



The Clubtail Count 2019 Report

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For three years, more than 180 volunteers have scoured over 200 miles of river banks in England and Wales looking for the elusive Common Clubtail (*Gomphus vulgatissimus*). The data they have provided has given us a valuable insight into the health of our surviving Common Clubtail populations.

Method

Volunteers adopted 1km OS grid squares (monads) to survey repeatedly for Common Clubtail during the species' flight period, which runs from the end of April to late July. Volunteers looked for emerging adults, their discarded exuviae (larval skins), mature adults and egg laying females.

Number of Common Clubtail found



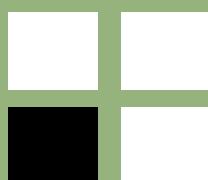
Total	1951
2019	433
2018	564
2017	954

11 rivers with historic records were targeted:

The Arun	The Teme
The Avon	The Thames
The Dee	The Towy
The Kennet	The Vyrnwy
The Severn	The Wye
The Teifi	



1km monads surveyed



Total	348
2019	134
2018	148
2017	206

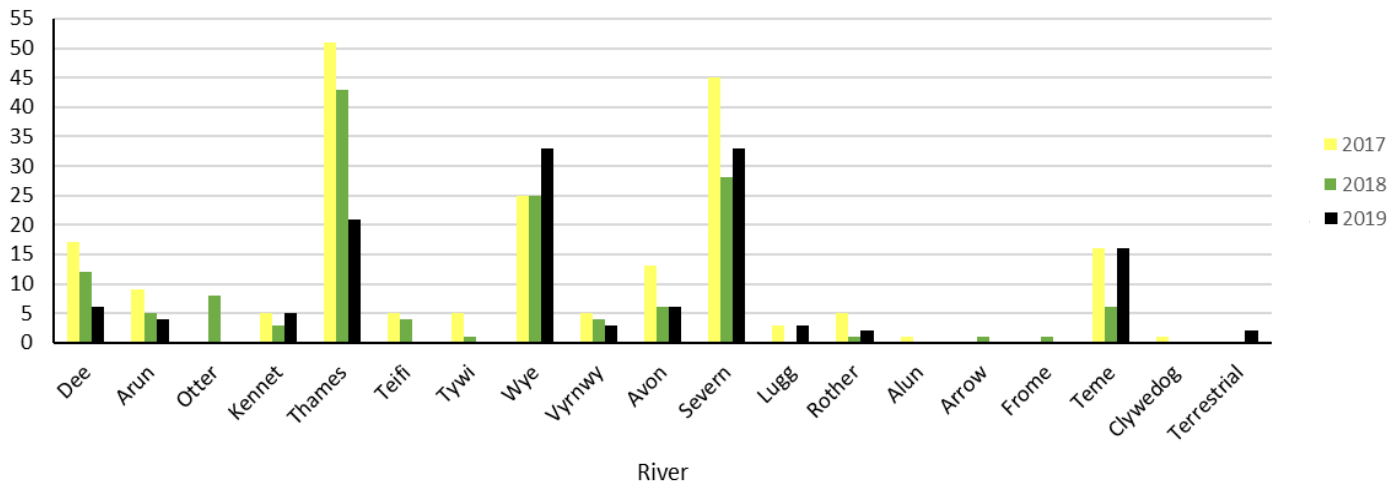
Number of volunteers



Total	181
2019	72
2018	61
2017	110

Clubtail Count Data Breakdown

Monads (1km OS grid squares) surveyed on each river



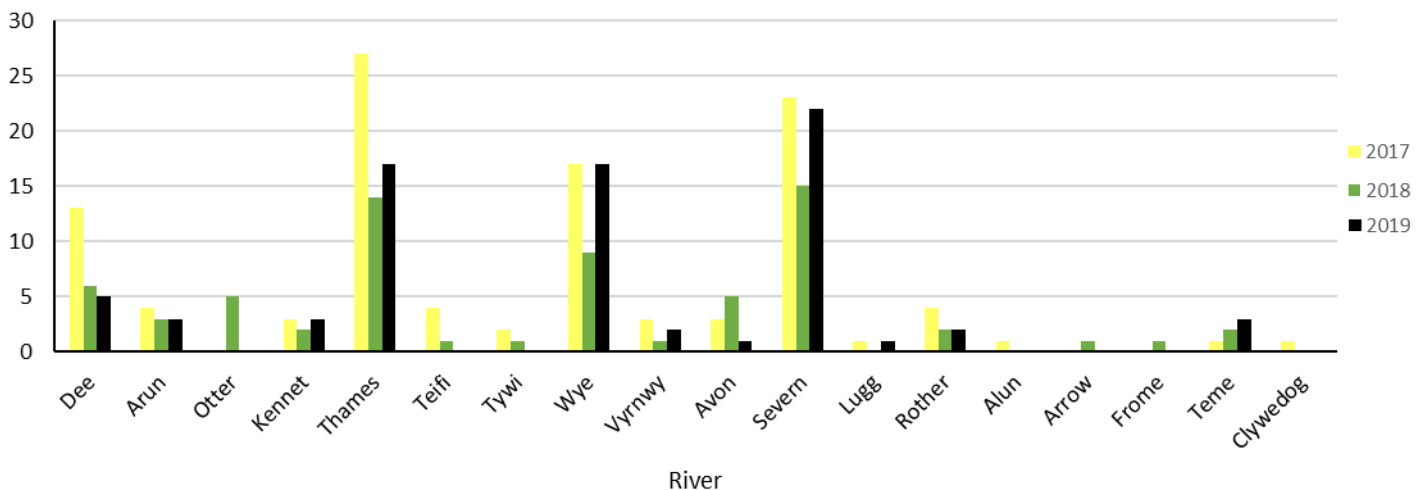
Top rivers

24% of surveyed monads were on the Thames
 22% of surveyed monads were on the Severn
 17% of surveyed monads were on the Wye

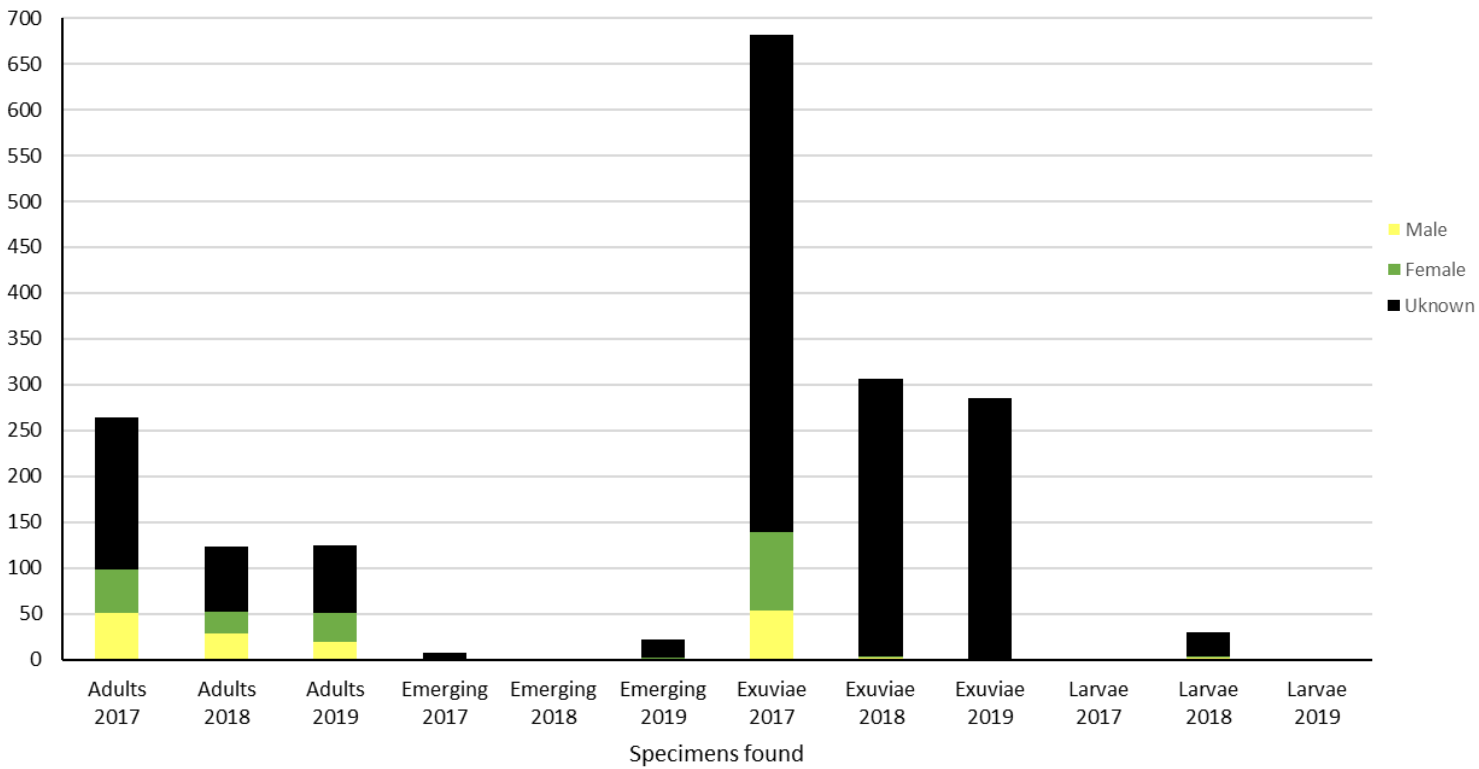
Note

Rivers near to densely populated towns and cities, and with riverside access, such as towpaths, received more attention.

Volunteers surveying each river



Clubtail sightings by life stage and sex

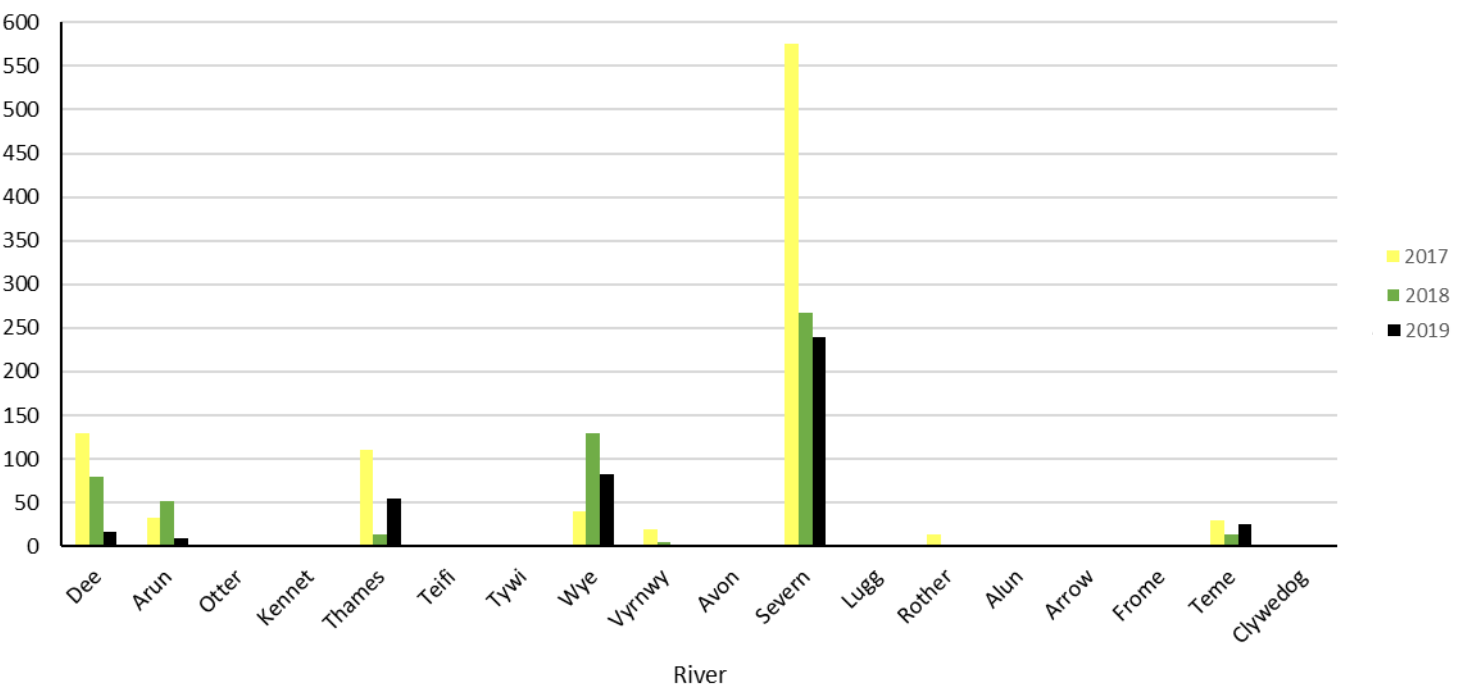


Top rivers

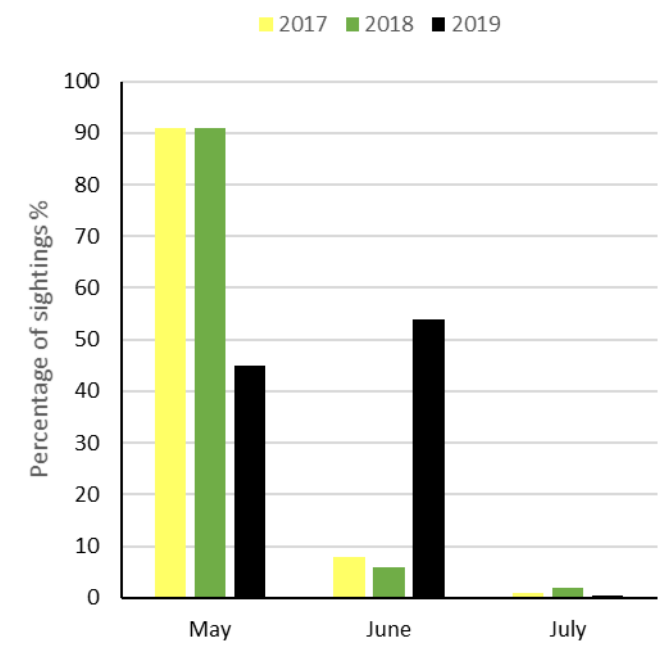
56% of sightings were on the Severn
13% of sightings were on the Wye
12% of sightings were on the Dee

69% of all specimens found were exuviae. This is because adult Common Clubtail are rarely seen after emergence as they feed, roost and mate away from the water with only the females returning to lay their eggs.

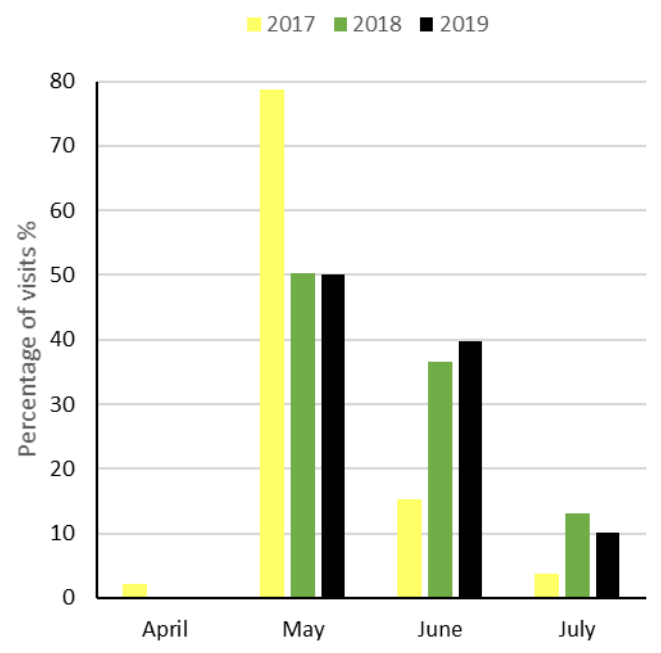
Clubtail sightings by river



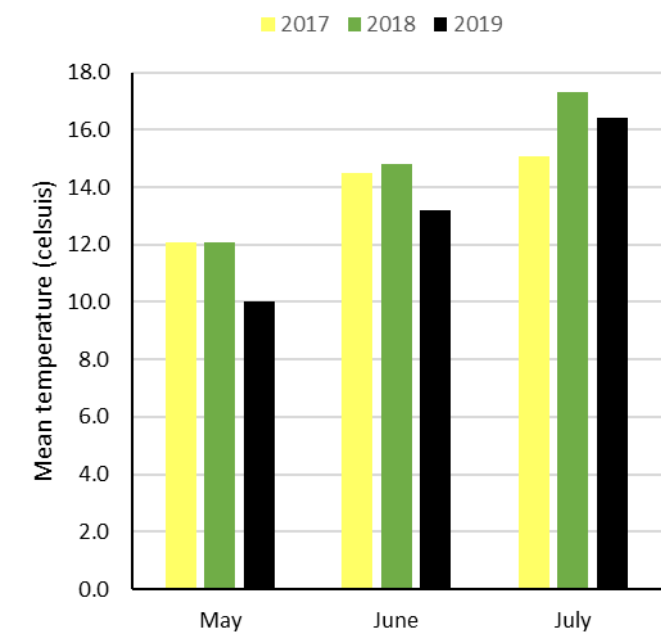
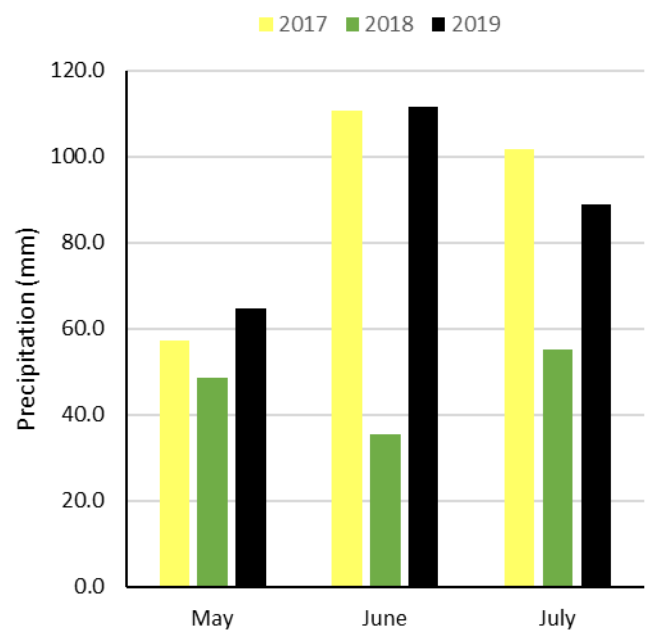
Clubtail sightings by month



Monad visits by month



Weather by month



In both 2017 and 2018 over 90% of Clubtail sightings were made in May. During the 2019 surveys more sightings were made in June (54%). This difference does not correlate to monthly variation in surveying effort, which in every year declined from May to July. Instead there may have been a delayed emergence period due to weather conditions as rainfall was higher (64.8mm), and the temperature lower (10°C) in 2019 compare to previous years. Volunteers also reported difficulties performing surveys in May 2019 due constant poor weather conditions and the flooding of river banks.

River Maps

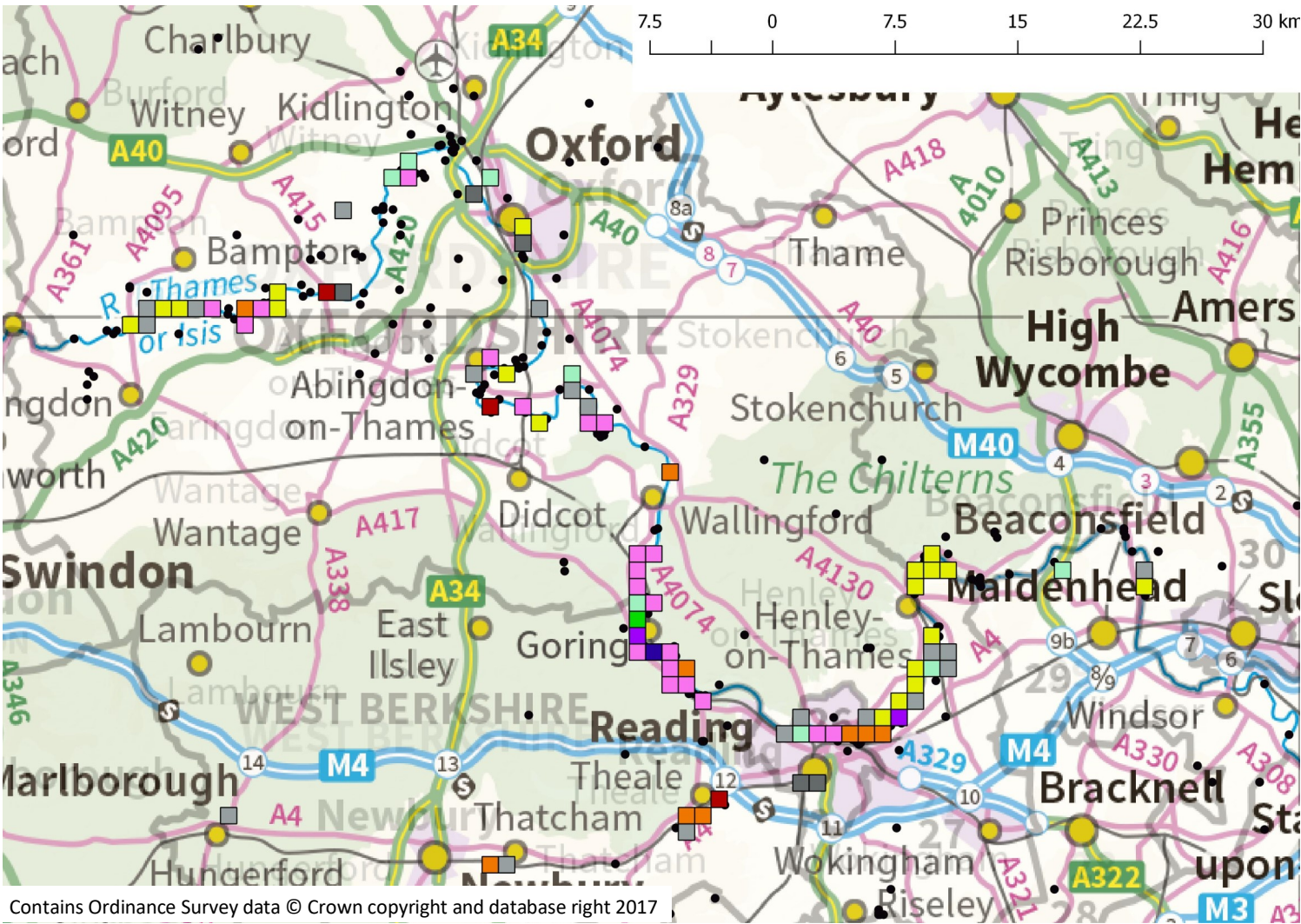
Map Key: Monad gains and losses

- **Historic site:** sites with historic (pre 2017) Clubtail records.
- **Clubtail absent:** monads negative for Clubtail during the Clubtail Count and no historic (pre 2017) Clubtail records.
- Monad surveyed all 3 years
- Monad surveyed in 2 years
- Monad surveyed in 1 year
- **Site loss:** sites with historic (pre 2017) records, but Clubtail were absent during Clubtail Count surveys.
- Monad surveyed all 3 years
- Monad surveyed in 2 years
- Monad surveyed in 1 year
- **Continued presence:** sites with historic (pre 2017) Clubtail records and Clubtail were present during Clubtail Count surveys.
- Clubtail present in all 3 years
- Clubtail present in 2 years
- Clubtail present in 1 years
- **Site gain:** sites with no historic (pre 2017) Clubtail records but Clubtail were present during Clubtail Count surveys.
- Clubtail present in all 3 years
- Clubtail present in 2 years
- Clubtail present in 1 year

Graph Key: Clubtail presence in monads surveyed between 2017 and 2019

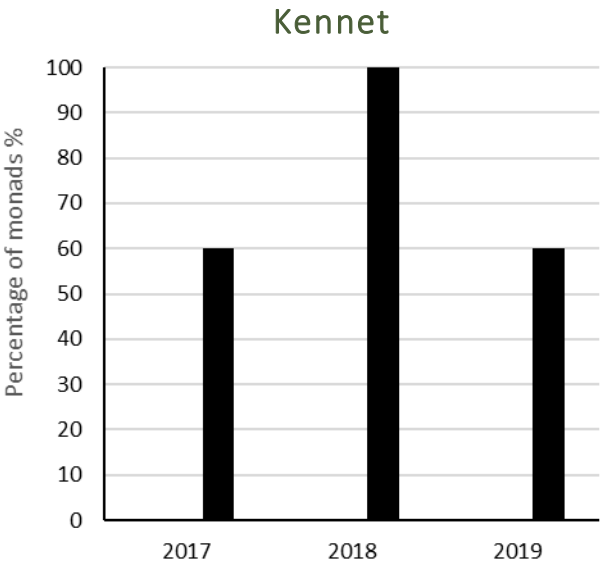
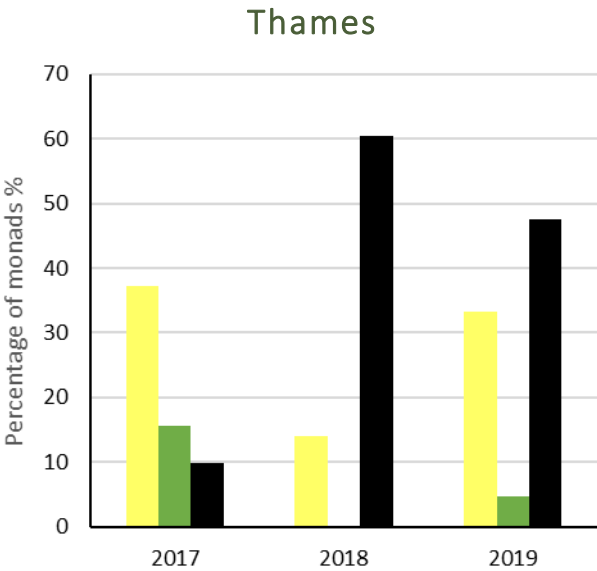
- Continued: monad with previous Clubtail records and records that year
- Gain: first Clubtail records for the monad
- Absent: monad with previous Clubtail records but none for that year

River Thames and Kennet



2017 was the best Clubtail Count year on the Thames. The Clubtail appears to be doing well in its historic stronghold along the Thames east of Goring. Further down river, east of Reading and west of Maidenhead, the species was predominantly absent; although it must be noted most ‘absent’ monads were only visited in one out of three years. Sightings north of Goring up to the south of Bampton were mixed with multiple losses but a few gains.

While there aren’t a great number of historic records for Clubtail on the Kennet it is concerning that none were found during the Clubtail Count years. Future surveys should make an effort to broaden the search along the river in order to confirm the species extinction from the Kennet.

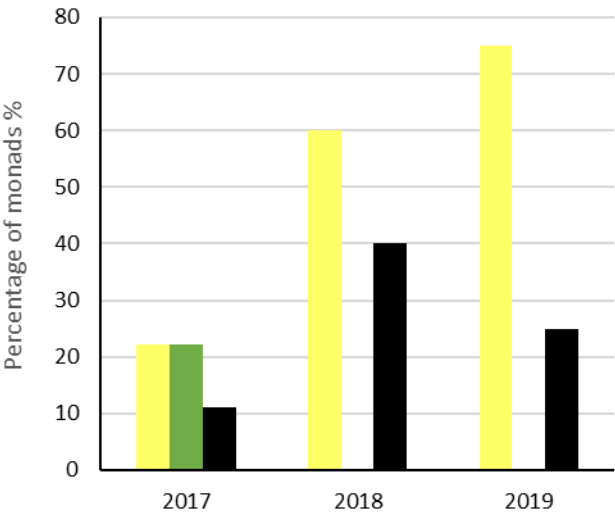


River Arun and Rother

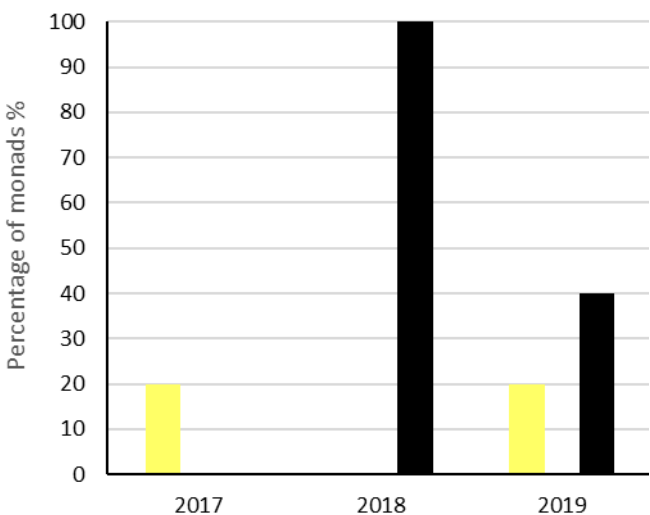


The Arun and Rother produced mixed results with the historic stronghold near the Rother-Arun tributary not producing as many sightings as would have been expected. However down stream on the Arun a number of new monads had confirmed sightings. If access allows it, future surveyors should target the northern stretch of the Arun north of Pulborough and south of Billingshurst to provide an update of the Clubtail’s distribution there.

Arun



Rother

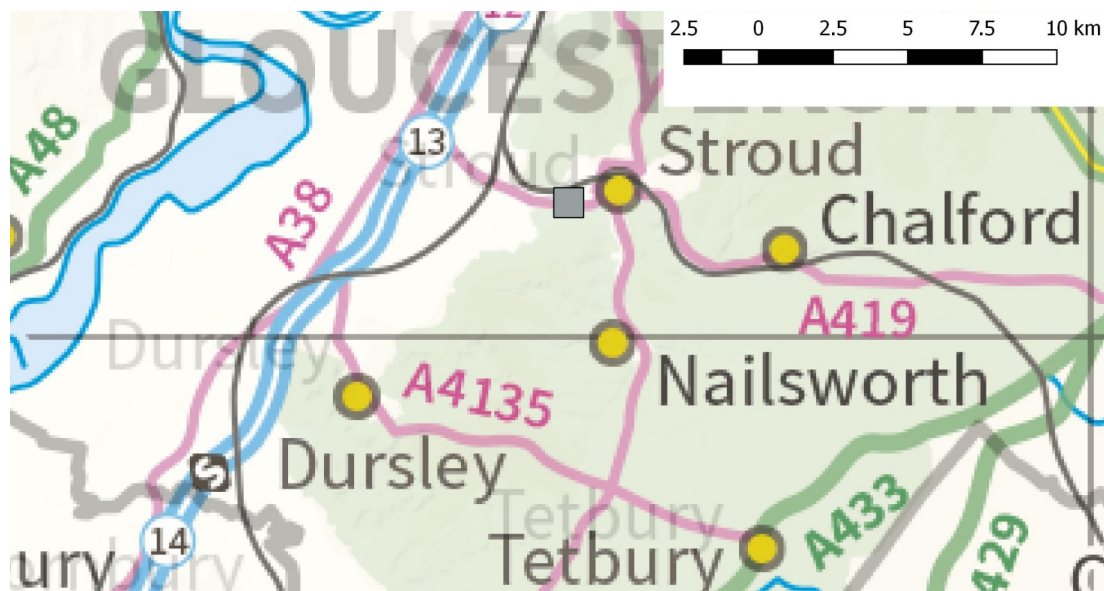


River Otter



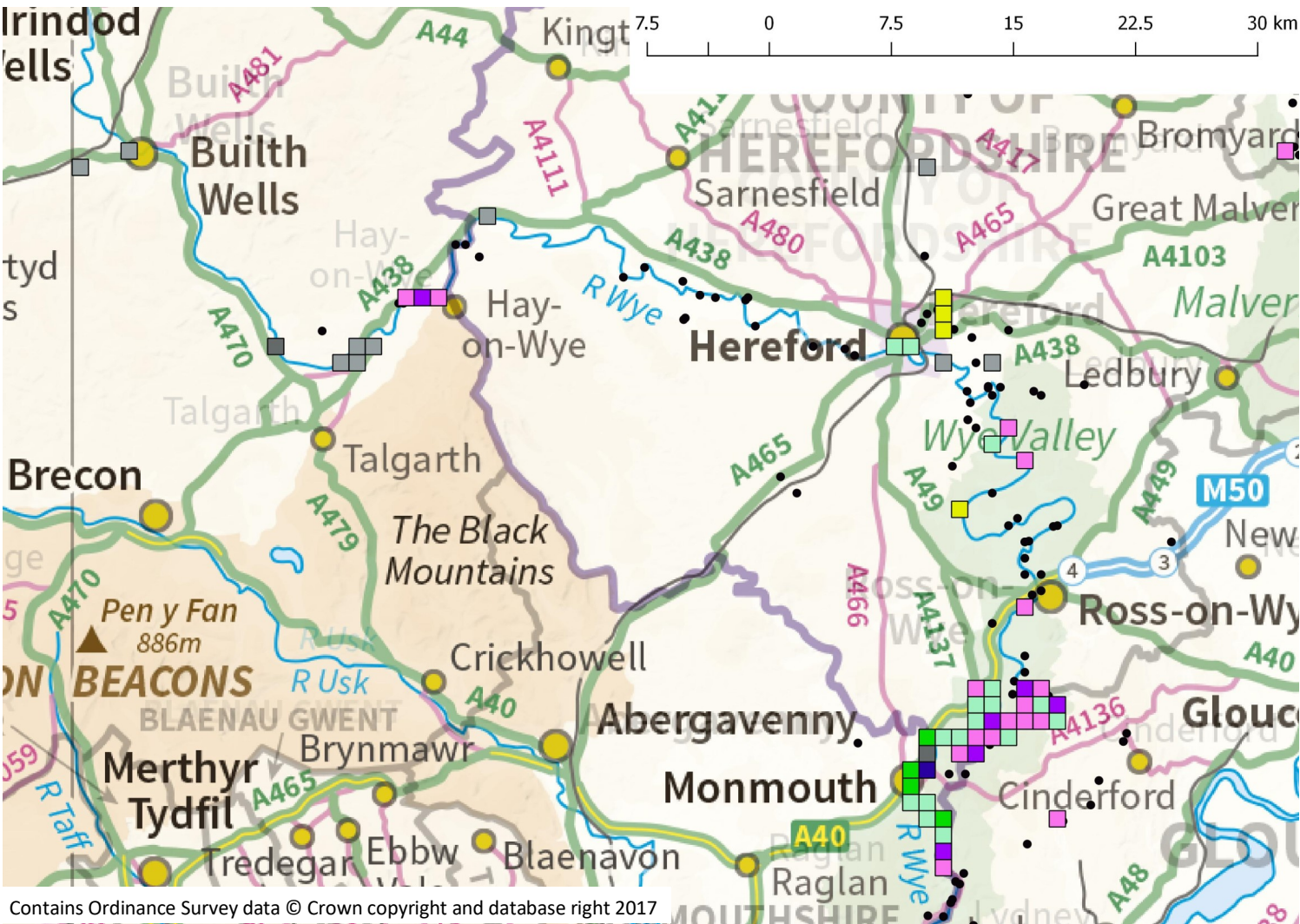
The Otter was added to the Clutbail Count survey after a sighting was reported in 2017. However, no further sightings were reported during the 2018 surveys so we are unable to confirm the river supports a breeding population.

River Frome



One monad was visited on the Frome in 2018 but no sightings were made.

River Wye and Lugg

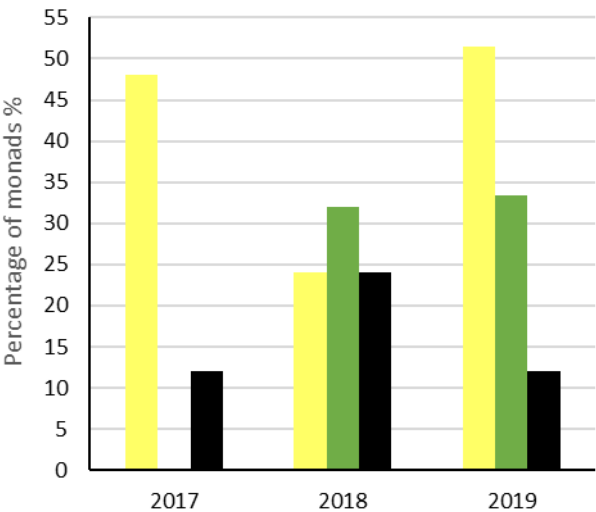


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Clubtail Count surveys along the Wye were highly successful with almost all historic sites providing sightings and multiple new sites confirmed. The Wye near Monmouth is still one of the best places to see Clubtail in the UK.

Clubtail were historically reported on the Lugg near the Wye tributary; however, Clubtail Count volunteers were unable to find any during 2019 surveys.

Wye

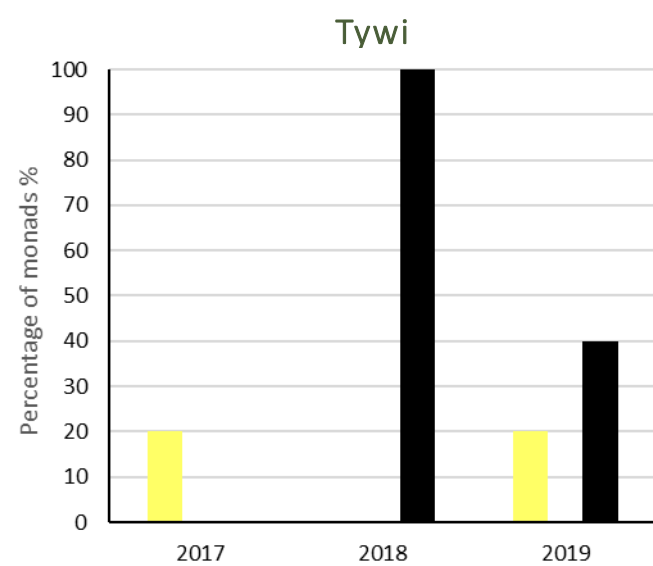
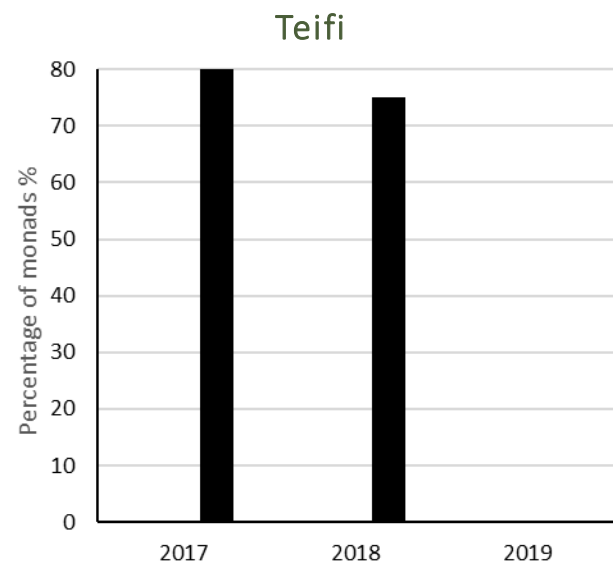


River Teifi and Tywi

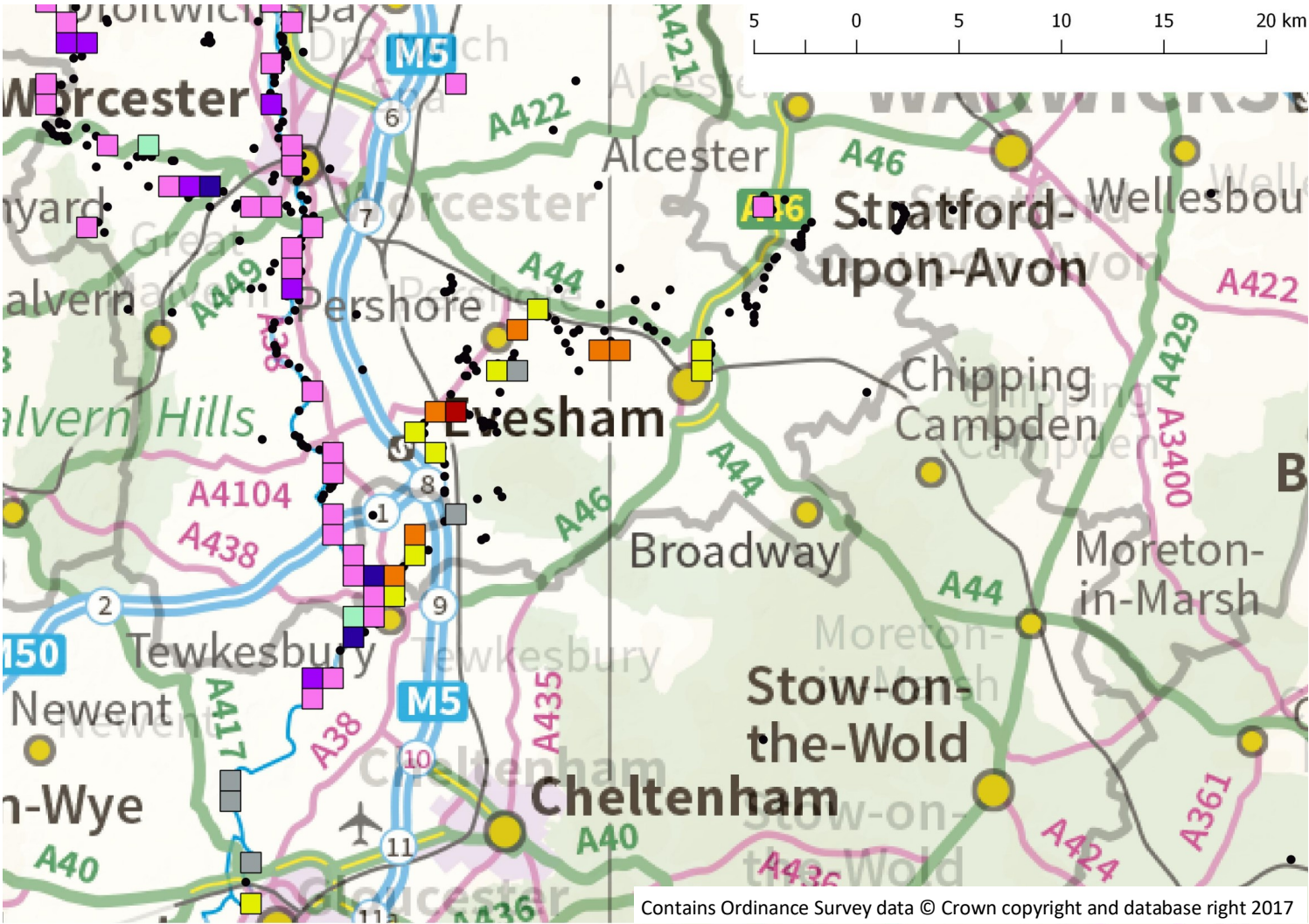


The historic distribution of Clubtail on the Teifi was limited to a short stretch of river south-east of Cardigan. This population now appears to have gone extinct. It will be hard for the Teifi to be recolonised due to its geographical isolation from surviving populations.

Clubtail were once found along the Tywi east of Carmarthen and west of Llandeilo. During the Clubtail Count breeding was only confirmed in one historic monad where 2 exuviae were found in 2018. While this is concerning the Tywi did not receive as much attention during the Clubtail Count as other rivers so could do with further survey effort focusing on other historic monads.



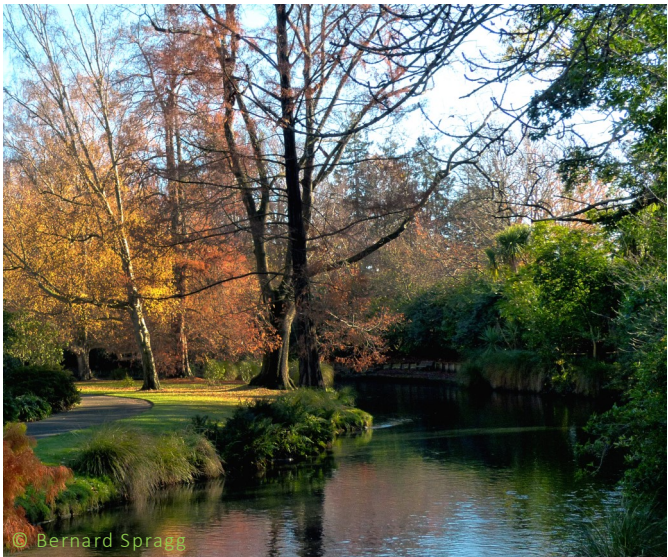
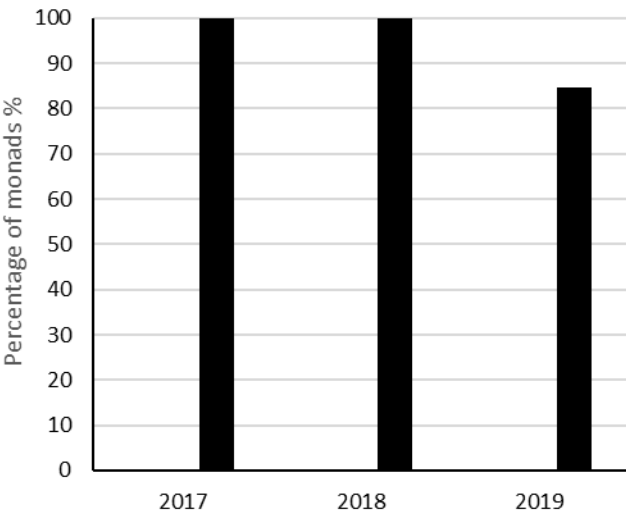
River Avon, Arrow and the lower Severn



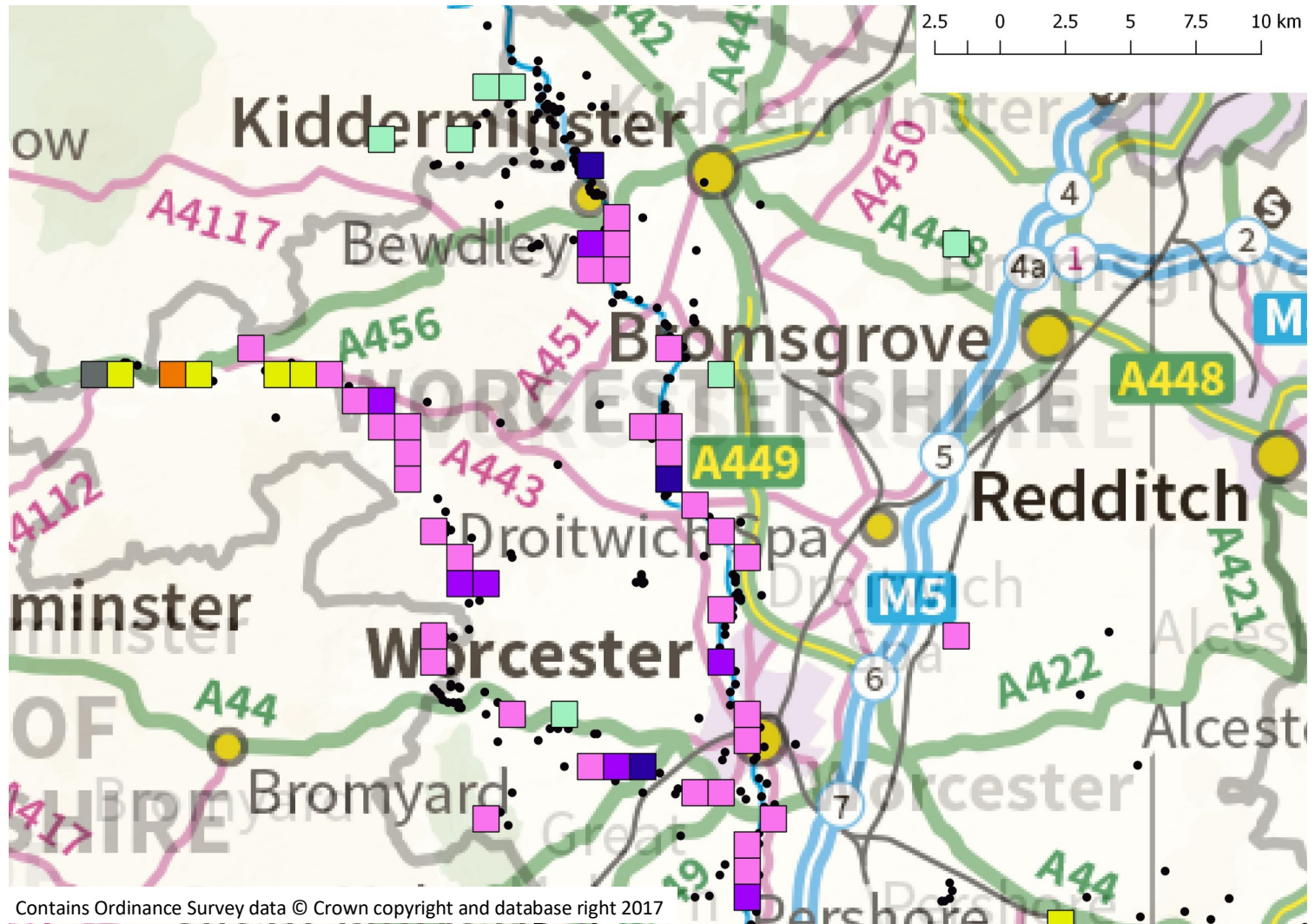
Historic records suggest that Clubtail were once widely distributed along the River Avon. Despite significant survey effort during the Clubtail Count only one adult was sighted in 2018 on the Arrow just north of the tributary with the Avon.

In stark contrast the Common Clubtail remains widespread along the lower Severn north of Tewkesbury and south of Worcester.

Avon



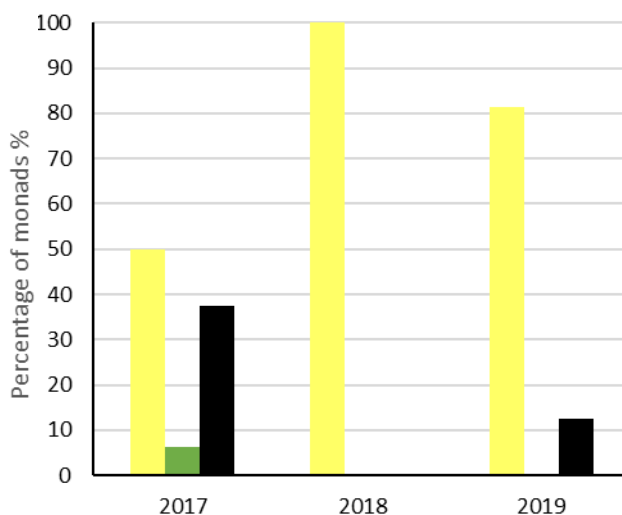
River Teme and the middle Severn



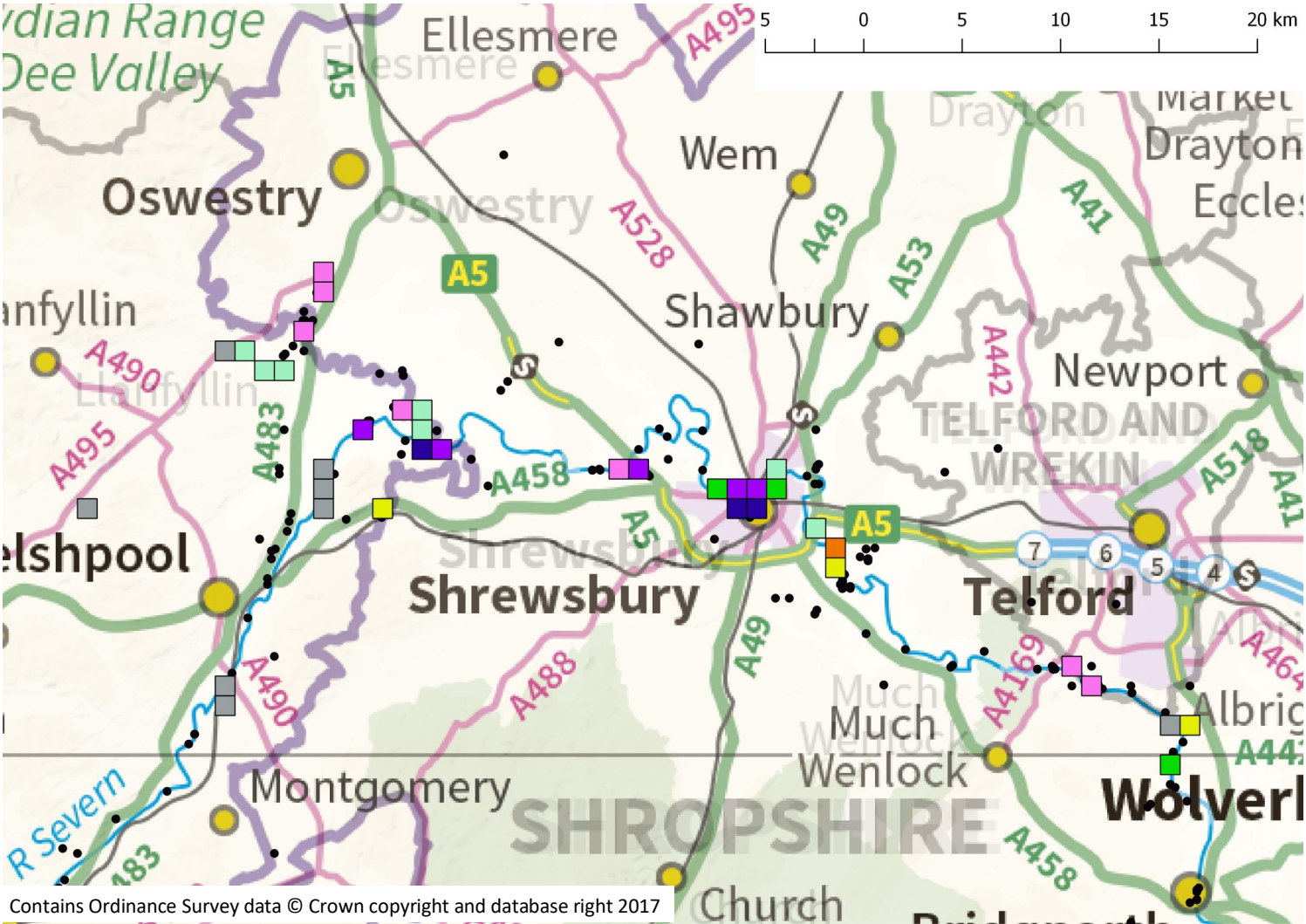
Most surveyed monads produced Clubtail sightings suggesting the populations of the Teme have predominantly maintained their historic distribution, although their range appears to have contracted in the north.

Clubtail were reported from all historic monads visited on the Severn south of Kidderminster and north of Pershore as well as from multiple new monads. There is a stretch along the Severn north of Kidderminster and south of Wolverhampton that received no visits during the Clubtail Count but has numerous historic records. Future survey efforts should seek to assess whether this area of river is still populated by Common Clubtail.

Teme

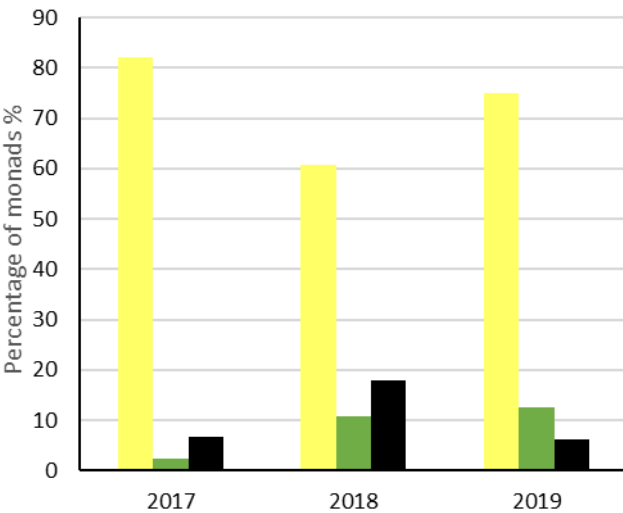


River Vyrnwy and upper Severn

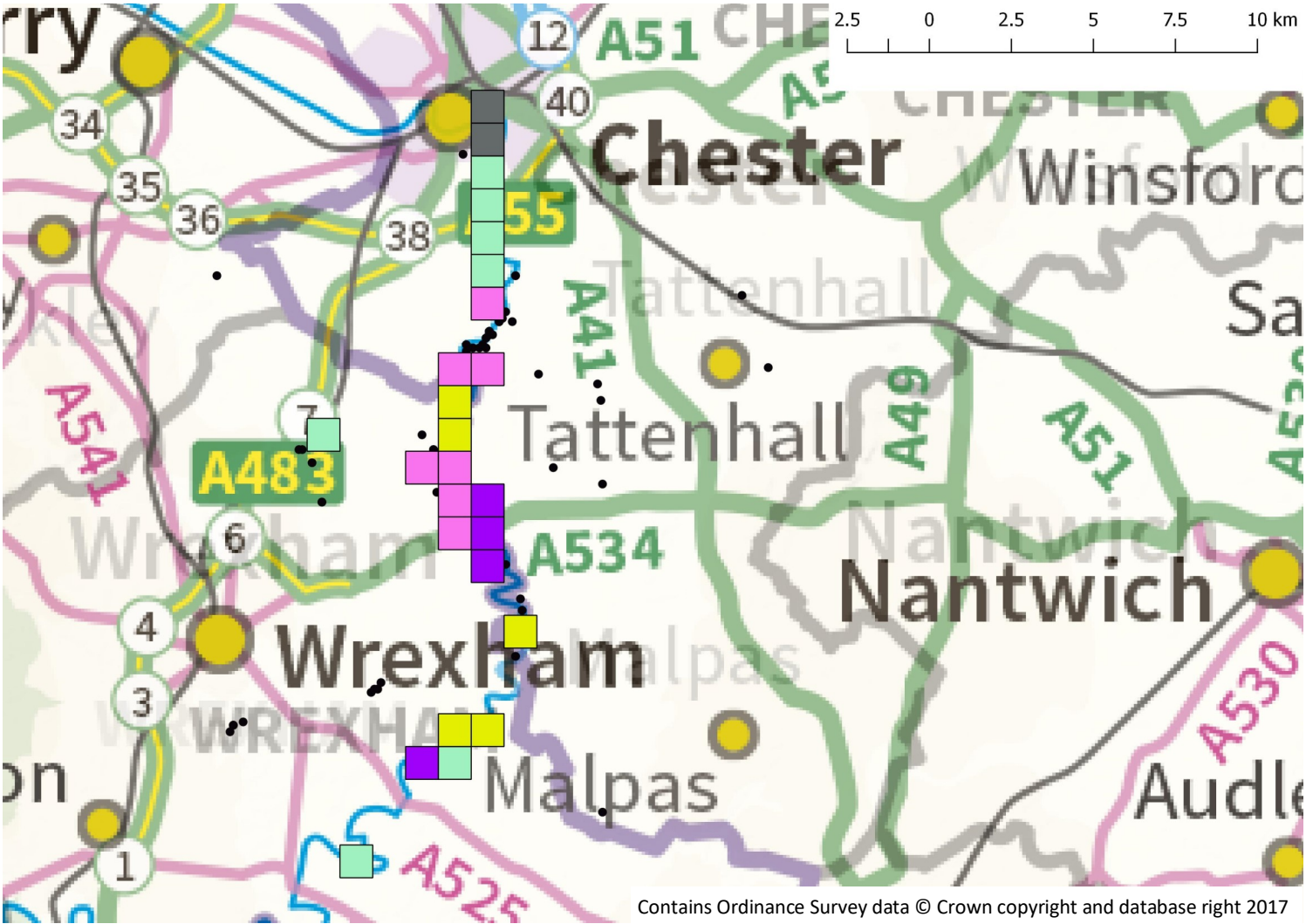


Results of Clubtail Count on the Severn north of Wolverhampton were generally positive, with most visited monads producing sightings. The Shrewsbury population appears to be particularly strong; one monad produced 134 Clubtail sightings during a single visit; this could partly reflect the accessibility of the Severn’s river banks in Shrewsbury. If possible, further survey work would be beneficial on the Severn east of Welshpool and north of Much Wenlock which were overlooked during the Clubtail Count.

Severn



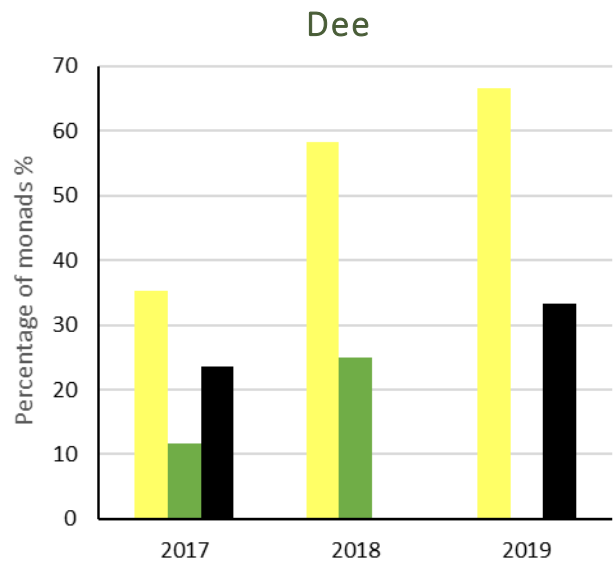
River Dee, Alyn and Clywedog



The Dee’s Clubtail population remains one of the strongest in the UK with most monads producing positive results in one or two years. The population was also found to stretch further north than previously recorded, past Tattenhall.

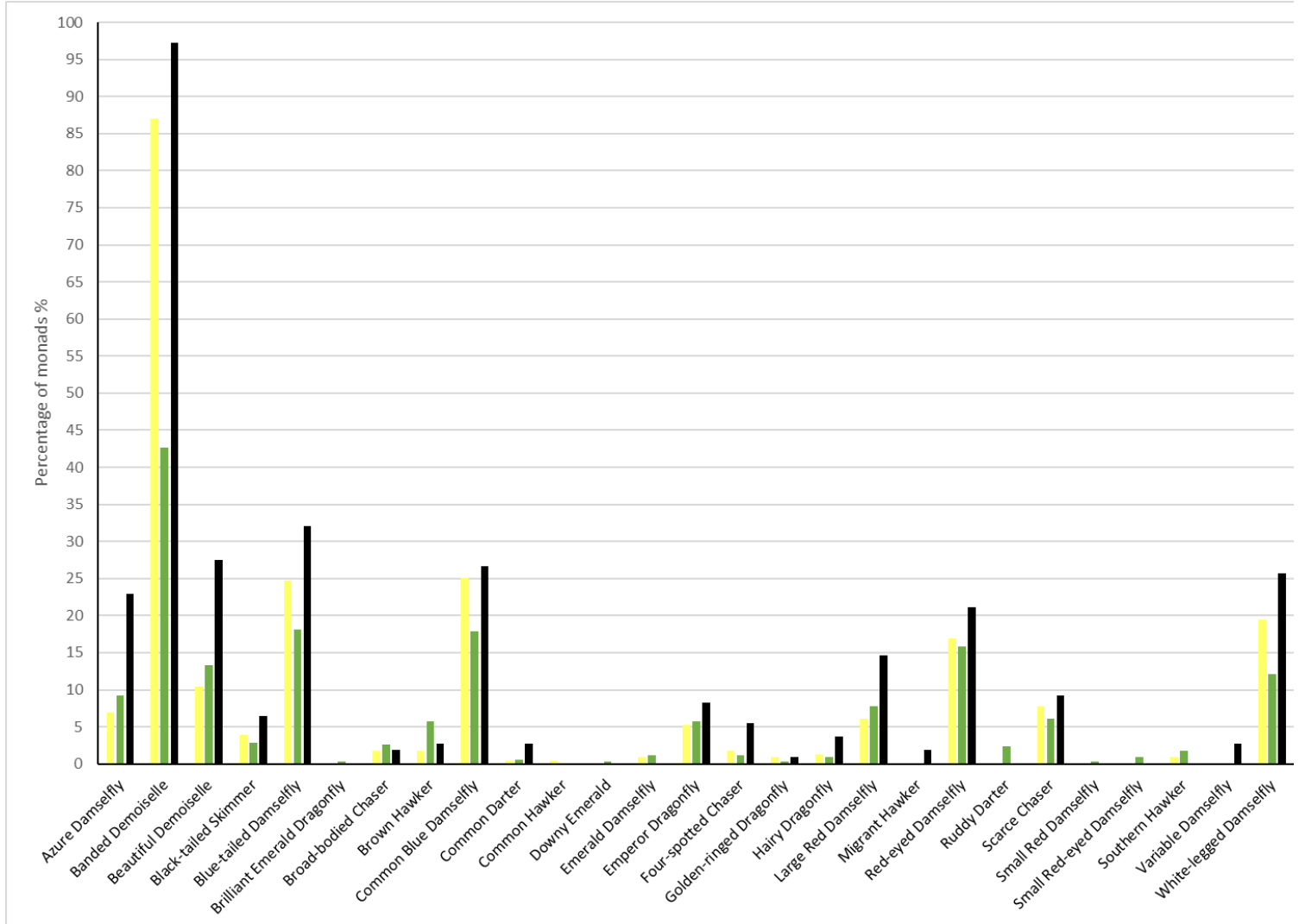
One visit was made to the River Alyn in 2017 which produced a sighting of 1 adult. This could be a migrant from the Dee so future surveys are needed to confirm if Clubtail use the Alyn for breeding.

One visit was also made to the Clywedog in 2017 but no sightings were made.



Additional Records

Percentage of complete list surveys where other species were recorded



Diversity

25 species were seen in 2018
 21 species were seen in 2017
 20 species were seen in 2019

Top species

Banded Demoiselle (*Calopteryx splendens*) was the most common species every year, followed by Common Blue Damselfly and Blue-tailed Damselfly. A number of other Red listed species were seen during the Clubtail Count adding value to the records. Scarce Chasers (*Libellula fulva*) is listed as near threatened and several were seen every year of the Clubtail Count. Variable Damselfly (*Coenagrion pulchellum*) is also near threatened and was found in 3 monads in 2019. In addition a Small Red Damselfly (*Ceriagrion tenellum*), a nationally scarce species, was recorded in 2018.



Image: Banded Demoiselle © Dennis, flickr,

Future conservation action

The data from the Clubtail Count will be publically available on iRecord and the project page on the BDS website. These new records have helped provide an up to date insight into the distribution of breeding Common Clubtail populations along the rivers of England and Wales. It is our hope that the results will be used by local authorities, environmental agencies and other conservation charities to guide land management, conservation objectives and future research.

For each river map we have highlighted areas where data collection was limited or absent, and future survey work is needed to target these river sections. The Clubtail Count will run again in a few years time with these aims, as well as the goal of looking at how known Common Clubtail populations might have changed.

Unfortunately the Clubtail Count identified numerous instances of population loss on multiple river systems, most notably on the River Avon, Teifi and sections of the Thames. New research is now needed to identify the factors behind these losses so we can work toward reinstating the conditions required for Clubtail to breed. Water quality is a likely factor, including pollution levels and sediment load. In 2019 86% of rivers in the UK fell below the EU ecological standards¹, so water quality is no doubt a major factor influencing aquatic invertebrate distribution.

As Clubtail larvae are benthic, the species is vulnerable to invasive river management activities such as dredging. The adults, on the other hand, inhabit deciduous woodland, so are affected by deforestation and changes in woodland management. When Clubtail larvae undergo emergence, transforming into adult dragonflies, they are physically at their most vulnerable. Disturbance, such as wave action from regular boat traffic or bankside management activities could kill or damage dragonflies emerging on the river banks. As individuals within Common Clubtail populations have a synchronised emergence, a single disturbance event can have a significant impact on the adult population for that year. All these factors need to be considered when assessing causes for population loss and future river/riparian management.

Conservation actions such as sensitive bank management and riparian woodland restoration can help strengthen Clubtail populations. However, dealing with the large scale issues, for example tackling sources of pollution and reinstating more natural river profiles, will have the most significant impact when trying to encourage the return of breeding Common Clubtail.

This study illustrates the distribution of Common Clubtail in the UK, and the results can be used as a bio-indicator for the health of the rivers they do, or use to, populate. Thus, the current restricted distribution of this species is concerning, although not entirely unexpected. In addition to tackling aquatic environmental issues in historic Clubtail territories it is also imperative to safeguard the surviving populations and their habitat, as the future of the species relies on these populations remaining healthy. As a Biodiversity Action Plan species, measures should already be in place to ensure their river systems are protected from potentially dangerous developments and management activities. We hope the results of this project will act as evidence of the importance of these protective measures, raising the profile of the Common Clubtail, and will inspire further conservation action to ensure the Common Clubtail remains a sight on our rivers for years to come.

A big thank you to all the hard working volunteers who made this project possible.

**For more information please get in touch with the BDS Conservation Officer
Eleanor Colver email: conservation@british-dragonflies.org.uk**

¹Watts, R. et al 2019. Pollution: no river in England is safe for swimming. *The Times*. [Online]. [Accessed 10 January 2020]. Available from: thetimes.co.uk