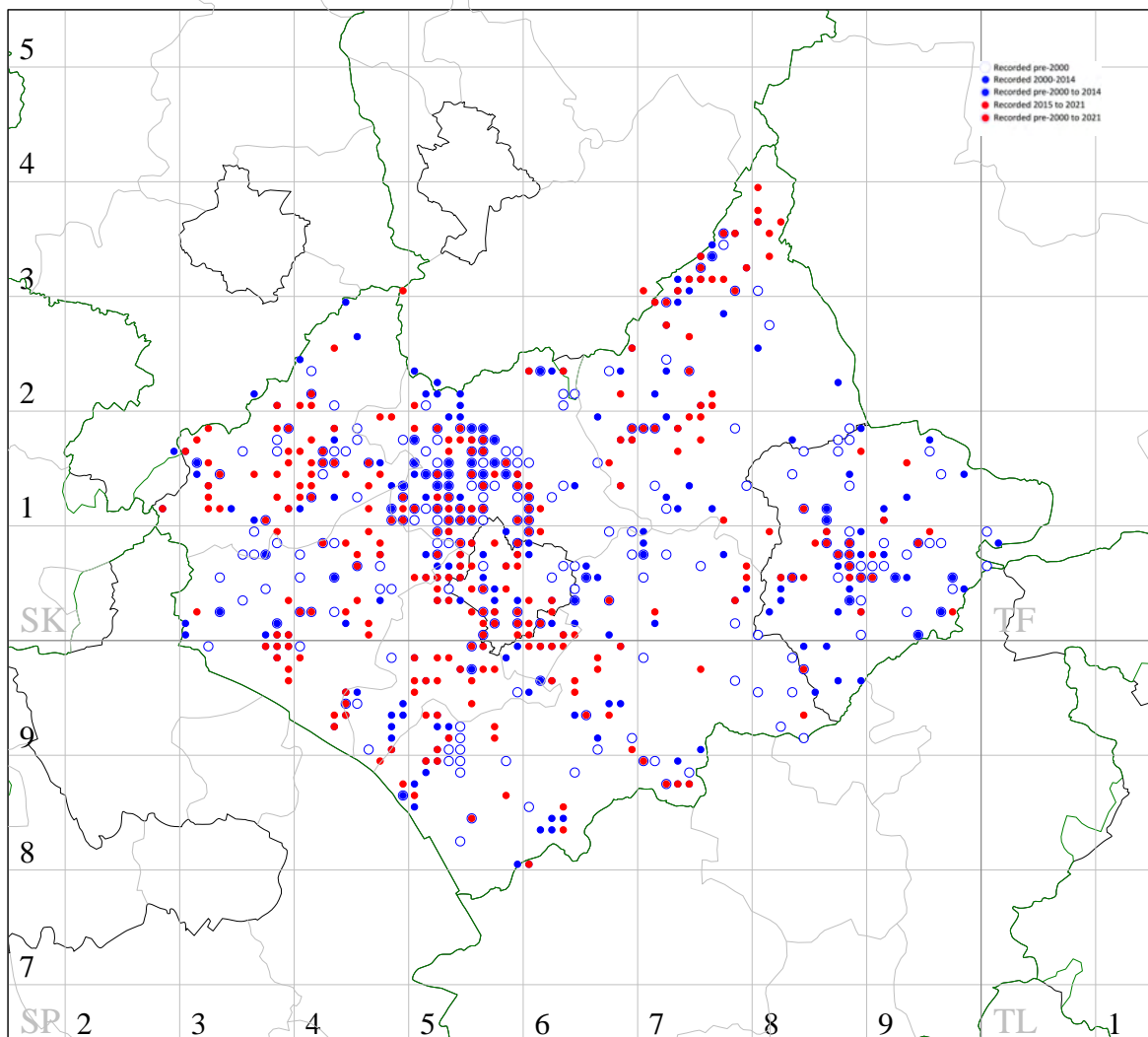
**Large Red Damselfly** *Pyrhosoma nymphula* 10km: 38/41  
 (Large Red Damselfly)



The Large Red Damselfly is found at a wide variety of aquatic habitats which include ponds, lakes, canals, slow-flowing rivers and streams. It thrives at sites which are well-vegetated, ideally with a good representation of floating plant species, and will tolerate mild pollution (Cham *et al*, 2014). This species is widely distributed through Leicestershire & Rutland but is surprisingly scarce or absent from some sites at which conditions appear suitable. The distribution map illustrates this somewhat patchy distribution with a paucity of records from, for example, the Ashby and Grand Union Canals, where this species would have been expected. As a breeding species at many garden ponds, the distribution map also shows its occurrence within many urban areas of the Counties. Historically, Large Red Damselfly has been described as 'widely distributed' (Gillman, 1936) and 'abundant' (Longfield, 1937) in VC55, although it seems unlikely that it was ever more widely distributed than it is at present.

Large Red Damselfly is a species where distribution can be linked, to some degree, to recording intensity. An interesting pattern of coverage seems to be developing within the boundary of Leicester City where this species is likely to thrive in garden ponds. Similarly, Charnwood Borough and north-west Leicestershire are well represented in terms of recent records, both being districts with good observer coverage in recent years.

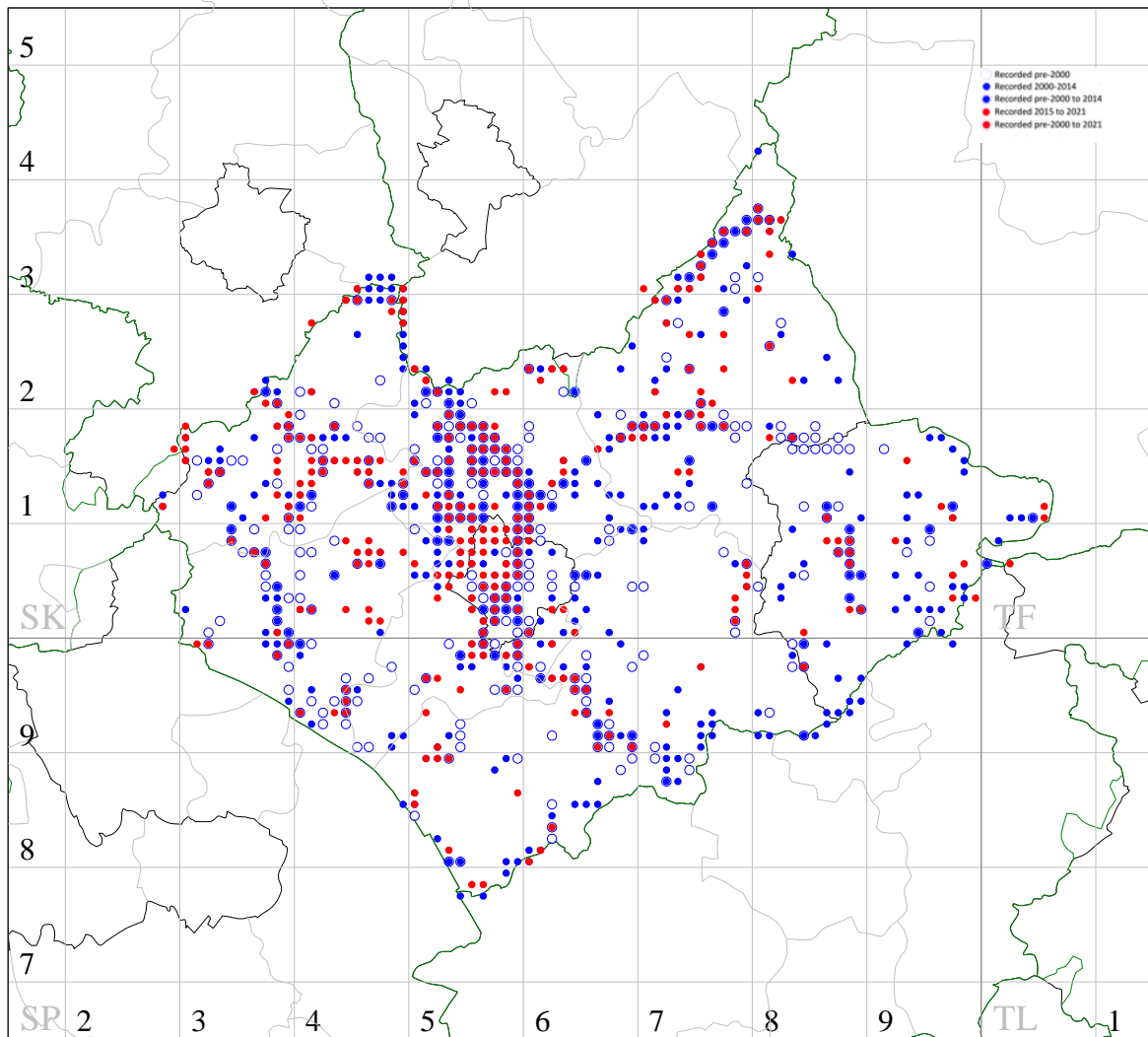
**Southern Hawker** *Aeshna cyanea* 10km: 35/41  
 Blue Hawker  
 Southern Hawker (*Aeshna cyanea*)



The Southern Hawker breeds in shallow, often shaded, waterbodies which in a rural environment take the form of woodland pools, lakes and canals. In urban areas it is often attracted to garden ponds, which is thought to be due to their superficial resemblance to woodland glades (Cham *et al*, 2014). It is regularly encountered well away from water and the distribution map reflects this wide-ranging tendency. Some clusters of records are likely to reflect differing recorder coverage with the Charnwood area (home to the Loughborough Naturalists Club), Rutland Water Nature Reserve and the Grantham Canal being particularly well represented. Records from the newly created wetland sites within the well-recorded National Forest area also feature on the current distribution map. Historic records suggest that Southern Hawker has always been a relatively common species in Leicestershire and Rutland.

The creation of new garden ponds is recognised as a factor benefitting Southern Hawker (Taylor *et al*, 2021) and it is encouraging to note the corresponding clusters of records in some of our more urban areas. As a particularly large and brightly coloured species, commonly encountered in gardens, Southern Hawker is frequently recorded via 'citizen science' based recording media; the British Trust for Ornithology 'Garden BirdWatch' scheme is one such example of this recent phenomenon which has fuelled a significant increase in the number of urban records of this insect.

## Brown Hawker (*Aeschna grandis*)



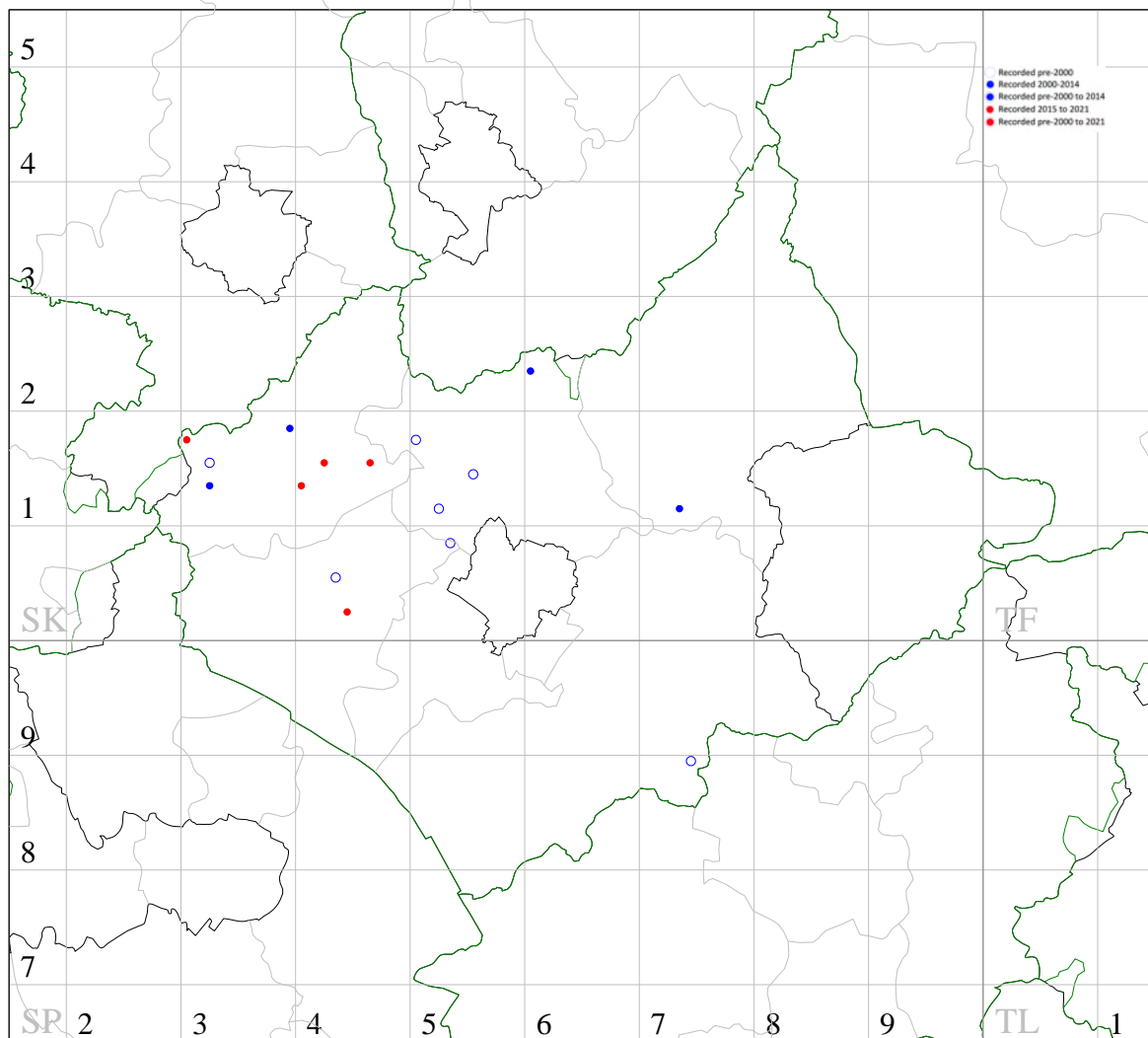
Brown Hawker inhabits a great range of habitats, breeding in slow-flowing rivers, canals, lakes and ponds. Vital to its breeding success, however, is the presence of robust organic matter in the form of rotting logs or other timber structures, tree roots or sizable aquatic plants, into which ovipositing will take place.

Brown Hawker is the most common and widespread *Anisoptera* in VC55. Like Southern Hawker, this species often spends time away from water and is a frequent garden visitor, which is reflected in the conglomeration of distribution dots within the urban confines of Leicester and Loughborough. Other concentrations of records can be seen along the river and canal systems of the two counties and in areas of known high observer coverage, such as the National Forest area. Historic data shows that this level of abundance has been the case since record collation began in Leicestershire & Rutland; as with Southern Hawker, the number of pre-2015 distribution dots are reflective of the post-2015 era.

Nationally the Brown Hawker has shown expansion on the northern fringes of its range although the population remains stable in our region (Taylor *et al*, 2021).



**Moorland Hawker** *Aeshna juncea* 10km: 5/41  
 (Common Hawker)  
**Common Hawker (*Aeshna juncea*)**



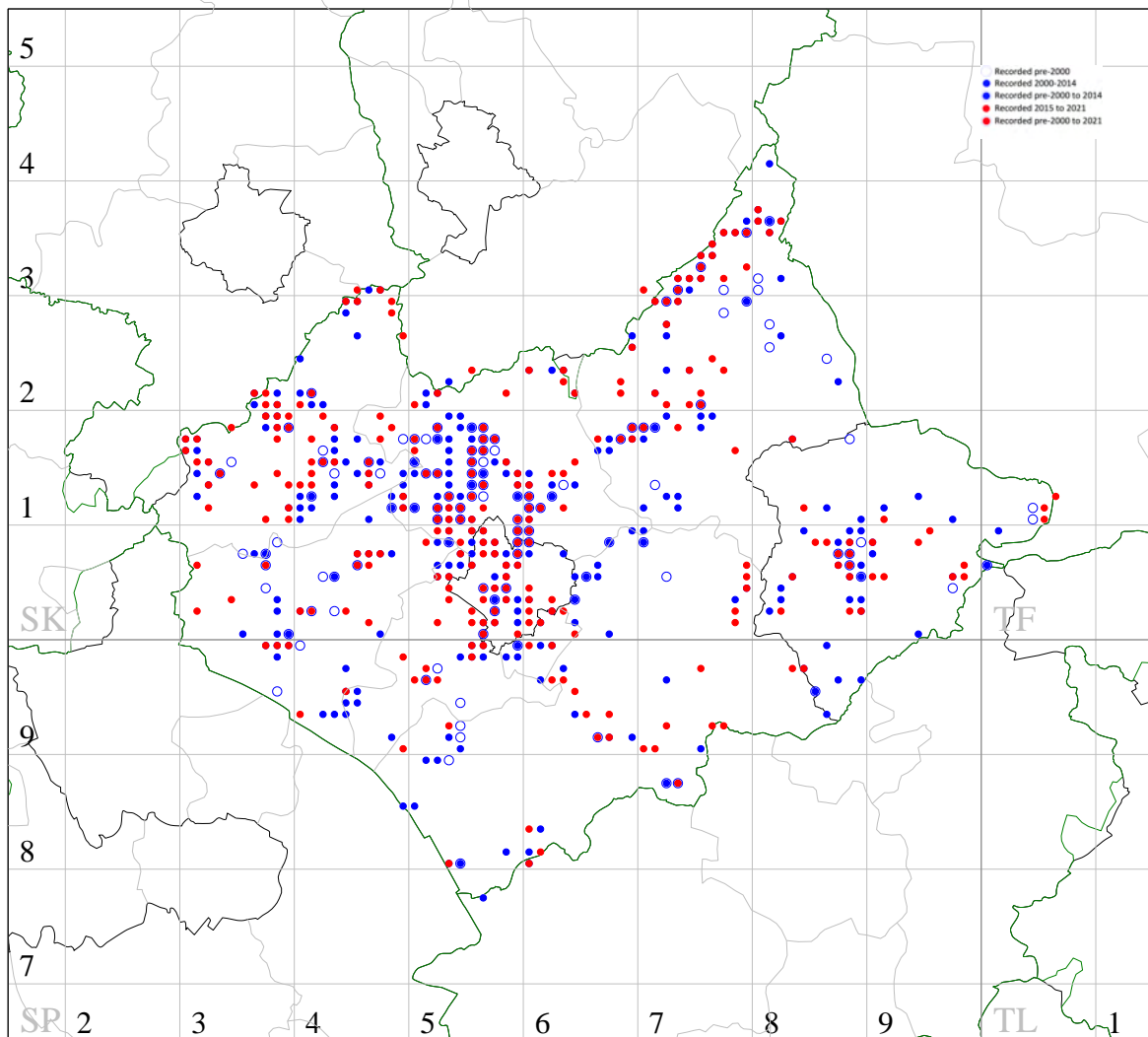
The preference for habitat with 'pools in blanket bogs and acid upland tarns' (Cham *et al*, 2014), the European name 'Moorland Hawker' is more appropriate for this species than the misleading English name 'Common Hawker'. A paucity of VC55 records seems hardly surprising, with the closest appropriate habitat and breeding sites being located on the Derbyshire Peak District moors, some 50km north-west of the Leicestershire boundary.

The status of this species in VC55 can only be described as enigmatic. Between 2010 and 2012 its regular presence at New Lount Nature Reserve and then Charnwood Lodge National Nature Reserve between 2016 and 2018, were indicative of small but self-sustaining colonies - however, neither site has produced recent records. During 2020 and 2021 single records came from Albert Village and Ravenstone respectively, following an established north-westerly biased trend; the 2018 record from Brascote Gravel Pits (near Market Bosworth) seems to have most probably originated from the north-west as well. It seems likely that this species maintains a precarious breeding foothold in our area centred on the remnant lowland heath habitat of the Ashby Wolds.

Nationally the Moorland Hawker has shown a marked decline since 1995 due to climate change and habitat loss, especially in lowland heath environments (Taylor *et al*, 2021), a factor which highlights the importance of conserving such habitat remaining in VC55.

Due to its close similarity to other *Aeshnids*, especially Migrant Hawker, the historic distribution of this species in VC55 remains somewhat uncertain as many recorded occurrences seem likely to involve mistaken identity. Anyone who encounters this very rare species should carefully note all diagnostic features. Longfield (1937) describes it as 'uncommon'.

## Migrant Hawker (*Aeshna mixta*)

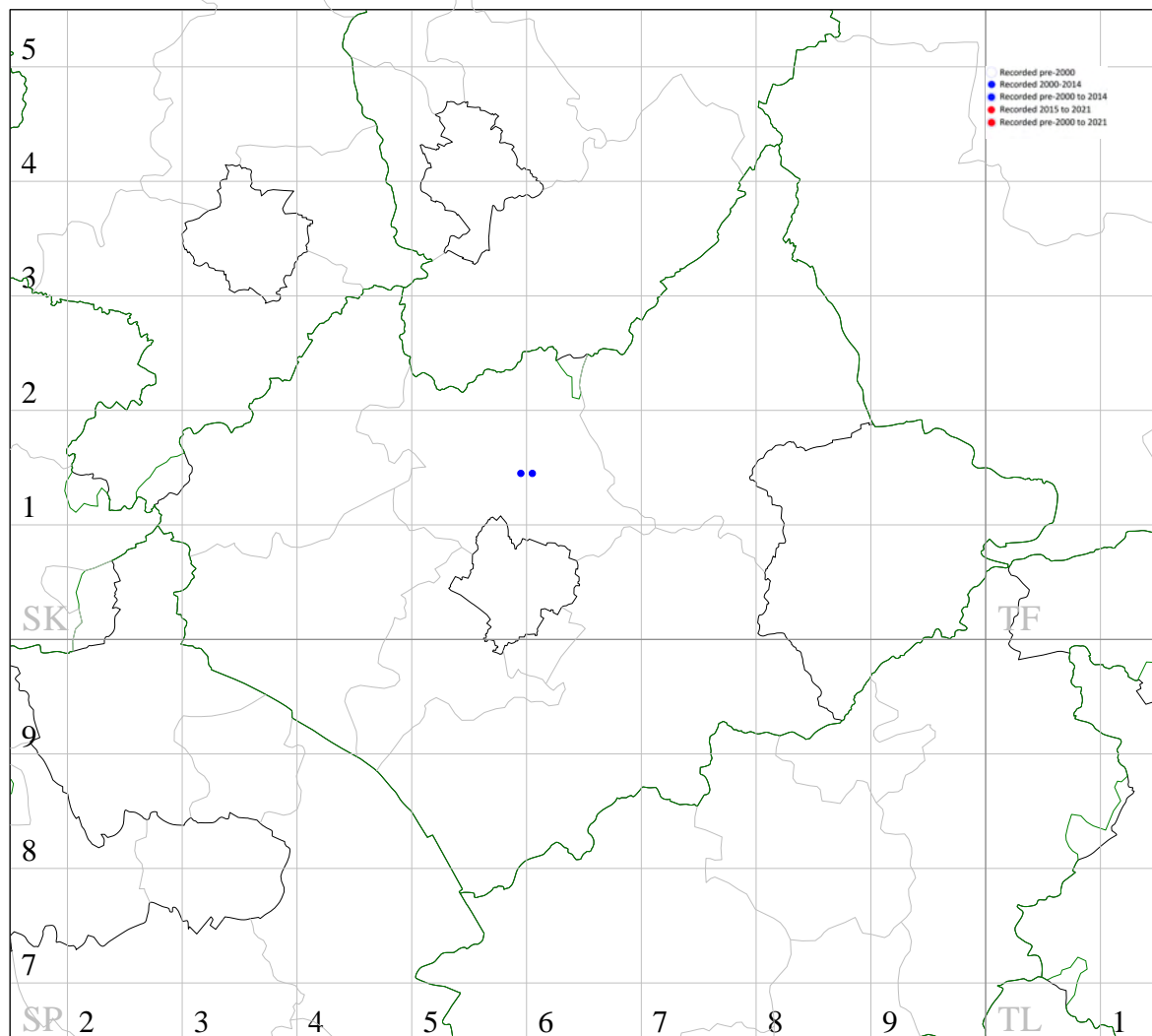


The Migrant Hawker exhibits rather liberal habitat preferences, ranging from slow-flowing rivers and canals to lakes and small ponds. Well vegetated margins are also required, providing ovipositing sites for females. This is another species that is frequently encountered far away from suitable aquatic breeding habitat and the distribution map above shows a broad spread of records which may be influenced as much by recorder coverage as habitat association. Clusters of distribution dots can once again be seen around the well-watched Charnwood Borough, Leicester City, the Grantham Canal, Rutland Water Nature Reserve and the National Forest.

Historically, dragonfly observation and recording has been an activity associated with late spring to high summer months in the two counties. Levels of observer interest tend to begin waning after the end of August when Odonata diversity decreases exponentially. This seasonal focus has potentially led to under-recording of this widespread and habitat-liberal species. The recent arrival of Willow Emerald Damselfly in VC55 has effectively extended our window of observational interest and it seems likely that recording of the Migrant Hawker may become a fringe benefit of the excitement generated by the new colonist, at least in the short-term.

Prior to 1980, historic records show that this species was, as its name suggests, a migrant to VC55. From the 1980s onwards, however, the Migrant Hawker has become a widespread species and a familiar sight during its late summer flight period

## Vagrant Emperor Dragonfly (*Hemianax ephippiger*)

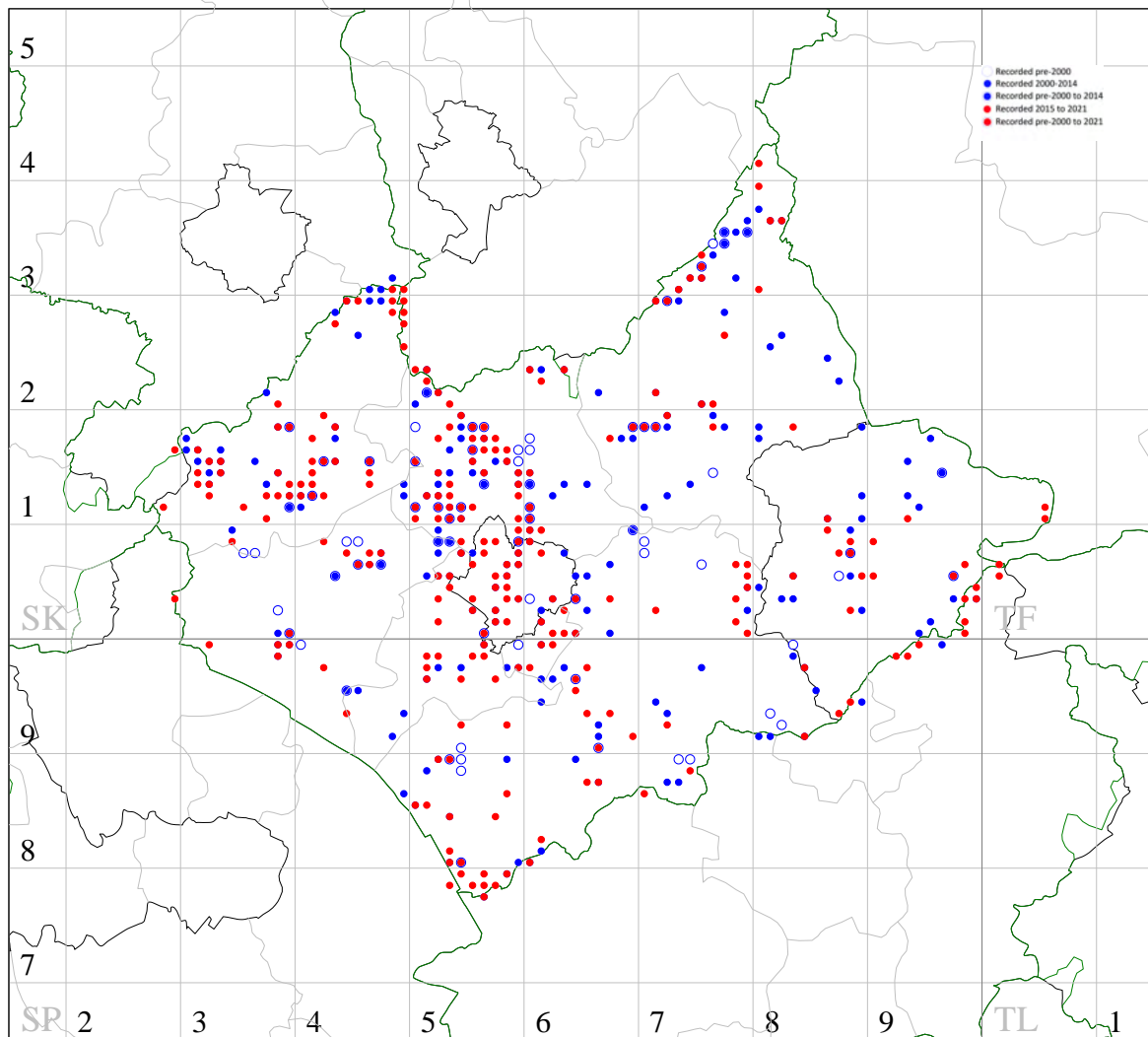


The preferred breeding sites of Vagrant Emperor are shallow, often temporary, pools and lakes with high water temperatures, scant vegetation and hence a lack of fish. Such sites have been historically restricted to North Africa, from where this species cyclically wandered northwards into Europe, often in considerable numbers. Such irruptive occurrences have been noted on an increasingly regular basis in the UK, with a dramatic surge of records occurring in Britain in 2011, when several waves of sightings were noted in both spring and autumn.

On 6<sup>th</sup> May 2011, a Vagrant Emperor was seen at Cossington Meadows Nature Reserve, by two knowledgeable observers, one of whom had previous experience of this species in the Middle East. The dragonfly in question was seen briefly, in flight, as it actually moved between adjacent 10km squares. The record was accepted by the British Dragonfly Society Odonata Records Committee as one of 35 confirmed UK sightings in that year and remains the sole VC55 record.

In 2019 another remarkable surge of UK arrivals occurred, with records from 100 sites in the country and several subsequent instances of ovipositing were recorded. It was hypothesised by Taylor *et al* (2021) that the recent run of significant influxes has been generated by changes in weather patterns which have increased the chances of such movements. Mass arrivals are typically associated with strong southerly airflows which, combined with more regular breeding in southern Europe, may result in greater numbers migrating northwards. It is, therefore, conceivable that further VC55 records of this species may be predicted for the near future.

**Emperor** *Anax imperator* 10km: 40/41  
**Emperor Dragonfly (Anax imperator)**



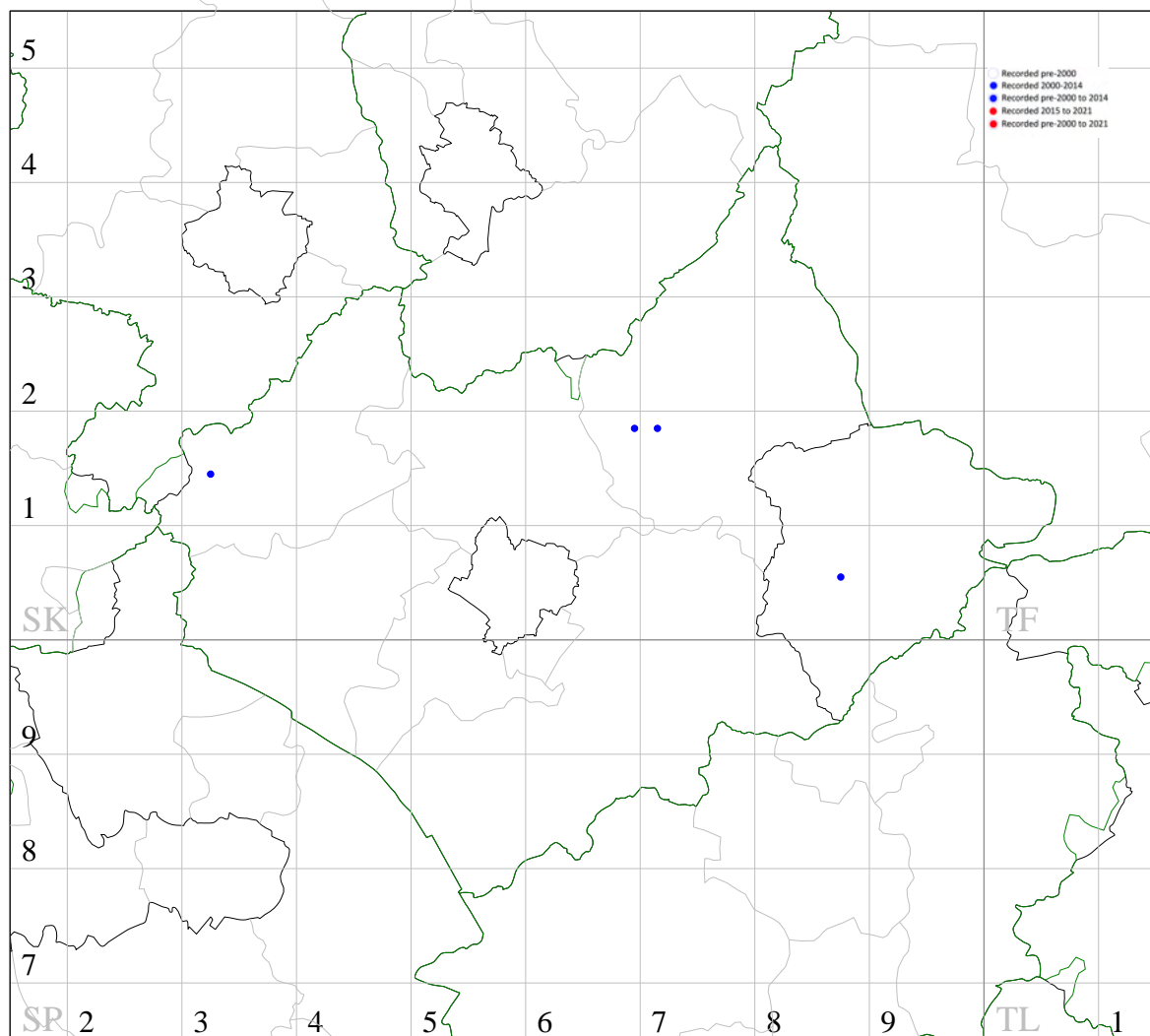
Large ponds, lakes, canals and slow moving rivers are the favoured habitat of the Emperor Dragonfly, particularly those with abundant submerged and floating vegetation, with lush marginal growth; substantial areas of open water are preferred.

The distribution map illustrates the widespread yet somewhat localised range of Emperor in VC55, which is generally limited by the availability of suitable habitat. Clusters of records are apparent along the Grantham Canal, the Soar, Trent and Wreake Valleys and also on newly created ponds within the National Forest. The apparent absence of records for the Ashby and Grand Union Canals suggest that the turbid waters of these sites remain unattractive to this species.

With just a handful of records prior to 1980 and similarly few in the succeeding decade, this is another species that can be considered a relatively recent colonist to VC55. There has been a notable increase in records of Emperor since 1990 and this distinctive species is now a familiar sight in the two counties.

Nationally the Emperor has shown the highest increase in range of any of our resident species (Taylor *et al*, 2021). Having swept through VC55, it reached Ireland in 2000 and Scotland in 2003 as its strong-flying ability has facilitated rapid range expansion and colonisation.

## Lesser Emperor Dragonfly (*Anax parthenope*)

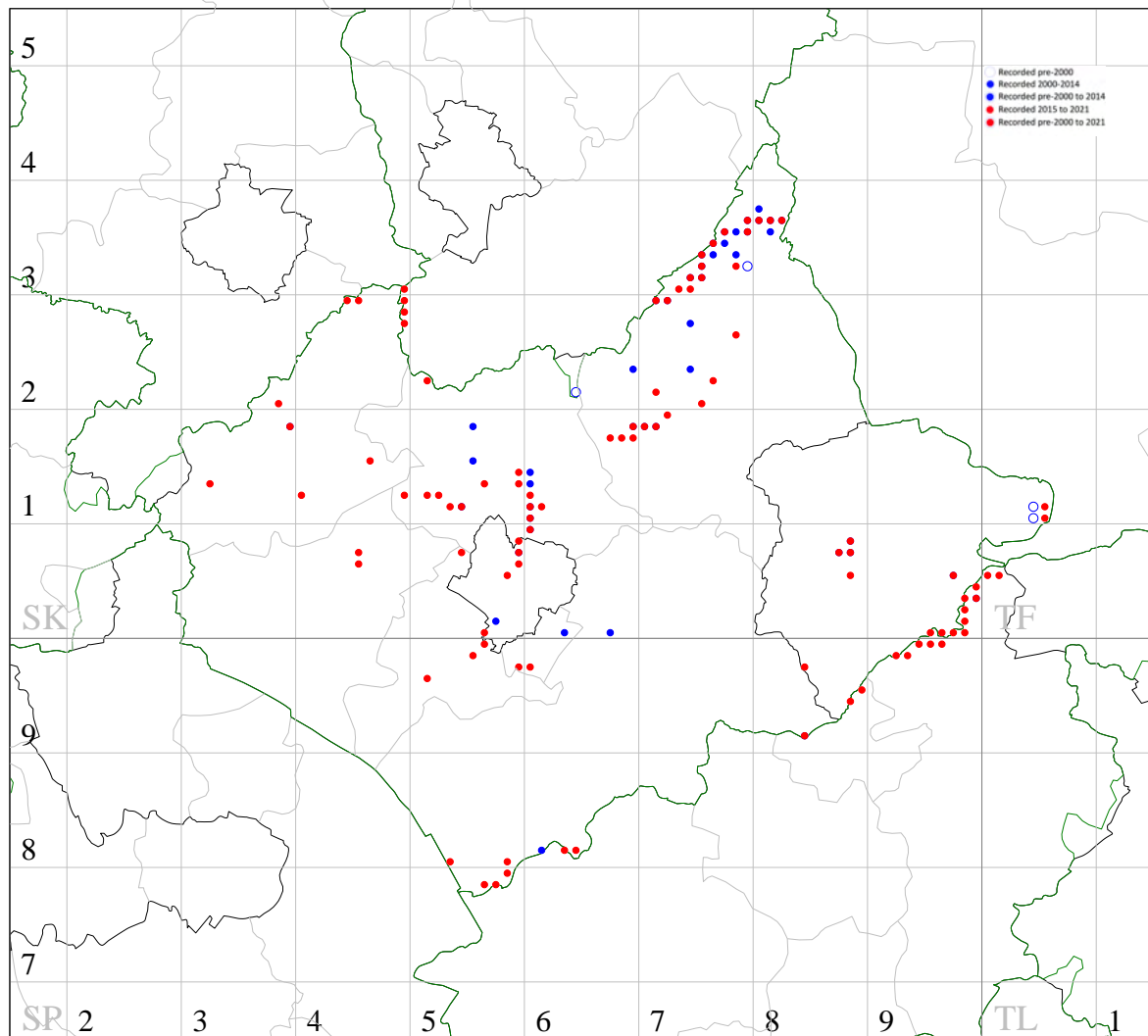


The Lesser Emperor is best described as a '*generalist*' in terms of its habitat preference being found on lakes, large ponds, slow-flowing rivers and canals. It was formerly considered to be a rare vagrant from continental Europe having become a regular migrant across much of the UK in recent years and has been recorded breeding at a number of localities.

The first appearance of Lesser Emperor in VC55 in 2003 was, therefore, not unexpected when a male was present at Priory Water between 15<sup>th</sup> and 26<sup>th</sup> July. More surprising was the appearance of another male, at the same site, just a year later, between 1<sup>st</sup> and 7<sup>th</sup> August 2004. A further three records have been documented to date, all involving males, as follows: 9<sup>th</sup> to 10<sup>th</sup> June 2007 at Willesley, Bramborough Farm Lake; 28<sup>th</sup> June 2009 at Frisby Gravel Pits and 26<sup>th</sup> July 2012 at Rutland Water, Manton Bay.

Lesser Emperor was first recorded in the UK in 1996 but since has appeared annually. A major influx occurred in 2006, an occurrence which has been repeated with some regularity since 2015. As a result of these immigrations, it appears that resident populations are starting to become established in southern Britain with much remaining to be learnt about the species' true status (Taylor *et al*, 2021).

Further VC55 records are likely to follow in coming years as Lesser Emperor consolidates its presence in the UK. Based on current knowledge, observers should concentrate prospective searches on more open waterbodies, through June to August.

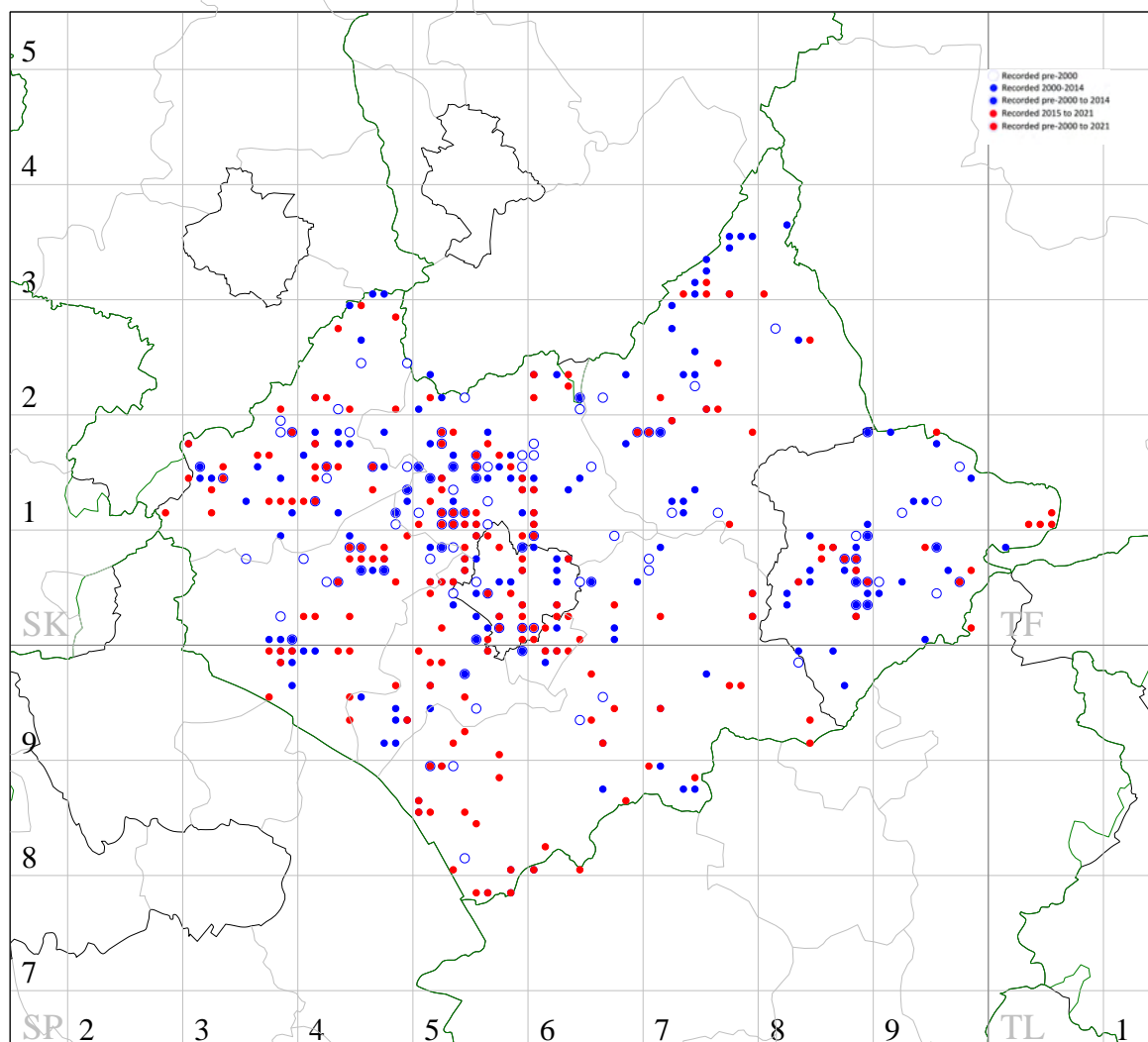
**Hairy Dragonfly** *Brachytron pratense* 10km: 27/41**Hairy Dragonfly (Brachytron pratense)**

The Hairy Dragonfly prefers still or slow-flowing water sites with large amounts of emergent vegetation. These waterbodies include mature gravel pits, lakes and larger ponds, canals and slow-flowing rivers. Open and well-spaced emergent aquatic plants are frequented by patrolling territorial males, which will fly in and out of the vegetation as they search for females.

Having undergone a significant range expansion across southern Britain, Hairy Dragonfly was first recorded in VC55 in 1993. Historically, the Grantham Canal was the only site at which it was resident; however it slowly colonised other suitable locations in subsequent years, initially in the north and east of VC55. Since 2010 the dragonfly has expanded its range markedly, colonising a new stronghold in the Soar Valley to the north of Leicester and onwards into the surrounding area. Its presence in the Trent Valley was first noted in 2018 and in the 2020/21 flight seasons a significant population was observed along the lower reaches of the Welland along the Northamptonshire border. The last two years has also provided the first sightings along the Avon and Grand Union Canal together with a scattering of sites in and around Leicester City and within the National Forest. The latest distribution map clearly illustrates this expansion and it seems likely that the colonisation of suitable new areas will continue.

The pattern of distribution in VC55 is mirrored nationally, where Hairy Dragonfly has increased significantly since 2000. Taylor *et al* (2021) considers increased observer coverage as a likely influencing factor; however this species has undoubtedly increased its VC55 distribution in real terms.

## Broad-bodied Chaser (*Libellula depressa*)

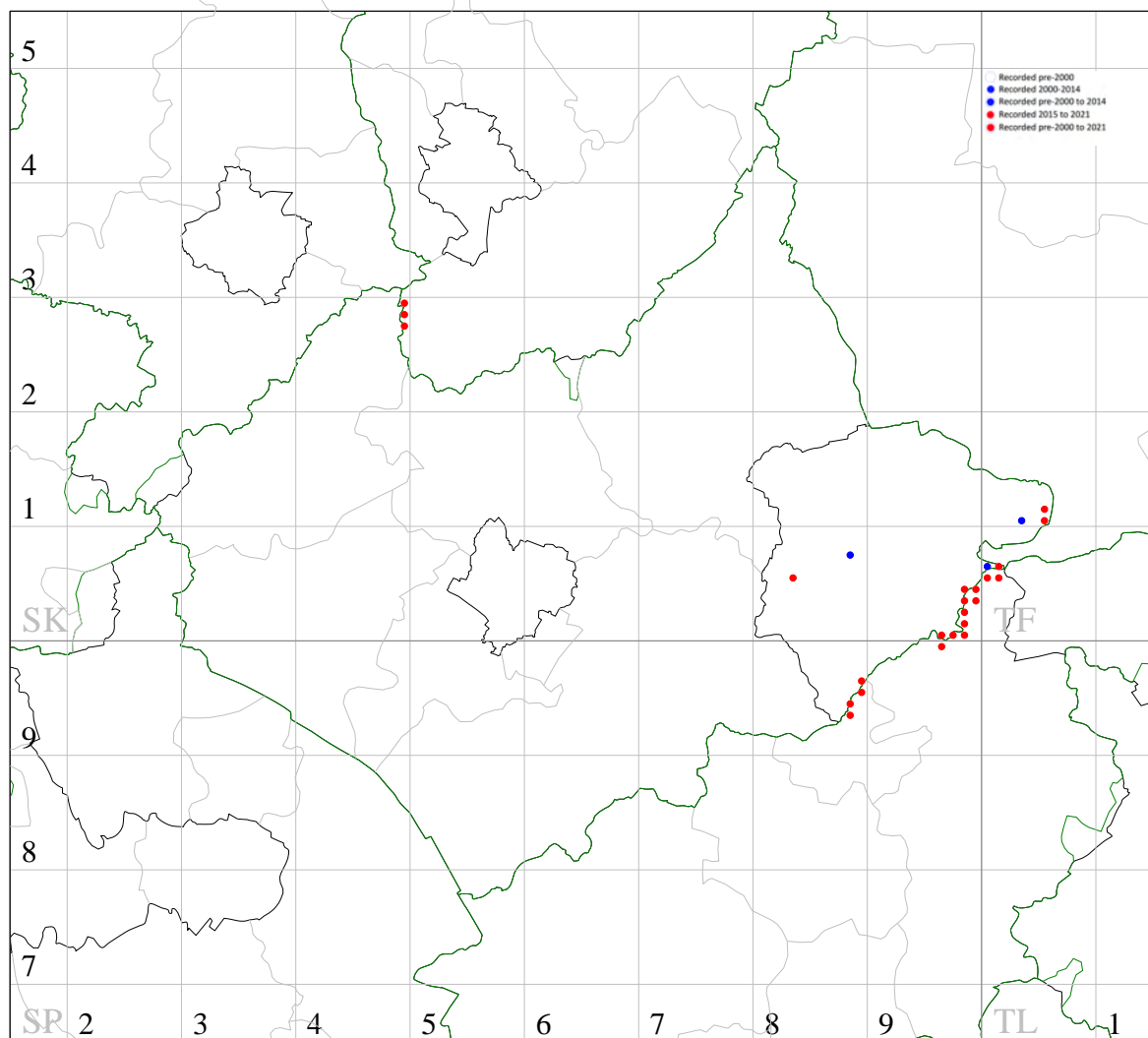


The Broad-bodied Chaser favours shallow still-water habitats, with areas of bare margins and muddy bottom substrate in which the larvae may conceal themselves. It is well known to be an early colonist being regularly reported from newly-created garden ponds although it will invariably disappear as aquatic vegetation becomes established. The often transient nature of its tenure at a particular site leads to something of a patchy distribution.

However, the species remains a widespread and often encountered species within VC55. The favouring of garden pond habitats has led to a proliferation of records in the urban areas of Leicester, Loughborough and their surrounds. Historic data shows that the Broad-bodied Chaser was relatively abundant in the 1930s with Roebuck (1932) describing it as 'fairly common in Leicestershire'. There were few records between this period and the 1980s after which time it appears to have made something of a resurgence in Leicestershire & Rutland.

As a pond specialist, combined with bright colouration and relatively approachable nature, this dragonfly is another species whose recording has benefitted from recent 'citizen science' based recording projects. Alongside Southern Hawker and Large Red Damselfly, it is amongst the most commonly recorded species in the British Trust for Ornithology 'Garden BirdWatch' scheme, an initiative which has fuelled a recent increase in the number of urban records.

**Scarce Chaser** *Libellula fulva* 10km: 7/41  
 (Scarce Chaser (*Libellula fulva*))



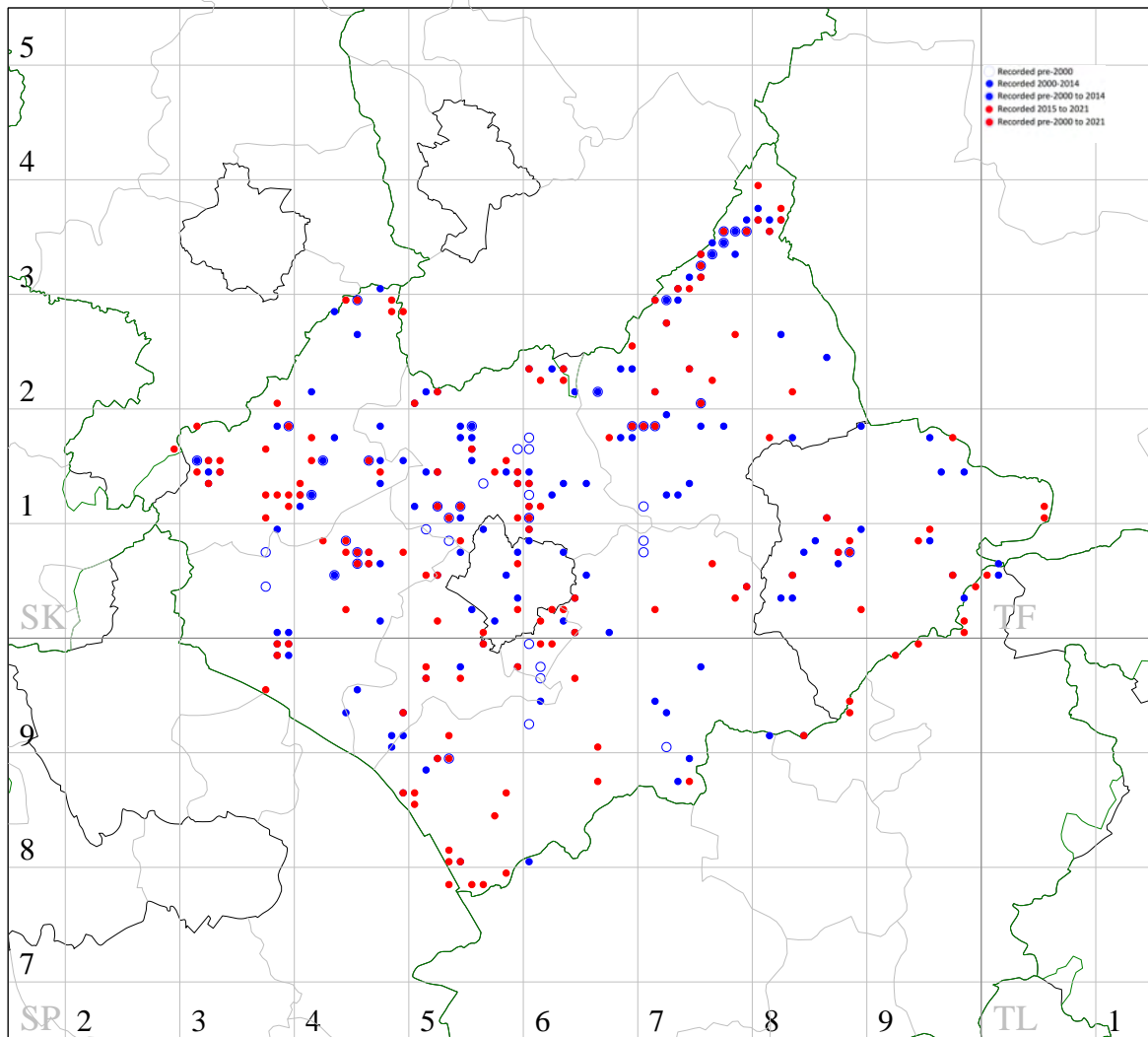
Scarce Chaser has a requirement for slow-moving mature rivers although nearby standing waterbodies are often also colonised when habitat conditions are favourable. Preferred breeding sites possess lush emergent bankside vegetation with adjacent rough meadows or scrub.

This species expanded its range rapidly through Northamptonshire in recent years, moving 50km westwards along the River Nene between 2005 and 2013 (Cham *et al.*, 2014). The move from the Nene to the Welland is a relatively short flight so that the arrival of Scarce Chaser in VC55 in 2014 was not unexpected. It was recorded frequently along the lower reaches of the Welland (during the 2020 and 2021 flight seasons) from Wakerley eastwards to the county boundary at Tinwell. Upstream of Wakerley, to Thorpe by Water, the dragonfly was absent followed by occupancy between Thorpe by Water and Caldecott. This distribution pattern is clearly influenced by the presence of suitably wide and slow-flowing stretches of the river with a notable absence on the more narrow and fast-flowing sections. An immature male seen at Priors Coppice NR in June 2021 was likely to be a pioneering wanderer.

The discovery of an isolated second colony on the lower reaches of the Soar, in 2016 was an unprecedented event. Exploration of apparently suitable habitat on nearby stretches of the river have so far drawn a blank and Scarce Chaser currently remains confined to just three 1km squares on the Soar to the north of Kegworth. Its biannual occurrence at this site at the time of writing reflects its two-year life cycle.



## Four-spotted Chaser (*Libellula quadrimaculata*)



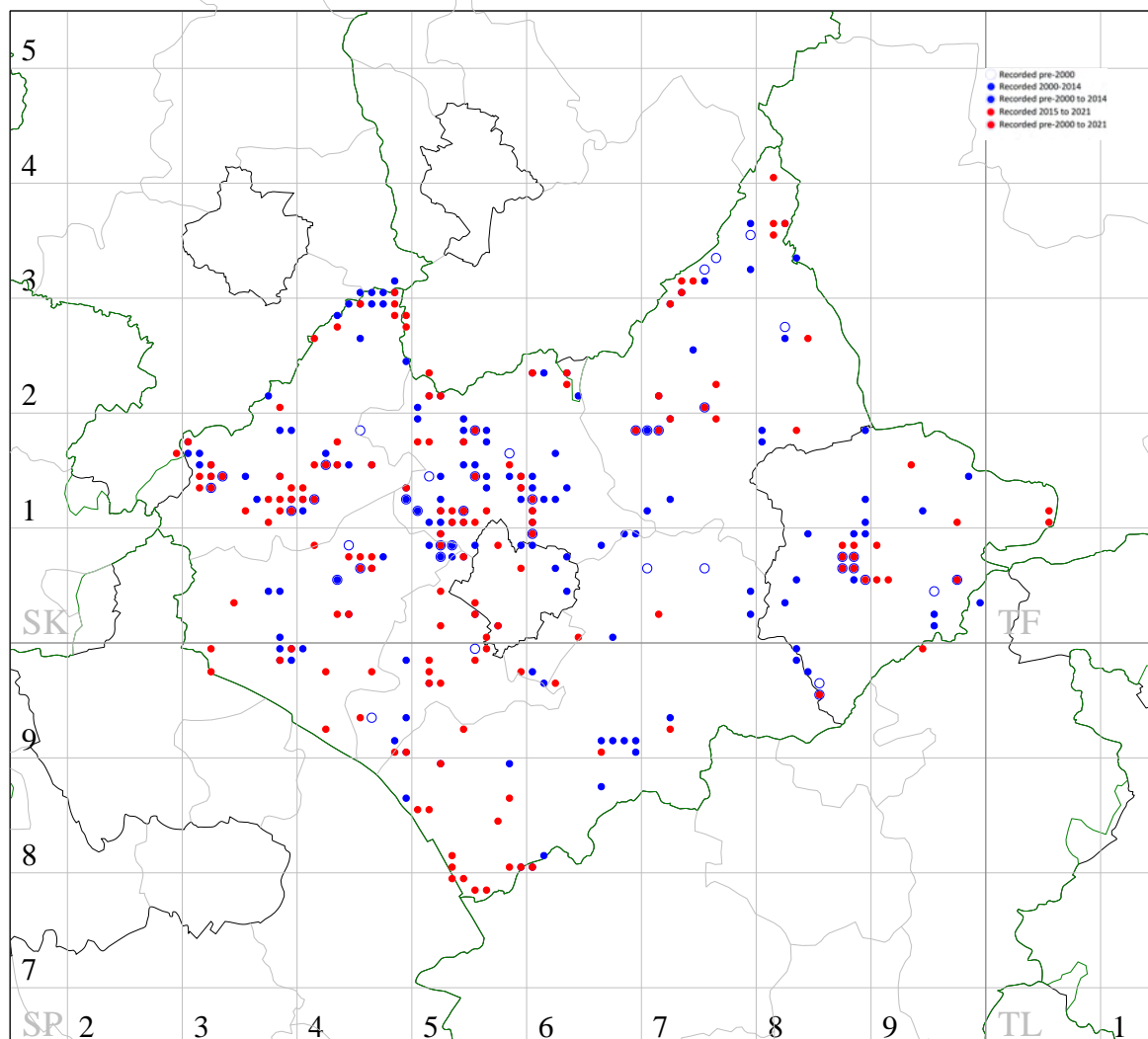
The Four-spotted Chaser favours waterbodies with good water quality and an abundance of submerged and emergent vegetation. These include lake and gravel pit margins, large ponds, canals or slow-flowing rivers.

Within VC55 it has a widespread but somewhat localised distribution tempered by habitat availability. The Grantham Canal, Wreake and Soar Valley gravel pits are all strongholds but the insect has been found at many other widely spread localities.

The dragonfly's proven ability to rapidly colonise new sites has benefitted from the creation of new habitat in the area, most noticeably within the bounds of the National Forest. It is interesting to contrast the distribution of Four-spotted Chaser and Broad-bodied Chaser as both are known colonisers. The latter clearly takes advantage of small and newly-created garden ponds in urban areas of Leicester City and Charwood Borough whilst the former is virtually absent from such areas as it prefers more natural wetlands.

Historic records suggest that this species has increased in its abundance in recent years, particularly since the 1980s; prior to this period it had been recorded from very few sites. This distribution pattern correlates well with recent national studies which have demonstrated that the Four-spotted Chaser has increased its occupancy in England since 1990 (Taylor *et al.*, 2021).

## Black-tailed Skimmer (*Pseudagrion cancellatum*)

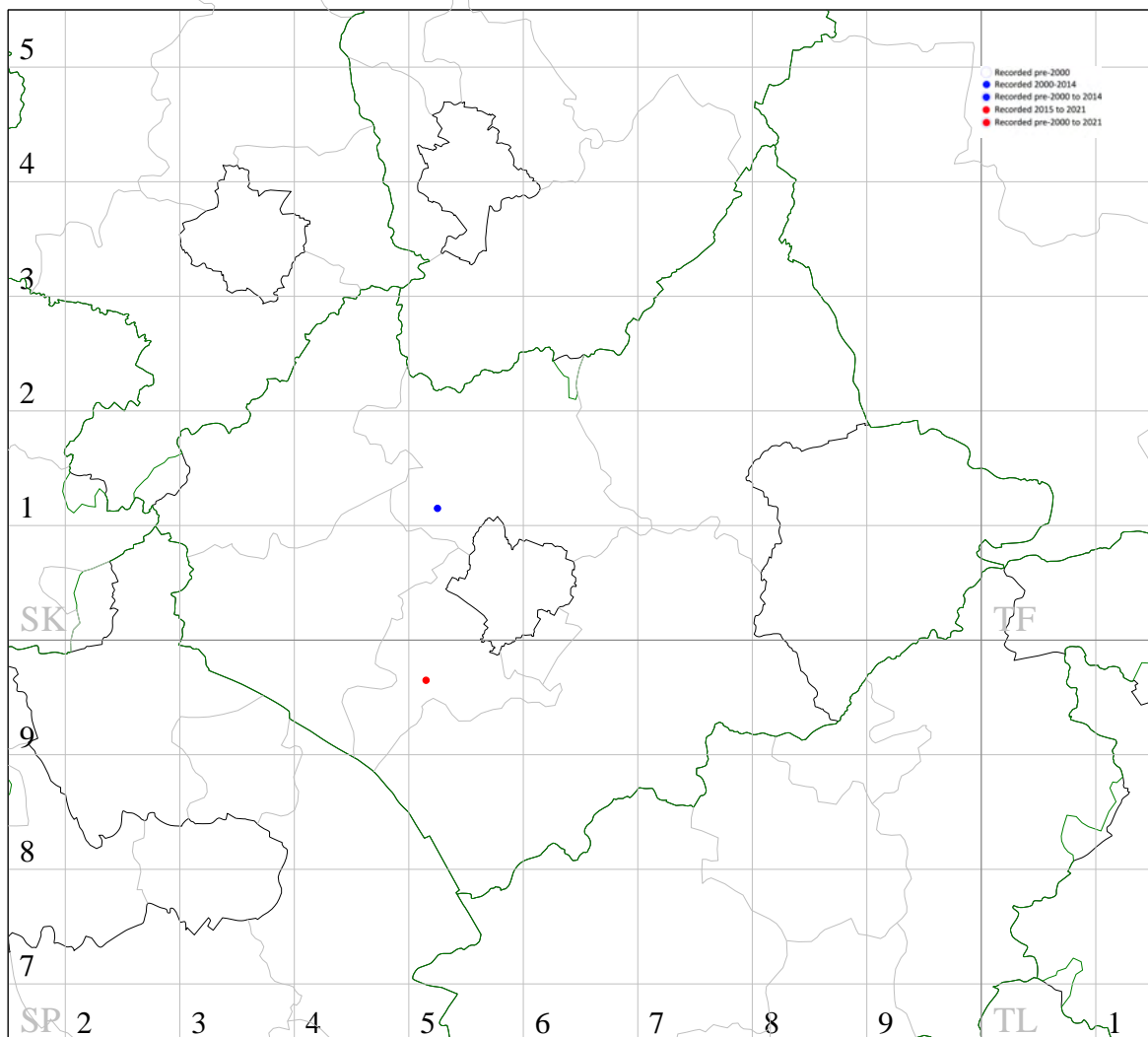


Although the Black-tailed Skimmer is attracted to a wide range of slow-moving and still water habitats, it is essentially an early coloniser of waterbodies with bare margins where males will bask; newly created gravel pits are a particularly favoured haunt.

The current distribution shows that Black-tailed Skimmer is widespread in Leicestershire & Rutland; yet its presence at any particular site may be a transient one due to the specific habitat requirements. Rutland Water Nature Reserve and newly created habitat within the National Forest are examples of areas where there have been recent or ongoing aquatic construction works and which are clearly visible on the distribution map. Conversely, much of the historic Trent Valley gravel works are now regenerating to more mature wetlands and the lack of recent habitat opportunities for Black-tailed Skimmer in this area is also well illustrated.

It is surprising that Black-tailed Skimmer was first recorded as recently as 1987 in VC55 with its widespread, often densely-populated, distribution, illustrating that it is now a well-established resident within the two counties. Taylor *et al* (2021) make similar observations at a national level, concluding that the species has spread significantly in England & Wales since the late 1980s reaching Scotland in 2006. Climate change is cited as the prime factor behind these rapid changes.

## Keeled Skimmer (*Orthetum coerulescens*)

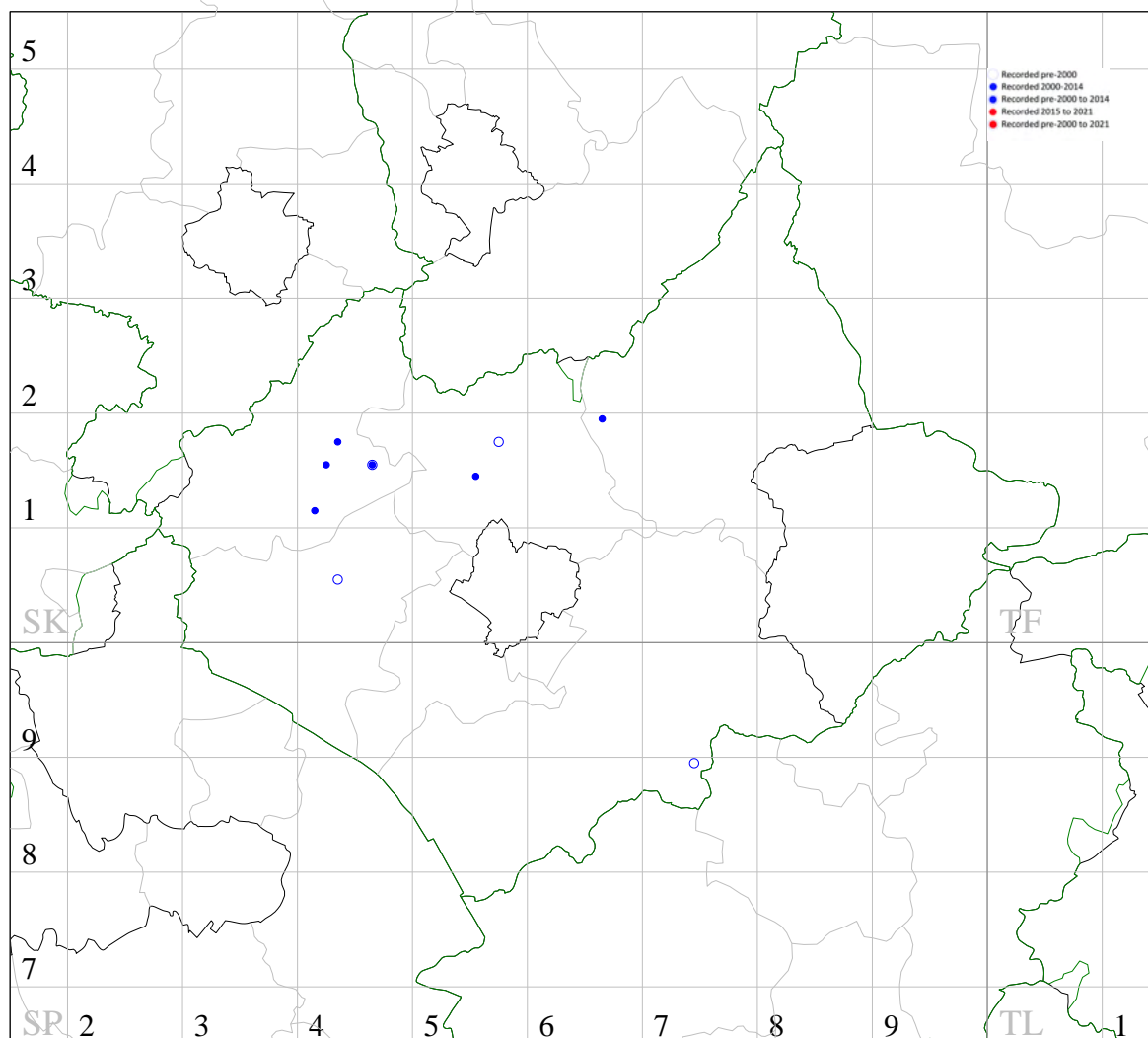


The Keeled Skimmer is generally considered to favour wet lowland heaths; however, recent discoveries in the UK have proven that it can adapt to other similar habitats possessing suitable wet boggy runnels interspersed with drier terrain (Cham, 2020). The closest Keeled Skimmer populations to VC55 are at Cramer Gutter in Shropshire (c70km to the west), Roydon Common in Norfolk (c70km to the east) and Sundon Quarry in Bedfordshire (c70km to the south).

Although it is known as a wanderer, with a scattering of sightings recorded across the East Midlands (Cham *et al*, 2014), the appearance of Keeled Skimmer in VC55 in both 2013 and 2021 must rank amongst the most unexpected occurrences in Leicestershire & Rutland. Both records were of males, the first being at Old John Watering, Bradgate Park (28<sup>th</sup> July 2013) and the second at Croft Quarry Nature Trail, (19<sup>th</sup> August 2021). These males were only seen for a single day but both observers were highly experienced and the 2021 individual was photographed. The habitat at Old John Watering is ideal for a species which frequents wet lowland heaths whereas the Croft individual was clearly observed by chance, likely in transit from more appropriate habitat.

Interestingly Warwickshire had a single record of a wandering male Keeled Skimmer in 2009, Staffordshire has records from three different localities between 1989 and 2015 while Derbyshire has three records, the most recent in 2019; these sightings would suggest a western origin for the VC55 records.

## Black Darter (*Sympetrum daniae*)

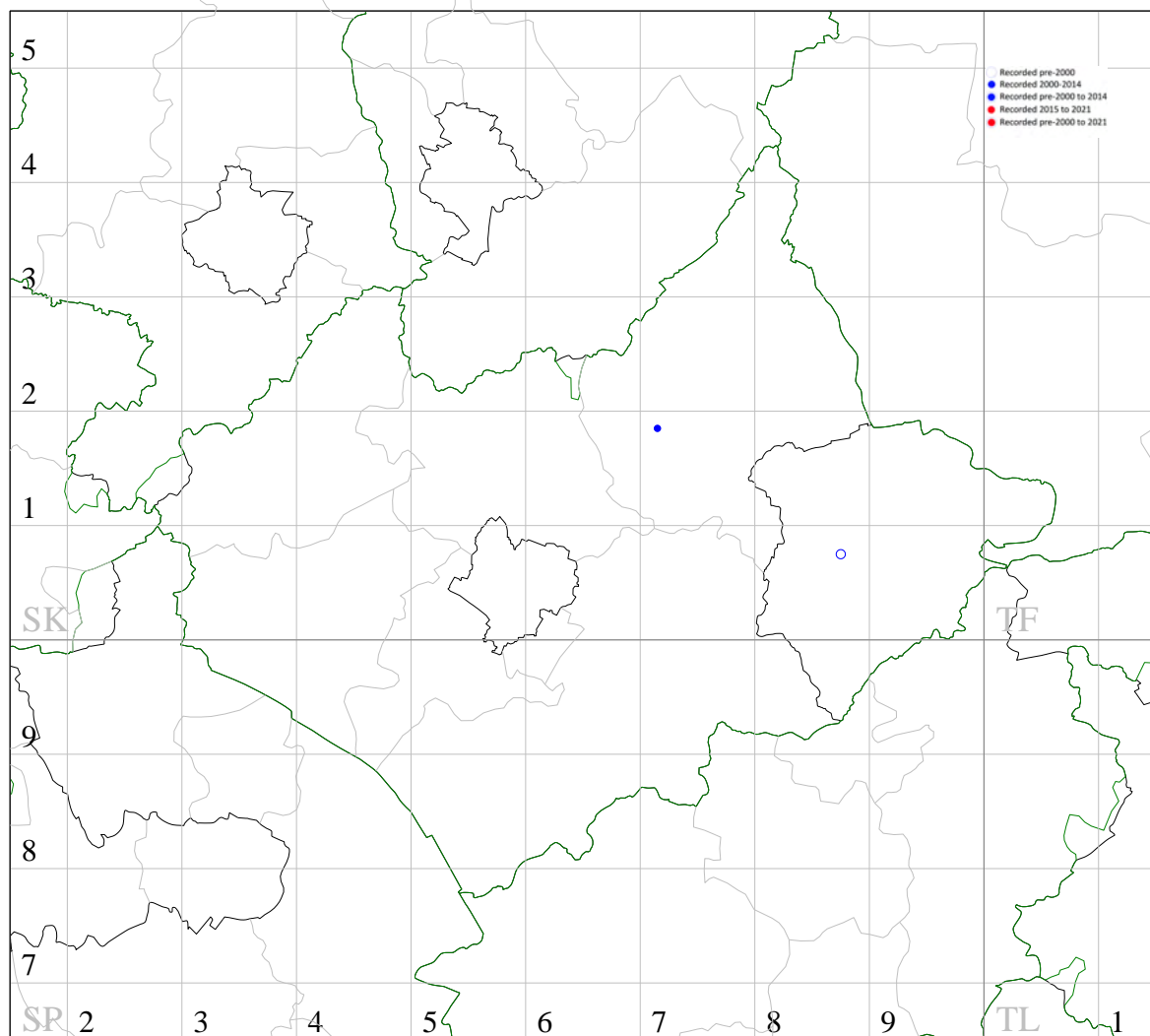


The Black Darter is a species considered to favour acidic heathland across much of its UK range, a habitat virtually absent from VC55. Akin to Moorland Hawker, the closest well-populated Black Darter breeding sites are located in the Derbyshire Peak District moors, c50km north-west of Leicestershire. Even closer to our recording area the dragonfly can also be found to our west, in Staffordshire where small colonies exist at both Cannock Chase and Chartley Moss (c30km and c25km respectively from Leicestershire).

Black Darter is known to wander from its breeding haunts and such transient individuals have been recorded several times in Leicestershire. There have been six well-documented records since 2000; Coalville (September 2002), Woodhouse (September 2003), Grace Dieu (August 2010), Ibstock (August 2012), Ragdale (July 2013) and Charnwood Lodge (September/October 2013). The proximity of both the Derbyshire and Staffordshire populations to the north-west sector of our recording area aligns well with the distribution map for this species, suggesting that all local records are related to individuals wandering from one or the other of the two localities.

Nationally, Black Darter has declined over the last fifty years (Taylor *et al*, 2021) and the paucity of recent VC55 records may be a reflection of this. The national decline has been linked to climate change causing habitat desiccation along with detrimental land management practices in our heath and moorlands.

## Yellow-winged Darter (*Sympetrum flaveolum*)

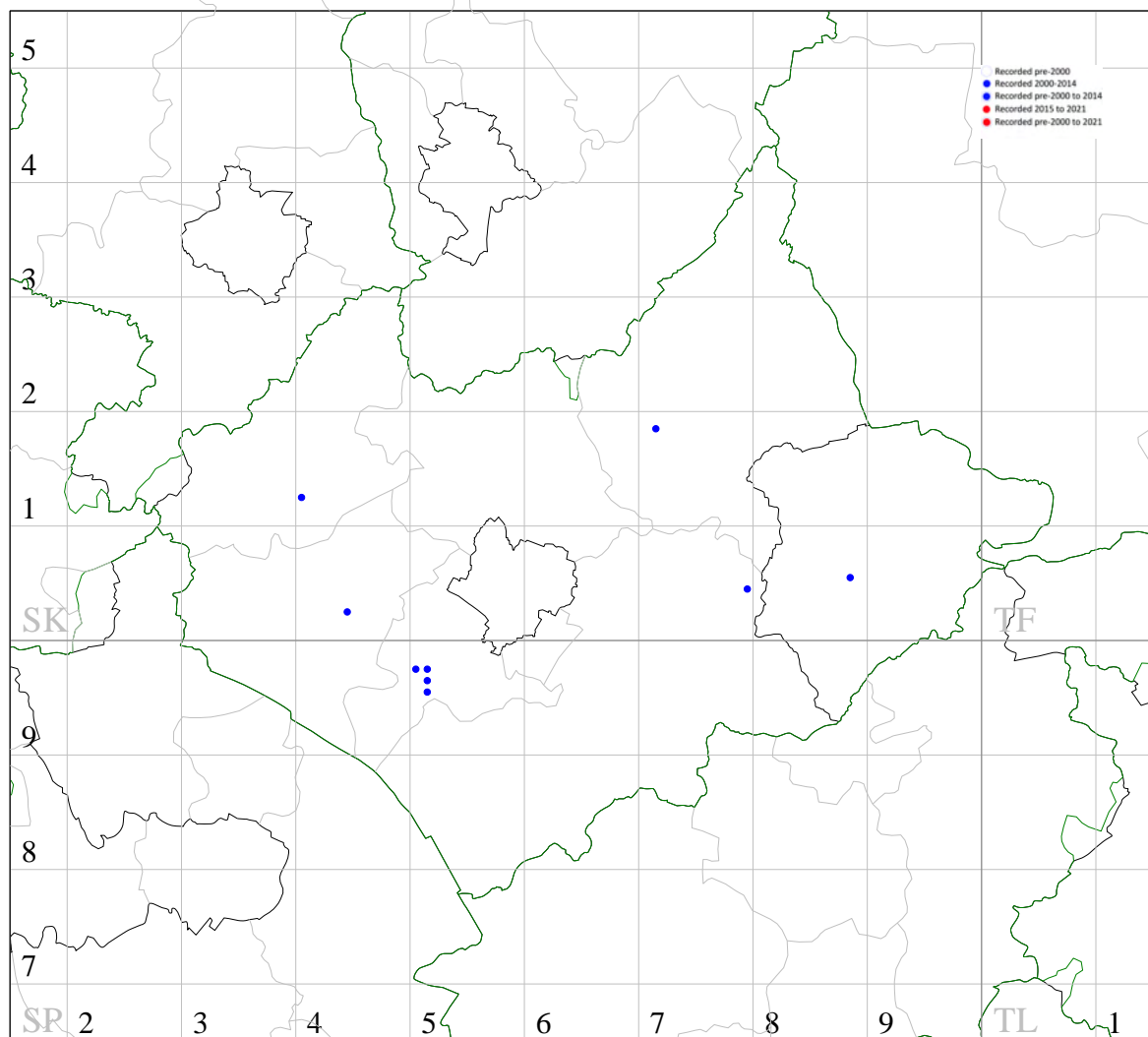


The Yellow-winged Darter favours shallow, still-water sites that may dry out at the height of summer. Its range is biased towards south-eastern Europe, and as such it has only been recorded as an irregular immigrant to the UK. There was a large influx during the summer of 1995, with records over much of Britain.

Coinciding with this mass arrival, the species was reported to have been seen engaged in breeding activity at Rutland Water Nature Reserve on 17<sup>th</sup> July 1995. At least one adult was subsequently reported to have emerged at the site in 1996 but substantiating evidence of these records has never been received. An adult Yellow-winged Darter was reported at Priory Water on 9<sup>th</sup> July 2000; however, this record also lacks any formal supporting evidence. These remain the only records for Leicestershire & Rutland, and are all best described as 'unconfirmed'.

In contrast to the majority of our migrant species, which have appeared with increasing frequency and in some cases colonised the UK, Yellow-winged Darter is in apparent national decline (Taylor *et al.*, 2021). Following the 1995 influx there was a similar but smaller-scale event in 2006 with very few records thereafter and none since 2015. Unlike most of our other migrant species, Yellow-winged Darter is of primarily eastern, as opposed to southern, European distribution and with different population pressures; worryingly, the same decline has been noted throughout western Europe.

## Red-veined Darter (*Sympetrum fonscolombii*)

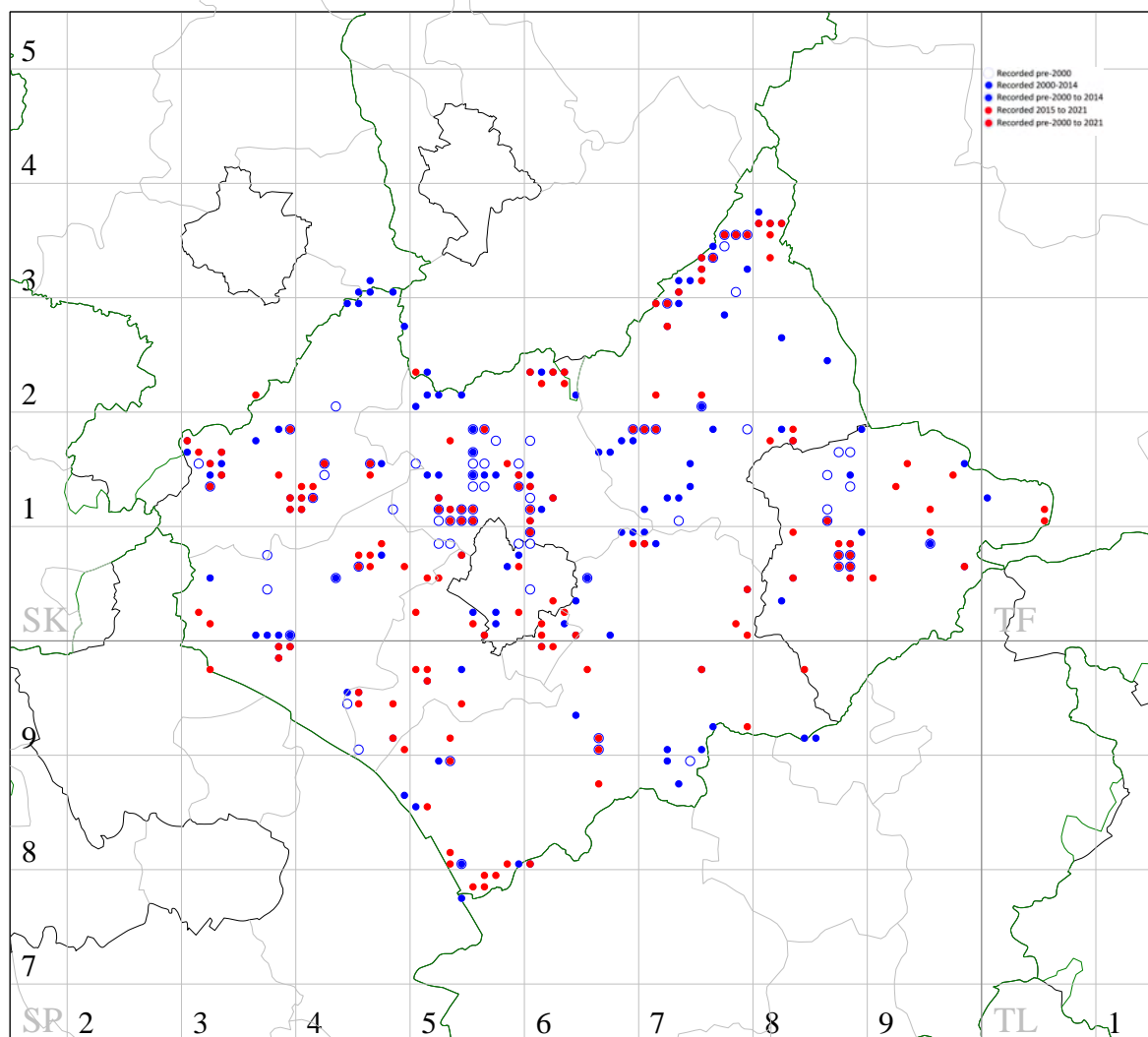


The Red-veined Darter is a strong migrant and as such can appear almost anywhere including sites well away from water. Its preferred breeding habitat is standing water with an open, sunny aspect and sparse aquatic vegetation that it will warm up rapidly in the spring and summer. Such habitat is attractive to a species whose stronghold is in hotter climates that will allow a breeding cycle to be completed in a single year.

Historically a migrant to the UK, records of Red-veined Darter began to increase in the mid-1980s and have continued with substantial influxes occurring every 2-3 years; particularly large numbers were recorded in 2006 and 2019. Spring immigrants often breed to produce a second autumnal generation with emerging individuals thought to then migrate south. Some established UK breeding sites have emerged over the last two decades but these do not seem to be entirely stable. Much still remains to be discovered about the breeding biology of this highly mobile species (Taylor *et al*, 2021).

Prior to 2006 the only records for VC55 were of individual males at Huncote (June 2002) and Kelham Bridge Nature Reserve (July 2002). Coinciding with a number of widespread proven breeding occurrences in Britain, up to twelve fresh teneral Red-veined Darters were recorded at Huncote in 2006. The initial observation was made on 3<sup>rd</sup> September and the last on 7<sup>th</sup> October with local emergence almost certain; the sand pit habitat was an ideal breeding site. Additional 2006 records of Red-veined Darters came from Priory Water (four seen between mid-June and early August) and from Rutland Water (two seen in mid-July). In 2009, the eight adults recorded at Brascote Pits in July suggest another potential breeding occurrence and it seems likely that further such events will follow in the future.

## Ruddy Darter (*Sympetrum sanguineum*)

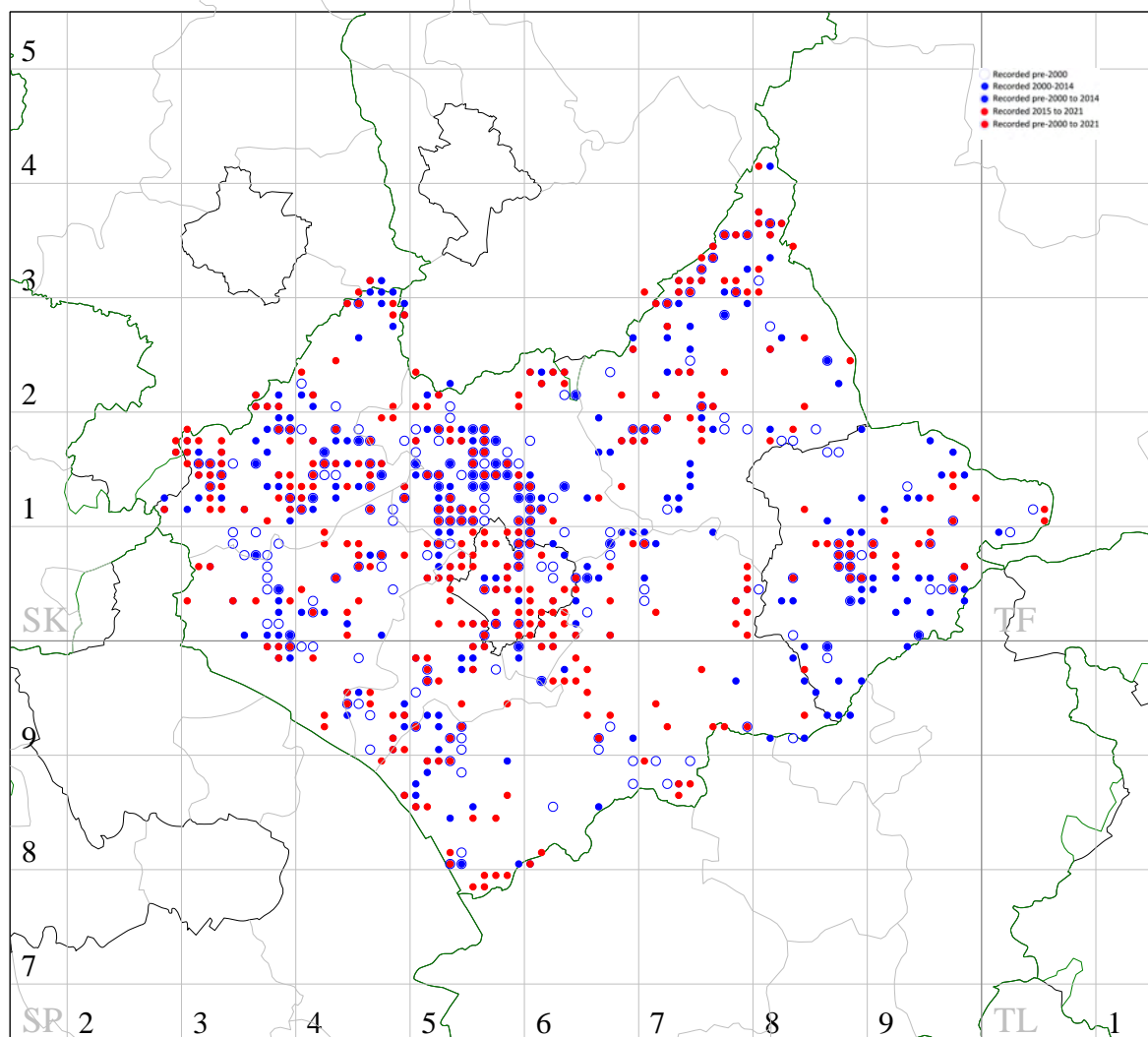


The Ruddy Darter favours small, shallow-water sites with dense stands of emergent vegetation. Breeding sites are generally associated with waterbodies in a late stage of ecological succession. Such a specific habitat preference means that the species has a rather local and scattered distribution within VC55 even though it can be found throughout both counties. Particular strongholds include the Grantham Canal, the Soar and Wreake Valley gravel pit complexes, Rutland Water Nature Reserve, and also newly-created habitat within the National Forest.

Historically this species seems to have had an even more local distribution than at present. Mendel (1980) cites just a handful of recorded occurrences while Robertson (1953) recorded Ruddy Darter as being '*numerous along several hundred yards of the Grand Union Canal... in the Wigston and Kilby district*'.

While the species often shares the same habitat as Emerald Damselfly, which is known to have declined at a national level, it is interesting to note that Ruddy Darter has been shown to have increased. The pattern is not simple, however, with an increase in England between 1982 and 1991, followed by a stabilisation and then much fluctuation over the last decade (Taylor *et al.*, 2021). The distribution in VC55 appears to illustrate an expansion of the range of Ruddy Darter although increased observer coverage and the creation of new habitat in some areas may partly account for this apparent trend.

## Common Darter (*Sympetrum striolatum*)



The Common Darter will tolerate a wide variety of habitat types, including slow-flowing rivers, canals, lakes, ponds, ditches and garden pools. It will also breed in sites of poor water quality and with shaded conditions, which makes it one of the most widely encountered species in VC55.

The distribution map illustrates that increased observer coverage may account for the perceived range expansion of the species in the two counties. It is a widespread species nationally and very dispersive being regularly encountered far from water and often visiting gardens to bask on light-coloured paving and fences. The current distribution aligns with a strong observer presence in the Leicester, Charnwood and north-west Leicestershire districts, around Rutland Water Nature Reserve and along the Grantham Canal.

The British Trust for Ornithology 'Garden BirdWatch' and other 'citizen science' recording initiatives have also increased the number of records of this species which is easily identified. Individuals are often confiding, allowing a close approach, and are regularly encountered in the most urban of settings. It is reassuring to consider that such projects, combined with some of our widespread and colourful Odonata species, may be the catalysts to a lifelong interest in dragonflies, the wider natural world and its conservation.

Historic records show that it has always been abundant, with Roebuck (1932) describing Common Darter as 'very common and widely distributed'.



## Future Recording Focus

The preceding pages and distribution maps are a snapshot of the ranges of dragonflies and damselflies in VC55 to the end of the 2021 season (March 2022 for Willow Emerald Damselfly). In order to continue the exploration of the status and further distributional developments of our Odonata populations, it is important that we continue to formally record our observations of this fascinating group of insects. Leicestershire & Rutland are experiencing the northwards spread of a number of species and all our records contribute to a better understanding of these species colonising new areas nationally.

Beautiful Demoiselle was first recorded on the Welland and Avon in 2014 from where it has spread slowly northwards through habitat of marginal suitability. Observers are encouraged to check any stretches of narrow stony-bottomed, semi-shaded watercourse beyond the currently known range and to also be vigilant for the presence of this dispersive species further afield. We also saw the arrival of Scarce Chaser in 2014 which has now become well-established on the lower reaches of the Welland in the south-east of our recording area. The discovery in 2016 of a second colony of this riverine species on the lower Soar came as a welcome surprise. Currently it is unknown between these two widely-spaced localities. Further surveys of suitable stretches of slow-flowing rivers may yet prove the existence of further colonies elsewhere in VC55.

Although it only arrived as recently as 2019, Willow Emerald Damselfly has made a remarkable surge westwards and throughout the area in the subsequent two years. In the near future it seems likely to become one of the most widespread species in VC55; it is probably under-recorded due in part to the unobtrusive behaviour of the adults during their late-summer flight period. A recording focus in the winter months, when leafless willow trees reveal tell-tale oviposition scars, is likely to be the best method for recorders keen to contribute to our knowledge of the evolving range of our latest colonist.

## Potential Future Colonists

Having colonised the UK in 2010, Southern Migrant Hawker (*Aeshna affinis*) is now a regular breeding species and has spread north and westwards in recent years from its strongholds in the Thames grazing marshes. It has been recorded within 20km of our recording boundary in Northamptonshire and seems likely to appear for the first time in VC55 in the near future. Its preferred habitat consists of low-lying shallow waterbodies, which tend to dry out in summer.

Green-eyed Hawker *Aeshna isosceles* was once confined to East Anglia, hence the alternative name of Norfolk Hawker, but has spread widely from its original strongholds in the last two decades (Taylor *et al.*, 2021). Now with colonies just over 40km from our recording boundary (Cambridgeshire), it is possible that this species will appear in VC55 in the near future. The typical habitat of this species is in unpolluted ditches and some lakes, rich in aquatic flora.

## On-line Resources and Record Submission

In terms of up-to-date news of species on the wing and recent discoveries, the Leicestershire & Rutland Dragonfly Group [Facebook Page](#) is a great source of reference for all VC55 dragonfly enthusiasts and recorders, acting as a focal point for Odonata interest in our counties.

The development of on-line recording has increased the ease with which VC55 Odonata records may be submitted, with a number of websites set up for this purpose. Leicestershire & Rutland has its own bespoke natural history recording resource in the form of the [NatureSpot](#) website, the portal of which encourages and facilitates submission of a wide range of species groups including Odonata. The [British Dragonfly Society](#) promotes on-line submission of Odonata records at a national level via [iRecord](#).

Dragonfly records collated into Excel spreadsheets can also be emailed directly to the author as the VC55 British Dragonfly Society County Recorder and an Excel recording template is available on the Leicestershire & Rutland Dragonfly Group [Facebook Page](#). Whatever your preferred option, all records will be very gratefully received in any format and will contribute to our expanding knowledge of this wonderful insect order, the Odonata.

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