



# UK Biodiversity Action Plan Priority Habitat Descriptions

## Traditional Orchards

**From:**

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

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# Traditional Orchards: Description, Definition and Extent

## Correspondence with existing habitats

- UK BAP broad habitat: Broadleaved, mixed and yew woodland (the proposed habitat is a habitat complex like lowland wood-pasture and parkland, which is in this broad habitat)
- Phase 1: A. Woodland and scrub, A 1.1.2. Broadleaved plantation, orchard, to be identified by existing/added symbols (England Field Unit 1990).
- NVC: Incorporates several types as part of the orchard habitat complex (e.g. MG5, MG6, W24).
- Annex I: Incorporates parts of several Annex I types, for example lowland calcareous grassland in some sites within the Annex I type H6210 semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*).

## Description

Habitat structure rather than vegetation type, topography or soils, is the defining feature of the habitat.

Traditional orchards are structurally and ecologically similar to wood-pasture and parkland, with open-grown trees set in herbaceous vegetation, but are generally distinguished from these priority habitat complexes by the following characteristics: the species composition of the trees, these being primarily in the family Rosaceae; the usually denser arrangement of the trees; the small scale of individual habitat patches; the wider dispersion and greater frequency of occurrence of habitat patches in the countryside. Traditional orchards include plantings for nuts, principally hazel nuts, but also walnuts. Management of the trees is the other main feature distinguishing traditional orchards and wood-pasture and parkland. Trees in traditional orchards are, or were, grown for fruit and nut production, usually achieved through activities such as grafting and pruning; whereas timber has been the main product from trees in wood-pastures and parkland, mostly derived from pollarding or selective felling. Grazing or cutting of herbaceous vegetation are integral to orchard management, as they are in wood-pastures and parkland. The presence of scrub, mostly in the form of hedgerows on the site boundaries, or sometimes, especially in unmanaged orchards, among the orchard trees, is analogous to the frequent occurrence of scrub in wood-pastures and parkland and plays a similar ecological role (see under biodiversity characteristics described below). Ponds and other wetland features are often present; being used now, or in the past, for watering livestock.

Orchards are hotspots for biodiversity in the countryside, supporting a wide range of wildlife and containing UK BAP priority habitats and species, as well as an array of Nationally Rare and Nationally Scarce species. The wildlife of orchard sites depends on the mosaic of habitats they encompass, including fruit trees, scrub, hedgerows, hedgerow trees, non-fruit trees within the orchard, the orchard floor habitats, fallen dead wood and associated features such as ponds and streams. A feature of the biodiversity of traditional orchards is the great variety of fruit cultivars that they contain. For example, Luckwill and Pollard (1963) list 101 varieties of perry pear distributed across the parishes of Gloucestershire. This agricultural biological diversity is not an explicit part of the current UK BAP, although the UK Government is a signatory to the Global Strategy for Plant Conservation (2001). The Government response (Cheffings and others 2004) includes a target for conserving crop diversity.

Traditional orchards are defined for priority habitat purposes as orchards managed in a low intensity way, in contrast with orchards managed intensively for fruit production by the input of chemicals such as pesticides and inorganic fertilisers, frequent mowing of the orchard

floor rather than grazing or cutting for hay, and planting of short-lived, high-density, dwarf or bush fruit trees.

Spacing of trees in traditional orchards can vary quite widely (from c3m in some plum orchards and traditional cobnut plats, to over 20m in some large perry pear and cherry orchards). There is some overlap of density of planting with intensive orchards, but these orchards often have densities at least twice as high as the most closely-spaced traditional orchard.

Like wood-pastures and parklands, traditional orchards can occur on a wide range of soil types, from slightly acid, relatively infertile soils to fertile river floodplain soils and lime-rich soils. Orchards can be found on slopes ranging from steep to level, and with any aspect. Generally, sites do not have badly impeded drainage, although locally, within sites, there may be wetter areas. Orchards are found in the lowland landscape in the UK, defined as the land below the altitudinal limit of enclosure (i.e. below the 'moor wall').

Traditional orchards can easily be distinguished from other wooded habitats based on the preponderance of domestic fruit and nut species: apple, plum, pear, damson, cherry, walnut and cobnut. Only in a very few cases will there be a significant number of other tree species in a traditional orchard, unless the orchard is becoming woodland through neglect. An arbitrary distinction of requiring, say, 50% of trees to be domestic fruit or nut species in an orchard, is rarely likely to be invoked for distinguishing orchards from wood-pasture/parkland.

Traditional orchards contrast with orchards managed intensively for fruit production, where there are inputs of chemicals such as pesticides and inorganic fertilisers, frequent mowing of the orchard floor rather than grazing or cutting for hay, and planting of short-lived, high-density, dwarf or bush fruit trees (stems generally 75cm or less).

The simplest visual indicator of intensive management is the presence of herbicided strips along the tree rows, where the ground is generally bare or with some annual plant re-growth; contrasting with the permanent grassland of the between-row spaces. Such strips are readily observable on aerial photographs. According to orchard pesticide usage surveys by the Central Science Laboratory (CSL), use of herbicide is associated with other pesticide use and intensive mowing between tree-rows, while in contrast, orchards with fully grassed floors can be considered traditional (Dr Joe Crocker, CSL, pers. comm.). There may potentially be cases where other pesticides or inorganic fertilisers or other intensive management practices are used without herbicide. As a consequence, for instance where herbicide strips are not evident but the trees appear small and closely spaced, there may occasionally be instances for limited ground-truthing by checking density / spacing (see below) and stature of trees on the ground. Spacing of trees in traditional orchards can vary quite widely, from around 3m to over 20m between trees (see above). There is some overlap of density of planting with intensive orchards, so a density distinction is not useful on its own. However, non-traditional orchards often have densities at least twice the density of the most closely-spaced traditional orchard, and density/planting distance (< 3m in many intensive orchards) can help in the distinction of intensive orchards as described above.

### **Traditional Orchards: UK HAP Definition**

Traditional orchards are defined, for priority habitat purposes, as groups of fruit and nut trees planted on vigorous rootstocks at low densities in permanent grassland; and managed in a low intensity way. Cobnut plats are also included.

## **Background / Explanation to Definition**

Traditional orchards are a long-established and widely distributed habitat and make a significant contribution to biodiversity, landscape character and local distinctiveness across the UK. There are many regional variations on this theme, including apple, pear, cherry, plum, damson, and walnut orchards. Although cobnut plot structure and management varies from fruit tree orchards and has affinities with coppice woodland, they are also included in the definition.

They are a composite habitat (similar to wood-pasture and parkland), defined by their structure rather than vegetation type, which can include trees, scrub, grassland, ponds, walls, hedgerows and hedgerow trees. Traditional orchards can take several different distribution patterns, including small and large patches, along linear boundaries, and trees dispersed among settlements.

Prime traditional orchard habitat consists of grazed grassland with fruit trees of varying age structure, with an abundance of standing and fallen dead and decaying wood. Young trees and newly planted orchards that are managed in a low intensity way are also included in the definition.

Low intensity management refers to orchards that are managed extensively, with little or no use of chemicals such as pesticides, herbicides and inorganic fertilisers, with relatively long-lived trees that are allowed to reach the veteran stage, and with a permanent grass sward that is usually grazed by cattle or sheep or cut for hay. Although traditional orchards have sometimes been established with soft fruit or other crops grown between rows, where these are managed extensively the orchard floor has usually been grassed over once the trees have matured and the canopy has closed over.

In contrast, intensive management refers to orchards managed to maximise fruit production, usually including several of the following management practices; dense planting of short-lived trees on dwarfing rootstocks, high chemical inputs, intensive pruning to remove dead and decaying wood and maintain the trees in a restricted form, and frequent mowing and spraying of the orchard floor.

Planting density depends on the species of tree. For apple, pear and cherry this will usually be less than 150 trees/ha. (approximately 8m spacing between the trees), but for other species such as plum and damson this density may be higher. Tree form will usually be standards or half-standards, but will vary accordingly to species and local practice. Vigorous rootstocks include trees that are grown on their own rootstock, seedling rootstocks, and named rootstocks that allow the tree to develop to its full size.

The minimum size of a traditional orchard is defined as five trees with crown edges less than 20m apart. However, the potential biological and genetic interest of sites with fewer trees, such as relict orchards and individual trees within gardens, is noted. Where appropriate these should be considered as potential restoration sites. It is recognised that other sites which fall outside the definition, such as organic bush orchards and fruit collections in walled gardens, may also have biodiversity value, as well as historic, cultural and genetic importance.

## **Extent of Resource**

Traditional orchards are found in all countries of the UK, although England has the bulk of the resource. Areas digitally mapped by the Ordnance Survey have been found to provide a relatively accurate estimate of total orchard area, as a result of testing by ground-truthing and aerial photograph interpretation (Natural England, in prep.). Together with country information on extent of commercial orchards in agricultural census returns, digital Master

Map polygons can be used to make initial estimates of the extent of the resource (see table below).

The estimated extent of traditional orchards in the UK is 25,350ha. This puts the habitat at the rarer end of the scale compared to existing priority habitats. These range from Upland hay meadows (1,100ha), Lowland wood-pasture and parkland (35,000ha), Lowland heathland (over 60,000ha), Upland oakwood (85,000ha) to Upland heath (2,109,400ha).

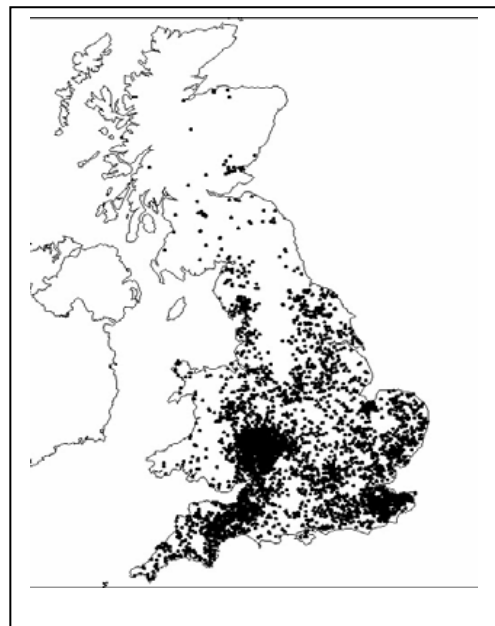
Country	*Orchard area (ha)	**Traditional orchard area (ha)
England	39,600	24,600
Scotland	290	250
Wales	840	440
Northern Ireland	(1,600)	60

\*Ordnance Survey area except for Northern Ireland where area under fruit (top and soft) is given from the agricultural census 2004.

\*\* England: Ordnance Survey area in 2006 minus area of commercial orchards in Agricultural census of 2006 defined as intensive (84%) by lack of fully grassed orchard floor (Central Science Laboratory data). Scotland and Wales: Ordnance Survey area minus area of commercial orchards in agricultural censuses of 2003 and 2002 respectively. Note that some of the commercial orchards in Scotland and Wales may be traditional orchards; thus the estimate of traditional orchard area may be an underestimate. Northern Ireland: estimate from figure given in the Environmentally Sensitive Areas scheme booklet, traditional orchards option.

The Ordnance Survey data, which do not distinguish traditional and intensive orchards, show that orchards are dispersed throughout the lowlands of Britain, although there are concentrations in some areas particularly Kent, Cambridgeshire, Somerset and the Three Counties (Herefordshire, Worcestershire and Gloucestershire). The bulk (78%) of the commercial fruit production occurs in these concentrations in England, which implies that traditional orchards comprise the majority of the orchards elsewhere, as well as being known to occur in the orchard concentration areas.

*Map: Orchard distribution in England, Scotland and Wales.* Reproduced from Ordnance Survey material with the permission of Ordnance Survey on behalf of the Controller of Her Majesty's Stationary Office © Crown copyright. Unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceeding. English Nature 100017954 [2005].



An inventory of traditional orchards in England is currently in progress and is due to be completed in March 2011. The data set can be downloaded via the [GIS Digital Boundary Datasets](#) page on the Natural England Website and can be viewed via the MAGIC interactive map online resource <http://www.magic.gov.uk/home.htm>.

A simple mappable definition has been adopted and is based on the rules adopted for the Natural England orchard project. The minimum size of a traditional orchard is defined as five trees with crown edges less than 20m apart.

For further information visit Orchard Network [www.orchardnetwork.org.uk](http://www.orchardnetwork.org.uk) (From April 2010).

**References:**

Cheffings, C., Harper, M. and Jackson, A. 2004. *Plant diversity challenge: the UK's response to the Global Strategy for Plant Conservation*. Peterborough: Joint Nature Conservation Committee.

Luckwill, L.C. and Pollard, A. 1963. *Perry pears*. Bristol: Published for the National Fruit and Cider Institute by the University of Bristol.