



TRADITIONAL ORCHARDS

a guide to wildlife and management

Traditional orchards are a much loved part of our British heritage and countryside. They generally consist of large trees grown on vigorous rootstocks planted at low densities. Often occupying the same piece of land for centuries, and managed without chemical input, these sites are hotspots for biodiversity and have been shown to provide a refuge for over 1800 species spanning the plant, fungi and animal kingdoms.

In addition to the well-known apple orchard, plums, pears, damsons, cherries and quince are all grown in orchards, and cobnuts (a type of cultivated hazel) are grown in a type of orchard called a plat.

Whether you are managing your orchard for fruit production, or just enjoy having a remnant orchard as an extension to your garden, these areas are important for wildlife and often harbour old, rare and locally significant fruit varieties.

Once a common sight within the landscape, the traditional orchard habitat is now under serious threat and for this reason the UK Biodiversity Action Plan (BAP) now includes Traditional Orchards in its list of priority habitats. Threats to old orchards include neglect, intensification of agriculture and pressure from land development. Supermarkets have long been importing cheap fruit from overseas which has led to orchard habitats becoming economically unviable and increasingly rare. The area of orchard habitat across England has declined by more than 60% since the 1950's.

People's Trust for Endangered Species (PTES) are creating an inventory of traditional orchards which will form a baseline from which to guide all future conservation work in order to maintain and preserve this unique and special habitat. We also want to encourage the more traditional methods of orchard management and raise the profile of locally grown fruit.

Orchard owners and managers can help to protect the wildlife associated with traditional orchards by following some of the simple steps shown inside.

wildlife in your orchard

Traditional orchards tend to be small areas of land. They contain a mosaic of habitats important to wildlife including decaying wood, species-rich grassland, ponds, and nectar sources. These provide food, shelter and potential breeding sites for many different species.

fungi

Fungi occur almost everywhere and play a vital role in the ecosystem. Many fungi are essential as decomposers and recyclers of plant remains and others are key transporters of nutrients for the optimum growth of trees and plants.

Waxcaps are a group of grassland fungi that are associated with the orchard floor. They have thick gills and a waxy texture. They are intolerant of chemical fertilisers and are therefore indicators of high quality, unimproved grassland. They prefer frequently mown or grazed sites where the grass is short and require a considerable time to develop, consequently they are becoming increasingly rare.

As well as grassland fungi, there are many species associated with both living and decaying wood of orchard trees. The presence of fungal fruiting bodies has often led to much concern, however few fungi are major pathogens and now, instead of being seen as detrimental, fungi are known to unlock nutrients in the soil and are believed to be the key to prolonging the lives of trees and are often of conservation value themselves.

lichens

Lichens are slow growing and consequently the greatest abundance and diversity occur where conditions are stable for long periods of time. They are very sensitive to air pollution, particularly sulphur dioxide, with only a few species able to survive in areas of high pollution and so they act as indicators of air quality. The most sensitive lichens to air pollution are shrubby and leafy while the most tolerant are all crusty in appearance. A rare lichen which was believed to be extinct in the UK was recently rediscovered in a Herefordshire orchard. The golden eye lichen, which was once common across southern England, is thought to have been affected by air pollution, fertiliser use and the decline in the number of traditional orchards.

plants

The orchard floor plant community is a very important part of the habitat. If it has been cut for hay or lightly grazed and not been treated with chemicals it is often species-rich and can be covered in wild flowers such as cowslips and orchids. As well as generating a colourful display in spring these wildflowers are essential nectar and pollen sources for insects. Mistletoe, a well-known plant in orchards, is found on over 200 different tree species, cultivated apple being by far the most common.

insects

Insects have a tremendous range of ecological roles which are of benefit to people such as pollination of many crops and plants, recycling of plant nutrients and breakdown of waste and organic matter. Without insects these natural processes would be greatly slowed down and life would become very difficult.

Traditional orchards support an array of invertebrates owing to the diversity of the habitat and the presence of open, sunny sites. Bees, which forage for nectar among the wildflowers and fruit blossom, help to pollinate the orchard trees.

Fruit tree bark offers lots of structural texture for invertebrates. For example ladybirds, which are so important as natural predators of aphids, overwinter under loose bark and the red-belted clearwing moth lays its eggs in bark crevices.

Insects that are dependent on decaying wood (saproxylic), including the noble chafer beetle, are particularly prevalent in old orchards where trees have veteran features such as rot holes, hollow trunks and split bark. The nationally rare brown tree ant only nests in old hollow trees and hoverflies thrive in wet rot holes. Anthills, an indicator of old, undisturbed grasslands, may also be present. Other insect inhabitants include butterflies, hornets and solitary bees and wasps.

birds

Many bird species use orchards, including tits, thrushes, finches and flycatchers. Britain's smallest and rarest woodpecker, the lesser spotted woodpecker, relies on old trees with decaying wood to provide nesting sites. This elusive bird has undergone a rapid population decline since 1980, primarily, it is thought, due to loss of dead and decaying wood habitats. Blackcaps and mistle thrushes can be seen feeding on mistletoe berries and are important in dispersing the seeds.

mammals

Traditional orchards provide many features important to a number of bat species: holes in old trees can provide winter roosting sites and unimproved grassland teeming with invertebrates will offer a good supply of food. Voles and mice benefit from areas of rough, tussocky grass which encourages predators such as owls. Dormice have been found foraging in cobnut plants.





The noble chafer (*Gnorimus nobilis*) is one of our rarest beetles. This metallic, bronzy-green beetle is approximately 2cm long and is associated with old orchards where it is dependent on old, decaying wood within live trees especially plum, apple and cherry.

The key range of the noble chafer seems to be the fruit growing regions of England - Worcestershire, Gloucestershire and Herefordshire - with occasional records from the New Forest and south Oxfordshire. A population has recently been

discovered in Kent and it could be that the noble chafer is present in other counties but has gone unrecognised which is why raising awareness of this beetle is so important.

The larval stage of the noble chafer occurs entirely within the decaying trunks and branches where the larvae feed on the rotting wood debris. On emergence, in the summer months, the adult beetle can sometimes be found visiting flowers such as hogweed, meadow sweet and elder.

The noble chafer looks similar to the slightly larger rose chafer (*Cetonia aurata*). The rose chafer has smooth wing cases whereas the noble chafer has wrinkly wing cases with small white spots. There are also differences in the shape of the thorax. The small triangular area between the wing-cases where they join the thorax (the scutellum) is an equilateral triangle in the noble chafer, but is elongated in the rose chafer.



The noble chafer exhibits a preference for orchards that contain mature fruit trees between 50 and 80 years old. These sites are vulnerable to removal or clearance, particularly if the trees are reaching the end of their productive life.

If you would like further information about the noble chafer or think that you may have seen the beetle in your orchard, please contact PTES.

have you seen this fungus on your old apple tree?



The orchard tooth fungus (*Sarcodontia crocea*) is a very rare fungus that is listed as "vulnerable" in the UK. It is a UK Biodiversity Action Plan species and is highly threatened by the removal of old apple trees.

- the fungus forms encrusted, golden-yellow patches with mini stalactites or 'teeth'. It will be found on rotting cut branch ends or inside a rot hole - usually at head height and usually on trees in the sun.
- the most distinctive characteristic is its smell. When fresh the fungus smells of pineapple but as it ages it begins to smell strongly of rotting fruit.
- the fruiting bodies can be found between June and September.
- the fungus only feeds on the dead heartwood of the tree and is not a threat to the tree.
- it is extremely rare and currently found at under 20 sites in the country with recent records in Gloucestershire and Oxfordshire and is only found on apple. If a fungus looks like this but is on other trees, or at other times of the year, then it is not the orchard tooth fungus!

Please preserve and cherish old trees!

If you think you have seen this fungus please contact Judy Webb, local data recorder for the British Mycological Society, on 01865 377487

simple steps for biodiversity

Here are some simple, low-cost measures you can take in order to encourage or maintain wildlife in your orchard. These are based on 4 main principals: planting new trees, retaining decaying wood, ensuring a wide range of feeding and nesting habitats for an array of species and the reduction of chemical use. Low intensity management benefits wildlife and some pest species can be controlled naturally by encouraging their predators.

leave dead and decaying wood

Wood decay is part of the natural ageing process of the tree and dead and decaying wood should be retained. As a tree matures, it will naturally die-back and begin to hollow out enabling it to remain standing, recycle nutrients and ultimately thrive for longer. Decaying and dead wood, therefore, does not necessarily mean that a tree is in poor health. It will still be able to survive and produce fruit for many years to come whilst providing valuable habitat for numerous species.

From a wildlife perspective, standing decaying wood is one of the most valuable elements of the orchard habitat. Hollow trunks, cracks in bark and rot holes support a breathtaking range of saproxylic (deadwood-dependent) insects and also provide nesting and roosting areas for birds and bats. In fact a "dead" tree will be teeming with life and is far from dead!

Diseases do exist which can reduce fruit yield or damage trees and consequently any wood affected with an identified disease should be removed and burnt. Where unsafe decaying wood must be removed, it should be stacked nearby for the benefit of fungi and invertebrates.

If you want to go a step further and create another interesting habitat within your orchard, place some decaying wood into a pond or puddle. Wet wood is home to an additional unique suite of important organisms.

plant young trees

Planting new trees is just as important as retaining old ones and will ensure a succession of habitats for a variety of species. As the trees in your orchard age and die, plan to replace them with young stock, preferably produced from grafted material from existing trees on to vigorous rootstocks. This will not only help to preserve old and local varieties but these young trees will become the veteran trees of the future. Remember that newly planted trees may prove attractive to wildlife and grazing livestock so tree guards are likely to be required.

hedges and edges

Fruit trees are not the only important component of the orchard habitat. Creating ponds, leaving wild corners, rough edges and retaining species rich hedgerows will increase diversity. Instead of cutting hedges every year, only trim infrequently and do not cut all hedgerows in the same year to ensure availability of fruit and blossom for birds and insects. Retain hedgerow trees where possible. Ungrazed or uncut strips or corners of rough grass provide shelter and food for over-wintering insects, birds, small mammals and good hunting ground for birds of prey. Flowering trees, shrubs and plants within an orchard are important sources of nectar and pollen when insects are in their adult stage. Especially useful plants are members of the daisy family, hogweed and other umbellifers.

graze or cut for hay

Grazing and cutting for hay are the traditional ways of managing an orchard floor. Grazing creates a rough, uneven sward with tussocks for invertebrates to shelter in. Generally, grazing should keep the sward height between 5 and 15cm. Different animals and stocking densities will produce a different floral assemblages. Hay should be cut after wildflowers have set seed.

windfall

Fallen fruit can provide an important autumn and winter food source for a range of wildlife and can help to ensure the survival of some species. Birds and mammals, butterflies, moths and bees will all be attracted to this rich natural larder.

reducing chemical inputs

By far the biggest contribution to increasing biodiversity of an orchard (and indeed any piece of land) is avoiding chemical use. Herbicides, fungicides and insecticides will be detrimental to invertebrates and also affect beneficial mycorrhizal fungi that live in the soil and help to keep trees healthy, maintaining a fully functioning ecosystem. Reliance on natural soil fertility will favour meadow and woodland species rather than nutrient hungry species such as docks and nettles.



mistletoe in your orchard

Mistletoe is one of Britain's best-known plants. Familiar to everyone and with a history in folklore and legend extending back to ancient times, there is a lot more to mistletoe than Christmas kissing!



There are hundreds of species of mistletoe worldwide but just one species in Britain - *Viscum album*.

Mistletoe is a parasitic evergreen shrub that grows on trees and shrubs. Strictly speaking it is only semi-parasitic as it has green leaves to photosynthesise but relies on the host for water and mineral nutrients.

Mistletoe has been found on over 200 host trees but the most common is the apple tree, with lime and poplar also frequent hosts. The plant seems to prefer its host trees in open situations rather than woodland, so orchards are ideal habitats.

The distribution of mistletoe is centred around the Three Counties of Gloucestershire, Worcestershire and Herefordshire and in Somerset. It is only in this core area that orchards feature significantly as a host habitat. Outside of these counties, the plant

mainly appears on parkland limes which has become an increasingly frequent mistletoe host from the scattered records in the east and south east of England. In the north and east England, Wales, Scotland and Ireland, there are only rare occurrences of mistletoe. It is believed that climate and host-tree availability are the influencing factors for the distribution of mistletoe.

Mistletoe is the only native plant to have white berries and consequently few birds recognise it as a food source making seed dispersal an issue. Fortunately there are two birds that do; the mistle thrush which eats the berries whole and excretes the seed and the black cap which wipes the sticky seed onto a branch with its beak.

As well as the well-loved seasonal traditions associated with mistletoe, this fascinating plant also has medicinal properties and extracts from it are now used in cancer therapy.

Mistletoe harvesting

Fruit yield and tree growth will be reduced on apple trees laden heavily with mistletoe and through increased wind resistance, the chance of wind-blow will be greater. Harvesting your mistletoe can be an ideal way to reduce the plant's impact and to get a small return from your orchard.

Whilst mistletoe is not declining, as is often believed, there may be local declines associated with orchard loss. The plant is also home to some rare invertebrates.

It is therefore important to harvest your mistletoe in a sustainable way by retaining some of the female berry-bearing plants as well as the male plants to ensure the continued annual presence of healthy mistletoe bearing trees in orchards.

Kissing under the mistletoe will never be the same again when you realise there are six species of invertebrate that are associated with this fascinating plant.

Everyone is aware that mistletoe is steeped in history and lore but not so well known is the fact that the plant has an ecosystem of its own. The specialised fauna comprises one moth, one weevil and four bugs, three of which feed on the plant and the fourth is a predator of the other bugs. The mistletoe weevil *Ixapion variegatum* was first discovered as new British species in Herefordshire in 2000 and the capsid bug *Hyposeloecus visci* was only recently discovered in 2003 in Somerset. With mistletoe growing high up in the crown of trees, the creatures dependent on it are almost impossible to record and it is likely that they are more common than we think.



mistletoe weevil



Mistletoe Marble

The mistletoe marble moth, another UK Biodiversity Action Plan (BAP) species, is predominantly, although not exclusively, found in orchards where mistletoe flourishes on apple trees. The moth is marbled through a mixture of white, fawn and cobalt-blue, this colouring mimicking a bird dropping. The caterpillars of the moth mine the leaves, an individual caterpillar spending much of the year (from September to May) within a single leaf of the plant.



Useful information

Mistletoe Matters

The Mistletoe Matters Consultancy provides information on all aspects of mistletoe in the UK, offering talks and walks in mistletoe country, and advice on growing, controlling and conserving mistletoe.

www.mistletoes-r-us.co.uk

Mistletoe Pages

This website provides an introduction to mistletoe worldwide. The site aims to provide some background on all aspects of mistletoe - biology, traditions and use in medicine.

www.mistletoe.org.uk

Butterfly Conservation

Butterfly Conservation has produced a factsheet, available as a download, containing essential information to enable the identification and practical conservation of the mistletoe marble.

www.butterfly-conservation.org





There are many fruit varieties which have historical associations with particular places throughout the country. Some have been bred or discovered in an area and are named after the place they came from or by the person that discovered or raised them. Other varieties were popularly grown in an area. With the loss of traditional orchards these local and often rare varieties of fruit are at risk of being lost and already some have become extinct.

When planting a new orchard or “gapping up” an existing one, please consider planting local varieties. As well as planting trees that grow best where they originated you will also be helping to conserve cultural and genetic diversity.

If your orchard already contains a local, or rare variety, think about perpetuating it by grafting onto a suitable rootstock. Many courses are available that teach these techniques as well as other orchard management skills such as pruning and budding.

training courses and workshops

- Orchard Skills Centre - www.dayscottage.co.uk
- The East of England Apples and Orchards Project - www.applesandorchards.org.uk
- Brogdale Farm - www.brogdalecollections.co.uk

where to buy fruit trees

Thornhayes Nursery, Devon,
01884 266746.

Over 200 varieties of apple including many local types, 70 cider varieties, 30 plum, 30 pear, including perry, Devon specialities including maz-zards and Tamar Valley cherries.

Keepers Nursery, Kent,
01622 726465.

400 varieties of apple, more than 80 pears, plums, cherries and other fruits; they also offer a grafting and budding service.

The East of England Apples and Orchards Project, 01328 838298

Visit www.applesandorchards.org.uk for a catalogue of 170 varieties local to the East of England.

For further information about local fruit varieties and specialist fruit tree growers consult the online *Gazeteer of Local Varieties* by Common Ground at www.england-in-particular.info and follow the orchard path.

fruit identification

With at least 6000 different varieties of apple, 500 varieties of pear and 300 varieties of plum, identification is a complex matter. Most fruit identification is carried out by only a handful of specialists who have accumulated a wealth of knowledge over a life time of experience and interest.

brogdale farm

One of the best and most reliable ways to identify fruit varieties is to get help from Brogdale Farm, home of the British National Fruit Collection in Kent. Identification costs £10.00 per sample.

Their address is:
Brogdale Farm,
Brogdale Road,
Faversham, Kent, ME13 8XZ
01795 536250
www.brogdalecollections.co.uk

rhs garden wisley

The Royal Horticultural Society has a similar fruit naming service which costs £16 per variety for non- members. Contact: Fruit Naming Service RHS Garden, Wisley, Woking GU23 6QB 01483 224234

the orchard forum website

An apple identification key has been produced to enable non experts to become familiar with identifying apple varieties and can be downloaded from: www.nat-orchard-forum.org.uk

apple days

Apple Days on October 21st will often have a local expert on hand to identify apples that are brought along. Information about Apple Days can be found by visiting the Common Ground website www.commonground.org.uk

“ You could make an apple pie every day for 16 or more years and not use the same variety twice...”

Common Ground, The Apple Source Book(1991)

further reading

The Book of Apples :
Joan Morgan and Alison Richards

Apples A Field Guide :
Michael Clark

The Apple Book :
Rosanne Sanders
(Out of Print)

Apples: A Guide to the Identification of International Varieties :
John Bultitude
(Out of Print)

A Somerset Pomona :
Liz Copas

Fruit: An Illustrated History :
Peter Blackburne-Maze

Pears:
Jim Arbury

The Grafters Handbook :
R.J. Garner

RHS Pruning :
Christopher Brickell

Orchards:
Jonathan Latimer

The Common Ground Book of Orchards:
Common Ground

Community Orchards Handbook :
Common Ground

Protecting our Orchard Heritage:
Sustain



useful information

Orchard Network

Launched in spring 2010, on behalf of the Traditional Orchard BAP, the Orchard Network website acts as a 'signpost' to existing national and regional resources in England, covering a range of topics from orchard care and management through to grants and planning issues. The site will highlight the work of a number of different organisations all working to conserve Traditional Orchards.

www.orchardnetwork.org.uk

Natural England

Delivers an agri-environment scheme providing funding to farmers and other land managers in England.

Technical Information Notes about traditional orchards are available to download.

www.naturalland.org.uk

National Orchard Forum

Pools information from around the country and provides information of national interest.

www.nat-orchard-forum.org.uk

Common Ground

Founders of Apple Day, Common Ground have been working to save old orchards since the 1980s.

www.England-in-particular.info

East of England Apples & Orchards Project

Working to guarantee a future for local orchard fruits and orchards in the East of England. Also supplies fruit trees.

www.applesandorchards.org.uk

The Kentish Cobnuts Association

Promotes the cultivation and marketing of cobnuts.

www.kentishcobnutsassociation.co.uk

The Hertfordshire Orchard Initiative (HOI)

Government Officers, Orchard Owners and Wildlife Experts working to secure the future of Hertfordshire's orchards.

www.hertfordshireorchardinitiative.org.uk

Mid-Shires Orchard Group

Conserves heritage fruit trees and orchards in Buckinghamshire, Northamptonshire, Oxfordshire and Warwickshire.

www.msog.btik.com

The Three Counties Cider and Perry Association

For cider or perry enthusiasts in Gloucestershire, Herefordshire, Worcestershire.

www.thethreecountiesciderandperryassociation.co.uk

Gloucestershire Orchard Group

Aims to conserve, promote and celebrate traditional orchards in Gloucestershire.

www.orchard-group.uklinux.net/glos/

Worcestershire County Council

The 'Fruit Trees for Worcestershire' scheme sells varieties of locally distinctive fruit trees.

www.worcestershire.gov.uk/countryside

Marcher Apple Network

A society for reviving old varieties of apples and pears in the Southern Marches.

www.marcherapple.net

Herefordshire County Council

Helps with the restoration of old orchards and subsidises a 'Fruit Tree Kits for Gardens' scheme with Herefordshire varieties.

www.herefordshire.gov.uk

Somerset County Council

Provides orchard restoration grants, gives advice and distributes a free newsletter to an orchard owners network

www.somerset.gov.uk

Orchard Link & Orchards Live!

Support orchard owners and enthusiasts in north and south Devon to ensure that orchards are a sustainable element of the landscape.

www.orchardlink.org.uk
www.orchardslive.org.uk

Westmorland Damson Association

Aims to preserve the damson orchards in the old County of Westmorland especially in and around the Lyth Valley.

www.lythdamsons.org.uk

The Northern Fruit Group

Aims to promote knowledge of fruit growing of all types, particularly those varieties suitable for growing in the North of England.

www.northernfruitgroup.com

Images: Mark Sanders, Paul Brock, Matt Smith, Keith Alexander, Harry Green, Judy Webb, Mark Parsons, PTES