UK Biodiversity Action Plan
Priority Habitat Descriptions

Lowland Raised Bog

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Lowland Raised Bog

The definition of this habitat remains unchanged from the pre-existing Habitat Action Plan (https://webarchive.nationalarchives.gov.uk/20110303150026/http://www.ukbap.org.uk/UKPlans.aspx?ID=20, a summary of which appears below.

Lowland raised bogs are peatland ecosystems which develop primarily, but not exclusively, in lowland areas such as the head of estuaries, along river flood-plains and in topographic depressions. In such locations drainage may be impeded by a high groundwater table, or by low permeability substrata such as estuarine, glacial or lacustrine clays. The resultant waterlogging provides anaerobic conditions which slow down the decomposition of plant material which in turn leads to an accumulation of peat. Continued accrual of peat elevates the bog surface above regional groundwater levels to form a gently-curving dome from which the term 'raised' bog is derived. The thickness of the peat mantle varies considerably but can exceed 12m.

In the UK, lowland raised bogs are a particular feature of cool, rather humid regions such as the north-west lowlands of England, the central and north-east lowlands of Scotland, Wales and Northern Ireland, but remnants also occur in some southern and eastern localities, for example Somerset, South Yorkshire and Fenland.

Lowland raised bogs may develop from a preceding phase of fen via successional processes or, if the climate is sufficiently wet, by peat formation directly onto a bare substrate, a process known as 'paludification'. Accumulation of peat separates the bog surface from the influence of groundwater, so that it becomes irrigated exclusively by precipitation. This type of ecosystem is known as an 'ombrotrophic' (or 'rain-fed') bog. Consequently, the surface of a 'natural' lowland raised bog is typically waterlogged, acidic and deficient in plant nutrients. This gives rise to a distinctive suite of vegetation types, which although low in overall diversity, support specialised plant assemblages dominated by a colourful range of mosses of the genus *Sphagnum*, (Baltic bog-moss *Sphagnum balticum*, Skye bog-moss *Sphagnum skyense*), as well as vascular plants adapted to waterlogged conditions such as the cotton grasses *Eriophorum* spp. Lowland raised bogs also support rarer plants such as the bog mosses *Sphagnum pulchrum* and *Sphagnum imbricatum* as well as a number of higher plants which have become increasingly scarce in the lowlands including bog rosemary *Andromeda polifolia*, great sundew *Drosera anglica* and cranberry *Vaccinium oxycoccos*.

The raised bog surface may support a patterned mosaic of pools, hummocks and lawns, a microtopography created in part by the growth of the plants themselves. This provides a range of water regimes which support different species assemblages. *Sphagnum* mosses are the principal peat-forming species on natural UK lowland raised peat bogs, and their dominance in the living vegetation layer gives a bog its characteristically 'spongy' surface. The ability of this layer to store water is thought to be important in keeping the bog surface wet during the summer.

A number of plant communities defined by the National Vegetation Classification can be found on raised bogs. Plant communities that are typical of natural raised bogs include the bog pool communities M1 to M3 and M18 *Erica tetralix-Sphagnum papillosum* raised and blanket mire. In addition a number of communities, including M15 *Scirpus cespitosus-Erica tetralix* wet heath, M19 *Calluna vulgaris-Eriophorum vaginatum* blanket mire, M20 *Eriophorum vaginatum* blanket and raised mire, M25 *Molinia caerulea-Potentilla erecta* mire and W4 *Betula pubescens-Molinia caerulea* woodland, can be found on raised bogs which have been subject to some disturbance such as drainage or peat-cutting.

Lowland raised bogs also support a distinctive range of animals including a variety of breeding waders and wildfowl and invertebrates. Rare and localised invertebrates such as the large heath butterfly *Coenonympha tullia*, the bog bush cricket *Metrioptera brachyptera*, and mire pill beetle *Curimopsis nigrita* are found on some lowland raised bog sites.

Peat accumulation preserves a unique and irreplaceable record of plant and animal remains and some atmospheric deposits from which it is possible to assess historical patterns of vegetation and climate change and human land-use.

As elsewhere across north-west Europe there has been a dramatic decline in the area of lowland raised bog habitat since around the start of the nineteenth century. The area of lowland raised bog in the UK retaining a largely undisturbed surface is estimated to have diminished by around 94% from an original *c*95,000ha to *c*6,000ha at the present day (England 37,500ha reduced to 500ha, Scotland 28,000ha to 2,500ha, Wales 4,000ha to 800ha, Northern Ireland 25,000ha to 2,000ha). Historically, the greatest decline has occurred through agricultural intensification, afforestation, and commercial peat extraction. Future decline is most likely to be the result of the gradual desiccation of bogs damaged by a range of drainage activities and/or a general lowering of groundwater tables.