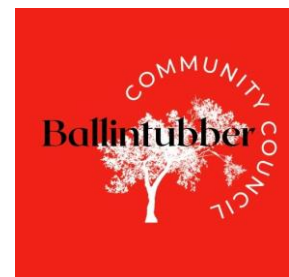


Ballintubber Community Action Biodiversity Plan 2021-2026



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Giorria Environmental Services

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Thank you to the Community Foundation for funding this project.

Executive Summary

Ballintubber Community Council Biodiversity Action Plan was funded by the Community Foundation through their Environmental and Nature Fund. Ballintubber is situated in a Carboniferous limestone region which influences not only the geology, and landscape but also the flora of the area. Much of the surrounding landscape is agricultural, with cattle being the main farming activity with some sheep. There are some small areas of hazel dominated woodland, cut-away bogs and marshes associated with the lake.

Communities like Ballintubber have the potential to make changes in the management of its managed green spaces and natural habitats which could potentially make many positive changes for local biodiversity. The following surveys were completed during 2020: habitat surveys, hedgerow surveys and pollinator surveys.

The following habitats were recorded in Ballintubber and its surroundings: improved agriculture, exposed calcareous rock, semi-natural woodland, bog (cutover bog), wet heath, limestone/marl lakes, hedgerows, buildings and artificial surfaces, stone walls and other stonework, amenity grassland, scrub and depositing/lowland rivers.

A total of 14 hedgerows have been surveyed, these includes farmland surveys, and roadside surveys. Hawthorn was the most commonly recorded species in the hedgerows of Ballintubber. Some species that are quite rare in Mayo hedgerows in general are much more common in Ballintubber hedgerows. These includes spindle, Guelder rose, and birch.

Several habitats and species that make Ballintubber's biodiversity particularly special have been highlighted in the report.

A biodiversity action plan was developed.



Introduction

This Community Action Biodiversity Plan has been funded by the Community Foundation through their Environmental and Nature Fund. The grants scheme was established to enhance biodiversity in communities throughout the country by combining the expertise of qualified ecologists with the skills, experience and enthusiasm of local community groups.

Ballintubber Community Council were successful in getting a grant through the scheme. Dr. Karina Dingerkus, ecologist from Giorria Environmental Services, was engaged by the Community Council to support the community group to carry out ecological studies in their local area and to develop a Community Biodiversity Action Plan.

An initial meeting was had with the Community Council on the 31st January 2020. During this meeting the following priorities were set.

- Engage the wider community through various meetings, walks, events and a school visit to the local primary school
- Work with local landowners to survey hedgerows
- Work with the community council to produce a coherent, accessible and achievable Community Biodiversity Plan

Two further meetings were had with members of the committee. One of which involved visiting sites within Ballintubber and another visit involved visiting a local farmer who was also a committee member.

Unfortunately, due to Covid restrictions we were unable to complete planned visit to school and walks and events in 2020. An attempt was made to get school engagement in 2021, but this was not availed of by the school.

Instead of the plan community consultation on the plan, an online survey was distributed via social media to the community and the responses used to feed into the plan.

Ballintubber

Ballintubber or Ballintober is situated in south Mayo, 16km from Castlebar. In Irish, Ballintubber is 'Baile an Tobair' meaning the village of the well, in this case St Patrick's Well. When Saint Patrick brought Christianity to Ireland around 432 AD, he is said to have founded a church at Ballintubber.

Ballintubber and the surrounding area is rich in history. Ballintubber Abbey was built by King Cathal Crovderg O'Connor, King of Connaught (known as Cathal of the Win Red Hand) in 1216. The abbey was built for the Canons Regular of St. Augustine on the ruins of a small church founded by St. Patrick.

An old pilgrim road runs from Ballintubber to Croagh Patrick, 35 km away. The road is known as Tochar Phadraig. The route, despite its name pre-dates Christianity and was probably built around 350 AD, as the main route from Cruachan (the seat of the kings of Connacht) to Cruachan Aigle, the pagan name for Croagh Patrick. This path was one of the major pilgrimage walks in Ireland until the suppression of the pilgrimage around 1588 when it went into decline. In 1987, the Tochar walk was restored from Ballintubber Abbey and since then, it has become possible to walk the Tochar from Balla.

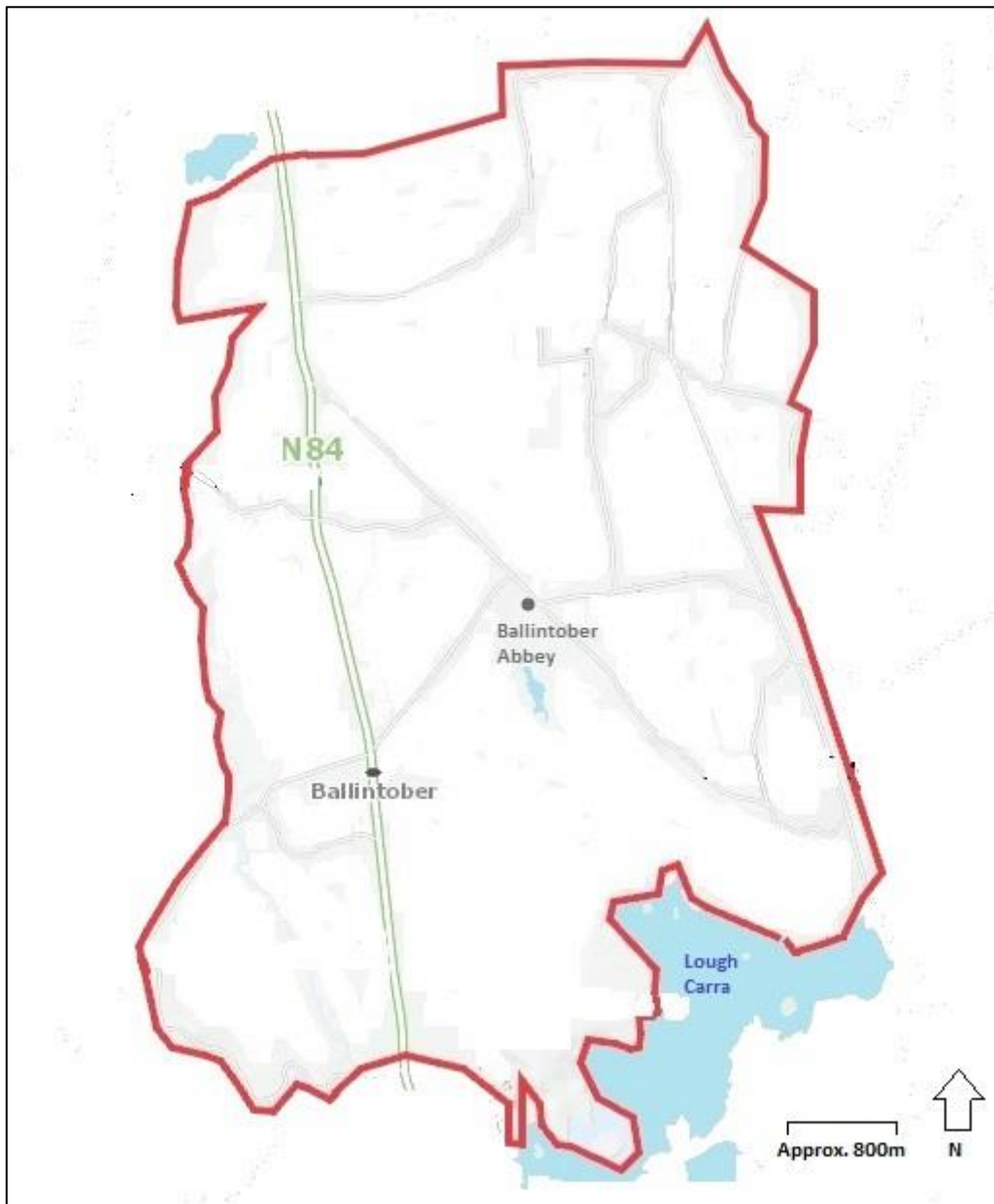
The area is situated in a Carboniferous limestone region which influences not only the geology, and landscape but also the flora of the area. Lough Carra lies to the south of Ballintubber and is also heavily influenced by its under-lying geology. Lough Carra is a Special Protection Area (SPA) and it also forms part of the Lough Carra / Mask Complex Special Area of Conservation (SAC). The Aille River lies to the west.

Much of the surrounding landscape is agricultural, with cattle being the main farming activity with some sheep. The area is suited to farming being flat and relatively well drained, with some low-lying drumlin. There are some small areas of hazel dominated woodland, cut-away bogs and marshes associated with the lake.

Community engagement was limited due to covid restrictions. A community survey online survey showed that most respondents were aware of what biodiversity was. All those surveyed responded that biodiversity was important to them. Most people felt that more should be done to protect and enhance biodiversity and they stated that they would support a biodiversity action plan for Ballintubber.

Survey Area

The survey area for the project is shown in Map 1 below. The village could be considered to have two centres. Firstly, the area around Ballintubber Abbey itself, which comprises of the abbey, the ruins of the old abbey, the graveyard and parking areas, the pub and several houses. The second area is along the main Castlebar - Ballinrobe road, the N84. This comprises of the schools, local garage / shop and numerous houses. The Aille River lies to the west of the area survey and Lough Carra lies to the south.



Map 1 Outline of area covered

What is Biodiversity?



Biodiversity is important because without it we would not survive. It is basically our ecological life-support providing us with many ecosystem services. Without biodiversity there would be no oxygen, clean air and water. Biodiversity provides food, pollination of plants and natural pest control. Biodiversity is defined as: "*the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems.*"

In other words, biodiversity refers to all living things.

In 2019, the Inter-governmental Panel on Biodiversity and Ecosystem Service (IPBES) published its global assessment on the state of the world's biodiversity and ecosystem services. The report highlights how biodiversity is declining globally and how the rate of species extinctions is accelerating. The impact of these declines on humans can not be underestimated.

The impact of the loss of biodiversity can also be seen here in Ireland. Of the species that have been assessed here, one in every five is threatened with extinction. For example, there are ninety-nine different types of bees in Ireland (twenty-one bumblebee species, seventy-seven solitary bees and one honey bee). Of these, one-third are threatened with extinction. Pollinators are declining for many reasons but two of the main threats are the lack of food and shelter. Thirty-seven species of bird are of high conservation concern. The corn bunting has become extinct since around 2000 and the once widespread corncrake is just lingering on in the western extremities of counties Donegal and Mayo.

It is up to all of us to do our bit for local biodiversity.

Why have a Biodiversity Action Plan?

Communities like Ballintubber have the potential to make changes in the management of its managed green spaces and natural habitats which could potentially make many positive changes for local biodiversity. Changes in grassland management could lead to an increase in flora, which in turn would support many invertebrate species including pollinators and this in turn would also support birds and small mammals. The inclusion of wildlife homes such as bird and bat boxes can also help increase biodiversity.

The National Biodiversity Action Plan 2017-2020 sets objectives, targets and actions for the country. The vision of the national plan is *“That biodiversity and ecosystems in Ireland are conserved and restored, delivering benefits essential for all sectors of society and that Ireland contributes to efforts to halt the loss of biodiversity and the degradation of ecosystems in the EU and globally.”*

One of the objectives of the National Plan is to “Enhanced appreciation of the value of biodiversity and ecosystem services amongst policy makers, businesses, stakeholders, local communities, and the general public (Target 3.1).”

Local communities are seen as being key partners in the national plan. A local Community Biodiversity Action Plan looks at how communities can contribute to the conservation of biodiversity at a local level. It can be used as a plan to maintain and enhance biodiversity within your local area.

In order, to thrive, biodiversity needs a diversity of habitats. Animals and plants need places that provide shelter and cover. This can be in the form of wooded areas, areas of undisturbed tall vegetation, walls and soil banks are also important. These areas provide shelter and nesting sites for birds, small mammals and invertebrates. By limiting or eliminating the use of herbicides and pesticides a safe environment for species can also be provided.

Plants and flowers will provide food for pollinators. Native wildflowers have declined in Ireland with the loss of hay meadows and other flower-rich habitats. By providing native flowers in our factory sites, industrial estates and towns and villages we can replace this valuable resource.

Ireland is one of the least wooded countries in Europe. Trees provide nesting sites and food for birds. A red squirrel has also been recorded on site and this species would benefit from having additional food sources in the form of nuts and berries from native trees.

Over recent decades we have suffered a huge loss in biodiversity, from loss of hay meadows and the insect life they support, loss of wetland habitats as we have drained bogs and agricultural fields, loss of hedgerows and woodland. In the latest review of the Birds of Conservation Concern in Ireland published in April 2021, further declines in Irish birds have been highlighted. The report highlights that there has been a 46% increase in the number of Red-listed bird species. More than half of Ireland’s bee species have undergone substantial declines since 1980, with the distribution of 42 species declining by more than half. Humans are an integral part of biodiversity, and our actions can affect it in both a positive and negative way.

However, there is much we can do to improve this. When managing land, it is often not a case of doing nothing, nature needs a helping hand. A field left un-grazed or uncut would quickly become dominated by rank vegetation and brambles. It is important therefore for communities to plan actions. When planning actions, it is important to know what is there. It is important to know how we can best maintain what is there, but also to know how we can enhance what is there.

This plan will set out actions for the community to protect and enhance the biodiversity they have in Ballintubber.

Ballintuber's Biodiversity

In order to set a baseline for any future management to improve biodiversity of an area it is important to know what habitats and species are already present in the area and their current status in terms of conservation.

Ecological Surveys

The following surveys were completed during 2020.

- Habitat surveys
- Hedgerow surveys
- Pollinator surveys

Details of species recorded are given in Appendix 1.

Habitat Surveys

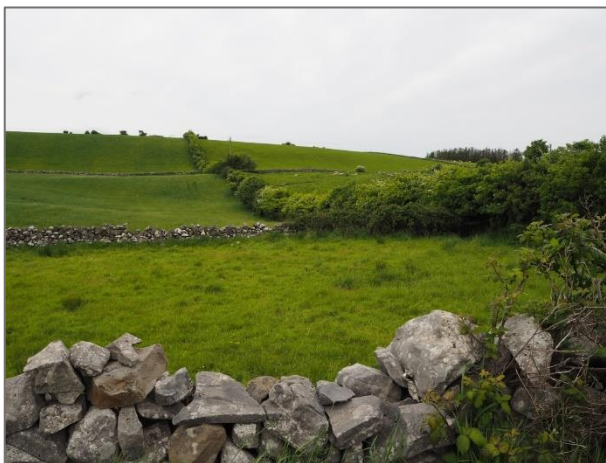
Due to the size of the area (22 km²) several different areas were chosen to complete smaller habitat surveys. These included the area around Ballintuber Abbey, areas around village shop, woodland area in townland of Cogaula and Cartronbower, Church Island and the limestone pavement area around townland of Carn. Habitats are mapped in Map 1. Table 1 provides a summary of the area of habitats.

Habitats recorded in Ballintubber and surrounding areas

Habitat Type	Habitat code*	EU habitat Directive Annex I habitat types where relevant	Habitats	Biodiversity value
Improved agriculture	GA1		Agricultural grassland	Low
Exposed calcareous rock	ER2	*Limestone pavements (8240)		High
Semi-natural woodland	WN		Native woodland	High
Bog (Cutover bog)	PB4	Depressions on peat substrates of the Rhynchosporion (7150)	Bog	Medium
Wet heath	HH3	North Atlantic wet heaths with <i>Erica tetralix</i> (4010)	Heath	High
Limestone/marl lakes	FL3	Hard oligo-mesotrophic waters with benthic vegetation of Chara spp. (3140)	Lake	High
Hedgerows	WL1		Hedgerows	High
Buildings and artificial surfaces	BL3		Built land and gardens	Medium
Stone walls and other stonework	BL1		Built land, garden, agricultural stonewall boundaries	Medium
Amenity grassland	GA2		Cemetery	Low-medium
Scrub	WS1		Scrub / woodland	Medium-high
Depositing/lowland rivers	FW2		Aille River, and Pilgrim's Walk, Trib Lough Carra	High

Agricultural grassland (GA1 Improved agricultural grassland)

Much of the habitat surrounding Ballintubber is composed of grassland and on the whole improved agricultural grassland. The fields are generally separated by stonewalls and many of these walls have become vegetated over time, to the extent that the walls look like hedgerows. Agricultural grassland can have a low biodiversity value where it is managed intensively. However, some pastures are wetter and more rushy in nature and area around the lake shore, particularly around carne but also the drumlins in cc are relatively flora rich, supporting a diversity of meadow flowers like ox-eye daisy, red clover, hawkbit and orchids.



Limestone Pavement (ER2 Exposed calcareous rock)

There are some good examples of limestone pavement in the surveyed areas. Limestone pavement is a priority habitat under the Habitats Directive and comprises areas of limestone rock exposed by ice scouring during the last ice age. The rock base of the habitat can either be classic 'clint and grike' pavement, made up of blocks (clints) and fissures (grikes), or of shattered blocks of limestone bedrock. In terms of vegetation and soil cover, the habitat is highly variable, but in and around Ballintubber the following were found: bare rock, through mosaics of grassland and woodland.

The main vascular plant species associated with the habitat include scattered low growing woody species such as hazel, holly, burnet rose and brambles and herbaceous species such as Herb Robert and carline thistle. All of which were recorded during field surveys. The habitat also supports ferns such as wall rue and hart's-tongue. The wooded variant of Limestone pavement is also present in areas with hazel woodland (see below). These woodlands tend to have a low canopy and very little obvious soil.

The main pressures for this habitat are conversion to agriculture, though scrub encroachment can also be a pressure where there is under-grazing. Looking at old maps and from conversations with local people it is clear that limestone areas have been cleared to create

some of the present-day agricultural fields. In some areas scrub is beginning to encroach the limestone pavement.

Woodland (WN - Semi-natural woodland)

There are several areas of deciduous woodland scattered throughout the area. These woods are dominated by hazel, but also includes other trees and shrubs including hawthorn, blackthorn and birch. However, on church island there are some older oaks trees as well as other species. Generally the woodland ground flora is rich but many of the woods are grazed (mostly, it appears by cattle, though fallow deer have been recorded in the area too). Ground flora includes primrose, lord and ladies, lesser celandine, pignut, bluebells, wood sorrel, violet, bugle and herb Robert to name just a few. Orchids were also present.



Blanket Bog (PB3 - Lowland blanket bog) and Wet Heath (HH3 - Wet heath)

These two habitats are associated together. Blanket bog occurs in areas of consistently high rainfall where the ground surface is waterlogged for much of the time, resulting in the development of deep peats. Peat depths are typically more than 50cm. This habitat type generally occurs on flat or gently sloping terrain. Both active and inactive blanket bog qualify as Annex I habitat. Wet heath is a very variable peatland habitat that is intermediate in many respects between dry heath and blanket bog. Wet heath habitat generally occurs on gently sloping, poorly drained ground. Peat depths tends to be shallow or intermediate (typically less than 50cm deep).

The main pressures on both habitats are overgrazing, burning, afforestation, peat extraction. The bogs and heaths around Ballintubber have not been used for turf cutting for some time. However, drainage ditches were dug to aid peat cutting and these mean that the bogs are probably drier than they should be. By blocking drains there is potential for the bog to be restored. Restored bogs are vital for storing carbon into the future with the increased threat of climate change.

Lake (FL3 – Limestone / marl lakes) and lake shore (various habitats)

The northern shore of Lough Carra occurs within the survey area. Lough Carra is the largest marl lake in Ireland and is part of the Great Western Lakes complex. Marl refers to the calcium carbonate deposit on the lakebed. The lake is large, covering 1,560 hectares. The lake is joined to Lough Mask by the Keel River. There are many islands, bays and promontories, all of which on a bedrock of limestone (see also Church island below).



The water is alkaline and was naturally oligotrophic, i.e. nutrient-poor. However, it is now mesotrophic with a higher level of nutrients. The increased nutrient levels are thought to be due to intensification of agriculture in the catchment. Aquatic plants in the lake include stoneworts.

The lakeshore, which is underlain by carboniferous limestone, has a variety of habitats. Habitats include agricultural grassland, orchid-rich grassland, cladium and alkaline fen, limestone pavement, marsh, reed swamp, scrub and woodland.

Lough Beg is a much smaller lake linked to Lough Carra via a small river (EPA name: Pilgrim's Walk, Trib Lough Carra).



River (FW2 - Depositing/lowland rivers)

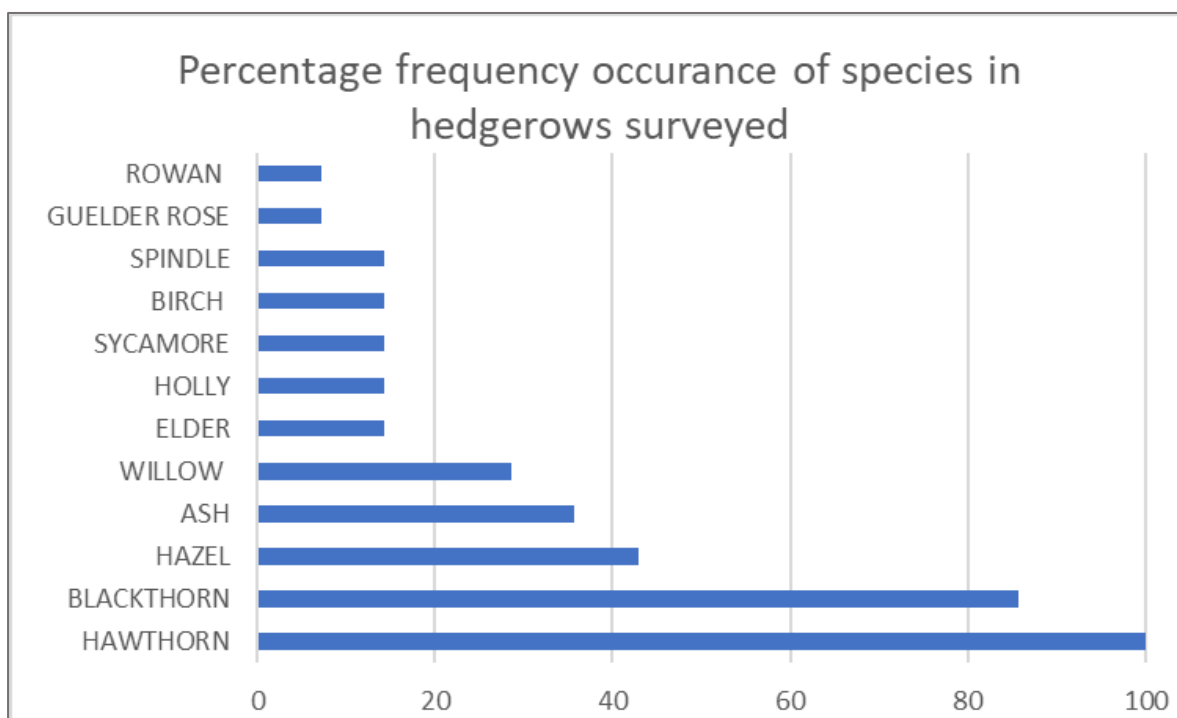
The Aille River flows along the western boundary of the survey area. In its natural state these depositing /lowland rivers erode their banks and meander across floodplains. Most have been modified to some extent to control water flow, and / or to prevent flooding and erosion. River Aille is approximately 10 m wide. It displays good

riparian vegetation with trees including alder, willow and ash.

Hedgerow Survey

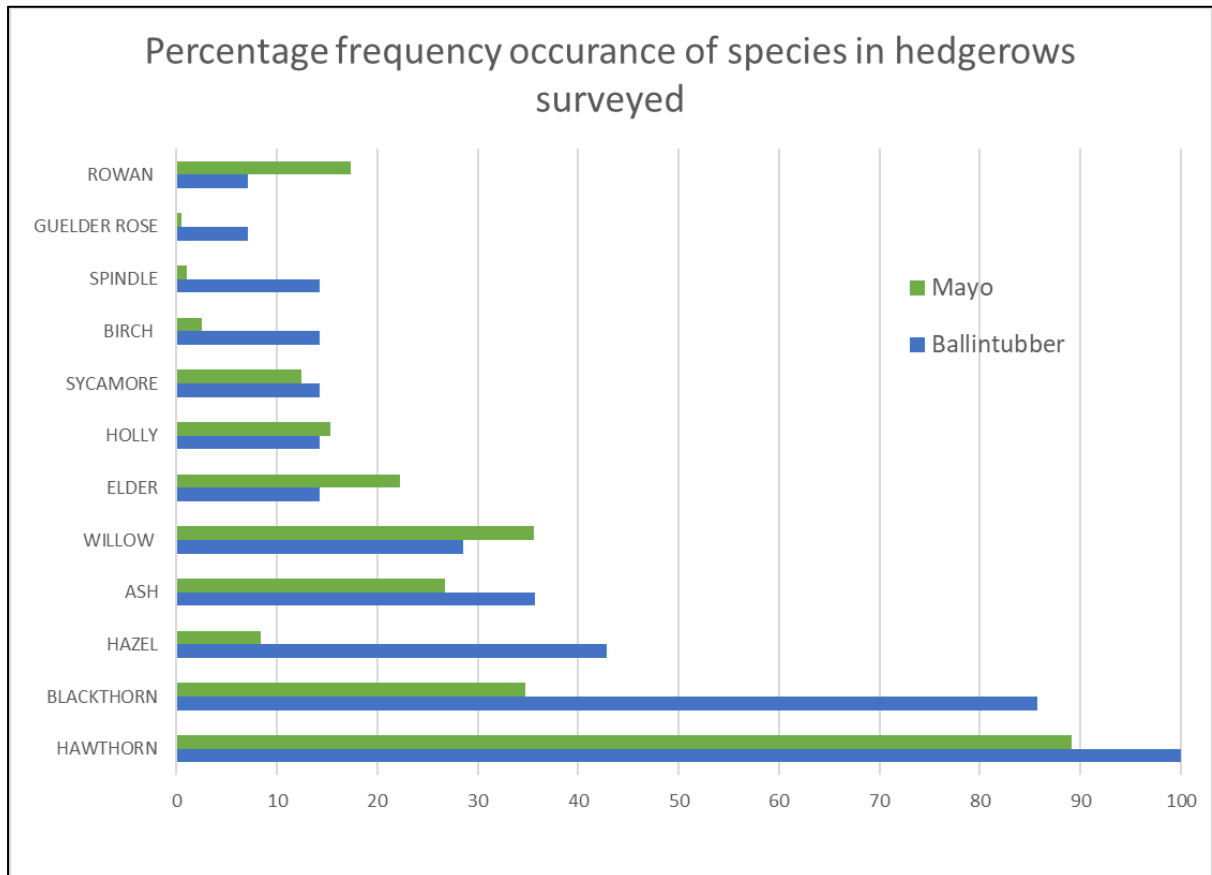
A sample of hedgerows have been surveyed, these includes farmland surveys, and roadside surveys. A total of 14 hedgerow surveys have been completed. Maps showing location of surveyed hedgerows are given in Appendix 2.

Hawthorn was the most commonly recorded species in the hedgerows of Ballintubber. Followed by blackthorn and then hazel.



One of the farm hedgerows surveyed in 2020

We can compare the frequency these species occurring in Ballintubber hedgerows compared to those in all of Mayo using survey gathered during the County Mayo hedgerow survey carried out in 2007. As is evident from the graph below there are several species that appear to be more common in hedgerows around Ballintubber than we would generally expect from hedgerows in the county.

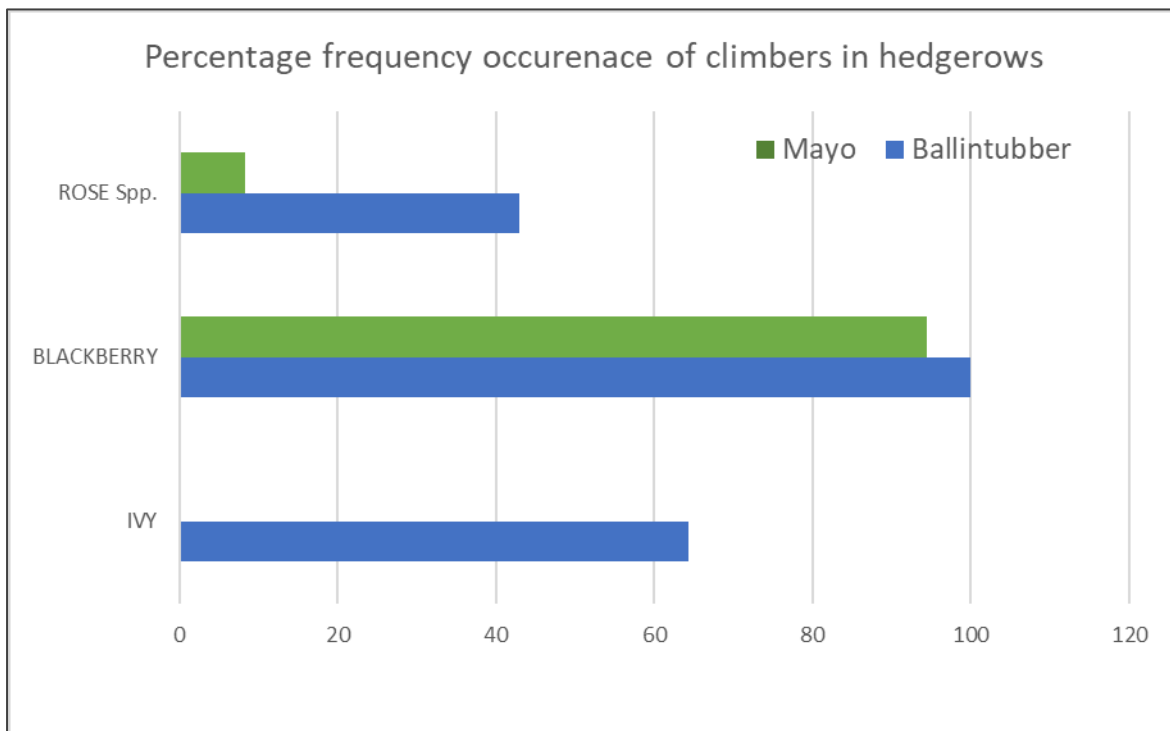


Hawthorn was found in all surveyed hedgerows in Ballintubber. Ash occurs in nearly 36% of Ballintubber hedgerows compared to 27% in Mayo. Blackthorn or sloe is much more frequently recorded in hedgerows in Ballintubber occurring in 86% of hedgerows surveyed compared to 35% generally in Mayo hedgerows. Similarly, hazel occurs in nearly 43% of Ballintubber hedgerows but only 8% generally in Mayo.

Some species that are quite rare in Mayo hedgerows in general are much more common in Ballintubber hedgerows. These includes spindle (Ballintubber – 14%, Mayo – 1%), Guelder rose (Ballintubber 7%, Mayo 0.5%) and birch (Ballintubber 14% and Mayo – 2.5%).



The occurrence of climbers was also examined. Note Ivy was not recorded in the Mayo survey but was recorded for Ballintubber. However, what is particularly of note is the presence of Rose species in Ballintubber hedgerows which was noted as 43% compared to just over 8% for Mayo hedgerows. Roses included both species of dogrose and burnet rose.



Using guidelines from the Hedgerow Appraisal System which sets out best practise for hedgerow surveying, data collation and appraisal the condition and statues of each hedgerow was assess. It should be noted that the samples size of 14 is small and that these assessments should not necessarily be viewed as definitive. However, they do give a general view of the state of hedgerows in Ballintubber. Under the appraisal system 14.3% of surveyed hedgerows were classed as heritage hedgerows. Just over 57% were classed as being in unfavourable condition. Unfavourable condition is reflective of the low height, small width, gappiness, presence of low diversity of hedgerows as well as other indicators.



Example of an intensively managed hedgerow



Example of a less manged farm hedgerow

Pollinator Surveys

Due to restrictions of travel during the initial Covid lockdown, not as many pollinator surveys were completed early in the year as had been planned. However, data was gathered from several completed transects.

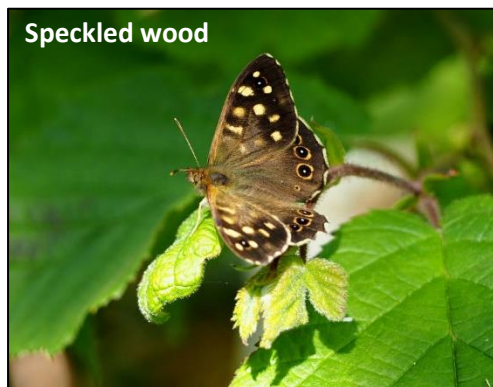
Transects followed the standard methodology used in the Monitoring Bumblebee citizen science scheme run by the National Biodiversity Data Centre. A transect of 1km was walked and all bees and butterflies seen were recorded along these transects. All transects recorded bees and butterflies.

Common carder bees were the most frequently recorded species, and the most widespread species occurs in all townlands surveyed. These were followed by early bumblebees and white-tailed bumblebees. Heath bumblebees were only recorded in the townland of Knockaraha.



Common carder bee

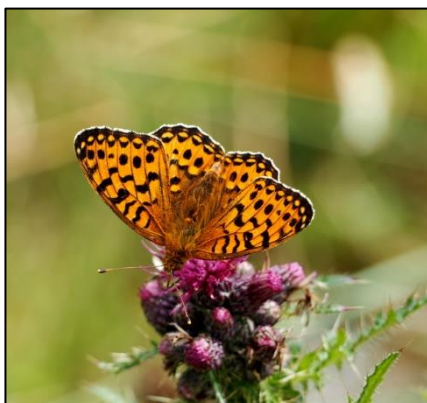
Green viewed white, orange tip, peacock and speckled wood butterflies were all recorded in a couple of different locations. Some less common species were recorded near the limestone



Speckled wood

pavement area of Carne. These included the silver-washed fritillary, brimstone butterfly and two wood whites.

Butterfly and bee records are limited by the number of visits made to the area and it is likely that the area supports more species, particularly because of the rich flora especially in the limestone areas around the lake shore. National Biodiversity Records include records of Dingy skipper, grayling and small heath (all considered “near-threatened”) in and around the townland of Carne. Marsh fritillary, a species classed as vulnerable has been reorded at Castleburke.



Local Biodiversity Areas

Ballintubber Abbey and Grounds

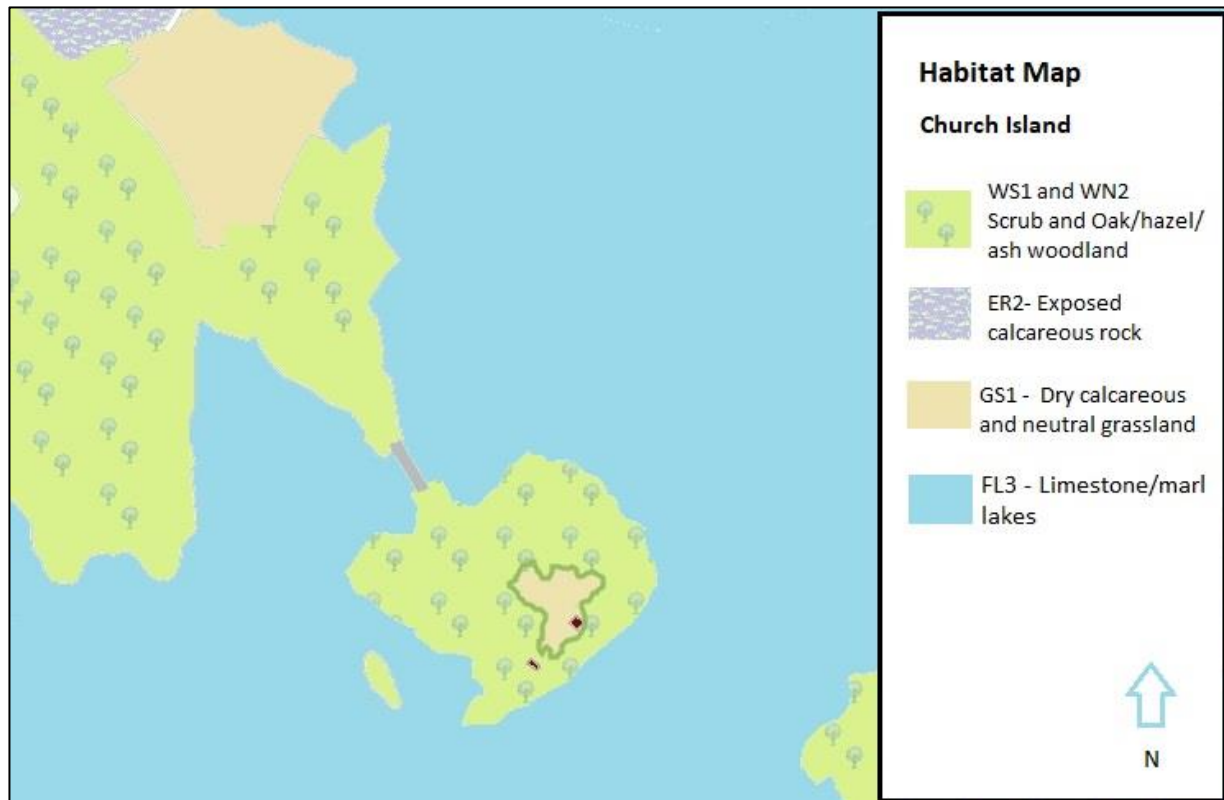
Ballintubber Abbey has existed for many centuries, but the present building was restored in 1966. The building itself has potential to house bat species. The grass areas of the grounds are intensively managed through mowing. Some attempts have been made to start managing the grounds in a way that allows wildflowers to grow. There are many mature trees in the ground of the abbey which provide important habitats for insects and birds. On the day of the survey a hawthorn tree in full blossom was attracting numerous bees including white tailed bumblebees, honey bees and solitary bees.



Church Island

Church island is a small, wooded island accessible via a stone causeway / ford in the southern section of the townland of Carn. On historic 25" maps a ford is shown. St Finian is said to have founded a church there in the 6th century and there is evidence that the site has been

occupied for over 3000 years. A 14th century church on the island is owned by Ballintubber Abbey since 1992 and has been recently restored. The island is used regularly by pilgrims and locals. The church is known to be used by bats. There is an open area in the centre of the island which is regularly mown, and the rest of the island is composed of woodland, which is mainly of hazel. The ground flora includes wood anemone, wild strawberry, herb Robert and ivy. Guelder rose and aspen are also present. The open area contained many meadow plants including red and white clover, dandelion, speedwell, bush vetch, selfheal, and creeping buttercup. There was evidence (scat) of pine martens on the island. Orchids were common especially around the shores of the island and the lovely Marsh Helleborine was also recorded during the field survey. Other plants recorded along the shore included meadow sweet, mint, harebells, and birds-foot-trefoil.



Habitat map showing habitat around Church island

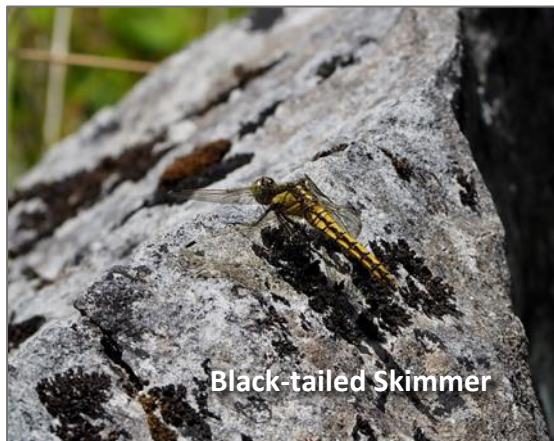
Limestone Pavement at Carn

The limestone area in the townland of Carn includes some limestone pavement reminiscent of the Burren, with some area of near bare limestone. The area supports some of the more unusual flora of the area and the diversity of plant species means the area supports numerous butterflies, moths and other

insects. Some of the pavement is being encroached by scrub, particularly hazel and blackthorn. Burnet Rose was common growing low on the ground between the limestone but also in some of the neighbouring hedgerows. Numerous orchid species were also recorded. Devil-bit scabious the foodplant of Marsh fritillaries was also present. Columbine / Granny's Bonnets was found growing in this area. This plant is thought to be native but could also be a garden escapee. Carline thistle, another limestone loving plant was also recorded.



Burnet Rose



Black-tailed Skimmer

The area is also rich in insect life. Butterflies including brimstone, silver-washed fritillaries and wood whites were also recorded during surveys, as well as more common species such as green-veined white and speckled wood. Two unusual day-flying moths were also recorded in this area including Transparent Burnet Moth and Dew Footman Moth.

Dragonflies are also common here. The most frequently recorded species during surveys was the Black-tailed Skimmer.

Domestic and School Gardens

There are numerous domestic gardens within the village of Ballintubber and in surrounding townlands. Gardens can be important habitats particularly for pollinators and wild birds if the garden also contain trees and shrubs. The school also has a garden and has grown vegetables and flowers.

Bog in Townland of Cogaula

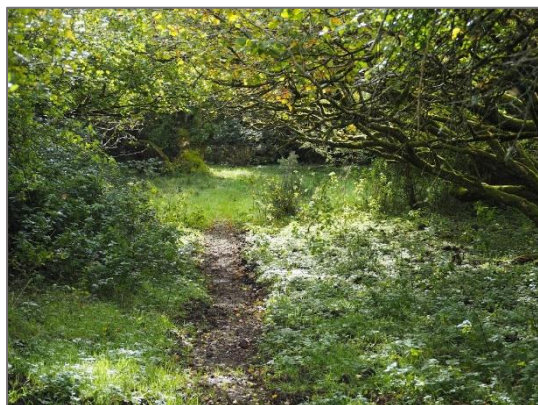
This old cutaway bog has some nice areas of wet bog pools where sphagnum mosses are regenerating. The bog pools also contain bog plants include Bog Pondweed. Bogland flora including devils bit scabious, various sedges, ling heather, cross-leaved heath, ferns include royal fern, and lichens were all observed. In some of the drier areas of the bog lungwort, milkwort and bog cotton were all recorded. Some active mammal tracks were observed in the bog habitat, and it is likely that these are used by Irish hare.

In some areas of the bog, trees are beginning to encroach, including birch, willow and Scot's pine.



Woodlands here are dominated by hazel. These woods are underlain by limestone and in some areas the limestone is exposed. In these areas in particular the trees are small. As well as hazel other species include hawthorn and blackthorn.

There are climbers such as honeysuckle and bramble as well as ivy. Due to the underlying limestone the woodlands support an interesting and diverse range of wildflowers including

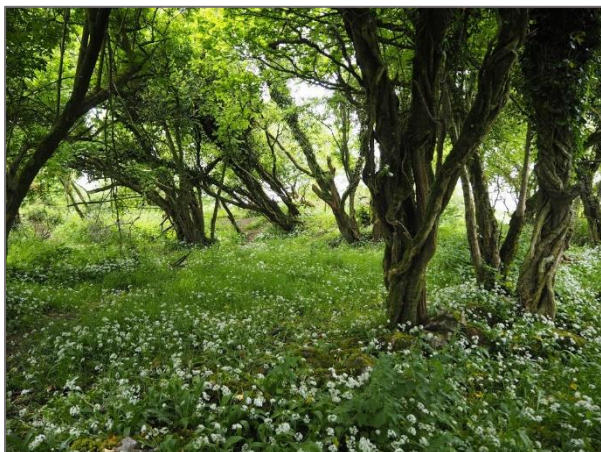


several orchids, bluebells, bugle, wild-strawberry, primrose, shining crane's-bill and wood sorrel to name just a few. Ferns, mosses, lichens, and fungi are all common. The woods support a range of bird species. Blackbird, chaffinch, bullfinch, and pheasant were all recorded, but the woods are likely to support much more as well as many species of mammals. The woods also supported pollinators, with bumblebees, butterflies and hoverflies all being recorded.

Woodland in Townlands of Luffertaun and Cogaula

Ringfort in Townland of Knockaraha

The ring fort here is surrounded by old hawthorn trees. Inside the fort wild garlic grows in profusion. Other woodland and hedgerow plants including primroses, bluebells, speedwell, and violets. There was also evidence that pine martens were visiting this area in the form of scats. On the day of the survey several heath bumblebees were also recorded here. This is one of our smallest bumblebees, and despite its name it is not just found in heathland habitat.



Castle Burke

The old stones castle, Castle Burke is situated on the shores of Lough Carra. It is known to have two occupied swift nests in 2018 and again in 2021. It is one of the few rural sites for swifts in County Mayo. The swift is on the amber list of birds of conservation concern in Ireland because its population has declined by over 40% in the last 15 years. In addition, the building has also been used by nesting kestrels. It is possible that holes in the building will also be used by bats on occasions.



Field Boundaries Hedgerows, Stonewalls and Vegetated Stone Walls

Many of the agricultural fields have limestone walls as field boundaries. Over time these walls have become vegetated to the extent that many also have hedgerows. The hedgerows are relatively rich supporting several species including hawthorn, blackthorn, and hazel. Interestingly spindle appears in several of the hedgerows surveyed. The wood of the Spindle tree is extremely hard and, as its name suggests was used to make spindles for wool-spinning. See also section above entitled "Hedgerow Survey".



Local Biodiversity – Species

Lesser horseshoe bat

Lesser horseshoe bats are only found in western Ireland, though it is once thought to have had a more widespread distribution in the country. Summer roosts for this species of bat are in old, generally uninhabited old stone buildings.

While winter roosts are found in caves, cellars, and mines. They find their insect prey in deciduous woodland and in riparian vegetation and thick hedgerows. Linear features in the landscape such as hedgerows, stone walls, earth banks and tree lines, are important for these bats as they commute between roosts and foraging habitats by following these features. Known records for these bats occurs in Moorehall and Towerhill which lie 3- 4 km from Ballintubber.

Brimestone Butterfly

This small butterfly is not very common in Ireland. It is a lovely light lemon or yellow butterfly. The

foodplant for this species is Alder buckthorn. The species hibernates during the winter months. They can be seen from April to September. They are found in grassland, and woodland edges and have regularly been recorded around the shores of Lough Carra, particularly around the townland of Carn. Twenty-five species of butterflies have been recorded around the shore of Lough Carra.



Dragonflies and Damselflies

The lake supports a wealth of dragonflies, and they can be abundant both in terms of numbers and

variety of species. Of the 24 resident dragonfly and damselfly species recorded in Ireland, 14 of them have been recorded around the shores of Lough Carra. The black-tailed skimmer, which is general scarce in the rest of Ireland can be found in abundance around Lough Carra and it was the most recorded dragonfly during work for this plan.



Spindle

Spindle was recorded in 14% of the hedgerows surveyed. The density of spindle is unusually high. In a survey of Mayo hedgerows carried out in 2007 spindle was found to have a frequency of occurrence of 1% in sampled County Mayo hedgerows (Faulkes, 2007). Spindle is an unusual plant. It is very slow growing tree and so the wood is hard and was used to make spindles for wool-spinning. Spindle generally grows on calcareous soils. Its pale green flowers are not particularly distinctive. However, in autumn the trees distinctive four-lobed coral-pink berries open up to reveal bright-orange seed-coverings inside.



Burnet Rose

The Burnet rose occurs regularly in areas where limestone reaches the surface around Ballintubber, though it was also recoded in a coupe of the hedgerows. The delicate, single flower rose varies in colour from almost white to a very light pink, with yellow anthers. The petals are heart shaped. Generally, it is a short erect rose, but growing among the limestone it can be quite stunted. It has numerous straight thorns. The fruits are spherical purplish-black hips.



Hazel

Hazel was recorded in xx of the hedgerows surveyed. The density of hazel is possible related to the scrubbing over of limestone pavement. In a survey of Mayo hedgerows carried out in xx hazel was found to have a frequency of occurrence of 8.4% in sampled County Mayo hedgerows (Faulkes, 2007)

Orchids

Orchids are a particularly beautiful and diverse group of flowers. In 2007 and 2008 Chris and Lynda Huxley carried out an extensive survey of orchids and mapped the distribution of 17 species around the lake shore. Of these ten were recorded in the area of the focus for this biodiversity report. Generally, the orchids recorded on the northern and shores of Lough Carra were the more common species of orchid. The exception being the bee orchid, which was recorded in three sites on the north and north-west shore.

As well as the lake shore, orchids were also recorded in the woodlands and a couple of hedgerows around Ballintubber.



Community Outreach

Unfortunately, due to the restrictions of the Covid pandemic it was not possible to do any face-to-face wider community consultation nor to visit the local primary school. Biodiversity events planned for 2020 also had to be cancelled.

Community consultation

An online community consultation resulted in 48 responses. Those consulted were asked about local biodiversity and what they felt was most valuable in terms of biodiversity in their local area.

Most of those survey (71%) were aware of what biodiversity was. All those surveyed responded that biodiversity was important to them, with 66% saying it was very important. Most people (87%) felt that more should be done to protect and enhance biodiversity and nature in the Ballintubber area.



The same felt they would support a biodiversity action plan for Ballintubber, while the remaining 13% were unsure.

Lack of awareness and litter were seen as the main factor impacting biodiversity in the area, but most other factors including loss of habitats, overuse of chemicals and intensification of agriculture were also seen as threats. Interestingly climatic change was only noted by one person as having a major impact on biodiversity, but it is likely that climate change is already a major threat to our local biodiversity and this impact could increase as climate is impacted more and more.

Most people (87%) felt that more should be done to protect and enhance biodiversity and nature in the Ballintubber area, while the remaining 13% were not sure. Similarly, 89% of people that responded already engaged in positive actions for biodiversity (for example, fed the birds, put up bird boxes, plant flowers for pollinators etc.).

As part of the survey people were asked to highlight their favourite thing about nature/ biodiversity and or the environment of Ballintubber. Many of the responses were based around the abundance of wildflowers around the area. Noticing wildlife and hearing birds singing was also mentioned where respondents value the nature walks and being immersed in the environment. One respondent even replied, "its magical".

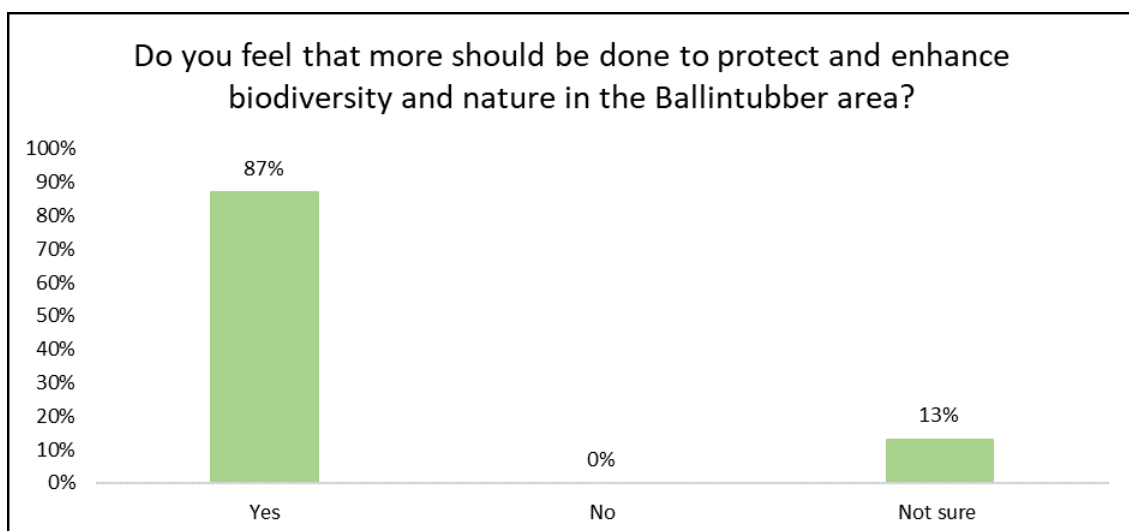
The other things mentioned were:

- There is more wildlife: noticing Buzzards, Barn owls and Kestrels and sometimes even otters and hedgehogs.
- The quietness around Lough Cara and being able to hear the birds sing.
- The range and variety of native wildflowers like bluebells and wild garlic.
- The sensory garden in the school.
- The Abbey.
- Very little litter.
- Lots of walks that let you explore the biodiversity and notice wildlife.

In the survey people were also asked what areas in Ballintubber they you like to see made more wildlife friendly? Respondents' answers were mainly focused on ensuring the areas around the grassland areas of the village, and the surrounding roadways and verges are made more wildlife friendly. There was also an emphasis on making the school and adjacent areas more wildlife friendly. Other responses included improving the following areas:

- Fields and farms
- Around the river
- Football pitch
- Along the main road / all roads (hedgerows and waterways)
- All public areas
- Church Island
- Around the Abbey

See Appendix 3 for the full results of the community consultation.



Biodiversity Action Plan

Action number	Action	Why	Proposed Locations	Who	Timeframe	Success measure
1	<p>Management of grassland – six week meadows</p> <p>Currently the grassland around the abbey and on church island and in the school are mown regularly. This means flowers do not get opportunity to flower. Six-week short term meadows can provide good pollinator forage while at the same time keeping grass relatively short (see Appendix 4).</p>	To increase flora and biodiversity in general	<ul style="list-style-type: none"> • Grounds Ballintubber Abbey • Church Island • School 	<ul style="list-style-type: none"> • Ballintubber Abbey • School 	Over 1-5 years	Number of areas managed for wild native flowers
2	<p>Road verge management – wildflower verges</p> <p>Currently road verges are cut regularly, and some are sprayed with herbicides. By allowing road verges to grow we can increase the diversity of wildflowers. Verges can be cut on a six -week rotation (as above) or left to flower all summer, cutting at the</p>	To increase flora and biodiversity in general	<ul style="list-style-type: none"> • Road verges along N84 	Parish council	Over 1-5 years	Increased length of road managed for wildflowers

	beginning of September. (See Appendix 4).					
3	Erect insect, bird and bat boxes Birds in particularly are often limited by the availability of nest boxes. As Castle Burke has one of the rare rural sites in County Mayo for swifts it would be great to find a location nearby to install swift boxes. See Appendix 5 for plans to make boxes. See Appendix 6 for information relating to Castle Burke and Swifts.	To support insect, bird and bat populations in the locality	<ul style="list-style-type: none"> • Ballintubber Abbey • Church island • Castle Burke • Woodlands at Luffertaun • Along pilgrim routes 	Parish council	Year 1 and 2	Number of bird boxes erected
4	Plant pollinator friendly perennial plants in flower beds The beds around the car park are currently filled mainly with roses. By increasing the variety of perennials in these beds more pollinators can be supported. Perennial plants are relatively easy to maintain and add colour and interest to the flower beds.	To support pollinators To increase attractiveness of car parks	<ul style="list-style-type: none"> • Flower beds around Ballintubber Abbey and car park area • Village beds • Gardens 	Parish Council	Year 1 and 2	Number of beds in village planted with pollinator friendly plants
5	Plant more native trees A couple of native fruit tree could be added in grounds of Ballintubber Abbey. The wide road verges along the N84 and the approach road L1809 would benefit from the addition of some trees (once sightlines are not impeded). Varieties of apple	To support local biodiversity To increase attractiveness of approach roads	<ul style="list-style-type: none"> • Grounds Ballintubber Abbey • Road verges 	Parish council	Year 2 and 3	Number of trees planted

	trees would add interest both in spring (blossom) and autumn (fruit) and provide food for pollinators and birds.					
6	Raise awareness of biodiversity by holding wildlife walks, talks and events. For example, consider organising a Orchid walk to learn about the beautiful orchids in the area.	To increase biodiversity knowledge	<ul style="list-style-type: none"> • Pilgrim routes • Carn • Church island 	Parish council School	Year 1-5 Consider annual biodiversity event during Biodiversity or Heritage week	Number of biodiversity walks and / or events held each year
7	Raise awareness of bats by holding night bat walk Areas around Ballintubber are very important for one of Ireland’s rarest bats the Lesser Horseshoe bat. Raise awareness about this bat and other bats that use the area by holding a bat walk.	To increase knowledge about our native bats	<ul style="list-style-type: none"> • Ballintubber abbey grounds • Church Island 	Parish council	Years 1 – 5 Consider annual bat walk	Bat walk held
8	Collect native wildflower seeds and scattered on road verges and /or grow on as plug plants Ballintubber, particularly the areas around the lakes and in the native woodlands are rich in native flora. Some of the smaller road verges have also a good diversity of plants. By collecting local wildflower seeds we retain the local genes of the plants that have grown in the area over the years (See Appendix 7).	To support local biodiversity	Collect seed in areas of good diversity and distribute to area where diversity is poorer (e.g. some road verges)	Parish council School	Years 3-5	Number of species of wildflower seed collected

<p>9</p>	<p>Reduce and eliminate use of pesticides Some of the road verges on the main N84 and also on the road verges near the Abbey have been sprayed to reduce weed growth. Sprays negatively impact biodiversity. Ideally the use of herbicides and pesticides should be reduced and eliminated where possible.</p>	<p>To support local biodiversity</p>	<p>In all areas</p>	<p>Citizens</p>	<p>Years 1-5</p>	<p>Number of people no longer using chemicals</p>
<p>10</p>	<p>Monitor local biodiversity By recording plants and animals growing in the area the community can see that the changes they are making are having a positive impact on biodiversity. Look at setting up a regular butterfly or bee transects and encourage the school to get involved by doing Flower-Insect Timed Counts (FIT counts) (see Appendix 7). Consider having an annual biodiversity recording day where everyone in the community could be encouraged to recorded species of flora and fauna in their area. There could be a special prize for person who finds a new species for the area or who records the most species.</p>	<p>To establish if changes made are having a positive effect on the local biodiversity of the area</p>	<p>1km transect School grounds</p>	<p>Local wildlife champion Local primary school</p>	<p>Years 2-5</p>	<p>Number of records submitted to the National Biodiversity Data Centre</p>

11	Hedgerow maintenance Hedgerows around Ballintubber have a quite a distinct composition, with more hazel, blackthorn and spindle present that in other Mayo hedgerows.	Maintaining hedgerows every 2-3 years allows them to flower thereby providing food for pollinators and allowing fruit to develop and feed birds later in the season	<ul style="list-style-type: none"> • Road verges • Farmland 	Farmers Mayo County Council	Years 1-5	Number of hedgerows managed in wildlife friendly manner
12	Interpretation Raise awareness of the unique biodiversity supported in the area through the development of biodiversity interpretation in areas frequented by visitors.	To increase biodiversity knowledge	<ul style="list-style-type: none"> • Pilgrim walks • Ballintubber abbey • Church Island • Woodland at Luffertaun (along pilgrim trail) 	Abbey Parish Council	Year 2	Erection of interpretation boards
13	Bogland restoration It appears that the bog a Cogaula is no longer used for tuft cutting and therefore would be a good area for bogland restoration. By restoring bogs carbon sinks are create which have a positive impact on climate change as well as biodiversity. The initial phase of restoration can be achieved by blocking existing drains on the bog.	Create a carbon sink to off-set negative impact of climate change Increase bog biodiversity	<ul style="list-style-type: none"> • Bog at Cogaula 	Landowners	Year 4 / 5 This is a long-term project	Area of bogland restored
14	Limestone pavement survey Detailed survey of areas to pinpoint areas of scrub encroachment. Development of a	Areas of limestone being lost due to scrub encroachment	<ul style="list-style-type: none"> • Townland of Carn and other areas with limestone pavement 	Farmers Ecologists NPWS Parish Council	Year 3-5 This is a long term project	Area of encroaching scrub cleared

	management plan with local farmers to sensitively graze areas with view to improved management and reduce scrub encroachment.					
15	<p>Management of grassland around GAA pitch</p> <p>Potential to create some areas of short or long term native wildflowers areas around the fringes of the football pitch.</p>	To increase flora and biodiversity in general	<ul style="list-style-type: none"> GAA pitch 	Parish council	Year 2-3	Area of grassland around pitch managed for native wildflowers

Appendices

Appendix 1 – List of species recorded in Ballintubber

Fauna recorded during surveys in 2020

Common name	Scientific name	Group
Anemone, wood	<i>Anemone nemorosa</i>	Flowering plant
Arum lily	<i>Zantedeschia aethiopica</i>	Flowering plant
Ash	<i>Fraxinus excelsior</i>	Tree
Aspen	<i>Populus tremula</i>	Tree
Avens, water	<i>Geum rivale</i>	Flowering plant
Bedstraw, ladies	<i>Galium verum</i>	Flowering plant
Bedstraw	<i>Gallium</i> spp.	Flowering plant
Birch	<i>Betula</i> spp.	Tree
Birds-foot trefoil, Common	<i>Lotus corniculatus</i>	Flowering plant
Blackthorn	<i>Prunus spinosa</i>	Tree
Bluebell	<i>Hyacinthoides non-scripta</i>	Flowering plant
Bracken	<i>Pteridium aquilinum</i>	Fern
Bramble	<i>Rubus fruticosus</i> agg.	Climber
Bugle	<i>Ajuga reptans</i>	Flowering plant
Buttercup, creeping	<i>Ranunculus repens</i>	Flowering plant
Buttercup, meadow	<i>Ranunculus acris</i>	Flowering plant
Celendine, lesser	<i>Ficaria verna (Ranunculus ficaria)</i>	Flowering plant
Centaury	<i>Centaurium erythraea</i>	Flowering plant
Cleavers	<i>Galium aparine</i>	Flowering plant
Clover, red	<i>Trifolium pratense</i>	Flowering plant
Clover, white	<i>Trifolium repens</i>	Flowering plant
Cocksfoot	<i>Dactylis glomerata</i>	Grass
Columbine	<i>Aquilegia vulgaris</i>	Flowering plant
Cottongrass, common	<i>Eriophorum angustifolium</i>	Sedge
Cow parsley	<i>Anthriscus sylvestris</i>	Flowering plant
Crane's-bill	<i>Geranium</i> spp.	Flowering plant

Crane's-bill, Cut-leaved	<i>Geranium dissectum</i>	Flowering plant
Crane's-bill, Shining	<i>Geranium lucidum</i>	Flowering plant
Cross leaved heath	<i>Ericia tetralix</i>	Flowering plant
Cowslip	<i>Primula veris</i>	Flowering plant
Cuckoo flower	<i>Cardamine pratensis</i>	Flowering plant
Daisy	<i>Bellis perennis</i>	Flowering plant
Dandelion	<i>Taraxacum officinale agg.</i>	Flowering plant
Dock Spp.	<i>Rumex Spp.</i>	Flowering plant
Dogstail, crested	<i>Cynosurus cristatus</i>	Grass
Elder	<i>Sambucus nigra</i>	Tree
Eyebright	<i>Euphrasia arctica</i>	Flowering plant
Garlic, wild	<i>Allium ursinum</i>	Flowering plant
Guelder-rose	<i>Viburnum opulus</i>	Flowering plant
Gorse	<i>Ulex europaeus</i>	Shrub
Harts tongue fern	<i>Asplenium scolopendrum</i>	Fern
Hawksbit	<i>Leontodon spp.</i>	Flowering plant
Hawkbit, Rough	<i>Leontodon hispidus</i>	Flowering plant
Hawkweed, Mouse-ear	<i>Pilosella officinarum</i>	Flowering plant
Hawthorn	<i>Crataegus monogyna</i>	Flowering plant
Hazel	<i>Corylus avellana</i>	Tree
Helleborine, Marsh	<i>Epipactis palustris</i>	Flowering plant
Herb robert	<i>Geranium robertianum</i>	Flowering plant
Honeysuckle	<i>Lonicera periclymenum</i>	Climber
Hogweed	<i>Heracleum sphondylium</i>	Flowering plant
Holly	<i>Ilex aquifolium</i>	Tree
Horsetails	<i>Equisetum Spp.</i>	Flowering plant
Ivy	<i>Hedera helix</i>	Climber
Knapweed, common	<i>Centaurea nigra</i>	Flowering plant
Ling heather	<i>Calluna vulgaris</i>	Flowering plant
Lousewort	<i>Pedicularis sylvatica ssp. sylvatica</i>	Flowering plant

Meadowsweet	<i>Filipendula ulmaria</i>	Flowering plant
Medick, black	<i>Medicago lupulina</i>	Flowering plant
Milkwort, Common	<i>Polygala vulgaris</i>	Flowering plant
Mint	<i>Mentha Spp.</i>	Flowering plant
Moorgrass, purple	<i>Molinia caerulea</i>	Grass
Mouse-ear, common	<i>Cerastium fontanum</i>	Flowering plant
Nettle	<i>Urtica dioica</i>	Flowering plant
Nightshade, Woody	<i>Solanum dulcamara</i>	Flowering plant
Nipplewort	<i>Lapsana communis</i>	Flowering plant
Oak	<i>Quercus petraea</i>	Tree
Oat-grass, false	<i>Arrhenatherum elatius</i>	Grass
Orchid, marsh, early spotted	<i>Dactylorhiza incarnata</i>	Flowering plant
Orchid, Early Purple	<i>Orchis mascula</i>	Flowering plant
Orchid, Common Spotted	<i>Dactylorhiza fuchsii</i>	Flowering plant
Ox-eye daisy	<i>Leucanthemum vulgare</i>	Flowering plant
Pignut	<i>Conopodium majus</i>	Flowering plant
Plantain, greater	<i>Plantago major</i>	Flowering plant
Plantain, ribwort	<i>Plantago lanceolata</i>	Flowering plant
Primrose	<i>Primula vulgaris</i>	Flowering plant
Privet, wild	<i>Ligustrum vulgare</i>	Tree
Purple-loosestrife	<i>Lythrum salicaria</i>	Flowering plant
Quaking-grass, Common	<i>Briza media</i>	Grass
Ragwort	<i>Senecio jacobaea / Jacobaea vulgaris</i>	Flowering plant
Ragged robin	<i>Lychnis flos-cuculi</i>	Flowering plant
Reed	<i>Fragmities</i>	Flowering plant
Rye-grass, Perennial	<i>Lolium perenne</i>	Grass
Rose, dog	<i>Rosa canina</i>	Flowering plant
Rose, burnett	<i>Rosa spinosissima</i>	Flowering plant
Rowan	<i>Sorbus aucuparia</i>	Tree
Rush, soft	<i>Juncus effusus</i>	Rush

Sanicle	<i>Sanicula europaea</i>	Flowering plant
Scabious, Devils bit	<i>Succisa pratensis</i>	Flowering plant
Sedges	<i>Carex Spp.</i>	Sedge
Selfheal	<i>Prunella vulgaris</i>	Flowering plant
Strawberry, wild	<i>Fragaria vesca</i>	Flowering plant
Spindle	<i>Euonymus europaeus</i>	Tree
Tormentail	<i>Potentilla spp.</i>	Flowering plant
Speedwell, germander	<i>Veronica chamaedrys</i>	Flowering plant
Sweet Vernal-grass	<i>Anthoxanthum odoratum</i>	Grass
Sycamore	<i>Acer pseudoplatanus</i>	Tree
Timothy-grass	<i>Phleum pratense</i>	Grass
Thistle	<i>Cirsium Spp.</i>	Flowering plant
Thistle, Carline	<i>Carlina vulgaris</i>	Flowering plant
Thistle, meadow	<i>Cirsium dissectum</i>	Flowering plant
Thistle, spear	<i>Cirsium vulgare</i>	Flowering plant
Thistle, creeping	<i>Cirsium arvense</i>	Flowering plant
Tormentail	<i>Potentilla Spp.</i>	Flowering plant
Vetch, bush	<i>Vicia sepium</i>	Flowering plant
Vetchling, meadow	<i>Lathyrus pratensis</i>	Flowering plant
Violet	<i>Viola Spp.</i>	Flowering plant
Water-cress	<i>Rorippa nasturtium-aquaticum</i>	Flowering plant
Willow	<i>Salix Spp.</i>	Tree
Willow, creeping	<i>Salix repens</i>	Tree
Willowherb spp.	<i>Epilobium spp.</i>	Flowering plant
Wood sorrel	<i>Oxalis acetosella</i>	Flowering plant
Woodrush	<i>Luzula spp.</i>	Rush
Hedge Woundwort	<i>Stachys sylvatica</i>	Flowering plant
Yellow Pimpernel	<i>Lysimachia nemorum</i>	Flowering plant

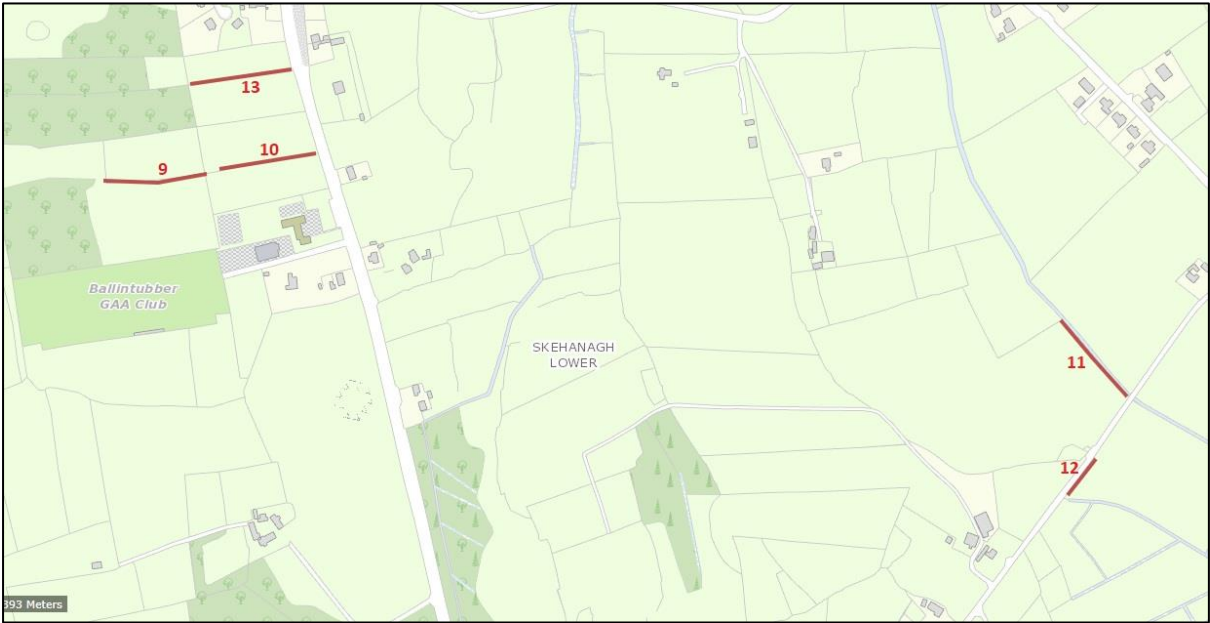
Fauna recorded during surveys in 2020

Common name	Scientific name	Group
Blackbird	<i>Turdus merula</i>	Bird
Black-headed Gull	<i>Chroicocephalus ridibundus</i>	Bird
Black-tailed Skimmer	<i>Orthetrum cancellatum</i>	Dragonflies
Brimstone	<i>Gonepteryx rhamni</i>	Butterflies
Bullfinch	<i>Pyrrhula pyrrhula</i>	Bird
Chaffinch	<i>Fringilla coelebs</i>	Bird
Common Carder Bee	<i>Bombus pascuorum</i>	Bumblebees
Common Raven	<i>Corvus corax</i>	Bird
Coot	<i>Fulica atra</i>	Bird
Cuckoo	<i>Cuculus canorus</i>	Bird
Dew Footman	<i>Setina irrorella</i>	Moths
Early Bumble Bee	<i>Bombus pratorum</i>	Bumblebees
Green-veined White	<i>Pieris napi</i>	Butterflies
Hare, Irish	<i>Lepus timidus hibernicus</i>	Mammal
Heath Bumble Bee	<i>Bombus jonellus</i>	Bumblebees
Hooded Crow	<i>Corvus cornix</i>	Bird
Hoverfly	<i>Rhingia campestris</i>	Hoverflies
Long-tailed tit	<i>Aegithalus caudatus</i>	Bird
Magpie	<i>Pica pica</i>	Bird
Meadow Brown	<i>Maniola jurtina</i>	Butterflies
Orange-tip	<i>Anthocharis cardamines</i>	Butterflies
Otter (footprints)	<i>Lutra lutra</i>	Mammal
Peacock	<i>Inachis io</i>	Butterflies
Pheasant	<i>Phasianus colchicus</i>	Bird
Pine marten (scats)	<i>Martes martes</i>	Mammal
Ringlet	<i>Aphantopus hyperantus</i>	Butterflies
Robin	<i>Erithacus rubecula</i>	Bird
Rook	<i>Corvus frugilegus</i>	Bird

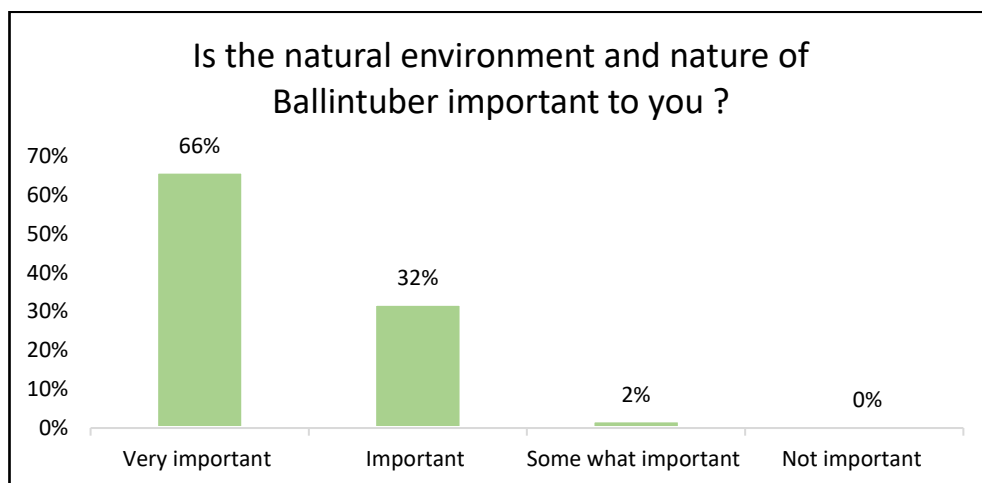
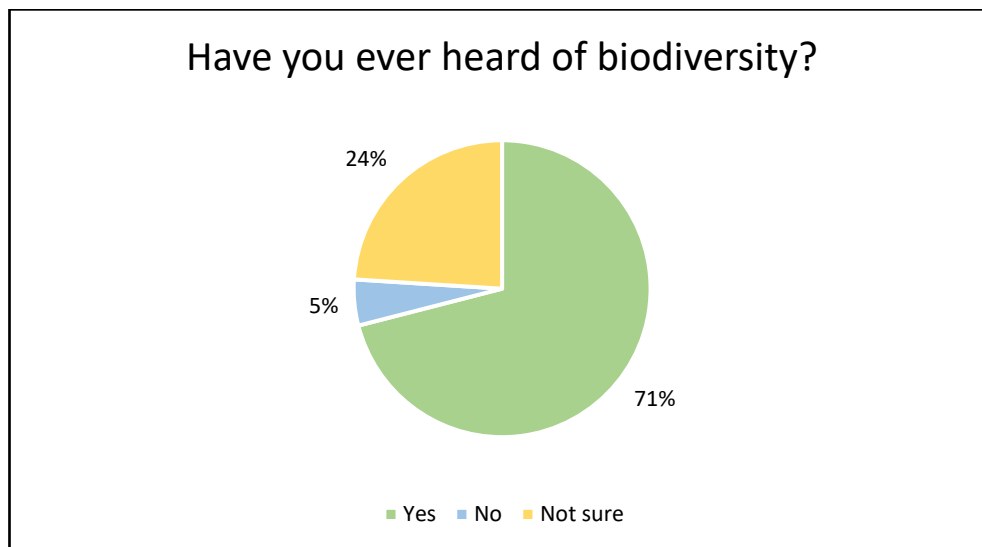
Silver-washed Fritillary	<i>Argynnis paphia</i>	Butterflies
Speckled Wood	<i>Pararge aegeria</i>	Butterflies
Swallow	<i>Hirundo rustica</i>	Bird
Transparent Burnet	<i>Zygaena purpuralis</i>	Moths
Wasp	<i>Vespula spp.</i>	Insect
White tailed bumblebee	<i>Bombus lucorum agg</i>	Bumblebees
Wood pigeon	<i>Columba palumbus</i>	Bird
Wood White	<i>Leptidea sp.</i>	Butterflies
Wren	<i>Troglodytes troglodytes</i>	Bird

Appendix 2 – Maps of hedgerows surveyed

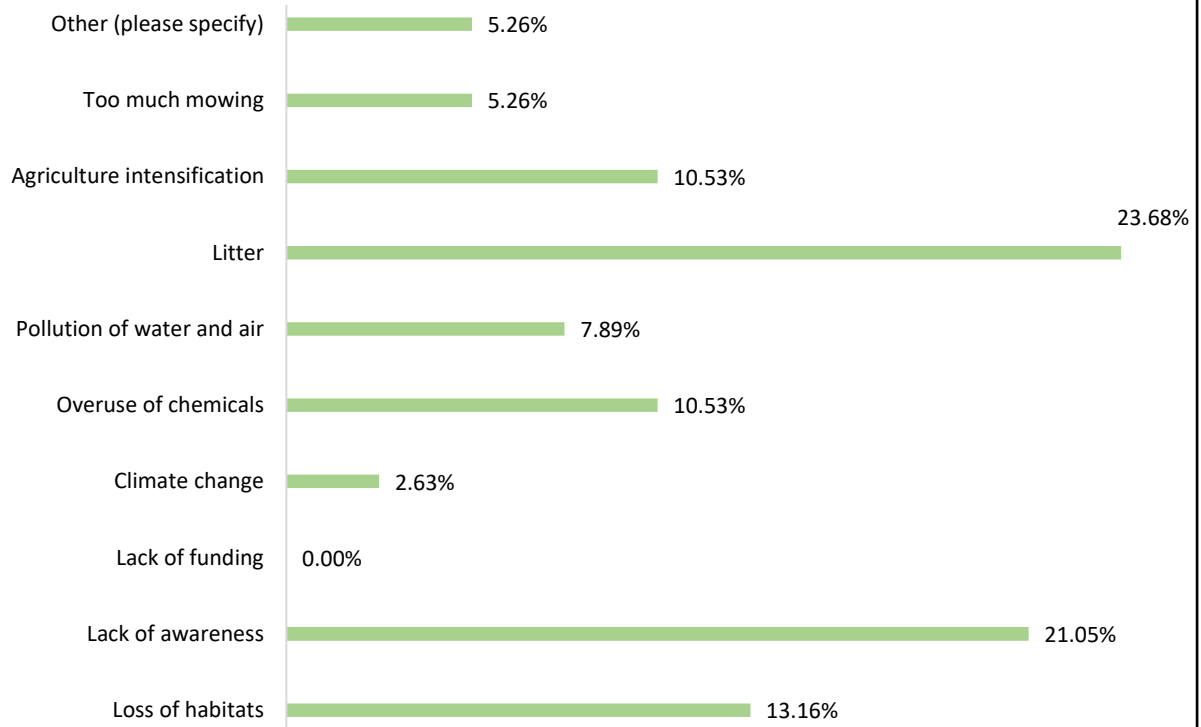




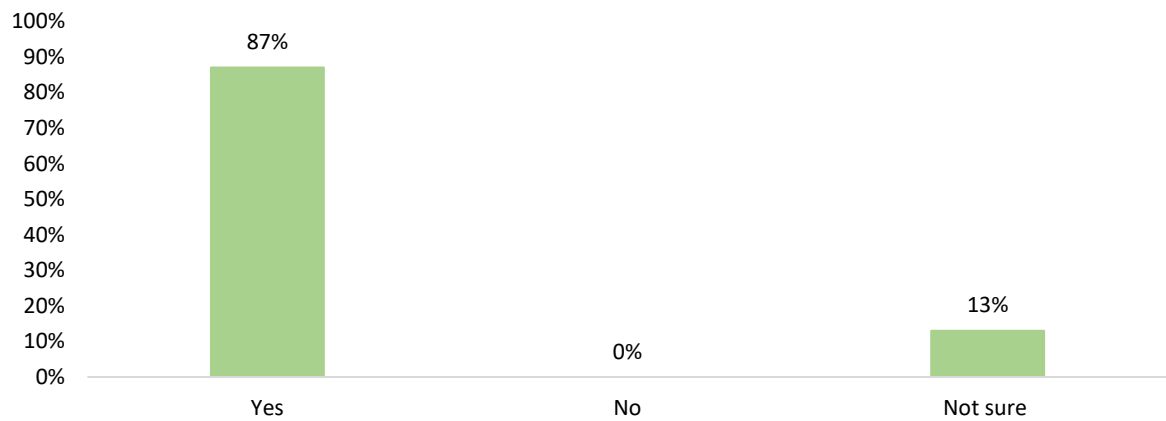
Appendix 3 – Results of the online survey



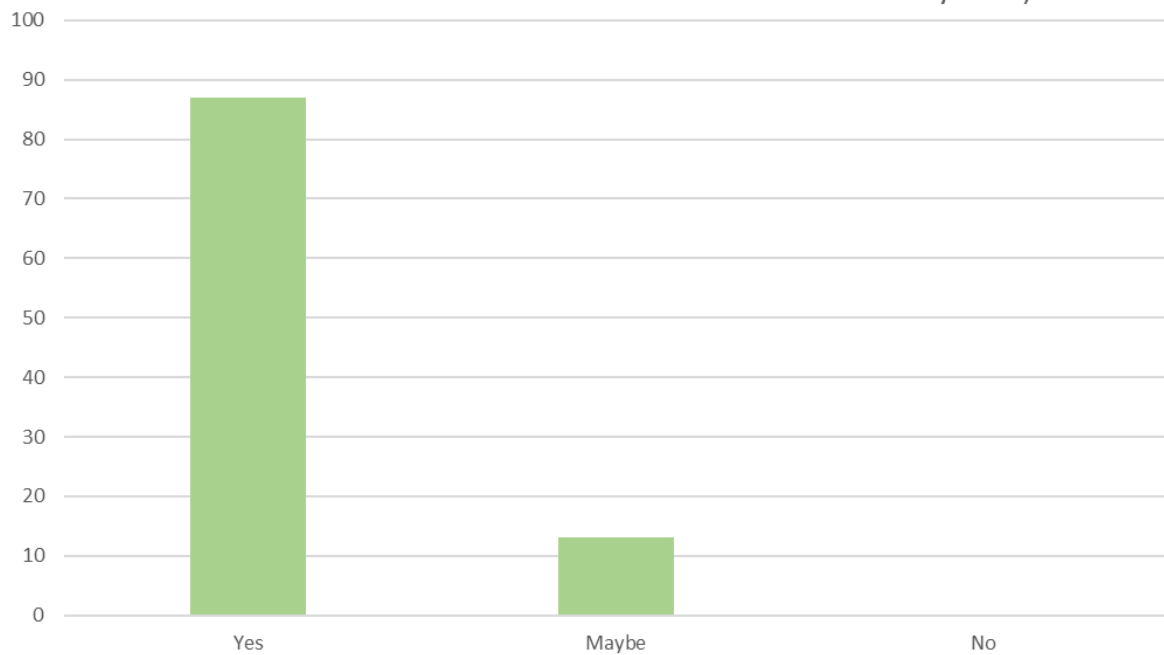
Biggest threats to biodiversity and nature in Ballintubber?



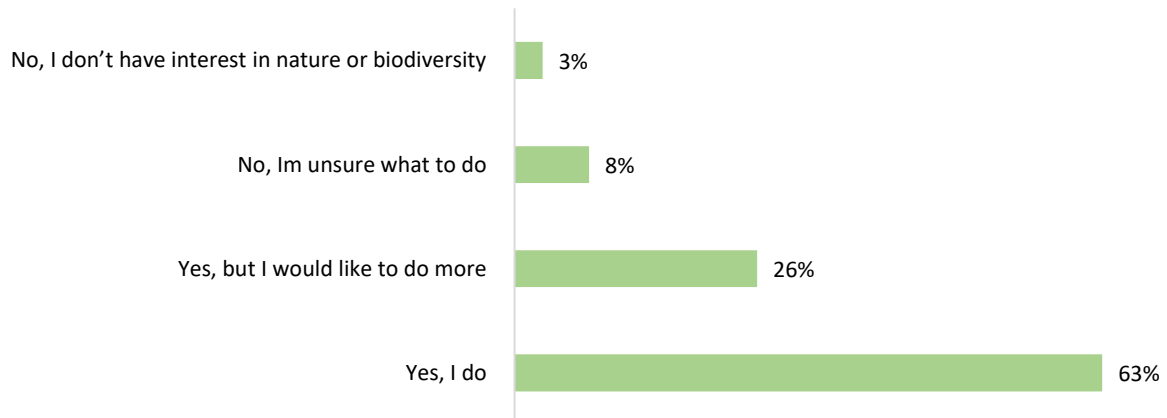
Do you feel that more should be done to protect and enhance biodiversity and nature in the Ballintubber area?



Would you support a Biodiversity Action Plan for Ballintubber?
(Action plan looks at species and habitats in the area and looks at how to enhance the local area to benefit the biodiversity here)?



Do you personally engage in positive actions for biodiversity / nature, for example, feed the birds, put up bird boxes, plant flowers for pollinators etc.



Any other comment about biodiversity or nature in the Ballintubber area?

- Having a mast may affect the biodiversity, so we shouldn't have one
- Steps to help promote biodiversity need to be practical where both children and adults need to be encouraged
- Awareness and education are key
- More direct engagement and discussion needs to be made with the whole community about projects
- Support the ISEA
- Encourage the wildlife gardens, no mow May, avoid herbicides as weeds are a necessary part of the habitat (especially farmers)
- Schools need to ensure to promote and education the future farmers and homeowners of the area
- Great opportunity for the community to come together and work as one, should be the responsibility of everyone and not just a committee
- Concerns about the loss of flora and fauna around Lough Cara in the last 25 years
- Could have a meeting at which someone from each household is represented to hear the benefits of biodiversity and be aware of an action plan

Appendix 4 – Management of grassland

Delayed first mowing and six-week meadow

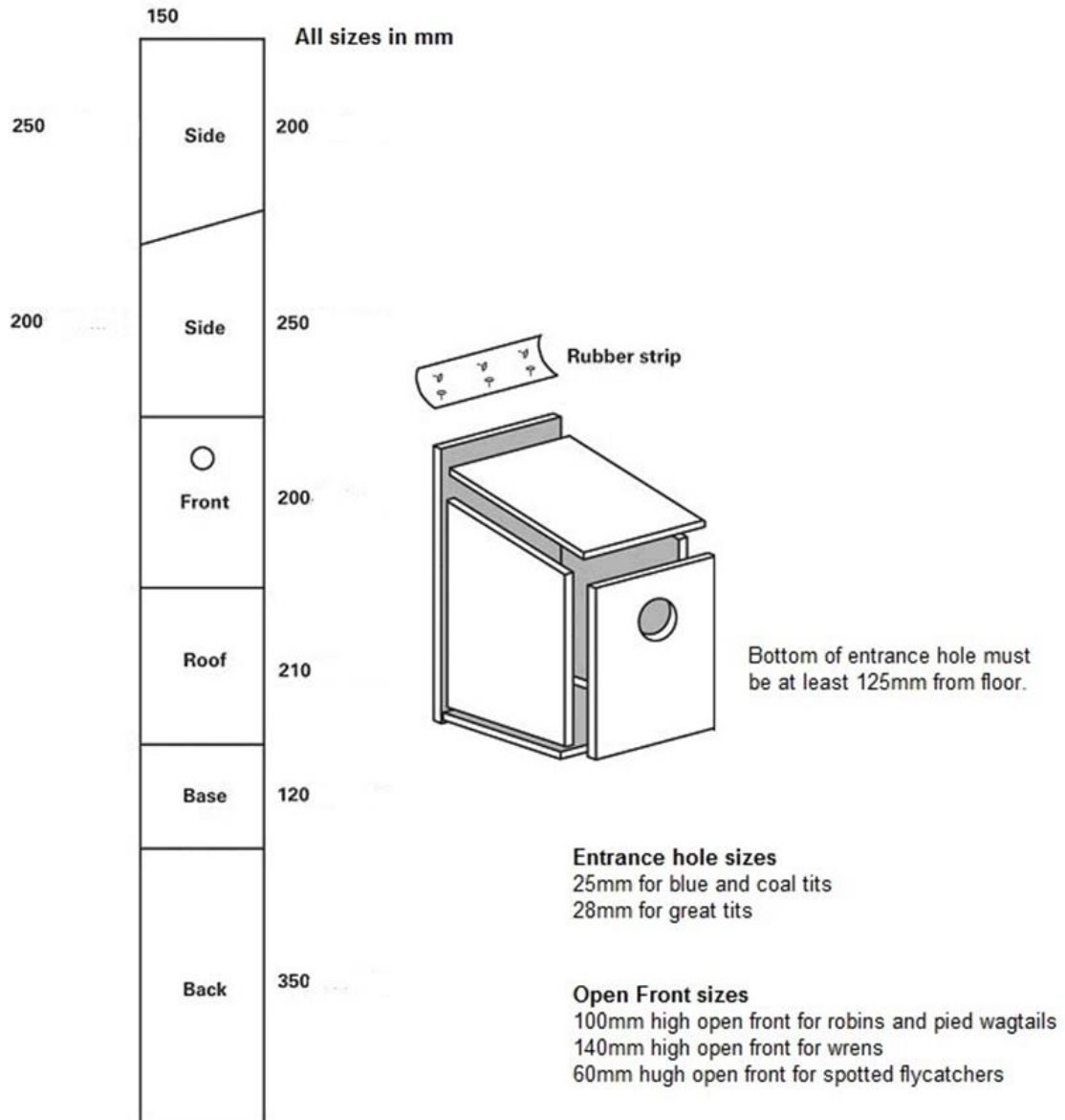
- Delay first cut of grass on verge so dandelions have time to flower.
- Establishing a short-term 6-week meadow. Cut grass every six weeks which is long enough to allow clovers to flower, thereby having additional food resources for pollinators.
- Cut and, ideally remove clippings as removing helps to reduce soil fertility which encourages more flowers to grow.

Mow in September

- Cut narrow strip along road edge regularly where neatness is required.
- Leave rest uncut for spring and summer months.
- Place “Managed for Wildlife” sign in area to highlight fact areas is being left uncut for reason.
- Cut, remove and compost cuttings in September.

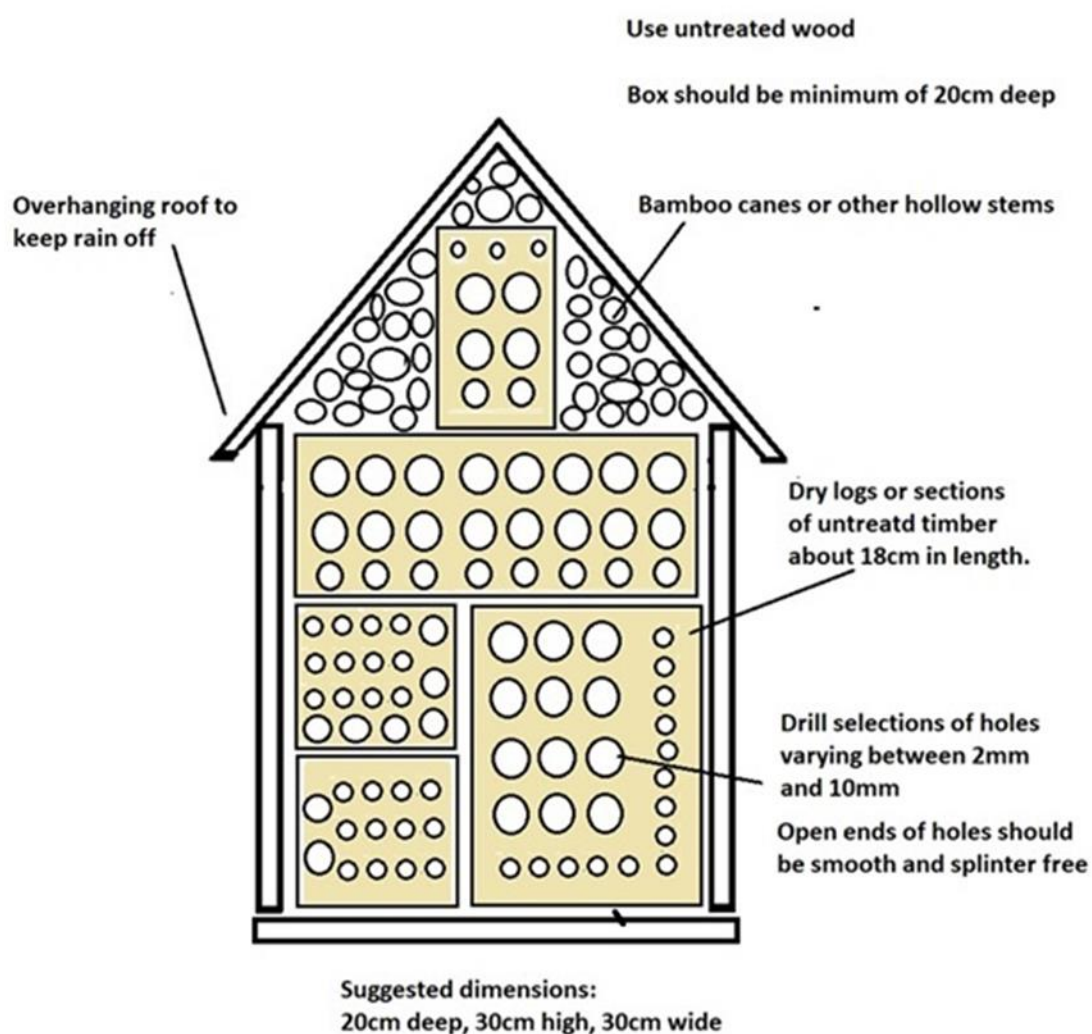
Appendix 5 – Animal box plans

Bird Box for small birds



Adapted from www.rspb.co.uk

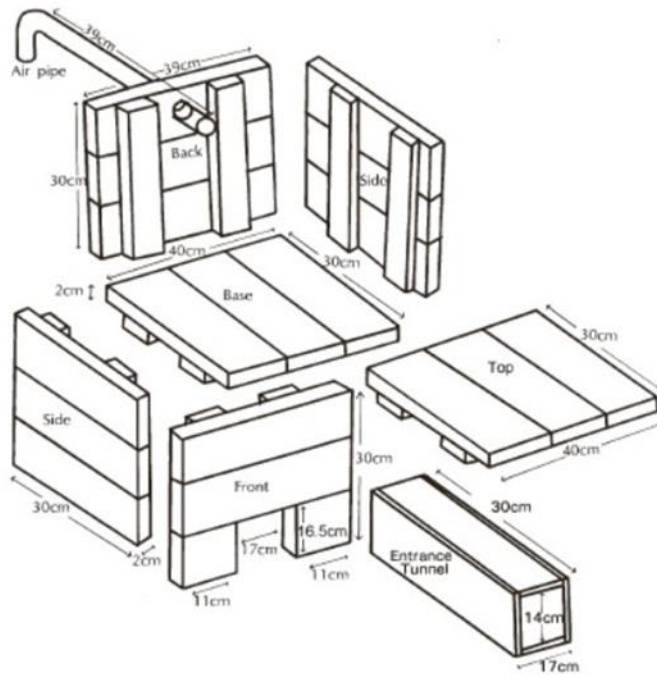
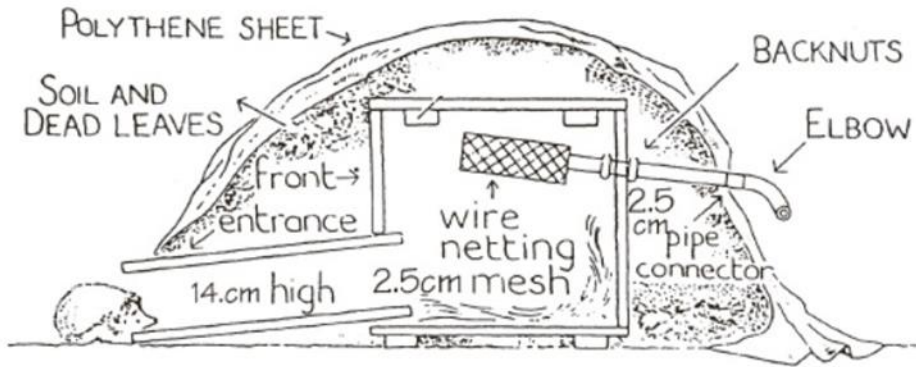
Solitary Bee Box



Fix firmly at about waist or chest height, for example on wall or fence.

Place box so it is facing south in a sunny position, ideally near some bee-friendly flowers and shrubs.

Adapted from - www.hedgehogstreet.org



Appendix 6 - Castle Burke and Swifts.

NEST SITE REPORT - 2018

Location Name : Castle Burke

Address : shores of Lough Carra

Name of Building : Castle Burke

Protected Structure Reg. No.

Year of Construction : 17th century

Spatial Reference : 53.738825, -9.263237

Natural Nest Sites or Nest Boxes? Natural

Total Number of Occupied Nests : 2

Aspects of Nests : W

Number of Birds Flying : 3

Additional Information

One of the rare rural sites in County Mayo.





Appendix 7 – Pollinator Resources

All Ireland Pollinator Plan Resources

Flower-Insect Timed Count (FIT Count)

<https://pollinators.ie/record-pollinators/fit-count/>

Bumblebee Monitoring Scheme

<https://pollinators.ie/record-pollinators/bumblebee-monitoring-scheme-2/>

Seed collecting guide

<https://pollinators.ie/wordpress/wp-content/uploads/2018/04/How-to-guide-Seeds-2018-WEB.pdf>

Local Communities Actions for Pollinators

https://pollinators.ie/wordpress/wp-content/uploads/2018/04/Local-Communities_actions-to-help-pollinators-2018-WEB.pdf

Other local community pollinator resources

<https://pollinators.ie/communities/resources-for-community-groups/>

Other Resources

Biodiversity Posters (Butterflies, bumblebees, shieldbugs, wetlands, farms, woodlands)

<https://www.biodiversityireland.ie/resources/other/>

Gardening for Biodiversity (Heritage Council)

<https://www.heritagecouncil.ie/content/files/Gardening-For-Biodiversity.pdf>

Hedgerow Management

http://ww2.rspb.org.uk/Images/Englishhedgerows1_tcm9-133255.pdf

Mayo's Hedgerows

<https://www.mayo.ie/getmedia/4bf3ecb4-83b4-46e5-a7ed-608bbe2ade3c/Mayo-Hedgerow-Booklet-Final.pdf>

Management of Grasslands

<http://www.magnificentmeadows.org.uk/advice-guidance/how-can-i-manage-my-meadow/managing-for-grassland-habitats>

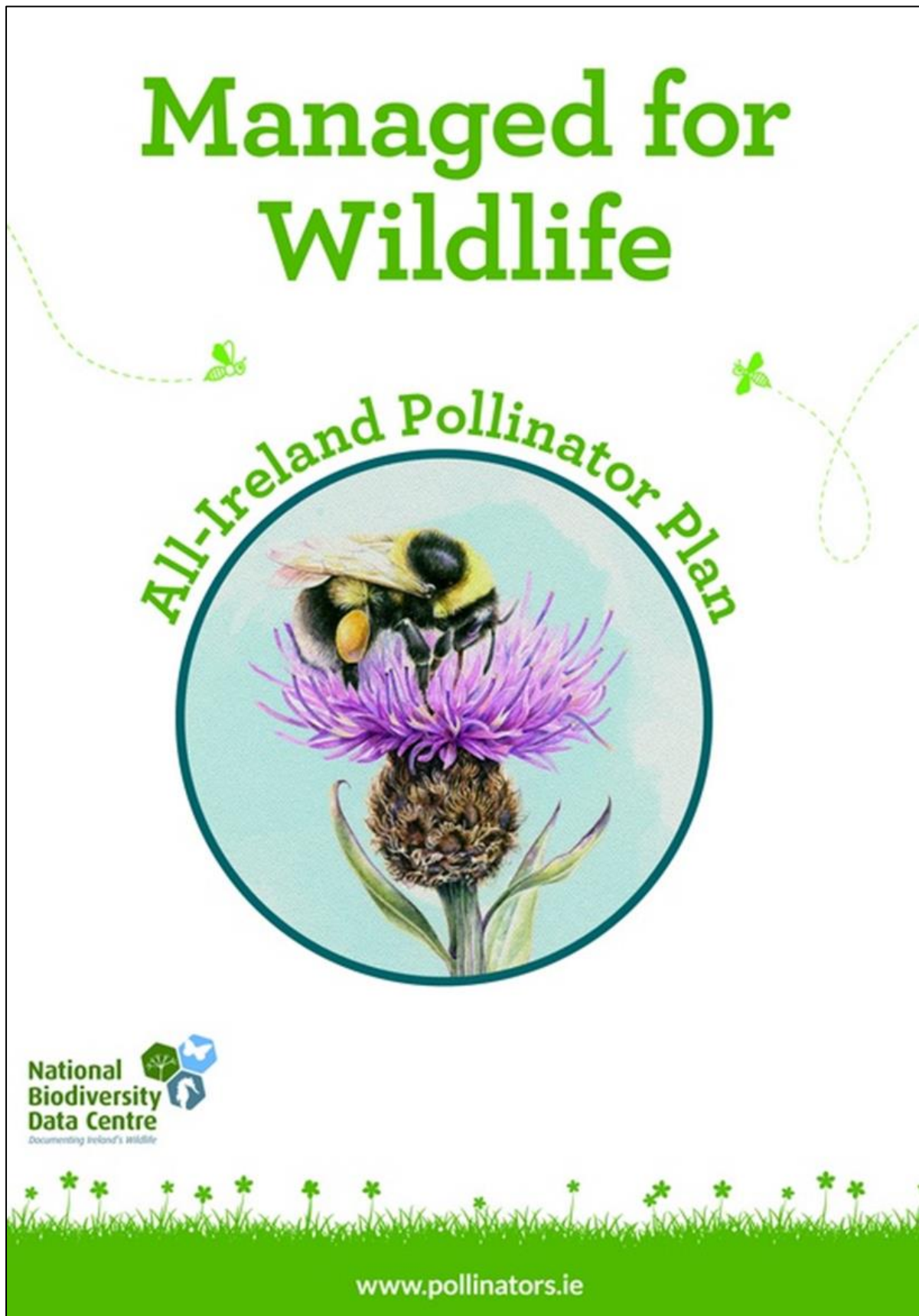
Saving Swifts (Birdwatch Ireland)

https://birdwatchireland.ie/app/uploads/2019/10/Saving-Swifts-Guide_pdf.pdf

Wetlands of Mayo

<https://www.mayo.ie/getmedia/f035dffc-21b3-4640-9924-a57b0b657dc6/Wetlands-of-Mayo.pdf>

Sign that can be used for area managed for wildlife



Pollinator friendly planting

Table showing examples of pollinator friendly perennials suitable for flower beds in the village

Common name	Latin name	Flowers	Comment
Allium	<i>Allium</i> spp.	June - July	
Aquilegia	<i>Aquilegia vulgaris</i>	May - June	
Aster	<i>Aster ageratoides</i>	July - Oct	
Betony	<i>Betonica officinalis</i>	June - Sept	Also called <i>Stachys officinalis</i>
Bugle spp.	<i>Ajuga</i> spp.	March - May	
Calamint, lesser	<i>Nepeta nervosa</i>	June - Sept	
Coneflower	<i>Echinacea purpurea</i>	July - Oct	
Cornflower	<i>Centaurea cyanus</i>	June - July	Or <i>Centaurea montana</i>
Crocus	<i>Crocus tommasinianus</i>	March	
Meadow Saffron	<i>Colchium autumnale</i>	Sept-Oct	
Delphinium	Delphinium	Jun-July	
Globe thistle	<i>Echinops ritro</i>	August	
Grape Hyacinth	<i>Muscari armeniacum</i>	March-May	
Hardy Geranium	<i>Geranium sanguineum</i>	June -August	
Hellebores hybrids	<i>Helleborus</i>	April - Sept	
Jacob's Ladder	<i>Polemonium caeruleum</i>	July - August	
Japanese Anemone	<i>Anemone hybrid</i> <i>Anemone x hybrida</i>	July - Oct	E.g. 'Queen Charlotte', 'September Charm'
Lupins	<i>Lupinus</i>	June - July	
Oregano	<i>Origanum vulgare</i>	June - August	
Rockcress	<i>Arabis alpina subsp. caucasica</i>	April - May	
Rudbeckia	<i>Rudbeckia fulgida</i>	July-Oct	e.g. 'Early Bird Gold'
Sedum	<i>Sedum</i>	July - Oct	e.g. "Autumn Joy", <i>Sedum spectabile</i>
Snowdrops	<i>Galanthus nivalis</i> , <i>Galanthus elwesii</i>	Jan-Feb	
Verbena	<i>Verbena</i>	July - Oct	e.g. <i>Verbena bonariensis</i>
Wallflower	<i>Erysimum</i>	Feb - July	e.g. 'Bowles's Mauve'

Table of recommended herbs for pollinators that can be planted in beds or pots in the village or gardens

Common name	Latin name	Flowers	Comment
Hyssop	<i>Hyssopus officinalis</i>	July - August	Perennial
Lavender	<i>Lavandula angustifolia</i>	July - August	Perennial
Marjoram	<i>Origanum majorana</i>	June - August	Perennial
Oregano	<i>Origanum vulgare</i>	June - August	Perennial
Thyme	<i>Thymus vulgaris</i>	May - August	Perennial

Table of pollinator friendly annual flowers that could be planted in planters / containers or beds in the village or gardens

Common name	Latin name	Flowers	Comment
Cornflower	<i>Centaurea cyanus</i>	May - August	Annual
Cosmos	<i>Cosmos</i>	July - August	Annual
Love in the mist	<i>Nigella damascena</i>	June - August	Annual
Nasturtium	<i>Tropaeolum</i>	July - September	Annual
Night scented stock	<i>Matthiola longipetala</i>	July - September	Annual
Poppy, wild	<i>Papaver rhoeas</i>	June - August	Annual. If choosing other varieties, choose single flowers
Poppy, Californian	<i>Eschscholzia californica</i>	June - September	Single varieties
Pot marigold	<i>Calendula officinalis</i>	July - September	Annual
Scabious	<i>Scabiosa atropurpurea</i>	July - October	Annual
Snapdragon	<i>Antirrhinum</i>	July - September	Annual / biennial
Sunflowers, dwarf	<i>Helianthus annuus</i>	July - September	Annual, choose dwarf variety
Trailing lobelia	<i>Lobelia erinus</i>	June - September	Annual

Biodiversity Plan for Ballintubber, Co Mayo

October 2021

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