

Introduction

The Riverfly Partnership Angler's Riverfly Monitoring Initiative (ARMI) uses 8 groups of commonly occurring freshwater invertebrates to monitor the biological condition of rivers across the UK. The ARMI system has been hugely successful in bringing together anglers, conservationists, entomologists, enthusiasts and government agencies with the common goal of protecting our rivers.



Aims

Building on the great success of ARMI, the Freshwater Biological Association and Dorset Wildlife Trust are developing an Extended Riverfly Scheme to provide the following:

- A pathway for Riverfly Monitors to extend their knowledge and skills by recording a wider range of freshwater invertebrate groups.
- A system for gathering more detailed information to inform better management of our precious freshwaters.

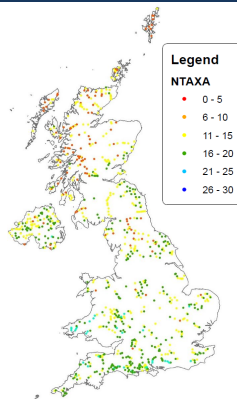
This work is led by a working group of the Riverfly Partnership chaired by Angus Menzies and comprising Steve Brooks, Ben Fitch, Fiona Bowles and John Davy-Bowker.

Methods

The new Riverfly Extended Scheme was developed using the RIVPACS (River Invertebrate Prediction And Classification System) database. The database contains invertebrate samples from over 800 unpolluted reference sites across the UK.

The reference samples were converted from species lists into family lists. An overall list of some 130 freshwater invertebrate families found across the UK as a whole was drawn up. We then undertook a process of combining these distinct families into groups that we thought represented a sensible level of taxonomic resolution that could be applied at the riverbank. For example, all of the separate flatworm families were combined into the simple group 'Flatworms'. This process was repeated for all 130 families, giving a combined list of 28 groups.

The RIVPACS database was then used to show how many of the 28 groups were found at each individual site. These data were plotted to assess regional coverage and applicability.



Number of Riverfly Extended Scheme groups (NTAXA) in RIVPACS reference samples (summer).

The 28 Extended Scheme Groups

The 28 Riverfly Extended Scheme groups are shown below. The existing ARMI 8-groups, or parts thereof, are nested within the new scheme (indicated in bold).

1. Flatworms	15. Stoneflies: Narrow-bodied
2. Freshwater Snails	16. Dragonflies
3. Limpets	17. Damselflies
4. Bivalves	18. True Bugs: Surface Dwellers
5. Aquatic worms	19. True Bugs: Submerged
6. Leeches	20. Water Beetles (adults and larvae)
7. Native Crayfish	21. Alderflies
8. Water Hog-louse	22. Caseless Caddisflies: Gilled
9. Freshwater Shrimp	23. Caseless Caddisflies: Non-Gilled
10. Mayflies: Olive	24. Cased Caddisflies
11. Mayflies: Flatbodied	25. Craneflies
12. Mayflies: Green Drake, Mackerel	26. Blackflies
13. Mayflies: Blue winged Olive	27. Non-biting Midges
14. Stoneflies: Broad-bodied	28. Water Snipe Flies

Initial Testing and Feedback

An initial workshop to test the new scheme in Dorset has generated positive feedback.

Users reported that with some training they could recognise the 28 groups without too much difficulty.

The group also found the system an interesting way to learn more about freshwaters.



Foldout Chart

It is vital that the new scheme can be used by citizen scientists, at the riverbank, without the use of microscopes or formal identification keys. We are therefore developing a foldout chart to enable Riverfly Monitors to use the new system (supported by appropriate training).



We imagine the 28 group Riverfly Extended Scheme existing alongside the 8 group ARMI system, offering a progression pathway for people who would like to monitor more groups. We also hope the system will provide a stepping stone to bridge the gap between the 8 ARMI groups and more detailed family and species level monitoring approaches.

Next Steps

Following our initial trial in Dorset, we are hoping that the new system will also work across a range of river types and geographical areas. Our next step will therefore be to test the system more widely, obtain feedback, and then make further refinements as needed.



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