

Welcome to Massy's Estate Woodland & Nature Trail

Name

Today's Date

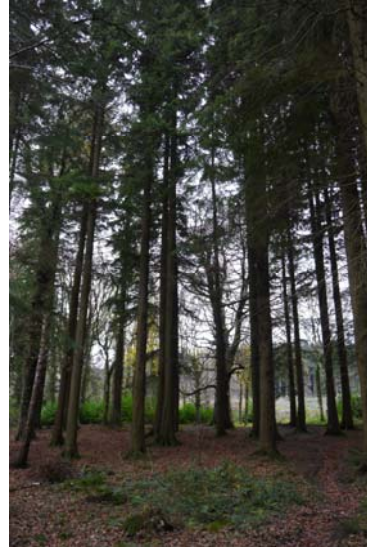


Massy's Estate Nature Trail



Stop 1 – Western hemlock

Western hemlock (*Tsuga heterophylla*) is a beautiful tree native to Western North America, where it can grow to 70m tall. It was introduced to Britain in 1857. The wood of hemlock is hard, tough and durable and is used widely in joinery and construction work. The tree has a delicate habit and spire-like crown, with numerous branchlets which are light and graceful. It has a small cone (2-3cm) in length (have a look on the ground around you for the cones). It casts a dense shade.



Activity time:

This conifer tree is easily identifiable by its foliage (needles), small cone and flaking, shredding bark. Draw a picture of the foliage and cone in the box (to scale) and take a bark rubbing.

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↑
Western hemlock
foliage & cone

↑
Bark rubbing

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Stop 2: Giant Sequoia or Giant Redwood

The Giant Sequoia or Giant redwood is native to the Sierra Nevada mountains of Northern California. Here it is one of the largest, oldest and tallest living things on earth, reaching an age of 3500 years old. General Sherman in California is 83.8m tall and 31.1m in circumference, with a volume of 1,487 cubic metres making it the largest tree in the world (by volume).



Old trees have thick, spongy bark, dark reddish-brown in colour, which gives the tree protection against forest fires. The cones are egg-shaped – have a look on the ground around you for some! This tree doesn't have needles like hemlock, what does the foliage look like?



Behind this tree are the remains of the tiered front garden which was attached to the big house of the old Massy's estate. Following the demise of the estate, Killakee House was knocked down in 1941, when the bank could not find a purchaser and it was sold to a builder for salvage. The land is now in private ownership.

Activity time:

Feel the bark on this tree – why might this tree have such thick bark? (Hint it is a native tree of California – what's the weather like there?) Look for the cone and foliage of this tree – draw a picture of them, to scale!

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Describe the bark of this tree and why is it so thick?

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Giant sequoia cone and foliage

Stop 3: Monkey puzzle or Chilean pine



The Monkey puzzle tree is a native tree of Chile in South America where it grows in the Cordilla Mountains, up to 6000 feet. It was first discovered in 1750. Its typical domed crown on a straight cylindrical bole is seen across many gardens in Ireland. This tree was planted on the Massy estate as distinctive avenue tree.

The origin of the popular name Monkey puzzle derives from its early cultivation in Britain, about 1850s, when the species was still very rare in gardens and not widely known. The proud owner of a young specimen in Cornwall was showing it to a group of friends, when one made the remark "It would puzzle a monkey to climb that", as the species had no existing popular name, 'monkey puzzle' stuck!

Activity time:

Ireland has the lowest percentage of forest cover in Europe at 10%, the European average is over 30%. Much of our woodland was cut down by the 16th century, as it was used for ship building, clearance for agriculture, tanning, charcoal industry, etc. Trees can also die from natural causes such as Dutch elm disease.

The statements below could be used to support the preservation or destruction of trees and woodlands. Decide which side of the argument each statement belongs to and then write the letter in the correct box. Can you think of any more reasons?

- a. Provides oxygen for breathing;
- b. Lets more light into buildings;
- c. Clears land for crops;
- d. Provides habitat for birds & insects
- e. Dead leaves provide nutrients for soil;
- f. Increases risk of flooding
- g. Makes space for roads & houses
- h. Use of wood for making furniture;
- i. Provides chemicals for medicine;
- j. Provides shelter for large mammals;
- k. Use of wood for burning;
- l. Prevents soil erosion;
- m. Makes ploughing, etc. difficult;
- n. Provides produce (apple, cherries, etc.)
- o. Provides food for animals;
- p. Lowers carbon dioxide in the air;
- q. Improves air quality by filtering out harmful pollutants (such as ozone, sulphur dioxide, ammonia, nitrous oxides and dust particles)

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Reasons for cutting down trees	Reasons for keeping trees

Stop 4: Native Irish trees

Here the main avenue of the old estate is flanked by ash and sycamore (which is not native to Ireland) on the right and oak on the left. The ash tree is one of Ireland's most important native trees and can be seen growing in hedgerows all around the country. It prefers soil which is free from peat and rich in lime. It is Ireland's tallest native tree, standing 40m tall near Clonmel, Co. Tipperary. The timber is strong and flexible, ideal for making sports equipment, tool handles and oars. When ash is young it has smooth grey-green bark, as it matures the bark becomes rough and fissured.

Leaves are the most important part of a tree as they use sunlight energy to convert water and carbon dioxide into plant 'food', sugars and starches, which can be stored. Oxygen then passes back into the atmosphere. This process is known as photosynthesis. Broadleaves come in all different shapes and sizes. Conifer leaves can be divided into those that are needle-like and those that resemble scales.

Ash has compound pinnate leaves with up to 15 leaflets, and it is the last tree to get its leaves in the spring. In autumn the seeds appear in bunches called keys and are scattered by the wind. It has tight black buds in the winter. Each season sees changes in temperature, water and food supply and sunlight. Organisms must adapt to these changes in order to survive. Compare the leaves and buds of the ash tree to those on the oak trees on the other side of the road!!

Activity time:

How do deciduous trees adapt each autumn? Why do they do this?

Depending on the season – draw a picture of the ash & oak leaves or buds!

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Stop 5: The Mighty Oak



Here we stop under a magnificent Sessile oak (*Quercus petraea*) tree. Look up at the enormous multi-branched fan shaped crown. Admire the huge spread of this tree. The massive trunk has a circumference of 4.9m.

There are two types of oak tree in Ireland, Sessile oak and Pedunculate oak (*Quercus robur*). The acorns on Sessile oak are found with no stem, while the acorns on pedunculate oak have a stem or peduncle. Sessile oak is more common on poor acid soils in hilly areas.

There are over 800 species of oak worldwide, with about half of them being evergreen (i.e. they don't lose their leaves in the winter). Here in Ireland, our native oak trees are deciduous, i.e. they lose their leaves in the winter.

Activity time:

List 3 evergreen trees and 3 deciduous trees (you will see more trees as you go around the nature trail).

Evergreen trees

1. _____
2. _____
3. _____

Deciduous trees

1. _____
2. _____
3. _____



Nearby you will see a beautifully constructed cobblestone roadside water channel. This is a very attractive example of fine textured and meticulous, creative stone workmanship. It served to carry away rainwater, which prevented damage or rutting to the main avenue. A gang of workmen using knives, kept the watercourse clean during the working period of the estate.

Stop 6: Birch

Here is a beautiful old birch tree. Birch was the prevailing tree in this country until oak forests became dominant six to seven thousand years ago. Birch woods occur widely especially on poorer soils, lake edges and on bogs.

It is a delicate tree with fine branches and small leaves. The springtime flowers are called catkins which stay on the tree and contain the seed by autumn.

Note the old burl growing on the side of the tree. The exact cause of these burls is unknown but may be related to insect or physical damage, genetics or a fungus infection. Craftsmen often use burls to make bowls and other crafts where they display interesting patterns and colours.



Activity time:

Describe and draw the leaves and bark of the birch tree, and the ash tree to the right of it. Both trees are native to Ireland, name two other broadleaf trees native to Ireland.

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Birch leaves & bark

Ash leaves & bark

Name two other Irish broadleaf trees: 1. _____
2. _____

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Stop 7: Massy's estate heritage

Here again we see evidence of the wonderful workmanship in practice on the old estate. This wall has been exceptionally well built and probably dates to the early years of the estate.



It is slightly sloped to support the adjoining bank. Some large tree roots have created an unusual feature here by growing horizontally along the top of the wall.

Note the drainage outlets are arranged along the outer face. Also look at the profusion of liverwort which thrives in damp conditions which the water outlets provide.

Continue on from stop 7 for a few metres to where an animal drinking trough is located on the left. Surface water is channelled through the top of the wall and pours into this trough, which is equipped with an overflow, and is placed at ground level.

Activity time:

What do you think is the purpose of the holes in the wall?

Describe what is growing around these outlets. What must these plants like and therefore why are they growing here?

Stop 8: Monterey pine



There are 80 species of pine in the northern hemisphere. The long pine needles can be found in bundles of two, three or five depending on the species of tree. Our native Scots pine tree is a 2-needed pine. How many needles are in the bundle of this pine species, Monterey pine?

Monterey pine is a native tree of a small area around Monterey in California, just south of San Francisco. It was introduced to Britain in 1853. It grows very fast and can grow to very large proportions. Behind this tree is another large

tree which we have already seen along the nature trail – do you recognise it?

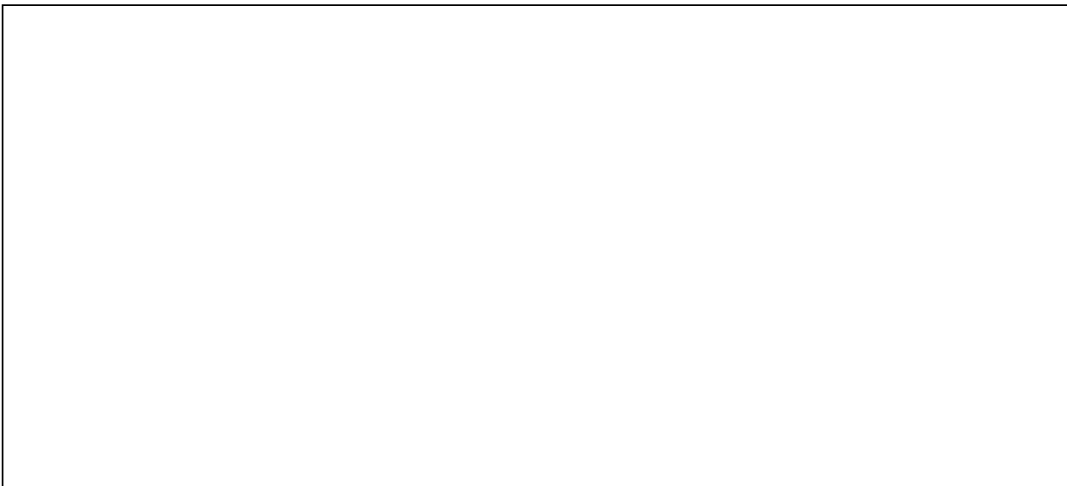
Activity time:

Pine trees grow needles in clusters of 2, 3 or 5.

Look on the ground, there are lots of bundles of needles on the ground from the tree. This is a Monterey pine tree – it is a _____ needled pine.

Our native Scots pine is a _____ needled pine.

Can you see any pine cones? Draw a picture of a cone to scale.



Stop 9: Yew

The yew tree is one of our three native conifer trees, the others being juniper and Scots pine. It is found in old woodlands, though often seen in artificial surrounds of estates and churchyards. Yew woods are very rare, there are only 10, located in the south west of the country.



Yew has flat, dark green foliage in a herring-bone fashion, and has red berries. The foliage and seeds are poisonous to most livestock. However, the toxic substance has medicinal properties used in the treatment of cancer. The



fruit can be eaten safely by birds and is a good tree for wildlife to roost and nest in.

It is a very slow growing tree and can live to 2000 years old. Many Irish towns and villages have derived their names from the Irish Yew (Iúir), such as Terenure (Tír an Iúir) and Newry (An tIúir).

Activity time:

Where do you typically see yew trees growing?

Why might this be?

Stop 10: The river

Glendoo Brook is a tributary of the Dodder River joining close to Rathfarnham. It is suggested that the name Dodder stems from the old Irish word 'Dothra' meaning 'turbulent'. In times of heavy rainfall the Dodder is prone to rapid and severe flooding. The steeply flowing river has cut its way down through the soft glacial till. At various points along its route, the hard granite bedrock is exposed, creating small waterfalls. The glacial till comprises different types and sizes of stone as can be seen in the river bed at this stop.



As many as six different kinds of stones can be found here. Granite, being the bedrock is most plentiful, a grey coarse textured rock which is composed of three minerals quartz (glassy), mica (silvery) and felspar (white). The very hard yellowish white stones are quartz (a component of granite). Mica schist are shiny grey and flaky, while the dull grey flaky stones are slate. The bluish ones with white flecks are dolerite. Finally, limestone which is dark grey and without a pattern, may have been carried to this area by ice from the lowlands.

Activity time:

Have a look at the different stones in the river, there are at least six different types of stone – describe what two of the stones look like – look at their shape, colour, texture, size.

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This river is a tributary of the Dodder river. Can you name two other Dublin rivers? 1. _____ 2. _____

Stop 11: Coastal Redwood Tree

Here is another famous Californian tree – the Coastal redwood (*Sequoia sempervirens*). It too has red, soft, stringy bark (reach out and touch the bark of the tree). The green pointed needles are arranged in a herring bone fashion (quite different to the Giant redwood we saw earlier). It is a native of the northern Californian coast (extending not more than 80km inland). Fog plays a vital role in the survival of these trees – protecting them from summer drought typical of the area.



It is the tallest tree in the world, at 112 metres in height (almost as tall as Dublin's spire which is 120m high). The tallest tree in Ireland is a Douglas fir (*Pseudotsuga menziesii*) at Powerscourt Estate in Co. Wicklow which measures 56m in height.

Activity time:

Describe the bark on this tree and what tree is it similar to? Draw a picture of the foliage of this tree?



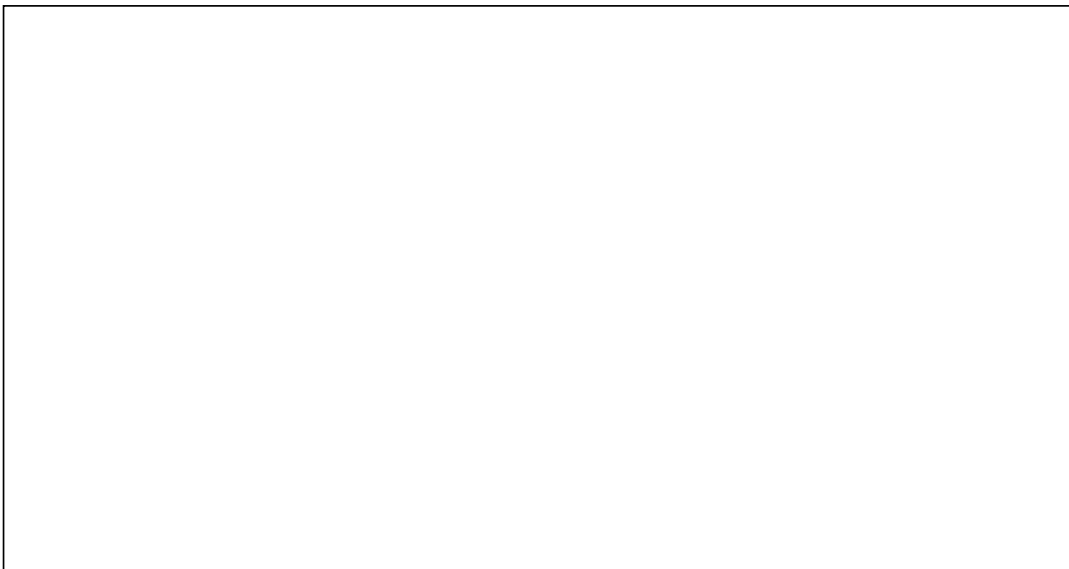
Stop 12: Icehouse

The icehouse was an integral part of estate architecture and lifestyle of many 18th century estates. It enabled gentry to have the freshest of food delivered to their tables. It was here that the game and sheep which were killed on the estate each week were stored. This is just another example of the wonderful building works scattered around the estate.



Activity time:

Nearby there are other nice stone features which were part of the old estate. Have a go at drawing one of these.



Stop 13: Beech



Beech (*Fagus sylvatica*) is found widely planted across much of Ireland, however, it is not native to Ireland. It was brought here in the 17th century and it has since naturalised and is an important part of our landscape. It casts a dense shade limiting the

growth of our native woodland flora (see there are few plants growing on the forest floor). It has a smooth silver bark and sharp pointy buds in the winter. It is an excellent timber for making furniture.

Activity time:

Have a look around you and suggest places where insects, birds or animals might make their home. Explore some of these spots and see if you can find any insects.

List 3 places where insects, birds and animals might make their homes in the wood:

1. _____
2. _____
3. _____

Draw one of these micro habitats.



Tree Wordsearch

F L M F U Y E W M U A X J B
R E G A S H O L D S M X P H
C T P N N V Z I A Y P N H K
V Q J E L D E R O C V V G K
O P Y E T A E P E A E V Q V
O S P Y B P F Y M M X X S W
D F L M I D P H S O B W S O
O X A N W N C S X R C D A J
A C U A L E E K G E U G C U
K J L D E R D X R M Y C G O
J K Z B P U P L A R C H L S
N Z U Y B B C B I R C H P L
S F C U S P R U C E B F S I
F C Q F R D C A L D E R F F

- YEW
- SYCAMORE
- JUNIPER
- BIRCH
- ASH
- ALDER
- ELDER
- CYPRESS
- LARCH
- SPRUCE
- BEECH
- OAK

Massy's Estate Time Line

Fill in the missing words from the list below

- In 1169 the lands of Cruagh and Killakee now known as Massy's Woods were granted to Walter de Ridleford after the invasion of Ireland by the _____.
- Sir Thomas Luttrell was given the land in the _____ century.
- In the 17th Century it was passed on to _____ Loftus.
- It was then sold onto William Speaker Connolly who built the hunting lodge on Montpelier hill known as the _____ Club.
- The Connolly family in about 1765 also built the _____ lodge, for the manager of the estate.
- Subsequently the estate was sold to Luke White, a politician rumoured to have won £20,000 on a _____ ticket found inside a book.
- In the early 19th century Mr. White built Killakee House, a 36 roomed grand _____ mansion in the style of a Mediterranean villa.
- Colonel Samuel White commissioned the landscaping of the two formal gardens and hired Sir _____ Niven director of the Botanic Gardens to over see the layout and building of the great _____ houses.
- In 1880 the 6th _____ Massy inherited the estate.
- After living an extravagant lifestyle he squandered the family _____ on celebrity parties and flash cars.
- In 1915 when John Thomas the 6th Baron died, his son inherited all his fathers debt and had to sell off the family _____ at a fraction of their value.
- The future 8th Baron Hugh Hamon moved into Killakee house but was estranged from his family because he was an alcoholic and also married a _____ nurse.
- In 1924 the estate was bankrupt and Hugh Hamon Massy and his family were _____.
- They moved into _____ cottage and lived on his wife's income from her job at the sweep stakes office and his lowly wages as a charcoal maker until he died in 1958. He was known as the penniless _____.
- Killakee House was stripped of its contents by a builder and demolished in 1941 and the estate was turned into public _____ by Coillte soon afterwards.

Hell Fire; evicted; beehive; woodland; heirlooms; fortune; Baron; glass; white; lottery; Stewards; Dudley; peer; sixteenth; Ninian; Catholic; Normans