Vegetation communities of British rivers

a revised classification

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Chapter 8 Acknowledgements

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Photo 1 River Avon, Salisbury, Hampshire. Type I - lowland, low gradient rivers. The lower Avon typifies the Type, flowing in a wide and shallow valley. Higher plants totally dominate the communities, the photo showing the luxuriant growth of a diverse range of reeds and other marginal plants. Monkeyflower *Mimulus guttatus* is a common alien species present in this and other Types.

Photo 2 River Blythe, Warwickshire. Type II - lowland, clay-dominated rivers. This river is an SSSI on the outskirts of Birmingham. The photo illustrates a low-gradient section where characteristic species of the Type are prominent - yellow water-lily *Nuphar lutea*, branched bur-reed *Sparganium erectum* and common club-rush *Schoenoplectus lacustris*.

Photo 3 River Itchen, Hampshire. Type III - Chalk rivers and other base-rich rivers with stable flows. The high base status and very stable flow regime of rivers flowing mainly on chalk give rise to prolific in-channel macrophyte growth of water-crowfoot *Ranunculus* spp. and water-starwort *Callitriche* spp. and dense marginal and bank vegetation. Only in this Type is the lesser pond-sedge *Carex acutiformis* a very common component of the bank community.

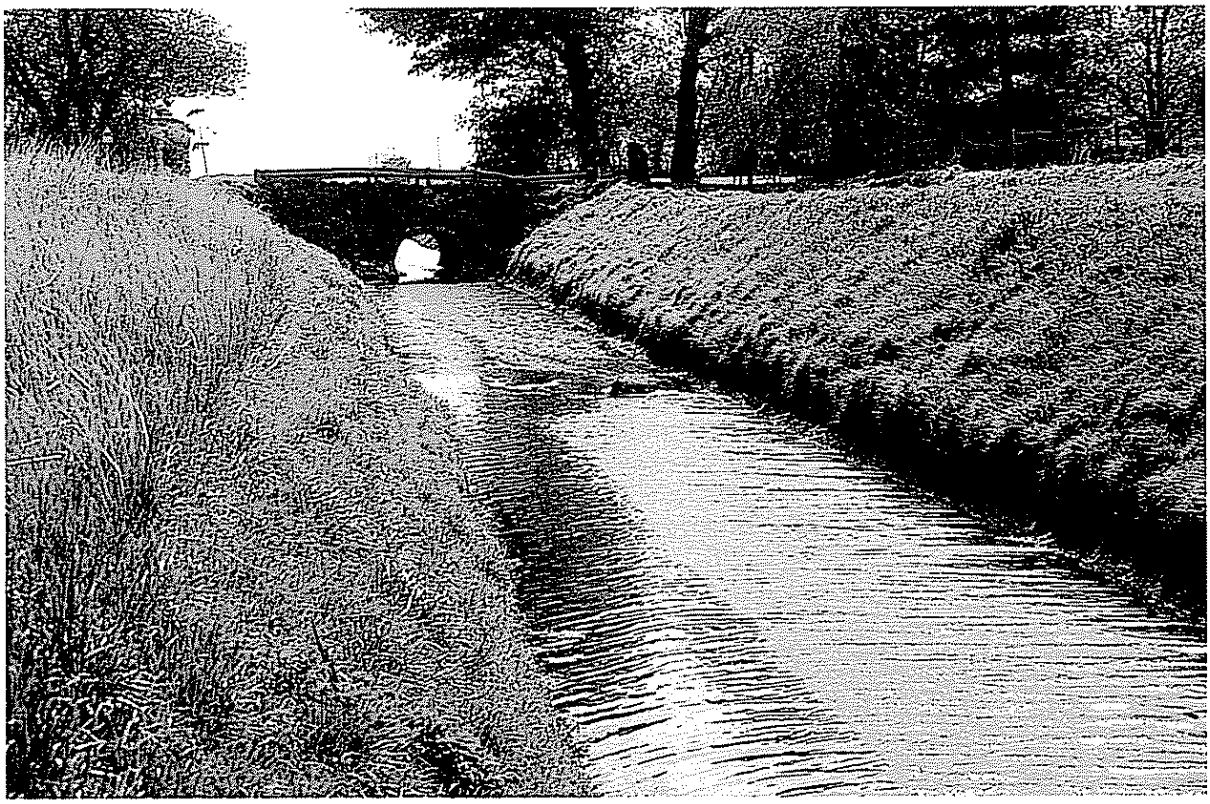

Photo 4 River Torne, Nottinghamshire. Type IV - impoverished lowland rivers. This section of the River Torne is typical of many rivers in this Type. The majority are narrower than other rivers with communities classified within Group A. The overriding character of most of the sites is the degradation of the physical environment through land drainage and flood defence activities. Others suffer from depleted flows or pollution problems.

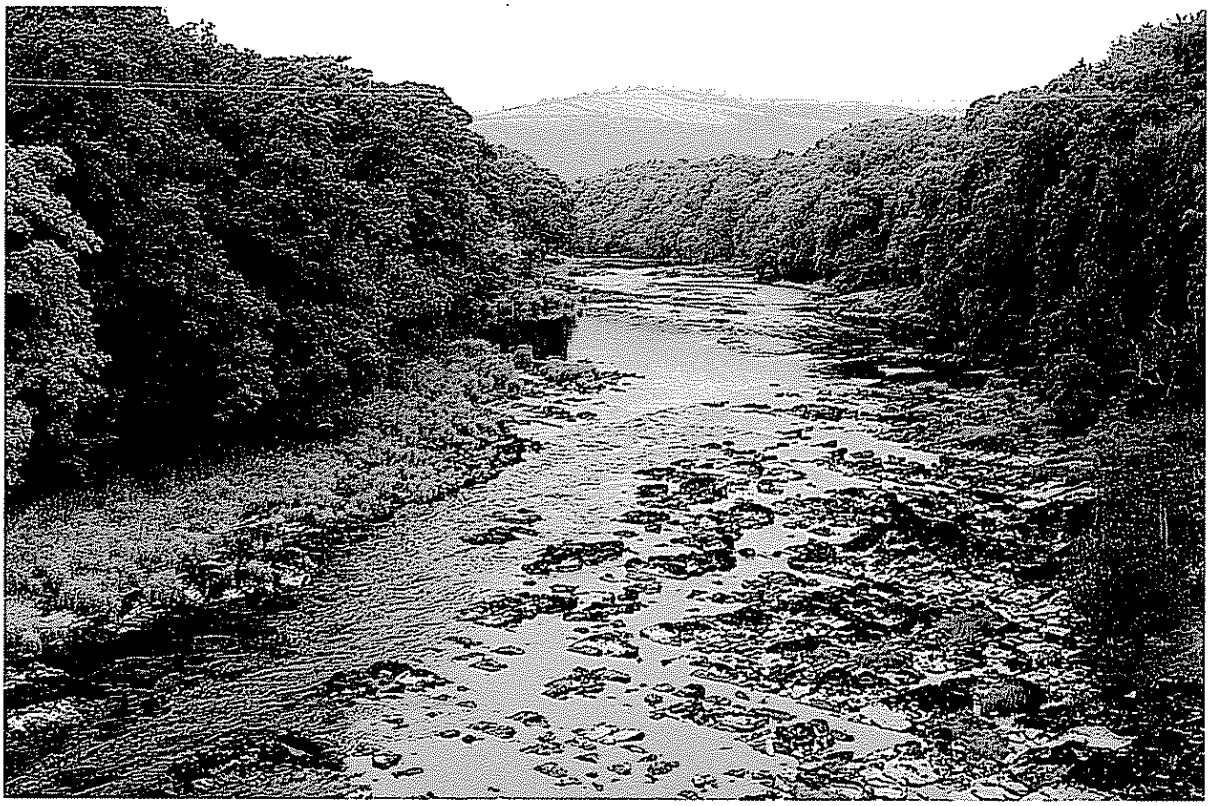

Photo 5 River Wye, Erwood Gorge, Powys. Type V - sandstone, mudstone and hard limestone rivers of England and Wales. The physical characteristics of the Type can be very variable, but where bedrock and boulders predominate, communities are totally dominated by mosses, the most common being long-beaked water feather-moss *Rhynchostegium riparioides*, water grimmia *Schistidium alpicola*, greater water-moss *Fontinalis antipyretica* and brook-side feather-moss *Amblystegium fluviatile*. The site illustrated supports a strong population of river jelly lichen *Collema dichotomum*, a Biodiversity Action Plan species found only in Type V and VI rivers.

Photo 6 River Coquet, Northumberland. Type VI - sandstone, mudstone and hard limestone rivers of Scotland and Northern England. Physical characteristics of rivers in this Type can range from the meandering and active channels illustrated to stable bedrock reaches similar to that depicted for the Wye (neighbouring Type V). In unstable conditions vegetation is very sparse in the channel, but the transient flora of the shingle shoals and margins is very important and varied.

Photo 7 River Rydal, Cumbria. Type VII - mesotrophic rivers dominated by gravels, pebbles and cobbles. Types VII and VIII are characteristic of upland catchments draining hard rocks such as shales, hard limestone and hard sandstone. The Rydal illustrates that in Type VII gradients are generally shallower than in Type VIII, with fine substrates and relatively stable flows. Wetland edge species characterise the assemblage, with far fewer bryophytes than in Type VIII.

Photo 8 River Spey, Highland. Type VIII - oligo-mesotrophic rivers. The Spey is typical of many Type VIII rivers, in which coarse substrates such as cobbles, boulders and bedrock are totally dominant. The apparently sandy banks in the picture are in fact entirely composed of cobbles. The higher proportion of rocks than in Type VII, and their less base-rich nature, results in a wide variety of bryophytes being present within the channels; cover is very limited in unstable meandering reaches (as illustrated), or dense where channels are stable.

Photo 9 DeLank River, Cornwall. Type IX - oligotrophic, low altitude rivers. Types IX and X have macrophyte assemblages that indicate nutrient and base-poor chemistry. The DeLank typifies Type IX, in which there are much gentler gradients, giving rise to a much greater abundance of silts and sands as substrates and plant assemblages often dominated by oligotrophic flowering plants. These include characteristic species such as bulbous rush *Juncus bulbosus*, alternate-flowered water-milfoil *Myriophyllum alterniflorum*, bog pondweed *Potamogeton polygonifolius* and floating clubrush *Scirpus fluitans* (pictured).

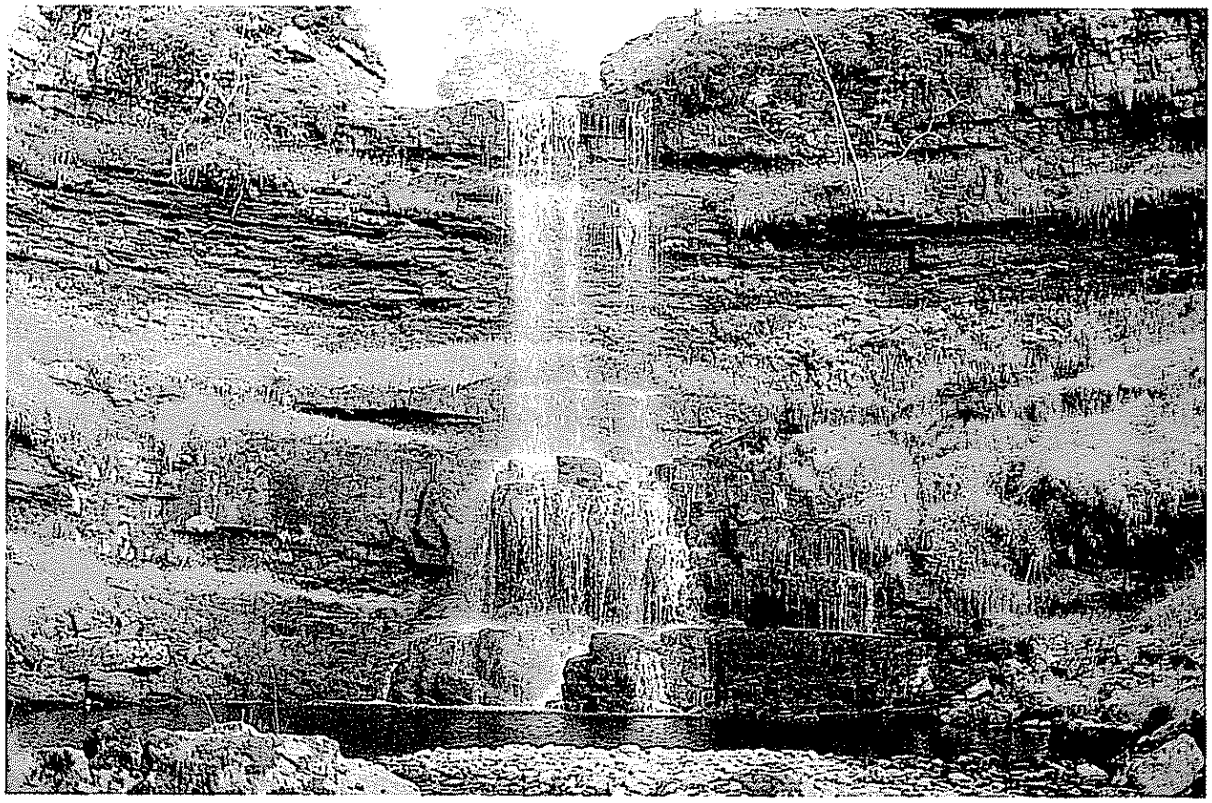

Photo 10 River Rawthey, Lancashire. Type X - ultra-oligotrophic rivers. The Rawthey, rising high in the Pennines, is typical of the Type. Characteristically, sites are found on rivers rising at high altitudes on base-poor rock or where blanket bog or acid heath dominates the catchment upstream. Mosses and liverworts are a major component of the flora and are very dominant on waterfalls and other wet rocks, where broad-leaved pellia *Pellia epiphylla*, yellow fringe-moss *Racomitrium aciculare*, water earwort *Scapania undulata* and flagellate feather-moss *Hyocomium armoricum* are common species.