



Eco Carn



A Biodiversity Action Plan for Carndonagh, Co. Donegal 2021-2026

Funded by The Community Foundation for Ireland



Acknowledgements

Prepared by Inishowen Rivers Trust and NatureNorthWest for ECO Carn

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All local maps created using the Free and Open Source QGIS



Landowner Liaison:

Some works will require the consent of the landowners involved and may also require permissions from the relevant authorities, such as National Parks & Wildlife Service, Donegal County Council, Inland Fisheries Ireland, OPW. Guidance should be sought on the required permissions prior to carrying out the actions recommended in this plan.

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Executive Summary

Carndonagh is a medium sized urban centre set in the rural heartland of Inishowen. The town has two significant rivers running through it from south to north, extensive blanket peatland to the south, ancient woodland to the west, and a valuable Special Preservation Area (SPA) and Special Area of Conservation (SAC) to the north. The town has considerable biodiversity potential with 18 different habitats identified.

The development of the Biodiversity Action Plan for Carndonagh emerged from the 'Envision Inishowen' series, part of a number of conversations across 10 communities in Inishowen, facilitated by Inishowen Development Partnership. A new network was then formed - **ECO Carn** - a collaboration of community organisations, schools, and statutory organisations, who came together to steer the development of the plan to lead in this work. Following a successful application by the network to The Community Foundation for Ireland, Inishowen Rivers Trust was awarded the tender. Administration support for the process was provided by Carn social enterprise, Spraoi agus Spórt, and managed by ECO Carn.

Local environmental charity Inishowen Rivers Trust managed an ecological audit of six areas within the town in collaboration with NatureNorthWest and prepared recommendations for future actions based on the findings of the surveys.

A total of 196 plant species, including 30 tree species, 70 animal species, including 43 bird species were identified during the surveys. Most of the species (94%) were categorised as native or naturalised plant species, although 11 species of invasive plants and 1 invasive animal (American Mink) were detected.

The key actions identified in the plan are around invasive species management, hedgerow maintenance and restoration, wetland and pond creation, 'No Mow' periods, sensitive development of future trails and paths and a coordinated programme of informing and involving the whole community. A list of 43 general actions is proposed across seven recommended themes plus an additional 102 actions across the six audited areas. The key recommendations from this report are to connect species-rich sites creating natural corridors for biodiversity and communicate the actions of this plan, creating awareness and understanding in the community.

ECO Carn carried out a number of biodiversity actions throughout the project timeline. A strong collaborative ethos across a broad range of community and statutory organisations was maintained throughout the project. This will be an important factor in delivering successful outcomes for the future enhancement of Carndonagh's biodiversity.

1.0 Background: The Origins of ECO Carn

This five year action plan has been prepared by the Inishowen Rivers Trust on behalf of ECO Carn. ECO Carn is an umbrella group coordinated by Inishowen Development Partnership and includes a broad range of Carndonagh's community, voluntary and statutory groups (see list further on).

In 2019 Spraoi agus Spórt and the Inishowen Development Partnership on behalf of the network, submitted an application for funding from The Community Foundation for Ireland (CFI) under their Community Biodiversity Plans 2019/2020 funding scheme. The project application had a number of aims including:

- Creating greater awareness in the local community of local habitats and how to protect them
- Encouraging a collaborative approach to protecting these habitats
- Reducing pesticide use
- Promoting a pollinator friendly approach
- Identifying and sharing good practice in developing actions
- Identifying ecological features and sites of special interest by engaging an ecologist to carry out a biodiversity audit of the area
- Identifying potential funding opportunities for future actions
- Recommending a sustainable approach to the action plan

The CFI funding was awarded and in October 2019 ECO Carn officially began the process of issuing a tender for an ecologist to carry out the biodiversity audit. In December 2019 Inishowen Rivers Trust was awarded the contract. The Inishowen Rivers Trust is an environmental charity that aims to protect, restore and enhance the rivers and natural waterbodies of Inishowen and provide educational opportunities for learning about biodiversity and connecting with nature. As part of this project, the Trust engaged ecologist, Aengus Kennedy, NatureNorthWest, to work with the Trust and ECO Carn to carry out the biodiversity audits and develop the biodiversity actions.

The first Biodiversity Action Plan meeting of the full ECO Carn group took place on 11th December 2019. Since that time the network has collaborated to steer the work of the plan and deliver a number of actions on the ground, despite the challenges of the restrictions posed by the Covid-19 pandemic.

The following organisations have been involved in the project to date:

- Barrack Hill Community Garden
- Carn GAA
- Carn Tidy Towns
- Carndonagh Community School
- Colgan Hall
- Colgan Heritage Group
- Carn Men's Shed
- Donegal County Council
- Forests of Carndonagh
- Inishowen Environmental Group
- Inishowen Development Partnership
- Spraoi agus Spórt
- Local primary schools

1.1 Activities of ECO Carn

Many of these groups have worked individually to deliver biodiversity actions on the ground over the years. Since the project began, the ECO Carn project has collaboratively delivered a number of events and materials (Figure 1.1) as listed below.

A.

Held a **tree planting** event in early March 2020 at the local GAA grounds. This included a workshop by a local forester (Inish Forestry) on how to plant and maintain trees and hedges. Trees were provided by the charity Trees on the Land and the event was coordinated by Inishowen Rivers Trust.

B.

Developed a **communications plan** including a **logo** and online presence on **Facebook**. The logo was designed by students in Carndonagh Community School. The Facebook page was used to communicate information to the general community on the progress

of the plan, promoting events and activities and creating awareness on biodiversity. The project was also featured in **local newspapers**. Members of the groups, including youth representatives, were interviewed on **local radio** (Highland Radio). The committee were encouraged to share posts from their own groups. The steering committee established a What's App group to communicate and stay updated on issues and opportunities.

C.

Delivered a **webinar** and online discussion on hedgerows to encourage participation during the first lockdown in May 2020.

D.

Commissioned **two videos** featuring biodiversity. The first on one of the town's two rivers, the Donagh River; and the second on the ancient woodland at the edge of the town known as Carn Woods. Both were narrated by Aengus Kennedy.

E.

Developed **two online forms** for the community to submit records for the plan. This idea originated because of the lockdown restrictions which prevented the ecologist from visiting the sites. With the 2km movement restrictions in Spring 2020, the local community were encouraged to go out and find native wildflowers in their local area and submit their records via an online form created using Survey123 (ArcGIS data collection). These records included photographs that could be verified by the ecologist or followed up on once restrictions were lifted. The public were also encouraged to share stories of their favourite nature places in the area ('My Special Nature Place'). This was promoted through the local primary schools.

F.

Designed and produced a 2021 **calendar** called 'Wildflowers of Carndonagh' with biodiversity information, national biodiversity celebration dates, gardening tips, wildflowers seeds and featuring photography submitted as part of a **Photography Competition**. A launch event was held online, promoted through Facebook and quickly sold out (300 copies). ECO Carn is also linking this work into the Sustainable Development Goals. In this case, SDG 13 Climate Action, SDG 14 Life Below Water and SDG 15 Life On Land

G.

Made **recommendations** to Donegal County Council on the Management of Biodiversity, Landscape and Heritage within Barrack Hill Town Park to support the application for the **Green Flag Award**. This application was successful.

H.

To celebrate **Tree Week 2021**, a **video** of a selection of local community projects was recorded and featured tree related projects, highlighting the efforts that are being made locally. The video was launched on **International Day of Forests**. <https://www.youtube.com/watch?v=3mpVvVQdSfo>



Wych Elm

I.

Submitted an EOI to Donegal County Council expressing interest in collaborating on the DCC **Decarbonising Zone** for County Donegal and supporting Carndonagh as a potential DZ. Carndonagh has since been selected as one of only two of these flagship low carbon projects in Donegal. This project will serve as a pathfinder in deepening our understanding of the scope of the challenges for decarbonising our society. ECO Carn may have future opportunities for involvement in this project.

J.

Development of **Nature Positive +** to promote biodiversity awareness among business owners in the area. This project carried out a survey with all the traders in the area with the help of the Carndonagh Traders Association. This project will be developed further in the coming months. The group will also link with ChangeMakers, a development education project across the county to support this initiative.

K.

The steering committee has prepared a **year planner** for the community on key environmental activities for the year such as when to cut hedge and when to plant wildflowers. This will be issued with the launch of this report. One side features the ECO Planner and the reverse side provides an opportunity for individuals to record their own ECO Actions to promote biodiversity (Appendix 12).

It is important to note that this action plan covers a 5 year period from 2021-2026. ECO Carn will keep a record of the actions that are completed and encourage all members of the community to get involved and keep the community informed. It is by sharing our knowledge and expertise that we will help to overcome the biodiversity crisis. At the end of the 5 years this plan should be reassessed and new ideas and actions incorporated into the plan. In this way the plan builds on the restoration of habitats in the area.



Figure 1.1: Activities of the ECO Carn group in 2020 and 2021



Figure 1.2: Media coverage of ECO Carn project

2.0 The Biodiversity Action Plan

This report documents the ambition and collective work ethic of many representatives within the local community. Six areas in the Carndonagh area were audited for biodiversity, chosen by the community representatives of ECO Carn to reflect some of the town's diversity - from natural areas to built amenities. Each area is mapped to reflect the habitats under the Irish classification system (Fossitt) and develop a comprehensive plant species list. A list of animals within each area was also developed but excluded many of the invertebrate species. Each area also has a list of potential actions that may be delivered within that site. None of these actions, are of course, mandatory. They are all suggestions and are subject to permissions from landowners and in some cases will need financial support.

To enhance biodiversity in any area, quite often what is needed is to examine what already exists, realise the local potential and quite literally, fill the gaps. Carndonagh is fortunate in that it is located in a very diverse area with land management practices that are often sympathetic to the local nature. By connecting existing habitats, decreasing the fragmentation that development can bring and delivering a series of affordable, practical and in a lot of cases, simple actions, the town and surrounding area could significantly increase the biodiversity that is already here. Quite often, the simplest thing to help biodiversity is to do less, manage less and leave room for nature to plug the gaps itself.

However, a certain element of management is required in some cases. Invasive species for instance, have established themselves in many corners of Ireland, not just Carndonagh. Planning and development that does not have biodiversity at the forefront of its thinking, can often be destructive to nature. Biodiversity is a crucial part of all of our daily lives, whether we are aware of this or not. Biodiversity needs to be brought to the forefront of everything we do, in our own efforts at home or with our group and also in all elements of how we manage society. From the air we breathe, to the water we drink and the food we eat, these all depend on healthy and productive ecosystems, and the biodiversity within them.

This plan strives to not only help identify the gaps to plug, realise the potential that's there, but also to engage with the broader community. If there is no buy-in from society then efforts will struggle. If society recognises, engages and embraces biodiversity and the efforts to enhance it, we will not only have a healthier community but a society that is resilient and future proof.

Carndonagh has the opportunity, by putting biodiversity at the centre of all future developments, big or small, to be a haven for wildlife, an example of connectivity and a model to rural towns throughout Ireland of how to achieve biodiversity enhancement by working as a collective. Through this plan, ECO Carn believes that not only will biodiversity be enhanced but community wellbeing will be improved.

2.1 What is Biodiversity?

Biodiversity is literally two words combined - biological and diversity. It means all living things. We tend to think of nature in terms of wildflowers, large trees, birds, bats, insects etc. What can be overlooked is the microscopic biological organisms and the essential role they play in our lives. For instance, over 50% of the oxygen we breathe is created by microscopic plants called phytoplankton in the oceans. As long as our oceans are in balance - they don't overheat, get too polluted and their ecosystems stay robust and diverse - they will keep replenishing the planet's oxygen levels while also helping to cool the earth.

Biodiversity includes all living things, including ourselves. Ecosystem is a term used to describe groups of living organisms - the communities for this biodiversity. And all biodiversity, including ourselves, requires specific environmental factors, such as certain temperatures, clean water etc. What we put down our drains, spread in our gardens and lands and release out into our air, effects the living things that we rely upon and ourselves.

Without healthy and diverse ecosystems, we cannot survive. So we need, collectively, to start putting biodiversity first and foremost in everything we do. All projects need biodiversity to be fully integrated into the actions delivered. If we bring this thinking and awareness into our day to day actions, we can divert the biodiversity crisis and utilise biodiversity to our best interests while still progressing as a society. This plan aims to bring biodiversity, through the suggested actions, into all areas of society in Carndonagh.

2.2 Threats to Biodiversity

A most encouraging element in this project has been the diversity of groups that have engaged from the beginning. From Donegal County Council, to sporting associations, school groups and the many, varied voluntary community groups, all coordinated by the local Inishowen Development Partnership. The future of Carndonagh's biodiversity enhancement looks secure indeed.

However, across the island of Ireland, despite so many wonderful and diverse nature based projects, the recent hugely increased appetite for nature knowledge and engagement by general public and the ever increasing focus from national government, we are still in a self declared national biodiversity crisis. The recent joint report from BirdWatch Ireland and Royal Society for the Protection of Birds NI (Gilbert, Stanbury & Lewis, 2021) shows a significant increase in species added to the endangered bird list (IUCN Red List). This is just one example which illustrates that we are not doing enough. The Red List documents the birds threatened by extinction. It has increased by 53% in the

last 7 years, meaning over 25% of Ireland's common birds are now on the list. As a society this is something that needs to be immediately addressed if we are to have the same level of biodiversity in place for the next generation. Threats exist on so many layers nationally.

- Habitat loss
- Water quality degradation
- Pollution
- Over exploitation
- Climate change
- Invasive species

A quite often silent threat that goes unnoticed is our collective inaction as a society. There is an opportunity for Carndonagh to act together and improve biodiversity, improve water and air quality, mitigate climate change, expand species diversity, enhance habitats as well as becoming a leader in demonstrating community action while acting for the benefit of the town's population. Without putting biodiversity at the forefront of all actions big and small, the devastation that we are currently witnessing will continue. This plan can act as a starting point to embed the protection and enhancement of areas for biodiversity while bolstering the many wonderful projects that currently exist.

2.3 Carndonagh's Natural History

Carndonagh is an independent urban town located in north central Inishowen (Figure 2.1). The town has a long and rich history dating back to the early Christian period. It is recorded that St. Patrick established a church in the area and some evidence for this exists with the wonderful St. Patrick's High Cross (Donagh Cross) and slab stones at the western edge of the town close to the post primary school. Recent investigations (by the Northumberland based archaeology group, Bernician Studies Group) have shown that a monastic site was present in this area and most likely dates to the 5th Century CE. Thus Carndonagh has been a settled area, inhabited by humans, for more than 2,000 years and that brings with it the impacts of development over long periods.

More recently the town has been developed as a classic market style town with a diamond at its centre for trading and all four main roads leading to this commercial centre (Figure 2.2). This fragments the habitats in the area and create barriers which biodiversity must negotiate. Although Carndonagh has never been heavily industrialised, the area had a number of active mills including corn mills and kilns, lime, threshing, flax, and tuck mills with a number of associated mill races and ponds which have resulted in channel modifications and alterations to the normal run of the river channels. There was also an alcohol factory and a bottling plant which had a negative impact on water quality in the Donagh River.

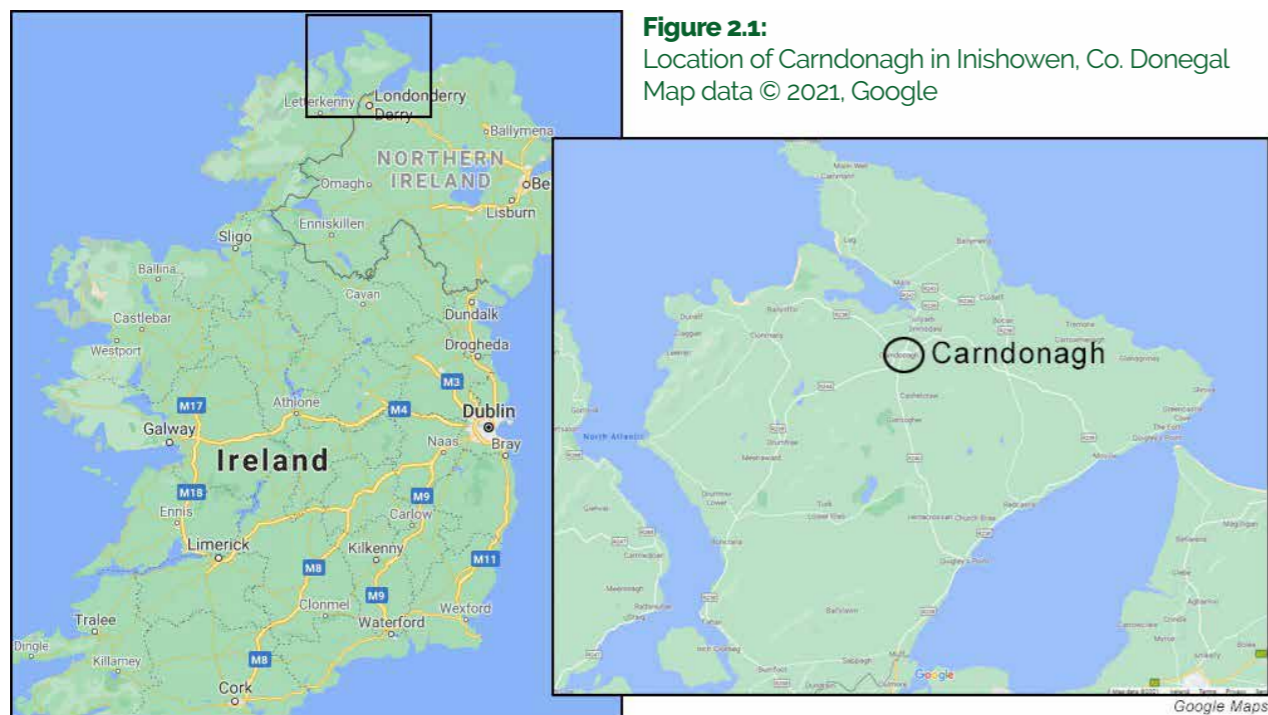


Figure 2.1: Location of Carndonagh in Inishowen, Co. Donegal
Map data © 2021, Google

Three kilometres directly north of Carndonagh is Trawbreaga Bay, a sheltered estuary, a Special Protection Area (SPA) and Special Area of Conservation (SAC). Part of the bay is a wildfowl sanctuary and a Ramsar Convention site. Up to 80% of the bay dries out at low tide, exposing a range of marine habitats from extensive mudflats to sandbanks and rocky substrates. These areas, in turn, support a large number of wetland birds and their associated food types. In particular, Annex I species of the EU Birds Directive, Barnacle Geese, Whooper Swan and Bar-tailed Godwits occur as does an internationally important population of Light-bellied Brent Geese. The site is also recognised as important for our coastal crow species, the Chough, particularly on the northern side at Lagg Beach.



Figure 2.2: The town of Carndonagh showing the four main roads entering the urban centre.

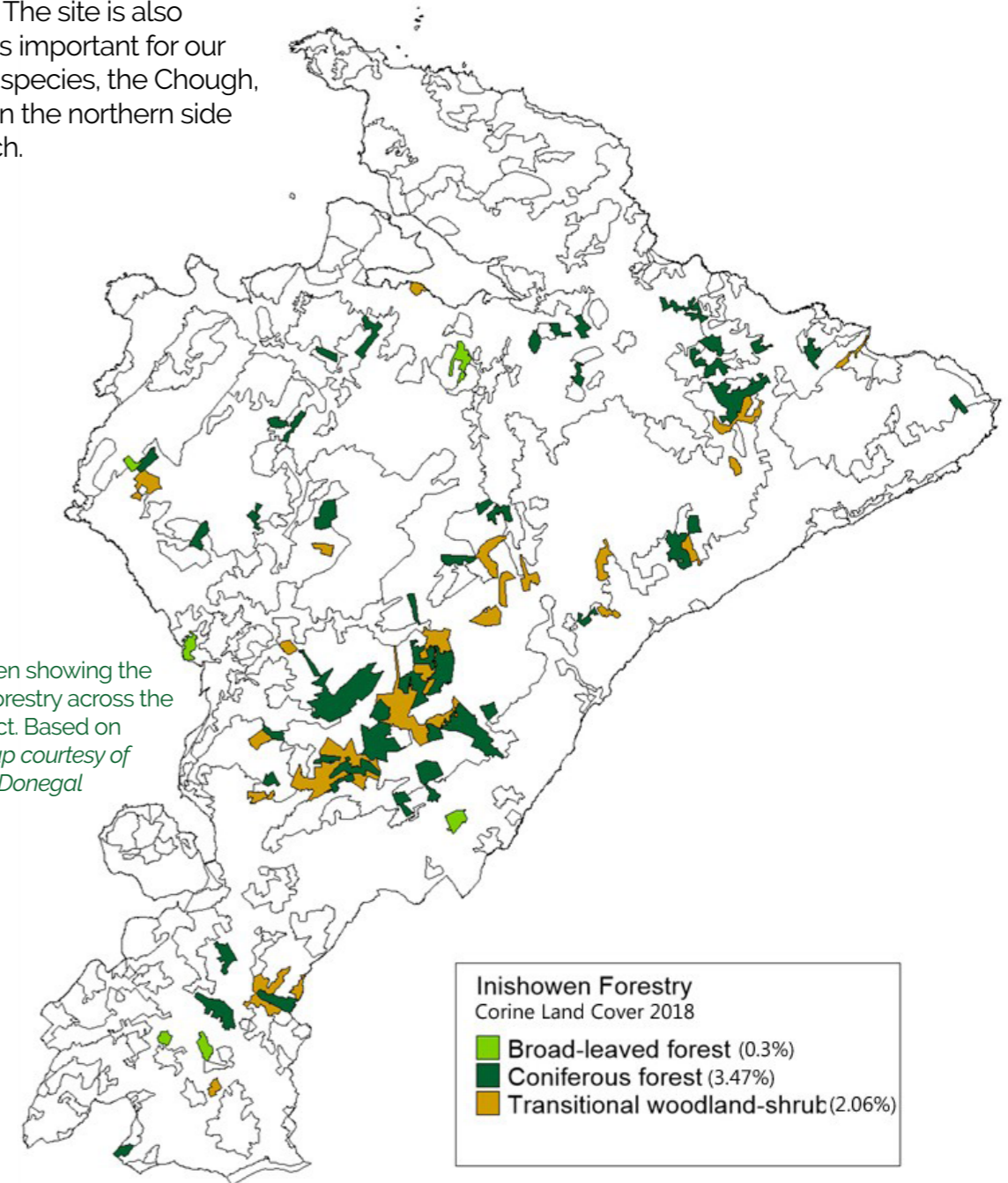


Figure 2.3: Map of Inishowen showing the distribution of forestry across the Municipal District. Based on Corine 2018. Map courtesy of D. McDonough, Donegal County Council.

Stretching south and south east of the town are extensive blanket bog and heath habitats with their associated specialist species and significant carbon sequestering and flood prevention potential. These habitats make up a significant proportion of the large and diverse Inishowen peninsula's central area. The ecosystem service potential of these habitats is not to be underestimated and is an important natural resource.

Directly north, west and south/southwest are a range of mixed use farmland, with associated hedgerows and biodiversity. In these areas of managed land, a number of farm plans are currently actively supporting a range of birds including corncrake, wintering barnacle geese and breeding lapwing (NPWS, pers. comm.). These plans, while targeted at specific bird species, tend to support a myriad of smaller but equally important biodiversity. They also demonstrate a desire by local land managers to play their part in enhancing Inishowen's biodiversity and crucially, demonstrate how farming and biodiversity enhancement can go hand in hand with the correct encouragement, knowledge and financial support.

Directly west of the town lies Carndonagh Woods, an area of semi- natural woodland that has existed here for many years. This area is a proposed Natural Heritage Area and hosts some of Ireland's oldest habitats. Very few towns in Ireland can boast such a rich, natural and ancient habitat on their doorstep.

An interesting article on the Carndonagh Heritage website on Carndonagh Woods (<https://carndonaghheritage.com/2020/08/24/cnoc-na-cille-daire/>) quotes from the diaries of John Norris Thompson in 1884 who stated that the area was 'deficient' in trees as Carn Woods was cut down in the early 1800s. The existing woodland is the regrowth of this ancient stand of trees.

2.4 The Key themes of the Plan

Carndonagh town is nestled within a rich and diverse range of habitats (Figure 2.2). Two rivers flow south to north through the town, the Glennagannon and the Donagh rivers. These rivers and their associated catchments start in the upland bogs and flow through farmland, developed land and the town itself before flowing once more through farmland and draining into Trawbreaga Bay. They act as corridors, for plants and animals along their banks and for aquatic diversity in their waters. They have the ability to both enrich the biodiversity and to carry threats, such as pollution and invasive species.

2.4.1 Corridors

Corridors are very much central to the actions of the biodiversity plan. The rivers, hedgerows and treelines create corridors linking areas and this is particularly important for Carndonagh's richest habitat, Carn Woods. So much of Ireland's biodiversity was once associated with woodland, many species having adapted to our presence and manipulation of the land. With this in mind, creating corridors and connectivity within the town is the central theme within the plan.



Carndonagh Woods

2.4.2 Woodland

The argument for more native trees is well documented. Recorded tree cover is low in Inishowen at approximately 5.84% (see Figure 2.3). Trees support a wide range of biodiversity as well as cleaning air, capturing carbon, providing shade and shelter, enhancing flood control by filtering, cleaning and slowing water. Carndonagh Woods is examined as a starting point for the plan, with the Moss Road housing estates directly beside them acting as the first extending point from the woods linking to the town. With gaps being continuously identified and appropriate planting put in place, Carndonagh's biodiversity could be greatly enhanced, simply by building on existing natural areas flowing from a west to east direction and from there, permeating through the town, gardens, amenity spaces and beyond to the surrounding farms. This enhancement of sheer volume and diversity would eventually connect in all directions, joining existing habitats and current projects and efforts.

2.4.3 Rivers

Using the rivers as natural corridors would continue this theme and interconnect these tree-lines and hedgerows with two intersecting riparian (riverside) corridors stretching from the uplands to the south/southeast, stretching north as they drain into the Atlantic.

2.4.4 Pollinator patches

Another element of this theme looks at creating and adding to existing pollinator friendly areas. The success of the All-Ireland Pollinator Plan shows both the attractiveness and appeal of communities working to protect and enhance pollinator friendly habitats. It also highlighted to the public the importance of our pollinating insects for the maintenance of food production as well as the existence of so much of our plant diversity. As many species of bumblebee fly, on average, not much more than 500 metres while foraging for food, the importance of having many, varied pollinator plant patches cannot be underestimated. Linking many, varied, small and manageable pollinator patches not only protects and enhances the insect population but bolsters many other plant and animal species. These actions are often as simple as leaving small areas alone to allow nature to thrive, making these actions, quite often, easy and affordable.

2.4.5 Engagement

None of these actions can hope for success if the final element is ignored. Like so many projects, the engagement and informing of the local community is crucial. Even the use of language like biodiversity, pollinators and habitat enhancement or creation can be enough of a barrier to disengage the public. However, each of the studied areas has the opportunity to engage and inform the public in a variety of ways. By using the correct signage, explanations and information, not only can the community be informed on the roles that biodiversity enhancement plays in helping to avert the current biodiversity crisis but can also be enthused enough to engage directly, even if this engagement is as simple as a potted pollinator plant in their garden. For each and every action delivered, engagement to inform and educate should be considered.

Wood Anemone



3.0 Audited Areas and Action Plans

Six areas (Figure 3.1.1) were chosen for audit by the ECO Carn steering committee. Each site was chosen for a specific reason and to represent specific types of areas.

Eighteen habitats (Table 3.1.1) were identified and classified under the Irish classification system (Fossitt, 2000). Actions contained within each of the six areas could be replicated in any part of the town and surrounding areas - from river to park, built estate, business properties or garden to community grounds. Many of the areas looked at and suggested are under private ownership - all actions would require the full consent and support of landowners. No action can commence without prior consultation where relevant with landowners or community groups.

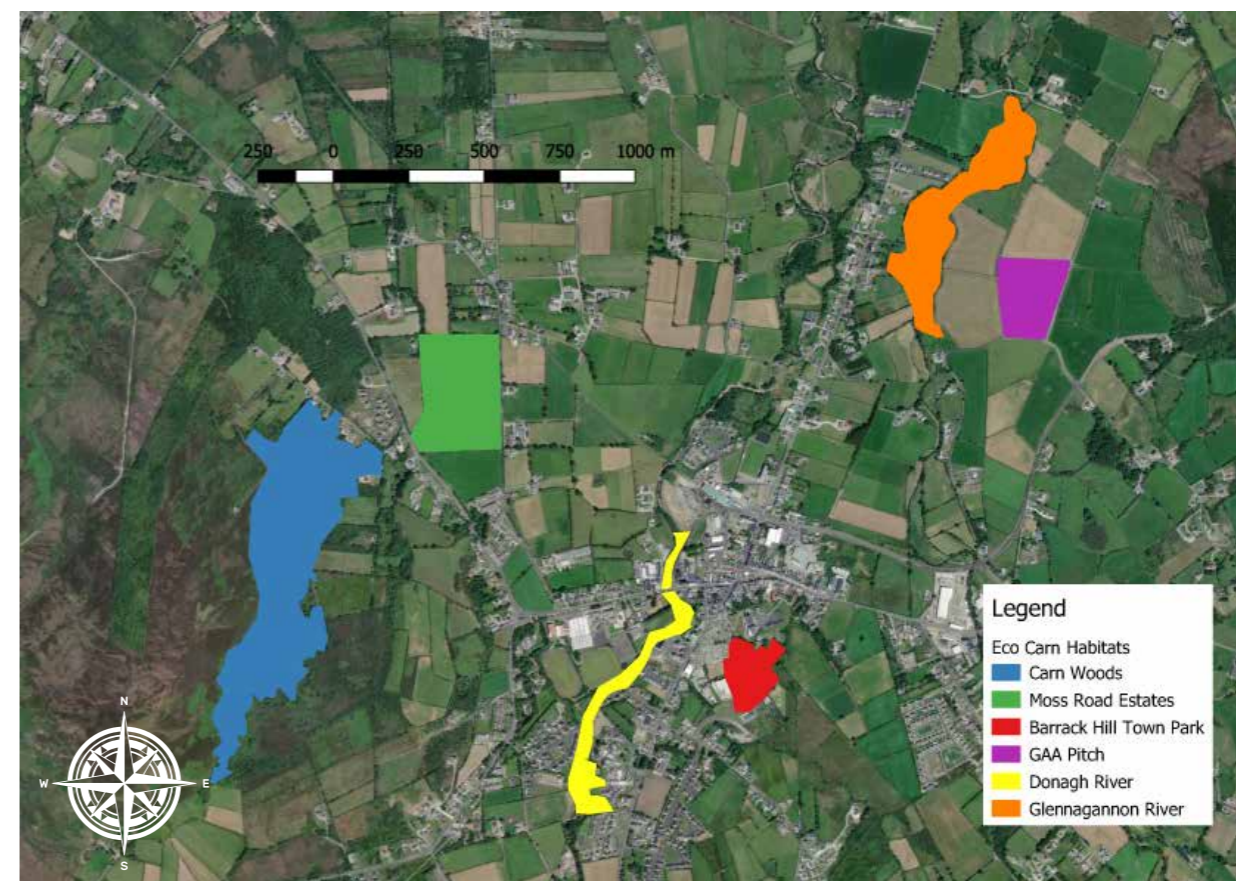


Figure 3.1.1: Map of Carrdonagh showing the location of the six audited areas and the extent of the study area.

All habitats identified at the 6 areas in Carndonagh

Area	Grid ref	Area code
Carndonagh Woods	C 45564 45314	1
Moss Road estates	C 46120 45650	2
Barrack Hill	C 47057 44764	3
Carndonagh GAA Pitch	C 48000 46073	4
Donagh River	C 46497 44539	5
Glennagannon River	C 47788 46469	6
Habitat	Code	Areas they occur
Depositing lowland river	FW2	5 - 6
Amenity grassland (improved)	GA2	2 - 3 - 4
Dry meadows and grassy verges	GS2	3 - 4
Wet grassland	GS4	5 - 6
Oak-Birch-Holly woodland	WN1	1
Oak-Ash-Hazel woodland	WN2	1
Riparian woodland	WN5	5 - 6
Bog woodland	WN7	1
Scrub	WS1	5
Immature woodland	WS2	1 - 3
Ornamental/non-native shrub	WS3	2 - 3 - 4
Hedgerows	WL1	3 - 4
Treeline	WL2	2 - 4 - 5 - 6
Recolonising bare ground	ED3	4 - 5
Flowerbeds and borders	BC4	2 - 3
Stone walls	BL1	3 - 5
Earth banks	BL2	4
Buildings and artificial surfaces	BL3	2 - 3 - 4

Table 3.1.1:
A total of 18 habitats identified in the Carndonagh sites (after Fossitt, 2000)

3.1 Summary of Audited Areas

Audits of the six chosen sites were carried out by the ecologist between March 2020 and May 2021. The Fossitt's protocol (Fossitt, 2000) was used to classify the habitat in each area and mapping was carried out using Avenza Maps in the field and QGIS for reporting. All species recorded are listed on the species list for each site in Appendix 1.

Area 1 - Carndonagh Woods

Carndonagh Woods, all of which is privately owned, is a rich area of natural and potentially ancient plants and animals, acting as a refuge for so much nature as well as a starting point for spreading diversity and a seed bank for native plants. Adequate protection should be sought by re-examining the area to increase its legal protection to a Special Area of Conservation (SAC) designation. Expanding the existing habitat through schemes such as the Native Woodland Scheme, would greatly increase the value of this area as prime habitat. Again, this should be done in consultation with landowners.

Area 2 - Moss Road Estates

Moss Road estates are both typical and unique. Typically housing estates in Ireland have green amenity areas. Many of the gardens are planted with small shrubs, trees and flowers. Their uniqueness are, in part, because of their proximity to Carndonagh Woods and also having significant natural planting dividing the two. This makes these estates an ideal starting point for extending elements of the natural woodland to the west as well as potentially providing a model for all local estates to follow by creating a multitude of miniature refuges in the gardens and green areas for pollinating insects in an affordable and easily managed way.

Area 3 - Barrack Hill

Barrack Hill, with its commanding views and central location, is a recently developed town park and is an excellent example of a public area that both caters for the community's needs for a green space as well as providing room for biodiversity. The seeds for the biodiversity element are already well sown through the vigour and enthusiasm of the existing community groups, in particular Barrack Hill Community Gardens, enhancing the park, both aesthetically and naturally. Their collaboration with their local county council is reflected in their recent accolade of a Green Flag Award for parks and green spaces. This relationship between local governance and community groups is essential for our biodiversity to be protected and enhanced. The actions within the park section and its immediate environs can be replicated in any publicly owned green space where both council and community can work together. The immediate surroundings from the boxing club area to the church grounds and other green areas have huge potential to become biodiversity hotspots.

Area 4 - Carndonagh GAA Pitch

Carndonagh GAA pitch, located a little outside the town shows the ambition of a different type of community group. Nestled within farmed land and river, just to the north of the town, the Carndonagh GAA pitch shows how biodiversity refuges and sports amenities can be married in a relationship that is positive for both and reflective of future collaborations. Concentrating on edges, verges and wild areas, this amenity already supports considerable biodiversity and has the potential for further natural enhancement. The grounds provide an ideal stop-off point for nature, creating attractive natural surroundings and helping provide shelter for the sports grounds. As well as being replicable on any other similar type of grounds, the actions within this section of the plan can act as a valuable educational process for a significant cross section of society. They can also allow Carndonagh GAA Club to become a leader in biodiversity management with potential to influence far and wide through such a large national organisation. Work by the club to promote biodiversity has already kicked off. Their plans to continue making positive changes reflect the GAA principles of respect and community, respect for each other and for the land, a community of individuals linked to their environment, as outlined in the Green Clubs Programme. Carn GAA Club are also considering a number of interrelated 'climate action' initiatives including biodiversity. A lot of this is in early stage planning but likely to include upgrading floodlights to low emission LED lights; potential for adding renewable energy sources including solar and heat pumps; potential constructed wetlands; potential for rainwater harvesting.



Figure 3.1.2:
Aengus Kennedy surveying the GAA pitch

Area 5 & 6 - Donagh and Glennagannon Rivers

The Donagh and Glennagannon Rivers, flowing through the heart and edges of the town, already act as significant natural corridors. With strategic protection and in some places, enhancement of existing riparian, or riverside habitats, these corridors can be improved further. They could also demonstrate the potential for natural flood control projects and river restoration - some of this work has already been delivered on the Glennagannon River by the Inishowen Rivers Trust. By opening walkways where appropriate, they can also act as natural amenities for the local community and visitors, showcasing some of the area's natural beauty and diversity. With correct signage and communication, they can express not only Carndonagh's wonderful biodiversity, but the towns ambitions in becoming a future leader in nature enhancement.

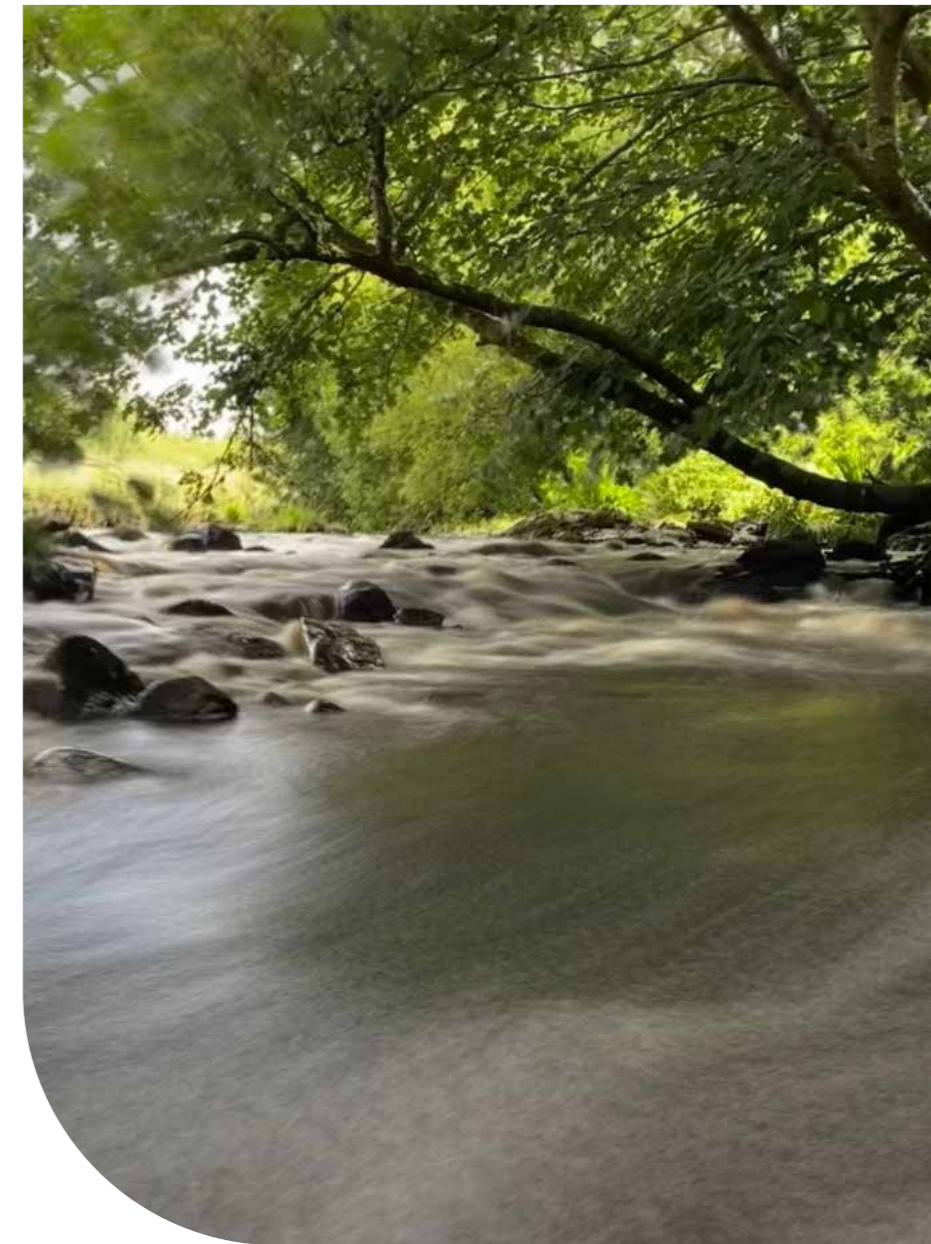


Figure 3.1.3:
Donagh River

3.2 Area 1 - Carndonagh Woods

Area 1:	Carndonagh Woods	GPS:	C 45564 45314
Land Use:	Native forest	No. Habitats	3
NPWS Site Code	001 098	No. Potential Actions	8

Overview

Cnoc Na Coille Daire, or Carndonagh Woods, is the gem amongst the many rich and diverse nature areas around Carndonagh. It has the oldest and most untouched habitats out of all the areas surveyed for this plan. The woods are arguably the closest to what Ireland's biodiversity would revert back to, if left free from human interference and are most certainly a window into what so much of the island of Ireland once looked like, before humans started to have large scale influence on the country's biodiversity. The woods are a refuge for many native plants and animals that are not found so readily in other parts of Carndonagh. They also lend themselves as a natural seed bank for sourcing native plants and a starting point for much of the aspirations contained within this biodiversity action plan.

The presence of the woods is indicated on maps from as far back as the 1830s and again in the late 1890s, with a specific woodland survey conducted in 1972 and as part of the national survey of native woodlands, 2003-2008. It is currently a proposed Natural Heritage Area. These types of woodlands are often referred to semi-natural woodlands. The reason for this is, with such a long history of human presence in Ireland, stretching back to possibly 12,000 years ago, even areas of native woodland like Carndonagh Woods will most likely have been manipulated, cleared etc. at some stage in their long history (see Section 2.3).

Carndonagh Woods has two main habitats within, Oak-Birch-Holly woodland which is classified as an Annex I habitat (91A0) and a smaller area of Oak-Ash-Hazel woodland which is not an annexed habitat but nonetheless holds great nature value as it has a very limited extent throughout Ireland.

These habitats were identified in the survey of 2003-2008 as mentioned above. On the eastern, lower side of the woods is an area more recently colonised by birch, with a wetter element within, indicated by the presence and frequency of willow species. To the



Figure 3.2.1: Native bluebells within the Annex I habitat

west of the woods, where the forest transitions into heath and bog habitats as the hill rises, an area of birch mixed with rowan borders the woods. Both of these areas show the forest's ability to regenerate and spread if conditions allow.

The regeneration mentioned above by birch spreading on both fringes of the woods along with the large numbers of young oak, hazel and holly saplings, where over grazing is not an issue, show potential for the woods to be used as a seed bank for native species. Indications laid out so far point towards the trees having a lineage that stretches back to ancient times. This would make the acorns produced in Carndonagh Woods all the more valuable. Other species of interest were birds of prey such as buzzard and sparrow hawk, migratory warblers such as willow warblers, blackcaps and chiffchaffs, breeding calls from tree creepers and jays, the spreaders of oak seed, such a valuable bird for the expansion of oak forests.



Figure 3.2.2: Overgrazing evident on the left hand side of the picture. The right side has a rich understorey and regenerating trees



Figure 3.2.3: Cow-wheat, a hemiparasitic plant. It takes nutrients from surrounding plants, suppressing grass growth.

The actions listed below are shorter than most of the other areas studied for the plan. As this habitat is such a key part of natural Irish biodiversity, most actions will focus on the protection and if possible, the expansion of the woods. To be kept in mind is that this area forms a natural refuge for the area's biodiversity and as mentioned already, a potential seed bank for native plants, if managed in a sustainable way.

The first and foremost action for Carndonagh Woods is to protect what is already there. Two threats were identified in the survey. One is the impact that both sheep and deer are having, particularly in one area of the woods. Fencing, while expensive and difficult to maintain, has in certain areas deteriorated to allow deer and sheep access from the hill above. This, in turn, results in understorey grazing that is unsustainable. Grazing directly affects the flora and indirectly the fauna



Figure 3.2.4:
The view from above - bog woodland transitioning into blanket bog habitat with Carndonagh town in the distance

potential of the site while also diminishing the chance of regeneration of the woods themselves.

The second threat, and this only occurred during the duration of the survey period, is the impact of human trampling. Evidence of socialising and exploration have become apparent over the last short while, leading to a potential significant increase in walkers exploring the area. As people started to explore their local areas during the pandemic, paths are worn over time which encourages more people to explore, which leads to more erosion, and a long term negative impact on the site. As the habitat is both precious and fragile, any increased human traffic should be discouraged.

The actions, as laid out in Table 3.2.2, start with approaching the landowners. The woods are owned by multiple landowners, each owning a strip. If landowners were in agreement, ECO Carn could approach the NPWS and ask for a fresh review of the site by their ecologist with an eye to designating the site as a Special Area of Conservation (SAC). If this designation was to occur, it would not only afford the site a much higher level of legal protection but would also open the way to accessing larger payments through the current Native Woodland Scheme. This in turn, would help to address the expensive requirement of putting in place adequate fencing. Leading on from this designation, or, if this route was not possible, the Native Woodland Scheme would offer an option for landowners on the fringes of the site to access reasonably generous grants to plant native trees.

The site currently shows a natural tendency to expand in its current state. With some management and appropriate planting, some of the surrounding buffer zone e.g., the land between the site and the local farmed areas, could be planted in accordance with Native Woodland Scheme framework. Scenario 1 for Oak-Birch-Holly woodlands would be most suitable for a large part of this buffer zone. This would involve planting native species such as Scots pine and more birch, adding to the natural regeneration that is occurring both above and below the Annex I habitat. More details may be found in Appendix 4.

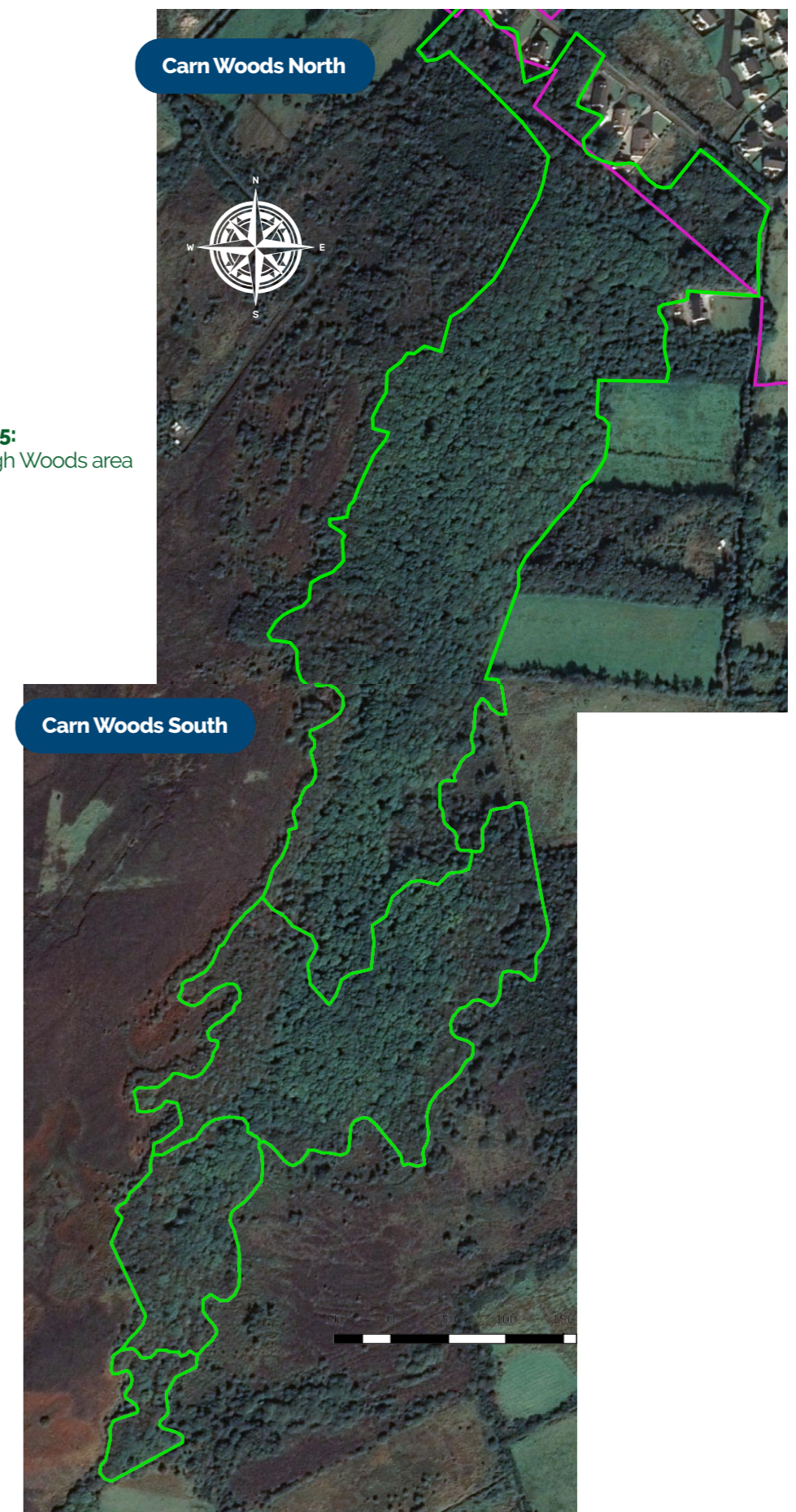


Figure 3.2.5:
Carndonagh Woods area surveyed



Figure 3.2.6:
Carndonagh Woods
habitat map

Carn Woods habitats	
Habitat	Code
Oak-Birch- Holly	WN1
Oak-Ash- Hazel	WN2
Bog Woodland	WN7

Carn Woods habitats			
Habitat	Code	Notes	Action reference
Oak-Birch -Holly woodland	WN1	Annex I habitat	A, B, C, D
Oak-Ash-Hazel	WN2	Subjected to much grazing	H
Bog Woodland	WN7	Naturally trying to spread	E, F

Table 3.2.1:
Carndonagh Woods habitats

Actions - Carndonagh Woods		Table 3.2.2: Carndonagh Woods actions	
Habitat code	Action	Action code	Timeline in years
WN1	Contact landowners and communicate BAP	A	1
WN1	With landowners approval, approach NPWS to have the site assessed for SAC status	B	1
WN1	At mass rock, place signage explaining the fragile nature of the habitat and discouraging tramping/exploring in the woods beyond the mass rock.	C	1-2
WN1	Collect native oak, birch, hazel, bluebell and cow wheat seed in a sustainable manner. See Appendix 3	D	Ongoing
WN7	With landowners' approval, ECO Carn to assist in the funding of appropriate fencing to preserve site	E	1-2
WN7	With landowners' approval, apply through Native Woodland Scheme for Scenario 1 planting on upland section of site	F	2 onwards
WS2	Identify landowners and approach with proposal to apply for Native Woodland Scheme as far east as possible/viable	G	1
WN2	Identify landowners and approach with proposal to apply for Native Woodland Scheme as far west as possible/viable	H	1-2

3.3 Area 2 - Moss Road Estates

Area 2:	Moss Road estates	GPS:	C 46120 45650
Land Use:	Housing, gardens and common spaces	No. Habitats	5
		No. Potential Actions	16

Overview

The Moss Road estates are situated to the northwest of Carndonagh town. The estates surveyed are situated either side of a large private estate which has comprehensive tree cover. The area mapped is adjacent to Carndonagh Woods, a native woodland habitat. There are a large number of houses and gardens, each with their own mix and style of garden planting. Cherry blossom trees are the dominant tree species lining the paths; a large variety of hedging plants constitute the majority of borders. Areas concentrated on for the survey were the open, shared green spaces and the shared border between the estate and the large private property in the middle. These tree covered boundaries provide a rich and diverse strip of cover for invertebrate and bird life in particular. An essential thread throughout the biodiversity action plan is linking up native tree coverage where possible.

The nearby Carn Woods is one of the richest natural wooded habitats in Inishowen, hence the importance of the existing tree and shrub cover in the estates and the huge potential for linking wooded areas throughout the Carndonagh area.

Another interesting feature in the estates is the potential for some of the shared areas to be converted to wildflower meadows. Already in the green shared areas there are quite a few native flowering species hosted. This hints at the possibility of the green areas acting as large seed banks for native flowering species. In addition, each garden has the potential to act as a refuge for pollinating insects by planting some pollinator friendly plants - a small number of flowers or shrubs in each garden would collectively come together as a huge amount of pollinator cover. Just south of the estates are some established native hedgerows which can act as corridors towards the nearby school grounds and the rest of the town.



Figure 3.3.1: Cuckoo flower emerging in GA2 habitat

In summary, the site is an exciting start to linking other woodland areas and future wooded areas in Carndonagh - the theme that runs through the plan. These existing tree and shrub areas could be enhanced without huge effort or expense. They also act as a refuge for birds, bats and invertebrates which can also be easily enhanced. The collective gardens and green estates can provide pollinator areas which can also add to the richness of Carndonagh.

Figure 3.3.2: Moss Road Estates surveyed, not including central estate





Figure 3.3.3:
Moss Road Estates
habitat map

Moss Road Estates habitats	
Habitat	Code
Buildings and services AND flower beds and borders	BL3 + BC4
Amenity grassland	GA2
Treeline	WL2
Ornamental/ non-native shrubs	WS3

Moss Road Estate habitats			
Habitat	Code	Notes	Action reference
Amenity grasslands	GA2	Very wet - potential for wet grassland species	E F G
Ornamental/non-native shrub	WS3	Trees mostly non-native cherry	M N
Treeline	WL2	Morphs into mature cover in areas	H I J K L
Buildings and artificial surfaces	BL3	Buildings and parking	O P
Flowerbeds and borders	BC4	Private gardens	A B C D

Table 3.3.1:
Moss Road Estates habitats

Habitat notes:

Amenity Grassland - GA2 These areas are quite wet, if allowed to grow would, in time be classified as wet grassland. They are a natural seed bank, hence lending themselves, where possible, to being allowed to grow and managed for pollinator plants.

Ornamental/non-native shrub - WS3 These flower beds and ornamental trees are complemented by the lines of cherry blossom in the estates. They can be quite a significant pollen source for insects.

Treeline - WL2 These treelines merge into larger mature tree cover in the central private property. They can provide valuable linkage between Carr Woods and local hedgerows. In the areas of shared land, they could be easily and affordably enhanced with understorey and field layer planting, increasing their ecological value. As some of this area merged into private land, more continuous cover has remained under this classification.

Buildings - BL3+ Flower beds - BC4 The garden spaces, which take up more than 50% of the grey area of the map, have great potential for having a small amount of pollinator planting in each plot. The right type of bush or shrub in each garden would give significant resources to pollinating insects and other biodiversity.

By adding some native plant (possibly one small plant per garden as a starting point), a significant pollinator patch would be created. Leaving strips of the existing grasslands unmown/ uncut would expose the dormant native seeds that lie within. These could be small square metre patches to start, morphing into longer continuous strips that don't interfere with their current social uses. Coupled with enhancing the existing treeline areas, these estates, in quite a short time, could become a model of how local housing estates can be managed for wildlife while still keeping all the practical elements in place such as parking, places for congregation and sports etc.

Actions - Moss Road Estates

Table 3.3.2: Moss Road Estates actions

Habitat code	Action	Action code	Timeline in years
BC4	Add appropriate native wildflower species	A	1-2
BC4	Late mowing regime	B	Ongoing
BC4	Start point for butterfly transect survey	C	2 onwards
BC4	Install and maintain bird feeders	D	Ongoing
GA2	Designate areas for managing for pollinators	E	1-2
GA2	Maintain with strimming only	F	Ongoing
GA2	Add yellow rattle and appropriate wetland species	G	1-3
WL2	Add native plants to understory	H	1-5
WL2	Cut only for health and safety reasons	I	Ongoing
WL2	Add native trees where gaps allow	J	1-5
WL2	Install bird boxes	K	1
WL2	Install bat boxes	L	1-2
WS3	Add pollinator plants where possible	M	1-5
WS3	Over time, replace any cherry trees with native bird cherry	N	Ongoing
BL3	Fit birdboxes	O	1
BL3	Fit house martin nest boxes	P	1

3.4 Area 3 - Barrack Hill Town Park

Area 3:	Barrack Hill area	GPS:	C 47057 44764
Land Use:	Amenity parkland and surrounding green spaces	No. Habitats	10
		No. Potential Actions	24

Overview

Barrack Hill Town Park is located in the heart of Carrdonagh and commands an elevated position, overlooking the town and surrounds. Officially opened in 2015, the park comprises of green spaces, wild areas, playgrounds, cycle and walk ways, public art and crucially for the maintenance and enhancement of biodiversity, an active community gardens. With a busy community group engaging with various forms of planting and continued support from Donegal County Council, the park in 2020, was awarded the first of Donegal's Green Flags for parks. This award reflects the biodiversity friendly management of the park, the cooperation between local authorities and community groups and crucially, the ambition of those involved to manage the park for nature as well as for the broader community.



Figure 3.4.1: Dandelion spp. thriving in GS2 habitat

One of the most interesting aspects from a biodiversity point of view of Barrack Hill is its location. Located in such a central position in amongst the urban development and having a slightly higher elevation than a lot of the surrounding area, makes the park and its surrounding green spaces ideal stepping stones in continuing the theme of connecting and enhancing the various nature corridors that already exist. Immediately north of the park is an area of woodland that was described as rough pasture and cropped rock in the surveys conducted around the 1830s. This densely wooded area contains a rich mix of native and non-native broadleaf trees,



Figure 3.4.2: One of many small tortoiseshell butterflies enjoying the park's pollinator plants

with interesting species such as Wych Elm and old stone walls which act as a refuge for many birds and associated biodiversity. Just south of the park lies areas of great potential for wild flower meadows and small woodlands, both dry and damp. And immediately south of these runs Ballywilly Brook, which flows into the Donagh River. Ballywilly Brook acts as a natural corridor for both native biodiversity and unfortunately, for invasive species. To the east are a series of hedgerows that could act as linkages between the park, other existing hedgerow habitat and some new nature friendly farming projects.

The park itself consists of some native hedging, some bee friendly hedging and some mixed grass strips, all of which support biodiversity. There are some areas of potential wild meadows and scrub habitat on the steep slopes that could be developed to improve the parks value as a linkage point for Carndonagh's biodiversity. The wildflower and grassland strip on the east border of the park already provides lots of room for pollinators and other invertebrates. This strip links well with the old stone walls and other habitats just east of the park boundary and compliments the pollinator friendly managed flower beds. A small area of young native trees on the south end of the park could be managed to provide linkage with the mature small wooded area to the north and

compliment the hawthorn hedgerow which forms the western park boundary. Both this area of young trees and the hawthorn hedge could have native woodland flowers planted in their understoreys. The steep corner in the south west of the park lends itself well to managing for pollinators, as does the steep grass bank in the north west corner. Bird and bat boxes along with maintained bird feeders would add to the public's experiences in the park, as would appropriate signage such as pollinator plan signs in areas where pollinating plants grow and the likes of old slate or wood signs for the tree species in the park. These simple explanations can add an educational aspect to the park as well as help negate any queries that might come while plants are being changed or added. If these areas were enhanced by following the actions below as well as the excellent flowerbed management that exists, Barrack Hill could continue to be a refuge and linkage point for biodiversity at the highest point of Carndonagh.



Figure 3.4.3: The invasive species Himalayan balsam which is thriving on the banks of the Ballywilly Brook showing the shallow root system.



Figure 3.4.4: Aerial view of Barrack Hill Town Park

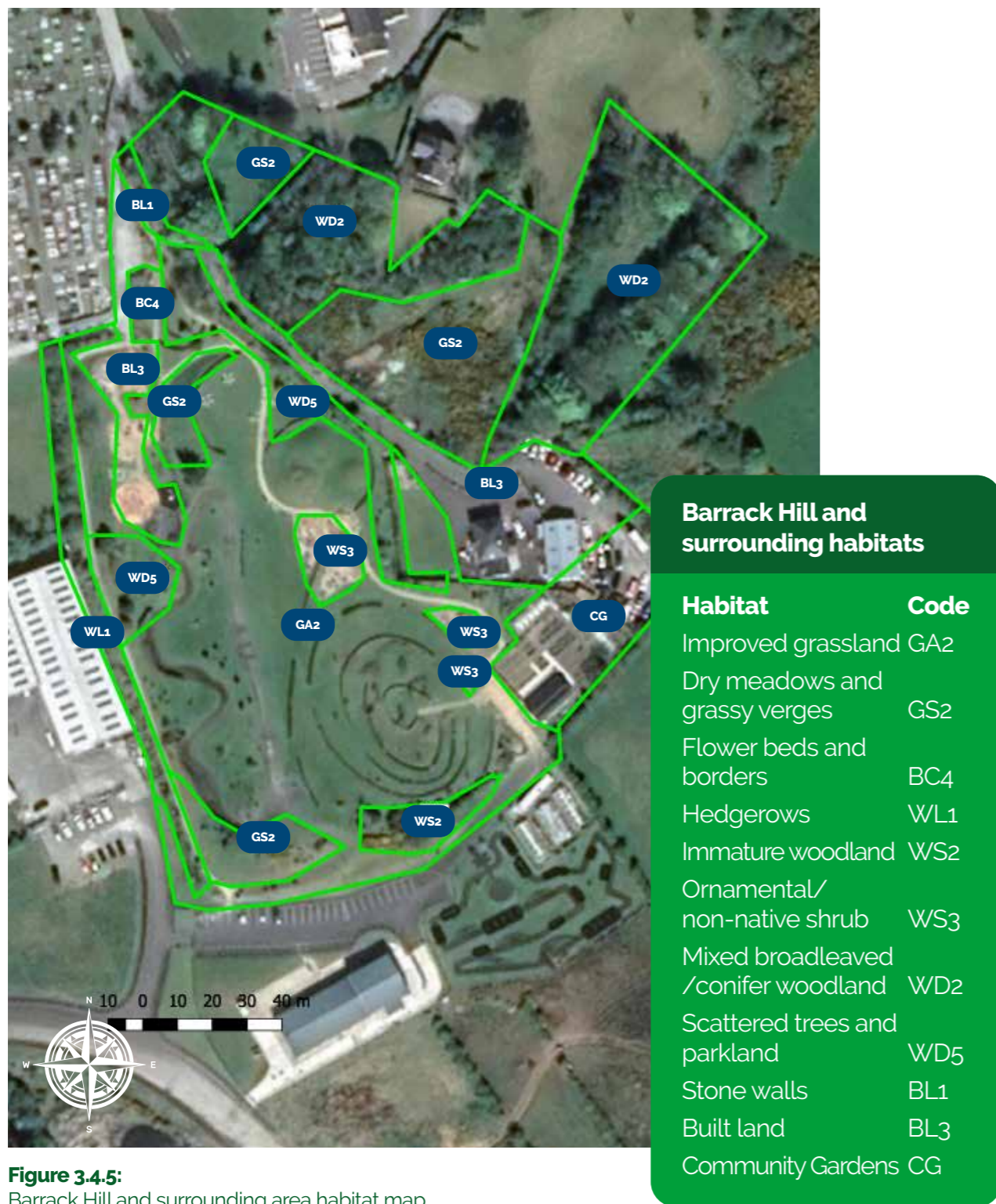


Figure 3.4.5: Barrack Hill and surrounding area habitat map

Barrack Hill and surrounding habitats			
Habitat	Code	Notes	Action reference
Improved grassland	GA2	Within park boundaries, boxing club and surrounding land	A, W
Dry meadows and grassy verges	GS2	On east border of park and also south of church. With correct maintenance could be improved	B - J, W
Flower beds and borders	BC4	Wide diversity of pollinator friendly plants	W
Hedgerows	WL1	Mostly Hawthorn	M N O W
Immature woodland	WS2	Mainly native young trees	P Q W
Ornamental/non-native shrub	WS3	Mostly <i>Escallonia</i>	W
Mixed broadleaved/conifer woodland	WD2	Area between church and park	W
Scattered trees and parkland	WD5	Mix of native and non-native trees within park	R S W
Stone walls	BL1	Old, possibly very old wall remnant, between church and park	K L W
Buildings and artificial surfaces	BL3	Buildings and parking	T U V W

Table 3.4.1: Barrack Hill and surrounding area habitats

Actions - Barrack Hill Area			
Habitat code	Action	Action code	Timeline in years
GA2	Add clover spp.	A	1-5
GS2	Grass beside boxing club - plant willow, alder and aspen	B	Ongoing
GS2	East border - maintain wildflowers and plant more native species	C	Ongoing
GS2	Northern steep slope - plant yellow rattle	D	1-2
GS2	Northern steep slope - plant native wildflowers amongst existing plants once yellow rattle has taken hold	E	3-5
GS2	At northern park entrance - start point for butterfly transect survey	F	2 onwards
GS2	Southern steep slope - plant native rowan and whitebeam - plant native heathers as an understorey	G	2 onwards
GS2	Church areas - collect wildflower seed for future planting	H	Ongoing
GS2	Church area south - Remove rubble - prepare for maintaining as wildflower meadow	I	Year 1
GS2	Church areas - maintain as wildflower meadow - strimming only - remove strimmed cuttings	J	Ongoing
BL1	Survey for plant diversity annually - bring attention to its value for biodiversity	K	Ongoing
BL1	Bring attention to public on value of stone walls for biodiversity	L	Ongoing
WL1	Add native hedgerow species	M	1-5
WL1	Add native plants to understorey	N	1-5
WL1	Cut every three years maximum	O	Ongoing
WS2	Thin trees appropriately	P	1-5
WS2	Add native woodland flower species	Q	1-5
WD5	Install bird boxes	R	1-2
WD5	Install bat boxes	S	1-2
BL3	Install and maintain bird feeders	T	Ongoing
BL3	Install birdboxes	U	1-2
BL3	Install house martin nest boxes	V	1-2
All areas	Put in place signage to explain to public the actions e.g. pollinator signs, tree names etc.	W	1-2
WD5	Install pond in wetter areas to attract aquatic species such as frogs, dragonflies etc	X	1

Table 3.4.2: Barrack Hill and surrounding area actions

3.5 Area 4 - Carndonagh GAA Pitch

Area 4:	GAA Pitch	GPS:	C 48000 46073
Land Use:	Amenity sports ground	No. Habitats	8
		No. Potential Actions	21

Overview

The GAA pitch is situated just north of Carndonagh town, close to the Glennagannon River. The pitches are surrounded on all sides by farmland. This allows the site to have an important opportunity to be a link between the Glennagannon River corridor, the existing farmland hedgerows and to provide a place of refuge for a large number of species.

Despite the vast majority of space within the complex being given over for the primary purpose - playing pitches and associated buildings/hard ground, there is a rich mixture of habitats. This mix, reflected in Table 3.5.1, already supports a variety of biological diversity and is an excellent starting place for enhancing these habitats. There are two types of hedgerow, one native (mostly hawthorn) and an *Escallonia* hedge. The native hedge has potential for a large variety of native species to be added to bolster diversity, as does the *Escallonia* hedge. *Escallonia* itself is favoured by pollinating insects. The roadside ditch has a good mix of grasses and flowering plants. The area in the middle on the east side of the site has been recolonised with native wildflowers, this area has great potential for further pollinator friendly species to be added. The compost corner to the northwest also has potential to bolster pollinating species refuge. Native trees have recently been planted along the native hedge in the grass verge, these can be maintained and added to which will provide both shelter to the site in time and further refuge, particularly for bird species. There is also a small patch of native trees planted just south of the carpark, these also deserve maintenance. Lesser redpolls were nesting in the native hedge at the time of the survey, more native trees, appropriate bat and bird boxes and understorey planting will attract more species.

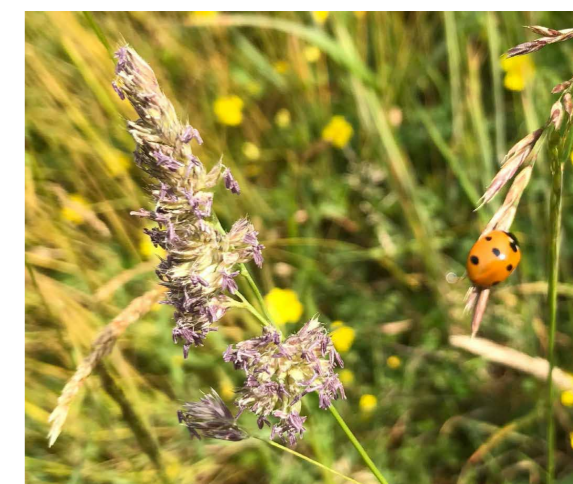


Figure 3.5.1: 7-spot ladybird enjoying BL2 habitat

In summary, the site already serves, essentially, as a stopover and refuelling area for a number of insects and larger animals.

This, without a huge investment, either monetary or in time, can be increased to improve the species diversity, linking with surrounding biodiversity and provide a greater nature experience for club members and participants. Carndonagh GAA club could, by following the actions below, become a national leader in the GAA, showcasing how amenity grounds can also become a nature haven while tapping into natural ecosystem services.



Figure 3.5.2:
Area surveyed at GAA pitch site

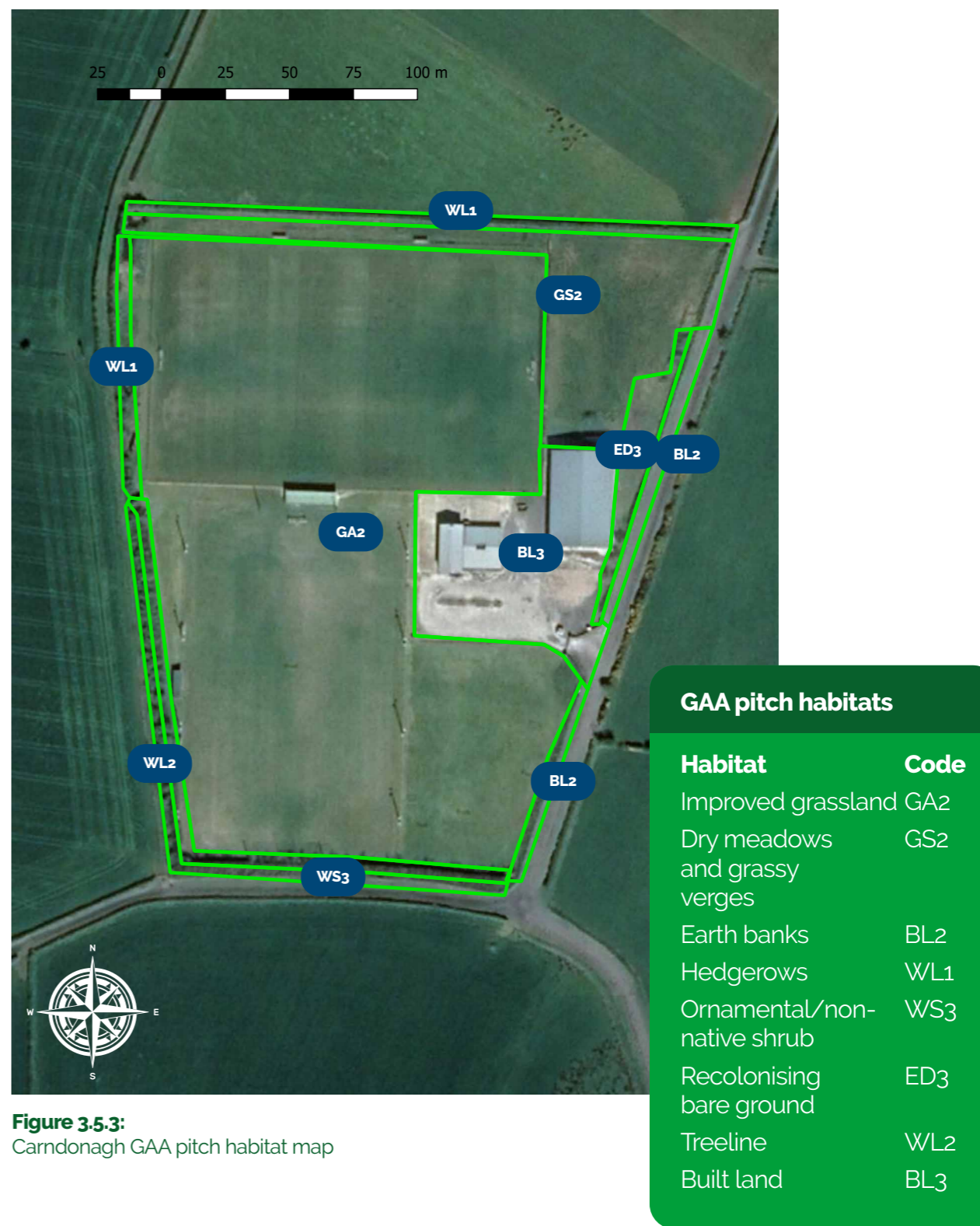


Figure 3.5.3:
Carndonagh GAA pitch habitat map

GAA pitch habitats			
Habitat	Code	Notes	Action reference
Improved grassland	GA2	Pitches and surrounds	
Dry meadows and grassy verges	GS2	Good diversity in herbs	A B C D E
Earth banks	BL2	Good diversity in herbs	F
Hedgerows	WL1	Mostly Hawthorn	G H I
Ornamental/non-native shrub	WS3	Mostly <i>Escallonia</i>	G H I
Recolonising bare ground	ED3	Large mix of native wildflowers	J K
Treeline	WL2	Mostly Italian alder and Common ash	L M N
Buildings and artificial surfaces	BL3	Buildings and parking	O M P Q

Table 3.5.1: Carndonagh GAA site habitats

Actions - GAA Pitch Site			
Habitat code	Action	Action code	Timeline in years
GS2	Add appropriate native wildflower species	A	1-5
GS2	Late mowing regime	B	Ongoing
GS2	Maintain current young native trees	C	Ongoing
GS2	Plant more native trees	D	1-5
GS2	Start point for butterfly transect survey	E	2 onwards
BL2	Maintain with strimming only	F	Ongoing
WL1	Add native hedgerow species	G	1-5
WL1	Add native plants to understorey	H	1-5
WL1	Cut every three years maximum	I	Ongoing
WS3	Add native hedgerow species	G	1-5
WS3	Add native plants to understorey	H	1-5
WS3	Cut every three years maximum	I	Ongoing
ED3	Add pollinator wildflowers to provide close to year round coverage	J	1-3
ED3	Cut, rest and remove material each September	K	Ongoing
WL2	Identify gaps and add birch species	L	1-3
WL2	Install bird boxes	M	1
WL2	Install bat boxes	N	1-2
BL3	Install and maintain bird feeders	O	1
BL3	Fit birdboxes	M	1
BL3	Fit house martin nest boxes	P	1
BL3	Fit bird box cameras for clubhouse viewing	Q	2

Table 3.5.2: Carndonagh GAA pitch site actions

3.6 Area 5 - Donagh River

Area 5:	Donagh River	GPS:	C 46497 44539
Land Use:	River and riparian habitats	No. Habitats	7
		No. Potential Actions	19

Overview

The Donagh River rises high in the Inishowen hills and takes a journey north, flowing through upland bog habitat, cultivated farm land, Carndonagh town and finally into Trawbreaga Bay. There are sporadic and thin patches of riparian, or riverside habitat along its course. The river has been manipulated, drained, straightened and subjected to many forms of artificial channeling over the years. It was one of the many rivers that flooded causing much damage during the rainfall event of August 2017.

Rivers act as vital biodiversity corridors, providing an opportunity for iconic species such as the otter to thrive, even in busy urban settings, if the water quality is sufficient. They host a range of invertebrate life, some of which evolved during the time of the dinosaurs. These insects and other small freshwater creatures are used internationally as a quick way to assess water quality. The type of invertebrate (riverfly) present can indicate high or low pollution levels. Rivers are about more than what's in the water. The banks naturally host what's called riparian habitat. This is composed of trees and understory plants that are tolerant of occasionally flooding. They support a wide range of biodiversity and crucially, act as a link or corridor between different habitats and geographical areas.

All rivers and their associated biodiversity have to deal with whatever society puts in to them. This may sound obvious but often the impacts of this are hidden and out of public consciousness. If a house or other building is in a river catchment - all the rainfall and water runoff in this area eventually ends up in the river - everything that goes down drains, sinks and other water systems has potential to get washed into the river. Any runoff from works on land within a catchment also influence the quality of the river, often negatively, and great care must be taken when working near water. Riparian habitats can act as a filter for these human influences if they have buffer zones along their banks that are of sufficient size and diversity.

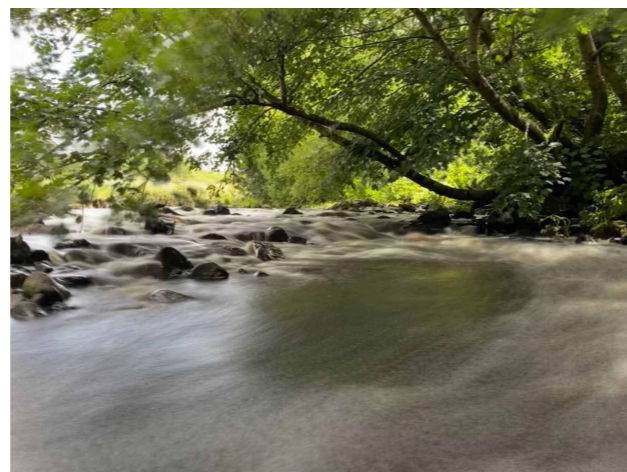


Figure 3.6.1:
Willow spp. overhanging the Donagh River

Rivers naturally flood and humans will often attempt to control these floods. Traditionally hard engineering defences such as concrete walls and culverted streams have been used as solutions to flooding. With our increasing rainfall due to climate change these grey infrastructure solutions may not work as well or could even exacerbate the issue. There is a new way to approach flooding using 'green' engineering, nature-based solutions that are sensitive to the environment and protect the natural functioning of the river.

Keeping in mind that everything we pour into our drains, wear down on our roads, discard in our ditches has the potential to influence our rivers, it is of no great surprise that Donagh River is unfortunately classified as 'at risk', having a poor ecological status in reports issued in 2009 and again in 2015. Pressures identified in the Donagh River catchment area are listed as agricultural, hydromorphological, peat extraction and urban waste water. The Donagh is not alone in this regard, with 47% of Ireland's freshwater systems classified as of 'less than good' status. The latest results from the Environmental Protection Agency, (2019) classify the river quality as poor. These results are from a monitoring station based within the town.

There is, however, some great work being conducted by the local rivers trust, as well as increasing pressure from European legislation. Ireland signed up to the EU Water Framework Directive 2000 which commits the country to achieving good ecological status by the year 2027. A slow but growing understanding is taking hold on ground level, where communities are starting to realise that historic flood plains and reclaimed lands will need to be reconnected to the river as well as more sympathetic management of the uplands, the source of so much of the river's water, needs to be managed if the river quality is to improve and future flood prevention is to have any chance of success.

Approaching this from an education as well as a direct action perspective, the Inishowen Rivers Trust is in a very good position to help improve the river's status throughout the whole catchment, not just the town of Carndonagh.



Figure 3.6.2:
Riparian habitat on the banks of the Donagh River

The area studied within the town presents many exciting opportunities for enhancing biodiversity while engaging with the general public. Invasive species are common throughout the areas studied along the river, from highly invasive plants like Himalayan balsam to slower spreaders such as Montbretia and Fuchsia spp. For any biodiversity projects to have a chance, indeed for any diversity to be able to survive along the river banks, these species will need to be tackled. There are patches of existing riparian habitats, all of these have been subject to some form of human interference, some very recent. These areas could be managed to maintain their diversity, which is reflected in the large species list gathered. There are also opportunities for natural flood prevention and bank restoration to be showcased. This type of flood control will gather pace in the future and is a chance to bring the public on board through practical demonstration and educational engagement. As the main spine flowing through the town, it is also an area that has potential to bring people together to enjoy an area of natural beauty while learning about the benefits of nature and the ecosystems that we rely on. Any future developments, be that path restoration or further projects to open access to nearby heritage sites (Killbride site), must be delivered in a way that is sympathetic to the biodiversity on site while utilising the natural ecosystem services such as water filtration, flood control and carbon capturing.

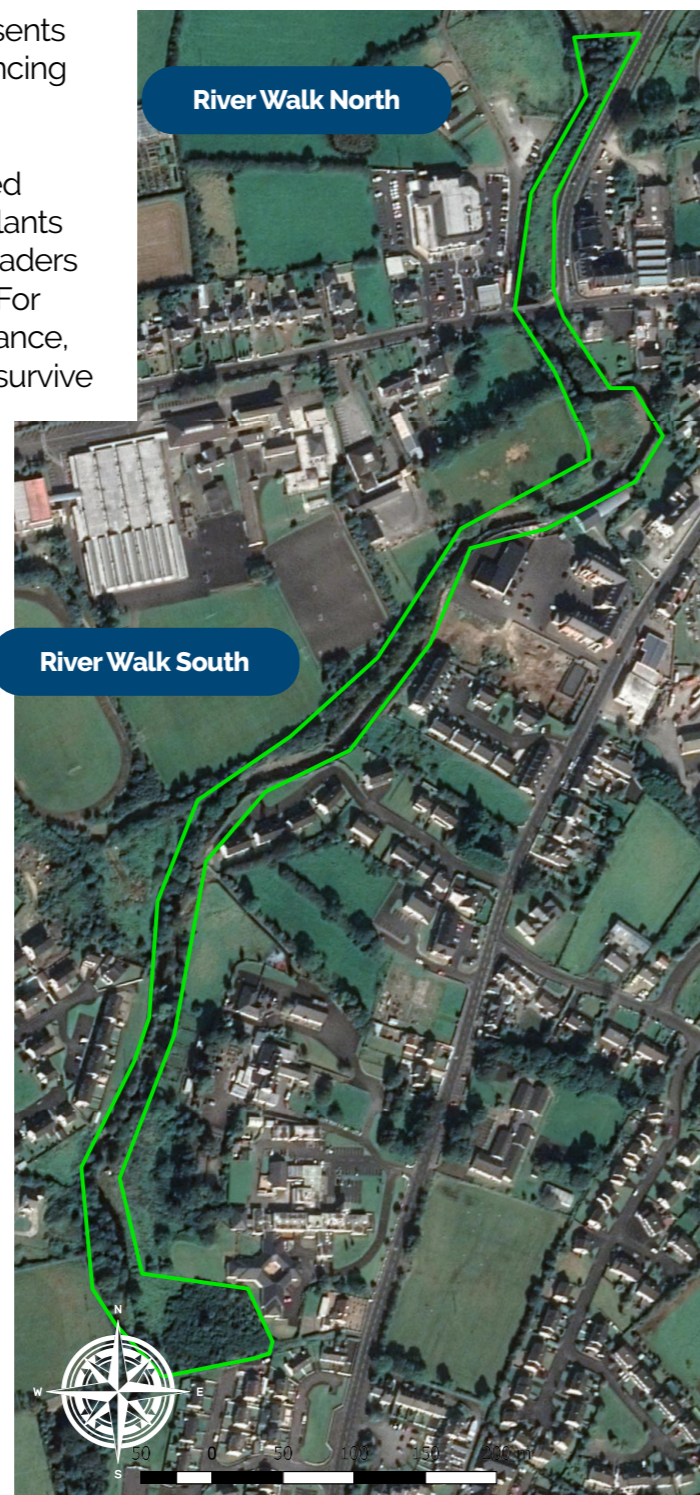


Figure 3.6.3:
Area surveyed on Donagh River



Figure 3.6.4:
Donagh River habitats

Donagh River habitats	
Habitat	Code
Depositing/lowland river	FW2
Riparian woodland	WN5
Scrub	WS1
Treeline	WL2
Wet grassland	GS4
Recolonising bare ground	ED3
Stone walls	BL1

Donagh River habitats			
Habitat	Code	Notes	Action reference
Depositing lowland river	FW2	Donagh River	A B C D E
Riparian woodland	GS2	North habitat has recently been cleared - alder regenerating	F G H I
Scrub	WS1	Impenetrable blackthorn stand	J
Treeline	WL1	Mixed native and non-native	K L M
Wet grassland	GS4	Rich species mix - not linked to Annex I	N O P
Recolonising bare	ED3	Large mix of ground wildflowers with invasives also present	Q R
Stone walls	BL1	Newly placed rock armour with invasives spreading	S T

Table 3.6.1: Donagh River habitats



Figure 3.6.5: Forget-me-not spp. on Donagh riverbank

Actions - Donagh River Site			
Habitat code	Action	Action code	Timeline in years
FW2	Rubbish monitoring and removal	A	Ongoing
FW2	Training courses for water quality testing	B	1-2
FW2	Community water quality testing	C	2-5
FW2	Liaise with local rivers trust or form local catchment group	D	1-2
FW2	Recruit rivers trust to fit appropriate natural flood control measures to use as showcase examples	E	2-5
GS2	Plant appropriate wetland tree species	F	1-2
GS2	Monitor and manage riparian habitats	G	Ongoing
GS2	Tackle invasive species	H	1-3
GS2	Establish butterfly and bumblebee monitoring with local rivers trust	I	2-5
WS1	Monitor for bird species	J	Ongoing
WL1	Install bird boxes	K	1-2
WL1	Install bat boxes	L	1-2
WL1	Add appropriate signage illustrating the biodiversity and ecosystem services	M	Ongoing
GS4	Monitor for invasive species	N	Ongoing
GS4	Connect with nearby butterfly and bumblebee monitoring schemes	O	2-5
GS4	Fit appropriate signage to explain the value of the habitat	P	2-5
ED3	Plant appropriate native wildflower species	Q	
ED3	Monitor for invasive species	R	
BL1	Tackle invasive species (organise balsam bash in particular)	S	1-2
BL1	Explore with local rivers trust how to change bank defences to more sympathetic design	T	1-2
All habitats	Any future path development - design with biodiversity, flood control, appropriate stone, animal tunnels etc. See General Action 5		Ongoing

Table 3.6.2: Action table for Donagh River site

3.7 Area 6 - Glennagannon River

Area 6:	Glennagannon River	GPS:	C 47788 46469
Land Use:	River and riparian habitats	No. Habitats	7
		No. Potential Actions	19

Overview

The Glennagannon River rises in the central uplands of Inishowen, directly south of Carndonagh town at Lough Inn. It flows in a north northeasterly direction, skirting just to the east of the town where it flows in parallel to the Donagh River, before draining into Trawbreaga Bay. Much like the Donagh River, the riparian habitat is patchy and many natural flooding areas have been drained and converted to different types of farm use. As it rises in the bog, then flows through farmland before heading north into the Atlantic, there are plenty of opportunities for human influence to effect the water quality.



Figure 3.7.1:
Common green grasshopper

Rivers act as vital biodiversity corridors, providing an opportunity for iconic species such as the otter to thrive, even in busy urban settings, if the water quality is sufficient. They host a range of invertebrate life, some of which evolved during the time of the dinosaurs. These insects and other small freshwater creatures are used internationally as a quick way to assess water quality. The type of invertebrate (Riverfly) present can indicate high or low pollution levels. Rivers are about a lot more than what's in the water. The banks naturally host what's called riparian habitat. This are composed of trees and understory plants that are tolerant of occasionally flooding. They support a wide range of biodiversity and crucially, act as a link or corridor between different habitats and geographical areas. act as a filter for these human influences if they have buffer zones along their banks that are of sufficient size and diversity.

All rivers and their associated biodiversity have to deal with whatever society puts in to them. This may sound obvious but often the impacts of this are hidden and out of public consciousness. If a house or other building is in a river catchment - all the rainfall and water runoff in this area eventually ends up in the river - everything that goes down drains, sinks and other water systems has potential to get washed into the river. Any runoff from works on land within a catchment also influence the quality of the river, often negatively, and great care must be taken when working near water. Riparian habitats can act as a filter for these human influences if they have buffer zones along their banks that are of sufficient size and diversity. Rivers naturally flood and humans will often attempt to control these floods. Traditionally hard engineering defences such as concrete walls and culverted streams have been used as solutions to flooding. With our increasing rainfall due to climate change these grey infrastructure solutions may not work as well or even exacerbate the issue. There is a new way to approach flooding using 'green' engineering, nature-based solutions that are sensitive to the environment and protect the natural functioning of the river.



Figure 3.7.2:
Figwort spp. at the Glennagannon site

The Glennagannon River has similar pressures to its neighbour, the Donagh. Urban waste water, domestic waste water and agricultural practices have been identified as the main pressures that pose a threat to its water quality. Regular water quality testing has been conducted at four different stations since 1973, two consistently tested on each occasion. This gives a good snap shot of water quality over the years. Apart from a drop in water quality in 2016, possibly indicating a significant local pollution event, water quality in the Glennagannon has remained good. The latest testing with results published in 2019 shows an encouraging 4 or good biological status at the two sites monitored.

The area studied, with the kind permission of the landowner, indicates the potential the Glennagannon has and already serves as a nature corridor. Despite the significant scars still visible from the flooding event of August 2017, many wide and species rich grasslands were identified as well as a small patch of rich, wet woodland. The ever present threat of invasive species, however, could potentially undermine these habitats in time. Otter tracks were noted, otters require a reasonable standard of water quality to support the complex food web that results in their prey items being available. This stretch that was studied, shows the potential benefits that riparian habitat could have on both rivers flowing through the Carndonagh area and indeed, for any of the rivers in Inishowen and further afield. The Inishowen Rivers Trust have recently carried out some nature-based solutions for bank erosion control in the same area. Between these projects and room that is given for nature, resulting in some rich habitats, this area is an excellent example of what can be done both up and downstream for biodiversity when there is a willingness to get involved.

GLENNAGANNON

40G01

Date Surveyed (last survey year only): 18/09/19, 19/09/19

Biological Quality Rating (Q Values)

Station Code	1973	1977	1981	1985	1987	1993	1996	1998	2001	2004	2007	2010	2013	2016	2018	2019
RS40G010010			5	4	4-5	4										
RS40G010015							4-5	5	4-5	4-5	4-5	4	4	4	4	4
RS40G010100	5	4	4-5	5	4	4	3-4	4	4							
RS40G010200	5	4	4-5	5	4	4-5	4-5	4	4	4	3-4	4	4	3/0		4

Most Recent Assessment:

Both sites on the Glennagannon were of good quality in September 2019 with a significant improvement noted at the lower station Strawbridge Bridge (0200) in comparison with 2016.

Figure 3.7.3: Water quality data in the Glennagannon River from the EPA



Figure 3.7.4: Glennagannon study area



Figure 3.7.5: Glennagannon River habitats

Glennagannon River habitats			
Habitat	Code	Notes	Action reference
Depositing lowland river	FW2	Glennagannon River	A B C
Riparian woodland	WN5	Two main, small patches, one on either side. Tree-line on west side could merge into GS2	D E
Treeline	WL2	Mixed native and non-native	F G H I
Wet grassland	GS4	Rich species mix - not linked to Annex I. Transitions continuously into scrub WS1 - with gorse threatening to dominate if not controlled, particularly on eastern bank.	J K L

Table 3.7.1: Glennagannon River habitats



Figure 3.7.6: Wet grassland habitat on the Glennagannon River

Actions - Glennagannon River site

Habitat code	Action	Action code	Timeline in years
FW2	Continue natural flood control with local rivers trust	A	Ongoing
FW2	Training courses for water quality testing	B	1-2
FW2	Community water quality testing	C	2-5
GS2	Expand riparian habitat with appropriate tree species planting	D	Ongoing
GS2	Install goosander nesting box	E	1-2
WL1	Plant understorey suitable for occasional flooding	F	Ongoing
WL1	Establish plan for replacing trees with native species where appropriate	G	2-5
WL1	Install bird boxes	H	1-2
WL1	Install bat boxes	I	1-2
GS4	Monitor for and clear invasive species	J	Ongoing
GS4	Manage gorse in winter by removing to allow wet grassland to re-establish	K	1-5
GS4	Monitor for bumblebees and butterflies	L	Ongoing

Table 3.7.2: Glennagannon River actions

4.0 General Actions for Carndonagh

Each of the six areas have specific actions relevant to their particular type of habitats and land use. The general actions summarised below and expanded in Table 4.1, should be applied to the town as a whole. They range from eliminating threats such as invasive species, plugging gaps with planting and relevant mowing regimes, to integrating biodiversity management into future developments.

4.1 Action 1 - Invasive species

The most immediate action that requires attention is the monitoring of invasive species and the development of eradication plans. Eleven invasive plant species have been identified throughout the duration of the survey. (Appendix 1) The most problematic species are Japanese Knotweed, Himalayan Balsam and Winter Heliotrope, all of which quickly out-compete native species and dramatically decrease biodiversity. The presence of Salmonberry and *Rhododendron ponticum* are also a cause for concern as they can spread very quickly once established. Further efforts should be made to reduce the plants of species such as Laurel and Griselinea which have a lower biodiversity value. Laurel is known to contaminate the ground below its canopy, preventing the growth of other wildflowers.



Meadow Brown Butterfly

4.2 Action 2 - Hedgerow gaps and hedge maintenance

Maintaining or filling gaps in old hedgerows can be a very beneficial action as the hedges that require this work are often quite old and as a result can host a large diversity of understorey plants and provide a seed bank in the soil below. Planting new hedges should always be of native species with a diverse mix of species. This is a simple and affordable way to create connectivity between areas.

4.3 Action 3 - Wetland and Pond creation

One of our habitat types that have been hit hardest in recent years is small wetlands and ponds. For a variety of reasons, these areas have been drained and reclaimed at an alarming rate. These areas host a large number of invertebrate species as well as our amphibious species, frogs and newts. The beauty and diversity of species like dragonflies and damselflies are well known but their presence is also an indication of a rich mix of smaller species, good water quality and the plants that these wetlands support. Allowing areas that naturally flood to be returned to their wetland state not only provides some simple flood prevention but also greatly increases biodiversity. Areas with potential for wetland restoration or conversion, however small, should be identified and planned for.

4.4 Action 4 – No Mow Periods and Pesticide Use

One action that provides an immediate and significant benefit is the elimination of herbicide/pesticide use coupled with allowing wildflowers to thrive. Eliminating herbicides will have an immediate effect on species diversity and the parks and grass patches will act as natural seed banks. If pesticides are required, users must be trained on how to reduce the amount of pesticide used or use organic alternatives such as pelargonic acid. Pesticides are known to be harmful to health and there are strict guidelines on their use for professional users (such as businesses and publicly managed spaces). In addition, farmers who use pesticides (including herbicides and fungicides) are required to be trained on the use of pesticides and register as pesticide users. See Appendix 5 for information on legislation, health and safety and suggestions on controlling weeds and other species.

Sometimes parasitic species like yellow rattle will be required to thin established grasslands, especially areas that were fertilised in the past. But very often, leaving areas to thrive naturally and reducing trimming to a couple of times a year can yield excellent results. This action needs to be delivered in tandem with an educational programme. Those that are charged with managing the land will need support to make the transition to more nature friendly methods and the general public must also be informed as to the plan in an area. The All-Ireland Pollinator Plan has many excellent examples of signage that can be used for this purpose. All green areas around Carndonagh, no matter how small, have the potential for this action.

4.5 Action 5 - Sensitive development of trails and paths

Keeping biodiversity at the forefront of planning is essential for any future developments in Carndonagh. A number of factors must be considered at the very early stages of any future developments in the town if Carndonagh is to successfully promote biodiversity and fulfill the ambition to become a leading example for other areas. The factors that must be considered are:

Track development: Using appropriate stone/hardcore for the proposed walking tracks or cycle paths. Path surface is important to prevent inappropriate species from colonising. Once a track is built and utilised, some species of plant can get stuck to the shoes of walkers or tyres of bikes and spread to other areas. Studies in Germany identified as many as 30 individual plant species attached to the soles of walkers' shoes for a distance of up to 10km (Wichmann *et al.*, 2009). This spread of species is inevitable when tracks are created. A mitigating factor can be using local stone which is of similar composition to the existing ground. This can help halt the spread of species that are not native to that particular area.

The use of appropriate SuDS (Sustainable Urban Drainage Systems) on tracks is also essential as runoff from a track can contribute oil, sediment/grit, rubber and litter into a nearby watercourse. Nature based SuDS solutions are used successfully on major roads and will manage runoff from tracks easily while still protecting water quality and aquatic biodiversity. Finally, carefully considering the course of a track and how wildlife will use an area can help to mitigate against fragmenting habitats. Rather than cutting across a sensitive area, diverting a path around the habitat will protect the biodiversity within that site.

Riverside development: Any walks or greenways developed beside rivers must first of all take into account the sensitive nature of the habitats already existing. As well as minimizing the damage to those habitats, riverside tracks must have adequate tunnels fitted underneath. These serve a dual purpose, acting as animal corridors so large mammals and other fauna can travel from one side of the habitat to the other with minimal disturbance and allow the area retain its value as flood control. A raised track may then allow a natural flood plain to function while not endangering the track or the areas downstream.

Appropriate planting: Shelter belts can complement any future development by providing biodiversity, shelter and shade. Native planting should be used for two reasons - to support biodiversity but also because native species will establish more easily. For many years in Ireland we have planted the wrong species in the wrong place. Instead, native trees can be used for corridors while areas that require views or open spaces can have pollinator friendly species planted.

4.6 Action 6 - Informing and Involving

The **Green Flag Award** recently attained by Barrack Hill Town Park is an excellent start to engaging with the public and helping to change attitudes towards native plants and animals. For many years various community groups around Ireland have been quietly conducting their efforts and not promoting their work sufficiently. If these actions can be communicated in a positive and uncomplicated way, most people are very quick to see the value in the changes. Signage explaining actions and their benefits are essential for people to understand why, for instance, an area that was always mowed is now left for pollinators. Maintenance and updating this signage can act as an educational point to explain why, for instance, areas are dedicated to flooding and the natural services that this action can bring. Without this engagement, constant maintenance and refreshing of information points, efforts may prove fruitless.

Another excellent way to engage with the community is to help local schools achieve their **An Taisce Green Flag** for schools. All the primary schools in the area are very active with the green flag program and the secondary school is delivering many environmentally friendly actions such as their comprehensive native tree planting programme. With help and encouragement from the community, the schools can continue their green flag success while delivering an excellent opportunity to communicate through the school, some of the actions in this plan.

The **Nature Positive** initiative that has developed from ECO Carn has considerable potential for businesses to support biodiversity projects while ensuring their processes are promoting biodiversity and have minimal impact both locally and globally. For instance, businesses can be encouraged to stock biodiversity friendly products such as compostable items, plant native trees and wildflowers or use alternatives to pesticides. With the new **SUP (Single Use Plastic) Directive** (Appendix 13) now a legal requirement, business can be supported to have a net positive impact on biodiversity and ECO Carn can support them as they rethink their approach to supply chain and waste management.

4.7 Action 7 - Additional general actions

A range of additional actions are referred to in Table 4.1 covering biodiversity friendly and sustainability elements such as rainwater harvesting, engagement with Donegal County Council and creating a Sustainability Centre.

General action plan

Invasive species

Action	Timeline	Location(s)	Description	
Invasive Species Management				
Invasive species monitoring	4.1.1	Ongoing	All water courses	In particular looking for Himalayan balsam, Montbretia and Winter heliotrope
Invasive species monitoring	4.1.2	Ongoing	All hedgerows	In particular looking for Winter heliotrope, <i>Rhododendron ponticum</i>
Invasive species monitoring	4.1.3	Ongoing	General Carndonagh area	Identification and mapping of Japanese knotweed occurrence
Invasive species monitoring	4.1.4	Ongoing	General Carndonagh area	Identification of other species not targeted in actions, Salmonberry occurrence
Replace laurel hedging	4.1.5	1-3	General Carndonagh area	Identify any laurel hedging and replace with native hedging

Invasive Species Management

Hedgerow planting	4.2.1	Ongoing	General Carndonagh area	Identify gaps on private and public land to plant and increase connectivity
Hedge gap identification	4.2.2	Ongoing	General Carndonagh area	Identify hedges that have grown old/leggy and fill gaps

Table 4.1: General action plan

Wetland and Pond Creation

Pond creation	4.3.1	Ongoing	Near watercourses	Identify areas that naturally flood in winter, however small and mark for pond creation
Pond creation	4.3.2	Ongoing	Damp ground	Identify areas that retain water/ drain poorly and mark for pond creation or wetland development
Frog and Newt monitoring	4.3.3	Ongoing	Watercourses and ponds	Monitor amphibious species annually and upload sightings to National Biodiversity Data Centre
Aquatic plants	4.3.4	Ongoing	Watercourses and ponds	Source and plant aquatic plants to oxygenate and maintain ponds and watercourses

No Mow Periods and Pesticide Use

'No Mow' periods	4.4.1	Ongoing	All green patches	Identify green areas that can be managed with minimal mowing to encourage native species
Pesticide/ Herbicide use	4.4.2	Ongoing	All green areas	Reduce and where possible eliminate the use of pesticides and herbicides. Replace with natural weed control if action 4.4.1 is not possible
Pesticide/ Herbicide training	4.4.3	Ongoing	Community groups	Provide training on an ongoing basis correct use of pesticides where there is no alternative
Natural pest control	4.4.4	Ongoing	Community groups	Explore alternatives to chemical use (see Appendix 5)

Sensitive Development of Trails & Paths

Greenway development	4.5.1	Ongoing	Proposed green way track	Plant sympathetically with native and bee friendly species
Kilbride site development	4.5.2	Ongoing	Kilbride area	Develop path sympathetically with nature - raised with tunnels for both flooding and animal movement - appropriate stone native to area - native planting - minimal disturbance, leaving current habitats intact
Any future walks such as the river trails and loops	4.5.3	Ongoing	Carndonagh area	Develop path sympathetically with nature - raised with tunnels for both flooding and animal movement - appropriate stone native to area - native planting - minimal disturbance, leaving current habitats intact

Involving & Informing

An Taisce Green Flag Award for parks	4.6.1	Ongoing	Barrack Hill	Follow the specific action for Area 3 plus the Green Flag's recommendations
An Taisce Green Schools program	4.6.2	Ongoing	All local schools	Offer help to their Green Schools' committee. Identify the theme they are currently covering and offer to help realise actions and engage with public
Steering committee formed to liaise with owners of Carndonagh Woods	4.6.3	1	General Carndonagh area	Engage and support local landowners in implementing the actions laid out in Area 1

Create generic branding for signage and communications	4.6.4	1	General Carndonagh area	Have an instantly recognisable format that will be expanded with each action to help public identify and understand actions undertaken
Add signage to each action point	4.6.5	Ongoing	General Carndonagh area	Each time an action is delivered, accompanying signage explains what is being delivered and why
Nature Positive + scheme expansion	4.6.6	Ongoing	General Carndonagh area	Continue to develop the commercial sector's involvement in biodiversity enhancement which will be a significant step towards integrating biodiversity into future thinking in the area
Social media and promotion	4.6.7	Ongoing	General Carndonagh area	Continue with ECO Carn social media and engage with traditional media, both local and national. Produce series of short videos promoting biodiversity awareness. Print biodiversity calendar annually.
Promoting the Action Plan	4.6.8	1	General Carndonagh area	Promote plan through as broad a range of community groups as possible e.g. school groups, faith groups, businesses, local library etc.
Citizen Science training	4.6.9	Ongoing	General Carndonagh area	Identify knowledge gaps and provide appropriate training courses, e.g plant identification, butterfly identification etc.

Citizen Science courses and scheme participation	4.6.10	Ongoing	General Carndonagh area	As well as the butterfly and bumblebee monitoring mentioned in the area plans, participate in schemes such as bat surveying, garden bird surveying, wildflower identification, tree identification, river fly monitoring and invasive species identifications. Courses in any of these areas should be delivered and ongoing monitoring schemes joined
School engagement - water quality	4.6.11	2-5	Carndonagh Community School	Engage with relevant teachers to assist with the new curriculum requirement around water quality
School engagement - My Area	4.6.12	2-5	Carndonagh Community School	Engage with relevant teachers to assist with the new geography curriculum requirement around 'My Area'
School Involvement	4.6.13	Ongoing	All schools, primary and secondary	Develop a co-ordinated approach to environmental education, bringing school boards and parent associations together
Celebrate national / international days	4.6.14	Ongoing	General Carndonagh area	Celebrate days such as World Wetland Day, Tree Week, Biodiversity Week, World Ocean Day etc. Use these days as an opportunity to engage and inform

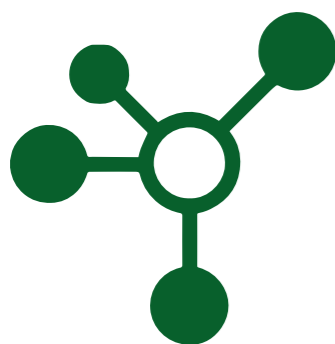
Coordinated approach to tree planting	4.6.15	Ongoing	General Carndonagh area	ECO Carn to set up sub-group to coordinate all future tree planting projects, be they in schools, businesses or private land. Tree planting map to be created and updated regularly
Engage with CE scheme participants	4.6.16	Ongoing	General Carndonagh area	Identify knowledge gaps and provide appropriate training courses e.g tree planting, hedge laying, drain management, lawn management etc.
Engage with Men's Shed and similar groups	4.6.17	Ongoing	General Carndonagh area	Identify appropriate groups that could help deliver projects such as bird boxes, signage etc.
Additional general actions				
Water harvesting	4.7.1	2-4	All areas with public buildings	Install rain harvesting equipment to help mitigate climate change effects
Pollinator plan	4.7.2	1	General Carndonagh area	Individuals, groups as well as the ECO Carn group to develop their own pollinator plans and register as partners
Liasing with Donegal County Council	4.7.3	Ongoing	General Carndonagh area	Engage with the council in regards to verge and roadside management. Donegal County Council are existing partners of the All Ireland Pollinator Plan

Engage a town gardener	4.7.4	Ongoing	General Carndonagh area	Liase with local politicians and Donegal County Council for the immediate engagement of a town gardener to help implement the biodiversity action plans recommendations
Nature based solutions	4.7.5	1-2	General Carndonagh area	Explore nature based solutions for natural flood management and any future restoration projects
Sustainability Centre	4.7.6	Ongoing	General Carndonagh area	Engage with the Ballymun Rediscovery Centre with an aim to create a 'repair cafe' type of facility in the town
Tracking projects	4.7.7	Ongoing	General Carndonagh area	ECO Carn group to keep track of any ongoing and future projects such as Donegal Decarbonising Zone, rural regeneration projects, Well-being from Nature project, fair trade and local river trust projects
Refresh Biodiversity Action Plan	4.7.8	5	General Carndonagh area	Revisit this action plan in 2026 and modify for new actions

Table 4.1: General action plan

5.0 Recommendations

There are a wide range of excellent opportunities to enhance the biodiversity of Carndonagh as outlined in this action plan. **The key recommendations from this report are to connect species rich sites creating natural corridors for biodiversity and communicate the actions of this plan creating awareness and understanding in the community.**



Connect species rich sites creating natural corridors



Communicate the actions of the Biodiversity Action Plan



Create awareness & understanding

As outlined earlier in the document, we will struggle to reverse our biodiversity crisis if we do not integrate biodiversity enhancement into all aspects of our lives. Bringing the public with us through positive communication and practical actions is essential to achieve this. The Carndonagh community, through ECO Carn, are in an excellent position to not only achieve this goal but to act as an example of how rural towns and communities can also enhance their biodiversity while raising awareness of its role in our day to day lives.

This report provides an extensive list of actions that can be carried out both on a small scale as individuals or on a larger scale across many landowners and groups. The ECO Carn network can act as a key co-ordinator and source of advice for the community helping to build resilience for the area and helping the community to understand and appreciate the value of biodiversity to our world.

5.1 How to Use the Action Plan

This Biodiversity Action Plan provides a list of recommended actions based on the current status of habitats and wildlife in the Carndonagh area. It is not an exhaustive list but provides a starting point and ideas for future work.

The plan provides:

- 1** An audit of biodiversity for 6 diverse sites in the Carndonagh area
- 2** A list of 43 General Actions based around 7 recommended themes
- 3** A site specific action list for the 6 sites audited

If you wish to take action for biodiversity, this plan can help guide you in developing your own plan by following the steps below. Detailed ecological data was gathered as part of the Biodiversity Action Plan for Carndonagh (e.g., habitat classification, Annex designations etc) but this may not be relevant to you.

- Step 1** Read Section 2 of this plan. This will give you an understanding of the general goals that this plan hopes to achieve and may inspire your plans.
- Step 2** Identify which of the 6 audited areas is most relevant to your site e.g., scout hall environs similar to Area 4 (GAA Pitch) or for a housing estate choose Area 2 (Moss Road Estates). Each area has a summary Section (3.1) to help understand the specific actions and thinking behind these actions. Read this summary, choose the area that is of relevance to you and explore the area document. If none of these fit your ambitions, refer to the general action plan (Section 4.0).
- Step 3** Liaise with ECO Carn and discuss your plan. This may be an opportunity to collaborate with other groups and ECO Carn may be able to help you in your efforts.
- Step 4** Discuss your plan with the landowner if relevant and the appropriate agencies.
- Step 5** Source funding for your plan and check Appendix 15 to identify potential funding sources.
- Step 6** Communicate your plan to the wider community. This can be an opportunity to engage volunteers to help implement your plan. See section 4.6 of the general action plan for help with this element.
- Step 7** Implement project and monitor your impact. Remember that your project may have wider benefits that can be evaluated. See relevant appendices for help with delivering your chosen actions.
- Step 8** Keep the community informed!

6.0 References

Bumblebee foraging distance

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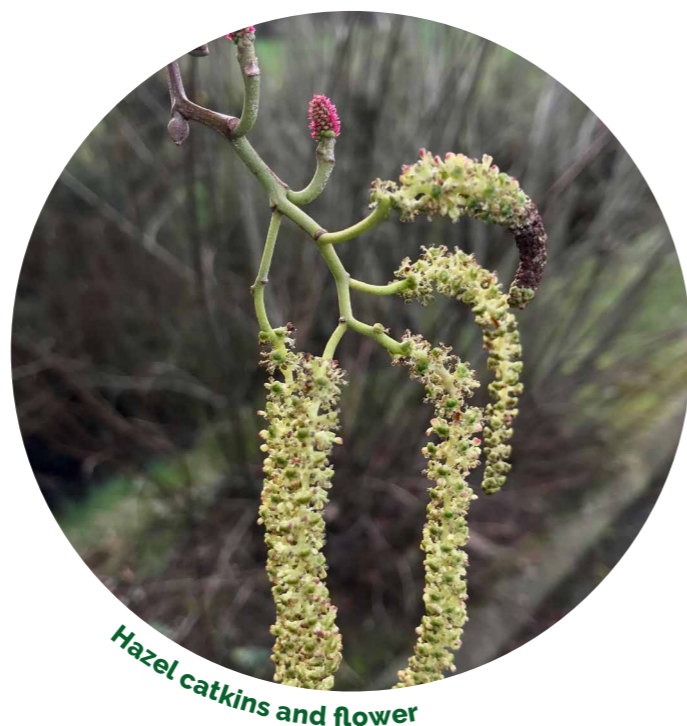
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Hazel catkins and flower

Appendix 1 - Carndonagh Species Lists

Carndonagh Woods species list	p77-78
Moss Road Estates species list	p79-81
Barrack Hill species list	p81-83
Carndonagh GAA Club species list	p84-85
Donagh River species list	p86-89
Glennagannon River species list	p90-92
Invasive species list	p92
Animals of Carndonagh	p93-94

Carndonagh Woods including edge of woodland species list

Note 1: Species recorded on woodland edge/roadside verge are in black. Species recorded only in the woodland site are recorded in blue

Location Key	C45564 45314					
	Species Name (English)	Species Name	Recorded on woodland edge	Invasive's (IS) - Non-native (NN) - Naturalised (N) where relevant	Date	Key
Grasses	Heath woodrush	<i>Luzula multiflora</i>			03.06.2021	Grasses
	Pill sedge	<i>Carex pilulifera</i>			03.06.2021	Grasses
	Purple moor grass	<i>Molinia caerulea</i>	Y		03.06.2021	Grasses
Total	3					
Trees	Downy birch	<i>Betula pubescens</i>				
	European holly	<i>Ilex aquifolium</i>			16.07.2020	Trees
	Hazel	<i>Corylus avellana</i>			16.07.2020	Trees
	Rowan	<i>Sorbus aucuparia</i>			16.07.2020	Trees
	Sessile oak	<i>Quercus patraea</i>		NN	16.07.2020	Trees
	Sitka spruce	<i>Picea sitchensis</i>		NN N	16.07.2020	Trees
	Sycamore	<i>Acer pseudoplatanus</i>	Y	NN N	16.07.2020	Trees
	Willow spp.	<i>Salix spp.</i>			16.07.2020	Trees
Total	8					
Flowers	Bilberry	<i>Vaccinium myrtillus</i>				
	Bluebell	<i>Hyacinthoides non-scripta</i>			16.07.2020	Flowers
	Bramble	<i>Robus fruticosus spp.</i>			16.07.2020	Flowers
	Bush vetch	<i>Vicia sepium</i>	Y		16.07.2020	Flowers
	Common dog-violet	<i>Viola riviniana</i>			16.07.2020	Flowers
	Common cow-wheat	<i>Melampyrum pratense</i>			03.06.2021	Flowers
	Common nettle	<i>Urtica dioica</i>	Y		16.07.2020	Flowers
	Cow parsley	<i>Anthriscus sylvestris</i>	Y		16.07.2020	Flowers
	Cow wheat	<i>Melampyrum pratense</i>			16.07.2020	Flowers
	Creeping buttercup	<i>Ranunculus repens</i>	Y		16.07.2020	Flowers
	Daisy	<i>Bellis perennis</i>	Y		16.07.2020	Flowers
	Dandelion spp.	<i>Taraxacum spp.</i>	Y		16.07.2020	Flowers
	Doc spp.	<i>Rumex spp.</i>	Y		16.07.2020	Flowers
	European gorse	<i>Ulex europaeus</i>			16.07.2020	Flowers
	Foxglove	<i>Digitalis purpurea</i>			16.07.2020	Flowers
	Great bay willowherb	<i>Epilobium angustifolium</i>			16.07.2020	Flowers

	Greater stitchwort	<i>Rabelera holostea</i>			16.07.2020	Flowers
	Herb robert	<i>Geranium robertianum</i>			16.07.2020	Flowers
	Hogweed	<i>Heracleum sphondylium</i>	Y		16.07.2020	Flowers
	Honeysuckle	<i>Lonicera periclymenum</i>			16.07.2020	Flowers
	Ivy	<i>Hedera helix</i>			16.07.2020	Flowers
	Lesser celandine	<i>Ficaria verna</i>			16.07.2020	Flowers
	Ling	<i>Calluna vulgaris</i>			16.07.2020	Flowers
	Pignut	<i>Conopodium majus</i>			03.06.2021	Flowers
	Primrose	<i>Primula vulgaris</i>	Y		03.06.2021	Flowers
	Red clover	<i>Trifolium pratense</i>	Y		16.07.2020	Flowers
	Ribwort plantain	<i>Plantago lanceolata</i>	Y		16.07.2020	Flowers
	Rosebay willowherb	<i>Chamerion angustifolium</i>			16.07.2020	Flowers
	Tormentil	<i>Potentilla erecta</i>			16.07.2020	Flowers
	Wood anemone	<i>Anemone nemorosa</i>			16.07.2020	Flowers
	Wood avens	<i>Geum urbanum</i>			16.07.2020	Flowers
	Wood sorrel	<i>Oxalis acetosella</i>			16.07.2020	Flowers
	Wood speedwell	<i>Veronica montana</i>			16.07.2020	Flowers
	Yellow pimpernel	<i>Lysimachia nemorum</i>	Y		16.07.2020	Flowers

Total 34

Ferns	Bracken	<i>Pteridium aquilinum</i>			16.07.2020	Ferns
	Broad buckler-fern	<i>Dryopteris dilatata</i>			03.06.2021	Ferns
	Common lady fern	<i>Athyrium filix-femina</i>			16.07.2020	Ferns
	Common male fern	<i>Dryopteris filix-mas</i>			16.07.2020	Ferns
	Common polypody	<i>Polydodium vulgare</i>			16.07.2020	Ferns
	Hard fern	<i>Blechnum spicant</i>			16.07.2020	Ferns
	Harts tongue	<i>Phyllitis scolopendrium</i>			16.07.2020	Ferns

Total 8

Mosses	Broom forkmoss	<i>Dicranum scoparium</i>			03.06.2021	Mosses
	Common fern moss	<i>Thuidium delicatulum</i>			03.06.2021	Mosses
	Red-stemmed feathermoss	<i>Pleurozium schreberi</i>			03.06.2021	Mosses
	Sphagnum spp.	<i>Sphagnum spp.</i>			03.06.2021	Mosses
	Swan's-neck thyme-moss	<i>Mnium hornum</i>			03.06.2021	Mosses

Total 5

Invasive species	Monbretia	<i>Crocsmia X crocosmiflora</i>	Y	IS	16.07.2020	Invasive species
	Red fuchsia	<i>Fuchsia magellanica</i>	Y	IS	16.07.2020	Invasive species
	Winter heliotrope	<i>Petasites pyrenaicus</i>	Y	IS	16.07.2020	Invasive species

Total 3

Total of all species 61

Moss Road Estates species list

Location Key	C46120 45650				
	Species Name (English)	Species Name	Invasive's (IS) - Non-native (NN) - Naturalised (N) where relevant	Date	Key
Grasses	Cocks foot	<i>Dactylis glomerata</i>		12.05.2021	Grasses
	Perennial Rye grass	<i>Lolium perenne</i>		12.05.2021	Grasses
	Fasle oat grass	<i>Arrhenatherum elatius</i>		12.05.2021	Grasses
	Reed spp.	<i>Juncus spp.</i>		12.05.2021	Grasses
	Fescue spp.	<i>Festuca spp.</i>		12.05.2021	Grasses
	Field woodrush	<i>Luzula campestris</i>		12.05.2021	Grasses
	Red Fescue	<i>Festuca rubra</i>		12.05.2021	Grasses
	Sweet vernal grass	<i>Anthoxanthum odoratum</i>		12.05.2021	Grasses
Total	8				
Trees	Box	<i>Buxus sempervirens</i>	NN N	12.05.2021	Trees
	Cherry spp.	<i>Prunus spp.</i>	NN N	12.05.2021	Trees
	Common alder	<i>Alnus glutinosa</i>		12.05.2021	Trees
	Common ash	<i>Fraxinus excelsior</i>		12.05.2021	Trees
	Copper Beech	<i>Fagus sylvatica 'Purpurea'</i>	NN N	12.05.2021	Trees
	Holly	<i>Ilex aquifolium</i>		12.05.2021	Trees
	European Beech	<i>Fagus sylvatica</i>	NN N	12.05.2021	Trees
	Goat Willow	<i>Salix spp.</i>		12.05.2021	Trees
	Grey Alder	<i>Alnus incana</i>	NN N	12.05.2021	Trees
	Hawthorn	<i>Crataegus monogyna</i>		12.05.2021	Trees
	Holly	<i>Ilex aquifolium</i>		12.05.2021	Trees
	Hornbeam	<i>Carpinus betulus</i>	NN N	12.05.2021	Trees
	Lime	<i>Tilia x europaea</i>	NN	12.05.2021	Trees
	Osier	<i>Salix viminalis</i>		12.05.2021	Trees
	Norway Maple	<i>Acer platanoides</i>	NN N	12.05.2021	Trees
	Rowan	<i>Sorbus aucuparia</i>		12.05.2021	Trees
	Sycamore	<i>Acer pseudoplatanus</i>	NN N	12.05.2021	Trees
	Western Red cedar	<i>Thuja plicata</i>	NN N	12.05.2021	Trees
	Paper-bark Birch	<i>Betula papyrifera</i>	NN N	12.05.2021	Trees
Total	19				
Flowers & shrubs	Barberry	<i>Berberis spp.</i>	NN	12.05.2021	Flowers + shrubs
	Birds-foot trefoil	<i>Lotus corniculatus</i>		12.05.2021	Flowers + shrubs
	Bluebell	<i>Hyacinthoides non-scripta</i>		12.05.2021	Flowers + shrubs
	Bramble	<i>Robus fruticosus spp.</i>		12.05.2021	Flowers + shrubs
	Bush vetch	<i>Vicia sepium</i>		12.05.2021	Flowers + shrubs
	Catsear	<i>Hypochaeris radicata</i>		12.05.2021	Flowers + shrubs
	Cleavers	<i>Gallium aparine</i>		12.05.2021	Flowers + shrubs

	Cuckoo flower	<i>Cardamine pratensis</i>		12.05.2021	Flowers + shrubs
	Common nettle	<i>Urtica dioica</i>		12.05.2021	Flowers + shrubs
	Common ragwort	<i>Jacobaea vulgaris</i>		12.05.2021	Flowers + shrubs
	Cow parsley	<i>Anthriscus sylvestris</i>		12.05.2021	Flowers + shrubs
	Creeping buttercup	<i>Ranunculus repens</i>		12.05.2021	Flowers + shrubs
	Daisy	<i>Bellis perennis</i>		12.05.2021	Flowers + shrubs
	Dandelion spp.	<i>Taraxacum spp.</i>		12.05.2021	Flowers + shrubs
	Doc spp.	<i>Rumex spp.</i>		12.05.2021	Flowers + shrubs
	Dog rose	<i>Rosa canina</i>		12.05.2021	Flowers + shrubs
	Elder	<i>Sambucus nigra</i>		12.05.2021	Flowers + shrubs
	Escallonia spp.	<i>Escallonia spp.</i>	NN N	12.05.2021	Flowers + shrubs
	Feijoa	<i>Feijoa sellowiana</i>	NN	12.05.2021	Flowers + shrubs
	Foxglove	<i>Digitalis purpurea</i>		12.05.2021	Flowers + shrubs
	Germander speedwell	<i>Veronica chamaedrys</i>		12.05.2021	Flowers + shrubs
	Griselinia	<i>Griselinia littoralis</i>	NN	12.05.2021	Flowers + shrubs
	Hedge woundwort	<i>Stachys sylvatica</i>		12.05.2021	Flowers + shrubs
	Herb robert	<i>Geranium robertianum</i>		12.05.2021	Flowers + shrubs
	Hogweed	<i>Heracleum sphondylium</i>		12.05.2021	Flowers + shrubs
	Honeysuckle	<i>Lonicera periclymenum</i>		12.05.2021	Flowers + shrubs
	Ivy	<i>Hedera helix</i>		12.05.2021	Flowers + shrubs
	Ivy-leaved speedwell	<i>Veronica hederifolia</i>		12.05.2021	Flowers + shrubs
	Marsh thistle	<i>Cirsium palustre</i>		12.05.2021	Flowers + shrubs
	Milk-flower cotoneaster	<i>Cotoneaster lacteus</i>	NN	12.05.2021	Flowers + shrubs
	Primrose	<i>Primula vulgaris</i>		12.05.2021	Flowers + shrubs
	Red clover	<i>Trifolium pratense</i>		12.05.2021	Flowers + shrubs
	Redshank	<i>Persicaria maculosa</i>		12.05.2021	Flowers + shrubs
	Ribwort plantain	<i>Plantago lanceolata</i>		12.05.2021	Flowers + shrubs
	Thyme-leaved speedwell	<i>Veronica serpyllifolia</i>		12.05.2021	Flowers + shrubs
	White clover	<i>Trifolium repens</i>		12.05.2021	Flowers + shrubs
	Yellow archangel	<i>Lamium galeobdolon</i>	NN N	12.05.2021	Flowers + shrubs
Total	37				
Ferns	Common lady fern	<i>Athyrium filix-femina</i>		12.05.2021	Ferns
	Common male fern	<i>Dryopteris filix-mas</i>		12.05.2021	Ferns
	Common polypody	<i>Polydodium vulgare</i>		12.05.2021	Ferns
	Harts tongue	<i>Phyllitis scolopendrium</i>		12.05.2021	Ferns
	Maiden hair spleenwort	<i>Asplenium trichomanes</i>		12.05.2021	Ferns
	Soft shield fern	<i>Polystichum setiferum</i>		12.05.2021	Ferns
Total	6				
Invasive species	Buddleia	<i>Buddleja davidii</i>	IS	12.05.2021	Invasive species
	Monbretia	<i>Crococsmia X crocosmiflora</i>	IS	12.05.2021	Invasive species
	Rhododendron ponticum	<i>Rhododendron ponticum</i>	IS	12.05.2021	Invasive species
	Red fuchsia	<i>Fuchsia magellanica</i>	IS	12.05.2021	Invasive species
	Salmon berry	<i>Rubus spectabilis</i>	IS	12.05.2021	Invasive species
Total	5				

Barrack Hill and surrounding area species list

Note 1: Plants in pots and flowerbeds were NOT recorded

Note 2: Species recorded within the park boundaries are marked in blue

Location C47057 44764

Key	Species Name (English)	Species Name	Barrack Hill Park only (Y for Recorded in blue)	Recorded outside but within 100 metres of park boundaries (Y for Recorded in blue)	Invasive's (IS) - Non-native (NN) - Naturalised (N) where relevant	Date	Key
Grasses	Cocks foot	<i>Dactylis glomerata</i>	Y	Y		25.06.2020	Grasses
	Creeping bent	<i>Agrostis stolonifera</i>	Y	Y		25.06.2020	Grasses
	Fasle oat grass	<i>Arrhenatherum elatius</i>		Y		25.06.2020	Grasses
	Reed spp.	<i>Juncus spp.</i>		Y		25.06.2020	Grasses
	Soft broome	<i>Bromus hordeaceus</i>		Y		25.06.2020	Grasses
	Sweet vernal grass	<i>Anthoxanthum odoratum</i>		Y		25.06.2020	Grasses
	Timothy	<i>Phleum pratense</i>	Y			25.06.2020	Grasses
	Yorkshire fog	<i>Holcus lanatus</i>	Y	Y		25.06.2020	Grasses
Total	8						
Trees	Austrian pine	<i>Pinus nigra</i>		Y		25.06.2020	Trees
	Cherry spp	<i>Prunus spp.</i>	Y	Y		25.06.2020	Trees
	Common alder	<i>Alnus glutinosa</i>	Y	Y		25.06.2020	Trees
	Common ash	<i>Fraxinus excelsior</i>	Y	Y		25.06.2020	Trees
	Crab apple	<i>Malus sylvestris</i>		Y		25.06.2020	Trees
	Downy birch	<i>Betula pubescens</i>		Y		25.06.2020	Trees
	European beech	<i>Fagus sylvatica</i>	Y	Y	NN N	25.06.2020	Trees
	European holly	<i>Ilex aquifolium</i>	Y	Y		25.06.2020	Trees
	European larch	<i>Larix decidua</i>		Y	NN N	25.06.2020	Trees
	Hawthorn	<i>Crataegus monogyna</i>	Y	Y		25.06.2020	Trees
	Hazel	<i>Corylus avellana</i>	Y			25.06.2020	Trees
	Scots pine	<i>Pinus sylvestris</i>		Y		25.06.2020	Trees
	Sitka spruce	<i>Picea sitchensis</i>	Y		NN N	25.06.2020	Trees
	Sycamore	<i>Acer pseudoplatanus</i>	Y	Y	NN N	25.06.2020	Trees
	White birch	<i>Betula papyrifera</i>	Y		NN	25.06.2020	Trees
	Willow spp.	<i>Salix spp.</i>	Y	Y		25.06.2020	Trees
	Wych elm	<i>Ulmus glabra</i>		Y		25.06.2020	Trees
Total	17						
Flowers	Angelica	<i>Angelica sylvestris</i>	Y	Y		25.06.2020	Flowers
	Barren strawberry	<i>Waldstenia fragarioides</i>		Y		25.06.2020	Flowers
	Birds-foot trefoil	<i>Lotus corniculatus</i>	Y	Y		25.06.2020	Flowers
	Bluebell	<i>Hyacinthoides non-scripta</i>		Y		25.06.2020	Flowers
	Bramble	<i>Robus fruticosus spp.</i>	Y	Y		25.06.2020	Flowers

Bush vetch	<i>Vicia sepium</i>	Y	Y		25.06.2020	Flowers
Catsear	<i>Hypochaeris radicata</i>	Y	Y		25.06.2020	Flowers
Cleavers	<i>Gallium aparine</i>	Y	Y		25.06.2020	Flowers
Common nettle	<i>Urtica dioica</i>	Y	Y		25.06.2020	Flowers
Common ragwort	<i>Jacobaea vulgaris</i>	Y	Y		25.06.2020	Flowers
Common speedwell	<i>Veronica persica</i>	Y	Y		25.06.2020	Flowers
Common valerian	<i>Valeriana officalis</i>		Y		25.06.2020	Flowers
Cow parsley	<i>Anthriscus sylvestris</i>		Y		25.06.2020	Flowers
Bloody cranebill	<i>Geranium sanguineum</i>		Y		25.06.2020	Flowers
Creeping buttercup	<i>Ranunculus repens</i>	Y	Y		25.06.2020	Flowers
Creeping thistle	<i>Cirsium arvense</i>		Y		25.06.2020	Flowers
Daisy	<i>Bellis perennis</i>	Y	Y		25.06.2020	Flowers
Dandelion spp.	<i>Taraxacum spp.</i>	Y	Y		25.06.2020	Flowers
Doc spp.	<i>Rumex spp.</i>	Y	Y		25.06.2020	Flowers
Dog rose	<i>Rosa canina</i>	Y			25.06.2020	Flowers
Elder	<i>Sambucus nigra</i>	Y	Y		25.06.2020	Flowers
Escallonia	<i>Escallonia rubra</i>	Y			25.06.2020	Flowers
European gorse	<i>Ulex europaeus</i>	Y	Y		25.06.2020	Flowers
Foxglove	<i>Digitalis purpurea</i>	Y	Y		25.06.2020	Flowers
Germander speedwell	<i>Veronica chamaedrys</i>		Y		25.06.2020	Flowers
Great bay willowherb	<i>Epilobium angustifolium</i>		Y		25.06.2020	Flowers
Greater plantain	<i>Plantago major</i>	Y	Y		25.06.2020	Flowers
Griselinia	<i>Griselinia littoralis</i>	Y			25.06.2020	Flowers
Ground elder	<i>Aegopodium podagria</i>		Y		25.06.2020	Flowers
Hedge bindweed	<i>Calystegia sepium</i>	Y	Y		25.06.2020	Flowers
Hedge woundwort	<i>Stachys sylvatica</i>		Y		25.06.2020	Flowers
Herb robert	<i>Geranium robertianum</i>	Y	Y		25.06.2020	Flowers
Hogweed	<i>Heracleum sphondylium</i>		Y		25.06.2020	Flowers
Honesty	<i>Lunaria annua</i>		Y		25.06.2020	Flowers
Honeysuckle	<i>Lonicera periclymenum</i>		Y		25.06.2020	Flowers
Ivy	<i>Hedera helix</i>		Y		25.06.2020	Flowers
Knapweed	<i>Centaurea nigra</i>		Y		25.06.2020	Flowers
Meadow buttercup	<i>Ranunculus acris</i>		Y		25.06.2020	Flowers
Meadowsweet	<i>Filipendula ulmaria</i>		Y		25.06.2020	Flowers
Nipplewort	<i>Lapsana communis</i>		Y		25.06.2020	Flowers
Ox-eye daisy	<i>Leucanthemum vulgare</i>	Y	Y		25.06.2020	Flowers
Prickly sow thistle	<i>Sonchus asper</i>		Y		25.06.2020	Flowers
Red Campion	<i>Silene dioica</i>	Y			25.06.2020	Flowers
Red clover	<i>Trifolium pratense</i>		Y		25.06.2020	Flowers
Redshank	<i>Persicaria maculosa</i>		Y		25.06.2020	Flowers
Ribwort plantain	<i>Plantago lanceolata</i>	Y	Y		25.06.2020	Flowers
Selfheal	<i>Prunella vulgaris</i>	Y	Y		25.06.2020	Flowers
Short-fruited willow herb	<i>Epilobium obscurum</i>		Y		25.06.2020	Flowers
Silverweed	<i>Potentilla anserina</i>	Y	Y		25.06.2020	Flowers
Smooth sowthistle	<i>Sonchus oleraceus</i>		Y		25.06.2020	Flowers
Spear thistle	<i>Cirsium vulgare</i>		Y		25.06.2020	Flowers
White clover	<i>Trifolium repens</i>	Y	Y		25.06.2020	Flowers
Wood avens	<i>Geum urbanum</i>		Y		25.06.2020	Flowers
Total	52					

Ferns	Common male fern	<i>Dryopteris filix-mas</i>	Y		25.06.2020	Ferns
	Common polypody	<i>Polydodium vulgare</i>	Y	Y	25.06.2020	Ferns
	Hard fern	<i>Blechnum spicant</i>	Y		25.06.2020	Ferns
	Harts tongue	<i>Phyllitis scolopendrium</i>	Y		25.06.2020	Ferns
	Golden-scaled male fern	<i>Dryopteris affinis</i>	Y		25.06.2020	Ferns
	Maiden hair spleenwort	<i>Asplenium trichomanes</i>	Y		25.06.2020	Ferns

Total 6

Invasive species	Buddleia	<i>Buddleja davidii</i>	Y		IS	25.06.2020	Invasive species
	Cotoneaster spp	<i>Cotoneaster spp.</i>			IS	25.06.2020	Invasive species
	Himalayan balsam	<i>Impatiens glandulifera</i>	Y		IS	25.06.2020	Invasive species
	Japanese knotweed	<i>Fallopia japonica</i>	Y		IS	25.06.2020	Invasive species
	Laurel	<i>Laurus spp.</i>	Y		IS	25.06.2020	Invasive species
	Monbretia spp.	<i>Crococsmia X crocosmiflora</i>	Y	Y	IS	25.06.2020	Invasive species
	Red fuchsia	<i>Fuchsia magellanica</i>	Y	Y	IS	25.06.2020	Invasive species
	Rhododendron ponticum	<i>Rhododendron ponticum</i>	Y		IS	25.06.2020	Invasive species
	Winter heliotrope	<i>Petasites fragrans</i>	Y		IS	25.06.2020	Invasive species

Total 9

Total Barrack Hill 47

Total 92

Carndonagh GAA Club species list

Location Key C47964 46095

	Species Name (English)	Species Name	Invasive's (IS) - Non -native (NN) - Naturalised (N) where relevant	Date	Key
Grasses	Cocks foot	<i>Dactylis glomerata</i>		25.06.2020	Grasses
	False oat grass	<i>Arrhenatherum elatius</i>		25.06.2020	Grasses
	Fescue spp.	<i>Fescue spp.</i>		25.06.2020	Grasses
	Juncus spp.	<i>Juncus spp.</i>		25.06.2020	Grasses
	Perennial Rye grass	<i>Lolium perenne</i>		25.06.2020	Grasses
	Timothy	<i>Phleum pratense</i>		25.06.2020	Grasses
	Yorkshire fog	<i>Holcus lanatus</i>		25.06.2020	Grasses

Total 7

Trees	Common alder	<i>Alnus glutinosa</i>		25.06.2020	Trees
	Common ash	<i>Fraxinus excelsior</i>		25.06.2020	Trees
	Hawthorn	<i>Crataegus monogyna</i>		25.06.2020	Trees
	Italian alder	<i>Alnus cordata</i>	NN	25.06.2020	Trees
	Rowan	<i>Sorbus aucuparia</i>		25.06.2020	Trees
	Sessile Oak	<i>Quercus petraea</i>		25.06.2020	Trees
	Scots Pine	<i>Pinus sylvestris</i>		25.06.2020	Trees
	Willow spp.	<i>Salix spp.</i>		25.06.2020	Trees

Total 8

Flowers	Birds-foot trefoil	<i>Lotus corniculatus</i>		25.06.2020	Flowers
	Black medic	<i>Medicago lupulina</i>		25.06.2020	Flowers
	Bramble	<i>Robus fruticosus spp.</i>		25.06.2020	Flowers
	Broad leaved willowherb	<i>Epilobium montanum</i>		25.06.2020	Flowers
	Bush vetch	<i>Vicia sepium</i>		25.06.2020	Flowers
	Chickweed	<i>Stellaria media</i>		25.06.2020	Flowers
	Cleavers	<i>Gallium aparine</i>		25.06.2020	Flowers
	Common centaury	<i>Centaurium erythraea</i>		25.06.2020	Flowers
	Common nettle	<i>Urtica dioica</i>		25.06.2020	Flowers
	Common ragwort	<i>Jacobaea vulgaris</i>		25.06.2020	Flowers
	Creeping buttercup	<i>Ranunculus repens</i>		25.06.2020	Flowers
	Creeping thistle	<i>Cirsium arvense</i>		25.06.2020	Flowers
	Daisy	<i>Bellis perennis</i>		25.06.2020	Flowers
	Dandelion spp.	<i>Taraxacum spp.</i>		25.06.2020	Flowers
	Doc spp.	<i>Rumex spp.</i>		25.06.2020	Flowers
	Dog violet	<i>Viola riviniana</i>		25.06.2020	Flowers
	Escallonia	<i>Escallonia rubra</i>	NN	25.06.2020	Flowers

	Great bay willowherb	<i>Epilobium angustifolium</i>		25.06.2020	Flowers
	Herb robert	<i>Geranium robertianum</i>		25.06.2020	Flowers
	Ivy	<i>Hedera helix</i>		25.06.2020	Flowers
	Knapweed	<i>Centaurea nigra</i>		25.06.2020	Flowers
	Marsh willowherb	<i>Epilobium palustre</i>		25.06.2020	Flowers
	Meadow buttercup	<i>Ranunculus acris</i>		25.06.2020	Flowers
	Meadow vetch	<i>Lathyrus pratensis</i>		25.06.2020	Flowers
	Meadowsweet	<i>Filipendula ulmaria</i>		25.06.2020	Flowers
	Pineapple weed	<i>Matricaria discoidea</i>		25.06.2020	Flowers
	Prickly sowthistle	<i>Sonchus asper</i>		25.06.2020	Flowers
	Primrose	<i>Primula vulgaris</i>		25.06.2020	Flowers
	Red clover	<i>Trifolium pratense</i>		25.06.2020	Flowers
	Redshank	<i>Persicaria maculosa</i>		25.06.2020	Flowers
	Ribwort plantain	<i>Plantago lanceolata</i>		25.06.2020	Flowers
	Selfheal	<i>Prunella vulgaris</i>		25.06.2020	Flowers
	Sheep sorell	<i>Rumex acetosella</i>		25.06.2020	Flowers
	Silverweed	<i>Potentilla anserina</i>		25.06.2020	Flowers
	Smooth sowthistle	<i>Sonchus oleraceus</i>		25.06.2020	Flowers
	Spear thistle	<i>Cirsium vulgare</i>		25.06.2020	Flowers
	Tufted vetch	<i>Vicia sepium</i>		25.06.2020	Flowers
	Wavy bittercress	<i>Cardamine flexuosa</i>		25.06.2020	Flowers
	White clover	<i>Trifolium repens</i>		25.06.2020	Flowers
Total	40				
Ferns	Bracken	<i>Pteridium aquilinum</i>		25.06.2020	Ferns
	Golden scale male fern	<i>Dryopteris affinis</i>		25.06.2020	Ferns
Total	2				
Invasive species	Buddleia	<i>Buddleja davidii</i>	IS	25.06.2020	Invasive species
	Red fuchsia	<i>Fuchsia magellanica</i>	IS	25.06.2020	Invasive species
Total	2				
Total all species	59				

Donagh River species list

Location Key	Species Name (English)	Species Name	Recorded in previous survey	Invasive's (IS) - Non-native (NN) - Naturalised (N) where relevant	Date	Key
Grasses	Black bent	<i>Agrostis gigantea</i>			16.07.2020	Grasses
	Cocks foot	<i>Dactylis glomerata</i>			16.07.2020	Grasses
	Common velvet grass	<i>Holcus lanatus</i>			16.07.2020	Grasses
	Fasle oat grass	<i>Arrhenatherum elatius</i>			16.07.2020	Grasses
	Reed canary-grass	<i>Phalaris arundinaceae</i>			16.07.2020	Grasses
	Reed spp.	<i>Juncus spp.</i>			16.07.2020	Grasses
	Remote sedge	<i>Carex remota</i>			16.07.2020	Grasses
	Soft broome	<i>Bromus hordeaceus</i>			16.07.2020	Grasses
	Sweet vernal grass	<i>Anthoxanthum odoratum</i>			16.07.2020	Grasses
	Tufted hair grass	<i>Deschampsia cespitosa</i>			16.07.2020	Grasses
	Yorkshire fog	<i>Holcus lanatus</i>			16.07.2020	Grasses
Total	11					
Trees	Blackthorn	<i>Prunus spinosa</i>			16.07.2020	Trees
	Common alder	<i>Alnus glutinosa</i>	Y		16.07.2020	Trees
	Common ash	<i>Fraxinus excelsior</i>	Y		16.07.2020	Trees
	European holly	<i>Ilex aquifolium</i>			16.07.2020	Trees
	European larch	<i>Larix decidua</i>	Y	NN N	16.07.2020	Trees
	Hawthorn	<i>Crataegus monogyna</i>			16.07.2020	Trees
	Hazel	<i>Corylus avellana</i>			16.07.2020	Trees
	Large-leaved lime	<i>Tilia platyphyllos</i>	Y	NN	16.07.2020	Trees
	Sitka spruce	<i>Picea sitchensis</i>	Y		16.07.2020	Trees
	Sycamore	<i>Acer pseudoplatanus</i>	Y	NN N	16.07.2020	Trees
	Willow spp.	<i>Salix spp.</i>			16.07.2020	Trees
Total	11					
Flowers	Angelica	<i>Angelica sylvestris</i>	Y		16.07.2020	Flowers
	American willowherb	<i>Epilobium ciliatum</i>			16.07.2020	Flowers
	Autumn hawksbit	<i>Scorzoneroides autumnalis</i>			16.07.2020	Flowers
	Barren strawberry	<i>Waldstenia fragarioides</i>			16.07.2020	Flowers
	Birds-foot trefoil	<i>Lotus corniculatus</i>	Y		16.07.2020	Flowers
	Bluebell	<i>Hyacinthoides non-scripta</i>	Y		16.07.2020	Flowers
	Bramble	<i>Robus fruticosus spp.</i>	Y		16.07.2020	Flowers
	Bush vetch	<i>Vicia sepium</i>	Y		16.07.2020	Flowers
	Butterbur	<i>Petasites hybridus</i>	Y		16.07.2020	Flowers
	Catsear	<i>Hypochaeris radicata</i>	Y		16.07.2020	Flowers
	Cleavers	<i>Gallium aparine</i>	Y		16.07.2020	Flowers
	Coltsfoot	<i>Tussilago farfara</i>			16.07.2020	Flowers

Common figwort	<i>Scrophularia nodosa</i>		16.07.2020	Flowers
Common fumitroy	<i>Fumaria officinalis</i>	Y	16.07.2020	Flowers
Common nettle	<i>Urtica dioica</i>	Y	16.07.2020	Flowers
Common ragwort	<i>Jacobaea vulgaris</i>	Y	16.07.2020	Flowers
Common valerian	<i>Valeriana officalis</i>	Y	16.07.2020	Flowers
Cow parsley	<i>Anthriscus sylvestris</i>		16.07.2020	Flowers
Creeping buttercup	<i>Ranunculus repens</i>		16.07.2020	Flowers
Creeping thistle	<i>Cirsium arvense</i>		16.07.2020	Flowers
Daisy	<i>Bellis perennis</i>	Y	16.07.2020	Flowers
Dandelion spp.	<i>Taraxacum spp.</i>	Y	16.07.2020	Flowers
Doc spp.	<i>Rumex spp.</i>		16.07.2020	Flowers
Elder	<i>Sambucus nigra</i>		16.07.2020	Flowers
European gorse	<i>Ulex europaeus</i>		16.07.2020	Flowers
Foxglove	<i>Digitalis pururea</i>	Y	16.07.2020	Flowers
Germander speedwell	<i>Veronica chamaedrys</i>	Y	16.07.2020	Flowers
Great bay willowherb	<i>Epilobium angustifolium</i>		16.07.2020	Flowers
Great mullein	<i>Verbascum thapsus</i>		16.07.2020	Flowers
Ground elder	<i>Aegopodium podagria</i>	Y	16.07.2020	Flowers
Hedge bindweed	<i>Calystegia sepium</i>	Y	16.07.2020	Flowers
Hedge woundwort	<i>Stachys sylvatica</i>		16.07.2020	Flowers
Herb robert	<i>Geranium robertianum</i>	Y	16.07.2020	Flowers
Hogweed	<i>Heracleum sphondylium</i>		16.07.2020	Flowers
Honeysuckle	<i>Lonicera periclymenum</i>		16.07.2020	Flowers
Ivy	<i>Hedera helix</i>		16.07.2020	Flowers
Knapweed	<i>Centaurea nigra</i>		16.07.2020	Flowers
Lesser stitchwort	<i>Stellaria graminea</i>	Y	16.07.2020	Flowers
Marsh thistle	<i>Cirsium palustre</i>	Y	16.07.2020	Flowers
Meadow buttercup	<i>Ranunculus acris</i>		16.07.2020	Flowers
Meadow vetch	<i>Lathyrus pratensis</i>	Y	16.07.2020	Flowers
Meadowsweet	<i>Filipendula ulmaria</i>	Y	16.07.2020	Flowers
Ox-eye daisy	<i>Leucanthemum vulgare</i>	Y	16.07.2020	Flowers
Primrose	<i>Primula vulgaris</i>	Y	Spring 2020 - C Doherty	Flowers
Perennial wall rocket	<i>Diplotaxis tenifolia</i>	N	16.07.2020	Flowers
Red clover	<i>Trifolium pratense</i>	Y	16.07.2020	Flowers
Redshank	<i>Persicaria maculosa</i>		16.07.2020	Flowers
Ribwort plantain	<i>Plantago lanceolata</i>	Y	16.07.2020	Flowers
Rosebay willowherb	<i>Chamerion augustifolium</i>	Y	16.07.2020	Flowers
Selfheal	<i>Prunella vulgaris</i>	Y	16.07.2020	Flowers
Smooth hawksbit	<i>Leontodon hispidus</i>		16.07.2020	Flowers
Smooth sowthistle	<i>Sonchus oleraceus</i>	Y	16.07.2020	Flowers
Spear thistle	<i>Cirsium vulgare</i>	Y	16.07.2020	Flowers
Trailing bellflower	<i>Campanula poscharskyana</i>	NNN	16.07.2020	Flowers
Tufted vetch	<i>Vicia sepium</i>		16.07.2020	Flowers
Water avens	<i>Geum rivale</i>		16.07.2020	Flowers

Water blinks	<i>Montia fontana</i>		16.07.2020	Flowers		
Water figwort	<i>Scrophularia auriculate</i>		16.07.2020	Flowers		
Water forgetmenot	<i>Myosotis scorpioides</i>		16.07.2020	Flowers		
White clover	<i>Trifolium repens</i>	Y	16.07.2020	Flowers		
Wild privet	<i>Ligustrum vulgare</i>		16.07.2020	Flowers		
Wood avens	<i>Geum urbanum</i>	Y	16.07.2020	Flowers		
Wood speedwell	<i>Veronica montana</i>		16.07.2020	Flowers		
Yellow pimpernel	<i>Lysimachia nemorum</i>	Y	16.07.2020	Flowers		
Total	63					
Ferns	Bracken	<i>Pteridium aquilinum</i>	16.07.2020	Ferns		
	Common lady fern	<i>Athyrium filix-femina</i>	16.07.2020	Ferns		
	Common male fern	<i>Dryopteris filix-mas</i>	16.07.2020	Ferns		
	Common polypody	<i>Polydodium vulgare</i>	16.07.2020	Ferns		
	Harts tongue	<i>Phyllitis scolopendrium</i>	16.07.2020	Ferns		
	Maiden hair spleenwort	<i>Asplenium trichomanes</i>	16.07.2020	Ferns		
Total	6					
Invasive species	Buddleia	<i>Buddleja davidii</i>	IS	16.07.2020	Invasive species	
	Himalayan balsam	<i>Impatiens glandulifera</i>	Y	IS	16.07.2020	Invasive species
	Japanese knotweed	<i>Fallopia japonica</i>		IS	16.07.2020	Invasive species
	Monbretia	<i>Crocsmia X crocosmiflora</i>	Y	IS	16.07.2020	Invasive species
	Red fuchsia	<i>Fuchsia magellanica</i>		IS	16.07.2020	Invasive species
	Salmon berry	<i>Rubus spectabilis</i>		IS	16.07.2020	Invasive species
	White fuchsia	<i>Fuchsia magellanica</i> Var. <i>molinae</i>		IS	16.07.2020	Invasive species
Total	7					

Plants found on previous survey but absent this survey - 2014 survey - Anne Toland - Commissioned by Carndonagh Tidy towns

Broadleaved willowherb	<i>Epilobium montanum</i>		2014
Bugle	<i>Ajuga reptans</i>		2014
Common dog violet	<i>Viola riviana</i>		2014
Cut-leaved geranium	<i>Geranium dissectum</i>		2014
Dusky cranebill	<i>Geranium phaeum</i>		2014
Forgetmenot spp.	<i>Myosotis arvensis</i>		2014
Hemlock water droplet	<i>Oenanthe crocata</i>		2014
Ladys mantle	<i>Alchemilla vulgaris</i> spp.	IS	2014
Marsh ragwort	<i>Senecio aquaticus</i>		2014
Nipplewort	<i>Lapsana communis</i>		2014
Pignut	<i>Comopodium majus</i>		2014
Prickly sowthistle	<i>Sonchus asper</i>		2014
Tutsan	<i>Hypericum androsaemum</i>		2014
Total	13		
Total all species	111		

Glennagannon River species list

Location Key	C47788 46469				
	Species Name (English)	Species Name	Invasive's (IS) - Non -native (NN) - Naturalised (N) where relevant	Date	Key
Grasses	Black bent	<i>Agrostis gigantea</i>		09.07.2020	Grasses
	Cocks foot	<i>Dactylis glomerata</i>		09.07.2020	Grasses
	Common velvet grass	<i>Holcus lanatus</i>		09.07.2020	Grasses
	Fescue spp.	<i>Fescue</i> spp.		09.07.2020	Grasses
	Greater wood-rush	<i>Luzulu sylvatica</i>		09.07.2020	Grasses
	Perennial Rye grass	<i>Lolium perenne</i>		09.07.2020	Grasses
	Reed canary-grass	<i>Phalaris arundinaceae</i>		09.07.2020	Grasses
	Reed spp.	<i>Juncus</i> spp.		09.07.2020	Grasses
	Remote sedge	<i>Carex remota</i>		09.07.2020	Grasses
	Sweet vernal grass	<i>Anthoxanthum odoratum</i>		09.07.2020	Grasses
	Timothy	<i>Phleum pratense</i>		09.07.2020	Grasses
	Yorkshire fog	<i>Holcus lanatus</i>		09.07.2020	Grasses
Total	12				
Trees	Blackthorn	<i>Prunus spinosa</i>		09.07.2020	Trees
	Cherry spp.	<i>Prunus</i> spp.	NN	09.07.2020	Trees
	Common alder	<i>Alnus glutinosa</i>		09.07.2020	Trees
	Common ash	<i>Fraxinus excelsior</i>		09.07.2020	Trees
	Downy birch	<i>Betula pubescens</i>		09.07.2020	Trees
	Grey willow	<i>Salix cinerea</i>		09.07.2020	Trees
	Hawthorn	<i>Crataegus monogyna</i>		09.07.2020	Trees
	Osier	<i>Salix vivimnalis</i>	NN N	09.07.2020	Trees
	Sycamore	<i>Acer pseudoplatanus</i>		09.07.2020	Trees
	Willow spp.	<i>Salix</i> spp.		09.07.2020	Trees
Total	10				
Flowers	Angelica	<i>Angelica sylvestris</i>		09.07.2020	Flowers
	Birds-foot trefoil	<i>Lotus corniculatus</i>		09.07.2020	Flowers
	Blue water speedwell	<i>Veronica anagallis-aquatica</i>		09.07.2020	Flowers
	Bramble	<i>Robus fruticosus</i> spp.		09.07.2020	Flowers
	Brooklime	<i>Veronica beccabunga</i>		09.07.2020	Flowers
	Coltsfoot	<i>Tussilago farfara</i>		09.07.2020	Flowers
	Common broom	<i>Cytisus scoparius</i>		09.07.2020	Flowers
	Common figwort	<i>Scrophularia nodosa</i>		09.07.2020	Flowers
	Common nettle	<i>Urtica dioica</i>		09.07.2020	Flowers
	Common ragwort	<i>Jacobaea vulgaris</i>		09.07.2020	Flowers

Cow parsley	<i>Anthriscus sylvestris</i>	09.07.2020	Flowers
Creeping buttercup	<i>Ranunculus repens</i>	09.07.2020	Flowers
Creeping thistle	<i>Cirsium arvense</i>	09.07.2020	Flowers
Daisy	<i>Bellis perennis</i>	09.07.2020	Flowers
Dandelion spp.	<i>Taraxacum spp.</i>	09.07.2020	Flowers
Doc spp.	<i>Rumex spp.</i>	09.07.2020	Flowers
Dog rose	<i>Rosa canina agg.</i>	09.07.2020	Flowers
Elder	<i>Sambucus nigra</i>	09.07.2020	Flowers
European gorse	<i>Ulex europaeus</i>	09.07.2020	Flowers
Fools parsley	<i>Aethusa cynapium</i>	09.07.2020	Flowers
Foxglove	<i>Digitalis purpurea</i>	09.07.2020	Flowers
Germander speedwell	<i>Veronica chamaedrys</i>	09.07.2020	Flowers
Great bay willowherb	<i>Epilobium angustifolium</i>	09.07.2020	Flowers
Greater plantain	<i>Plantago major</i>	09.07.2020	Flowers
Hemlock Water-dropwort	<i>Oenanthe crocata</i>	09.07.2020	Flowers
Herb robert	<i>Geranium robertianum</i>	09.07.2020	Flowers
Hogweed	<i>Heracleum sphondylium</i>	09.07.2020	Flowers
Honeysuckle	<i>Lonicera periclymenum</i>	09.07.2020	Flowers
Ivy	<i>Hedera helix</i>	09.07.2020	Flowers
Knapweed	<i>Centaurea nigra</i>	09.07.2020	Flowers
Lesser stitchwort	<i>Stellaria graminea</i>	09.07.2020	Flowers
Marsh ragwort	<i>Jacobaea aquatica</i>	09.07.2020	Flowers
Marsh thistle	<i>Cirsium palustre</i>	09.07.2020	Flowers
Marsh willowherb	<i>Epilobium palustre</i>	09.07.2020	Flowers
Meadow buttercup	<i>Ranunculus acris</i>	09.07.2020	Flowers
Meadow vetchling	<i>Lathyrus pratensis</i>	09.07.2020	Flowers
Meadowsweet	<i>Filipendula ulmaria</i>	09.07.2020	Flowers
Narrow-leaved Marsh-orchid	<i>Dactylorhiza traunsteinerioides</i>	09.07.2020	Flowers
Red clover	<i>Trifolium pratense</i>	09.07.2020	Flowers
Redshank	<i>Persicaria maculosa</i>	09.07.2020	Flowers
Ribwort plantain	<i>Plantago lanceolata</i>	09.07.2020	Flowers
Selfheal	<i>Prunella vulgaris</i>	09.07.2020	Flowers
Silverweed	<i>Potentilla anserina</i>	09.07.2020	Flowers
Thyme-leaved speedwell	<i>Veronica serpyllifolia</i>	09.07.2020	Flowers
Water forgetmenot	<i>Myosotis scorpioides</i>	09.07.2020	Flowers
Water mint	<i>Mentha aquatica</i>	09.07.2020	Flowers
White clover	<i>Trifolium repens</i>	09.07.2020	Flowers
Wild carrot	<i>Daucus carota</i>	09.07.2020	Flowers
Wood anemone	<i>Anemone nemerosa</i>	09.07.2020	Flowers
Wood avens	<i>Geum urbanum</i>	09.07.2020	Flowers
Yellow iris	<i>Iris pseudacorus</i>	09.07.2020	Flowers

Total 51

Ferns	Bracken	<i>Pteridium aquilinum</i>	09.07.2020	Ferns
	Common male fern	<i>Dryopteris filix-mas</i>	09.07.2020	Ferns
	Common lady fern	<i>Athyrium filix-femina</i>	09.07.2020	Ferns
	Common polypody	<i>Polydodium vulgare</i>	09.07.2020	Ferns
	Harts tongue	<i>Phyllitis scolopendrium</i>	09.07.2020	Ferns
	Water horsetail	<i>Equisetum fluviatile</i>	09.07.2020	Ferns

Total 6

Invasive species	Himalayan balsam	<i>Impatiens glandulifera</i>	IS	09.07.2020	Invasive species
	Japanese knotweed	<i>Fallopia japonica</i>	IS	09.07.2020	Invasive species
	Monbretia	<i>Crocosmia X crocosmiflora</i>	IS	09.07.2020	Invasive species
	Red fuchsia	<i>Fuchsia magellanica</i>	IS	09.07.2020	Invasive species
	Salmonberry	<i>Rubus spectabilis</i>	IS	09.07.2020	Invasive species
	Winter heliotrope	<i>Petasites fragrans</i>	IS	09.07.2020	Invasive species

Total 6

Total all species 85

Invasive species in all 6 areas

Species	Buddleia	<i>Buddleja davidii</i>
	Cotoneaster spp	<i>Cotoneaster spp.</i>
	Himalayan balsam	<i>Impatiens glandulifera</i>
	Japanese knotweed	<i>Fallopia japonica</i>
	Laurel	<i>Laurus spp.</i>
	Monbretia spp.	<i>Crocosmia X crocosmiflora</i>
	Rhododendron ponticum	<i>Rhododendron ponticum</i>
	Red fuchsia	<i>Fuchsia magellanica</i>
	Salmon berry	<i>Rubus spectabilis</i>
	White fuchsia	<i>Fuchsia magellanica Var. molinae</i>
	Winter heliotrope	<i>Petasites pyrenaicus</i>

Total 11

Animals of Carndonagh

Species Name (English)	Species Name	Location Name	Location Grid ref.	Date	Animals of Carndonagh
Birds					
Blackbird	<i>Turdus merula</i>	Carn woods	C45564 45314	28.05.2020	Birds
Blackcap	<i>Sylvia atricapilla</i>	Carn woods	C45564 45315	28.05.2020	Birds
Bluetit	<i>Cyanistes caeruleus</i>	Carn woods	C45564 45316	28.05.2020	Birds
Bullfinch	<i>Pyrrhula pyrrhula</i>	Carn woods	C45564 45317	28.05.2020	Birds
Buzzard	<i>Buteo buteo</i>	Carn woods	C45564 45318	28.05.2020	Birds
Chaffinch	<i>Fringilla Ceolebs</i>	Donagh river	C46497 44539	16.7.2020	Birds
Coal tit	<i>Periparus atir</i>	Carn woods	C45564 45314	28.05.2020	Birds
Collared dove	<i>Columba palambus</i>	Donagh river	C46497 44539	16.7.2020	Birds
Common chiffchaff	<i>Phylloscopus collybita</i>	Carn woods	C45564 45314	28.05.2020	Birds
Common starling	<i>Sturnus vulgaris</i>	Carn woods	C45564 45314	28.05.2020	Birds
Dipper	<i>Cinclus cinclus</i>	Glennagannon river	C47788 46469	09.07.2020	Birds
Dunnock	<i>Prunella modularis</i>	Carn woods	C45564 45314	28.05.2020	Birds
Eurasian tree creeper	<i>Certhia familiaris</i>	Carn woods	C45564 45314	28.05.2020	Birds
Goldfinch	<i>Carduelis carduelis</i>	Donagh river	C46497 44539	28.05.2020	Birds
Great tit	<i>Parus major</i>	Carn woods	C45564 45314	28.05.2020	Birds
Greenfinch	<i>Chloris chloris</i>	GAA Pitch	C47964 46095	09.07.2020	Birds
Grey Wagtail	<i>Motacilla cinerea</i>	Donagh river	C46497 44539	16.7.2020	Birds
Heron	<i>Ardea cinerea</i>	Donagh river	C46497 44540	16.7.2020	Birds
Herring gull	<i>Larus argentatus</i>	GAA Pitch	C47964 46095	09.07.2020	Birds
House martin	<i>Delichon urbicum</i>	Donagh river	C46497 44539	16.7.2020	Birds
House sparrow	<i>Passer domesticus</i>	Donagh river	C46497 44540	16.7.2020	Birds
Jackdaw	<i>Corvus monedula</i>	Donagh river	C46497 44541	16.7.2020	Birds
Jay	<i>Garrulus glandarius</i>	Carn woods	C45564 45314	28.05.2020	Birds
Lesser redpoll	<i>Carduelis flammea cabaret</i>	GAA Pitch	C47964 46095	09.07.2020	Birds
Little egret	<i>Egretta garzetta</i>	Glennagannon river	C47788 46469	09.07.2020	Birds
Long-eared owl	<i>Asio otus</i>	GAA Pitch	C47964 46095	09.07.2020	Birds
Mallard	<i>Anas platyrhynchos</i>	Glennagannon river	C47788 46469	09.07.2020	Birds
Magpie	<i>Pica pica</i>	Carn Woods	C45564 45314	03.06.2021	Birds
Meadow Pipit	<i>Anthus pratensis</i>	Carn woods	C45564 45314	03.06.21	Birds
Mistle thrush	<i>Turdus viscivorus</i>	Carn woods	C45564 45314	28.05.2020	Birds
Pheasant	<i>Phasianus clochicus</i>	GAA Pitch	C47964 46095	09.07.2020	Birds
Pied wagtail	<i>Motacilla alba</i>	GAA Pitch	C47964 46095	09.07.2020	Birds
Raven	<i>Corvus corax</i>	Carn Woods	C45564 45314	03.06.2021	Birds
Robin	<i>Erithacus rubecula</i>	Donagh river	C46497 44539	16.7.2020	Birds
Rook	<i>Corvus frugilegus</i>	Donagh river	C46497 44540	16.7.2020	Birds
Eurasian Siskin	<i>Spinus spinus</i>	Barrack hill	C47057 44764	25.06.2020	Birds
Song thrush	<i>Turdus philomelos</i>	Carn woods	C45564 45314	28.05.2020	Birds
Sparrowhawk	<i>Accipiter nissus</i>	Carn woods	C45564 45314	28.05.2020	Birds
Spotted flycatcher	<i>Muscicapa striata</i>	Donagh river	C46497 44539	16.7.2020	Birds
Swallow	<i>Hirundo rustica</i>	Donagh river	C46497 44540	16.7.2020	Birds
Willow warbler	<i>Carn woods</i>	Carn woods	C45564 45314	28.05.2020	Birds
Wood pigeon	<i>Columba palumbus</i>	Donagh river	C46497 44539	16.7.2020	Birds
Wren	<i>Troglodytes aedon</i>	Donagh river	C46497 44540	16.7.2020	Birds
Total	43				

Butterflies

Green-veined white	<i>Aglais urticae</i>	Donagh river	C46497 44539	16.7.2020	Butterflies
Large white	<i>Pieris brassicae</i>	GAA Pitch	C47964 46095	09.07.2020	Butterflies
Meadow Brown	<i>Maniola jurtina</i>	Gaa Pitch	C47964 46095	09.07.2020	Butterflies
Red Admiral	<i>Vanessa atalanta</i>	Donagh river	C46497 44539	16.7.2020	Butterflies
Ringlet	<i>Aphantopus hyperantus</i>	GAA Pitch	C47964 46095	09.07.2020	Butterflies
Small Copper	<i>Lycaena phlaeas</i>	Barrack Hill	C47057 44764	25.06.2020	Butterflies
Small tortoiseshell	<i>Aglais urticae</i>	Donagh river - GAA pitch	C46497 44539	16.7.2020	Butterflies
Small white	<i>Pieris rapae</i>	Donagh river	C46497 44540	16.7.2020	Butterflies
Speckled Wood	<i>Pararge aegeria</i>	GAA Pitch	C47964 46095	09.07.2020	Butterflies
Total	9				

Mammals

Badger	<i>Meles meles</i>	Carn Woods	C45564 45314	03.06.2021	Mammals
European Hedgehog	<i>Erinaceus europaeus</i>	Barrack Hill	C47057 44764	25.06.2020	Mammals
Fox	<i>Vulpes vulpes</i>	Carn Woods	C45564 45314	03.06.2021	Mammals
Mink	<i>Neovision vison</i>	Glennagannon river	C47788 46469	09.07.2020	Mammals
Otter	<i>Lutra Lutra</i>	Glennagannon river	C47788 46469	09.07.2020	Mammals
Red deer	<i>Cervus elaphus</i>	Carn Woods	C45564 45314	03.06.2021	Mammals
Total	6				

Insects (other)

7 spot ladybird	<i>Coccinella septempunctata</i>	GAA Pitch	C47964 46095	09.07.2020	Insects (other)
Buff tailed bumblebee	<i>Bombus terrestris</i>	Barrack Hill	C47057 44764	25.06.2020	Insects (other)
Carder bumblebee	<i>Bombus pascuorum</i>	Barrack Hill	C47057 44764	25.06.2020	Insects (other)
Common green grasshopper	<i>Omocestus viridulus</i>	Glennagannon river	C47788 46469	09.07.2020	Insects (other)
Honeybee	<i>Apis mellifera</i>	GAA Pitch	C47964 46095	09.07.2020	Insects (other)
Large yellow underwing	<i>Noctua pronuba</i>	GAA Pitch	C47964 46095	09.07.2020	Insects (other)
White tailed bumblebee	<i>Bombus lucorum</i>	GAA Pitch	C47964 46095	09.07.2020	Insects (other)
4 spotted chaser	<i>Libellula quadrimaculata</i>	Carn Woods	C45564 45314	03.06.2021	Insects (other)
Total	8				

Fish (other)

Sea trout	<i>Salmo trutta morpha trutta</i>	Glennagannon river			Fish (other)
European Eel	<i>Anguilla Anguilla</i>	Glennagannon river			Fish (other)
Three spined Stickleback	<i>Gasterosteus aculeatus</i>	Glennagannon river			Fish (other)
Brown trout	<i>Salmo trutta</i>	Glennagannon river			Fish (other)
Total	4				

Totals across all sites

Grasses - 21	Trees - 30	Flowers - 121	Mosses - 5	Ferns - 8
Invasive species - 11	Birds - 43	Butterflies - 9	Mammals - 6	Insects (other) - 8
Fish (other) - 4				

Appendix 2 - Pollinators

The All-Ireland Pollinator Plan includes a large variety of agencies working together both north and south in a bid to enhance habitats for pollinating insects. In the years 2013-2017, our bumblebee species have declined by 14% and it is estimated that our 98 species of bee (only one of which is a honey bee) will suffer an extinction rate of 30%+ by 2030. One third of our food comes from pollinated plants. Reversing this trend of decline is very possible with the help of robust planting, hedge cutting management, eliminating chemical use and awareness raising. A large number of resources are available for appropriate year round pollinator cover at www.pollinators.ie

Figure A2.1: Pollinator friendly plants from the All-Ireland Pollinator Plan (winter-autumn)

How do you know if a plant is pollinator friendly?

- Do you see pollinators visiting? When choosing plants at a garden centre, you will quickly spot which flowers insects visit most.
- Choose **single-flowered** varieties or **perennials** (double-flowered or annuals are generally poor sources of pollen and nectar).

See our website for more actions you can take to help pollinators in your garden, business, farm, school or local community.

Farmland:
Daffodils, Tulips, and traditional bedding plants like Geraniums, Begonias, busy Lizzy, Petunias, Polyanthus or Salvia splendens have virtually no pollen and nectar and are of little value to pollinators.

Gardens:
All-Ireland Pollinator Plan 2015-2020

www.pollinators.ie

National Biodiversity Data Centre
Biodiversity for All

Figure A2.2: Pollinator friendly plants from the All-Ireland Pollinator Plan (summer-spring)

Pollinator-friendly plants for YOUR GARDEN

Our pollinating insects are in decline. One third of our 99 bee species are at risk of extinction. By choosing pollen-rich flowers for your garden, you will help provide much-needed food for our Bumblebees and other pollinating insects as well as creating a beautiful colourful garden. There are lots of pollinator-friendly plants to choose from.

To learn more about the All-Ireland Pollinator Plan, see www.pollinators.ie

All-Ireland Pollinator Plan 2015-2020

Appendix 3 – Growing a Wildflower Patch

Most of Ireland's old meadows and cornfields are sadly now extinct and yet grasslands and wildflowers provide crucial habitat for insects and wildlife, important for healthy ecosystems. We urgently need to recreate wildflower areas and diverse grasslands, not only to provide food and shelter for our vital pollinators but also to help improve water and soil quality as well as erosion prevention.

The plants that many refer to as 'weeds' are in fact our native wildflowers; these plants need to be given space and a chance to flourish with their importance recognised rather than being removed. Neat and tidy isn't a good thing for biodiversity, let's embrace glorious scruffiness for the sake of helping our pollinators who do so much for us humans without us being terribly aware of the connection between their survival and ours. One thing we can do is allow a wild patch in our gardens. Nettles, dandelions, thistles and so on are wonderful plants for wildlife. Another thing we can do is proactively create a wildflower area. There are a couple of ways of doing this. An existing lawn area can be mowed in early spring and again at the end of the summer with the clippings removed to reduce fertility and the natural seed bank in the soil will mean wildflowers will emerge or you can designate an area to sow wildflower seeds.

Preparation

Wildflowers grow best in an open situation on poorer soils where any vigorous grasses won't outcompete them. It is likely that the soil in the average garden will be too rich initially and you may have to remove about 3 inches of topsoil first. Another way of reducing fertility would be to grow some mustard or other Brassica family plants on the area to be used which will help reduce fertility first. Once the crop or soil has been removed, you need to create a fine, crumbly soil to sow the seeds into. This can be done by digging the soil over and raking. Please be aware that 'breaking' the soil like this does impact on soil microbiology by exposing sensitive (and useful) microorganisms to the light. This issue can be remedied by adding a small amount of Bio compost to the area. This is compost which comes with a vast range of microorganisms necessary for healthy thriving soil.

The area then needs to be covered until ready to sow. You can use cardboard or black plastic (be mindful of this option as we all know plastic pollution is a rampant issue these days!)

Choosing seed

Choosing your wildflowers is something worth taking time over. It is important to stress here that finding Irish provenance seed is critical. Phenology (how lifecycles are affected by habitat and climate) is nature's calendar, and the flowering of plants, and their ability to thrive affects the cycles of the insects and other wildlife using them for food or shelter. The timing has to match and this evolution has been finely honed over time for each particular area. Seeds that are genetically from Ireland will be the best match for the insects that are here. Buying cheap seed boxes of wildflower mixes could be doing more harm than good ultimately.

As well as flower choices such as Field Scabious, Birds-foot Trefoil, Clover, Yarrow and Knapweed, try to include some wild grasses such as Crested Dogtail and Common Bent. Including Yellow Rattle (known as the Meadow Maker) can also be a beneficial ally in creating a wildflower area as it

Sowing

The best time to sow is Autumn. Many wildflowers need a period of cold temperatures in order to germinate. Early spring can also work but some species will not flower in the first year. Any annual seeds sown will bloom initially and then over time give way to more perennial flowers provided a mix is sown. If only annuals are used, then they will need to be sown every year to keep the patch looking vibrant. This can be a lot more work.

For every square metre of ground you are sowing, you need roughly 4-5 grams of seed. Wildflower seed is tiny and the sowing is fine, it is therefore best to cast the seed mixed with sand. You need a ratio of 3 parts sand to 1 part seed. Don't use builders' sand as it is too coarse and damp. You need to use a fine, dry sand which is pale in colour so you can see the areas you've sown.

Cast your seed out as evenly as you can, walking across the land in one direction and then going back across at 90 degrees – so side to side and then up and down.

Once you have sown the seed, walk across the patch to ensure that the seed makes contact with the ground. Most seed needs to stay on the surface so don't rake it in.

The seed must be well watered. Bear this in mind when choosing your sowing times. Sow before rain is forecast! If you know there is a dry spell coming, be prepared to water manually. Protection from birds may also be needed.

Maintenance

The area needs to be cut in dry weather. In the first year, cut in Mid-June and remove the clippings. The following year, cut right at the beginning of April and then leave it until September and remove the clippings after a couple of days.

In subsequent years, cut at the beginning of April and vary the timing of the 2nd cut between end of July and beginning of September. This is to prevent some species becoming dominant.

More mowing can be done through autumn if you want to. You may need to learn how to scythe if you are doing a large patch!! It's quite possible that the meadow grasses will grow too tall for the lawnmower. Always remove the clippings after a few days. If you leave them down the soil will become too fertile again and your flowers will die out. From year 3 onwards, when varying your 2nd cut times, you need to be mindful that the more established your wildflower area becomes, the more species you will attract. Learn the lifecycles of the creatures present so that you don't inadvertently destroy their habitat with your mowing times. For example, grasshopper nymphs are around in July. For more information see www.invasivespeciesireland.com which also provides identification guides.



Figure A3.1:
Wildflower meadow in Carndonagh
(Photo courtesy of Lisa Sweeney)

Appendix 4 - Native Trees, Shrubs & Hedgerow Management

Hedges often suffer from a desire to apply a 'neat' effect on them. Allowing hedges to grow, raising their height over five years and filling in older hedges with native stock will bring huge amounts of biodiversity locally. Hedgerow management should be kept to a minimum, cutting every three years maximum where road safety is not an issue. Cut into "A" shape to maintain species diversity. As so many of Ireland's native plants and animals are originally woodland species, hedgerows provide refuge for a great variety of life.

From the hardy Downy Birch that can grow on acidic and nutrient poor soil to Trembling Poplar or Aspen for very wet areas, there is a tree for all conditions that Donegal can offer. Below is a list of just some native trees and plants worthy of consideration. Remember that all trees should be sourced from local stock, planted as very young (1-2 years) trees and planted between December and March.

Alder	The common Alder is a water loving species. It also fixes nitrogen into the ground; enhancing the quality of the soil over time. Its cones provide autumn food for many bird species.
Aspen	Another water loving tree. Tends to sucker and can take over a damp patch of unused land.
Ash	Common Ash prefers reasonably fertile and well drained land. It is the most common tree in Irish hedgerows today.
Hazel	Hardy native understorey specialist which responds well to coppicing. Has attractive catkins in early spring and hazelnuts in autumn
Holly	Grows well in shaded places as an understorey tree and supports lots of insect life.
Whitebeam	Hardy, rare (in its natural form) and decorative tree.
Bird Cherry	Hardy, provides food for pollinating insects and birds.
Birch	Attracts huge numbers of insects. Downy Birch is hardier and more tolerant of acidic soil than Silver Birch.
Willow	Attracts insects and can be used for sculptures such as living chairs, domes etc. Goat Willow and Eared Willow are very hardy.

Juniper Threatened in Ireland, was the dominant plant 12,000 years ago approx. Has historic value and is host to 42 types of plant eating insects. Provides berries and shelter for birds.

Oak Attracts more insects than any other plus support huge amounts of epiphytes such as mosses, lichens and ferns. Sessile Oak, as well as being our national tree is hardier than our other native Oak, Pedunculate Oak.

Ivy Not a tree, but provides bird and bat cover, early berry provider (March) and late pollen provider (October).

Rowan Masses of flowers in the spring for insects and berries in autumn for birds. Will grow at a higher altitude than any other Irish tree.

Guelder Rose As well as providing a beautiful flower, this native shrub is ideal for filling gaps in existing hedges. It also provides fruit for birds and other animal species in autumn.

Blackthorn Great for bird's nests and pollinating insects and enhancing a hedges security. Can tend to spread by suckers if allowed. Also great for bird's nests, hedgerow reinforcement and pollinating insects.

Hawthorn Hawthorn flowers in May after their leaves appear. Blackthorn flowers in April before their leaves appear.

Scots Pine A hardy and native pine tree that can tolerate poor, shallow, acidic soil. There was a time in Donegal where this tree would have featured high into the mountains where our blanket bog habitats are now to be found.

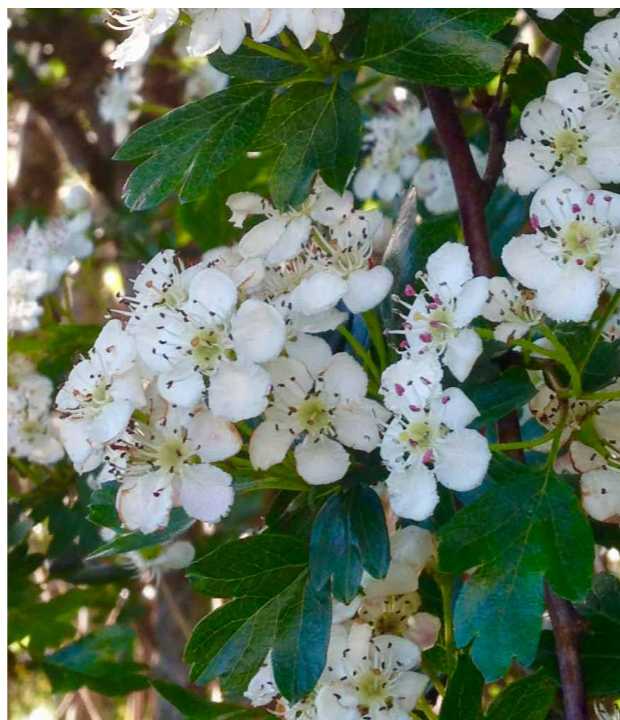


Figure A4.1:
Native Hawthorn in flower

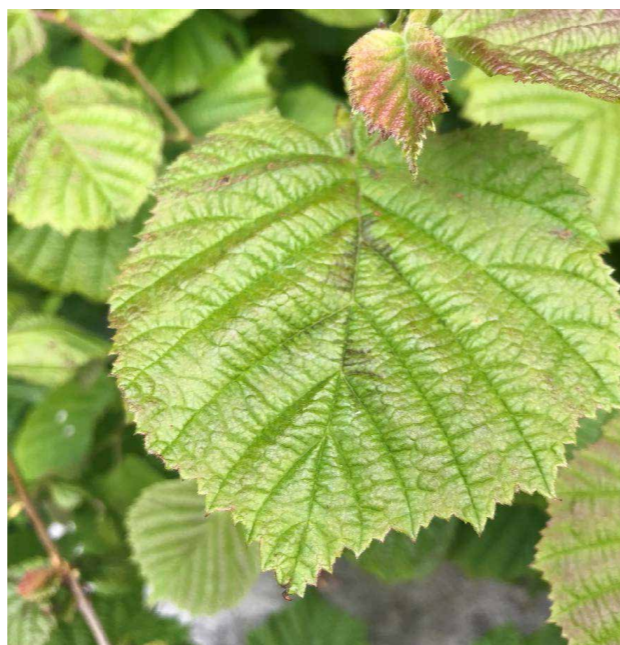


Figure A4.2:
Leaf of Hazel tree

Appendix 5 - Weeding and Controlling Plants

There are a wide range of methods used to control vegetation and pesticides are often the first choice. However most pesticides are non-specific and can kill not just the pest you are targeting but can have an impact on a whole range of other species.

It is possible to manage gardens, yards and our shared spaces safely while enhancing the biodiversity of the area for all to enjoy.

What is a weed?

A weed is defined as 'a plant in the wrong place'. Weeds are generally wild flowers growing in areas that are controlled by humans for growing crops, feeding livestock or growing ornamental plants. But these 'weeds' are often our allies and without them we would not have the wonderful array of insects that are so important to us for pollinating our crops.

What is a pesticide?

A pesticide is a chemical used to kill pests. There are different types of pesticides e.g., insecticide (used against insects), herbicide (used against plants) and fungicide (used against fungi). Many of these are man-made compounds but some are derived from natural products.

How do pesticides impact on pollinators?

Pesticides have a huge impact on the lives of pollinators, not just because they remove their food source, but pesticides also effect their ability to navigate, and impact on their ability to reproduce. Contact pesticides can cause immediate death and if the pesticide is carried back to the hive, it can have devastating effects on the colony. Systemic pesticides have longer term impacts such as on reproduction.

Benefits of Organic Approach

- 1** Cost saving
- 2** Kinder to your health, your pets and the environment
- 3** Pollinators habitats and food sources protected.
- 4** Using less herbicides means there will be less build up of these harmful chemicals in our environment.

Choosing a Control Method

What method you use to control vegetation depends on a number of factors including:

- 1 Type of weed
- 2 Size of the area that you are controlling

It does not take much time and effort to weed an area of ground 2m x 2m but a half acre could end up being a difficult task.

Before you start try asking yourself the following questions:

- What is the weed? Is it an invasive species?
- Do I really need to eliminate this weed? Try embracing the weeds! Many 'weeds' are wonderful wildflowers that are hardy in our environment and perfect for our native biodiversity.
- Am I fully aware of the risks of using a herbicide? (see section on Keeping Safe)
- Can I use a control method that does not harm the environment?

Suggested Control Methods

Manual removal – Scraping or hand removal - weeds can be scraped from a hard surface relatively easily. If the plant is tall, trim it down low in advance before using a sharp spade to lift the remainder of the plant up. If removing by hand there are several types of tools for different weeds such as a tap root remover.

Burning – A burner or flame thrower can be used to heat the weeds and can be very effective at killing the whole plant including the roots. Point the burner at the weeds and walk at a steady pace with the burner flame skimming over the plants. Burning is most effective on dry days when the next day is also expected to be dry. Repeat the walk-over the following day. Heating the plant will kill the internal cells effectively. Do not burn the plant completely as this will produce potash which will feed the weeds instead. The plants will die in a couple of days. For small areas a small burner can be used. A larger burner will be needed for larger areas but safety precautions must be adhered to. Do not burn on hot days and be careful not to singe wood, or burn near plastic etc.



Figure A5.1:
Using a burner to control weeds

Mulching – Some weeds can be suppressed by providing a thick layer of mulch material over it. These include wood bark, coconut coir, mushroom compost, cardboard covered with a mulch. A membrane layer can be laid down and covered with a layer of mulch.

Organic Herbicides – Homemade recipes can be effective for some plants. Pouring or spraying these onto a plant can be effective in the short term – vinegar (neat) or salty water. Pelargonic acid is a natural, organic herbicide that can be purchased from gardening suppliers and online. Sprayed onto the leaves, it is effective against many of the common weeds such as horsetail, thistle, dandelion and prevents root growth. It is semi parasitic, attaching itself to the roots of grasses, keeping the grass down allowing space for other flowers to grow.

Disposing of weeds

- Compost them - If you have a small amount of weeds you could find an area in your garden and keep them in this area. Cover it to prevent the weeds growing again. This pile will die down over time.
- Take it to the recycling centre.
- Do you know someone who has goats, chickens or rabbits? Sometimes these animals will eat certain weeds such as dandelions and sorrel. If you don't spray with herbicides you can eat some of these plants yourself. It is essential you understand what plant you are consuming and consult with a foraging or plant expert in advance.
- Hedge clippings – can be chipped and used on paths or under hedging (where they act as a weed suppressant)

Please do not dispose of waste plants on someone else's land or public lands. This causes the spread of undesirable plants and can spread invasive species.

Keeping Safe and Following Legislation

Please ensure you carry out your chosen control method safely.

Read the label

Most pesticides are dangerous to our health and can be cancer causing. Avoid excessive use, dispose of safely and keep up to date with health and safety risks.

There is a considerable debate globally about the potentially harmful effects of using glyphosate (found in Roundup). Many herbicides have been used for years before they are eventually banned. They can persist in the environment for considerable periods of time. Evidence is now emerging of significant amounts of pesticides in our drinking water. We can all help to ensure we have safe water to drink. *Think carefully before you spray and never spray near water.*

If you employ staff to spray, it is important that you are aware of pesticides legislation (S.I. No. 155/2012 - European Communities (Sustainable Use of Pesticides) Regulations 2012) and ensure the safety of personnel and livestock. In Ireland, a number of local authorities have now voted to end the use of glyphosate in public spaces. If you are spraying in an area, it is a duty to notify local beekeepers so they can keep their bees safe during the spraying activity.

Wear Personal Protective Equipment (PPE)

Ensure you wear safety goggles when weeding, a face guard and ear muffs when strimming and a good quality face mask when spraying. Providing PPE to employees and volunteers is a duty of all organisations.

Invasive Species

There are eleven invasive plant species in the Carndonagh area. These include: Japanese Knotweed; Himalayan Balsam; Winter heliotrope, Montbretia and Salmonberry.

Some invasives are difficult to deal with and can be spread very easily. It greatly helps to understand how the plant spreads so you can avoid certain practices. Balsam can be removed easily by pulling it from the ground. This can be dried and eventually composted with other weeds. It is important not to let the plant produce seed as this will cause it to spread widely.

It is an offence to cause Japanese Knotweed to spread (Regulation 49 of S.I. No.477/2011 - European Communities (Birds and Natural Habitats) Regulations 2011). If you suspect you have JK on your property, do not trim, burn or compost, keep away from the patch and call Donegal County Council for advice or call a qualified landscaper.

Hedge Cutting

It is recommended that hedge cutting does not take place between 1st March and 31st August to avoid interfering with the breeding activity of birds. This is covered under Section 40 of the Wildlife Act 1976 as amended by the Wildlife (Amendment) Act 2000. There are derogations for hedge cutting along roads where there is a road safety risk as defined under the Roads Act 1993. Plan your hedge trimming to avoid the need to cut vegetation during the spring and summer. February is the perfect month to cut while the plants are still dormant.



Figure A5.2:
Common carder bumblebee
enjoying native bluebells on the
Moss Road Estates.

Appendix 6 - Invasive Plant Species

Invasive plants are a cause for much concern for many areas across Inishowen and globally invasive species are cited as one of the key threats to biodiversity. There are a few key species growing along our riverbanks, road verges and spreading across fields in Carndonagh. These plants can create significant challenges for our native biodiversity and can be a nuisance, cause erosion and can be a health hazard. Invasive species often out-compete our native plants and take over an area.

Himalayan Balsam is an annual plant that spreads rapidly by seed. If allowed to spread it will take over an area and prevent native plants from colonising. Along a riverbank this means that during the winter when the plant dies back the banks will be exposed to erosion.

Japanese Knotweed is a pioneer species that grows rapidly in disturbed soil. In Ireland there is only one sex (females only) and the plants mostly spread vegetatively, that is, when small parts of the stems or roots spread to a new area. Cutting and trimming Japanese Knotweed is a key factor in its spread and this is why it has become an offence to cause it to spread. JK will break through tar and weakened or cracked concrete. It is a perennial plant and will return year on year, growing into large stands of thick stemmed plants. Control and management should be carried out by qualified personnel only.

Giant Hogweed is not found frequently in Inishowen. However, this plant presents a public health hazard as it can cause severe skin 'burns'. Therefore, it is important to be vigilant of its arrival to the area as it is very difficult to eradicate.

Cherry Laurel, or *Prunus laurocerasus*, while being a popular plant with gardeners and some landscape designers throughout Ireland, is not as harmless or useful as was once perceived. It was, and alarmingly still is, planted as attractive, resilient and evergreen cover. It was first recorded growing in the wild in Ireland in the 1950's. Native to the Iberian peninsula, it thrives particularly in woodland but may also be found in bogs, grasslands and other habitats. Herbivores avoid it which helps it to establish itself in woodland that is grazed by deer. Birds eat the berries and pass the seeds in flight, spreading the plant far and wide and making it more difficult to control. It damages our biodiversity by outcompeting other native plants. This results in a loss of not only plant species but the associated insect and other animal species, making laurel an invasive species. Hopefully in time, as our national awareness of the current biodiversity crisis grows, laurel and other invasive species will be restricted, making it an offence to trade in them. In the meantime, it should never be planted and if seen, should be recorded to the National Biodiversity Data Centre.

Understanding where invasive plants grow in an area is important to developing a plan on how to tackle the problem. The key species in Carndonagh are:

- 1 Japanese Knotweed
- 2 Himalayan Balsam
- 3 Winter Heliotrope
- 4 Salmonberry (Wild Raspberry)
- 5 Montbretia
- 6 Rhododendron (*ponticum*)
- 7 Cherry Laurel

More information on invasive species can be found on www.invasivespeciesireland.com

If you unsure how to identify some of the more common invasive species listed, you can find many good resources online. The Non Native Species Secretariat (www.nonnativespecies.org/search.cfm) provides excellent identification and information guides on four species:

- Japanese Knotweed (*Fallopia japonica*)
- Giant Hogweed (*Heracleum mantegazzianum*)
- Himalayan Balsam (*Impatiens glandulifera*)
- Rhododendron (*Rhododendron ponticum*)

Information on two species can be viewed on Biodiversity Ireland:

- Winter Heliotrope (*Petasites fragans*)
- Cherry Laurel (*Prunus laurocerasus*)



Figure A6.1:
Japanese Knotweed on the banks of the Glennagannon River

Appendix 7 - Bird Boxes

By erecting bird boxes the number of blue, great and coal tits (in conifer woodlands) can dramatically increase. Robins can also nest in boxes with a more open entrance. Placing the boxes a reasonable distant apart from each other (at least 50 meters) and facing north increases chances. Once birds establish breeding this increases people's engagement and appreciation of their presence. If these boxes are successful it is possible to attract more diverse species such as dippers and wagtails by the river, barn owls or kestrels by woodlands etc. quite clean.

Small song birds will lay one egg a day for up to 13 days, then incubate the eggs for approx. 2 weeks, then feed the chicks until they fledge about three weeks later. Cameras can be used for a variety of wildlife projects; one of the most popular is to mount them in a waterproof box beside a bird feeder, excellent for survey work.

Instructions for bird boxes:

Nest Box Location:

North or North East Walls to avoid prevailing wind/rain and direct sun. On a tree is ideal but the side of a building can work equally well. Box angled downwards slightly to avoid water entering the entrance hole and flooding the nest. Reasonable distance from other nest boxes, from bird feeders and from other ideal nest sites such as cavities in an old wall. Ideally shrubs and trees should be growing nearby to provide food an additional cover from predators.

Time of year:

Ideally before the end of February as birds are prospecting for nest sights from then. Any time outside of this can also work, boxes put up in April have been successful that season. Also some birds use the boxes for shelter in winter.

Nest Box Type:

Small hole at front ~ blue tits and great tits 2-5 metres up. These two species are by far the most common users of nest boxes. Large rectangular entrance ~ robins and wagtails, 1-3 metres.

Maintenance:

After use between November and January boxes should be cleaned of old nest material and scalded with boiling water to kill any bird parasites. Boxes should not be disturbed between the months of February and October. Eggs / nest material should never be removed during these months.

Cameras:

Fixed line ~ Preferred method, 1 power source required, gives a stronger signal. Direct line from camera to recording device or screen.

Wireless ~ 2 power sources required. The power for the camera could be battery as opposed to mains. This still provides good signal and can beam signal to a receiver within line of sight up to 50 metres. Receiver can be inside glass and is wired to a recording device or straight to the screen.

Hard drive boxes or (with a special adaptor) laptops can be used to record footage and create a movie of the birds nesting which can be potentially streamed to promote the area. Streaming live nest boxes is becoming increasingly popular and is an excellent way of engaging with the public. Zoom accounts for streaming are an effective way that is affordable, user friendly and can be linked to a social media account.

N.B. Please make sure an appropriate licence is sought from NPWS if bird cameras are being fitted into any bird box.

Birds will often prospect a variety of sites so if nothing happens this season be patient. Some birds build several nests in a season and only one is used. Droppings are usually carried away by birds that use nest boxes so the site should remain quite clean. Small song birds will lay one egg a day for up to 13 days, then incubate the eggs for approximately 2 weeks, then feed the chicks until they fledge about three weeks later. Cameras can be used for a variety of wildlife projects; one of the most popular is to mount them in a waterproof box beside a bird feeder, excellent for survey work (see Appendix 11, Nature Photography and the Law).

Other bird boxes

As well as bird boxes for some of our more common species there are other, lesser known ways of attracting some iconic bird species to your buildings and grounds. Swallows, house martins and swifts can all be catered for as can pied wagtails and house sparrows. Duck species such as goosanders can and will breed in nest boxes, barn owls can also be helped in this way. The British Trust for Ornithology published a comprehensive guide for many different species, it can be found by the following link:

<https://www.bto.org/sites/default/files/u15/downloads/publications/guides/nestbox.pdf>

Barn Owls

One of our iconic owl species that is facing huge declines is the barn owl. Farmers and land owners across the country have been working to change their fortunes and one of the ways of doing this is to provide a suitable nesting site for them. Birdwatch Ireland have recently published an excellent how-to guide for building a barn owl box and can be found at this link:

https://birdwatchireland.ie/app/uploads/2021/01/5523-BirdWatchIreland-Owl-Box_leaflet_HR.pdf

House martin

House martins build mud cups under the eaves of our buildings, they come here each year from Africa and need all the help they can get. You can fit an artificial house martin nest with ease, they will eat hundreds of bugs from around your house each day as way of payment.

You can make your own by following the instructions below:

<https://www.gardenersworld.com/how-to/diy/how-to-make-a-house-martin-nest/>

Or buy them online from the likes of Birdwatch Ireland:

<https://birdwatchireland.ie/product/house-martin-double-nestbox/>

Swift bricks

The iconic swift has to be one of our most amazing creatures. The only time they touch something solid is when they build a nest - the rest of the year is spent on the wing. They nest under the eaves of old houses. Plastic fascia boards and other building improvements have created a housing crisis for these incredible birds. If you are considering any developments to the roof of your building, you can fit swift bricks. This negates the issues with modernising and allows a suitable nesting site for them. For new developments in an area that has historically had swifts, bricks can also be fitted. Where bricks are not possible, swift boxes may be fitted. BirdWatch Ireland's excellent publication will give information about swifts, their monitoring and how to fit swift boxes.

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

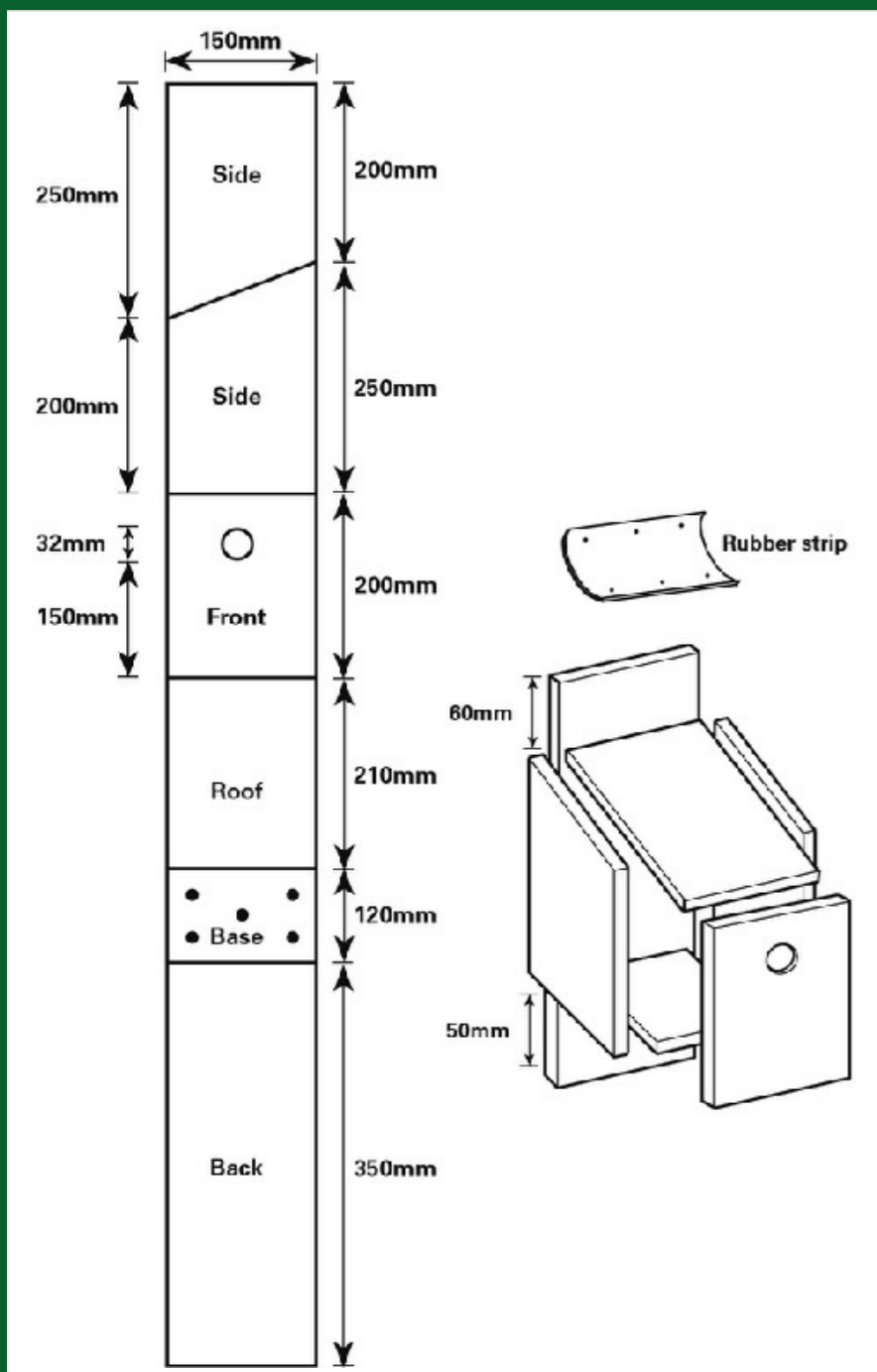


Figure A7.1:
Bird box plan (courtesy of RSPB)

Appendix 8 - Bat Boxes

Bat boxes should be made from untreated wood, i.e. wood which has not been pressure-treated with chemicals. Bats are sensitive to smells and preservative chemicals may be harmful to them. They should be made from rough-sawn wood (rather than smooth, planed wood), have good, tight joints – bats hate a draught, have a narrow slit at the back of the box, with a rough piece of wood leading up to it that they can clamber up.

The very best bat box is one with two or more internal compartments, and one that is as large as possible – a deep cavern makes bats feel really safe and keeps the air temperature more constant.

Make sure you have the right wood. To make your own bat box, get hold of some untreated, rough-sawn wood. That can be easier said than done! You will probably need to go to a saw-yard rather than a timber merchant, as you're unlikely to find it at a DIY store.

Make sure you look for the Forest Stewardship Council (FSC) logo. If your wood feels too smooth, roughen it by dragging the teeth of a saw across the surface – this helps bats get a good grip as they clamber around their new home.

You'll need a sheet of timber 15cm wide by at least 1.1m long, as thick as possible to keep the bats insulated from too much cold and heat inside (ideally 1.5cm or more).

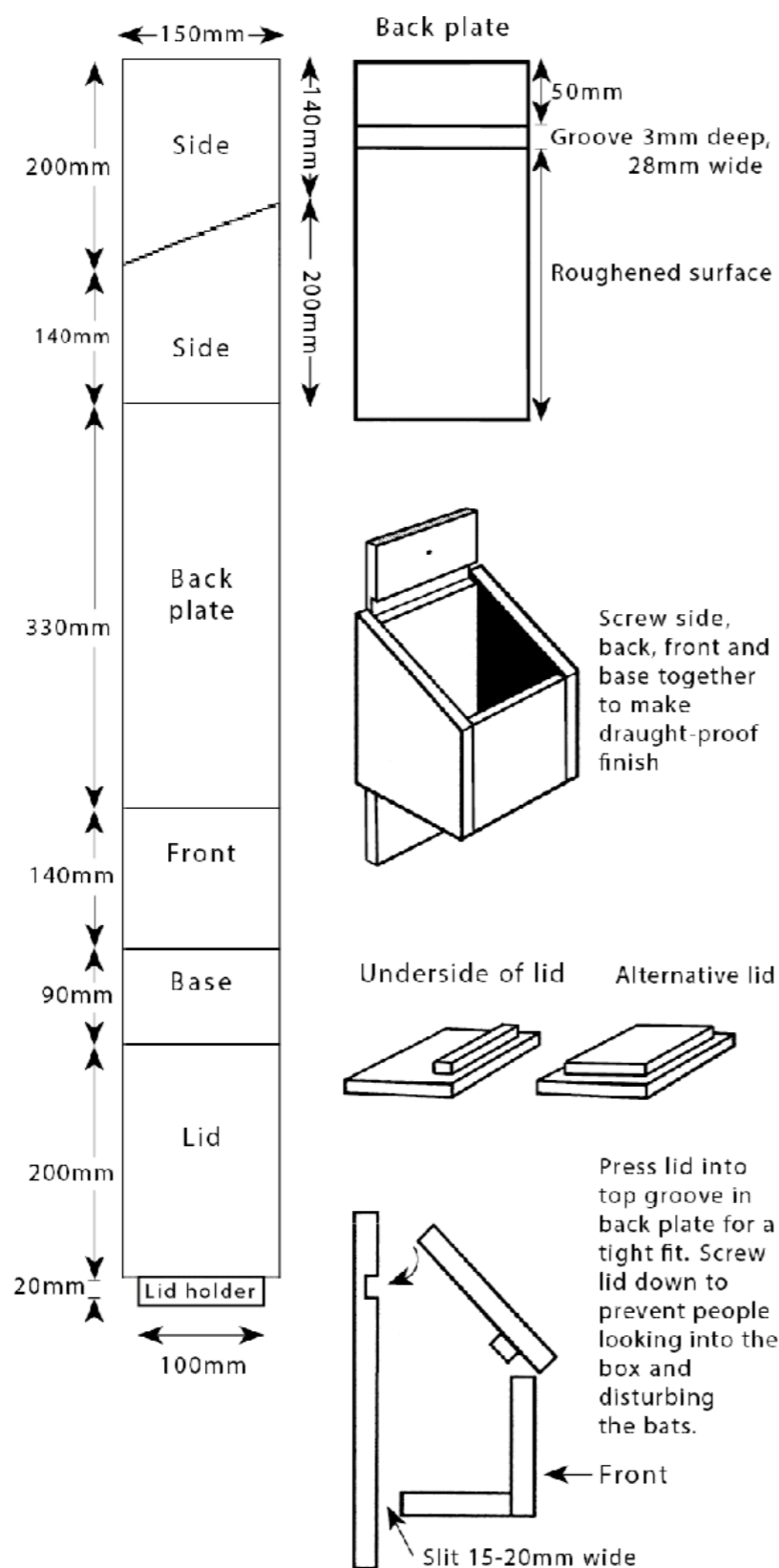
Note: the dimensions shown are for 20mm thick wood. If your wood is different to that, the dimensions of the Base should be 150mm by 130mm minus 2 x thickness of the wood, e.g., if the wood is 18mm thick, the base should be 150mm x 94mm.

- 1** Mark the wood with a pencil, according to the diagram, and then cut it in to the sections.
- 2** Nail all the pieces together as shown in the diagram, making the joints as airtight as possible.
- 3** Choose your location. You could put it under the eaves of your house or, if you have a large garden, on the trunk of a mature tree. Ideally, look for a spot that is at least 3m (10 feet) from the ground, sheltered from strong winds and exposed to the sun for part of the day. Position your box so it faces between south-west and south-east. Make sure there is a clear flight line in.
- 4** Now put your bat box up. Drill holes at the top and bottom of the box's backing plate and fix the bat box to the wall with screws or plugs. If you're fixing it to a tree, you can use adjustable ties so you don't cause any damage to the tree. If you don't have these, use timber-screw bolts.

All bats and their homes are protected by Irish law so it's important you don't disturb them and once installed they should not be cleaned. Watch and enjoy from a distance. If you don't see any bats going in or out, look out for their black droppings underneath the entrance. They are little dry pellets that crumble to dust. The most likely new residents will be pipistrelles - there are two very similar species which are widespread in villages and towns around Ireland.

(Instructions courtesy of the RSPB)

Figure A8.1:
Bat box plan
(courtesy of RSPB)



Appendix 9 - Make your own compost

Creating a wormery would be a positive step to managing self-sustaining compost. This in turn would help generate a system whereby the community could feed and nurture its planting while utilising the communities organic waste matter. The community could also add to the wormery if the content was monitored. This is a system that would need both research and on-going management.

Once in place, however, it would be a lasting resource that would have the potential for a lot of buy- in from school groups, local community groups and households. Having a renewable and sustainable source of compost 'on-site' would be a wonderful asset which would attract lots of attention from all. It would also save considerable cost; compost can add up financially as a resource for any community group. Advice and management instructions are available from a variety of sources, the Royal Horticultural Society (RHS) website having some excellent concise instructions.



Figure A9.1:
Bokashi compost - you can compost cooked waste using this method.

Appendix 10 – Recording Biodiversity

A number of initiatives have been developed in recent years in Ireland for recording nature. The main collection site for all nature in Ireland is the National Biodiversity Data Centre. All nature recordings should be entered on to their website when possible. They will then collate all records and map them to the appropriate species map. All your records are saved and you can browse your record history at any time. This free service is very easy to use as well as invaluable, as it helps assess the status of different species throughout Ireland.

Once you have entered your record you are now a citizen scientist! Without citizen scientists we would be missing a huge amount of knowledge for so much biodiversity across Ireland.

Submitting records on the Biodiversity Data Centre website

www.biodiversityireland.ie

- 1 Open biodiversityireland.ie and on the right of the screen, click 'Submit Sightings', or go straight to the records section by entering records.biodiversityireland.ie/start-recording
- 2 Choose the correct group for your record. The site will remember your details for as many records as you want in one section ~ try to group your records per section if you have more than one, e.g. all birds, all butterflies etc.
- 3 You must fill all of the below boxes, the others are optional: Name, email, county and record date.
- 4 Location name (as near as you can if you don't know).
- 5 Grid reference (click on the map on the right and zoom in to get your exact location at the time, then click on where you were).
- 6 Species (start typing the common name and it will come up).
- 7 Save! You can view your record immediately by clicking on the Start Recording button. In 'View records' information on all your latest sightings will be displayed.



Figure A10.1: Screen shot from NBDC recording portal

Surveys and other recording initiatives

Participating in surveys is not only fun and educational but most valuable. It is a wonderful way to enthuse and involve a group, organisation, school, family or individual. By committing to a survey, no matter how quick or short, you learn by dedicating an allotted time to focus on only the species you are recording. More often than not, the organisation that runs the survey also run training courses, may supply any necessary equipment and will always be on hand to advise as to methods and help with species identification. There are many wonderful recording initiatives across the island of Ireland, a selection of which are listed below.

A list of some annual surveys and other biodiversity recording sites:

Bats Bat surveys	https://www.batconservationireland.org/what-we-do/monitoring-distribution-projects/ireland-daubentons-bat-waterways-survey
Birds Bird sightings	https://www.bto.org/our-science/projects/birdtrack

Birds (continued)	
Countryside birds	https://birdwatchireland.ie/our-work/surveys-research/research-surveys/countryside-bird-survey/
Irish bird sightings	http://www.irishbirding.com/birds/web
Irish garden bird survey	https://birdwatchireland.ie/our-work/surveys-research/research-surveys/irish-garden-bird-survey/
Irish rare birds	http://www.irbc.ie
Swifts	https://birdwatchireland.ie/our-work/surveys-research/research-surveys/swift-surveys/
Flowers	
Flowering plants	https://bsbi.org/record-a-plant
Insects	
Butterfly monitoring scheme	https://www.biodiversityireland.ie/projects/monitoring-scheme-initiatives/butterfly-monitoring-scheme/
Bumblebee monitoring scheme	https://www.biodiversityireland.ie/projects/monitoring-scheme-initiatives/bumblebee-monitoring-scheme/
Dragonfly Ireland Survey 2019 - 2024	https://www.biodiversityireland.ie/projects/monitoring-scheme-initiatives/dragonfly-ireland-2019-2024/dragonfly-ireland-survey/
Irish pollinator initiative	https://pollinators.ie
Flower-Insect timed count	https://pollinators.ie/record-pollinators/fit-count-progress/
Moths	http://www.mothsireland.com/records/

Marine	
Basking sharks	http://www.baskingshark.ie
Fish	https://oar.marine.ie/handle/10793/792?mode=full&submit_simple=Show+full+item+record
Irish Whale and Dolphin sightings	https://iwdg.ie/sightings/
Mermaids Purse' survey	https://marinedimensions.ie/mermaid-purse-sightings-form/
Rocky shore monitoring	https://exploreyourshore.ie
Others	
General nature recordings	http://www.habitas.org.uk/index.html
Invasive species	https://www.biodiversityireland.ie/projects/invasive-species/
Other biodiversity initiatives	https://www.biodiversityireland.ie/record-biodiversity/partners-surveys/

Table A10.1:
A list of some annual surveys and other biodiversity recording sites

Appendix 11 – Nature Photography & the Law

Wild birds are protected in Ireland under law. This also applies to their nests and eggs. They should not be disturbed at any time under any circumstances, with very few exceptions. Filming and photography, however, may be permitted if the appropriate licence is acquired. This allows us to record nest boxes for instance and display them in our clubhouse/school etc. which is a very successful way of engaging the broader public and often opens opportunities to further educate about our biodiversity efforts. The licences are easily acquired and the application system is very efficient. The National Parks and Wildlife Service (NPWS) are the agency that can issue these licences and lend advice around this area.

The law

Under Section 22(g)(f) of the Wildlife Act, 1976, (as amended) a licence is required for a person to take or make photographic, video and other pictures of a wild bird species specified in the licence on or near a nest containing eggs or unflown young.

To apply for a licence, email wildlifelicence@housing.gov.ie



WILDLIFE ACTS 1976 TO 2018 – SECTION 22(g)(f) APPLICATION FOR A LICENCE TO PHOTOGRAPH/ FILM A PROTECTED WILD BIRD

[PLEASE USE BLOCK LETTERS]

1. Name of applicant:

Address:

Town/County: Eircode:

Telephone No.: Email Address:

2. Species Name:

3. Purpose of filming or photography:

4. State whether licence is for filming or photography:

5. Area(s) in which applicant will operate: (e.g. county and townland)

6. Qualifications/experience in this field of activity

7. Organisation to which applicant is affiliated:

8. Period for which licence is required:

9. Number of previous licence (if any) and date of expiry:

****N.B. Where necessary attach any additional relevant information.****

I declare that the above particulars are, to the best of my knowledge and belief, true and correct.

Signature: Date:

Please return completed application form to:

Wildlife Licensing Unit (R. 2.03)
National Parks & Wildlife Service
90 King Street North,
Smithfield
Dublin 7, D07 N7CV

Tel: (01) 888 2000
Email: wildlifelicence@housing.gov.ie



An Roinn Tithíochta,
Rialtais Áitiúil agus Oidhreacht
Department of Housing,
Local Government and Heritage

Figure A11.1:
Licence application for photographing a protected wild bird

Filming animals other than birds and the law

The same applies for animals protected by the law that are not a bird. A license must be applied for through the NPWS, also at the email address: **wildlifelicence@housing.gov.ie**

At the time of writing, the animal species protected under the wildlife acts listed on the NPWS site are as below:

Mammals	Amphibians	Reptiles	Invertebrates
Badger	Natterjack toad	Common lizard	Freshwater crayfish
All bat species	Common frog	Leatherback turtle	Freshwater pearl mussel
Red, Sika and Fallow deer	Common newt		Kerry slug
Hare species			
Hedgehog			
Otter			
Pine martin			
Red squirrel			
Dolphin species			
Porpoise species			
Seal species			
Whale species			
Pygmy shrew			
Stoat			

Table A11.1:
Animal species protected under the Wildlife Acts

**WILDLIFE ACTS 1976 TO 2018 – SECTION 23(6)(b)
APPLICATION TO PHOTOGRAPH / FILM A PROTECTED WILD ANIMAL**

[PLEASE USE BLOCK LETTERS]

- Name of applicant:
- Address:
- Town/County: Eircode:
- Telephone No.: Email Address:
- Species Name:
- Purpose of filming or photography:
- Do you intend to use only camera traps/trail cameras?
- State whether licence is for filming or photography:
- Area(s) in which applicant will operate: (e.g. county and townland)
- Qualifications/experience in this field of activity
- Organisation to which applicant is affiliated:
- Period for which licence is required:
- Number of previous licence (if any) and date of expiry:

****N.B. Where necessary attach any additional relevant information.****

I declare that the above particulars are, to the best of my knowledge and belief, true and correct.

Signature: Date:

Please return completed application form to:

Wildlife Licensing Unit (R. 2.03)
National Parks & Wildlife Service
90 King Street North,
Smithfield
Dublin 7, D07 N7CV

Tel: (01) 888 2000
Email: wildlifelicence@housing.gov.ie



An Roinn Tithíochta,
Rialtais Áitiúil agus Oidhreacht
Department of Housing,
Local Government and Heritage

Figure A11.2:
Licence application for photographing a protected wild animal

Appendix 12 - ECO Planner & ECO Actions




ECO PLANNER

GIVE NATURE
A HAND




JANUARY	FEBRUARY	MARCH	APRIL
<p>01</p> <p>Clean out bird boxes, checking for leaks and damage by predators. Check ties to trees. Bird boxes should not be tampered with.</p>	<p>02</p> <p>Start planting your wildflower seeds</p> <p>Make sure your hedges are cut by the end of the month. After this time it is an offence under the Wildlife Act to cut hedgerows.</p>	<p>03</p> <p>Get involved in Bumblebee Monitoring with the National Biodiversity Data Centre. Record bumblebees on a walk once a month from March to October.</p> <p>Allow Dandelions to grow. They are the most important flowers for bees and early-flying insects at this time of year.</p>	<p>04</p> <p>Get involved in Butterfly Monitoring Scheme with the National Biodiversity Data Centre. Record butterflies on a 1km route once per week from April to September.</p> <p>Keep an eye out for swallows and record your sightings with the Spring Alive team at BirdWatch Ireland.</p> <p>First cut of the year for your wildflower lawn</p>
MAY	JUNE	JULY	AUGUST
<p>05</p> <p>Submit your butterfly records to the NBDC website. (National Biodiversity Data Centre - www.biodiversityireland.ie)</p> <p>National Biodiversity Week is held on the third week of May. Get involved! Join a Dawn Chorus event and learn more about your local birds.</p> <p>2nd cut for your wildflower lawn at the end of the month</p>	<p>06</p> <p>Ensure birds have clean water for drinking and bathing in the summer months.</p> <p>Learn more about your garden by trying the Backyard Biodiversity Survey</p>	<p>07</p> <p>Set up a method for harvesting rainwater from your roof or shed. Use this to water your plants during warm summer weather.</p> <p>3rd cut for your wildflower lawn mid-July to the end of the month</p>	<p>08</p> <p>Plant certain species of wildflower seeds e.g. yellow rattle</p> <p>Take part in the Daubenton's Bat Survey with Bat Conservation Ireland.</p> <p>Enjoy National Whale Watch Day - join a guided watch</p>
SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
<p>09</p> <p>This is the best month to control Japanese Knotweed because the plant is starting to withdraw for the winter and is more vulnerable. Control should only be carried out by qualified personnel.</p> <p>Final cut for your wildflower lawn. Make sure you remove the cuttings.</p>	<p>10</p> <p>Mid October onwards is a good time to start trimming your hedges and pruning trees.</p> <p>Plant spring flowering bulbs.</p> <p>Collect seed from your dying flowers and fruits. Local seed is the most resilient.</p>	<p>11</p> <p>Plant bare-rooted trees from now until March.</p> <p>Start feeding birds in your garden to ensure they can survive safely through the colder months.</p>	<p>12</p> <p>Get involved with the Garden Bird Survey with BirdWatch Ireland.</p> <p>Ensure birds have clean water that doesn't freeze over during the winter</p>

Figure A12.1:
Eco Planner



MY ECO ACTIONS

Let us know what actions
you take to give nature a
helping hand

 /EcoCarn

JANUARY	FEBRUARY	MARCH	APRIL
01	02	03	04
05	06	07	08
09	10	11	12




Figure A12.2:
My Eco Actions

Appendix 13 - Single Use Plastic (SUP) Directive

Directive (EU) **2019/904** of the European Parliament and of the Council of 5 June 2019 on the reduction of the impact of certain plastic products on the environment (OJ L 155, 12.6.2019, pp. 1-19). This directive became law in EU countries on 3 July 2021. The market restrictions and marking of product rules apply from 3 July 2021, while the product design requirements for bottles apply from 3 July 2024. The Extended Producer Responsibility measures apply from 31 December 2024.











	Cotton buds	Ban on single use cotton buds made with plastic, to be replaced on the market with sustainable alternatives.
	Cutlery, plates, straws & stirrers	Ban on single use cutlery, plates, straws and stirrers made with plastics, to be replaced with more sustainable alternatives.
	Sticks for balloons and balloons	Plastic sticks for balloons to be banned and replaced with sustainable alternatives. On balloons , producers to contribute to awareness-raising, clean-up, collection, waste treatment and introduce new labelling on the environmental impact of the product and recycling options for consumers.
	Food containers	Significant national consumption reduction of plastic food containers . Producers to contribute to awareness-raising, clean-up, collection and waste treatment.
	Cups for beverages	Significant national consumption reduction of plastic cups for beverages . Producers to contribute to awareness-raising, clean-up, collection and waste treatment.
	Beverage containers	Producers to contribute to awareness-raising, clean-up, collection and waste treatment of beverage containers ; product design requirements to attach caps and lids to beverage containers; 90% separate collection target for plastic bottles .
	Cigarette butts	Producers to contribute to awareness-raising, clean-up, collection and waste treatment of cigarette butts and other plastic tobacco product filters.
	Bags	Producers to contribute to awareness-raising, clean-up, collection and waste treatment of lightweight plastic carrier bags , in addition to existing measures in the existing Plastic Bags Directive.
	Crisp packets/sweet wrappers	Producers to contribute to awareness-raising, clean-up, collection and waste treatment of plastic packets and wrappers .
	Wet wipes and sanitary items	New labelling requirements for sanitary towels and wet wipes to inform consumers on environmental impact of the product and how to dispose of it properly. Producers to contribute to awareness-raising, clean-up, collection and waste treatment of wet wipes .

Figure A13.1: Single Use plastics banned in EU since July 2021

Appendix 14 – Local Initiatives

See below a list of local initiatives and projects that are planned in the coming months and years for the Carndonagh area. Each of these projects presents opportunities to promote and enhance biodiversity in the area. Many of the actions recommended within this plan can be carried out within the scope of these initiatives as co-benefits or goals.

- **Energy Master Plan** - An Energy Master Plan has been launched in July 2021 for Inishowen, the first within the county. This links well with the biodiversity audit and plan. The ECO Carn network can also act as a good sounding board when energy options are being considered and support and raise awareness of any challenges and measures needed. The group, as a representative network, are in a good position to 'biodiversity proof' any developments in this regard.
- **Decarbonisation Zone** - Carndonagh is one of two sites in the county selected for DZ initiatives. The submission was led by ECO Carn and members will work closely to ensure the BAP informs any actions. ECO Carn will collaborate with Donegal County Council in the roll out of the DZ programme.
- **Town Regeneration Plan** - ECO Carn members engaged with the consultation phase of the town regeneration plan and will continue to input where opportunities arise during the phased regeneration plan to support and maximize the biodiversity elements for the town.
- **Cyclepath Development / Greenway** - with the welcome development of these types of projects, the BAP can inform the best way to develop these initiatives while being sensitive to their impact on biodiversity and how best to enhance and maintain existing biodiversity on proposed routes.
- **Food Security through Seed Saving & Exchange Project (FSSSE)** – Barrack Hill Community Gardens were contacted by Social Farms and Gardens Northern Ireland to join 30 other Ulster groups on a journey to seed sovereignty. BHCG are growing 4 heritage seed varieties to save and swap seeds within the group. These seeds are difficult to source and seeds are also expensive so the project provides a way to sustainably maintain a seed bank. The project involves knowledge sharing (through Zoom classes) and the BHCG are happy to share their knowledge to the local Carndonagh community.

Appendix 15 - Potential Sources of Funding

The following organisations provide funding from time to time for environmental and biodiversity projects.

- Inishowen Development Partnership
- ChangeMakers
- Community Foundation for Ireland
- Donegal County Council - Members Development Fund, Development Fund Initiative, Community Environment Action Fund, DCC Environment Pack
- Climate Action Fund
- ORIS (Outdoor Recreational Infrastructure Fund)
- Health Service Executive
- Heritage Council
- LEADER Programme
- Peatlands Community Engagement Fund
- Native Woodlands Scheme
- Rethink Ireland
- The Wheel (provide a list of funds available through their digital resource Funding Point)
- Inland Fisheries Ireland
- National Parks and Wildlife Service
- The Ireland Funds
- Royal Irish Academy
- EU funding such as LIFE Programme, Horizon 2020, Interreg, Northern Periphery and Arctic Programme

Appendix 16 - Contacts

An Taisce the National Trust:	www.antaisce.ie
Bat Conservation Ireland:	www.batconservationireland.org
Birdwatch Ireland:	www.birdwatchireland.ie
Boom Tree Bees:	www.boomtreebees.com
Botanical Society of Britain and Ireland:	www.bsbi.org.uk
Clean Coasts:	www.cleancoasts.org
Composting, RHS:	www.rhs.org.uk/advice/profile?PID=444
Conservation Volunteers:	www.conservationvolunteers.ie
Crann:	www.crann.ie
Donegal County Council:	www.donegalcoco.ie
Heritage Council:	www.heritagecouncil.ie
Inishowen Beekeeper's Association:	www.facebook.com/inishowenbeekeepers
Inishowen Rivers Trust:	www.inishowenriverstrust.com
Inishowen Wildlife Club	www.inishowenwildlifeclub.com
Inland Fisheries Ireland	www.fisheriesireland.ie
Irish Moths and Dragonflies	www.irishmoths.net
Irish Peatland Conservation Council:	www.ipcc.ie
Irish Seed Savers:	www.irishseedsavers.ie
Irish Wildlife Trust:	www.iwt.ie
Lichens:	www.lichens.ie
National Biodiversity Data Centre:	www.biodiversityireland.ie
National Parks & Wildlife:	www.npws.ie
Native Irish Wildflower seeds:	www.wildflowers.ie
NatureNorthWest:	www.naturenorthwest.ie
Notice Nature:	www.noticenature.ie
All-Ireland Pollinator Plan:	www.pollinators.ie
Sustainable Water Network:	www.swanireland.ie
True Harvest Seeds:	www.trueharvestseeds.org
The Ordnance Survey of Ireland:	www.osi.ie/mapviewer
Local Authority Waters Programme	www.lawaters.ie
Wild Inishowen	www.facebook.com/wildinishowen/
Wildflowers of Ireland:	www.irishwildflowers.net

Table A16.1:
Useful websites

Appendix 17 - Member Links

Eco Carn facebook.com/EcoCarndonagh	Carn Men's Shed menssheds.ie/sheds/carndonagh-mens-shed facebook.com/mensshed.carndonagh
Inishowen Environmental Group facebook.com/InishowenEnvironmentalGroup	CLG Carn Domhnaigh donegalgaa.ie/carndonagh facebook.com/carndonaghgaa
Barrack Hill Community Garden facebook.com/BarrackHillTownPark	Colgan Hall colganhall.com facebook.com/colgan.hall
Barrack Hill Town Park facebook.com/BarrackHillTownPark	Colgan Heritage Committee facebook.com/colgan-heritage-weekend-1064526763609300 facebook.com/ colgan.heritage
Carndonagh Community School carndonaghcs.ie	Forests of Carndonagh facebook.com/pages/category/Community-Service/Forest-of- Carndonagh-107759460640307
Scouts facebook.com/groups/131841360273227	Carn Traders facebook.com/visitcarn/posts/carndonagh-traders-association
St. Patrick's Girls NS facebook.com/CarnGNS	Spraoi & Sport spraoiagussport.ie facebook.com/spraoiagussport
St. Patrick's Boys NS carnboysschool.ie	Inishowen Development Partnership inishowen.ie facebook.com/InishowenDevelopmentPartnership
Craigtown NS craigtown.ie	
Donagh NS donaghns.ie	
Glentogher NS facebook.com/GlentogherNS	
St Brigid's, Glenmakee NS glenmakeens.ie/	

