

B. 6. Rivers & Streams

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B.6.1. Description

There are six main river catchments which rise in the Yorkshire Dales National Park – the Swale, the Ure, the Wharfe, the Aire, the Ribble and the Lune. All of these rivers are upland in character where they flow through the National Park and are generally of high water quality with good populations of brown trout and other fish such as bullhead and stone loach. In their natural state Dales rivers are dynamic systems, continually modifying their form. However, virtually all of the Dales rivers have a limited ability to rejuvenate or create new habitats due to the impact of flood defence structures and management. Many of the Dales riverbanks have become eroded due to inappropriate engineering works, moorland drainage and lack of vegetation due to tree removal and grazing pressure. These activities have led to changes in the frequency and magnitude of flooding, changes to the physical shape of river catchments and altered patterns of sediment transport leading to losses of pools and riffles.

B.6.2. Biodiversity Importance

The mosaic of features found in the more natural reaches of Dales rivers support a wide range of species and habitats. Riffles and pools support different communities of invertebrates and fish which in turn provide different sources of prey for other species such as otters and birds. Marginal and bankside vegetation supports a wide diversity of wildflowers and often provides dense cover for breeding birds and mammals. Rivers and streams are vitally important corridors of undisturbed habitat in intensively farmed areas. Upland rivers like those in the Dales are swift flowing and nutrient poor and support a wide range of mosses and liverworts. The invertebrate fauna is dominated by stoneflies, mayflies and caddis flies. Dales rivers also support good populations of brown trout and salmon although these have diminished in recent years. This decline in fish populations may be responsible for the lack of otters in the Dales. Many of the Dales rivers flow across limestone bedrock and are nationally important for their populations of Atlantic white-clawed crayfish with the National Park forming an important stronghold for this species in the UK. The Rivers Wharfe, Ure and Swale hold particularly significant populations of this species. The River Wharfe has been designated as an SSSI for its mixture of upland and lowland flora including the nationally rare northern spike-rush. Rivers and streams are of high biodiversity value.

B.6.3. Current issues, opportunities & threats to the biodiversity of rivers and streams

The majority of Dales rivers are of high water quality. Pollution incidents and nutrient enrichment from surrounding land does however, affect the biodiversity of some of the Dales rivers. Past sheep dip pollution incidents have had a devastating effect on the invertebrate populations of some rivers such as the Ribble and there is still concern over the disposal of waste sheep dip. A number of river regeneration schemes are currently working with farmers to explore better and safer methods for using and disposing of sheep dip.

Nutrient enrichment due to slurry and artificial fertiliser entering water courses causes changes in the biodiversity of rivers in some areas often leading to algal growth. Such enrichment is not as prevalent in the Dales as in other regions due to restrictions on fertiliser use through environmental land management schemes such as ESA and Countryside Stewardship. Localised nutrient enrichment also occurs in areas heavily used by livestock for drinking and in some cases this leads to changes in the biodiversity value of the river.

In 1995 a severe drought led to extremely low flows in many of the Dales rivers which was exacerbated by abstraction for domestic use. This was however, an extreme event and low flows are rare in the upland rivers that flow through the Dales.

Past land drainage, flood defence and inappropriate bank management have had probably the most significant impact on Dales rivers. Moorland drainage (or gripping) carried between the 1960s and 1980s caused substantial changes in the hydrology of Dales river catchments. Rather than being locked into the moorland peat bogs water now quickly drains into the rivers causing rapid and severe flash floods. These floods combined with previous inappropriate flood defence works, lack of riverbank vegetation due to grazing and removal of trees has led to significant riverbank erosion. Wetlands lower down the river valleys have also been drained and flood banks built which prevent flood storage within the floodplain leading to more economically damaging flooding in the lower reaches of these rivers. Recently, conservation agencies have begun working with farmers to reverse these changes through blocking of moorland grips, riverbank fencing and tree planting and undoing of inappropriate flood defence works.

Non-native invasive species are also having a detrimental impact on the biodiversity of Dales rivers. In particular the signal crayfish is rapidly displacing the native Atlantic white clawed crayfish in the Rivers Wharfe and Ure and the water vole is now virtually extinct in the Dales due to habitat loss exacerbated by predation by the American mink. Intensive research is currently underway to find ways to prevent the loss of these two species.

There are many well-used footpaths and bridleways that run alongside many of the Dales rivers enabling many people to enjoy the beauty of the Dales landscape. Many of the species that live in and alongside rivers are, however, sensitive to disturbance (otters and breeding birds, for example) and it is essential that access is managed to ensure that a significant amount of riverbank is kept free of disturbance.