



WILD TROUT TRUST

# The Uplands River Habitat Manual



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Working to restore & enhance our rivers



[www.wildtrout.org](http://www.wildtrout.org)



# 1.0 Introduction

## Acknowledgements

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The Wild Trout Trust would like to thank the following individuals who made up the project steering group:

- Dave Charlesworth (Environment Agency Wales)
- Tim Jacklin (Wild Trout Trust)
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- Alistair Maltby (Association of Rivers Trusts)
- Simon Johnson (Eden Rivers Trust)

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## 1.1 Introduction to the manual

There is a great diversity and abundance of upland rivers within the British Isles that makes the production of a guide such as this an ambitious and challenging undertaking. There are however many problems and solutions affecting our upland rivers and streams and the information and practical advice contained within this guide should be useful and interesting to all involved in their management.

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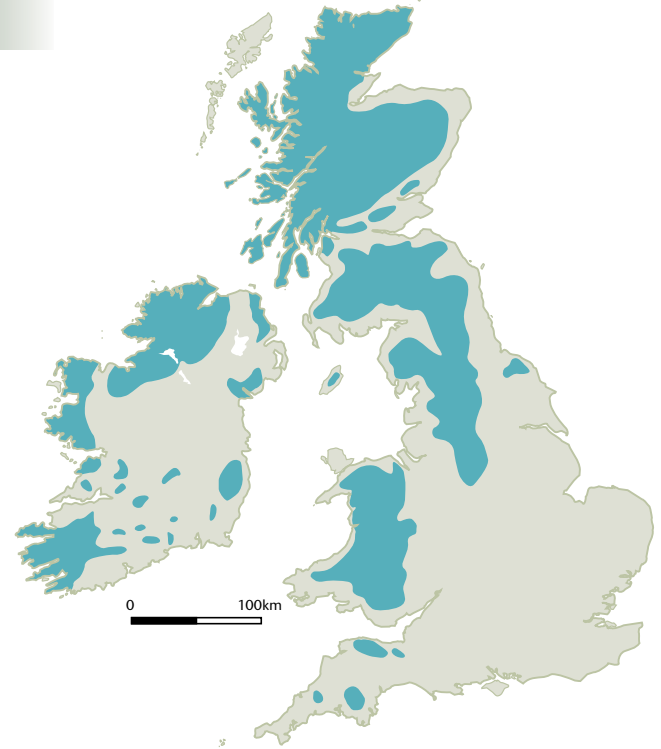


## 1.2 What is an upland river?

We have used a fairly loose definition of 'upland river' for this manual. It includes all the rivers of the west and north of England, rising in the hilly areas of Devon, Cornwall, the Pennines and the Lake District. It encompasses the valley rivers of South Wales, and the hill streams of North Wales. The rocky rivers of Scotland and the mountain ranges of Connemara, Kerry and Donegal in Ireland also fall within its ambit. Indeed, any of the streams of the British Isles that anglers would describe as 'upland' in origin are covered.

Generally, the geology of these rivers is ancient, with hard, relatively impermeable rocks the norm. Consequently, river flows are very variable with often low base flows turning rapidly into spates following heavy rainfall events. Water quality in these catchments can be acidic or neutral in nature, limiting productivity within the rivers, and increasing their reliance on inputs of material from outside their channels to drive their ecological systems, but the link between upland rivers, their geology, and the land use within their catchments is the key element shaping their form and ecology. This theme will be returned to time and again within this publication.

In addition to highlighting and reinforcing the impact of catchment processes on upland streams, the manual also provides guidance for enhancement work that can be undertaken at a local scale. It is of vital importance to recognise the limitations that govern where these works can be carried out



MAP SHOWING THE DISTRIBUTION OF UK AND EIRE UPLANDS. Source EA

successfully. The high energy of upland rivers means that in-channel works should be restricted to the smaller tributary streams or the upper sections of the main river. Enhancement work further downstream is likely to be very quickly destroyed by flood events. There is also a recognition that the upper river reaches and smaller tributary streams often have limited potential for generating revenue. Some upland rivers also pass through urban areas, providing additional challenges and opportunities.



AN UPLAND CATCHMENT... A PLACE OF WATER AND ROCKS



The manual aims to show where such in-channel work is best targeted, and to highlight when such efforts are wasted due to over-riding constraints imposed by the power of these rivers. The link between the needs of all life-stages of brown trout *Salmo trutta*, sea trout *Salmo trutta* and Atlantic salmon *Salmo salar*, and the location of suitable habitat within upland systems is also highlighted. Note that throughout this guide, unless specifically stated, the term 'trout' is used to represent both brown trout and sea trout.

In essence, this manual operates at two levels; catchment scale and reach scale. This 'twin track' approach has the advantage of not only clearly highlighting the importance of catchment issues, but also provides opportunities for local, hands-on involvement that can really 'make a difference' to habitat quality.

### 1.3 How to use the manual

The manual is in a web-based Portable Document Format (PDF) with guidance arranged in easy to read sections. This approach has a number of advantages;

- Information can be viewed on-line or saved to hard disc as required (free of charge).
- It can be emailed to other organisations or individuals, or printed out as a hard copy for use on site.
- It can be easily updated and reviewed in line with new legislation or practice.

Each section of the manual can be accessed via the hyperlinks on the upland river diagram (**1.5 of this Section**). Double clicking on these links will take you straight to the appropriate section. Links are also provided to useful sections of the WTT Survival Guide and the WTT Chalkstream Habitat Manual.



UPLAND SPAWNING STREAM AND ITS IMMEDIATE CATCHMENT

### 1.4 How to use the PDFs

The information contained within each section is aimed at practitioners. The Trust receive large numbers of calls and emails from a wide range of individuals and organisations, seeking detailed advice on any number of 'how to' issues: How do I install a groyne? Which way should it face? How can I improve spawning for trout? We have attempted to answer these and many other questions in these PDF sheets.

Each section is a stand alone document, cross-referenced to others where appropriate. For ease of use we have used 'Bookmarks' (which appear as an icon or tab on the left side of the PDF viewer window). By clicking on them, these enable the reader to jump to any section. Photographs and explanatory diagrams are included to illustrate points made in the narrative. Plan views of a 'typical'

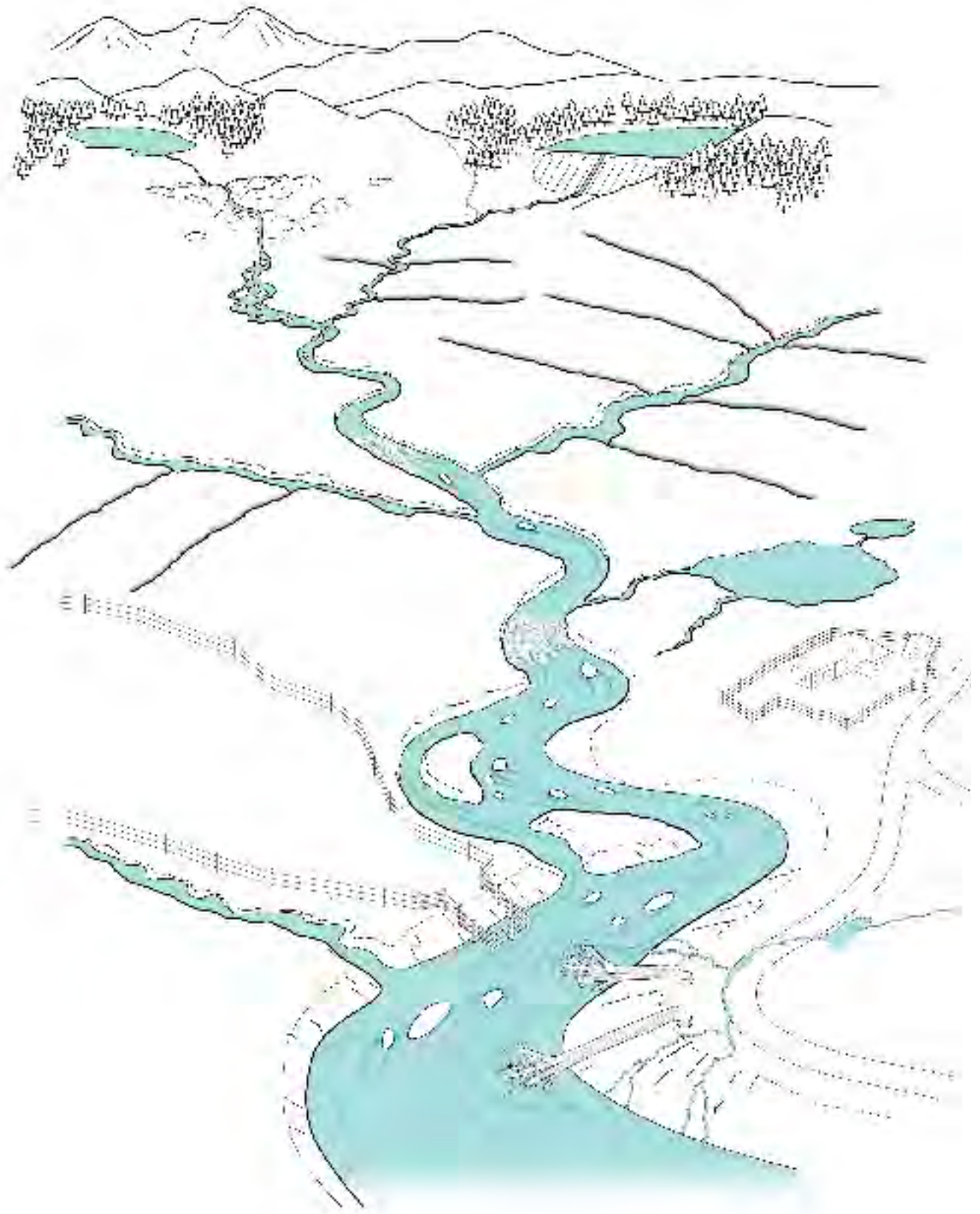
river have been included, both to show the range of problems often encountered and possible ways of resolving them. Links to useful websites, contacts, and further reading are provided.

Even more fundamentally, it is imperative that at all times we should work with natural river processes, rather than against them. Careful observation of your river, and consultation with professional ecologists and fisheries specialists (including of course the Wild Trout Trust) will inform future decisions. In some cases, the best approach to restoration may be to do nothing, be patient and let the river naturally repair past damage. However, in many instances, affirmative action is required to assist natural recovery.



## 1.5 Habitat Manual sections

Hovering over each Section title will reveal a list of its contents





## 1.6 List of sections

### Section 2 – Upland River Systems

Upland river processes are dominated by the geology, climate and land use within the catchment. These physical factors and their impact on upland rivers, particularly their linkage to instream ecology and key lifestages of trout, are examined in detail.



SERIOUS MOORLAND EROSION ON BLACK HILL,  
PEAK DISTRICT  
(Photo © Moors for the Future: [www.moorsforthefuture.org.uk](http://www.moorsforthefuture.org.uk))

### Section 3 – Project Planning

The importance of good project planning is essential to optimising the chance of success. The benefits of undertaking catchment walkover surveys in order to identify habitat bottlenecks are discussed. This section also highlights the need for accurately defining project aims and objectives based on these data.

The concept of scale (length, reach or catchment) is introduced. The need to engage and influence local landowners, and utilise financial incentives where available are also highlighted

### Section 4 – Land Use

This section of the guide examines the land use practices that can affect upland rivers, including afforestation, moorland gripping, road run-off and sediment mobilisation. The range of financial incentives available to landowners to address the most damaging of these are detailed, with an extensive list of hyperlinks provided to enable the reader to access key documents that relate

to them. Some of the key legislation controlling land use within upland areas is also considered.

Practical measures that can be applied at the local scale to achieve improvements are discussed.

### Section 5 – Physical Enhancements

The smaller scale, and generally lower energy habitat of tributaries provides an opportunity for local groups to undertake practical instream and riparian enhancements. The range of beneficial methodologies that can be applied following walkover surveys is discussed. Where appropriate, detailed prescriptions for techniques are provided, with clear diagrams and illustrations providing further clarity.

The benefits of improving fish passage around obstructions to increase habitat connectivity are examined. Simple, proven methodologies that can be applied to small obstructions are described

In contrast to tributary streams, the range of enhancement opportunities that can be safely undertaken on the main stem of upland rivers is more limited. Concentrating on aspects of controlling stock access to rivers, tree management, and the prevention of excessive erosion, this section examines and recommends a range of proven techniques that can be utilised by small, local conservation groups.



TRIBUTARY STREAM

## 1.7 Feedback

Feedback is both useful and informative. Over time, the Trust hopes to improve and develop the content of the PDF's. Inevitably, we won't get it right first time. Your input could help us to

improve and update their content. Comments can be sent to [projects@wildtrout.org](mailto:projects@wildtrout.org). We are particularly interested in hyperlinks to websites that may no longer function.