

Dartmoor Habitat Action Plan for Freshwater

Dartmoor is the source of most of Devon's rivers, which rise within the bogs and mires of the high moorland, before tumbling through steep sided wooded valleys. These rivers, including the Teign, Dart, Avon, Erme, Yealm, Plym, Tavy, Okement and Taw, as well as many of their tributaries, owe their very nature to the underlying geology and topography of the area. Thus they are acidic, steep and fast flowing, with a speedy response to rainfall. This rapid rise and fall leads to their classification as torrent rivers.

The headwater streams that form these rivers are clean and clear, providing a habitat for well-adapted species not found in slower, more nutrient rich waters. Historically, many leats were constructed to provide water for industrial use, and to transfer water for public supply. Parts of these systems remain and usually run along contours providing lower energy habitats that favour other species.

Devon is a county with few natural lakes, mainly because it was not subject to glaciation. However, Dartmoor's high rainfall has resulted in the construction, over the last 140 years, of eight small reservoirs to provide water for public supplies. Typically a dam impounds the headwaters of a river, resulting in the storage of nutrient poor and fairly acidic water. Reservoir levels fluctuate on an annual basis in response to demand for public supply. This results in varying degrees of exposed shoreline in the drawdown zone. In addition to the reservoirs, ponds have formed in old quarries and there are numerous small ponds in farmland around the fringes of the moor. Temporary or seasonal ponds are to be found particularly on the southwest margin of the moor, where they provide habitat for a few specialist species.

The freshwater habitats of Dartmoor are highly valuable not only from a conservation viewpoint but also for their recreational and commercial interests. They are important features in the landscape and are frequently focal points for the many visitors to the area. Dartmeet, Bellever and Burrator Reservoir are examples of honeypot sites heavily used for picnicking and informal recreation. Rivers and the historic features often associated with them have provided inspiration for artists from far and wide. Some of the best whitewater canoeing in southern England is to be enjoyed during the winter, such that an element of rationing is required to prevent overcrowding. Access agreements are used on some rivers to limit potential disturbance to wildlife and other users. Dartmoor rivers also support important fisheries with significant economic and recreational benefit. Several fishing hotels are present and the larger rivers offer prime salmon and sea trout angling, as well as extensive brown trout fishing on smaller rivers and streams.



Dartmoor Freshwater Distribution Map



© Crown Copyright. All rights reserved. Dartmoor National Park Authority Licence No 100024842 2007.

This action plan covers two habitats described in more detail in *The Nature of Dartmoor: A Biodiversity Profile*. These are **Torrent rivers and streams** and **Reservoirs and ponds**. They are included together in a single plan because many of the issues are shared, but separate objectives are still defined for each habitat. The precise point at which a stream or river becomes part of a pond or reservoir is not always entirely clear.

Key Dartmoor species present are **otter** and **Atlantic salmon**. Objectives and actions for these species are included in this plan. Otters are recovering well from the decline of the 1960s and are found on most Dartmoor rivers. They are fully protected under the *Wildlife & Countryside Act* and listed in Annex II and IV of the Habitats Directive. In contrast, salmon (also in Annex II of

the Habitats Directive) are declining here, as elsewhere, due to a variety of causes, possibly including netting at sea and climate change as well as changes to their riverine habitat. Both salmon and otter have recently been added as interest features to the Dartmoor SAC. Other typical species of conservation value include dipper and grey wagtail, both found in good numbers on most rivers, often nesting under bridges. Nationally, goosander have spread south over the last thirty years and now breed on a few rivers on Dartmoor, as well as frequenting reservoirs in the winter. It is disappointing to note that the decline of the water vole appears to extend to Dartmoor. While signs of this severely threatened mammal were found in the 1989/90 National Survey, recent workers have been unable to find any positive sites.



© N. Baldock. DNPA

The River Dart

Migratory and non-migratory trout are present even in very small streams and the upper reaches of some Dartmoor rivers support important genetically pure populations of wild trout. Bullheads (another species listed in Annex II of the Habitats Directive) are also present on most rivers in the lower reaches within the Park boundary, but are not found in the uppermost stretches where the water is too acidic. They are however comparatively common outside the Park and the actions in this plan are expected to be sufficient to protect their habitat on Dartmoor.

Insects of note include several species of damselfly and dragonfly. Southern, small red and scarce blue-tailed damselflies are found in valley mires on moorland, in Rhôs pasture and in a few ponds on the south and west of the moor. Actions for these species are included in the Scarce Dragonfly SAP. The fairy shrimp *Chirocephalus diaphanus* is a crustacean which occurs in pools that dry up from time to time, such as rutted tracks and

gateways. It can be found in a few areas along the south-western fringes of Dartmoor. It is nationally uncommon and protected under the *Wildlife & Countryside Act*.

Dartmoor rivers do not provide good habitat for aquatic flowering plants, but the splash zone and valley sides provide an excellent humid environment for mosses, lichens and ferns. Cornish moneywort, Wilson's and Tunbridge filmy ferns, the multi-fruited river moss *Cryphaea lamyana*, and several specialised lichens are among the notable species. Quillworts are uncommon aquatic ferns which have colonised some reservoirs and which may be mistaken for the superficially similar shoreweed.

For further information or advice on management for these habitats and species please contact the Dartmoor National Park Authority, Natural England or the Environment Agency.

Freshwater Key Conservation Objectives and Targets

Torrent Rivers and Streams Objectives

Objective 1

Maintain the full range of characteristic wildlife of Dartmoor's rivers and streams, in particular through ensuring, as far as the climate permits, adequate flows and high water quality.

Dartmoor targets

- A** Maintain compliance with River Quality Objectives (River Ecosystem Classification) to avoid deterioration of water quality (almost all RE1 class).
- B** Compile a database of the variety and extent of key species and habitats by 2011.
- C** Identify benchmark sites as part of a long term monitoring programme by 2011.
- D** Review current knowledge on water quality and quantity requirements of Dartmoor's key freshwater species and habitats by 2011.
- E** Establish appropriate flow and water quality to support favourable status of Dartmoor's key freshwater species and habitats by 2011.
- F** Eliminate critical load exceedance for sulphur by 2005.*
- G** Maintain existing bankside cover and extend/improve at least half a kilometre per year, along banks identified as particularly important wildlife corridors by 2011.

Objective 2

Ensure that Dartmoor remains a stronghold for the otter and salmon populations, and that these species continue to increase until the natural carrying capacity is reached.

Dartmoor targets

- A** Ensure that sustainable populations of otters are present, by 2005, on all Dartmoor rivers, in areas where they occurred in 1960.*
- B** Maintain sustainable populations of otters on all of these rivers by 2016.
- C** Achieve sustainable populations of Atlantic salmon in Dartmoor rivers, by 2011 (defined as being able to support an active fishery without compromising populations). Status of stocks to be measured using a combination of techniques including EA derived spawning targets for Dartmoor rivers.

* Target from original (2001) version of the BAP that has already been achieved and therefore not taken forward in the revised Action Plan.

Reservoirs and Ponds Objectives

Objective 3

Ensure that across Dartmoor a diverse range of water bodies and associated wetland areas (such as ponds and reservoirs, acidic seepages, runnels and mires) are maintained through time, within the dispersal distance of important species such as the three uncommon damselflies.

Dartmoor targets

- A** Increase area of open water and wetland habitat (total area 209 ha) under management for conservation by 15% by 2005*
- B** Maintain, and enhance where possible, the wildlife interest of old clay workings and ponds by 2011.

Objective 4

Ensure the continued existence of the remaining known populations of the fairy shrimp within Dartmoor and encourage surveys to look for new sites.

Dartmoor target

- A** Maintain and protect the four existing populations by 2016.

* Target from original (2001) version of the BAP that has already been achieved and therefore not taken forward in the revised Action Plan.

Actions for Freshwater on Dartmoor

Monitoring responsibility: Environment Agency

Action	Meets Objective/ Target	Deliverer		Complete by					Date achieved
		Lead	Partners	2007	2008	2011	2016	On-going	
Policy and Legislation									
Seek to ensure that prescriptions within agri-environment schemes protect rivers, streams and other water bodies	1C,1D,1F, 2	NE	EA, DNPA	●					
Include policies to protect watercourses in all statutory plans and LEAPs, when they are reviewed	1, 2	DNPA, EA, SWW						●	
Continue to develop and implement salmon action plans for all Dartmoor catchments	2D	EA	DNPA, Riparian owners, Angling Associations			●			
Develop policies for restoration of mineral workings for the benefit of wildlife	3	IMERYYS, WBB	DNPA					●	
Review existing consents in relation to Natura 2000 sites	1	EA, NE, DNPA			●				
Site Safeguard									
Consider designation of additional SSSIs to include ephemeral ponds and torrent rivers	1, 2, 4	NE				●			
Ensure that conservation management plans for ESA/HLS agreements protect existing and potential new fairy shrimp sites	4A	NE	DNPA		●				

(cont.)

Actions for Freshwater on Dartmoor (cont.)

Action	Meets Objective/ Target	Deliverer		Complete by					Date achieved
		Lead	Partners	2007	2008	2011	2016	On-going	
Habitat management									
Replace conifer plantations with native broadleaves or open ground in riparian strips	1E, 1F	FC	WT, NT, DoC, DNPA						●
Manage grazing stock to avoid excessive poaching of riverbanks	1C, 1D, 1F, 2	NE	DNPA						●
Promote good practice by practical examples, for instance through the <i>Action for Wildlife Project</i>	1C, 1D, 1F, 2	AfW, DNPA	EA	●					
Review water management to maximise wildlife benefit in reservoirs and associated rivers, without compromising water supply	1C, 1D, 1F, 2	SWLT, EA				●			
Identify appropriate sites within each catchment for expansion of bankside cover and implement schemes	1F	EA, NE	Riparian owners, Angling Associations, DNPA			●			
Look for opportunities to reinstate natural drainage or create new wetlands through impeded drainage	1, 2	DNPA, EA, NE							●
Encourage creation of strategically-placed new ponds in areas where existing semi-natural habitat is not affected	3A, 4	NE	DNPA						●

(cont.)

Actions for Freshwater on Dartmoor (cont.)

Action	Meets Objective/ Target	Deliverer		Complete by					Date achieved
		Lead	Partners	2007	2008	2011	2016	On-going	
Key Species Management and Protection									
Encourage creation or retention of riparian refuge areas free from disturbance by humans or dogs	2C	DNPA, EA							●
Continue to manage paths to reduce recreational pressure on riverbanks in key wildlife areas	2	DNPA							●
Where possible, limit significant public access to one bank of watercourse	2	DNPA	Riparian owners						●
Discourage and explain why dams in rivers and streams should not be built. Remove those created	2D	EA, DNPA							●
Seek opportunities to install fish counters, as funds become available	2D	EA							●
Ensure canoe access does not adversely affect salmonid populations or other key species; consider impact of location and timing	2D	EA, BCU, Riparian owners, DNPA	Angling Associations						●
Manage educational visits to avoid damage or disturbance to spawning gravels	2D	DNPA	Schools, Universities						●
Discourage use of fish other than from the river of origin in stocking programmes	2D	EA	Riparian owners						●
Provide advice on management/disposal of farm waste	1C, 1D, 2	NE, EA							●

(cont.)

Actions for Freshwater on Dartmoor (cont.)

Action	Meets Objective/Target	Deliverer		Complete by					Date achieved
		Lead	Partners	2007	2008	2011	2016	On-going	
Research and Monitoring									
Collate species and habitat records to establish baseline for measuring change	1A,1B	EA	DBRC, DNPA, All			●			
Investigate links between moorland management and hydrology	1	EA, DNPA, NE	Universities					●	
Evaluate eel populations in all catchments	1C	EA	Universities			●			
Continue research on habitat requirements of fish species on Dartmoor including inter-specific competition	1, 2D	EA,WTS	DNPA, Fisheries Associations, WCRT					●	
Seek a shared monitoring strategy for fish spawning areas	1, 2D	EA	DNPA, EN, Riparian owners, Fisheries Associations					●	
Encourage research into acidification of moorland streams and draw up action plan if appropriate	1E	NE, EA	DNPA					●	
Determine sensitivity of key species to a range of water quality parameters	1C, 2	NE, Universities	EA					●	
Conduct research into the causes of excessive weed growth in spawning grounds	2C	EA				●			

(cont.)

Actions for Freshwater on Dartmoor (cont.)

Action	Meets Objective/ Target	Deliverer		Complete by					Date achieved
		Lead	Partners	2007	2008	2011	2016	On-going	
Community and Publicity									
Include relevant articles in <i>Dartmoor Biodiversity Newsletter</i>	1	DNPA, EA							●
Promote wise use of water; link public supply with effect on natural environment	1, 2	SWW, EA	DWT, DNPA						●
Seek opportunities to involve riparian owners and fisheries associations in practical conservation work and surveys	1	EA	Riparian owners, Fisheries Associations, DNPA						●
Include the public in recording schemes	1	DWT, DNPA							●

Abbreviations used in this table:

BCU – British Canoe Union, BDS – British Dragonfly Society, AfW – Action for Wildlife Project, DaCC – Dartmoor Commoners’ Council, DoC – Duchy of Cornwall, DNPA – Dartmoor National Park Authority, DWT – Devon Wildlife Trust, EA – Environment Agency, NE – Natural England, FC – Forestry Commission, LAs – Local Authorities, SWW – South West Water, SWLT – South West Lakes Trust, WCRT – West Country Rivers Trust, WTS – Wild Trout Society.