people's trust for endangered species

Traditional orchards

A guide to wildlife and management

Useful Info

People's Trust for Endangered Species
Practical orchard information.
www.ptes.org/orchards

Orchard Network
National group of organisations working to conserve Traditional Orchards.
www.ptes.org/orchardnetwork

Orchard Link & Orchards Live
Devon based groups
www.orchardlink.org.uk
www.orchardslive.org.uk

The Kentish Cobnuts Association
www.kentishcobnutsassociation.co.uk

The Hertfordshire Orchard Initiative
www.hertfordshireorchardinitiative.org.uk

Brighton Permaculture Trust
www.brightonpermaculture.org.uk

Common Ground
www.commonground.org.uk

Suffolk Traditional Orchard Group
www.suffolkbiodiversity.org/orchards.aspx

East of England Apples and Orchards Project
www.applesandorchards.org.uk

Mid-Shires Orchard Group
www.msog.btik.com

Bedford and Luton Orchard Group
www.facebook.com/BedfordshireOrchards

Gloucestershire Orchard Trust
www.gloucestershireorchardtrust.org.uk

The Three Counties Cider and Perry Association
www.thethreecountiesciderandperryassociation.co.uk

National Perry Pear Centre
http://www.hartpuryheritage.org.uk

Marcher Apple Network
www.marcherapple.net

Westmorland Damson Association
www.lythdamsons.org.uk

The Northern Fruit Group
www.northernfruitgroup.com

The Urban Orchard Project
www.theurbanorchardproject.org

Irish Seed Savers Association
www.irishseedsavers.ie

Fruit identification

Carried out by only a handful of specialists but help is at hand:

Apple days
Around October 21st, these will often have a local expert on hand to identify apples
www.brogdalecollections.co.uk/fruit-identification **(paid-for service)**

www.FruitID.com

www.gardenappleid.co.uk

www.devon-apples.co.uk

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Registered charity no. 274206

Traditional orchards are havens for biodiversity. They offer both food and shelter to thousands of species some of which have high conservation priority. By protecting traditional orchards and maintaining low-intensity management we protect all the species that live and forage there too.

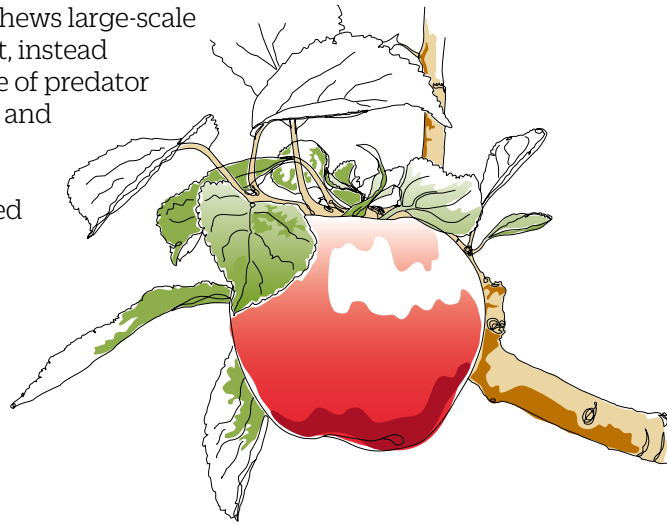
Decline

The introduction of modern intensive farming practices to fruit growing has dramatically changed the character of orchards. Although production has steadily increased, the impact on wildlife and the environment has been severe. Whilst most fruit production was intensified, many smaller orchards escaped modernisation. In a similar way to our few remaining wildflower meadows, traditional style orchards are now recognised and celebrated as being ecologically benevolent and long-term sustainable.

Definition

What makes an orchard 'traditional'? Modern intensive orchards contain small, short-lived trees managed with pesticides, herbicides and fertilisers. This increases productivity but greatly reduces any opportunity for wildlife, in particular the wild pollinators and the predators that would keep pests in check.

Traditional management eschews large-scale alteration of the environment, instead favouring the natural balance of predator and prey. The trees are larger and more widely spaced, and the sward is allowed to develop naturally, usually being grazed or only occasionally cut.



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Orchard wildlife

Orchards are a mosaic or composite habitat. They contain elements of woodland, pasture, meadow grassland, are often bordered by hedgerows and can also include areas of scrub. These individual habitats combine in your orchard to create a wildlife haven more than the sum of its parts which can support a broad range of insects, birds and mammals.

Dead wood

Wood decay is part of the natural ageing process of the tree and dead and decaying wood should be retained. Ageing trees naturally die-back (senesce) and begin to hollow out helping them to remain standing, recycling nutrients and ultimately thriving for longer. Dead and decaying 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. Tree hollows are excellent habitats for nesting birds, insects, bats and fungi.

Waxcaps

Waxcaps, found only on unimproved and undisturbed grassland, are only visible for brief periods of the year, when they give a bright display of fruiting bodies. The presence of waxcap fungi is an indicator of high conservation value grassland which is a habitat that has seen a dramatic decline in recent years.

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Grassland

The grasslands beneath many traditional orchards have been unploughed for decades or centuries and have escaped agricultural improvement. It isn't uncommon to find ancient landforms like ridge and furrow patterns under orchards. Nitrogen and phosphorous fertilisers contribute to the loss of plant diversity. Woodland and meadow wildflowers, typical in orchards, are often species adapted to nutrient-poor soil and are outcompeted if the ground is enriched. Don't let the word 'poor' in 'nutrient-poor' put you off, this soil type is fantastic for plant diversity

Open canopy

A distinguishing feature of orchards is the combination of trees and a continuously open canopy. Unlike in woodland where all the undergrowth activity occurs in spring before the canopy closes, light can reach the ground, bark, and low branches, right up to the tips of the trees all year round. This creates a unique microclimate.

Plants

Like a wildflower meadow or grassland, orchard ground flora grows throughout the year. Location, soil type and background nutrient levels will ultimately determine floral diversity, but a planned mowing regime will maximise the potential range.

Other types of plant such as moss, mistletoe and scrub species that would not be able to gain a foothold in either a closed-canopy woodland or open field conditions can find an ideal home in orchards.

Mistletoe

Mistletoe's most common host tree is apple, so orchards are a particularly important habitat for this semi-parasitic plant. As well as having interesting medicinal properties (extracts being used in cancer therapy) mistletoe hosts an ecosystem of its own. The specialised fauna comprises one moth, the mistletoe marble moth, one weevil and four other insects, three of which feed on the mistletoe and the fourth being a predator of the others.

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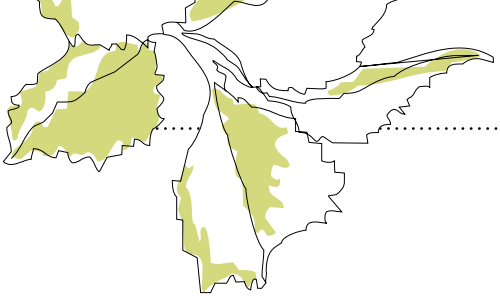


Fungi

A fungus or toadstool discovered growing on a lawn, tree or in a flower bed is too often thought to be a sign that something is awry. This unjust perception couldn't be farther from the truth. Very few of the thousands of known fungi, some honey funguses for example, are genuinely bad for trees. Most play a vital role in a healthy ecosystem by breaking down dead plant and animal matter, and are part of a network of interactions between soils and plant roots called mycorrhizal associations.

Many fungi are infrequent or rare themselves, so should be cherished as much as any other element of orchard biodiversity. Most fungi growing on trees live on deadwood.

Lichens

These unusual organisms are symbiotic, every species being a unique partnership between a fungus and one or more algae (or cyanobacteria). The fungal part provides shelter and mineral nutrition for the algae which in turn photosynthesises to provide sugars and nitrogen for the fungus, all of which allows lichens to grow in places nothing else can, such as on the bark of trees, shaded soils, and rocks. The relatively light conditions of orchards provides numerous opportunities and many rare lichens occur in orchards. Some are specialists of exposed deadwood.

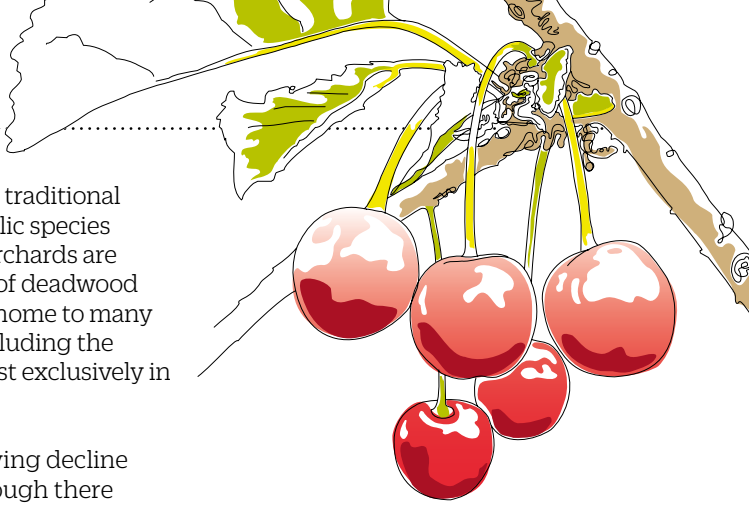
Orchard tooth fungus

The orchard tooth fungus is very rare in the UK, found in fewer than 20 sites, normally on rotting branch ends or in rot holes on apple trees in the sun, between June and September. Like the noble chafer, this fungus only feeds on the dead heart wood, so is not a threat your tree. This fungus is distinctive by its smell of pineapple, changing to rotting fruit as it gets older.

J Webb

Fauna

The plants, fungi and lichens above, as well as the fruit and trees themselves, provide a food source for thousands of animals. In terms of numbers, most of them are herbivorous insects, followed by invertebrate omnivores and predators such as ants, wasps, hoverflies, spiders and ladybirds which support vertebrates like amphibians, reptiles, birds and mammals, including bats. Many of these also rely on the unique structure and microclimates provided by orchards. The complexity of the food web increases with each species, developing into a richer, more robust ecosystem.



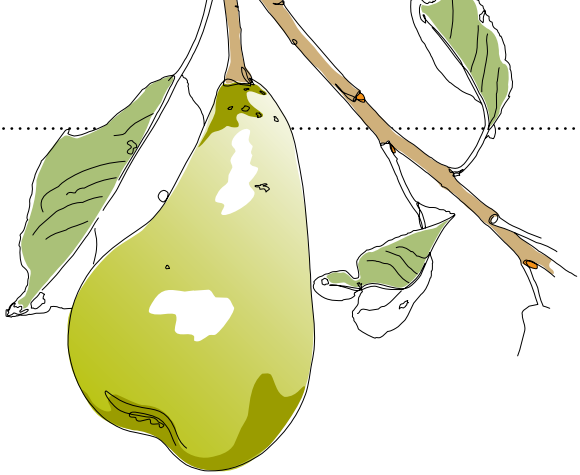
Particularly important in traditional orchards are the saproxylic species (living on dead wood). Orchards are among the best sources of deadwood habitat so have become home to many specialist saproxylics including the noble chafer, living almost exclusively in traditional orchards.

The UK is seeing a worrying decline in wild pollinators. Although there are many compounding factors for this decline, two of the largest are the overwhelming loss of wildflower-rich grasslands in the UK, and the intensification of modern agriculture. In spring when your orchard is in full blossom your trees and the grassland beneath provide a feast for local pollinator communities. Not only does this make sure you get a good harvest but it gives pollinators a good supply of nectar and pollen in the spring and early summer.

Noble chafer

The noble chafer is one of the UKs rarest beetles and is dependent upon the old decaying wood within living trees, especially favouring orchards of mature fruit trees. The larval stage occurs entirely within decaying trunks and branches, emerging in the summer months when it can sometimes be seen visiting white flowers such as hogweed, meadowsweet and elder. The best way of knowing whether your orchard has noble chafer is by looking for its frass, or droppings, in wood debris in tree rot holes. Visit our website, www.ptes.org, for more information.

Mart Smith



Simple steps for biodiversity

Traditional orchards were recognised as a UK Priority Habitat as they provide food and shelter for thousands of animals and plants, including species of high conservation priority themselves. Knowing this, what can we do to help maintain and encourage biodiversity in orchards? Below are a few simple and low cost actions you can take.

Plant new trees

There are a number of species that depend upon the habitat that mature trees provide, so planting young trees will give you habitat continuity over time.

- Graft to vigorous rootstock to extend the life expectancy of each tree. This will allow a particular way of aging that makes them great for biodiversity.
- Keep old varieties going (even if you are not sure what they are) by grafting scions to make new trees.
- Plant a mixture of early mid and late flowering/fruiting trees so that your orchard will be a source of nectar, pollen and fruit for longer.

Retain dead and decaying wood within your trees

From a wildlife perspective, standing decaying wood is one of the most valuable elements of the orchard habitat. Insect larvae of species like the stag beetle, rhinoceros beetle and the rare noble chafer live exclusively in decaying wood.

Decaying and dead wood 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.

- Retain veteran tree features such as dead wood, hollow trunks, cracks in bark and rot holes which support a range of saproxylic (deadwood-

dependent) insects and also provide nesting and roosting areas for birds and bats. In fact even a 'dead' tree will be teeming with life and is far from dead.

Log piles

All dead wood provides a great food source for foraging animals like shrews, voles and birds looking for larvae to eat. Small rodents in turn attract owls and other predators to your orchard. Log piles also provide overwintering sites and shelter for frogs, toads, beetles, hedgehogs and more

- Prop or brace hollowing limbs to keep standing deadwood in the tree for as long as possible.
- Where unsafe decaying wood must be pruned out, consider stacking it nearby for the benefit of fungi and insects. If you also have space to accommodate a log pile, a brushwood pile or any other variation on the theme, then this will contribute to the range of habitats.

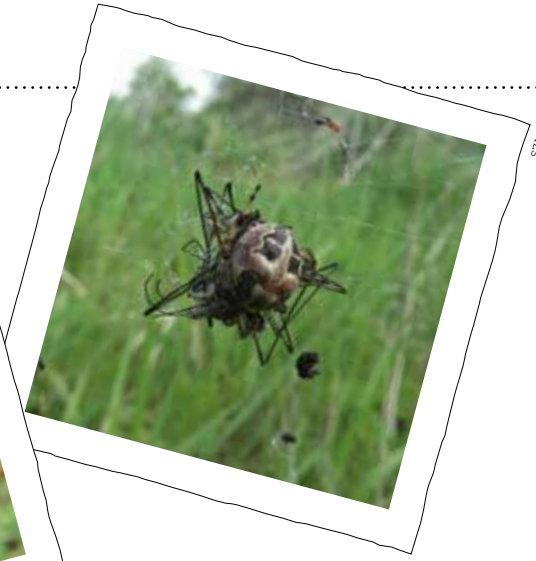
Windfall fruit

The fruit from your trees is just as delicious to wildlife as it is to us, and windfalls as well as fruit left on the trees provide an important source of food in the autumn and winter, ensuring the survival of a range of creatures.

Overripe fruit feeds birds like fieldfares, redwings, thrushes and blackbirds and mammals such as badgers, hedgehogs and hares. Decomposing fruit also feeds moths and other insects, providing prey for bats as they prepare for hibernation.

- Leave any unwanted fruit to hang on the tree or where it falls.
- If you juice apples leave the leftover 'scrat' for foraging wildlife.

FLTS



PLTS

The orchard floor

A more varied orchard floor in terms of structure and plant communities will support a greater diversity of insects, small mammals and birds.

- Staggered and late mowing, as well as leaving a strip of rough grassland will help improve habitat structure and enable the flowering plants to set and disperse seed before being mown. For annual plants this is particularly important so that there is a generation in the next year.
- Leave an area uncut to provide sites for insects like ladybirds to overwinter. Many insects hibernate in hollow stems. Areas of tall grass are excellent habitats for insects and small mammals. Some species, including the larvae of the butterflies meadow brown and speckled wood, prefer coarse grasses such bents, cock's-foot, fescues, downy oat-grass and false brome as their larval food-plants
- Remove any grass cuttings from the orchard floor and pile them in an area to compost out of the way. Low fertility grassland supports greater diversity and doing this prevents nutrients being returned to the soil.
- Avoid adding any fertilisers to the grassland.
- Keep an area of short grass, which makes a good habitat for grassland fungi and hunting ground for owls.
- Leave patches of nettles and brambles here and there in your orchard. Nettles are the larval food-plant for species of butterfly including the red admiral, peacock, comma, and small tortoiseshell. Brambles provide a late source of nectar, an abundance of fruit, thorny shelter and a great predation ground for insectivores.

Hedgerows

Generally speaking, the bigger the hedge, the more wildlife it will be able to support

- Avoid cutting your hedge every year. Most trees and shrubs flower/fruit on year old twigs and so annual cutting removes these, which removes a food supply for a large variety of animals.
- Don't cut all your hedges in the same year, instead try staggering it. This will ensure that there is always suitable habitat for wildlife that relies on uncut hedges.
- Almost all hedgerows will have birds nesting in them so you should not cut your hedge in the breeding season (1st March to 31st July). The recommended time of year to do any hedge work is January and February. All wild birds, their eggs and active nests are protected by law.

Scrub

Scrub is great for nesting birds, insects and small mammals.

- If you have space leave a strip of grassland, ideally next to a hedge, to revert to scrub, which is a shrubby intermediate habitat between grassland and woodland. This will need cutting back every few years, but no other management.

Nesting sites

Birds, bats and dormice and other animals nest in tree hollows.

- Retain deadwood in your old trees and manage hedgerows with this in mind.
- In a young orchard there will be limited natural nesting sites, so consider putting up bird and bat boxes.

Mistletoe

Orchard trees are often host to the semi-parasitic plant mistletoe. These plants are not only an important source of berries for birds such as mistle thrushes and blackcaps, but form the basis of a small ecosystem of its own

- Retain small quantities of mistletoe, although too much mistletoe can damage apple trees, healthy trees can easily support small quantities.

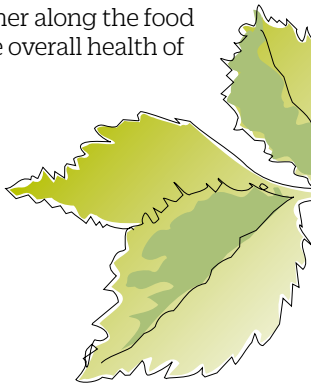
Ivy

Ivy growing up trees creates the perfect habitat for nesting animals and invertebrates. Its flowers offer late forage for butterflies and bees in a season of shortage, and its berries feed wildlife through the winter.

Pest management

A biodiverse ecosystem is more robust and less prone to dramatic population increases of any single species. Pests in our orchards have natural predators and parasites.

- Reduce pest damage by fostering a biodiverse orchard habitat that encourages these natural enemies.
- Avoid using pesticides as these kill insects indiscriminately including beneficial ones. This reduction in insect life impacts other animals like bats and birds further along the food chain, as well as the overall health of your orchard.



Fruit varieties

Pips from fruit don't tend to grow true as they have a different assortment of genes to their parent tree. Therefore fruit varieties have to be propagated by grafting to remain true to type. The varieties we see in our orchards today have, since their establishment, seen an uninterrupted chain of care and propagation, some for hundreds of years.

There are many fruit varieties which have historical associations with particular places. Some have been bred or discovered in an area and are named after a place or person. Other varieties were popularly grown in an area. With the loss of traditional orchards these local and often rare varieties are at risk of being lost and already many once popular and highly esteemed varieties have become extinct.

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

If you have an existing orchard with known local varieties, or even if you aren't sure what varieties you have, you could get them grafted to make new trees. There is a lot of information available about how to do it yourself, or you could go on a course.

Information on fruit varieties local to you can be found on the PTES Traditional Orchard web pages, alongside practical guides to grafting and other orchard management processes.

Information on training courses and events can be found on the orchard network website.

This booklet can be downloaded from our website, **www.ptes.org**, where you will find more on orchards and information about our other work.