

## Aquatic Fauna recorded from the White Brook on Battlemead Common 2020

Monitoring began in January at sites 1 & 2. Site 3, further to the north of sites 1 & 2, and where desilting was undertaken on 5<sup>th</sup> March, was sampled for the first time on 10<sup>th</sup> March. Sites 1 & 2 were resampled on the same day.

*Site 1  
The damaged bridge*



*Site 2  
North of causeway  
bridge*



*Site 3  
The desilted  
section*



## Site 1: Near to the damaged bridge in the willow fields

The White Brook here is narrower and probably deeper compared to site 2, with no reed growth. No submerged flora was recorded until July (sprig of ?water starwort). It is relatively shady compared to site 2 and has some tree debris in the substrate.

| Species                                      | Jan | Feb | Mar 1 | Mar 2           | Apr     | May     | June    | July | Aug | Sept | Oct | Nov | Dec     |
|--|-----|-----|-------|-----------------|---------|---------|---------|------|-----|------|-----|-----|---------|
| Fish Leech<br><i>Piscicola geometra</i>      | R   |     | R     |                 |         |         |         |      |     |      |     | R   |         |
| Leech  |     |     | R     |                 |         |         |         |      |     |      |     |     | R       |
| Ramshorn snail                               |     | R   | R     | R small & large | R       | R       |         | R    |     | R    |     |     | R       |
| Pond snail                                   |     |     | R     | R               |         |         | R       | R    | R   | C    | O   | O   | R       |
| Copepod                                      |     |     | R     |                 |         | R       | R       | R    | R   |      |     |     |         |
| Branchiopods                                 |     |     |       |                 |         |         | R       |      |     |      | R   |     |         |
| Freshwater shrimp                            | R   | R   |       | O               | O small |         | R small | R    | C   | O    |     | O   | R       |
| Prawn nauplius                               |     |     |       |                 |         |         |         |      | R   |      |     |     |         |
| Water Louse                                  | R   |     |       |                 |         |         |         | R    |     |      |     |     |         |
| Mayfly nymph                                 | R   | R   | O     | C small         |         | R exo   |         |      |     |      | R   |     | R small |
| Caddis fly larva                             | R   | C   | A     | A               | C       | C       | A       | O    | O   | C    | O   | R   | C       |
| Damselfly nymph<br>Pale brown                | R   |     | R     | R               | R       | O       |         |      | R   | O    | O   | O   |         |
| Greater Water Boatmen<br><i>Notonecta</i>    |     |     | R     |                 |         | O small | R       |      |     |      |     |     |         |
| Bloodworm (Midge larva)<br><i>Chironomus</i> | R   |     |       |                 |         | R       |         |      |     | R    | R   | R   | C       |
| Water Springtail<br><i>Podura aquatica</i>   |     | C   | O     | O               | C       | O       | O       | O    | R   |      |     | O   | C       |
| Water Measurer                               |     |     |       | R               |         |         |         |      | C   | R    | R   | C   | O       |
| Water Spider                                 |     |     |       | R               | R       |         |         | R    | R   | R    |     |     |         |
| Pond Skater                                  |     |     |       |                 |         | R       | R       | R    | O   | R    |     |     |         |
| Water Beetle                                 |     |     |       |                 |         |         |         |      |     | R    |     | R   |         |

D = dominant; A = abundant; C = common; O = occasional; R = rare      exo=exoskeleton

Caddis fly larva recorded – Jan ?*Limnephilus rhombicus*; Feb & Mar x 2 *Anabolia nervosa* April *Anabolia nervosa* & ? *Arthripsodes sp*; May *Anabolia nervosa* & *Triaenodes bicolor*, the latter swimming active; June *Anabolia nervosa* & *Triaenodes bicolor*, latter more abundant; July *Anabolia nervosa*; Aug *Anabolia nervosa*; Sept *Triaenodes bicolor*; Oct *Triaenodes bicolor*; Nov ?*Limnephilus flavicornis*; Dec ?*Limnephilus flavicornis* , *Anabolia nervosa*

April saw unidentified exoskeletons in the sample, in May these were from the Mayfly nymph. In June Branchiopods (Cladocera) water fleas appeared, including a large one ?*Sida* sp or this was an Ostracod.

Note: No fauna were sampled from the central part of the stream since monitoring began in January. All the fauna recorded came from near to the bank where there was some bankside vegetation. There was slight evidence of Lemna weed in January. Lemna weed also recorded in June, July & August and was present in the backwaters of the willow fields in December.



*Fish Leech - Piscicola geometra recorded from Site 1*

## Site 2: North of the causeway bridge

The White Brook here widens and is contiguous with a new wetland created by poaching of the east bank by cattle. In January there was considerable reed growth, silt and decomposing leaves in the substrate. No submerged flora were observed until mid-March when some filamentous algae (blanket weed) was seen, plus traces of Lemna weed on the surface: neither seen in April/May. On 4th June Lemna weed was present and reeds had started to grow in the stream bed. The adjacent wetland, north of the causeway had dried having earlier had a bloom of blanket weed. Blanket weed also occurs in the remaining water in the wetland south of the causeway. In July Lemna weed covered the surface of stream and the adjacent wetland was dry.. In August Lemna weed was still extensive, making identification of fauna difficult, blanket weed also occurring in the brook. A snake (probably a grass snake) was seen swimming among the now extensive reeds. The wetland was mostly dry. From September water began to return. As the weather cooled, reeds began to die off and dead leaves accumulated in the brook, causing some difficulty with sampling.

| Species  | Jan | Feb      | Mar 1      | Mar 2      | Apr             | May     | Jun | Jul | Aug | Sept | Oct        | Nov        | Dec |
|--|-----|----------|------------|------------|-----------------|---------|-----|-----|-----|------|------------|------------|-----|
| Sludge worm  |     | R        |            |            |                 |         |     |     |     |      |            |            |     |
| Flatworm   |     |          |            |            |                 |         |     |     |     |      | R          |            |     |
| Leech  |     |          |            |            |                 |         |     |     |     | R    |            |            |     |
| Ramshorn snail   |     |          | R          | R          | R               |         |     |     |     | R    | R          |            |     |
| Pond snail   |     |          |            |            |                 |         | O   | R   |     |      |            | R          |     |
| Copepods   |     | C        | R          | R          | R               | R       | R   |     |     |      | O          |            |     |
| Branchiopods   |     |          |            |            |                 | R       | C   | R   |     |      | A          | A          | C   |
| Freshwater shrimp  | C   | O        | R          | C          |                 | R       | C   | C   | O   |      | R          | C          | O   |
| Water Louse  | C   | O        | R          | R          | R               |         | O   |     |     | R    | C          | R          | R   |
| Mayfly nymph   | R   | C<br>exo | O<br>small | O<br>small | O<br>sm/<br>lge | R       |     | O   | R   | R    | O<br>small | C<br>small | O   |
| Caddis fly larva<br>? <i>Limnephilus rhombicus</i><br><i>Anabolia nervosa</i><br><i>Molana angustata</i> | R   |          |            |            |                 |         |     |     |     | R    |            |            |     |
|  | O   | O        | O          |            | O               | O       |     |     |     |      | R          |            | O   |
|  |     |          |            | R          |                 |         |     |     |     |      |            |            |     |
| Damselfly nymph  | R   | O        | O          |            | R               | R       | R   |     | R   | R    | O          |            |     |
| Lesser Waterboatman<br><i>Corixa</i> sp  | R   | R        | A          | C          | O               |         |     | O   | R   | R    |            |            |     |
| <i>Corixa</i> larva  |     |          | C          |            | O               |         | R   | C   | O   | R    |            |            |     |
| Greater Waterboatman<br><i>Notonecta</i>   |     |          | R          |            |                 | C<br>sm | O   |     | R   |      |            |            |     |
| Bloodworm  |     |          |            | R          |                 | R       |     |     | R   |      |            | R          | R   |
| Water Springtail<br><i>Podura aquatica</i>   | R   | C        |            |            | C               | O       |     | C   | A   | C    |            | C          | O   |
| Aquatic Spider   |     | R        |            |            |                 |         |     |     |     |      | R          |            | R   |
| Water Mite   |     |          |            |            |                 | R       |     |     |     |      |            |            |     |
| Water Measurer   |     |          |            |            | R               |         |     |     |     |      |            |            |     |
| Pond Skater  |     |          |            |            |                 |         |     | C   | O   | O    |            |            |     |
| Water Beetle   |     |          |            |            |                 |         |     |     |     |      |            | R          |     |
| Small Fish   |     |          | R          |            |                 | O       | R   |     |     |      |            |            |     |

The 3cm exoskeleton recorded in June has now been identified as that of a Brown Drake Mayfly nymph. This nymph was also recorded from the brook on Widbrook Common on 19<sup>th</sup> September 2020.

### Site 3: Desilted area of the White Brook

The brook was desilted on 5<sup>th</sup> March 2020 in a trial, with the EA concerned that it would drain the wetland. It does not appear to have done so as after the desilting the wetland had more water than before the desilting (see note below).

Note: The wetland lost water before the desilting. This appeared to be linked to a near flood event which caused the White Brook, from ca 18th-21st February, to reverse its direction of flow so that it flowed into the Thames at Islet Park rather than the usual flow out. Once the flood event was over, flow in from the Thames began again and the wetland water level was restored. However by the 4<sup>th</sup> June the backwaters in the willow fields were dry as was the wetland north of the causeway, probably due to lack of rain and very warm weather. These were still dry in August, in which month only the wetland south of the causeway had any water (plus blanket weed). By September both wetlands and backwaters in the willow fields were wet.

| Species                                  | Mar | Apr     | May      | June | July    | Aug   | Sept | Oct     | Nov | Dec |
|--|-----|---------|----------|------|---------|-------|------|---------|-----|-----|
| Oligochaete                              |     |         |          |      |         |       |      |         |     | R   |
| Leech                                    | R   |         | R        |      |         | R     |      |         |     |     |
| Flatworm                                 |     |         |          |      | O       | O     |      |         |     |     |
| Ramshorn Snail                           | R   | R small |          | R    | R       | O     | R    | R       |     |     |
| Pond snail                               | R   |         |          |      |         | O     |      |         | O   |     |
| Branchiopods                             |     |         | R        | A    | A       | A     | O    | A       | A   | A   |
| Copepods                                 |     |         | R        | R    | A       | R     | O    |         |     |     |
| ?Copepod nauplii                         |     |         |          |      | O       | A     |      |         |     |     |
| Freshwater shrimp                        | R   | R       | R        | C    | O       |       | C    | O       | O   | C   |
| Fairy Shrimp <i>Chirocephalus</i>        |     |         |          |      | R       |       |      |         |     |     |
| <i>Chirocephalus</i> nauplius            |     |         |          |      | R       | R     |      |         |     |     |
| Water Louse                              | R   |         |          |      | R       | C     |      |         |     |     |
| Mayfly Nymph                             |     |         | R        |      | O small | O     | C    | A small | A   | O   |
| Caddis fly larva                         | O   | O       | R        |      | R       |       | R    | O       | O   | O   |
| Damselfly nymph                          | O   | R       | O sm/lge | R    |         |       | R    | A       | O   |     |
| Lesser Water Boatman larva <i>Corixa</i> | R   | R       |          | O    |         |       | R    | R       |     |     |
| <i>Corixa</i> larva                      |     | O       | C        | R    | O       | A     |      |         | O   |     |
| Greater Water Boatman <i>Notonecta</i>   |     |         |          | C sm | C lge   | R lge |      | O       |     |     |
| Bloodworm                                |     |         |          |      |         | R     |      |         |     |     |
| Water Springtail <i>Podura aquatica</i>  |     | O       |          | R    | O       |       | O    |         |     |     |
| Pond Skater                              |     |         |          |      | R       |       |      |         |     |     |
| Water Measurer                           |     |         |          |      | R       |       |      |         |     |     |
| Water Beetle                             |     |         |          |      |         |       | R    | R       |     |     |
| Water Spider                             |     |         |          |      |         |       | R    |         |     |     |
| Frog/Toad Tadpole                        |     |         | O        |      |         |       |      |         |     |     |
| Small fish                               |     |         |          | R    |         |       |      |         |     |     |

April: Unidentified exoskeletons in sample, also in June.

Caddis fly larvae: *Anabolia nervosa*; May unidentified larvae with case of leaf fragments

May: Amphibians: the tadpoles did not have external gills so were not newt larvae

June: Blanket weed & Lemna weed present

July: Blanket weed & Lemna weed present.

August: Extensive blanket weed on bottom, some Lemna weed.

September: Some Lemna weed

October: Blanket Weed & Lemna Weed present. Caddis fly larvae *Anabolia* & *Triaenodes*

November: Again No obvious Blanket & Lemna Weed: many dead leaves. Caddis fly larvae  
*?Limnephilis flavicornis*

December: No obvious Blanket & Lemna Weed: many dead leaves. The oligochaete worm when sampled was white with a black gut. The specimen subsequently darkened to black.



*Frog/Toad Larva recorded from Site 3 at the beginning of May*

The great crested newt is said to leave its overwintering land site between February and April, adults mainly leaving the breeding site between May and July. The tadpoles recorded at the beginning of May from the recently desilted part of the brook, had no external gills so were almost certainly frog or toad larvae and not newt larvae. The presence of amphibian larvae is encouraging as fish, predators on amphibians, occur in the White Brook.



*Oligochaete worm (magnified x10), recorded from Site 3 in December, found on a dead leaf.*

The Fairy shrimp (*Chirocephalus sp*) and its nauplius larva, recorded in July, may have migrated into the brook from nearby wetlands as it is a species found in temporary pools. This nauplius was also recorded in August. Many nauplii of water fleas (possibly of copepods) were also sampled in August. The extensive blanket weed in August may have contributed to the slightly lower diversity when compared to July.

Eight species were recorded at this site immediately after the desilting in March rising to sixteen species in July. The number of species usually increases as the weather warms. It seems that the desilting in March did not affect faunal diversity at this location. Species diversity decreased as the temperature cooled.

## Conclusion

The brook at all three sites appears to be providing a healthy habitat, supporting mayfly and damsel fly nymphs, both adult and larval forms of water boatmen and other aquatic fauna. There is some variation in species found at the different locations. Variation in faunal diversity between sites will be influenced by differences in, for example, flora (both streamside and aquatic) and presence of silt. The depth of water accessed was also different. In comparison to site 1, sampling from sites 2 & 3 was from shallow water, heavily silted in the case of site 3. Deeper water may support a great range of species at the latter sites.

There was a practical difficulty of identifying fauna when the sample is covered with Lemna weed. Site 2 was particularly affected by this in August and September, probably reducing the range of fauna recorded. Dead leaves in samples from sites 2 & 3 in November and December caused the same problem.

The blanket weed bloom in the wetlands on either side of the causeway and their subsequent drying in June, July & August, did not appear to have had a deleterious effect on the fauna of the White Brook. As noted above the Fairy shrimp (*Chirocephalus sp*) and its nauplius larva, recorded in July/August, probably migrated into the brook from the nearby wetland, as it is a species found in temporary pools. Following thunder storms and heavy rain, by the beginning of September, water had returned to the wetlands next to the causeway, as had the blanket weed. The wetland south of the causeway was less affected by the weed. This may be because Canada Geese have in the past been seen in greater numbers in the wetland north of the causeway and their droppings would encourage growth of the weed. A marshy flora is now developing in the north wetland but less so in the southern one. By November there was no obvious evidence of blanket weed and there was more water in the wetland.

It is possible that the successive wetting and drying of the wetlands will lead to salt accumulation which could affect the productivity of the water.

A grass snake was seen swimming in the brook in August at site 2. They apparently prefer to eat amphibians but will take fish, small mammals and birds. There are certainly fish in the brook and frog/toad larvae have been recorded (see above). The presence of predators such as the grass snake and probably several species of fish, make it unlikely that newts breed in the White Brook.

The fauna biomass seems a little lower in comparison with, for example, North Town Moor pond. This may be due to more nutrients in the pond, where there is a lot of silt, or more predators in the brook. As found in North Town Moor pond, there was some increase in species diversity of fauna in the summer months in the White Brook.



*Wetland north of the causeway: left, in June 2020; right, in December 2020*

### **A final comment**

These wetlands have been created because of poaching of the banks of the White Brook in the East Field by cattle, since the EA last desilted the brook there in 2011 and restored the bank.



*The White Brook after the last desilting, February 2011- the east bank of the brook, seen in the distance, is now wetland. This bank was poached by cattle in the past*

Damage to the banks of the White Brook due to poaching is still occurring on Widbrook Common where commoners can graze their cattle from mid- May to mid- November.

In the recent past the stream flowing towards Maidenhead has retreated to north of the flood control gate with consequent effect on the aquatic fauna. Data on flow obtained by Maidenhead Waterways indicate that flow in the White Brook is slowing. In 2019 and 2020 it was already below target flow in the summer months. If flow continues to lessen and the



brook becomes obstructed, as it did in 2003, it will take several years of desilting to ensure flow reaches Maidenhead throughout the year. The hydrological study should be undertaken as soon as possible.

Ann Darracott,  
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December 2020