

## Growing your own trees and shrubs – Wildlife Wardens.

**Why do it?** To make sure you've got local provenance plants; so that you can grow what you need; to save money if volunteer help is available; for fun!

**How to propagate?** You can grow trees in various different ways depending on the species:

- From seed
- **By transplanting seedlings that you find – depending on their size plant them in a pot or where you want them to grow.**
- From cuttings
- From 'suckers' (not covered here)
- By layering (not covered here)
- By grafting (not covered here)

**Where to set up your nursery?** If possible somewhere that you pass frequently which has a water supply. If they aren't close to home, keep a couple by your back door to remind you!!!

**What types?** Mainly native trees and shrubs. (Remember that most berries are poisonous to some extent, so choose according to use. Any species that have poisonous bark or roots are marked with P)

**Large trees:** English (pedunculate) and Sessile Oak, Alder, Aspen (where suckering isn't a problem), Yew P (all parts poisonous, so not near farm animals or small children), Wych Elm (don't plant near English Elm, which usually has Dutch Elm Disease). Scots Pine, Sycamore, Sweet Chestnut and Beech aren't strictly native in Devon, but may be useful in some places.

**Medium-sized trees:** Wild cherry (sometimes called Gean), Silver Birch, Downy Birch, Holly, Crab Apple, Rowan, Whitebeam, Devon Whitebeam, Wild Service Tree, Grey Willow and Goat Willow (don't plant Willows in gardens – they will block drains).

**Small trees/shrubs:** Hazel, Spindle, Hawthorn, Elder, Wayfaring Tree, Blackthorn (thorns can cause serious infections), Guelder Rose, Dogwood, Purging Buckthorn P, Gorse and Broom.

**Climbers and scramblers:** Honeysuckle, Old Man's Beard (Wild clematis), Dog rose, Field Rose, Black Bryony (P), Bittersweet (P), White Bryony (P).

**Non-natives** which are useful in or near Public Open Spaces, Community Orchards etc: Walnut, Almond, Apple, Pear, Plum, Cherry.

**How? Collect berries and seeds from hedgerows, woods, public open spaces and nature reserves.** Ask for permission where appropriate.

**When?** The handout graph shows the best time of the year for collecting seeds of various species.

- If seed is collected too early, it may not be viable, as seed needs time to fully develop.
- If left too late, there may not be enough seed, as hungry wildlife might get there before you!
- Most collecting happens in the Autumn.
- Do not attempt to grow ash, as your seedlings will almost certainly die from [ash dieback disease](#).

**How?**

Take labels, containers, gloves (for thorny species), secateurs.

Once collected, it is ok to keep dry seed in a breathable container for 2-3 weeks before extraction.

Don't pile fruit too deeply and store seed in a cool, dry place.

**Compost and Mycorrhizal powders: Use a peat-free compost** Either buy some such as Empathy Root-grow (RHS recommended) , or mix in some soil from a woodland – well-rotted leaf litter and loose soil from mole hills etc.

Cuttings – various plants in the Rose family may take – worth a try, but don't rely on them. There are different times that are good for various species.

Collecting seed – of oak, beech, sycamore, rowan, hawthorn, birch, sweet chestnut, field maple, lime, holly, hazel, elder, crab apple, wild cherry.

You need to collect when the seed is ripe and dry.

### Preparing your seed:

**1. Extracting seeds:** There are different processes for extracting the five main groups of seed:

- Fleshy fruit
  - Equipment – Pestle, sieve, and a hose
  - Process –Press seed through a sieve. Use a pestle or your fingers to mash the fruit. A hose can be useful to aid separation of pulp and seed.
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- Nuts It is not necessary to remove the husk.
- Winged seed (e.g., sycamore) - Separate individual seeds from bunches and remove stalks.
- Pods (e.g., gorse and broom)
  - Remove seeds from pods.
  - This can be done by hand, or by leaving seed in a warm, dry place to rupture naturally.
- Cones/bracts
  - Collect as soon as the cones or bracts begin to turn from green to brown.
  - Store in a warm, dry place. As they dry and turn brown, the seeds are released. Shake the container to dislodge seed.

### 2. Pre-treatment

The main purpose of pre-treatment is to improve germination by mimicking natural conditions, which helps to overcome dormancy. Pre-treatment varies between species.

**Nb Most species will eventually germinate without pre-treatment if sown in a deep pot/deep seed tray & kept from becoming too dry – but you may get lower numbers which are spread over several years.**

**Some species do not require pre-treatment** and should be sown immediately – Oak, Sweet Chestnut etc.

**a) Stratification – This** involves storing seeds in conditions that help to activate germination eg with moisture, cold temperatures and oxygen. Stratification helps keep the max number of seeds viable – eg by not going mouldy or decomposing!

Here is a step-by-step process:

- Mix half sand: half peat-free seed-compost. Coarse horticultural/builders' sand is best (beach sand is too salty). (Try adding some woodland soil/Mycorrhizal powder).
- Add water to the mixture. It should be moist, but not waterlogged. The mixture is ready when only one drop water can be squeezed out between your fingers.

- Mix your seed with an equal amount of your compost mix.
- Put in a suitable container such as a plant pot. Start by adding a layer of stones to the bottom of the container and cover with sand. Add the mixture and cover with a layer of sand 2-3cm thick. Add more layers.
- Secure a mesh over the top of the container to prevent rodents from eating the seed!
- Place the container in a sheltered, shady outdoor spot such as a shed over one or two winters. Add water if it starts to dry out.
- Sow the seeds in spring when they start to show early signs of germination.

**b) Don't Stratify Alder, Birch, Gorse Paine and Broom!** Stored them dry and pre-treat in spring by soaking in water for 24-48 hours (this applies to any seeds stored dry).

#### Broom and gorse

Just before sowing, place the seeds in a heatproof container. Carefully add two or three times their volume of boiling water. Leave in the cooling water for 24 hours and then sow.

#### Alder and birch

Four weeks before sowing, place the seed in a cotton bag or in a pair of tights. Soak the seeds in clean, cold water for 24 to 48 hours. Next dry the seeds by placing the cotton bag (tied tightly) in a spin drier and run for approximately a minute. If using tights, dry the seeds by spinning it carefully around your head. Mix the seeds with moist, coarse sand (not beach sand!) and place in loosely tied plastic bags. Leave the plastic bags in the fridge for four weeks before sowing.

Not dormant – sow immediately	Stratify – sow in the 1st spring after collection	Stratify – sow in the 2nd spring after collection	Store dry and pre-treat in spring
English & Sessile Oak	Blackthorn	Hawthorn	Alder
Aspen	Bird and wild cherry	Holly	Silver and downy birch
Wych elm	Crab apple	Dog rose	Gorse
Willow	Elder	Ash	Pine
Sweet chestnut	Rowan	Yew	Broom
	Hazel	Spindle	
	Guelder rose		

**c) Scarification** – some species need their seed coats and other coverings to be softened/broken down before they will germinate.

- Mechanical Scarification – Use sandpaper, hammer, knife, tumbler.
- Hot Water Scarification – Put in hot water (77 to 100°C), remove from heat, allow to cool & soak for 24 hrs.
- Acid Scarification - put seeds in acid. At the end of a set period of time (from as little as a minute to as much as an hour and a half), rinse seeds and neutralise acid with baking soda. (we're not doing this!)
- Warm Moist Scarification - Keep plants in warm moist soil or unsterilized sand for several months to soften seed coats through microbial activity. Seeds may also be planted directly in the summer or early autumn.
- Refrigerated Stratification means placing seeds in moist planting medium in a cold environment for a period of time (two weeks to three months).

**d) Removing Inhibitors in pulp** which are found in the pulp of some fleshy fruit. Pulp should be removed by soaking or maceration; seeds should then be washed.

**e) Using hormones** - soak in gibberellic acid or cytokinin (kinetin) solution for twelve to 24 hour soak. Concentrations vary.

### 3. Sowing

#### When?

Acorns and sweet chestnut seeds can be sown in Autumn. Most other seeds are sown in spring. Check for early signs of germination in late winter and early spring, and sow seeds when the root is just beginning to emerge. Seed can be stratified for another year if there aren't signs of germination.

#### a) What compost?

Compost should be **peat-free**, free draining, but able to retain moisture. This maintains air pockets allowing roots to breathe! Mixing horticultural grit with compost can help with this. Add **Mycorrhizal fungi to promote better root formation**. Either buy a powder such as Empathy Root-grow (RHS recommended), or mix in some soil from a woodland – well-rotted leaf litter and loose soil from mole hills etc.

#### b) Where?

Seed can either be sown into containers or into a seed bed. Seed beds are usually used for larger-scale sowing.

#### c) Containers

- Modified milk cartons with holes in the bottom make good containers or you can buy plastic (!) root trainer pots .
- Fast growing species such as birch and willow can be sown into a 1-2 litre container and left to grow for 1 year before planting. Slower growing species such as oak should be planted in a 2-litre container and left to grow for 2 years before planting.
- Sow a small number of seed per pot.

#### d) Method

- As a general rule, sow seeds to the same depth as 1 to 2 times their diameter. For small seeds, this can be made easier by using a sieve to sprinkle a covering of grit/compost.
- After covering the seed, firm the compost with your hands and add water!
- If possible, keep containers raised off the ground, allowing air to pass underneath. This facilitates 'air pruning', which concentrates root growth in the containers.
- Place containers somewhere warm and light. Our native trees do not like high temperatures, but they may benefit from some protection from the elements. A polytunnel or a fairly sheltered outdoor spot are good locations.
- It may be easiest to sow very small seeds on to a seed tray and then transplant the seedlings into pots.

#### e) Seedbeds

- In winter, fork over the soil to a depth of 10-15cm and remove weeds.
- Rake in early spring to remove large stones and debris and break any clods of soil.
- At this stage, incorporate manure or leaf mould into beds.
- Walk over the seed beds with your heels to firm the soil and then rake again.
- Sow seed at a distance of at least 5-20mm apart.
- Firm soil with a roller or board.
- Cover with more soil/horticultural grit to the correct depth (a depth of 1 or 2 times the diameter of the seed).
- Protect the seed bed from birds and mammals with netting and rabbit fencing.

#### f) Growing

Looking after seedlings is simple but important. This mainly involves watering and weeding. Sometimes feeding and management of pests and diseases is also needed.

Watering - too much or too little water can damage young seedlings. Try to make sure that the soil is moist but not waterlogged. For larger nurseries, a hosepipe, standpipe sprinkler and drip lines/trickle irrigation can make this process easier.

Weeding - remove weeds when young to minimise disturbance to the roots of young trees. For larger nurseries, weed-suppressing mulch can be applied around older plants.

Feeding - This isn't a big issue for small-scale nurseries. However, yellowing of leaves may be a sign that there is a lack of nutrients. Heavy rain can quickly wash away nutrients, especially from seedbeds and they may need to be replenished. Liquid feed can be used and is particularly good for container-grown trees. You can make your own liquid feed by decomposing plants such as nettles, comfrey, and bracken (<https://www.gardenersworld.com/how-to/maintain-the-garden/how-to-make-a-nettle-feed/>). Mulch (leaf-mould/manure) can be added to seedbeds when the trees are older. You can also buy liquid or granular feed, but never use more than is necessary, as too much can harm the roots as well as the environment.

Managing pests and diseases - whenever possible, control pests and diseases organically!

Protect seedbeds from birds and small mammals. This can be achieved with netting and fencing.

Damping off (fungal infection), caused by overwatering is the biggest cause of seedling loss, so it is important not to overwater.

There are other fungal diseases which affect trees such as powdery mildew and rusts on birch. These diseases aren't always an issue but can stunt the growth of young trees, as they prevent photosynthesis and can kill leaves.

Fungal leaf diseases can be managed by destroying fallen leaves in the autumn. You can also make your own antifungal spray with sodium bicarbonate.

Blackfly can be an issue for both species of cherry and can be treated with a spray made with dilute eco-detergent. Encouraging natural enemies such as ladybirds is a natural method of managing aphids.

**Cuttings:** Some species can be grown from cuttings. Don't expect more than a 20% success rate – but this can still give you a one-year advantage!

**Hornbeam** - use current season growth.

**Field maple** – take cuttings in June or July, with 2 - 3 pairs of leaves, plus one pair of buds at the base. Remove a thin slice of bark at the base of the cutting.

**Silver Birch** – mid-summer.

**Crab apple** - take cuttings in late spring early summer.

**Cornus/dogwood** (no details)

**Hawthorn** – summer – cut 6" twigs just below a node.

**Blackthorn** – summer cut 6" twigs just below a node.

**Wayfaring tree** – spring, early summer

**Guelder Rose** – summer for softwood cuttings, hardwood in autumn.

**Spindle** - take semi-ripe **cuttings** from a mature plant in late summer or early autumn.

**Wild cherry** – spring. Remove bark from bottom.

**Elder** – cut where they become woody.

**Privet** (no details)

**Dog rose** – new season stems.

**Transplanting** – well-rooted cuttings or well-grown 1-year seedlings

Some seedlings may require another year of growth and need to be transplanted into a bigger pot or into another seedbed in late Autumn or early Spring). Those grown in a seedbed can be transplanted once their leaves have turned colour (roughly in late October). Care must be taken when uprooting trees.

Here is a step-by-step process:

- Use a garden trowel or fork to loosen the soil and then gently pull the tree out of the ground. Take care not to damage roots.

- Immediately cover the tree roots with a couple of damp plastic bags and make a knot at the top to stop them from drying out. Trees can die from exposure within a matter of minutes. They can be stored this way for a few days. Try to use a white outer bag and black inner bag to keep them at the correct temperature.
- If you need to store them for any longer, you will need to 'heel them in'. This involves placing the tree in a shallow trench, covering the roots with soil or sand to stop them from drying out and using your heel to firm them in. They can be stored like this until they start to grow again.
- Trees that are not big enough to be planted in their final destination will need to be transplanted into another seedbed so that they have more space to grow. To do this, make a slit in the ground with a spade, insert the tree between the back of the spade and the soil making sure that it is at the same depth that it was at before, remove the spade and then firm the ground with your heel. Allow at least 10-15cm between plants.

## Planting and aftercare

Planting is most successful between early December and early February when the plants are dormant. Try not to plant in waterlogged conditions.

Here is a simple step-by-step process to planting trees:

- Remember to keep tree roots in a couple of damp plastic bags (white outer and black inner) right up to the point of planting.
- Dunk the roots in a water/mycorrhizal solution. Mycorrhizal fungi provide trees with water and nutrients that they extract from the soil. In return, the tree provides the fungi with the sugars that it makes.
- Notch planting is the quickest way of planting trees up to 45cm tall and causes the least disturbance to soil:
  - Make a slit in the soil with a spade.
  - Insert the tree between the back of the spade and soil. Spread the roots out. Make sure that the mark of the tree's previous planting is just below the soil.
  - Remove the spade and firm the ground with your heel.
- Drive in a bamboo cane and fit a suitable tree guard to protect it from rodents and deer. There are biodegradable options made from plant plastic or cardboard. See [green-tech](#)
- Water the tree even if it is raining to wash the soil around the roots.

## Aftercare

- It is important to keep a 1m area around the tree weed free for the first three years. This can be achieved by adding a thick layer of mulch around the tree annually.
- Alternatively, you can use of a mulch mat. To avoid rot, make sure that the mulch mat is clear of the tree's stem by pegging out the corners.
- Do not be tempted to strim around trees, as it encourages grass growth, which will draw moisture from the ground. Strimming can also ring bark the tree.
- Water the tree during dry periods.
- Remember to remove/recycle the tree guard when it is no longer needed!