

The Darent at Preston Farm (28 April 2021)

A survey of the invertebrates in the Preston Farm of the Darent was carried out, using the basic protocol of the 'Anglers' Riverfly Monitoring Initiative' (ARMI) – as now specified by the Riverfly Partnership (a group of stakeholders using interested citizens to monitor the health of UK rivers). This involves taking three 'timed' (each one minute) samples of animals from the river using a standard 1mm mesh net. The samples cover the range of habitats present, including stony areas, rooted plants, and the margins of the channel. Eight groups of animals are then assessed in the samples, estimating the numbers of each caught and expressing the numbers in a series of (logarithmic) categories: 1-9 individuals, category A; 10-99, category B; 100-999, category C; 1000+, category D. The groups of invertebrates assessed are:

Cased caddis (Trichoptera; commonly known as sedge flies)
Caseless caddis (Trichoptera)
Mayflies (Ephemeroptera: Ephemeridae, the classic angler's mayfly)
Blue Winged olives (Ephemeroptera: Ephemerellidae)
Flat-bodied mayflies (Ephemeroptera: Heptageniidae)
Olives (Ephemeroptera: Baetidae)
Stoneflies (Plecoptera)
Freshwater shrimps (Crustacea: *Gammarus*)

These are the only groups that are formally assessed in the basic method. Many others were present and were noted but not counted.

The counts at Preston Farm were:

Cased caddis (2 individuals, category A)
Caseless caddis (around 15, category B)
Mayflies (around 15, category B)
Blue Winged olives (>100, category C)
Olives (around 500, category C)
Freshwater shrimps (>100, category C)

This fauna indicates a good ecological status for the Darent at the sample site. We found no organisms characteristic of overenriched or polluted streams, such as leeches and red bloodworms (Chironomidae; midges). Note that no stoneflies or flat mayflies were taken. This is of no real concern since stoneflies are mainly insects of faster flowing, cold-water streams of the uplands and are much rarer in the south-east of England (some can be found in cold, ground-water springs). We would not expect to find them in a lowland, productive river like the Darent. Similarly, flat mayflies are more common in more erosive rivers with a coarser substratum than the Darent.

We did find a good population of another mayfly typical of lowland, stony streams, a species of the family Leptophlebiidae (probably *Paraleptophlebia submarginata*), whose adult is commonly called the 'Turkey Dun' or possibly the 'Claret Dun' by anglers. There were also many damselfly ('demoiselle') larvae (*Calopteryx*, the beautiful, blue-winged adults will be

on the wing later in the year), and large numbers of 'blackfly' larvae (Diptera: Simuliidae). These latter attach themselves to stems of the water crowfoot (*Ranunculus*) in the river and feed by filtering fine organic particles from the flow. We also took a small fish in our samples, a bullhead (*Cottus gobio*). This is of some note as they are of conservation concern and are reduced in numbers or excluded by the invasive signal crayfish – a predator of their eggs. We found no crayfish in our samples. Overall, the samples would indicate good water quality for a stream draining a largely arable catchment, with no sign of gross organic enrichment.

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