

LAKES, PONDS AND TARNs

A range of habitats from lowland to upland, large to small, nutrient-rich to nutrient-poor. All can be impacted upon by changes to water flows or pollution, and by direct physical damage.

UK Priority Habitats covered by this statement:

[Mesotrophic lakes](#)

[Oligotrophic and dystrophic lakes](#)

[Ponds](#)

Cumbria Biodiversity Action Plan habitats covered by this statement:

[Mesotrophic standing waters](#)

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Tarn at Barkbooth © Stephen Hewitt

Description

Lakes and tarns form a range of freshwater types classified according to their nutrient status, especially phosphorus concentrations. **Mesotrophic lakes and tarns** have naturally high levels of nutrients. These water bodies support a much greater diversity of aquatic plants than both **nutrient-poor (oligotrophic)** lakes and tarns and more nutrient-rich (eutrophic) water bodies. **Dystrophic tarns** occur in blanket bogs and raised bogs; they are acid and species-poor, but can support rare specialist species.

The aquatic flora of mesotrophic lakes, tarns and ponds is typified by species such as Alternate-flowered Water-milfoil, White Water-lily, Shoreweed, pondweeds and several uncommon aquatic plants, including Six-stamened Waterwort, Floating water-plantain and Pillwort.

Typical plants of oligotrophic lakes and tarns include Water Lobelia, Quillwort, Alternate-flowered Water-milfoil, Bulbous Rush and Bog Pondweed. Uncommon plants also occur including the nationally scarce Spring Quillwort.

Lakes, ponds and tarns can support extensive areas of emergent vegetation such as reedbeds and sedge swamps and are often fringed by wet woodlands with Alder and willows. They can also grade into mire and wet grassland vegetation.

Lakes, ponds and tarns support large numbers of invertebrates, including dragonflies, water beetles, stoneflies and mayflies, are important for breeding and wintering waterfowl, and support a range of fish, including rare species such as Vendace, Schelly and Arctic Charr.

Distribution and Extent

Lakes and tarns are found throughout Cumbria; they are particularly abundant in the Lake District, where most of the main valleys have large lakes and almost innumerable tarns can be found on the fells. Particularly important are Bassenthwaite Lake, Ullswater, Wast Water, Derwent Water, Blea Water, Devoke Water, Red Tarn, Elterwater, Innominate Tarn and Ennerdale Water.

Outside the Lake District lakes are less common, but include Talkin Tarn, Tindale Tarn, Thurstonfield Lough, Sunbiggin Tarn and Urswick Tarn.

Ponds are found throughout the lowlands in the county.

Conservation Issues

Pollution, particularly nutrient enrichment, is a major threat to lakes and tarns, and particularly ponds; this can originate from sewage effluent, agricultural run-off and fish farms.

Introductions of fish species not native to a particular lake can affect populations of native species through competition and can alter the structure of food webs within the lake, threatening rare species such as Vendace. Likewise introduced plants, such as the highly invasive New Zealand Pigmyweed, can seriously damage lake ecosystems and threaten rare species.

Recreational activities can damage plant communities through wave erosion, scouring of lake beds by anchor chains, trampling and any increase in turbidity, such as by propeller action. Recreation can also disturb wintering and breeding bird populations. Where lakes are used for water abstraction, the disruption of natural changes in lake levels and unseasonal changes in lake level can disrupt the plant communities found in marginal areas and shallow water.

Planning Considerations

- PPS9 states that local authorities should conserve important natural habitat types (priority habitats and habitats of principal importance in England), and identify opportunities to enhance and add to them.
- Any development that may impact upon lake, pond or tarn habitat would require an assessment of the likely effects on the habitat and, as necessary, appropriate protection and mitigation measures.
- Any lakeshore development may be detrimental to the ecology of the lake through direct loss of lakeshore habitat such as swamp or woodland, possible pollution of the lake, increased disturbance to wildlife, or damage to fragile underwater and marginal plant communities.
- Boating, in all forms, causes disturbance of birds and other wildlife and can result in erosion of lakeshores from wash and scouring of lake beds by mooring chains causing the loss of aquatic and marginal vegetation.
- Lakeshore paths also cause erosion of lakeshore vegetation and disturbance to wildlife.
- Water abstraction upstream can exacerbate pollution effects by reducing flows into the lake, concentrating pollutants and increasing the amount of time taken to flush polluted water out of the lake.

- Fish farms can be very damaging to the ecology of lakes and tarns due to nutrient enrichment resulting from waste fish food, the potential for the introduction of fish species not native to the lake and the use of chemicals to treat fish diseases.
- Many of the major Lake District lakes are SSSIs, as are many tarns, and some lakes and tarns are also internationally important as Special Areas of Conservation.
- There are also many high quality tarns which lie outside the SSSI system. Ponds almost entirely lie outside the SSSI system. Many of these are designated as County Wildlife Sites.

Enhancement Opportunities

- Incorporation of Sustainable Urban Drainage Systems (SUDS, which are also appropriate in rural situations) in developments.
- Use of soft surfaces such as grass in place of hard surfacing wherever possible, or 'grasscrete' where hard surfacing is necessary, to allow water to soak away.
- Enhancement of lakeshores through appropriate native woodland and scrub planting, or restriction of access to allow the development of marshy areas, wetland and mire.
- Creation of new ponds, ditches and wetlands in appropriate situations to enhance the connectivity of habitat through the landscape.
- Creation of protection zones for lakeshores with important examples of aquatic flora or fauna or of importance for breeding or wintering birds. Development would be proscribed in such areas.
- Reduction of pollution and other impacts resulting from existing developments, through new development and design opportunities.

Habitat Targets

- Habitat targets for Cumbria can be found in a separate document "Habitat Targets, Planning Considerations and Enhancement Opportunities" available from www.lakelandwildlife.co.uk or by clicking [here](#)

Key Species

The following Key Species could benefit from enhancement of this habitat, or be negatively impacted upon by inappropriate developments on or near this habitat:

Floating Water-plantain	European Eel	Common Toad
Slender Naiad	River Lamprey	Grass Snake
Pillwort	Schelly	Grasshopper Warbler
Six-stamened Waterwort	Vendace	Kingfisher
Variable Damselfly	Atlantic Salmon	Osprey
White-faced Dragonfly	Brown Trout	Reed Bunting
Medicinal Leech	Arctic Charr	Water Vole
Zircon Reed Beetle	Great Crested Newt	Otter
Oxbow Diving Beetle	Natterjack Toad	Daubenton's Bat

Further Information

[UK BAP mesotrophic lakes](#)

[UK Biodiversity Partnership, Species and Habitats Review 2007](#), Oligotrophic and Dystrophic Lakes, and Ponds, Summary Statements p99-100, Habitat Proposals p129-132

[Habitats of principal importance in England](#) Section 41 NERC Act list

[Cumbria BAP mesotrophic standing waters](#)

[Buglife habitat management advice: mesotrophic lakes](#)

[Buglife: freshwater invertebrates](#)

[BTCV Waterways and Wetlands Handbook](#)

[National SUDS Working Group, Interim Code of Practice](#), very useful information

[Environment Agency](#), SUDS

[Environmental Stewardship](#) and [HLS handbook](#)

[Bassenthwaite Lake Restoration Programme](#)

Contacts

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- **Cumbria Wildlife Trust**, Tel: 01539 816300, mail@cumbriawildlifetrust.org.uk

Current Action in Cumbria

- The Lake District Still Waters Partnership aims to protect and enhance lakes and tarns in the Lake District and has instigated the Bassenthwaite Lake Restoration Programme in 2002. The aims of the project are to reduce the nutrient levels and sediments in the lake and to protect and enhance biodiversity.
- The Environmental Stewardship Scheme run by Natural England provides financial incentives to manage land in a way that is sympathetic to its nature conservation interest with specific options designed to improve water quality.
- In 2003 Cumbria Wildlife Trust and the Freshwater Biological Association set up the Cumbria Tarns Project. Its aim was to re-survey all tarns in Cumbria to determine whether species composition and tarn ecology has changed over the past 30 years and help determine the possible causes of this change. The project finished in 2009 and currently a detailed review of the data collected is being undertaken.