

What's Bugging You?

Naturalist Pat O'Reilly examines the importance of aquatic insects to life as we know it

What joy the beauty of birds and butterflies brings to our lives! Secretive bats, cute or cuddly mammals, brightly-coloured lizards and warty old toads – wildlife holds such fascination. Who could feel anything but intense sadness, anger and frustration if we were to see widespread slaughter of birds or butterflies by careless abuse or reckless misuse of poisons? Such concerns should prompt us to reduce our own dependence on synthetic pesticides, herbicides, cosmetics and medicines.

Does that fix the problem? Well, it helps, but there are other, silent killers, the unseen assassins; agents that while intended to do *us* good can do great harm to wildlife. While artificial fertilisers and pesticides are an obvious target for criticism (and therefore agriculture and horticulture could be portrayed as the villains) we must ask 'how many people could we feed if our farmers merely wandered their uncultivated land gathering the nuts, fruits, roots and berries that Nature offered.' Not a lot.

Everything we do on the land or in the air eventually affects our rivers, lakes and coastal waters. Each bit of added nutrient above that necessary to provide what the crops really need has the potential to over enrich our freshwater systems. This soon changes the ecology – the natural communities of plants and animals that live there – and invariably impoverishes its diversity.

Pesticides and bug-killing veterinary medicines can devastate insect life on land and in streams. But using more than the minimum of detergent, shampoo or disinfectant in our homes can be equally disruptive of the natural world. Downstream of some of the outflows from sewage treatment works the cocktail of synthetic chemicals in the water is so powerful that male fish have been found with eggs inside them. As these gender benders re-enter our drinking water supplies the risks to human health and viability must be a cause of concern. We therefore need to know what is happening in our streams and rivers. What should we look for?



An adult mayfly dries his wings prior to embarking on his voyage of no return.

Palls of pungent smoke point accusingly to sources of serious air pollution. The sight of dead birds, mammals, flowers and eventually even trees makes it very obvious when there is something seriously toxic on the land. But how would we know if our rivers and streams were being poisoned? Only the most intense pollution shows up as dense foam – or worse still dead fish - floating on the surface. Like so many other debilitating illnesses, in most cases the damage may not be obvious until it is too late.

Insects are the heart monitors of the water world. Every healthy river or lake in Wales should be teeming with diverse kinds of insects, and thank goodness many of them are still full of life. Lowland streams and lakes are home to fairy-like mayflies, colourful darting dragonflies and delicate damselflies, for example, while in mountain streams you are more likely to find various flat-winged stoneflies. Midges and mosquitoes are found everywhere. They can tolerate high levels of pollution, and so when midges are all you can find it suggests that there is something seriously wrong.



An aquatic nymph – this one will live among the stones on the riverbed for nearly 12 months until ready to emerge as a winged insect in autumn.

Mayflies and stoneflies, in contrast, are much more sensitive to pollution than those pesky biting midges that can make summer walks beside upland lakes a foretaste of purgatory or worse.



Young Conservationists studying riverflies on the River Teifi at Llandysul. Enthusiasts such as these now have the opportunity to benefit from expert advice and training, thanks to the UK-wide Riverfly Partnership initiative.

Monitoring water life, and aquatic insects in particular, is labour intensive. Government agencies such as the Countryside Council for Wales and the Environment Agency do what they can with limited resources; however, in recent years government here in Wales and indeed throughout the British Isles has been cutting investment in this and many other aspects of environmental protection work. This trend is particularly worrying because there is clear evidence that most rivers and lakes in Wales are currently falling below the standard necessary to achieve what in EU legislation terms, is referred to as ‘good ecological status.’



A bug factory: water-crowfoot provides food and shelter for so many riverflies during their many months of sub-surface development.

What we need is an army of ‘knights in shining armour’ to help monitor the ecological quality of our rivers. And lo and behold, here they come... in the form of Riverfly Monitoring Groups. Already groups are at work in several parts of Wales, where they are making a real and positive difference.

The Riverfly Partnership brings together anglers, conservationists, entomologists, scientists, watercourse managers and relevant government agencies to increase our expertise and understanding of riverfly populations. The Partnership provides training courses and expert guidance so that volunteer groups throughout the country can monitor the health of their own river catchments while at the same time contributing valuable scientific data to augment the work of the professionals.

In South Wales, the Rhymney Flylife Monitoring Group is setting the pace on the rivers Taff, Sirhowy, Rhymney and tributaries. This group uncovered four pollution incidents in 2007, two of which have already led to successful prosecutions by the Environment Agency. Pembrokeshire Rivers Trust in West Wales joined the initiative in 2007, as also did a monitoring group formed via the Rosset and Gresford Fly Fishing Club on the River Dee. Riverfly monitoring has been established on the River Towy in Carmarthenshire, while on the River Teifi Llandysul Angling Association’s *Young Conservationists Initiative* has been running for many years and includes riverfly monitoring as a key theme of its educational and monitoring work. With expert guidance available via the Riverfly Partnership, there are opportunities to increase the results of all the hard work of these volunteers.

All this must contribute to improved fishing in the long run, and so it's easy to see why anglers have been such keen supporters. But it is all too easily to overlook the dependence of other forms of life upon insect diversity and abundance. Amphibians such as frogs, newts and toads feed mainly on insects, as do many small water birds - dippers and grey wagtails, for example. Without fish and amphibians there would be no food for otters or for herons. Healthy ecosystems are also crucial not merely to the quality of our own lives but to the very survival of human life on earth – a sobering thought in this age of growing awareness of our continuing contribution to Climate Catastrophe. (Phrases such as Global Warming and Climate Change sound altogether too benign, don't you think?)



The patient grey heron, whose staple diet of fish and frogs is crucially dependent on the insect life of rivers, streams and lakes.

FACT FILE

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Learn more about Aquatic Insects	www.first-nature.com/insects/index.htm

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