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Coordinator's notes

Welcome to the summer 2015 edition of the Riverfly Partnership (RP) newsletter. As we move in to autumn, I am pleased to reflect upon this year's ARMI growth, with increases in the number of ARMI groups, trained monitors and active sites. There have been some exciting developments regarding ARMI hubs, the data repository and Riverfly Plus too, all of which are covered in more detail below. The continued success and development of ARMI is only possible with the dedicated support of the entire ARMI network, in particular the 2000+ volunteers, for which I would like to express sincere thanks, on behalf of myself and RP. RP also wishes to thank Salmon & Trout Conservation UK (formerly the Salmon & Trout Association) for its continuing support, and the Environment Agency for its funding support of ARMI.



Online data repository

Following its official launch in July 2014 use of the national ARMI system was hampered, due to unexpected data inconsistencies discovered at that time, so an intensive period to overcome the data issues followed and was completed by April 2015. In February 2015, however, a system bug was identified and reported by ARMI coordinators and monitors. The bug had caused some ARMI data to disappear online but, thanks to the swift actions of those who identified and reported the problem, followed by an immediate response from the Freshwater Biological Association (FBA), the bug was eradicated and, crucially, no further issues have been reported.

As new ARMI sites are established on the ground, so the online sites, users (monitors) and ARMI data increases; currently, 895 active sites and 2517 verified records exist within the system.

Questions have been asked relating to inputting historic data and I am happy to report that, following testing by the FBA, an online historic data importing facility is now live. RP is currently considering options to handle the national historic dataset and **I would like to request that ARMI coordinators now send all, as yet not inputted, pre July 2015 data to Ben, either by post or email (contact details below), as soon as possible.**

The system does continue to receive high numbers of phantom account requests so it remains essential that all genuine new account requests follow the prescribed username formats, to avoid activation delay. Specifics are detailed in the data repository user guide, which is available upon request to ARMI coordinators and monitors. For your copy (pdf) please email Ben, ben@riverflies.org.



ARMI hubs

The UK ARMI hub network continues to grow with the total number of active hubs rising from 21 to 24 between spring and summer of this year. Some recent hubs to establish, according to catchment(s) or region(s), are as follows:

Yorkshire

- Aire & Calder/Wharfe & Lower Ouse
- North Yorkshire Esk
- East Yorkshire

Somerset & Devon

- Exmoor rivers

Bristol, Gloucestershire, Wiltshire, Somerset

- Bristol Avon

Greater Manchester, Cheshire & Merseyside

- Irwell & Mersey



Aire & Calder hub tutor © Stuart Crofts

Further new ARMI hubs, to support monitoring activity across Cornwall and the South West of England, Lincolnshire, Norfolk, Suffolk, and Wales, are planned in the near future and if you are interested in setting up an ARMI hub in your area please visit www.riverflies.org or email Ben Fitch, ben@riverflies.org, for more information.

Training update

Last year a record 54 ARMI workshops were delivered nationwide, evidencing both increasing awareness of ARMI, and of the incredible efforts to which ARMI hubs, groups and volunteers are going in order to monitor the health of their rivers.

2015 looks to be very similar with 52 workshops being delivered to date and I am particularly happy to report an increase in the number of support days, as many ARMI groups and hubs opt to deliver a workshop and support day consecutively. Feedback received from existing monitors confirms the value of support days and RP remains focussed on working with its partners to increase the levels of support available across the ARMI network. If you are interested in holding an ARMI workshop or support day please email Ben Fitch, ben@riverflies.org.



East Riddlesden © Stuart Crofts

Riverflies Plus

Many ARMI groups and hubs continue to record wider data when river surveying, such as INNS data, in order to improve their understanding of the overall river ecosystem health and function. RP too is working hard with its partners to develop and pilot additional monitoring protocols, so that ARMI volunteers will have the option to capture more information and inform the relevant statutory agencies and catchment management groups accordingly. The following three examples highlight some of the work currently underway.

1. A pilot project employing ARMI volunteers to monitor the impacts of low flow and sedimentation upon invertebrates began during the summer. The protocol was developed by the Environment Agency (Lincolnshire & Northamptonshire Area) and is currently being piloted by the Lincolnshire Chalk Streams Project ARMI and Dorset Wildlife Trust ARMI volunteers. After a test period of at least one year is completed the results will be analysed and reported back at the next national Riverfly Partnership conference.
2. A pilot project between ARMI and the Earthwatch Institute's Freshwater Watch programme will soon become active, during which trained ARMI volunteers will record water chemistry data, including nitrate and phosphate levels, alongside existing ARMI information. This is seen as the first step towards enabling ARMI volunteer to further qualify confirmed trigger level breaches with specific water chemistry information.
3. A number of ARMI groups have already expressed their support for, and interest in piloting, a standardized protocol for assessing the effectiveness of restoration techniques. Dr Murray Thompson is leading this project, with support from the World Wide Fund for Nature (WWF), the Natural History Museum (NHM), Salmon & Trout Conservation UK (S&TC) and the Riverfly Partnership, and it is hoped that field tests can begin in the near future.

Publications

The revised 'Riverfly monitoring' fold out guide appears to have been well received and further updates to the online data repository section will be integrated over the winter.

The A6 plastic 'Dynamic Risk Assessment' has been updated and reprinted, so is now available with participant packs; so too the A4 laminated 'Generic Risk Assessment'.

Copies of the Riverfly Partnership 3 fold leaflet remain freely available for engagement and information purposes, please email Ben Fitch, ben@riverflies.org, for more details.

The mayfly's lifecycle: a fascinating, fleeting story

by Craig Macadam

The mayfly's lifecycle is one of the most fascinating and fleeting stories in the natural world. One of the many characteristics that make mayflies the unique insects they are is the potential for two different winged adult forms in their life cycle. The nymph emerges from the water as a dull-coloured sub-imago (or dun) that seeks shelter in bankside vegetation and trees. After a period of a couple of hours or more, the sub-imago once again sheds its skin to transform into the brightly coloured imago (or spinner). It is not clear why mayflies have retained this unique step in their lifecycle; however it is thought that they may not be able to achieve the change from nymph to sexually mature adult in one step.

A mayfly's life cycle starts with the males forming a swarm above the water and the females flying into the swarm to mate. The male grabs a passing female using his elongated front legs and the pair mate in flight. After copulation, the male releases the female and she descends to the surface of the water to lay her eggs. Once mated, she will fall, spent, onto the water surface to lie motionless, with her wings flat on the surface, where fish pick them off at their leisure. The male fly rarely returns to the water but instead goes off to die on the nearby land.

The eggs fall to the bottom of the water where they stick to plants and stones. Flies of the Mayfly family *Baetidae* pull themselves under the water to attach their eggs directly to the bed before being drowned by the current. Mayfly eggs take anything between a few days to a number of weeks to hatch depending on water conditions and the species, and the resultant nymphs will spend various lengths of time, up to two years, foraging on the bottom before emerging as an adult flies.

When it is time to emerge, the nymphs make their way to the surface where they pull themselves free of their nymphal shuck and emerge as a sub-imago. While they rest here to dry their newly exposed wings, they are at their most vulnerable to attack from fish.

Some species exhibit great synchronicity in their hatching. The North American species *Hexagenia limbata* hatches in huge numbers from the Mississippi every year, with the total number of mayflies in this hatch estimated to be around 18 trillion; more than 3,000 times the number of people on earth. The newly emerged insects are attracted to lights in riverside towns and villages and the local authorities deploy snow clearing vehicles to remove their rotting corpses. Ironically, what is seen as a nuisance in America is seen as a gift in Africa. Locals around Lake Victoria gather adults of the mayfly *Povilla adusta* together with Chironomid midges to make a type of patty called 'Kungu'. This protein rich food stuff is an important part of the locals' diet.

RP monitoring equipment update

RP continue to enjoy a strong relationship with official ARMI monitoring kit suppliers [EFE & GB Nets](#). In the last newsletter it was reported that the standard kit had been updated following feedback from the ARMI network and now, following further feedback, the paint brushes have been upgraded to long handle natural bristle versions. Please remember that small buckets and stopwatches are still available upon request to those requiring them, but they do not come as part of the standard monitoring kit. Registered ARMI groups can claim a 5% discount when ordering kits from [EFE & GB Nets](#), please email Ben Fitch prior to ordering(ben@riverflies.org) for your discount code.



Contact us

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For more information about the Riverfly Partnership and ARMI visit:

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