

Learning about Forests (LEAF) Ireland

Rachel Geary



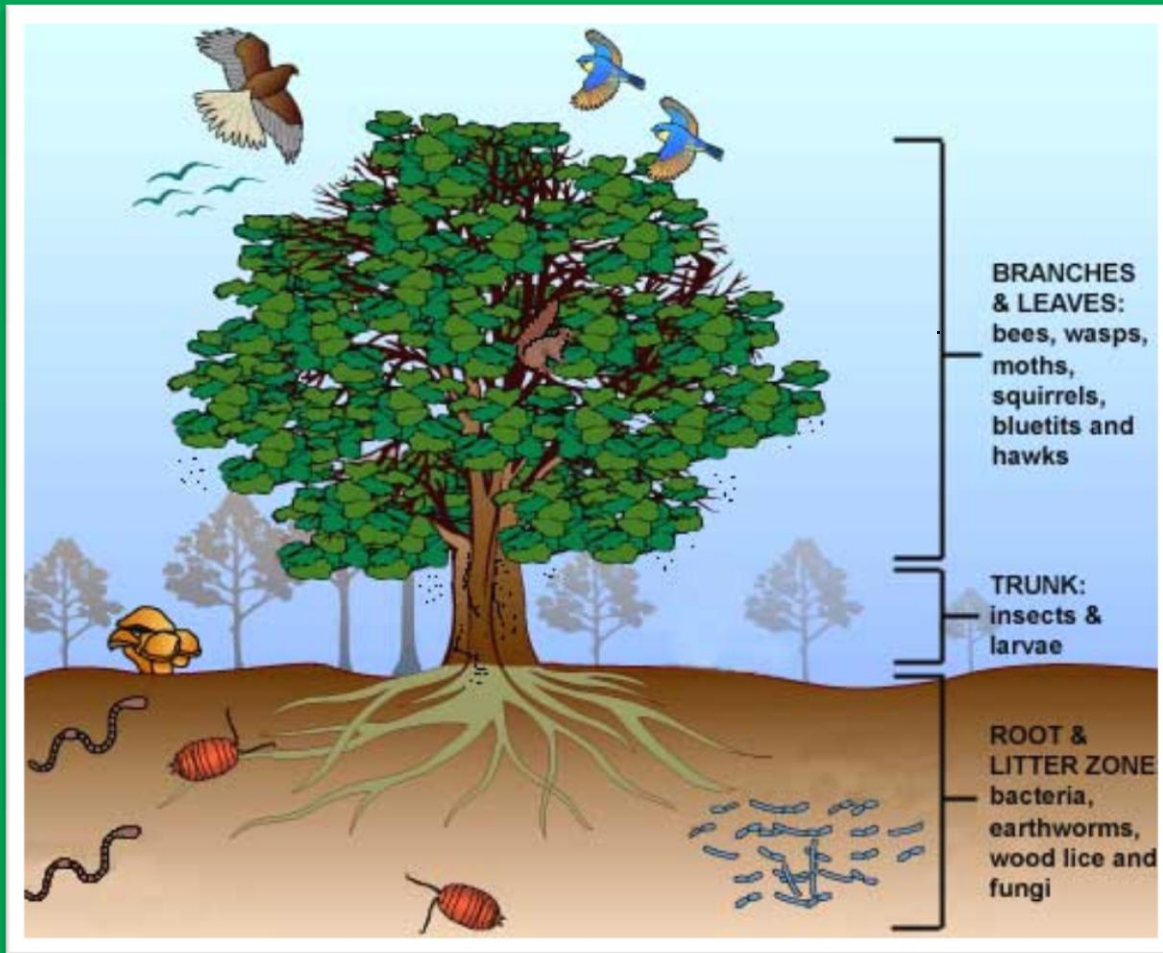
Why are trees so important?

Economic	Ecosystem services
Food	Protecting areas from soil erosion
Fuel	Reducing risk of flooding
Medicine	Carbon storage (sequestration)
Fibre for clothing	
Building materials	
Industrial products	

Terms to know

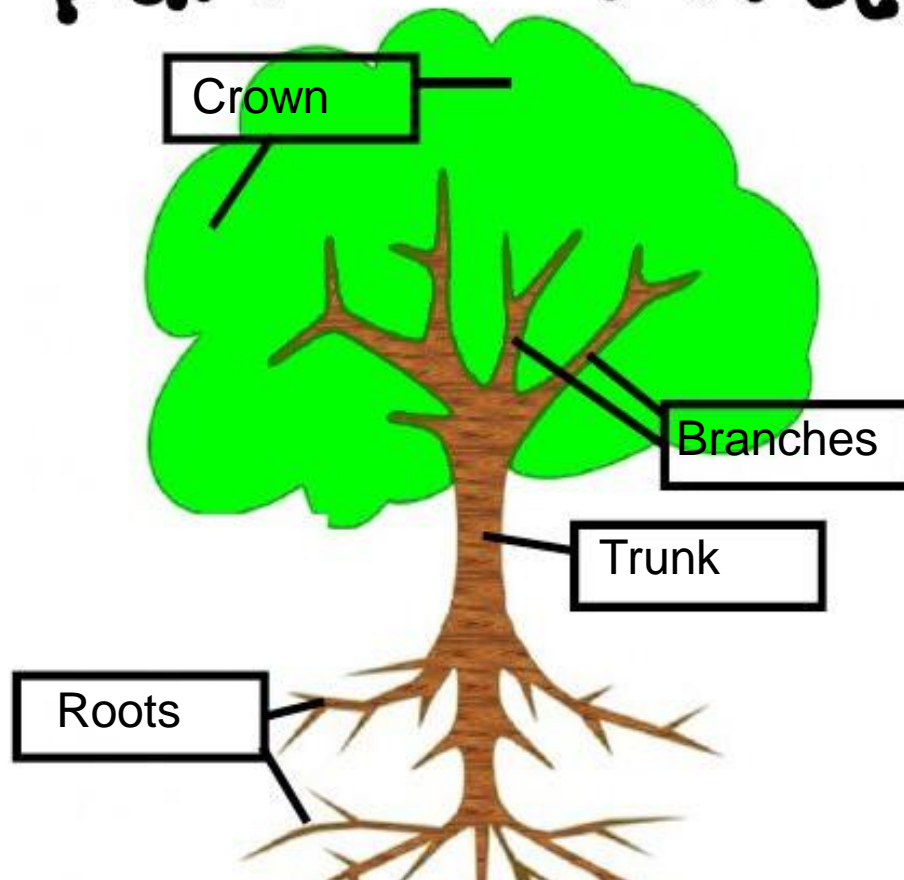
Term	Explanation
Deciduous	Trees that lose their leaves seasonally
Evergreen	Trees that do not lose their leaves
Broad-leaf	Trees that have flat leaves & produces seeds inside of fruits (sometimes known as hardwoods)
Conifer	Needle-like or scale-like leaves & seeds in woody cones
Species	A group of organisms that are very similar to each other
Habitat	The natural 'home' or environment of an animal/plant
Ecosystem	Includes all of the living things in an area, interacting with each other & other non-living environments

Example: Oak tree

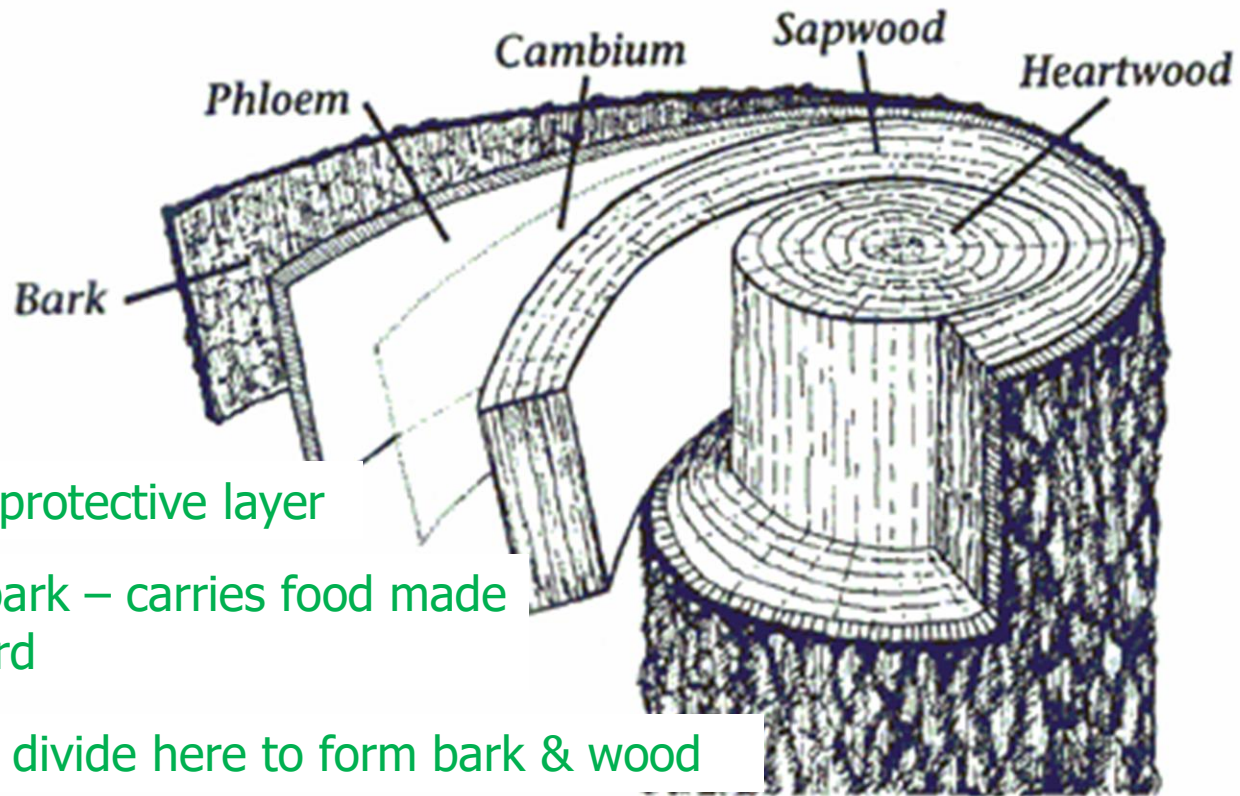


- ✓ OAK IS A SPECIES
- ✓ AN OAK TREE IS A HABITAT (HOME) FOR LOTS OF OTHER DIFFERENT SPECIES
- ✓ AN OAK WOODLAND IS AN ECO-SYSTEM

Parts of a Tree



Parts of a tree



Bark – (inactive) protective layer

Phloem – inner bark – carries food made in leaves downward

Cambium – cells divide here to form bark & wood

Sapwood – carries food & water upwards

Heartwood – (inactive) provides structure

Video

Forest Ecosystems

Ireland's Native Trees

ALDER	ASH	ASPEN	BIRCH (silver)
BIRCH (downy)	CHERRY (bird)	CHERRY (wild)	CRAB APPLE
HOLLY	OAK (pedunculate)	OAK (sessile)	ROWAN /Mountain ash
SCOTS PINE	STRAWBERRY TREE	WHITEBEAM	WILLOW
WYCH ELM	YEW	BLACKTHORN	HAWTHORN
JUNIPER	HAZEL		

Holly



Irish name: *Cuilleann*

Holly is a native evergreen with prickly leaves

Habitat: Found in oak woodland

Flowers: Male only

Berries: Female tree, eaten by birds, especially the thrush, the berries contain hard stones, when excreted by birds, new holly trees grow

*Question - Leaves higher up have less prickles!
Can you guess why?*

Holly – noble tree



In early Irish law the most valuable tree species were called 'The nobles of the wood' and there were severe fines for destroying them!

There were seven noble trees – holly was one of them because its young soft leaves were used as fodder for animals and its hard timber was used for spears and chariot poles!

The tradition of bringing holly into the house for Christmas goes back much earlier than Christian times. They were the only trees in leaf in winter in the deciduous forests of old Ireland and therefore symbolised life and the sun. Just after mid-winter, the holly was brought into the house to celebrate and keep away evil spirits.

Oak – noble tree



Irish name: Dair
'King of the Woods'

Lifespan: 1,000 years – Ireland's largest & longest living broadleaf

Sessile: more common, grows on poor acidic soils, hilly regions (e.g. Killarney, Donegal & Wicklow NPs. Acorns have no stalks

Pedunculate: heavy lowland soils. Acorns have stalks

Interesting fact! – almost 20 species of birds & over 200 species of insects inhabit a single oak

Rowan/Mountain ash



Irish name: Caorthann

Habitat: high altitude, can grow on rocky ground

Flowers: Creamy colour

Berries: Scarlet berries, they provide food for birds (e.g. thrushes) though winter

Interesting fact! - A mistle thrush will defend a rowan tree or holly as it's territory, not for nesting but for food through the winter

Introduced Trees

Sweet chestnut	Beech	Sycamore	Sitka spruce
Norway spruce	Douglas fir	Larch	Western red cedar
Lodge pole pine			

Norway spruce



First introduced in 1500's

One of the first 'exotic' species introduced as a timber crop

Habitat: fertile, moist mineral soils, shallow peats.

The traditional Christmas Tree!

Brief History of Ireland's Forests

6000 BC

Temperatures increased and the great forests emerged.

DOMINANT SPECIES:
Oak, Elm and Scots Pine.

Forest Cover
Approx
95%

10000 BC

The temperature began to rise and encouraged further growth. The tundra landscape was replaced by forests and grasslands.

DOMINANT SPECIES:
Oak & Scots Pine.

Forest Cover
Approx
60%

8000 BC

Temperature decreased dramatically and remained low for the next 600 years. This resulted in a huge drop in forest cover.

Forest Cover
Approx
20%

12000 BC

The Ice age ended and the landscape gradually changed from tundra to pioneer forests.

DOMINANT SPECIES:
Juniper, Birch, Willow and Hazel.

Forest Cover
Approx
0-60%

2000 AD

Forests were in serious decline during the 18th century. Non natives were introduced.

INTRODUCED SPECIES:

Beech, Sycamore, Sweet Chestnut, Lime, Scots Pine, European Larch, Norway Spruce, Douglas Fir, Lodgepole Pine, Japanese Larch.

Forest Cover
Approx
2%

2000 BC

Temperatures decrease again and the climate becomes wetter. Bogs continue to develop. Neolithic settlers began clearing forests for fuel & farming.

DOMINANT SPECIES:
Oak, Alder, Scots Pine, Ash, Holly & Hazel.

Forest Cover
Approx
60%

2015 AD

Approx. 75% of the total forest cover is made up of conifer, mainly commercial timber species and some native species such as Yew and Scots Pine. Remaining 25% is broadleaf and mixed forest, of which, just half is made up of native species (e.g. Oak, Ash, Birch etc.). In recent years, broadleaf planting is becoming increasingly important.

Forest Cover
Approx
10%

0 AD

Further conversion from forest to farmland. Bogs spread resulting in loss of Scots pine.

DOMINANT SPECIES:
Oak, Alder, Ash, Holly and Hazel.

Forest Cover
Approx
25%

Today's forests

Just 10% of Ireland is covered by forest

Less than 1% is ancient/native woodland

- ~ 75% - conifer (non native)

- ~ 25% - broadleaf (non native & native)

Today's Forest Types

Native woodland	Native broadleaves, associated shrubs & ground layers
Semi-natural forests	Native broadleaves & some introduced conifers & broadleaves
Coniferous forests	Introduced conifers, mostly planted by the State

Hedgerows	Provide a very important wildlife habitat – native & non native trees & shrubs
------------------	--

Video

[The importance of trees](#)

Threats to our forests

- Disease
- Insect pests
- Invasive species
- Mammal damage
- Wind damage
- Frost damage
- Climate change
- Fire

Ways we can help our forests

- ✓ Raise awareness
- ✓ Plant (native) trees & shrubs
- ✓ Reduce, reuse & recycle paper
- ✓ Buy sustainable forest products (e.g. FSC)

Forests & Climate

- Forests influence Climate Change by affecting the amount of CO₂ in the atmosphere
- When forests grow, carbon is removed from the atmosphere & absorbed in wood, leaves & soil
- Because forests can absorb & store carbon they are called “carbon sinks”
- This carbon remains stored in the forest ecosystem
- It is released into the atmosphere when forests are burned

Forests & Climate

The Carbon Cycle

Forests and Climate

- ✓ Forests help stabilize climate
- ✓ Forests are one of the greatest CO² cleanser we have on Earth
- ✓ Trees absorb & store carbon while growing
- ✓ Wood products also store CO₂

Interesting fact!

A person emits an average of 10 tonnes of CO₂ per year!

A mature tree contains ~ 5 tonnes of CO₂

= we must plant 2 trees per year to be CO₂ neutral

Forests & Biodiversity

What does Biodiversity mean?

Bio.... - e.g. Biology is the study of life

.....diversity - e.g. "Diverse range of..."

Forests & Biodiversity



Biodiversity is the huge variety of life that surrounds us, from the tiniest bugs, to the butterflies, the plants they feed on, to the largest of the deer in Ireland's forests, the red deer

Treecreeper



- Widespread in hedgerows & deciduous forests
- Small about same size as blue tit
- Male & female look similar
- Feeds on insects & other invertebrates found in the bark of trees

Chaffinch – Rí Rua



- Top 20 most widespread garden birds
- Found in woodland, farmland, parks & gardens
- Male & Female look different
- Feeds mainly on seeds, spilt grain, beechnuts & young insects

Wren



- Ireland's 2nd smallest bird
- Top 20 most widespread garden birds
- Found in all habitats – farmland, woodland, scrub, mountain, cliffs, islands
- Feeds on small insects and their larvae

Woodlouse – crustacean



- Found under rocks & rotting logs
- Needs moist conditions to survive
- 32 species found in Ireland
- Eat dead & decaying plant matter

'The ultimate recyclers'

Lesser horseshoe bat



- Bats are protected by law in the Republic of Ireland under the Wildlife Act 1976

Lesser horseshoe bat

- Only ~14,000 in Ireland
- Habitat: broadleaved & mixed woodland
- Forages in woodland & scrub
- Roosts mainly in roofs of old houses, outhouses, stables & old cottages

Pine Martin



- One of Ireland's rarest mammal species
- Once very common
- 20th C almost extinct (hunted for fur, loss of habitat through destruction of forests, poisoning)
- Now protected by law
- Nocturnal
- Lifespan ~ 10 years
- Den – rock crevices, tree cavities, burrows, old bird nests, log piles
- Omnivorous (plants & animal)

Why is BIODIVERSITY so important ?

- ✓ Gives us the air we breath
- ✓ Provides us with food, medicine, fuel, fibre
- ✓ Pollination & biological control



- ✓ Protection from soil erosion & flooding
- ✓ Recycling of nutrients (composting)