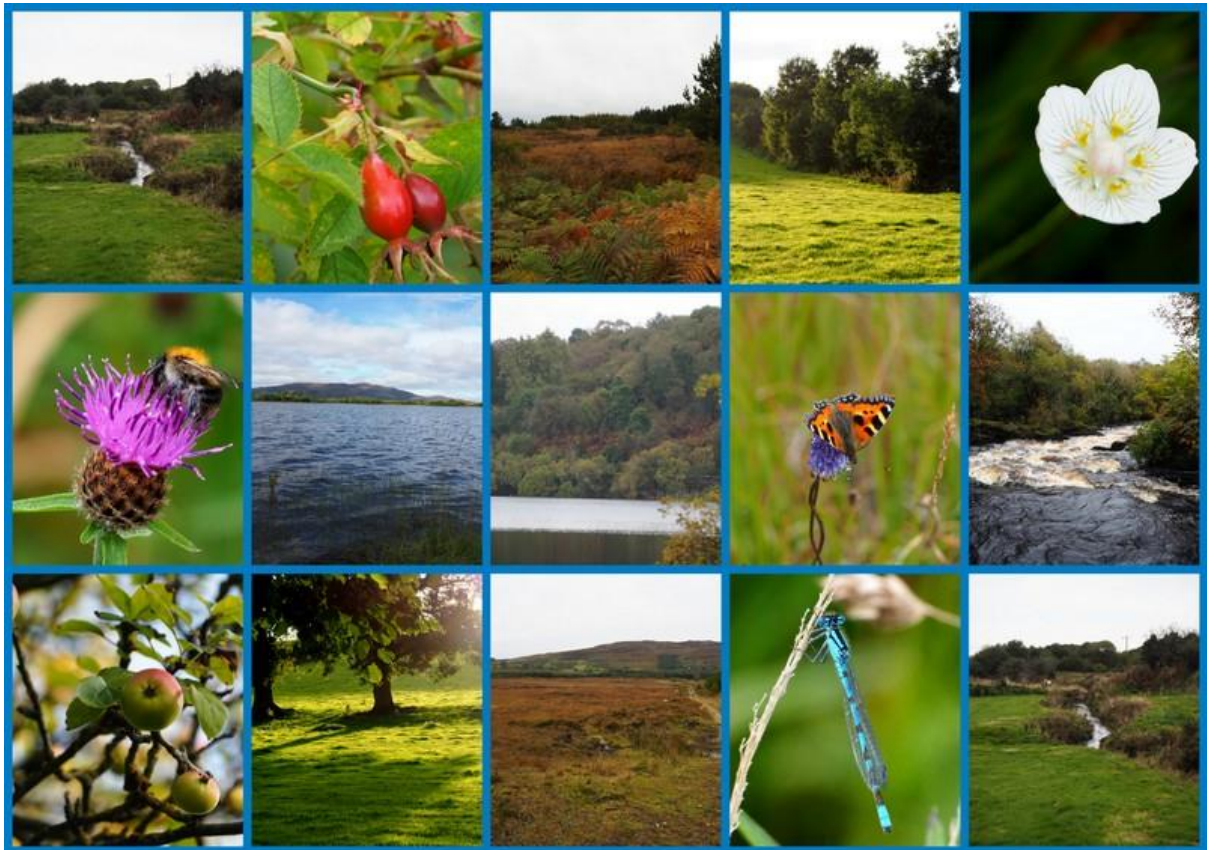


Parke and Crimlin Community Action Biodiversity Plan

2023-2028



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Acknowledgements

I would like to thank Parke and Crimlin Community Development group for the support in completing this plan.

Community Foundation have funded this project through their Environmental and Nature Fund.

Executive Summary

The project area encompasses two small villages, Parke and Crimlin, surrounded by rural agricultural land. Communities like Parke and Crimlin have the potential to make changes which could potentially have many positive changes for local biodiversity. Protecting existing biodiversity resources is as important as creating new ones. Rural areas such as Parke and Crimlin are rich in biodiversity assets.

Habitats recorded within the project area include improved agricultural fields, lakes, semi-natural woodland, bog, dry and wet heath, hedgerows, amenity grassland, scrub, depositing/lowland rivers, Buildings and artificial surfaces and Stone walls and other stonework.

Agricultural grassland (GA1 Improved agricultural grassland) is common throughout the project area. Old Oak woods occur at Knockaglana, while wet woodland occurs around the lake shores. Riparian wood is also abundant especially along the river Clydagh. Planted conifer woodlands also occur.

Bogland is common in the area with Cunnagher More Bog NHA being a good example of lowland blanket bog. Other bogs and wet heath also occur.

Derryhick lake is designated as part of the River Moy SAC. The lake supports a range of fish and there are two crannógs within the lake. There is a relatively rich ground flora around much of the lake, with over twenty five species of flowering plants recorded.

Clydagh River supports both salmon and trout and while the status of the river under WFD river bodies status is “good”, one stretch of the river is classed as being “at risk”.

A number of biodiversity species were highlighted including mute swan, pike, common carder bee, butterwort, devil’s-bit scabious and oak.

The action plan lists twelve actions for the community. These actions include homes for wildlife, installation of water planters, creation of wildflower areas, working with local artists to create nature murals, planting of pollinator friendly flower beds, bulbs, herbs and flower boxes, planting of new hedgerow, maintaining existing shrubs beds and wildflower areas, enhancing existing wildflower areas, creating a biodiversity school garden, investigating the possibility of creating walking trails that celebrate local biodiversity, bogland study, and a hedgerow management workshop for local farmers.

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.

Parke and Crimlin Development Group were successful in getting a grant through the scheme. Dr. Karina Dingerkus, ecologist from Giorria Environmental Services, was engaged by the Development Group 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 27th February 2023 to discuss what a biodiversity plan was and the possible projects / actions that the community could engage with. Following this the ecologist met with various members of the group representing the two villages, along with one of the school principals and a local GAA Club representative.

On the 3rd September, a nature walk was held for members of the public at Derryhick Lake to celebrate local biodiversity.

A final community event is planned for November whereby the community action plan will be share with all.

Parke and Crimlin

The project area encompasses two small villages, Parke and Crimlin, surrounded by rural agricultural land. Parke is situated in the southern part of the area, while Crimlin holds a more central position. The population of the area is approximately 1,000 residents.

The surrounding countryside is characterized by agricultural farmland, with fields typically enclosed by hedgerows, occasionally interspersed with stonewalls. Most of agricultural land is concentrated in the central and southern part of the area, as well as along rivers. Towards the north, one can find wet and dry heath, and blanket bog, extending further to the east and south-west. There are several areas of woodland and scrub, including the protected Old Oak woodland in the townland of Knockaglana.

Lough Cullin borders the north-eastern section of the area, while smaller lakes such as Derryhick and Levallinree are also present. There are numerous rivers, with the Clydagh and Tobergal Rivers being the largest, both flowing into Lough Cullin.

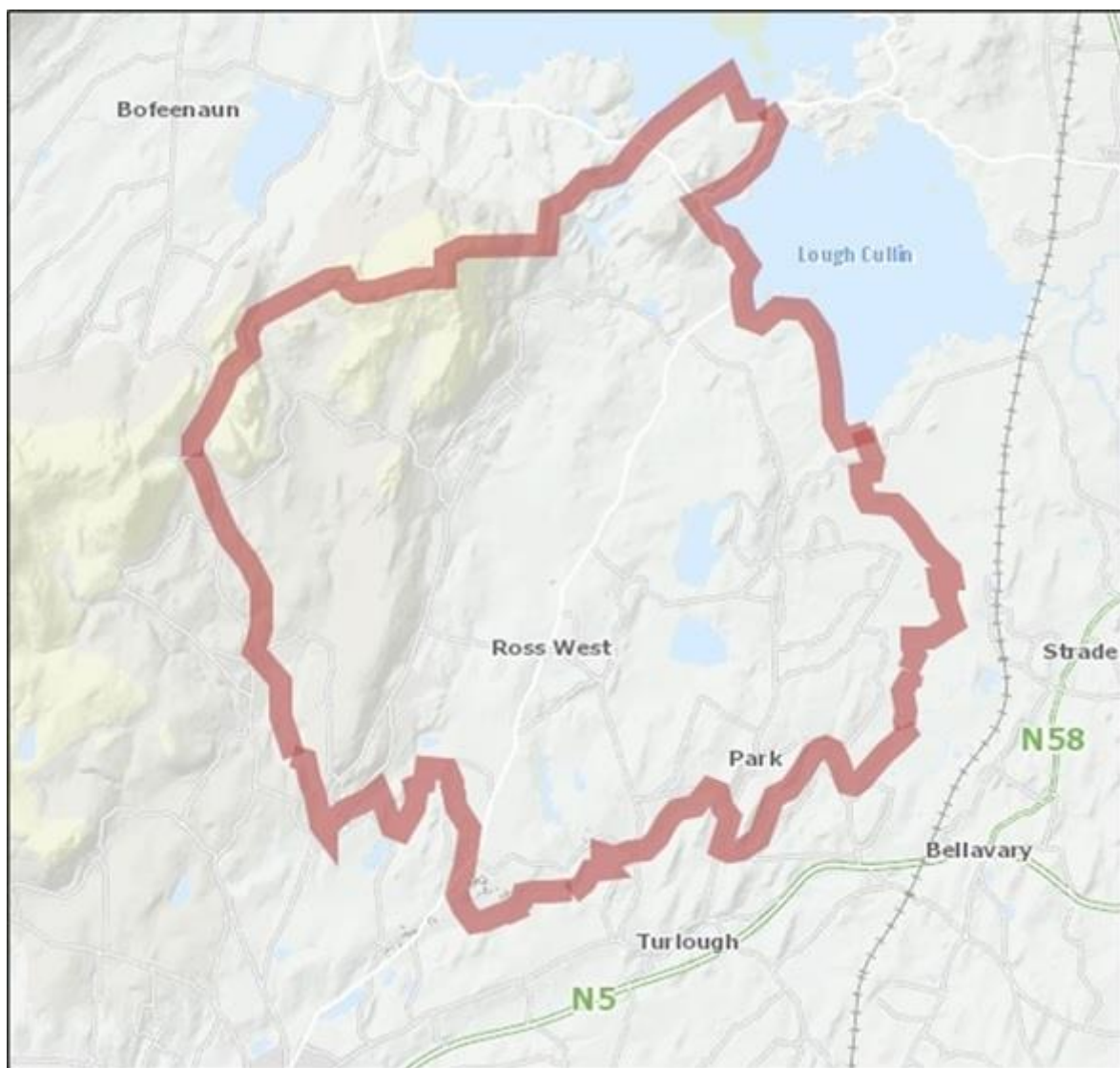
Two sites hold European designations. The first is the River Moy Special Area of Conservation (SAC), recognized as a significant wildlife conservation area at both European and Irish levels, selected and designated under the EU Habitats Directive. The second site is the Cunnagher

More Bog Natural Heritage Area (NHA), designated as a key area for wildlife and habitat protection.

Engagement with the community groups involved the ecologist attending various meetings to talk to the group about the action plan, as well as two village walks when community members accompanied the ecologist and discussed ideas for action. A heritage and biodiversity walk was held for members of the public around the shore of Derryhick Lake.

Survey Area

The area covered by the group is shown in Map 1 below. As this area is large it has been agreed with the group, that the biodiversity plan will focus on actions within the villages of Parke and Crimlin.



Map 1 Outline of area covered by the plan

What is Biodiversity?

Biodiversity is fundamental to our survival. Biodiversity is essential for critical elements of life such as oxygen, food, and clean water. Moreover, biodiversity provides us with resources, help pollinate plants, and naturally regulates pests. 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.

The most recent United Nations reports (2021) on world biodiversity loss paint a worrying picture of the state of our planet's natural diversity. These reports highlight that we are in the midst of a biodiversity crisis of unprecedented magnitude. The findings show that species are going extinct at an accelerated rate, with some estimates suggesting that up to one million species are at risk of extinction. This loss of biodiversity is attributed to a combination of factors, including habitat loss, overexploitation of resources, pollution, and climate change. The consequences of this crisis extend beyond the natural world, affecting human well-being, food security, and the stability of ecosystems that underpin our survival. The UN's latest assessments serve as a reminder that urgent and coordinated global action is needed to address biodiversity loss.

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 Parke and Crimlin have the potential to make changes which could potentially have many positive changes for local biodiversity. The planting of wildflowers, bulbs and pollinator friendly perennials 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 2017-2021 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 villages, schools, community centres and gardens we can replace this valuable resource.

Ireland is one of the least wooded countries in Europe. Hedgerows are important for many forms of wildlife. Trees provide nesting sites and food for birds.

In recent decades, Ireland has experienced a significant decline in biodiversity, with the loss of hay meadows and the insect life they sustain, the disappearance of wetland habitats due to bog and agricultural field drainage, and the loss of hedgerows. The latest assessment of Conservation Concern for Birds in Ireland, published in April 2021, underscores the continuing challenges. It shows a 46% increase in the number of Red-listed bird species. Moreover, more than half of Ireland's bee species have experienced substantial declines since 1980, with 42 species seeing their distributions shrink by more than half. It is crucial to recognize that humans are an integral part of biodiversity, and our actions have the power to both positively or negatively impact it.

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 the Parke and Crimlin area.

The Biodiversity of Parke and Crimlin

Protecting existing biodiversity resources is as important as creating new ones. Rural areas such as Parke and Crimlin are rich in biodiversity assets. Sometimes they require little management and other times they just need minor changes in management. The heathlands, bogs, rivers, lakes, and ancient woodlands in the project area are home to a wide array of plant and animal species. Conservation efforts need to focus on preserving these habitats by implementing sustainable farming practices, protecting water quality, and wildlife protection initiatives. Local communities can do their part by becoming actively involved in protecting their natural surroundings, with initiatives such as local biodiversity action plans.

Ecological Surveys

Habitat Surveys

Previous habitat surveys were carried out during 2022 in an ecological study carried out with funding received from Mayo County Council Heritage Office grant.

Therefore, the focus this year, has been on recording species found in the villages themselves. Further surveys are still to be conducted in the villages. Another area of specific interest for survey work is a bog area close to Parke village. Ecological surveys also took place around Derryhick lake.

Survey of green space adjacent to GAA pitch and housing estate

The local GAA Club has an interest in this area, which is owned by Mayo County Council, as it is adjacent to the football pitches, and they need more changing facilities. The ecologist met with a local GAA representative to walk around the GAA grounds and adjoining area, and she was able to give some ideas on how biodiversity could be incorporated into the space while at the same time providing facilities for the GAA Club.

Habitats recorded in Parke and Crimlin and surrounding areas

Habitat Type	Habitat code*	Description	Habitats	Biodiversity value	Examples in locality
Improved agriculture	GA1	Improved pasture land used for grazing and silage, often with boundaries of hedgerows and stone walls	Agricultural grassland	Low	Scattered throughout area
Lakes	FL	These waterbodies provide essential habitats for various aquatic and bird species and support recreational activities such as fishing and boating. Lakes are also important for water storage and regulation.	Lake	High	Derryhick lake
Semi-natural woodland	WN	These woodlands are composed of a mix of native and introduced tree species, such as oak, beech, and Scots pine, coexisting with a rich understory of native plants and shrubs.	Native woodland	High	Old Oak woods at Knockaglana
Bog	PB4	These wetlands are characterized by waterlogged, acidic peat soils and are home to a distinct array of flora and fauna, including rare and specialized plant species like sphagnum mosses, bog cotton, and sundews.	Bog	Medium	Cunnagher More Bog NHA
Wet heath	HH3	Wet heath is characterized by its waterlogged or peat-rich soils and a mixture of heather, grasses, mosses, and other wetland vegetation. Wet heathlands support a diverse range of plant and	Heath	High	Shores of Lough Conn

		animal species such as dragonflies, amphibians, and rare plants.			
Dry Heath	HH2	Dry heaths are characterized by their low-nutrient, acidic soils and a mosaic of heather, gorse, and other shrubby vegetation. They provide habitat for heathland plants like bell heather and cross-leaved heath, as well as various insects, reptiles, and ground-nesting birds.	Heath	High	Cunnagher More Bog NHA
Hedgerows	WL1	These linear ecosystems are important wildlife corridors, providing refuge, nesting sites, and foraging opportunities for numerous species, from birds and small mammals to insects and plants. Hawthorn is one of the most important components.	Hedgerows	High	Scattered throughout area
Buildings and artificial surfaces	BL3	Buildings, roads and hard standing	Built land and gardens	Low	Parke and Crimlin Villages
Stone walls and other stonework	BL1	Stone walls can be important boundaries in agricultural fields and also support birds, insects and some specialist plant species	Built land, garden, agricultural stonewall boundaries	Medium	Scattered throughout area
Amenity grassland	GA2	Play area, pitches, and lawns	Short grass such as playing pitches	Low-medium	Parke GAA Pitch

Scrub	WS1	Scrub represents a diverse range of habitats found in various landscapes. Characterized by a mix of shrubs, young trees, and herbaceous plants, scrub provides shelter, foraging opportunities, and nesting sites for a wide range of wildlife.	Scrub / woodland	High	Various locations scattered throughout area
Depositing/lowland rivers	FW2	These rivers have slow-moving water and sediment-rich bottoms, and provide habitats for a variety of fish species, as well as aquatic plants and other wildlife. Lowland rivers play a key role in regulating water quality and supporting agricultural activities.	Rivers	High	Clydagh River

A full description of habitats can be found in *Ecology Overview, Parke / Crimlin Development Area, Co Mayo, 2022*

Agricultural grassland (GA1 Improved agricultural grassland)

Pasture farmland, primarily in the form of improved agricultural grassland is found around both villages and around Derryhick Lough, Levallinree Lough and close to the large Clydagh river. These fields are typically bordered by hedgerows. Where farmland is intensively managed (for grazing and silage making) there is limited biodiversity. However, the large number of hedgerows act as wildlife corridors and well as wildlife refuges (see below). In addition, there are wetter, rushy fields scattered throughout the area and these are more flora rich. Both cattle and sheep rearing occur in the area.



Photograph 1 Agricultural land

Woodland (WN - Semi-natural woodland)

Old Oak woods at Knockaglana

Old oak woodland is a protected woodland habitat under Annex I of the EU Habitats Directive and is found around Pontoon. Part of the wood in this townland has been given the status of “Possible Ancient Woodland”. As the name suggests these woods are very old.

Sessile oak (*Quercus petraea*) is the dominant tree, with holly (*Ilex aquifolium*), downy birch (*Betula pubescens*) and hazel (*Corylus avellana*). Climbers such as honeysuckle (*Lonicera periclymenum*), and ivy (*Hedera helix*) are also present. Woods also have bilberry (*Vaccinium myrtillus*). Other species are associated with the lakeshore include rock whitebeam (*Sorbus rupicola*), aspen (*Populus tremula*), silver birch (*B. pendula*) and the shrubs guelder-rose (*Viburnum opulus*), buckthorn (*Rhamnus catharticus*) and spindle (*Euonymus europaeus*). These woods support a variety of other plants including buckler ferns (*Dryopteris aemula* and *D. dilatata*) and hard fern (*Blechnum spicant*) and great wood-rush (*Luzula sylvatica*). Mosses

Wet woodland around lake shores

Areas of wet woodland are found around the lakes, especially along the shores of Lough Cullin, but also along some of the southern, western and northern shores of Derryhick Lough and also the northern and eastern shore of Levallinree Lough. These areas of wet woodland are dominated by willow and alder. They are important area for insects, birds, but also fish fry, which shelter under the tree branches that grow close to the water. Willows are vital for pollinators early in the spring when willow catkins provide vital source of food for bees and hoverflies emerging from hibernation. Alder seeds are an important source of food for many birds in the autumn and spring.



Photograph 2 Lakeshore wet woodland

Riparian wood

This wood occurs in linear stripes along the rivers. All the rivers have some riparian corridors. The Clydagh has good riparian cover along the southern boundary of the site but where it turns to flow north toward Lough Cullin tree cover is less sparse.

The habitat along the Tobernagal river is more scrub-like in nature with some areas dominated with gorse, but also hawthorn and willow. The occasional ash tree also occurs. While the river was not surveyed in detail, Himalayan balsam, and invasive species, was recorded in two areas along the river (M 193 994 and M 189 989).

Scrub

There are numerous areas of scrub scattered through the area. These areas are generally composed of gorse, hawthorn, blackthorn, bramble and willow. Scrub areas are important for wildlife.

Planted Woodlands

There are approximately eight areas of conifer plantation within the area. These are generally small blocks of no more than 20 hectares each, but many areas are smaller. These plantations are commercial forests which are primary composed of species such as Sitka spruce. They have limited biodiversity value but can provide shelter for some species. Some broadleaves, particularly birch are also planted.



Photograph 3 Coillte Woodland

Blanket Bog (PB3 - Lowland blanket bog), Dry Heath (HH2 - 2 Dry calcareous heath) and Wet Heath (HH3 - Wet heath)

Cunnagher More Bog NHA



Photograph 4 Cunnagher More Bog NHA

Cunnagher More Bog is a good example of lowland blanket bog with a mosaic of heath habitats, some cutover that is gradually becoming revegetated and some areas of wet grassland. It is situated in the townlands of Cunnagher North, Crillaun, Gort and Dereens. A small lake, called Loughnambrackkeagh occurs in the north-eastern corner of the site. There is a small area of forestry within the NHA boundaries and more forestry plantations along parts of the western and southern boundaries. The site is

primarily flat or gently sloping with a few low hills throughout the area. An uncommon bog

moss species, *Sphagnum fuscum*, has been recorded on the wetter, intact areas. Turf cutting still occurs on the bog. The Foxford Way walking trail transects part of the site.

Other Annex I blanket bog habit (Habitat Code: 7130) occurs close to the River Moy SAC, while other Annex I blanket bog habitat occurs which is not directly connected to the designated sites. Other blanket bog habitat occurs in the townlands of Cauranslower, Treanybrogaun, Derryvulcaun. Ross East, Ross West, Sranalee, Gort and Terryduff.

Generally, the wet heath occurs in a mosaic with the blanket bogs. However, there is an area of wet and dry heath (classified as Annex I habitats) in the townlands of Meelick and Cloonkesh.



Photograph 5 Annex I Blanket bogs at Derryvulcaun

Current threats include drainage and dumping of green waste which were both recorded on bogland sites within the areas.

Lake (FL – Lakes and ponds)



Photograph 6 Derryhick Lake

Derryhick Lake is part of the River Moy SAC, for more details see section below. Lough Cullin, also part of the SAC, borders the eastern section of the project area. Levallinrea Lough lies just south of Derryhick Lake but is smaller and not designated. Smaller lakes in the area include Bunduvowen Lough, Lough Fadda, Lough Doovoga, Knockaglana Lough and Loughnambrackeagh.

River (FW2 - Depositing/lowland rivers)

Clydagh River is the largest river in the area. For more details about the Clydagh see section below. Other important rivers in the area include: Tobergal River, Attiappleton, and Carra River.



Photograph 7 Tobergal River

Hedgerow (WL1 Hedgerows)

Hedgerows are composed of hawthorn, blackthorn and hazel. Ash and willow trees are also relatively common.

Local Biodiversity - Areas

Domestic gardens and School grounds

Domestic gardens and school grounds are often overlooked when thinking about biodiversity. However, both can hold significant ecological value. These small spaces collectively form a patchwork of micro-habitats that can provide important places for local wildlife. In domestic gardens, diverse plantings, bird feeders, and small ponds can attract a variety of birds, insects, and small mammals. Similarly, school grounds, when designed with biodiversity in mind, offer educational opportunities and provide habitat for pollinators like bees and butterflies. Encouraging people to use less or no chemicals adds to the value of these important spaces.

Cunnagher More Bog NHA



Photograph 8 Cunnagher More Bog NHA

Cunnagher More Bog is a good example of lowland blanket bog with a mosaic of heath habitats, some cutover that is gradually becoming revegetated and some areas of wet grassland. It is situated in the townlands of Cunnagher North, Crillaun, Gort and Dereens. A small lake, called Loughnambrackkeagh occurs in the north-eastern corner of the site. There is a small area of forestry within the NHA boundaries and more forestry plantations along parts of the western and southern boundaries. The site is primarily flat

or gently sloping with a few low hills throughout the area. An uncommon bog moss species, *Sphagnum fuscum*, has been recorded on the wetter, intact areas. Turf cutting still occurs on the bog. The Foxford Way walking trail transects part of the site.

Old Oak woods at Knockaglana

Old oak woodland is a protected woodland habitat under Annex I of the EU Habitats Directive, and is found around Pontoon. Part of the wood in this townland has been given the status of “Possible Ancient Woodland”. As the name suggests these woods are very old.

Sessile oak (*Quercus petraea*) is the dominant tree, with holly (*Ilex aquifolium*), downy birch (*Betula pubescens*) and hazel (*Corylus avellana*). Climbers such as honeysuckle (*Lonicera periclymenum*), and ivy (*Hedera helix*) are also present. Woods also have bilberry (*Vaccinium myrtillus*). Other species are associated with the lakeshore include rock whitebeam (*Sorbus rupicola*), aspen (*Populus tremula*), silver birch (*B. pendula*) and the shrubs guelder-rose (*Viburnum opulus*), buckthorn (*Rhamnus catharticus*) and spindle (*Euonymus europaeus*). These woods support a variety of other plants including buckler ferns (*Dryopteris aemula* and *D. dilatata*) and hard fern (*Blechnum spicant*) and great wood-rush (*Luzula sylvatica*).

Clydagh River

The Clydagh River starts in the Nephin Beg range not far from Croaghmoyle, first travelling in a roughly south-easterly direction before flowing south forming the southern boundary of the project area. The river is then joined by numerous small streams, and then by the Toomore river. Here it flows in a roughly northerly direction before entering Lough Cullin. The river is quiet nutrient poor, and parts of the river area still in its natural state. It supports both brown trout and salmon. Salmon have been seen jumping the falls at Carrowkeel. There is a nice diversity of flora at the bridge here including hazels, alder, dog rose, and birch to name just a few. The bank on opposite side the road to bridge appears particularly species rich and would make lovely wildflower area.



Photograph 9 River Clydagh at Carrowkeel

EPA river quality surveys (biological) for the River Clydagh show that biotic indices ("Q Values"), which reflect the average water quality at any location, as good or high for the four monitoring points along the river. Under the WFD River Bodies status (2013-2018), the Claydagh River is classified as "Good". Under the WFD River Water Bodies Risk classification, which classifies the risk for each waterbody of failing to meet their Water Framework Directive (WFD) objectives by 2027, the part of the Claydagh River that runs along the southern boundary of the area is classified as "At Risk". While the section that flows north along the eastern boundary is classed as "not at risk". Parts of the river fall within the River Waterbody High Status Objective (IE_WE_34C050200). See Map in Appendix1b for details. The section of the river that flows north on being joined by the Toomore river is protected under the Salmonid River Regs (S.I. 293 only).



Photograph 10 River Clydagh where it enters Lough Cullin

The River Clydagh is known to be popular with kayakers, and there is potential for this sport to be developed here if done so in a sustainable way. Kayakers could also be engaged to help survey the river.

Derryhick Lough

Derryhick is the largest of the smaller lakes and is designated as part of the River Moy SAC. It is approximately 50 ha in size and is surrounded by farmland, bog habitats, scrub and some small areas of forestry. The lake supports a range of fish including pike, roach, perch, eel, and some brown trout. The lake is connected via a stream to the Tobergal river which flows into Lough Cullin. Two crannógs occur in the south-west corner of the lake and the lake is surround by several fulachtaí fi and one rath.



Photograph 11 Derryhick Lough

A detailed survey was conducted around the shore of the lake. There is a relatively rich ground flora around much of the lake, with over twenty five species of flowering plants recorded. Species include as meadow sweet, ox-eye daisy, yellow rattle, butterwort, birds-foot trefoil, mint and knapweed. Nine different trees were recorded the most common being birch and willow. Hazel and alder also occurred.

There was a rich insect life with common carder bees and white-tailed bumblebees recorded as well as damselflies. Butterflies including the delicate Small copper and larger Speckled wood were also seen.

Several mute swans were seen using the lake. The lake is likely to support other water birds including mallard and grey heron. Otters are also likely to use the lake.



Photograph 12 Common blue damselfly

Local Biodiversity - Species

Mute swan

Mute swans are regularly seen on Derryhick Lake. They are large white swans, with an orange-red bill with a prominent knob on the forehead. They are common bird of wetlands throughout Ireland. Despite their name they do make sounds. They do not call when in flight, but a distinctive whistling type sound is produced by the wings. They eat water plants and occasionally grass and small amphibians, snails and insects. They will have 4-7 eggs, the cygnets hatching after 34-45 days. It will take up to three years for the cygnets to reach breeding age.

Pike

Derryhick lake is famous for its pike fishery. Pike are the large freshwater predators and are found in many lakes as well as rivers and canals. Irish pike grow quickly and can reach up to 20 kg. Pike are top predators taking other fish and to lesser extent waterfowl, rodents, and smaller pike. Juvenile pike primarily eat benthic aquatic invertebrates and small fish. They have a camouflaged green body that is mottled with lighter patches along their sides, as well as a large mouth with many sharp teeth.

Common carder bee

Common carder bee is one of Ireland's commonest bees and they were recorded in several locations during field surveys. Common carder bees have ginger bodies with no stripes. They can be seen from spring right up until October. They feed on a wide variety of plants and are often recorded feeding on garden flowers as well as native wildflowers.



Photograph 13 Common carder bee

Butterwort

Common butterwort is an unusual plant in that it is insectivorous. It often grows in nutrient poor conditions. Its bright yellow-green leaves excrete a sticky fluid that attracts insects. Once trapped, the leaves will slowly curl around their prey and digest it. Flower can be seen during May and June. The single purple-violet flowers are on flower stems that are about 6-10cm tall.

Devil's-bit scabious

This plant is widespread in the area and found in damp grounds including bog, heath and lake shore. The pincushion-like flowers of devil's bit scabious are lilac-blue in colour. The flowers attract a wide variety of butterflies and bees. They are a late flowering plant and flowers can be seen from July to late September. It is the larval food plant of the rare Marsh Fritillary butterfly.



Photograph 14 Devils-bit scabious

Oak



Photograph 14 Oak

Old oak woodland is a protected woodland habitat under Annex I of the EU Habitats Directive and is found around Pontoon. The oaks here are primary Sessile oak which is commonly found on poorer acid soils. Sessile means that the acorns have no stalk while those of the very similar pedunculate oak hang from long stalks. Sessile oaks are large deciduous tree, that live long and can grow up to 20–40 m tall. Oak trees support hundreds of insects which in turn feed many species of birds.

Community Outreach

Action Planning

The ecologist liaised regularly with the Development group, attending various monthly meetings and conducting two onsite walks with the group, one looking specially at areas in Parke and the other in Crimlin.

Community Outreach

The biodiversity representative of the group worked with the LAWCO community water officer to organise some river pond dipping with the local schools.

A community wildlife and heritage walk was held on the 3rd September 2023 at Derryhick Lake.



Photograph 16: Some attendees at the wildlife and heritage walk

Biodiversity Action Plan

Following several meetings with the group including two on-site meetings where the area was walked with ecologist and representatives from both villages (Parke and Crimlin), the ecologist drew up an action plan based on discussions – see Table 1 below. Some of the actions are village specific while others are more general actions for the area.

In addition, discussions were had with the development group and representatives from the local GAA club on how best the open space adjacent to the GAA grounds could be used by the community. This area is currently under Mayo County Council ownership, but they are keen for the community to work together to produce a draft plan on how the open space could be developed for the whole community. The development group are keen that biodiversity will be a key element of this plan as well as expanding the sports facilities – see map 2 and 3 below.



Photograph 17: Meadowsweet and purple loosestrife

Biodiversity Action Table

Action number	Action	Why	Proposed Locations	Who	Timeframe	Success measure
1	<p>Homes for Wildlife</p> <ul style="list-style-type: none"> • Organise a bird box making session with schools and invite member of Birdwatch Ireland local group to give talk to children • Install bird boxes at various locations • Make and Install hedgehog boxes at various location • Purchase and install bat box on walls of buildings • Liaise with Swift conservation and look to install swift nest boxes at Crimlin Community centre • Build and instal duck nesting system for lakes 	<p>To support local wildlife. Many birds nest in holes in trees, but these are often hard to find. Swift nesting sites on old buildings have been lost. Installing purpose-built boxes encourages bird and other animals to nest in area</p>	<ul style="list-style-type: none"> • Parke Church • Farmers stone shed • Old blacksmith stable. • Crimllin School • Crimlin Community Centre • Gardens 	<p>PCADA</p> <p>Local schools</p> <p>Mayo Birdwatch Ireland branch</p> <p>Other local volunteers</p>	1-2 years	Number of wildlife homes erected in the community
2	<p>Water planters</p> <ul style="list-style-type: none"> • Build and install water planters <p>Guide to making water planted here: https://www.dublincity.ie/sites/default/files/2021-04/a-how-to-guide-to-rainwater-planters-english.pdf</p>	<p>To save rainwater and increases flowers for pollinators and colour around buildings</p>	<ul style="list-style-type: none"> • Parke Community centre • Crimlin Community centre • Crimlin Church 	<p>PCADA</p> <p>Mens' shed</p>	1-2 years	Number of rainwater planters
3	<p>Wildflower Areas</p> <p>Regularly mown grassland means native flower species do not get an opportunity to flower. Six-week short</p>	<p>To increase flora and biodiversity in general</p>	<ul style="list-style-type: none"> • Parke Church • Parke Housing Estate • Crimlin Church 	<p>PCADA</p> <p>School</p>	1-5 years	Number of areas managed for wildflowers

	term meadows can provide good pollinator forage while at the same time keeping grass relatively short. It may be possible to leave the school grounds uncut for the whole of the summer months, while children and away and then cut again for when the children return in September		<ul style="list-style-type: none"> • Crimlin School • Arouds around GAA pitch • Other areas as appropriate 	Local GAA club		
4	Nature Wall Murals <ul style="list-style-type: none"> • Work with local artists to create nature mural on back wall of school, Crimlin community centre, or Parke Community centre. • Liaise with local community to agree design. Look also at including other aspects of local heritage 	To raise awareness about biodiversity	<ul style="list-style-type: none"> • Parke National School • Crimlin Community Centre • Parke Community Centre • Parke 	PCADA School Local artists	3-5 years	Number of murals completed
5	Pollinator friendly flower beds, bulbs, herbs and flower boxes <ul style="list-style-type: none"> • Plant pollinator friendly perennials in various area. • Plant pollinator bulbs around churches. • Plant herbs in flower boxes by Crimlin school. 	Support local pollinators	<ul style="list-style-type: none"> • Crimlin Church • Crimlin School • Parke School • Parke Church • Old Blacksmith area Parke 	PCADA School	3-5 years	Numbers of areas planted
6	New Crimlin church hedgerow <ul style="list-style-type: none"> • Remove existing hedgerow and replace with mixed native hedgerow. (Alternative: replace with beech hedge)	Support local biodiversity by providing food and habitat for insects, birds, hedgehogs etc.	<ul style="list-style-type: none"> • Crimlin Church 	PCADA	2-3 years	Length of hedgerow planted

7	<p>Maintaining existing shrub beds</p> <ul style="list-style-type: none"> • Tidy shrub beds, by cutting back shrubs. • Add some crocus, snowdrops to add colour and spring flowers for pollinators 	Support local pollinators	<ul style="list-style-type: none"> • Crimlin community centre 	PCADA	1-5 years	Shrub beds maintained
8a	<p>Maintaining existing wildflower area</p> <ul style="list-style-type: none"> • The verge outside Crimlin community centre is packed full of wildflowers, including Common knapweed, ox-eyed daisy, birds-foot trefoil. Maintain area, by cutting back and removing cuttings, once a year in September. This will encourage more wildflowers to grow. • Place a managed for wildlife sign in area to explain management 	Maintain areas rich in flora biodiversity	<ul style="list-style-type: none"> • Crimlin community centre 	PCADA	1-5 years	Areas maintained
8b	<p>Maintaining and enhance existing wildflower area</p> <ul style="list-style-type: none"> • The shingle beds around trees at Parke Community centre already support some wildflowers – mostly birds-foot trefoil. • Enhance beds by hand weeding to removed grass. • Add wildflowers such as thrift, ox-eyed daisy, red campion. Can be added as plug plants or locally sourced seed in the autumn. 	Support local biodiversity	<ul style="list-style-type: none"> • Community Centre 	PCADA	1-5 years	Areas maintained
9	<p>School gardens</p> <ul style="list-style-type: none"> • As part of the development of school grounds school would like to create a vegetable garden close to 	<ul style="list-style-type: none"> • Vegetables gardens support biodiversity 	<ul style="list-style-type: none"> • Schools 	PCADA Schools	2-5 years	Area developed

	<p>area where trees are being planned. Look at including some sensory elements such as herbs.</p> <ul style="list-style-type: none"> • Create a path using Roman road techniques. • Use board to explain about wildflowers, and trees in the school grounds. 	<ul style="list-style-type: none"> • Help children learn about food and where it comes from • Sensory aspect can be important for all 				
10	<p>Walking trails</p> <ul style="list-style-type: none"> • Investigate the possibility of developing couple of walking trails and or loop walks with the in the community 	<ul style="list-style-type: none"> • Encourages people to get out and enjoy nature 	<ul style="list-style-type: none"> • General area 	PCADA	3-5 years	Number of trails developed
11	<p>Bogland study</p>	<ul style="list-style-type: none"> • Learn more about the areas local biodiversity assets 	<ul style="list-style-type: none"> • General area • Area at edge of Parke has been highlighted as possible site to start 	PCADA	3-5 years	Study completed
12	<p>Hedgerow management workshop</p> <ul style="list-style-type: none"> • Investigate the possibility of holding a workshop for local farmers 	<ul style="list-style-type: none"> • If hedgerows are managed sustainably, they are much more valuable in terms of biodiversity and being able to support biodiversity 	<ul style="list-style-type: none"> • General area 	PCADA	3-5 years	Workshop held

Appendices

Appendix 1 - List of species recorded

Flora

Common name	Taxon name	Group
Alder	<i>Alnus glutinosa</i>	Tree
Angelica, Wild	<i>Angelica sylvestris</i>	Flowering plant
Ash	<i>Fraxinus excelsior</i>	Tree
Birch	<i>Betula</i> spp.	Tree
Bird's-foot-trefoil, Common	<i>Lotus corniculatus</i>	Flowering plant
Blackthorn	<i>Prunus spinosa</i>	Tree
Bog Asphodel	<i>Narthecium ossifragum</i>	Flowering plant
Bogbean	<i>Menyanthes trifoliata</i>	Flowering plant
Bramble	<i>Rubus fruticosus</i> agg.	Climber
Bull rush	<i>Typha latifolia</i>	Typhaceae
Buttercup, creeping	<i>Ranunculus repens</i>	Flowering plant
Buttercup, meadow	<i>Ranunculus acris</i>	Flowering plant
Butterwort, common	<i>Pinguicula vulgaris</i>	Flowering plant
Clover, white	<i>Trifolium repens</i>	Flowering plant
Daisy	<i>Bellis perennis</i>	Flowering plant
Dandelion	<i>Taraxacum officinale</i> agg.	Flowering plant
Devil's-bit Scabious	<i>Succisa pratensis</i>	Flowering plant
Eyebright	<i>Euphrasia</i> agg.	Flowering plant
Foxglove	<i>Digitalis purpurea</i>	Flowering plant
Goldenrod	<i>Solidago virgaurea</i>	Flowering plant
Gorse	<i>Ulex europaeus</i>	Shrub
Grass of Parnassus	<i>Parnassia palustris</i>	Flowering plant
Hawthorn	<i>Crataegus monogyna</i>	Tree
Hazel	<i>Corylus avellana</i>	Tree
Heather, Bell	<i>Erica cinerea</i>	Flowering plant
Herb-Robert	<i>Geranium robertianum</i>	Flowering plant
Honeysuckle	<i>Lonicera periclymenum</i>	Climber
Iris, flag	<i>Iris pseudacorus</i>	Flowering plant
Ivy	<i>Hedera hibernica</i>	Climber
Knapweed, Common	<i>Centaurea nigra</i>	Flowering plant
Lime tree	<i>Tilia x europaea</i>	Tree
Meadowsweet	<i>Filipendula ulmaria</i>	Flowering plant
Mint	<i>Mentha</i> spp.	Flowering plant
Mouse-ear	<i>Cerastium fontanum</i>	Flowering plant
Nettles	<i>Urtica dioica</i>	Flowering plant
Orchid, marsh	<i>Dactylorhiza</i> spp.	Flowering plant
Oxeye Daisy	<i>Leucanthemum vulgare</i>	Flowering plant
Purple-loosestrife	<i>Lythrum salicaria</i>	Flowering plant
Ragwort, Common	<i>Senecio jacobaea</i>	Flowering plant

Red Clover	<i>Trifolium pratense</i>	Flowering plant
Ribwort Plantain	<i>Plantago lanceolata</i>	Flowering plant
Rose, dog	<i>Rosa canina</i>	Climber
Rowan	<i>Sorbus aucuparia</i>	Tree
Rush, soft	<i>Juncus effusus</i>	Rush
Selfheal	<i>Prunella vulgaris</i>	Flowering plant
Stitchwort, lesser	<i>Stellaria graminea</i>	Flowering plant
Sycamore	<i>Acer pseudoplatanus</i>	Tree
Vetch, Tufted	<i>Vicia cracca</i>	Flowering plant
Vetchling, meadow	<i>Lathyrus pratensis</i>	Flowering plant
Water-lily, Yellow	<i>Nuphar lutea</i>	Flowering plant
Willow	<i>Willow</i>	Tree
Woundwort	<i>Stachys sylvatica</i>	Flowering plant
Yellow-rattle	<i>Rhinanthus minor</i>	Flowering plant

Insects

Common name	Taxon name	Group
Common Carder Bee	<i>Bombus pascuorum</i>	Insect - bee
Common Carder Bee	<i>Bombus pascuorum</i>	Insect - bee
Common snout hoverfly	<i>Rhingia campestris</i>	Insect - hoverfly
Common blue damselfly	<i>Enallagma cyathigerum</i>	Insect - damselfly
Early Bumble Bee	<i>Bombus pratorum</i>	Insect - bee
Meadow Brown	<i>Maniola jurtina</i>	Insect - butterfly
Ringlet	<i>Aphantopus hyperantus</i>	Insect - butterfly
Small Copper	<i>Lycaena phlaeas</i>	Insect - butterfly
Speckled Wood	<i>Pararge aegeria</i>	Insect - butterfly
Spiked Shield bug	<i>Picromerus bidens</i>	Insect - Bug
White tailed bumblebee egg.	<i>Bombus lucorum agg.</i>	Insect - bee

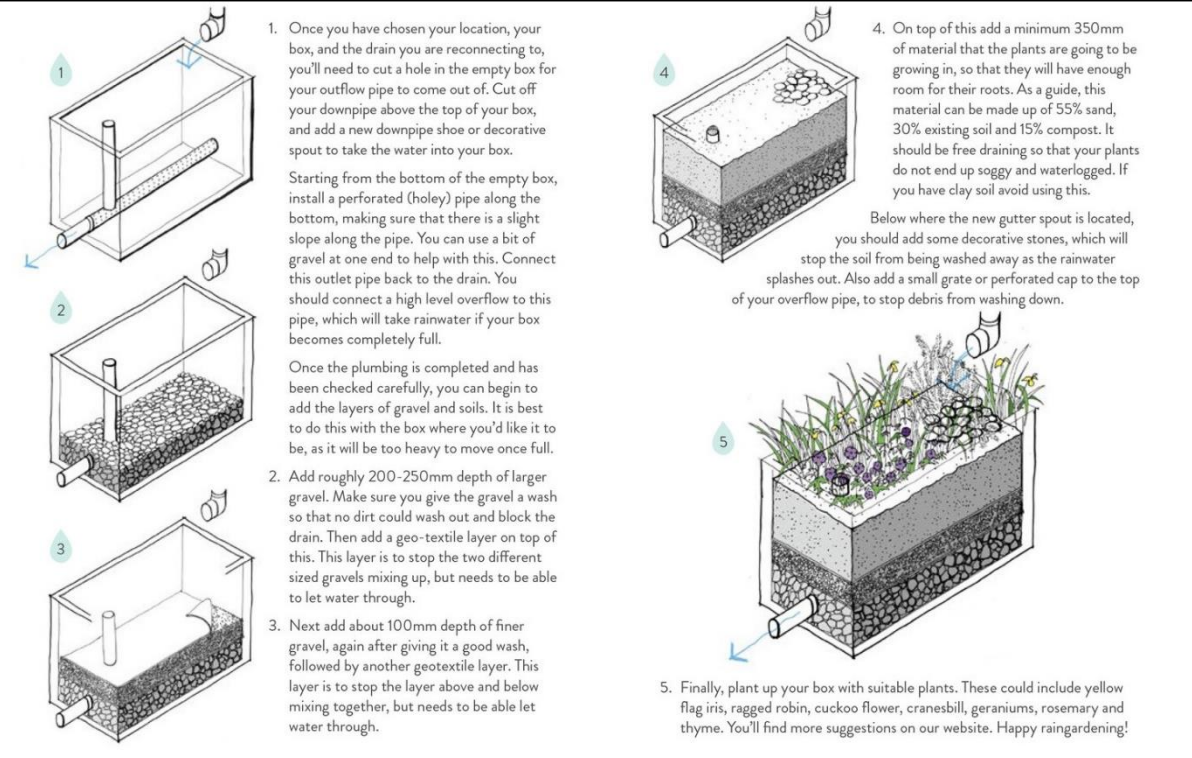
Birds

Common name	Taxon name	Group
Chaffinch	<i>Fringilla coelebs</i>	Bird
Common Buzzard	<i>Buteo buteo</i>	Bird
Long tailed tit	<i>Aegithalus caudatus</i>	Bird
Mute swan	<i>Cygnus olor</i>	Bird
Robin	<i>Erithacus rubecula</i>	Bird
Snipe	<i>Gallinago gallinago</i>	Bird

Appendix 2 - Rainwater planters

See following link - www.dublincity.ie/sites/default/files/2021-04/a-how-to-guide-to-rainwater-planters-english.pdf

Or follow plan below from www.biurban.ie/rain-garden-project



1. Once you have chosen your location, your box, and the drain you are reconnecting to, you'll need to cut a hole in the empty box for your outflow pipe to come out of. Cut off your downpipe above the top of your box, and add a new downpipe shoe or decorative spout to take the water into your box.

Starting from the bottom of the empty box, install a perforated (holey) pipe along the bottom, making sure that there is a slight slope along the pipe. You can use a bit of gravel at one end to help with this. Connect this outlet pipe back to the drain. You should connect a high level overflow to this pipe, which will take rainwater if your box becomes completely full.

Once the plumbing is completed and has been checked carefully, you can begin to add the layers of gravel and soils. It is best to do this with the box where you'd like it to be, as it will be too heavy to move once full.

2. Add roughly 200-250mm depth of larger gravel. Make sure you give the gravel a wash so that no dirt could wash out and block the drain. Then add a geo-textile layer on top of this. This layer is to stop the two different sized gravels mixing up, but needs to be able to let water through.

3. Next add about 100mm depth of finer gravel, again after giving it a good wash, followed by another geotextile layer. This layer is to stop the layer above and below mixing together, but needs to be able to let water through.

4. On top of this add a minimum 350mm of material that the plants are going to be growing in, so that they will have enough room for their roots. As a guide, this material can be made up of 55% sand, 30% existing soil and 15% compost. It should be free draining so that your plants do not end up soggy and waterlogged. If you have clay soil avoid using this.

Below where the new gutter spout is located, you should add some decorative stones, which will stop the soil from being washed away as the rainwater splashes out. Also add a small grate or perforated cap to the top of your overflow pipe, to stop debris from washing down.

5. Finally, plant up your box with suitable plants. These could include yellow flag iris, ragged robin, cuckoo flower, cranesbill, geraniums, rosemary and thyme. You'll find more suggestions on our website. Happy raingardening!

The sign features a central circular image of a bumblebee on a purple thistle flower. The text 'Arna bhainistiú ar son an fhiadhúlra' is at the top in green, and 'Managed for Wildlife' is below it in blue. The Irish text 'Plean Uile-Éireann um Pailneoirí' is curved around the top of the circle, and 'All-Ireland Pollinator Plan' is curved around the bottom. The National Biodiversity Data Centre logo is in the bottom left, and the website 'www.pollinators.ie' is at the bottom center. The sign is decorated with small bee icons and a grassy field at the bottom.

**Arna bhainistiú ar
son an fhiadhúlra**
Managed for Wildlife

Plean Uile-Éireann um Pailneoirí

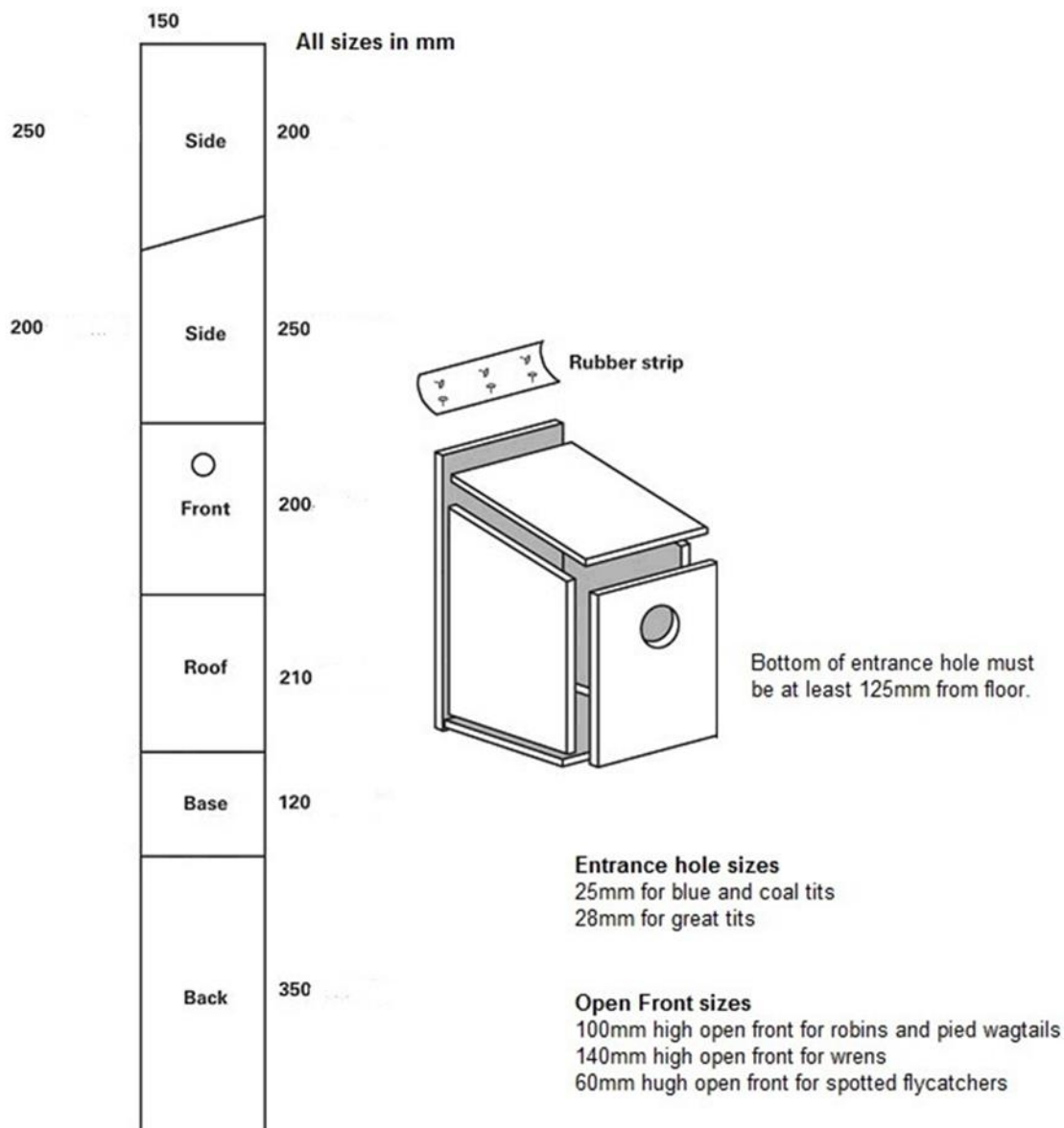
All-Ireland Pollinator Plan

National Biodiversity Data Centre
Focháir na hÉireann a dhíomáil
Decompany Ireland's Wildlife

www.pollinators.ie

Appendix 4 – Animal box plans

Bird Box for small birds



Adapted from www.rspb.co.uk

- Ideally the box should be located at least 2m from the ground (preferably 3 - 5m) to ensure cats don't get to them.
- Place the nest box on a wall, fence or tree in a quiet area.
- Do not nail a box to a tree but instead use a wire strap, and remember to check it every year to ensure the wire isn't cutting into the tree trunk as it grows.
- It is best to have the box angled forward slightly and kept away from the wall or tree by a strip of wood.
- Unless the site is very sheltered the box should face between north and south-east to avoid the hot sun and the wettest winds.


Information about installing in-built swift bricks and boxes from the Saving Swifts (https://birdwatchireland.ie/app/uploads/2019/10/Saving-Swifts-Guide_pdf.pdf) for new builds.

Advice: installing in-built Swift brick and boxes

What is a Swift brick?
Commercial Swift nest bricks are made from hollow brick or concrete composite designed to allow access by Swifts and manufactured to modern building regulation standards. They can be integrated into the walls of buildings during the construction phase.

Swift bricks provide safe, permanent, low-cost nesting sites for Swifts for the lifetime of the building. They are best installed into new-builds or during extensions and renovation works. Unlike externally fitted boxes they blend into the fabric of the building and for this reason are often the preferred choice for architects.

Choosing bricks
Swift bricks are available commercially and come in various sizes, shapes and colours, so it should be easy to find a brick that fits your building design. Manufacturers will supply technical information on Swift brick types to help you at the design stage.



Why use Swift bricks?


- They are as close as it gets to a "natural" nest site.
- The brick is available to nesting Swifts for the life of the building. Once occupied, it could be used by a single pair for many years.

Positioning bricks

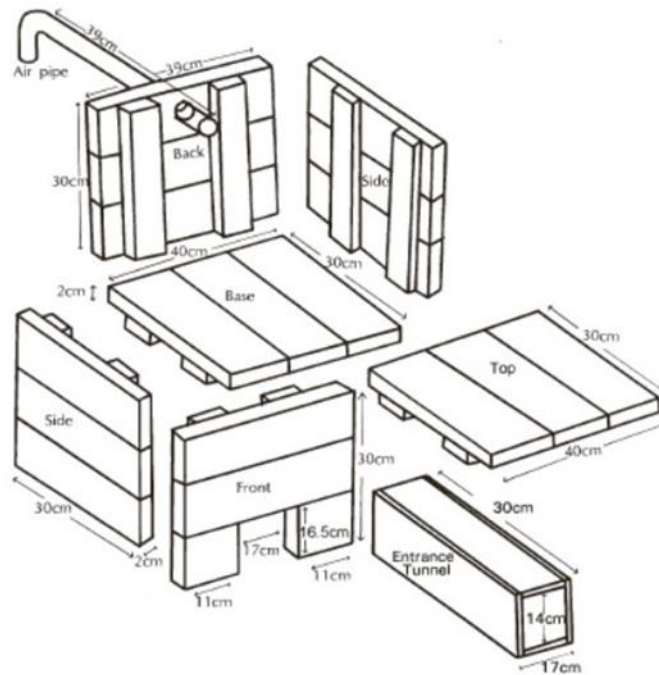
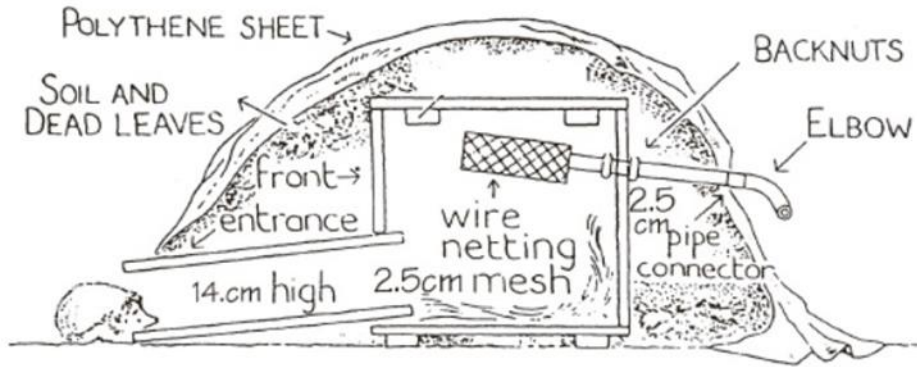
- ✓ **Do:** Place bricks any aspect N, S, E or W. Bricks tend not to overheat the way that externally fitted boxes can.
- ✓ **Do:** Place bricks at least five metres above ground. Boxes can never be too high, so, if in doubt, go as high as possible.
- ✓ **Do:** Face brick entrances onto an open aspect – no overhanging vegetation, trees, walls or other obstacles – so that the birds can fly directly in and out unimpeded.
- ✓ **Do:** Place bricks side by side in rows.
- ✓ **Do:** Keep out of reach of pets or other potential predators.
- ✗ **Don't:** Place bricks near plate glass windows because they are a known collision hazard for birds.
- ✗ **Don't:** Place bricks directly above ledges or other obstructions. Swifts drop before taking flight and can collide with obstacles below the nest entrance.
- ✗ **Don't:** Stack bricks one above the other.
- ✗ **Don't:** Place Swift bricks near spotlights or later fit spotlights near Swift bricks.

Fitting the bricks
Swift bricks are designed to fit alongside standard building materials and can be fitted by any experienced tradesperson.

How many bricks should be used?
Swifts nest in colonies, so any number between two and twenty is advisable. Bricks are relatively cheap. You might install four bricks in a single house or twenty bricks in a large school or commercial building.



Adapted from - www.hedgehogstreet.org



Biodiversity Plan for Parke and Crimlin Development Group

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