New Dimensions: Study Group Contributes to the Bigger River Picture

ROGER MEADE

While there may be exceptions, the pattern is for many specialist recording groups to concentrate on adding their finds to a databank so that others can use them. Other groups of motivated people gather around different ideals, such as reducing the use of plastic, or even nature recovery (Natural England, 2024). They contribute to the same bigger picture via different means, be it through data collection, or by lobbying, or by more public expression of their goals. All these have their place, and in 2024 the Wyre Forest Study Group contributed significantly to one of our big local and national problems, that of documenting the deterioration of our rivers and their catchments.

The River Severn rises in the hills of Wales and discharges into the Bristol Channel, a length of 220 miles, flowing through the county towns or cities of Shrewsbury, Worcester, Gloucester and Bristol. Its catchment covers over 2,000 km² (Google search) and includes that of Dowles Brook, one of its major tributaries, which also flows through the heart of the group's study area. A recent report (Meade, 2024) has shown that the river, where sampled on our 'home stretch' between Bridgnorth and Worcester, is now devoid of waterweed and runs brown with suspended sediment for much of the year. The Environment Agency (EA) records show that catchment streams, including the River Stour, are very affected by enrichment, Dowles Brook being no exception. While the bulk of the report relies on records from the EA between 2004 and 2022, the Study Group filled the gap between those of the EA and 2024.

Not only that, but Study Group records and photos from as recently as 2019 show that the river once had a more diverse flora and fauna, and there were highly visible 'banks' of waterweed, particularly *Ranunculus* species, with their conspicuous white flowers extending above the surface of the water. These are now all gone, but without Rosemary Winnall's photos it would have been difficult to present a convincing account. Mollusc lists compiled by Rosemary Hill have also provided a valuable comparison. Rosemary Winnall's photos of the river bed (Figure 1) show what it was like before the change, from a gravelly species-rich habitat to an almost uniform expanse of algae and silt.

The study group had three field excursions to the river in 2024. Although the basic approach at Blackstone and Arley (Figure 2) was to record from the bankside with pond grab and net, an inflatable boat (Figure 3) was used in the shallows of the Dowles Brook confluence, with other members wading in to examine bryophytes, algae and invertebrates.

Synopsis of the WFSG survey of the Dowles Brook Confluence 7 August 2024

Contributions are from Dr Ann Hill (bryophytes), Dr. Rosemary Hill (molluscs), David Barnett (higher plants) and Rosemary Winnall and Mike Averill (macrophytes), with general observations from Dr. Graham Hill and others.



Figure 1. River Nerites *Theodoxus fluviatilis* in the River Severn near Hextons Farm, Arley, *c.* 2018. Rosemary Winnall



Figure 2. Casting the pond grab between Arley and Highley, 4th September 2024. Mike Averill



Figure 3. Mike Averill and Rosemary Winnall sampling at Dowles Confluence 7th August 2024. Roger Meade



Figure 4. *Leptodictyum riparium*, *Fissidens crassipes* and *Octodiceras fontanum* covered by filamentous algae. Ann Hill

Bryophytes

One liverwort *Pellia epiphylla* and eight mosses *Cinclidotus fontinaloides, Dichodontium pellucidum, Fissidens bryoides* var. *bryoides, Fissidens crassipes, Hygroamblystegium humile, Leptodictyum riparium, Octodiceras fontanum* and *Rhynchostegium riparioides* were recorded during the two-hour search of the habitats.

Filamentous algae covered 95% of all in-stream rocks examined. There was abundant filamentous algae entangled with and covering the aquatic mosses (Figure 4).

Fissidens crassipes, Hygroamblystegium humile, Leptodictyum riparium, Octodiceras fontanum, and *Rhynchostegium riparioides* are bryophytes of mostly eutrophic places (Hill, Preston, Bosanquet & Roy, 2007).

Overall, the bryoflora of the 100m stretch of river was very poor with low species diversity and low abundance.

Molluscs

Those found were *Ancylus fluviatilis, Potamopyrgus antipodarum* and *Bithynia tentaculata*. At the same site on 6th July 2011 the list was *Radix balthica, Ancylus fluviatilis, Bithynia tentaculata, Theodoxus fluviatilis, Sphaerium corneum, Potamopyrgus antipodarum, Anodonta anatina* juveniles, *Vivparus viviparus*, a shell of *Dreissena polymorpha* and three pea

mussels *Euglesa henslowana, E. nitida* and *E. subtruncata*. On this occasion there was no good grit in which to look for the pea mussels but even so there is quite a contrast in the results. Hill remembers a much more species diverse site with small water weeds and sponges, now gone.

Birds

Goosander, Mallard, Dipper, Grey Wagtail and a family of Swans.

Aquatic invertebrates

Swimming Mayfly (Baetidae) several; Flattened Mayfly (Heptageniidae) many; Leeches, several; Caseless Caddis many; Saucer Bug (*Ilyocoris cimicoides*) several; Freshwater Shrimp (Gammarus) several; Diptera larva – one; Blackfly (Simuliidae) one pupa in case; many midge galleries and one Stone Loach.

Macrophytes

With the exception of a few stems of Amphibious Bistort *Polygonum amphibium* adhering to the bank or bridge supports, no truly aquatic higher plants were found.

The walk along the river from Arley towards Highley on 4th September 2024 was specifically to revisit a large patch of Arrowhead *Sagittaria sagittifolia* seen several years before. This plant, like Flowering Rush *Butomus umbellatus* was recorded at locations between Bewdley and Bridgnorth by the EA, but not in their most recent surveys. Both species were found in September 2024, but much reduced in their cover (Figures 5 and 6).

The meeting at Blackstone on 17th August 2024 was notable for the brown-ness of the river water (Figure 7), the lack of any higher plants and failure to re-find prominent molluscs such as the Freshwater Mussel *Anodonta anatine*, though their empty shells were plentiful.



Figure 5. Single plant of Arrowhead *Sagittaria sagittifolia* between Arley and Highley, 4th September 2024. Roger Meade



Figure 6. Single plant of Flowering Rush *Butomus umbellatus* above Amphibious Bistort *Polygonum amphibium* between Arley and Highley, 4th September 2024. Roger Meade

Forward look

Nature recovery through Local Nature Recovery Strategies (LNRS) forms the main thrust of 'official' nature conservation in the future. The River Stour, an important tributary of the Severn, flows in part through the Wyre Forest District, and is currently the focus of attention through The Severn Rivers Trust, the Worcestershire Wildlife Trust and a group known as the Middle Severn Catchment-based Approach (CaBA). The difference between the two rivers is intriguing for many reasons, not least that the Stour does have quite visible 'banks' of waterweed, such as *Potamogeton* species, including where it flows through Kidderminster.

An enigma arises from the fact that the Stour is considered to be polluted by nutrients and toxins to a greater extent than the Severn, which demonstrably has no such weed anymore. Local Citizen Science work under a specific Stour-focused project will provide water chemistry measurements, but there is also the need to know more about the distribution of the aquatic plants and how they are positioned around the known sources of pollutants along the River Stour. Another challenge for the Wyre Forest Study Group in 2025?

References

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Figure 7. The brown weedless River Severn at Blackstone Rock, 17th August 2024. Roger Meade