

How do our woodlands grow?

Key Words:

Forestry, UK Forestry Standard, multipurpose forestry, sustainable forest management, design plan, management plan, tree species, nursery, seeds, planting, protection, thinning, pruning, weeding, harvesting, natural regeneration.

Activity Links:

What's the difference? See **Unit 3 Activity 3** on sustainable forest management.

How do our woodlands grow? We plant most woodland, but nature helps too. Show example photos of birds with seeds, squirrels burying acorns, planting acorns in a nursery, someone planting tree seedlings in a small woodland/school, someone planting woodland in a big forest. Students arrange the images in order. The first photo is the most common way our woodlands grow, the last is the least common. Discuss the reasons for their choices with the students. The most common way our woodlands grow is by us planting them. The links in the section 'Finding Out More' may help.

Planning a forest. Trees are important in both rural and urban environments. Ask students to take on the role of a landowner, forest manager, or urban park ranger to plan their own woodland. Use maps to design a whole woodland or area of your school or park. Ask students to first work out the objectives for their forest or woodland and then work out what tree species they would need to plant. Students should work as a team to include areas for a variety of uses e.g. timber, wildlife and recreation. Team members can have different roles e.g. bird watchers, cyclists, children playing or local woodworker. The woodland design plans should be presented at the end.

Sustainable forest management card sort. Provide a range of photos of all the stages of sustainable forest management: seed, nursery, planting, protecting, harvesting, replanting. Ask your group to arrange them in the correct order. If you are in a woodland, make a clothes line between two trees and hang out the pictures in the right order using wooden pegs.

The planning, management and growing cycle of woodlands

Do you know how our woodlands grow? Planting trees and then actively managing them is one of the ways that woodlands grow. Woodlands can also grow naturally, from existing trees in woodlands spreading their seed - this is called *natural regeneration*. Our forests and woodlands are a mix of existing woodlands and planted trees. Sometimes trees are planted to create new areas in or around existing woodlands, and sometimes, larger scale planting of whole new woodland takes place.

The **Forestry Commission** is the government organisation that plants, grows and *harvests* trees on public land, but there are many other people planting and growing trees such as farmers, conservation and wildlife charities, town planners, schools, researchers and scientists and people and organisations who own areas of land. Woodlands are grown for many different reasons: for timber, for wildlife, to reduce flooding, to reduce carbon and climate change, and to provide benefits to people in their recreation, education and health. It is possible to design and create woodland for many different purposes, which can benefit people, nature and the economy at the same time - we call this *multi-purpose* woodland or forest management. The **UK Forestry Standard** sets out how this can be achieved.

This reference sheet looks at the different stages involved in growing woodlands from planting a young seedling tree to harvesting the *timber* and then replanting with young seedling trees again. This is called *sustainable* woodland or forest management.

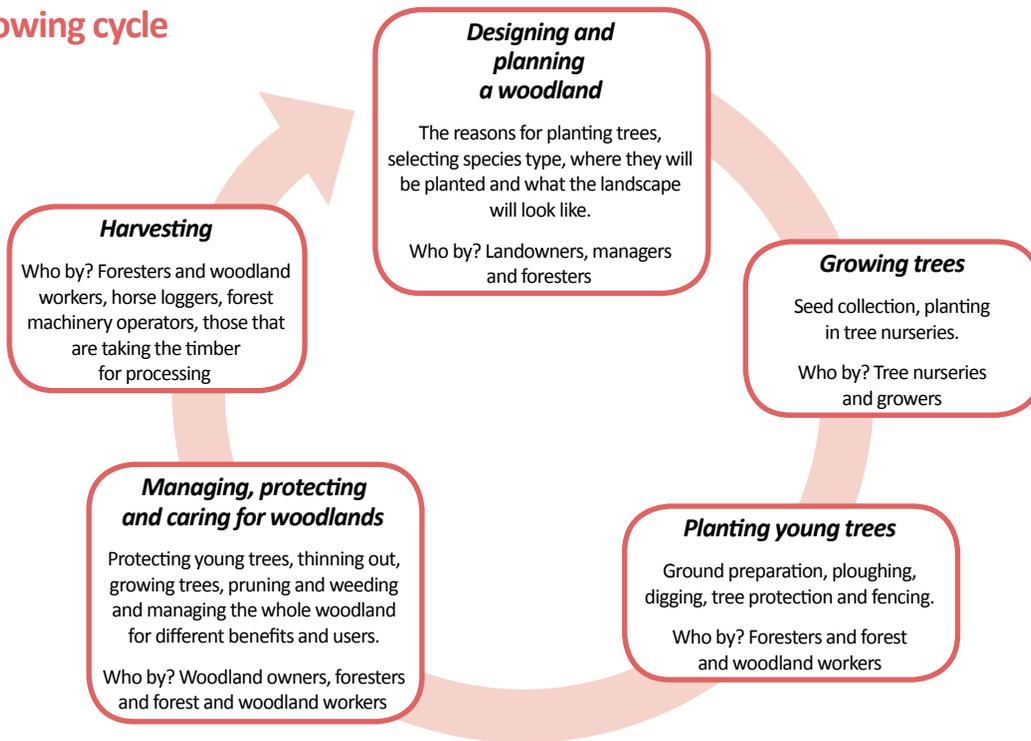
The two diagrams given in the links with this unit demonstrate the many elements involved in multi purpose forest management and sustainable forest management: Diagram 1, shows elements of a revitalised wood culture and is a good example of what to think about in multi purpose woodland management. Diagram 2, shows the range of activities involved in positive and sustainable woodland management.

There are different tasks and stages involved in sustainable woodland management as shown overleaf. You can also see this **Tree Cycle** with pictures at various stages.



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The tree growing cycle



Designing and planning a woodland

A forest manager or woodland owner creates a *forest design plan* and/or *woodland management plan*. The first task is to decide what the objectives of managing the woodland are – for example recreation, timber, wildlife, access, or a combination of these. Choice of *tree species* is the next important task; this is done by understanding what sort of trees will grow well where and what the trees are needed for. For example, for timber, fast growing trees like the conifer Sitka spruce or the broadleaf tree poplar might be chosen. To benefit wildlife, a conifer tree like the Scots pine or a broadleaved tree such as the Oak might be chosen. Using different types of trees can also make woodlands more resilient to climate change and this is an important consideration in selecting which tree species to plant.



Growing trees

Once the forest manager has decided what types of trees to plant, they then buy *tree seedlings* from *tree nurseries*. Tree nurseries grow the seedlings from seed gathered in the autumn from the ground or from specialised collections, sometimes from abroad. Like any other crop, once the seeds have germinated the nursery looks after the seedlings until they are ready for sale for planting out.



Pictures: Forestry Commission

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Managing, protecting and caring for woodlands

The most important job is to protect the young trees from being destroyed or damaged by pests such as rabbits, grey squirrels and deer, which chew the bark, buds and leaves of young trees. *Tree guards* and fencing are used to protect trees when they're planted and as they continue to grow. As the young trees grow, the forest workers continue to care for them by *thinning*, *pruning*, *weeding* and *controlling pests*. Thinning means taking out some of the trees to allow enough space for other trees to grow so they don't crowd each other. Pruning is taking off branches so the trees grow straight. Weeding ensures that grass and other plants do not compete for space and nutrients around the tree.

During active management, the job of forest managers and woodland owners is a diverse one, and may include planning paths and areas for visitor enjoyment, developing protected areas and conservation projects, allowing woodland flora and fauna to flourish.



Pictures: Forestry Commission

Real Life Example 1:

Film and case study - The work of a Forest Manager, Liz Watt

This film and case study download is an excellent introduction to the job of Forest Manager in the Forestry Commission and describes the tasks and skills required of Liz. Liz also explains how to follow a career path in forest management.

Harvesting trees

If a tree was planted to produce timber it will eventually be harvested. The species of tree, and what the timber will be used for, will determine when the tree is cut down. For example, hazel or willow *coppice* may be harvested after 12 years, fast growing conifers may be harvested after 30-40 years and for slow growing oaks this might be up to 100 years. Depending on the number, age and type of trees, access, protected areas and the geography of the land they are growing on, the method of cutting and extracting trees will vary. For large plantations of trees a *harvesting machine* and a *forwarder* is used. Where woodland is small or difficult to get a machine in, a chainsaw and *horse logger* may be used. For small areas of coppice woodland, when *pollarding* or working in orchards, hand tools are often used and specific cutting methods to suit the tree species.

Real Life Example 2:

Photos and film: Harvesters and horses.



On large forestry sites like the ones run by the Forestry Commission, *machine harvesters* are used. Smaller forests and woodlands may rely on people to harvest the wood or even use horses. This film clip shows how horses can play a vital role in bringing undermanaged woodland back into use: British Horse Loggers.

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Why cut down trees?

Cutting trees for timber to make the many products we use and enjoy is just one benefit. Creating areas to leave open, ready for new planting or for new natural regeneration increases the species diversity, height and age structure in woodlands. This in turn improves the range of wildlife habitats and wildlife corridors necessary for increasing biodiversity and making the landscape more attractive and diverse.

When mature trees are harvested, new trees are replanted so that the cycle can begin again. This is called *sustainable forest management*.

And.....the wood that is harvested from forests and woodlands is transported for timber processing, either for firewood, to sawmills or taken by small operators, craft workers and woodland owners to convert to it's many uses.



Diagram taken from the leaflet "A career in the forestry and wood sector" 2013



Reference sheet 2: Ready steady wood to timber looks at the processing of trees for wood products and timber.



Pictures: Forestry Commission

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Finding Out More:

The Grown in Britain Campaign (GIB)

Grown in Britain aims to bring together everyone who values our forests, woods and trees and the products we can make from the wood they produce. It is an incredibly positive movement that is bringing together: the environmentalists and woodland owners who contributed to the policy shaping work of the Independent Forestry Panel; the contractors, builders and retailers who want to buy, use and sell more British timber and wood-based products; woodland managers, public and private agencies who want to see many more of our woods managed to produce sustainable and legal sources of wood. To find out more and get involved in the campaign, see www.growninbritain.org

Forestry Commission facts, figures and statistics

A useful leaflet with summary statistics on forest industry employment, visitors to forests, planting and production in the UK and comparisons with other countries, can be found on: www.forestry.gov.uk/forestry/inf-d-7a9f6j and more detailed statistics at www.forestry.gov.uk/forestry/inf-d-7a9dgc

Forest Education Network and Council for Learning Outside the Classroom Resources

Forest education Network Resources www.lotc.org.uk/fen/forest-education/resources/ and Woodland related case studies www.lotc.org.uk/category/case-studies/

Sylva Foundation: OneOak resources

The Sylva Foundation is a charity working to revive Britain's wood culture. It runs a number of projects under the themes of science, education and forestry. See www.sylva.org.uk

Sylva ran an inspirational education project called OneOak. Read how 5 schools were involved with following the life cycle of an oak tree. The school children watched the tree felled, then learnt how the wood was turned into 50 products and they also participated in planting 250 oak seedling trees to create a new forest. The OneOak website contains a wealth of information, images and films from this unique 3 year project. See <http://sylva.org.uk/oneoak/?fromTab=true>

Royal Forestry Society: Teaching Trees

Teaching Trees aims to encourage teachers to bring children of all ages into managed woods. Meet RFS woodland owners and find out how they manage their trees through hands on activities. Teaching Trees aims to help broaden and consolidate regular classroom work by using woods as occasional outdoor classrooms. See www.teachingtrees.org.uk/index.htm

So you own a woodland?

Getting to know your wood and looking after it. An extremely insightful document for those who want to know about woodland management. See [www.forestry.gov.uk/pdf/so-you-own-a-woodland.pdf/\\$file/so-you-own-a-woodland.pdf](http://www.forestry.gov.uk/pdf/so-you-own-a-woodland.pdf/$file/so-you-own-a-woodland.pdf)

Good For Wood - Why choose wood Sustainable Forest Management

Modern forestry means that the planting and felling of trees is a well-managed cycle that maximises CO₂ absorption and at the same time encourages biodiversity. See more at: www.woodforgood.com/why-choose-wood

Planning your tree planting

The UK Forestry Standard helps woodland owners manage their forests for multiple benefits. See www.forestry.gov.uk/ukfs

What to think about in planning a woodland

See www.forestry.gov.uk/forestry/INF-D-8AEJUN

Choosing which tree species to plant

See www.forestry.gov.uk/fr/INF-D-8CVD6H

Interactive tree name trail and tree species information

See www.forestry.gov.uk/forestry/INF-D-7CHCWE

SilviFuture is a new network established to promote and share knowledge about novel forest species across Britain. It aims to support forests that are resilient and capable of meeting our future needs. See www.silvifuture.org.uk/index.php

Royal Forestry Society case study: multipurpose forestry at Centre Parcs Whinell

See www.rfs.org.uk/files/RFS_Excellence_in_Multipurpose_Case-study_2013.pdf

Forest Machines and Equipment. See www.forestry.gov.uk/forestry/inf-d-5nmc8e

Tree Council Seed Gathering Season

Participate in this national campaign every September to October. Gather tree seeds and grow your own trees to plant. See more at www.treecouncil.org.uk/community-action/seed-gathering-season

Did You Know?

- A wood or forest is defined as areas with a canopy cover of 20% or more (or the potential to achieve this), a minimum area of 0.5ha and a minimum width of 20m. The term wood or forest excludes trees in urban parks and gardens.
- The Forestry Commission owned or managed 28% of the total woodland area in the UK in 2012. This proportion ranged from 17% of the woodland area in England to 69% in Northern Ireland. Individuals or businesses own the remainder (Forestry Commission, 2012).
- In 2014, the Forestry Commission published new maps and statistics showing that Great Britain has about two and a half times more forest and woodland than it had 100 years ago. The maps show that Britain has almost 3 million hectares (7.5 million acres) of forest and woodland, representing 13% of the total land area, and equivalent to almost 4 million football pitches. It is estimated that a century ago woodland cover was between only 4 and 6%.
More on this is given in this Forestry Commission information about new maps and statistics.

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