Editorial

Welcome to the first issue of Freshwater Reviews, Volume 4. I continue to find it quite fascinating just how broad is the range of subjects embraced by the manuscripts we receive; the sample of papers we publish this time reflects this particularly well. Malcolm Elliott and Ulrich Kutschera provide an overview of the quantitative ecology of European medicinal leeches (Hirundinidae). The formality of its construction follows a standard pattern, making its information delightfully easy to access. What is remarkable is the legacy of centuries of collection of leeches and their exploitation by past physicians and more recent neurobiologists for their blood-sucking traits. As a result, medicinal leeches (together with some superficially similar species) became much reduced in numbers. They are still in need of specialised conservation measures.

The paper by Mark Everard, Melanie Fletcher, Anne Powell and Mike Dobson introduces a sociological approach to animal species whose frequent co-occurrence in nature points to shared habitat preferences and adaptations and is, thus, a measure of mutual tolerance of the environmental conditions obtaining. Such associations, especially of plants, are well-known to be reliably indicative of given types of habitat and the decisive effects of critical habitat selection. While rooted plants seem obvious candidates in habitat identity, it has become clear that certain multi-species groups of birds show analogous fidelity to habitat conditions. In their paper, Everard et al. argue the strong case for developing other multiple-taxa groups of aquatic organisms as proxies of habitat conditions and ecological status, in the context of the application of the Water Framework legislation. Basing their overview on the occurrence and significance of adaptations among macrophytes, odonates, and mammals, in particular, the review shows how habitat properties can be interpreted and extrapolated to ecosystem and landscape scales. Interestingly, they consider the assessment of assemblages involving fishes, amphibia and reptiles to be less reliable. In this way, such applications of community ecology contribute to the practical tasks of conserving and managing aquatic habitats in the round, becoming an essential tool in scientifically-based resource management.

Using science to underpin legislation designed to protect habitats and their indigenous biota would seem to be another relevant and desirable application of freshwater science but the review by Dale McCullough reminds us of the difficulties of attaining even this objective. In the case of North American salmonids that he reviews, the simple premise that their distribution, growth and breeding success are each demonstrably and quantifiably sensitive to elevated water temperatures does not necessarily translate comfortably to crisp, simple legislation. In a country as large as the United States of America, with climatic zones ranging from polar to warm temperate, a single set of operating rules to avoid hazardous conditions turn out to be difficult to attain. Under a Federal system that devolves interpretative decisions to the individual States, these anomalies are multiplied. Dale's article catalogues many of the outcomes that local legislative localism has succeeded in creating - though not necessarily to the benefit of the fish populations whose environmental requirements the legislation ostensibly sets out to safeguard. How much harder is it to get international agreements to protect species that are not confined by national borders?

As always, my thanks go to the various authors, our reviewers and our production team for their respective contributions to this edition. Finally, a word of encouragement to all leaders, researchers and students of freshwater science: we need your reviews!

Colin S. Reynolds

Editor