UK Biodiversity Action Plan
Priority Habitat Descriptions

Machair

From:
UK Biodiversity Action Plan; Priority Habitat Descriptions. BRIG (ed. Ant Maddock) 2008.

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Machair

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=30), a summary of which appears below.

Machair is a distinctive type of coastal grassland found in the north and west of Scotland, and in western Ireland. It is associated with calcareous sand, blown inland by very strong prevailing winds from beaches and mobile dunes. The Gaelic word *Machair* is the only name for this major habitat type in Britain.

In its strict sense, 'machair' refers to a relatively flat and low-lying sand plain formed by dry and wet (seasonally waterlogged) short-turf grasslands above impermeable bedrock, a habitat termed 'machair grassland'. However, *machair* can also cover the beach zone, mobile and semi-fixed foredunes, dune slacks, fens, swamps, lochs (some of them brackish), saltmarsh, and sand blanketing adjacent hillslopes, together forming the 'machair system'. It is also often associated with an inland transition to heath and mire termed 'blackland' which can include sand-affected peatland. Though this action plan principally addresses the machair grassland, this is an integral part of the wider machair system so the plan must consider the former in the context of the latter.

It is estimated that 'machair grassland' is restricted to about 25,000ha in world-wide extent, with 17,500ha in Scotland and the remainder in western Ireland, so that world distribution is very restricted. The largest extents in Scotland are in the Western Isles (10,000ha, mainly in the Uists), Tiree and Coll (4,000ha), Orkney (2,300ha), western Scottish mainland (1,000ha) and Shetland (180ha). The full (global) geographical extent of the wider 'machair systems' is believed to be in the region of 40,000ha, with some 30,000ha in Scotland and 10,000ha in Ireland.

Machair grassland plains are complex features in terms of origin, development, processes, local habitat types and management. They are formed from sand blown inland following the periodic breakdown of foredunes above the beach and contain a mosaic of wet and dry grassland communities. These are related to grazing and tillage history superimposed upon gradients of surface stabilisation, soil acidity, and salinity which are controlled by local sand blow, water-table fluctuation and micro-topography, giving rise to highly complex habitat mosaics. Some plant communities are largely restricted to western and northern Scotland.

Machair has a very long history of management by local communities over several millennia. In recent times this has involved a mix of seasonal extensive grazing (mainly by cattle, with pastures rested in the summer) and low-input low-output rotational cropping based on potatoes, oats and rye. A very small area of beer barley is also cultivated. This traditional mixed management sustains varied dune, fallow and arable weed communities which offer in some areas superb displays of flowering colour across wide expanses of unfenced land in summer. The periodic ground disturbance and seasonal absence of stock supports very important breeding wader populations. The wider machair system has a rich invertebrate fauna. This traditional agriculture is associated mainly with the Uists and Tiree; outside these areas there has been a marked decline in such land management with a corresponding decline in wildlife.

No plant sub-communities of the National Vegetation Classification are confined to machair, but the two most indicative are the *Festuca rubra-Galium verum* fixed dune grassland, *Ranunculus acris-Bellis perennis* sub-community of dry machair (SD8d) and the *Festuca rubra-Galium verum* grassland, *Prunella vulgaris* sub-community of wet machair (SD8e).

Few rare plant species are largely restricted to machair systems. Exceptions are the slender naiad *Najas flexilis* which is strongly associated with machair lochs, some pondweeds, *Potamogeton* spp (grass-wrack pondweed *Potamogeton compressus*, Shetland pondweed *Potamogeton rutilus*) and their hybrids, and the endemic orchid *Dactylorhiza majalis scotica*. This environment is more important as one of the last areas in Britain supporting old field successions, some of which are a century or more old. The great complexity and diversity of habitats and plant communities within machair systems is also a special feature. Two nationally scarce birds, corncrake *Crex crex* (which is globally threatened) and corn bunting *Miliaria calandra*, are noted birds of machair systems. The machair breeding wader populations of the Uists, Tiree and Coll are claimed as the most important in the north-west Palaearctic. Notable invertebrates include the belted beauty moth *Lycia zonaria*, and the northern colletes *Colletes floralis*.

There is a very strong association between traditional land use and crofting communities. Machair is a living, cultural landscape and much of its conservation value is dependent on the maintenance of viable crofting agriculture based on low-input shifting cultivation. Machair is highly susceptible to agricultural modification and is particularly sensitive to changes in grazing, sand and shingle extraction, and recreational impact.