Wet Seepage Sampling for Non-Marine Micro Molluscs – is consistency possible?

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For several years, I have been looking at wet seepage areas in the Wyre Forest. This began at a time when I could not be certain of how many field meetings I might get to, so taking leaf litter samples increased what I might find and rapidly proved an essential part of obtaining a decent list of species.

The Wyre Forest is a large area of mainly acid ancient semi-natural woodland with a lot of oak, birch, bracken and heathy areas. It is designated a National Nature Reserve, but some of its wet seepages are base-rich or deposit tufa and can support a wider range of molluscs. Some flushes support species scarce in the area such as *Leiostyla anglica* English Chrysalis Snail, *Acicula fusca* Point Snail, *Vertigo antivertigo* Marsh Whorl Snail and *Spermodea lamellata* Plaited Snail. While taking one sample of leaf litter from a wet seepage will turn up some of these species some of the time, other samples are less productive. So a range of questions arise – was the sample taken after heavy rain or a flood and the species swept away or have moved to avoid a flood? Was the sample taken from too wet or too dry an area? Does the supposed flush dry up in the summer and so is unsuitable for some species? Is base-rich tufa deposition essential? Is supposed historic lack of disturbance a factor? Is shading essential for some species? Could time of year affect which species are found?

In February 2023 the opportunity to visit some of these flushes on a preliminary planning meeting in Shelf Held Coppice was too good to miss. This project forms a small part of a project aiming to map all the flushes and record their vegetation. Litter samples were taken from two flushes, one of which was close to the *Sphagnum* bog moss and the other with *Palustriella commutata* Curled Hook-moss which is associated with tufa deposition. The first flush had just two mollusc species, *Nesovitrea hammonis* Rayed Glass Snail and *Aegopinella pura* Clear Glass Snail and the second had eight species including *L. anglica* and *S. lamellata*. Given the size of the first site, it is possible that I sampled at a less favourable point and would more samples have been useful?

Later in the year the opportunity arose to sample in the Great Bog of Wyre (a great place, but not a particularly large one in New Parks) so I took samples in small ziplock bags from the top and close to the bottom of the site, near to trickling water where tufa had been deposited, but avoiding areas with higher flow of water. Where samples were taken was influenced by the distribution of litter deposits. After drying and sieving the samples using 4 mm, 2 mm and 0.5 mm mesh sizes, the sieve contents were examined under a binocular microscope and any snails identified. The wettest sites included freshwater species – *Galba truncatula* Dwarf Pond Snail, *Potamopyrgus antipodarum* Jenkins' Spire Snail and *Euglesa personata* Crusted Pea Mussel. Two of the sites had *V. antivertigo* and one site had *A. fusca*. There



Spermodea lamellata Ron Boyce



Acicula fusca Ron Boyce

was no sign of *L. anglica* or *S. lamellata*. A repeat visit was arranged to take a second set of samples at less wet points without clear signs of tufa deposition but within easy reach of calcareous deposits when required. There was a range of plant species across the samples. These samples contained none of the scarce molluscs, with *N. hammonis* and *A. pura* being the most frequent species. All the samples taken from the Great Bog were in relatively open areas, suggesting that some of the scarcer species not found might have a requirement for shade.

On the joint field meeting with the Conchological Society in October there was an opportunity to revisit some of the flush sites from the first meeting where the opportunity was taken to re-sample from different points. This meeting happened the day after Storm Babet meaning that water flows were high and the risk of small molluscs being washed out of the flushes would be increased. At the first flush I sampled at a clump of *P. commutata*, well away from the Sphagnum. The total number of species was increased to 10, with *V. antivertigo* and *A. fusca* present. There was every indication that these species had coped with exceptional water flow. I then sampled two sites at the second flush, which stretches along a valley side for a considerable distance. At the first site, there was a mixture of the grasses *Brachypodium sylvaticum* False-brome (prefers higher pH conditions) and *Molinia caerulea* Purple Moor-grass (low pH conditions) with a patch of *Carex flacca* Glaucous Sedge so I was intrigued by the indication of mixed conditions regarding soil pH. *Zenobiellina subrufescens* Brown Snail, a species characteristic of old broad leaved woodlands, was found on a shrub nearby. This sample contained five species more likely in neutral conditions including *Euconulus alderi*, *A. pura* and *A. nitidula* Waxy Glass Snail, but also *N. hammonis* and *Columella aspera* (one of the Hive Snail species) which can tolerate more acid conditions. Another sample was taken in contrast from a shaded site with a rivulet that was depositing tufa where seven molluscs were found, but only as shells except *A. nitidula, A. pura, Discus rotundatus* Round Snail, E*uglesa sp*. Pea Mussel, *E. alderi* and *Carychium tridentatum* Long-toothed Herald Snail and nothing exceptional. This indicates that tufa deposition is not a prerequisite for the less common species. I hope that obtaining samples from additional flushes in the future will clarify which factors are important in the distribution of the species found and my preliminary conclusion is that one sample per flush is only likely to be adequate if the flush is small and uniform. Population dynamics of individual species and the season may also be important. Only when more sites have been sampled will any trends be clarified and it may be the case that a full picture of the molluscs present in these flushes may not be attainable.

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Leiostyla anglica apertural view Ron Boyce



Leiostyla anglica side view Ron Boyce