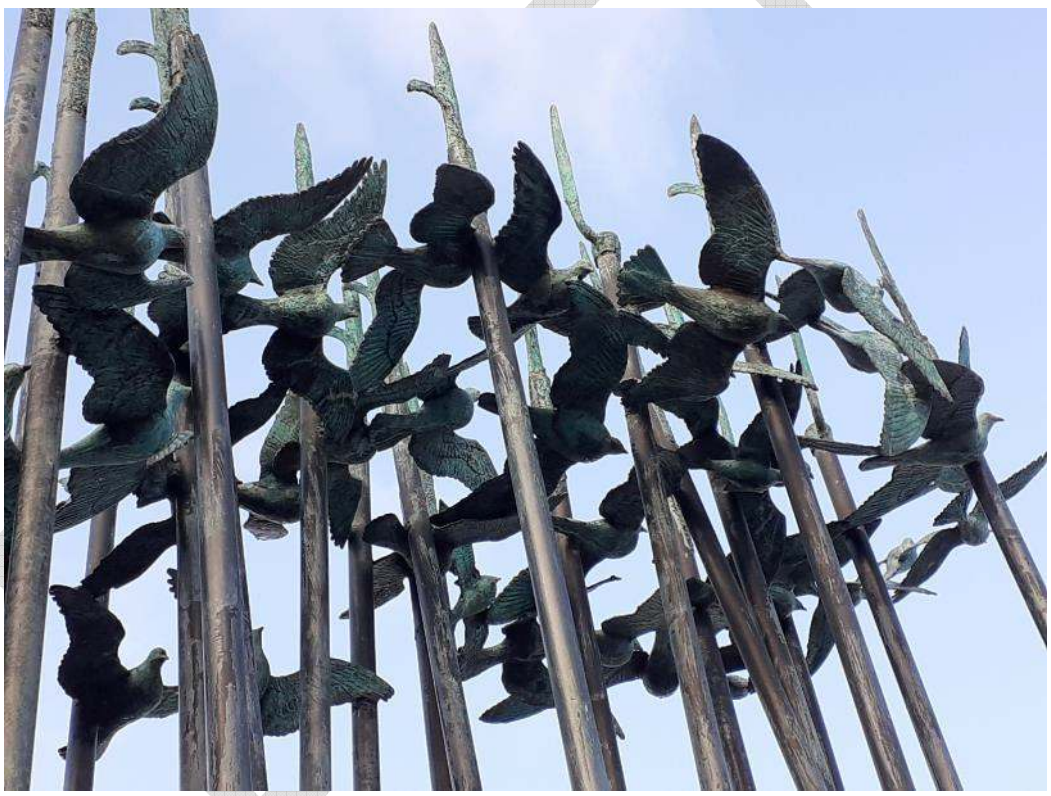
Comhairle Contae Mhaigh Eo
Mayo County Council

An Chomhairle Oidhreachta
The Heritage Council

Draft Local Biodiversity Plan

Castlebar

County Mayo



Prepared by Woodrow Sustainable Solutions Ltd.
for Mayo County Council

June 2023

An Action of the County Mayo Heritage Plan

woodrow

Authorship

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All Woodrow staff are required to abide by a strict code of professional conduct in all aspects of their work.

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Acknowledgements

Thanks to Deirdre Cunningham of Mayo County Council for help and guidance in the preparation of this plan, and to all who contributed information and recommendations, including Lynda Huxley, Chris Huxley, and Mary Roberts. A full list of consultees is given in Section 2.4.

Front cover image: Bronze & stainless-steel sculpture by Colm Brennan.

Executive Summary

This document outlines the action plan for Castlebar, Co. Mayo and provides advice and guidance on practical and meaningful actions which can be taken by the local authority, community groups and individuals to protect and promote biodiversity in the Castlebar area. This aim of this plan is to provide information relating to habitats, protected and important sites for biodiversity, recommendations on habitat management, suggestions of suitable biodiversity-focused projects for local groups, outlining biodiversity-focused learning opportunities for locals and visitors, and to outline the importance of private land/gardens for local biodiversity and provide guidance on how this land can be managed in a wildlife-friendly way.

Chapter 1 gives an introduction to the Castlebar Local Biodiversity Action Plan. Section 1.1 provides a background to the plan by explaining the importance of biodiversity. This section outlines what biodiversity means, why we need to provide space for wildlife within the built environment, how those wild spaces can benefit us as individuals and as a community, and the importance of educating people about biodiversity. Section 1.2 and Section 1.3 outline the National Biodiversity Action Plan and the All-Ireland Pollinator Plan, respectively. These sections provide a national context for this action plan. Section 1.4 outlines the aims of the action plan.

Chapter 2 describes the methods used to prepare this plan. These include a desk study (outlined in section 2.1), the sources of information used (section 2.2), the field surveys carried out (section 2.3) and the details of the various groups and organisations invited to participate in the development of the action plan (section 2.4).

Chapter 3 highlights the various protected areas in the vicinity of Castlebar. Section 3.1 provides a context for the designation of European sites. The three European sites within the Castlebar area are then described and their reasons for designation and their conservation objectives are summarised. Section 3.2 highlights the national designated sites within the Castlebar area. For both European and national sites, maps are provided to show the position of the sites relative to Castlebar.

Chapter 4 mentions five everyday aspects of biodiversity that are worth celebrating and conserving. These topics are ivy, hawthorn, the house sparrow, holly and bryophytes. Section 4.1-4.5 outline the importance of these species / groups to biodiversity and their sometimes-underappreciated value to other wildlife and to our surroundings.

Chapter 5 provides a brief breakdown of the habitat types in the vicinity of Castlebar. Each of the habitat types is described in sections 5.1- 5.16. Each section provides a description of the habitat and typical species present.

Chapter 6 provides a description of some areas of Castlebar which are particularly important for biodiversity and which function as ecological stepping stones and biodiversity corridors within the urban areas of Castlebar. The sites described are the Great Western Greenway (section 6.1), the Pool at Balloor (section 6.2), the section of scrub at Kilkenny (section 6.3), Saleen Lake (section 6.4) and the pool at Lakeview (section 6.5).

Chapter 7 provides management recommendations on how public and private spaces can be managed for biodiversity. These recommendations are outlined in more detail in sections 7.1-7.12. The recommendations include the introduction of wildflower meadows into green areas around Castlebar, reducing illegal dumping and burning, elimination of weedkillers and introduction of other management methods, planting of native shrubberies around public

buildings to enhance wildlife value, planting and management of native hedging to disguise unattractive features such as bare walls and to provide habitat and food for wildlife, introduction of groves or copses of trees around Castlebar and the planting and maintenance of public areas with pollinator friendly plants (section 7.1-7.8). Section 7.9 provides a list of recommendations and actions to avoid for private gardens, along with recommendations on a variety of publicly-available and easy-to-follow guides about gardening for biodiversity. Section 7.10 provides recommendations on how to improve the value of the area for birds. This includes recommendations on the introduction and improvement of bird habitats around Castlebar, through the provision of more tree groves, suitable hedging, management of grasslands as meadows and semi-natural grasslands, the provision of public bird feeders and avoiding toxic slug pellets which can poison the birds which eat slugs and snails. Advice on nest boxes and the protection and preservation of the Castlebar swift population is also provided in this section. Section 7.11 provides recommendations on the conservation of bats in Castlebar. Section 7.12 provides information on invasive species and where to find further information about them.

Chapter 8 gives recommendations for the enhancement of seven specific sites for biodiversity within Castlebar. These sites are Castlebar Town Park (section 8.1), Lakeview (section 8.2), Main Street, Bridge Street and Ellison Street (section 8.3), Upper Thomas Street & Lower Chapel Street (section 8.4), Marian Row & St. Bridget's Crescent (section 8.5), McCormack Estate (section 8.6) and Riverdale Court & Knockthomas Drive (section 8.7).

Chapter 9 showcases some good examples of existing actions taken in the Castlebar area to promote biodiversity.

Overall, this plan aims to provide practical and useful guidance on the integration of wildlife and wild spaces into the urban fabric of Castlebar. Such actions will benefit both the local community and our wild neighbours, now and into the future.

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Section 1

1. Introduction

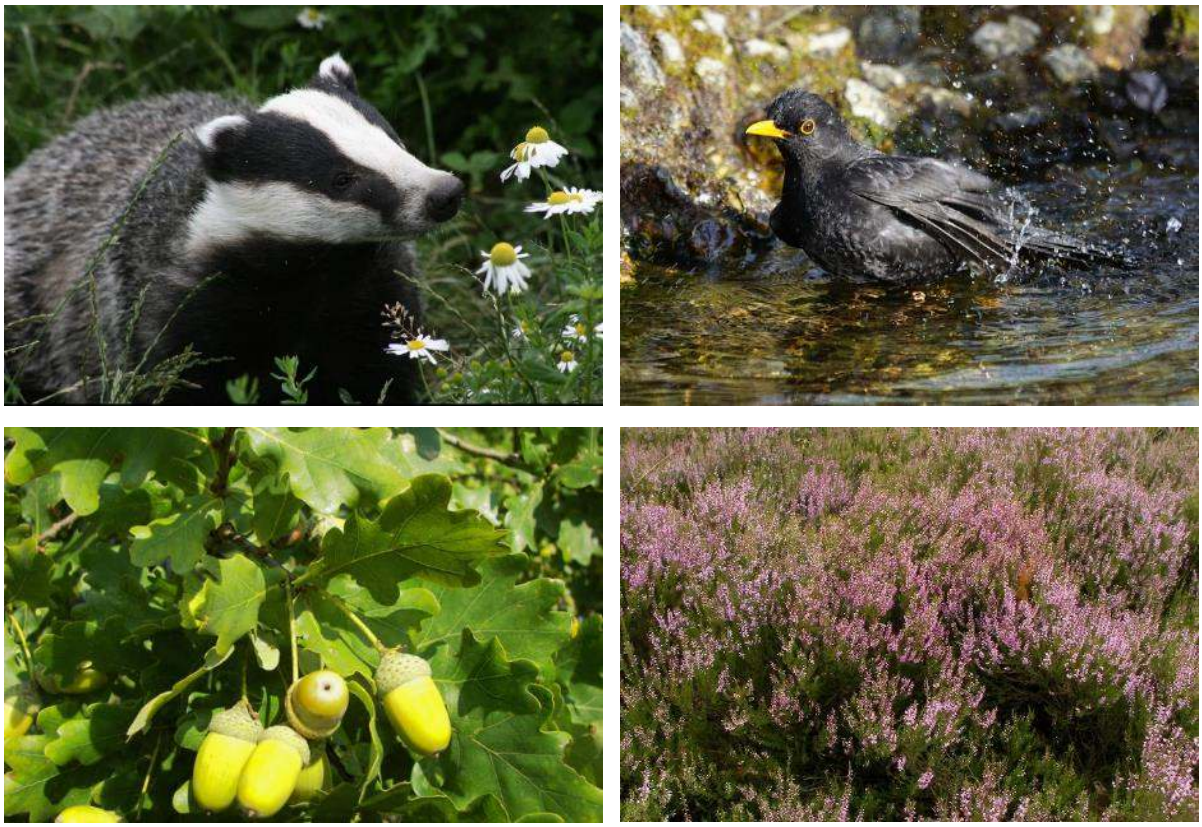
1.1 Background

In the modern world, we often think of towns as places designed and managed for people, filled with streets, shops, homes, vehicles and pavements. Any wildlife that may be present, such as birds or urban foxes, are often seen as incidental and insignificant, or even as intruders that have wandered in from the surrounding countryside.

However, our towns are relatively recent developments. For most of Ireland's history since the last ice age, the country was made up of wild, natural habitats. For many long centuries, Mayo was covered by woodlands, bogs, lakes and wetlands, and was home to an extraordinary assortment of wildlife.

Places that are now occupied by cars and housing estates were once perhaps the home to a family of badgers, a group of majestic cranes, or a nesting corncrake. In areas now covered by concrete, tall oak trees once grew, red squirrels scampered through the branches, hares reared their young in the clearings, owls soared overhead in the evening dusk, and the creatures of the woodland lived out their lives through uncounted generations. In a sense, we humans, with our towns, cities and roads, are the real intruders.

Plate 1: Examples of Mayo's natural biodiversity: clockwise – badger, blackbird, heather and oak acorns



This is one of the reasons why we should do our best to facilitate and encourage other species, and to help them to live and thrive in our towns. The good news is that biodiversity can add great interest and natural diversity to a town, making it a more pleasant and enjoyable environment for all of us.

'Biodiversity' means all of the living things in an area: trees, birds, mammals, insects, spiders, plants, the fish in our waters, even things we can't see such as the bacteria in the soil or the microscopic creatures that live in a puddle of water – all of these are part of our local biodiversity.

One of the aims in town planning and urban management should be to foster a 'sense of place'- that distinctive character which makes a place feel special, unique, or memorable. An excellent way to do this is to incorporate and emphasise the natural landscape features and biodiversity that are characteristic of the area. By celebrating and conserving natural habitats, species and landscapes, we can enhance our towns in ways that give them real distinction and style, rather than allowing them to become monotonous or dreary.

Plate 2: Wetland and lake habitats in Castlebar

In addition to these benefits, biodiversity can provide interest and inspiration to all of us, as we go about our daily lives. The sound of birdsong gives a sense of relief from the hum of traffic. The scent of hawthorn blossom or a wild rose can lift the spirits and brighten our day. In urban areas, it is especially important to feel this connection with nature; more biodiversity is not only good for other species, but good for each of us too.

> People find birdsong relaxing and reassuring because over thousands of years, they have learnt that when the birds sing, they are safe; it's when birds stop singing that people need to worry.
> *Julian Treasure*

For those who are elderly or unwell, the presence of nature can provide a wonderful source of interest and enjoyment, or perhaps a chance to escape for a while from anxiety and disquiet. An accessible nature-filled park nearby can provide this. Private gardens can also be improved in ways that attract a range of wildlife. Many elderly people get a lot of pleasure from their gardens and the creatures that visit them.

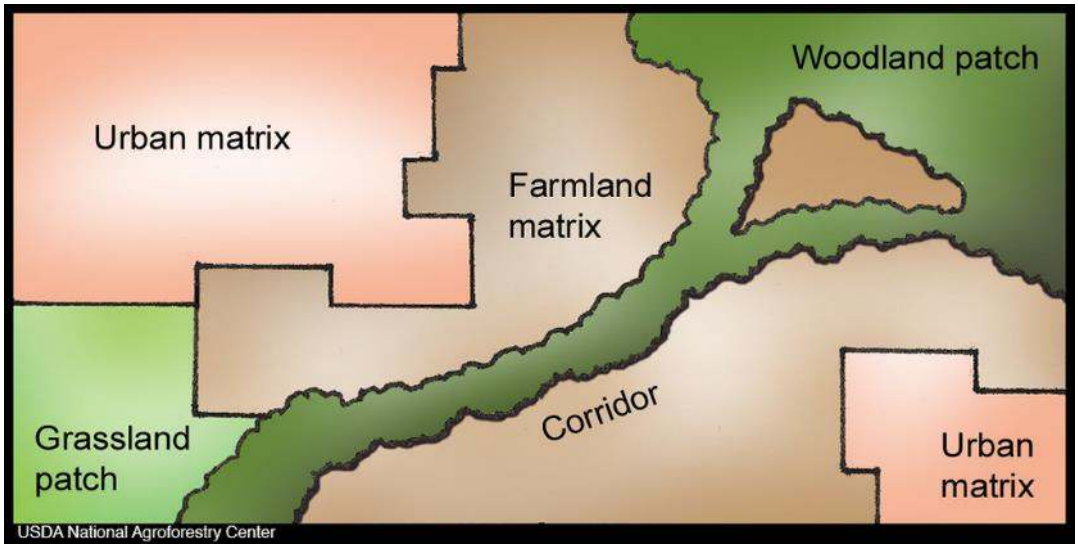
For those who live in nursing homes or hospices, or who are spending time in hospital, it can be difficult to maintain a meaningful connection with nature. Unfortunately, the grounds of these buildings too often consist only of very short grass and a few non-native ornamental trees or shrubs. Imagine if this space were used to bring nature closer to those who need it most – hedgerows full of birdsong, meadows of beautiful native flowers, rich with bees and butterflies, or a scented garden with a pleasant seating area and sympathetic planting to provide shelter and privacy.

Plate 3: Wildflower meadows are wonderful for people as well as for other species

In planning for the long-term biodiversity needs of our towns, it is also worthwhile to educate children and young people in the delights and importance of biodiversity. This can be facilitated by having wildlife areas or gardens in the grounds of schools. While much of the area in schoolgrounds tends to be taken up by playing fields, hardcourts or car parks, it should always be possible to find some space to celebrate biodiversity. Swift boxes, sparrow boxes, and general bird nesting boxes can all be installed around schools, and take up very little space.

These areas discussed above, such as schools, parks, and gardens can also perform an important function as 'biodiversity corridors' or 'stepping stones'. As more and more land is taken up by housing estates, urban development, roads, or intensive farming, populations of animals can get cut off from each other in shrinking patches of habitat. Biodiversity corridors and stepping stones are areas that help to connect up these remaining patches, and allow animals to travel from one to another. This is important because an animal population in an isolated patch of habitat can easily shrink to an unviable level, at which point that species becomes locally extinct. Indeed, corridors are also important to some plant species, which can also become isolated in shrinking patches of suitable habitat.

Figure 1: Biodiversity corridors link habitats which would otherwise become cut off from each other



The term 'ecosystem services' is often used to describe benefits that are provided to people by nature. An ecosystem is a network of living things and their interactions with the environment. For example, a wetland area with reed beds is an ecosystem that can help prevent flooding by slowing down the movement of water before it reaches rivers and lakes.

Ecosystems provide a variety of vital functions, from the large-scale regulation of climate, down to local issues such as flood prevention, recycling of nutrients, and filtering of water. Woodlands and bogs lock up carbon, reducing the amount of carbon dioxide in the atmosphere, and so helping to reduce climate change. Communities of fungi and bacteria break down dead material, such as fallen leaves, and this then enriches the soil and allows nutrients to be recycled. Many of the plants we grow as crops have to be pollinated, and this is done by a large variety of animals, mostly insects such as bees, and is a hugely important function to humanity.

However, in thinking about 'ecosystem services', it is important not to lose perspective. Other creatures are of enormous benefit to us, but they do not exist just to provide 'services'. Rather, they exist as creatures in their own right, with lives of their own, and they should be respected as such. Humans have taken up so much of the earth that it can now be difficult for other species to find the resources they need in order to live. In planning and managing our towns, let us do all we can to help them; we should be kinder and more generous to the creatures with whom we share the world.

1.2 Ireland's National Biodiversity Action Plan

The *National Biodiversity Action Plan 2017-2021,* published by the Department of Culture, Heritage and the Gaeltacht, gives a national framework to local biodiversity town plans. The plan sets out Ireland's Vision for Biodiversity as follows:

> *"That biodiversity and ecosystems in Ireland are conserved and restored, delivering benefits essential for all sectors of society and that Ireland contributes to efforts to halt the loss of biodiversity and the degradation of ecosystems in the EU and globally."*

Figure 2: Ireland's National Biodiversity Action Plan

Seven objectives are to:

1. Mainstream biodiversity into decision-making across all sectors
2. Strengthen the knowledge base for conservation, management and sustainable use of biodiversity
3. Increase awareness and appreciation of biodiversity and ecosystems services
4. Conserve and restore biodiversity and ecosystem services in the wider countryside
5. Conserve and restore biodiversity and ecosystem services in the marine environment
6. Expand and improve the management of protected areas and species
7. Strengthen international governance for biodiversity and ecosystem services

The plan notes that global biodiversity is declining and that, despite increased awareness and efforts to halt its loss, biodiversity remains threatened by human activities worldwide. The overexploitation of wild species, and the ongoing conversion of land to agricultural use are given as two of the major causes of biodiversity loss.

The *National Biodiversity Action Plan* contains the following warning:

> *"In recent decades, human impacts on biodiversity in Ireland and across the planet have accelerated and resulted in increased damage to habitats, loss of species, reduced abundance of wildlife and degradation of our environment (air, water and soils). If we, the current generation, continue to unsustainably exploit our nation's and our planet's natural resources, damage our natural habitats, drive species to extinction and pollute our seas, freshwater and soils, future generations will inherit a diminished and degraded environment unfit to support them and provide them with a wide range of benefits to society and the economy."*

Figure 3: Objectives of the Biodiversity Action Plan

1.3 The *All-Ireland Pollinator Plan*

The first All-Ireland Pollinator Plan 2015-2020 was published by the National Biodiversity Data Centre as a plan of action to be carried out collectively by conservation organisations, national and local public bodies, farmers, gardeners, schools and colleges, businesses, and local community groups. Further details of the plan, along with several useful downloadable guides, are available at www.pollinators.ie. Hard copies of these guides are available from Mayo Heritage Office. The plan emphasises the importance of pollinators, and aims to bring about a landscape where pollinators can thrive and flourish into the future. A subsequent *All-Ireland Pollinator Plan 2021-2025* was launched in 2021[1].

[1] https://pollinators.ie/wp-content/uploads/2021/03/All-Ireland-Pollinator-Plan-2021-2025-WEB.pdf

Figure 4: The All-Ireland Pollinator Plan 2021-2025 was launched in 2021

Figure 5: Several useful guides are available as part of the All-Ireland Pollinator Plan

Further details of the plan, along with several useful downloadable guides, are available at https://pollinators.ie/.

1.4 Aims of the Castlebar Biodiversity Town Plan

This local biodiversity action plan sets out practical measures to help the wildlife and biodiversity of Castlebar.

The aims are:

- To identify the available habitats in the town, and find ways to enhance these in order to facilitate and encourage the local biodiversity
- To identify any sites that are particularly important, such as areas that have high numbers of species, areas where rare species are present, or areas that can function as biodiversity corridors
- To take into consideration any nationally or internationally protected sites within the town and its environs, and to ensure that the biodiversity plan is compatible with their conservation objectives
- To ensure corridors are maintained between ecologically important areas, so that wildlife species have easy access between habitat types (in particular, nationally important areas such as SACs and SPAs)
- To make recommendations for the management of habitats within the town and for future land-use planning
- To reduce the occurrence and spread of invasive alien species through community education, increase in reporting of known occurrences, and proper management and eradication of these species that threaten biodiversity
- To make proposals and suggestions for practical projects that can be carried out by local community groups such as Tidy Towns.
- To set out opportunities for informing and educating both local people and visitors about the importance and intrinsic interest of local wildlife and biodiversity
- To explain how gardens and other private lands are important to the local biodiversity, and how these can be managed or enhanced to encourage wildlife

Plate 4: A ladybird within a cemetery in County Mayo

2. Methods

This town biodiversity plan was prepared in the following stages:

2.1 Desk Study

A desk study was carried out to examine previously-recorded information on the biodiversity of the Castlebar region, and to prepare for site visits. Information on all designated sites in the region was collated, and consideration given to the conservation needs and conservation objectives of these sites. Previously-published plans relating to Ireland's biodiversity needs were reviewed. Shapefiles showing the boundary of the relevant area for the town plan were imported into Q-GIS, and maps for use in the field were produced. Orthophotographs of the town and environs were examined. Literature was obtained relating to local sites of biodiversity interest, including Lough Lannagh, and other relevant documents, such as the County Development Plan and the *County Mayo Biodiversity Action Plan*, were reviewed.

2.2 Sources of Information

Various sources were consulted in the preparation of the plan. See Appendix 1 for a list of source information used.

2.3 Field Surveys

Field surveys were carried out in Castlebar on various occasions from July to December, 2020. Woodrow's in-house app, Ecolog, was used to ensure accurate recording of all locations, along with photographs and additional notes. Paper maps, resulting from the desk study, were also used in habitat mapping.

Habitats were identified in accordance with Fossitt, 2000, and representative species lists were compiled. Any cases of rare or notable species were recorded, as were the locations of any invasive species.

Consideration was given to how areas within the town could be improved to facilitate the needs of biodiversity, including projects that could be carried out by the local authorities or by local community groups.

2.4 Consultations

The following groups and organisations were contacted and invited to participate in the preparation of the plan:

- Bat Conservation Ireland
- Birdwatch Mayo
- Butterfly Conservation Ireland
- Castlebar Tidy Towns
- Mayo Bat Group
- Men's Sheds Association
- National Parks & Wildlife Service

- Swift Conservation Ireland
- The Irish Wildlife Trust
- The Lough Carra Catchment Association

The plan was prepared in collaboration with Deirdre Cunningham, Heritage Officer of Mayo County Council. Suggestions, ideas and recommendations from the groups above were incorporated into the plan.

3. Protected Areas near Castlebar

This section, along with Appendix 3, provides information regarding the protected sites in the Castlebar area, highlighting the Qualifying Interests and Conservation Objectives of each protected site.

3.1 European Sites

European sites are areas that are considered important for biodiversity conservation, and which have been designated under the European Habitats Directive and Birds Directive. Special Areas of Conservation (SACs) are designated under the Habitats Directive for the protection of important habitats and species, whereas Special Protection Areas (SPAs) are designated under the Birds Directive for the protection of birds.

There are no SACs or SPAs in the town of Castlebar, but there are three SACs in the surrounding area:

- River Moy SAC
- Newport River SAC
- Balla Turlough SAC

More information on these is given in Appendix 3.

3.2 National Sites

National sites are areas that are considered nationally important for biodiversity. These are called Natural Heritage Areas (NHAs) and proposed Natural Heritage Areas (pNHAs). There are no NHAs or pNHAs within Castlebar but there are two NHAs approximately 5 km to the northwest and northeast of Castlebar. Please refer to Appendix 3 for more information on the locations of these.

4. Five everyday things to celebrate

It is easy to forget the importance of things we encounter every day, and too easy to take these things for granted. However, some of the most ordinary and everyday plants and animals can be important parts of the whole network that supports our local web of biodiversity. Species can decline surprisingly quickly unless we are watchful, as with the familiar house sparrow.

To help remind us of the importance of ordinary things, here are five things which we should appreciate and celebrate more.

1. Ivy
2. Hawthorn
3. House sparrow
4. Holly
5. Bryophytes

4.1 Ivy - *Hedera helix/hibernica*

The much-maligned common ivy is a plant that is often sprayed, cut, pulled down, criticised and condemned as if it were some kind of invading presence in our gardens and public areas. Nothing could be further from the truth: ivy is a native plant that is of high value and importance to a range of wildlife, and we should have more appreciation for it.

The idea that ivy damages and kills trees is a myth. As a plant that is native to much of Europe, ivy has evolved in the company of those trees, such as oak, ash and birch, which are native to Ireland. It is therefore normal and natural for ivy to grow on these trees. Ivy is very important to small nesting birds, such as robins, wrens, and dunnocks. A bare tree trunk, garden wall, or earth bank provides little in the way of nesting sites; however, if these surfaces are covered with a luxuriant, evergreen layer of ivy, there are many hidden nooks and recesses where birds can build a nest. Ivy also provides important cover and places of refuge for small birds, where they can hide from predatory birds, cats, or other disturbances. In addition to providing shelter for birds, ivy provides a habitat for a range of native insects, and is an important food for the caterpillars of some butterfly species.

Ivy flowers are great sources of nectar and pollen. They are particularly important to pollinating insects, as they are produced in autumn, when many other plants have stopped flowering. In early winter, clusters of black fruits are produced, and these are eaten by many birds, such as blackbirds and thrushes, and in some areas are also important winter food for pine martens

Plate 5: The wonders of ivy

4.2 Hawthorn – *Crataegus monogyna*

A hawthorn hedge in full bloom is one of the glories of the Irish countryside, the branches covered in creamy-white flowers and the wonderful scent filling the air. Hawthorn flowers are important sources of food to many pollinating insects, and the glossy red berries, produced in autumn, are eaten with relish by many of our native birds. That nimble climbing mammal, the pine marten, is also known to make a meal of hawthorn berries.

Hawthorn hedges and bushes are used as nesting habitats by many of our native birds, including blackbirds, finches and tits. These hedgerows also provide foraging space and commuting corridors for bats. They can act as wildlife corridors or stepping stones between areas of woodland for a range of animals. In addition, a hawthorn hedgerow will usually have other plants growing at its base, including wildflowers, ivy and brambles – these too enrich the area's biodiversity.

Plate 6: Hawthorn, in blossom and in fruit



Fortunately, these hawthorn hedges, traditionally a feature of the Irish countryside, can easily be introduced into our towns. There are many open locations in town parks, and other green areas, where a length of hawthorn would provide a fine resource for local wildlife, as well as giving shelter and interest to the human inhabitants. After all, a hedgerow full of life, with bees, butterflies and birds, is more inspiring and alluring than yet another expanse of short, trimmed grass. And even if there isn't space for a hedge, an individual hawthorn makes a fine small specimen tree.

4.3 House Sparrow – *Passer domesticus*

This cheerful and sociable little bird has a long history of living near humans but, sadly, house sparrows are now in decline in Ireland. Sparrows nest in cavities, such as holes in trees, or gaps or crevices in buildings. In the past, when houses and outbuildings were less sealed and impenetrable than they are now, sparrows would nest in the eaves of buildings, or in holes or cavities in stone walls. Nowadays, these nesting sites are not so easily found but, fortunately, sparrows adapt well to nesting in nest boxes. As these are sociable birds, they like nest boxes that are positioned close together, or communal nesting boxes, which usually have three or more separate nesting compartments.

Plate 7: A female house sparrow

Sparrows are mainly seed-eaters, and can be encouraged by providing birdseed in gardens. Another way of helping them is to allow plants to flower and produce seed naturally in parks and public areas, rather than keeping everything tightly trimmed. When baby sparrows are being reared by their parents, they are fed insects or other invertebrates at first, before progressing to a mainly seed-based diet. This is another reason to encourage invertebrate life in our towns and gardens, and to avoid spraying pesticides as much as possible.

Plate 8: (a) A sparrow nesting box (photo from BirdWatch Ireland); (b) A male house sparrow at a garden feeder

Sparrows also like areas that have hedges and bushes, which give them cover and refuge from predators such as sparrowhawks. In one study in Glasgow, gardens with full hedges were 85% more likely to have sparrows than areas without such cover. This is another advantage to planting native hedges in our public spaces within town parks and other green areas.

4.4 Holly – *Ilex aquifolium*

Holly is one of our most familiar native evergreen plants, partly due to its cultural significance and its use in Christmas wreaths and decorations. In ancient Ireland, holly was regarded as a sacred and noble tree, a symbol of enduring life, and a protection against fire, lightning and evil spirits. In some of our remaining native Irish woodlands, holly forms an evergreen shrub layer under the large trees. It is valuable to many birds, providing shelter, roosting spaces and winter food.

Plate 9: Holly is a great source of food for birds

In our modern towns, there is a widespread tendency to plant laurel (*Prunus laurocerasus*) as an evergreen hedge. However, laurel is a non-native plant and has become a serious problem as an invasive species in many parts of the country. It also looks incongruous and out of place in Irish settings. Holly, on the other hand, makes an excellent evergreen hedge, is tough and easy to grow, and is also good for our native biodiversity. Holly flowers attract pollinators, especially bees, and the winter berries are valuable to birds such as thrushes and fieldfares.

4.5 Bryophytes

Bryophytes are small, unobtrusive, and ancient plants, better known to us as mosses and liverworts. Many people wage a futile and completely unnecessary battle against mosses, wasting much time and money, and spraying large quantities of chemicals, in efforts to eradicate these harmless and beautiful little plants from lawns, driveways and roofs.

Plate 10: The miniature beauty of mosses

Let's take a step back to reconsider our mosses. Firstly, if you look at them close up, they have a truly beautiful variety of intricate shapes and varying colours. In Japan, there is a tradition of cultivating 'moss gardens'. In these gardens, mosses are celebrated for their colours, shapes and growth habits, and are usually grown in combination with trees or ferns. These gardens are wonderful places and have a tranquil, restful quality about them. Ireland has a large number and variety of native mosses, and a climate that is ideal for growing them. With a change in mindset, moss gardens could be incorporated into many of our public spaces, as well as in private grounds. In addition, mosses are easy to grow, resistant

to most insect pests, need little care, and give year-round colour. Many birds use little tufts of moss in building their nests.

Plate 11: A Japanese moss garden

Much of the effort to eradicate moss is focused on lawns, due to the belief that lawns should consist only of very short grass and nothing else. And yet, there are few things in the world more useless and unnatural than one of these manicured lawns. Let us cultivate and promote a more natural approach, and welcome back the daisies, dandelions, and buttercups; and of course, the mosses.

5. Habitats in Castlebar

The following sections describe the various habitats identified in Castlebar. There is a focus here on public areas, areas owned or managed by public authorities, and areas of particular biodiversity interest.

Much of the rural area outside the town is made up of farmland. While surveys of private farmland are beyond the scope of this report, such land is an important consideration in protecting biodiversity in the region. Private gardens are also of high importance to biodiversity in urban areas, and there is much that householders and gardeners can do to enrich the biodiversity and wildlife value of gardens. Hence, specific advice for gardeners is included later in this action plan (Section 7.9).

The habitat categories and codes used in the following sections are in accordance with Fossitt (2000) – *A guide to habitats in Ireland*.[2]

5.1 Dry Meadows and Grassy Verges (Habitat GS2)

These are areas of grass and herbaceous plants which are fertilised only rarely or not at all. They are not usually grazed, but may be mown infrequently. They are often roadside areas along hedges, walls or earth banks. In some cases, there is no particular management plan in place and these habitats result from benign neglect. Such areas are valuable to biodiversity and encourage pollinating insects.

Plate 12: Dry meadow and grassy verge habitat within a graveyard

[2] Available at: https://www.npws.ie/sites/default/files/publications/pdf/A%20Guide%20to%20Habitats%20in%20Ireland%20-%20Fossitt.pdf

Species in this habitat include:

- Ribwort Plantain *Plantago lanceolata*
- Great Willowherb *Epilobium hirsutum*
- Creeping Buttercup *Ranunculus repens*
- Daisy *Bellis perennis*
- Cock's Foot *Dactylis glomerata*
- Yarrow *Achillea millefolium*
- Oxeye Daisy *Leucanthemum vulgare*
- *Common Spotted Orchid Dactylorhiza fuchsia*
- Bush Vetch *Vicia sepium*
- Self-heal *Prunella vulgaris*
- Lesser trefoil (shamrock) *Trifolium dubium*
- Figwort *Scrophularia nodosa*
- Red Clover *Trifolium pratense*
- White Clover *Trifolium repens*

5.2 Wet Grassland (Habitat GS4)

This habitat is present in various locations within Castlebar. It is quite species-diverse and can provide a useful habitat for pollinators, such as bees, butterflies and other insects.

Plate 13: Wet grassland habitat

Species in this habitat include:

- Meadowsweet *Filipendula ulmaria*
- Yorkshire Fog *Holcus lanatus*
- Purple-loosestrife *Lythrum salicaria*

- Ragged robin *Silene flos-cuculi*
- Broad-leaved Dock *Rumex obtusifolius*
- Water Mint *Mentha aquatica*
- Meadow buttercup *Ranunculus acris*
- Silverweed *Potentilla anserina*
- Dandelion *Taraxacum officinale*
- Cock's Foot *Dactylis glomerata*
- Figwort *Scrophularia nodosa*
- Creeping Bent Grass *Agrostis stolonifera*
- Valerian *Valeriana officinalis*

5.3 Improved Agricultural Grassland (Habitat GA1)

This habitat is managed for livestock grazing and/or silage and hay-making, often including the use of fertilisers and seeding. These areas tend to be reseeded as monoculture grassland and are typically species-poor. Soil type, fertility and site drainage vary depending on the area.

Plate 14: Improved agricultural grassland habitat

Species within this habitat include:

- Rye grasses *Lolium spp.*
- Meadow grasses *Poa spp.*
- White clover *Trifolium repens*
- Dandelion *Taraxacum officinale*
- Creeping thistle *Cirsium arvense*
- Timothy *Phleum pratense*
- Crested dog's tail *Cynosurus cristatus*
- Yorkshire fog *Holcus lanatus*
- Nettle *Urtica dioica*
- Creeping buttercup *Ranunculus repens*

- Ribwort plantain *Plantago lanceolata*
- Spear thistle *Cirsium vulgare*
- Docks *Rumex obtusifolius*

5.4 Amenity Grassland (Habitat GA2)

Castlebar contains many areas of this habitat, including green areas within housing estates, public parks and greens, sports fields, and garden lawns. Such areas have usually been reseeded, may have fertilisers or selective weedkillers applied periodically, and are frequently cut very short. This habitat has poor species diversity, and is of little value to wildlife in general. However, these areas have good potential, if managed differently.

Plate 15: Amenity grassland habitat with little biodiversity

Species in this habitat include:

- White Clover *Trifolium repens*
- Dandelion *Taraxacum officinale*
- Perennial Ryegrass *Lolium perenne*
- Silverweed *Potentilla anserina*
- Daisy *Bellis perennis*
- Creeping buttercup *Ranunculus repens*
- Annual Meadow Grass *Poa annua*
- Ribwort Plantain *Plantago lanceolata*
- Springy Turf-moss *Rhytidiadelphus squarrosus*

5.5 Scrub (Habitat WS1)

Often a transitional habitat between open ground and woodland, scrub can develop over time on land where regular grazing or mowing is not carried out, including disused sites in urban areas. Scrub can have a high biodiversity value, especially if it consists mainly of native plants, and can be home to various birds, mammals, invertebrates and plants.

Plate 16: Scrub habitat

Species in this habitat include:

- Brambles *Rubus fruticosus*
- *Ivy Hedera helix*
- Gorse *Ulex europaeus*
- Blackthorn *Prunus spinosa*
- Grey willow *Salix cinerea*
- Honeysuckle *Lonicera periclymenum*
- Nettles *Urtica dioica*

5.6 Ornamental/Non-Native Shrub (Habitat WS3)

This habitat is often created around public buildings, in public parks, and in private gardens, where ornamental shrubs, usually non-native, have been planted. These can have some wildlife value, and some are useful to pollinators, or can provide nesting sites for birds, but the intention is usually to provide a visual feature rather than to cater for biodiversity.

Plate 17: Ornamental shrubs

Plants used to create this habitat can be very diverse, but often include:

- Roses – many hybrids & cultivars
- *Pieris japonica*
- *Cotoneaster* – various species
- *Thuja* 'Smaragd'
- *Hypericum* - various species
- Box *Buxus sempervirens*
- Spotted laurel *Aucuba japonica 'Variegata'*
- *Hebe* - various species and varieties
- *Lonicera nitida*
- Butterfly Bush *Buddleia davidii* - several varieties
- *Spiraea japonica*
- *Fuchsia* - several varieties
- *Potentilla fruticosa* - several varieties
- *Escallonia macrantha*
- Japanese maples *Acer spp.*

5.7 Hedgerows (Habitat WL1)

Hedges are often planted as boundary features, for fields, farms and gardens. As such, many of these are found on private property. Hedgerows very often contain trees such as ash or birch. In urban areas, many hedges tend to consist of non-native plants such as Laurel *Prunus laurocerasus*, whereas rural hedges are more likely to consist of hawthorn and other native plants. Hedgerows containing native plants have a higher biodiversity value.

Plate 18: Hedgerow habitat


b

Species in this habitat include:

- Elder *Sambucus nigra*
- Hawthorn *Crataegus monogyna*
- Blackthorn *Prunus spinosa*
- Gorse *Ulex europaeus*
- Sycamore *Acer pseudoplatanus*
- Ivy *Hedera helix*

- Male fern *Dryopteris filix-mas*
- Birch *Betula pendula* & *Betula pubescens*
- Holly *Ilex aquifolium*
- Brambles *Rubus fruticosus*
- Honeysuckle *Lonicera periclymenum*
- Lady Fern *Athyrium filix-femina*

5.8 Treelines (Habitat WL2)

A treeline is a single row or a narrow strip of trees greater than 5 m in canopy height. Typically, treelines are found on the edges of fields or boundaries of properties. Also included are treelines along roads, shelterbelts and overgrown hedgerows that are dominated by trees. Tree species may vary but commonly are comprised of non-native species. In Castlebar, this habitat was observed at a few locations within the town.

Plate 19: Treeline habitat

Species in this habitat include:

- Whitebeam *Sorbus aria*
- Beech *Fagus sylvatica*
- Variegated maple *Acer platanoides* 'Drummondii'
- Horse chestnut *Aesculus hippocastanum*
- Sycamore *Acer pseudoplatanus*
- Himalayan birch *Betula utilis* 'Jacquemontii'
- Limes *Tilia* spp.
- Alder *Alnus glutinosa*
- Various conifers
- Purple maple *Acer* 'Crimson King'

5.9 Flower Beds and Borders (Habitat BC4)

Flower beds are planted areas dominated by herbaceous plants rather than shrubs. Typical areas for this habitat are gardens, borders of properties, or roundabouts. Functionally, this habitat is decorative, and is managed and maintained to some degree. Scattered trees and shrubs can be included but shrub cover over 25% would be classified as an ornamental/non-native shrub (WS3) habitat.

Plate 20: Flower beds and borders habitat in Castlebar

A very wide range of plants are used, including:

- Herbaceous perennials e.g. *Hosta*, *Alchemilla mollis*, *Astilbe, Phormium, Dahlia, Agapanthus*, various ornamental grasses
- Low shrubs e.g. Lavender, *Euonymus fortunei*, ground-cover roses
- Annual bedding plants e.g. Pansy, Lobelia, Arabis, Ageratum, Busy Lizzies, Marigolds, Begonias, Calceolaria, Nasturtium
- Bulbs e.g. Irises, Daffodils, Tulips, Hyacinths, Crocus

There are also some 'weedy' wildflower species that are commonly observed, including:

- Shepherd's purse *Capsella bursa-pastoris*
- Groundsel *Senecio vulgaris*
- Dead-nettle *Lamium purpureum*
- Hairy bittercress *Cardamine hirsuta*

5.10 Calcareous and Neutral Grassland (Habitat GS1)

This category is used for unimproved or semi-improved dry grassland that is neutral or calcareous. It can be associated with low intensity agriculture activities on free-draining soil. A few locations within Castlebar contain calcareous grassland habitat.

Plate 21: Calcareous and neutral grassland

A wide range of grasses and broadleaved herbs including:

- Bents *Agrostis* spp.
- Meadow grasses *Poa* spp.
- Timothy *Phleum pratense*
- Sweet vernal grass *Anthoxanthum odoratum*
- Yorkshire fog *Holcus lanatus*
- Yarrow *Achillea millefolium*
- Selfheal *Prunella vulgaris*
- Cat's ear *Hypochoeris radicata*
- Mountain everlasting *Antennaria dioica*
- Oxeye daisy *Leucanthemum vulgare*

5.11 Semi-Natural Woodland (Habitat WN2)

This is an important habitat for biodiversity, as it provides some of the conditions which were present throughout much of Ireland before land was converted for intensive farming, roads, buildings, and urban areas. This habitat is important for a range of birds, invertebrates, mammals and plants.

Plate 22: Woodland habitat

Species in this habitat include:

- Birch *Betula pendula* & *Betula pubescens*
- Oak *Quercus robur*
- Alder *Alnus glutinosa*
- Hawthorn *Crataegus monogyna*
- Beech *Fagus sylvatica*
- Holly *Ilex aquifolium*
- *Ash Fraxinus excelsior*
- Brambles *Rubus fruticosus*
- Ivy *Hedera helix/hibernica*
- Ferns e.g. *Dryopteris filix-mas, Polystichum setiferum, Asplenium scolopendrium, Athyrium filix-femina*

5.12 Scattered Trees and Parkland (Habitat WD5)

This category is used for parks where trees are a prominent feature, but cover less than 30%. This habitat has some biodiversity value, and common birds, such as blackbirds, dunnocks and jackdaws are usually present.

Plate 23: Scattered trees and parkland

The range of species planted in parks varies widely, and often includes some of the following:

- Silver Birch *Betula pendula*
- Himalayan birch *Betula utilis 'Jacquemontii'*
- Limes *Tilia spp.*
- Whitebeam *Sorbus aria*
- Variegated maple *Acer platanoides 'Drummondii'*

- Horse chestnut *Aesculus hippocastanum*
- Purple maple *Acer* 'Crimson King'
- Flowering cherry – *Prunus* (several varieties)

5.13 Stone Walls and other Stonework (Habitat BL1)

This category includes built stonework, including walls and derelict stone buildings. Old walls can have significant biodiversity value, and in some cases are home to a variety of small plants, including various ferns. In other cases, old stone walls can be thickly covered in ivy, providing nesting places for birds, ivy flowers for pollinators, and ivy fruits for a range of animals.

Plate 24: Stone wall habitat

Species in this habitat include:

- *Asplenium trichomanes*
- Ivy-leaf toadflax *Cymbalaria muralis*
- Ivy *Hedera helix/hibernica*
- *Asplenium ruta-muraria*
- *Asplenium ceterach*
- *Asplenium scolopendrium*
- Various mosses and lichens

Buddleia davidii can also become naturalised on stone walls. While it does attract butterflies, it can also become somewhat invasive.

5.14 Recolonising bare ground (Habitat ED3)

Most towns have at least a few areas of this habitat, which includes bare or disturbed ground which is being colonised by (usually herbaceous) plants. Such areas can be derelict sites,

abandoned areas of concrete or tarmac, and areas of hardcore, sand or gravel which have become disused.

Plate 25: Recolonising bare ground

Species in this habitat include:

- Nettles *Urtica dioica*
- Coltsfoot *Tussilago farfara*
- Ragwort *Senecio jacobaea*
- Rosebay Willowherb *Epilobium angustifolium*
- Great willowherb *Epilobium hirsutum*
- Pineapple Weed *Matricaria discoidea*
- Groundsel *Senecio vulgaris*
- Various grasses and rushes

Somewhat invasive species such as Butterfly Bush *Buddleia davidii* and Montbretia *Crocosmia* x *crocosmiiflora* can also easily become established in such areas.

5.15 Buildings and Artificial Surfaces (Habitat BL3)

This category includes all buildings except stone ruins and derelict buildings, as well as all non-vegetated artificial surfaces such as concrete, tarmac, artificial sportsgrounds, and roads.

Plate 26: Buildings/artificial surfaces habitat

5.16 Reed and Large Sedge Swamps (FS1)

These are wet areas, often at the margins of lakes, ponds or rivers, which have stands of reeds such as *Phragmites australis* or large sedges or rushes. Such conditions are found around some parts of Lough Lannagh in Castlebar. This vegetation can often adjoin (or merge with) wet grassland, with species such as valerian (*Valeriana officinalis*), silverweed (*Potentilla anserina*), meadowsweet (*Filipendula ulmaria*), and water horsetail (*Equisetum fluviatile*).

Plate 27: Reed & large sedge swamp

While each site tends to have its own characteristics, preventing too much generalisation, **Table 3** ranks these habitat types according to their importance or value to biodiversity.

Table 3: Biodiversity value of habitat types

Habitat type & code (Fossitt, 2000)	**Biodiversity Value**
Dry meadows & grassy verges (Habitat GS2)	High
Wet grassland (Habitat GS4)	High
Improved agricultural grassland (Habitat GA1)	Low - medium
Amenity grassland – improved (Habitat GA2)	Low
Scrub (Habitat WS1)	High
Ornamental/non-native shrub (Habitat WS3)	Low - medium
Hedgerows (Habitat WL1)	High
Treeline (Habitat WL2)	Low
Flower beds and borders (Habitat BC4)	Medium
Dry calcareous and neutral grassland (Habitat GS1)	High
Scattered trees and parkland (Habitat WD5)	Medium
Semi-natural woodland (WN2)	High
Stone walls and other stonework (Habitat BL1)	High
Recolonising bare ground (Habitat ED3)	Low - medium
Buildings & artificial surfaces (Habitat BL3)	Low - medium
Reed and large sedge swamp (FS1)	Medium - high

6. Ecological Corridors, Stepping Stones & Green Infrastructure

While many parts of a town, even a small garden, can be useful for biodiversity, some areas are notable for the variety or extent of the habitats they provide. In an urban setting, these can function as important ecological corridors or stepping stones. They are also part of the area's 'green infrastructure', a range of measures to use natural systems strategically to benefit society, for example by providing 'ecosystems service'. **Figure 6** shows some areas of particular biodiversity interest in Castlebar.

Figure 6: Notable biodiversity areas in Castlebar

1. The Great Western Greenway, the Castlebar River, & Lough Lannagh

The Great Western Greenway is a trail for walkers, runners and cyclists, or those who simply want to spend some time exploring nature in the open air. One branch of the trail runs from Turlough, Co. Mayo, south-west to Castlebar, and then continues on to Islandeady and Westport. Another branch runs from Westport to Newport, then on to Mulranny and Achill.

The section of the greenway in the Castlebar area runs along the Castlebar River, passes the Castlebar Town Park, and continues to Lough Lannagh. Much of this stretch has semi-natural vegetation along the river, although often only as a narrow margin. There are various invasive species present along this stretch, which is a matter for concern; these are discussed in Appendix 2. Litter is also a significant issue along the riverside path.

Plate 28: An information sign about the Great Western Greenway at Castlebar Town Park

Plate 29: Riverside section of the Great Western Greenway in Castlebar

Figure 7: This map shows the section of the Great Western Greenway that runs from Turlough to Castlebar (map from www.sportireland.ie)

Plate 30: The Great Western Greenway passes along the south side of Lough Lannagh

2. Pool at Balloor

A small pool at Balloor, on the east side of Castlebar, has the potential to be a worthwhile biodiversity area, but was not surveyed in any detail during the present study. This pool appears to be partly seasonal, and has reeds and scrubby vegetation along some of the shore.

Plate 31: A pool at Balloor, on the south-east side of Castlebar, with woody vegetation along the edge

3. Patch of scrub at Kilkenny

A small area of scrub at Kilkenny has developed on a site adjacent to Kilkenny Close, on the east side of Castlebar. While the area was not surveyed in detail, it appears to have good potential as a developing wildlife area, particularly for birds.

Plate 32: An area of scrub at Kilkenny which has good potential for birds and other wildlife

4. Saleen Lake

Saleen Lake is a small lake to the south of Castlebar. While the lake does have a fringe of reeds and occasional willows, it could be enhanced for biodiversity by allowing some of the adjoining amenity grassland to revert to natural meadow or wetland vegetation (see Section 7.7).

Plate 33: Reedbeds and trees along Saleen Lake

5. Pool at Lakeview

The pool beside the Lakeview estate, to the north of Castlebar, has significant opportunities for biodiversity enhancement; these are discussed in detail in Section 8.2.

Section 2: Action Plan

7. Management Recommendations

This section contains some recommendations on ways in which public spaces and gardens in Castlebar can be managed for biodiversity.

1. Introduce wildflower meadows, groves of trees and native hedges to the green areas in Castlebar.
2. Reduce illegal dumping.
3. Use alternative weed killers and educate the public on reducing/abolishing their use of weedkiller within their own gardens.
4. Enhance native shrubbery species throughout the town and public buildings.
5. Introduce native species hedgerows to areas of unpleasing views such as bare brick wall from housing areas
6. Introduce tree groves.
7. Urge the natural growth of wetland vegetation and reed beds along rivers and waterbodies.
8. Maintain and improve public planting areas.
9. Educate and inspire the public to encourage wildlife and biodiversity activity within their own gardens.
10. Encourage bird activity for native bird species that don't adapt as quickly to surrounding urban environments, such as swifts.
11. Provide information to the public about bat species within the community.

7.1 Green Areas in Castlebar

There are several large areas of very short grass in Castlebar, which are of little use in promoting biodiversity, as well as being aesthetically uninspiring and monotonous. The introduction of wildflower meadows, groves of trees, and native hedges would improve these areas for both the native biodiversity and for local residents.

Plate 34: Amenity grassland in a public area

Plate 35: Open green areas with short grass are of little value to wildlife or biodiversity

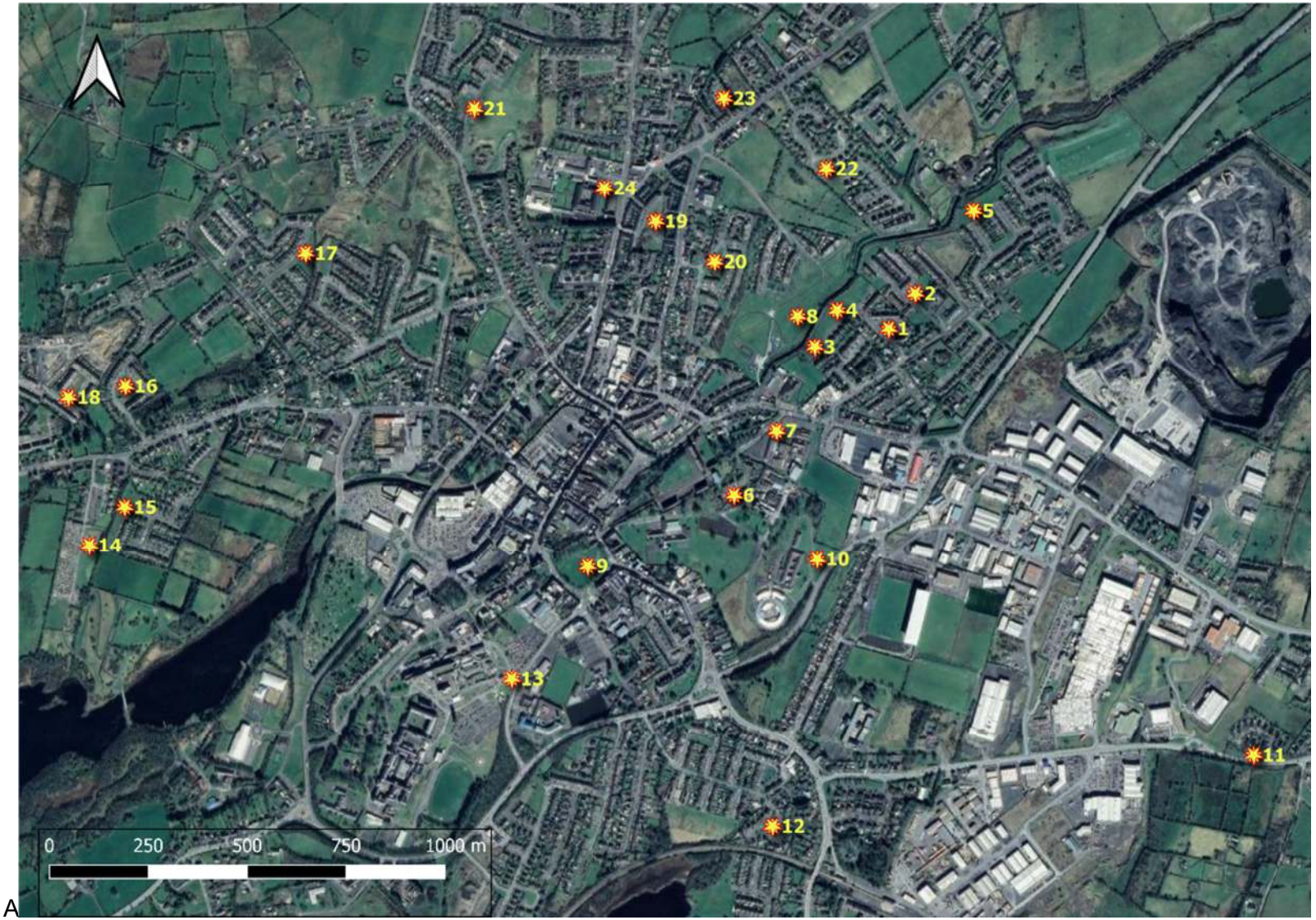
Plate 36: Some of the green areas are cut so short that the soil becomes bare or muddy. In addition to minimising the biodiversity value, this also destabilises the soil and causes soil erosion

The following areas in Castlebar have good potential for establishing wildflower meadows:

1. Father Meehan Place
2. Springfield Court
3. Northbrook (on the grassy area adjacent to the Greenway)
4. The Willows (on the grassy area adjacent to the Greenway)
5. Fairways estate
6. Lawn View estate
7. Davitt College (grounds along Lawn View)
8. Castlebar Town Park (in addition to current wildlife area)
9. The Mall
10. Cuan Chaitríona nursing home
11. Ashwood estate (along Breaffy Road)
12. Cashel Park
13. Mayo University Hospital (green area adjacent to entrance from John Moore Road)
14. New Cemetery
15. Blackfort Manor
16. Woodville estate
17. Foxfield estate
18. Carrabeag estate
19. Castle Grove
20. Riverdale Court
21. Rathbawn Avenue
22. The Oaks estate
23. Wheatfield Manor estate
24. Sacred Heart Hospital

These locations are shown in **Figure 8**.

Figure 8: Proposed locations in Castlebar for wildflower meadows (numbers refer to the list on the previous page)



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7.2 Illegal Dumping & Burning

Not many cases of dumping or burning were observed in Castlebar, but this activity, when it does occur, can impact on wildlife as well as visually degrading public areas. The local authority should co-ordinate with businesses and landowners, as necessary, to ensure that habitats are not degraded by dumping and burning of rubbish.

Plate 37: Dumping and burning of rubbish degrades areas both for wildlife and for human life.

7.3 Weedkillers

Many areas within the town have had weedkiller applied, even in areas where there seems to be no reason for it. Most of these areas do not need any treatment with weedkiller at all, once it is accepted that not everything needs to be 'tidy'. Indeed, most people would probably agree that a brown, bare area of dead vegetation is unsightly in itself. Other alternatives are available; areas such as this can be trimmed manually or with a strimmer, or hot foam weed treatment can be used.

Mayo County Council, when maintaining public areas, should use alternatives to weedkillers, and should inform the community that there is no need for weedkillers. For example, county council maintenance vehicles could have a sign stating that only chemical-free methods of weed control are being used in public areas, and signs could also be erected in parks to convey this message. This should help the public to realise that they too can look after their own gardens without using chemicals.

Plate 38: Spraying weedkillers along the edges of kerbs in public areas is unnecessary


7.4 Shrubberies around Public Buildings

Shrubberies around public buildings in the town provide opportunities to enhance conditions for birds and insects. At present, they mostly contain non-native plants; this in itself is not a problem, but better planning and plant choice could enhance these shrubberies, both visually and for biodiversity, as shown in the photos that follow.

Beautiful native shrubs such as Guelder Rose (*Viburnum opulus*), Shrubby Cinquefoil (*Potentilla fruticosa*), spindle (*Euonymus europaeus*) or holly (*Ilex aquifolium*) could be used in shrubberies to enhance their wildlife value. In many cases, shrubberies could be replaced with a good mixed native hedge with hawthorn, blackthorn, hazel, wild roses and elder. However, existing shrubberies and hedges should not be disturbed during the bird nesting season (March-September inclusive), and large areas of shrubbery should not all be removed at once, as birds may be left without adequate nesting sites.

Plate 39: Low shrubs can be planted around trees to give cover to birds and other small animals

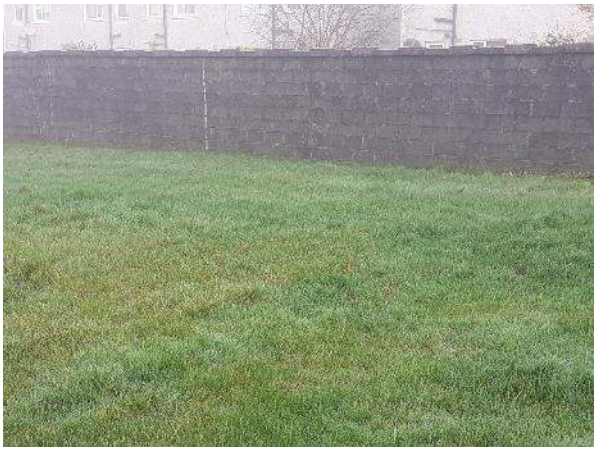

Plate 40: These photos at The Mall, Castlebar, show bare areas under trees which could be enhanced for wildlife by adding some shrubs

Plate 41: Bare areas like this within shrubberies are of low value to biodiversity, and could be planted with shrubs, ivy, or native ferns

7.5 Hedges

As discussed earlier in this plan (Section 4.2), native hedges are very important to wildlife and biodiversity, especially since so much of the land is now taken up by towns, roads, and farms. Hedges can also greatly improve the appearance of public areas; **Plate 42** shows examples of unattractive walls that would be much improved visually if they were clothed with a fine native hedge.

Plate 42: Unattractive walls like these can be hidden by a hedgerow, which will enhance the area both visually and ecologically, or by climbers such as ivy



Evergreen hedges are very commonly planted in gardens and parks. Unfortunately, Leyland cypress (*Cupressus* × *leylandii*) is still often used. Being non-native, this plant is not great for biodiversity, and grows too fast and big to be useful in most private gardens. Another plant very commonly planted for evergreen hedging is laurel *(Prunus laurocerasus)*. Again, being non-native, this is not optimal for biodiversity, and is also an aggressive invasive species that invades woodlands. Holly is a very good alternative.

Plate 43: A young laurel hedge in a public area in Castlebar

Plate 44: Leyland cypress is still planted as a hedge, but is too large and fast-growing, and not optimal for biodiversity

Hedges in urban areas are often cut very short in the name of 'tidiness'. However, these would be far more useful for birds if allowed to grow to provide nesting sites and cover for foraging, and would be much better for pollinators if allowed to flower.

This does not mean they should never be pruned; the National Biodiversity Data Centre has produced a useful guide for managing hedges sensibly[3]. Good plant choices for native hedges include hawthorn, holly, honeysuckle, blackthorn, rowan, spindle, Guelder rose, elder, and wild roses.

Plate 45: An attractive mixed hedgerow in Castlebar

[3] https://www.biodiversityireland.ie/wordpress/wp-content/uploads/Pollinator-How-to-Guide-3-FINAL.pdf

7.6 Trees

Trees are very important in towns for a number of reasons:

- They provide visual structure and interest in public spaces
- They provide shade and shelter
- When planted along streets, they not only beautify the area, but help to delineate routes and emphasise boundaries
- They provide nesting sites and roosting sites for birds, and cover for birds when they need to hide from birds of prey or cats
- Some trees provide pollen and nectar for pollinating insects

The following trees are good choices:

- Birch (*Betula pendula*)
- Fastigiate oak (*Quercus robur* 'Fastigiata')
- Field maple (*Acer campestre*)
- Upright hornbeam (*Carpinus betulus* 'Fastigiata')
- Crab-apple (*Malus sylvestris*)
- Rowan (*Sorbus aucuparia*)
- Wild cherry (*Prunus avium*)

A grove is a small group of trees, usually with little natural undergrowth. A copse is a group of trees or bushes forming a thicket, often with dense undergrowth that can provide cover for birds and mammals. Groves and copses of trees are more useful to wildlife than individual trees, and are also attractive features that have a more natural appearance. They can also be useful in providing shelter and for screening off unsightly views or busy roads.

Plate 46: The beauty of trees in Castlebar during winter

Plate 47: Even though the grass around this copse of trees in Castlebar has been cut, some undergrowth has been left in place, providing an additional habitat for wildlife

The following areas in Castlebar would be nice locations for groves or copses:

1. Northbrook (on the grassy area adjacent to the Greenway)
2. The Willows (on the grassy area adjacent to the Greenway)
3. Father Meehan Place (on the grassy area adjacent to the Greenway)
4. Fairways estate (adjacent to the Greenway)
5. Castlebar Town Park
6. Blackfort Avenue
7. Foxfield estate
8. Sion Hill
9. Pontoon Drive
10. Lakeview estate
11. Rockvale estate
12. Whitehorse Lane
13. Marian Row & St. Bridget's Crescent
14. The Brambles estate
15. Parklands estate

These locations are shown in **Figure 9**.

Figure 9: Proposed locations in Castlebar for groves/copses of trees (numbers refer to the list on the previous page)

The following pictures show some tree-related issues in Castlebar that could be improved.

Plate 48: Groves and thickets (left) are more useful to wildlife than isolated individual trees (right)


Plate 49: Care needs to be taken that trees are staked securely, and not damaged during construction or maintenance


Plate 50: It is important that ties are loosened or removed from trees as they grow. This dead beech tree still has pieces of cord embedded in the bark.

7.7 Waterside Areas

Natural vegetation, such as wet grassland, woodland, or reed beds should be encouraged along rivers and water bodies. A uncut margin of at least 25 metres is recommended, and even outside this margin, the grass and vegetation can be allowed to grow longer, to avoid soil erosion and to encourage pollinators. Saleen Lake (**Plate 51**) is a good example of where this can be applied. The edge of the lake on the north-east side has reedbeds and a narrow line of willows, but beyond that the vegetation is cut short and maintained as amenity grassland. A broad margin of natural wet meadow or scrub would be far more beneficial to the local wildlife.

Plate 51: The margin of Saleen Lake, Castlebar

Plate 52: More trees and natural vegetation along waterside areas enhance these areas both visually and for biodiversity

7.8 Public Planting Areas

Where flower beds or planters are provided in public areas, these should be maintained in nice condition, whether by local authorities, community groups, or local residents. In addition to enhacing the area visually and making it a pleasant place to live in, there is an opportunity here to help biodiversity especially pollinating insects. Comprehensive lists of suitable plants are given in the Pollinator Friendly Planting Code[4]. These can provide attractive colour through the seasons as well as helping the bees and other insects.

[4] https://www.biodiversityireland.ie/wordpress/wp-content/uploads/Pollinator-friendly-planting-code-temporary-draft.pdf

Plate 53: Public planting areas should be well-maintained, with consideration given to the needs of pollinating insects

Plate 54: In this case the weed-prevention fabric has become exposed beneath the gravel

Plate 55: Where planters are present in public spaces, they should be maintained by the local authority, a community group, or local residents

Plate 56: Providing seats and raised planters in public areas help people to relax in the presence of plants, birds, and pollinating insects

Plate 57: Shady corners in public areas are good opportunities for ferns or moss gardens

Plate 58: Even non-native shrubs can provide cover and food for birds

7.9 Recommendations for private gardens

All gardens can attract wildlife and help to enhance local biodiversity. The following is a list of recommendations to help achieve this. The All-Ireland Pollinator Plan also includes a guide to enhancing gardens for pollinators, with lists of good species to use[5]. The Gardening for Biodiversity booklet is another great guide including information on enhance biodiversity within private gardens[6]. This booklet is also available as hard copies at the Mayo Heritage Office.

The following are some suggestions that are provided within these guides.

√ Set up bird nesting boxes on trees or walls

√ Set up bird feeders or a bird table in a place that is not accessible to cats.

√ Plant biodiversity-friendly and pollinator-friendly flower beds and pots.

√ Plant native shrubs that produce flowers and fruits, such as spindle or holly.

√ If you have a lawn, transform it into a wildflower area. This will be cheaper and easier to maintain, more attractive, and much better for the local biodiversity.

√ Let dandelions flower in spring before cutting the grass.

√ Let moss grow. It does not harm trees and is useful to nest-building birds

√ If you have space, plant native trees such as birch, or a native hedge of hawthorn, holly, Guelder rose and elder.

√ Encourage your friends to see the benefits of wildlife gardening. Share good biodiversity-friendly plants by exchanging cuttings and growing new plants for free.

√ Leave native ferns and ivy to grow on stone walls, where possible.

X Do not use traditional slug pellets, which can result in the death of garden birds; use a non-toxic alternative product, or spread grit, sharp sand or crushed eggshells around sensitive plants to deter slugs and snails.

X Do not burn leaves or other garden debris; leave this material in a quiet corner where it may attract hedgehogs and invertebrates.

X Do not cut hedges and shrubs too tightly, and do not cut back these during the bird nesting season (March-September).

X Avoid using toxic products to control pests. For greenfly and other aphids, just mix a squirt of liquid eucalyptus soap with water and spray on – safe, effective and fragrant!

X Avoid buying plants that may be invasive – refer to the Royal Horticultural Society guide on this subject*.

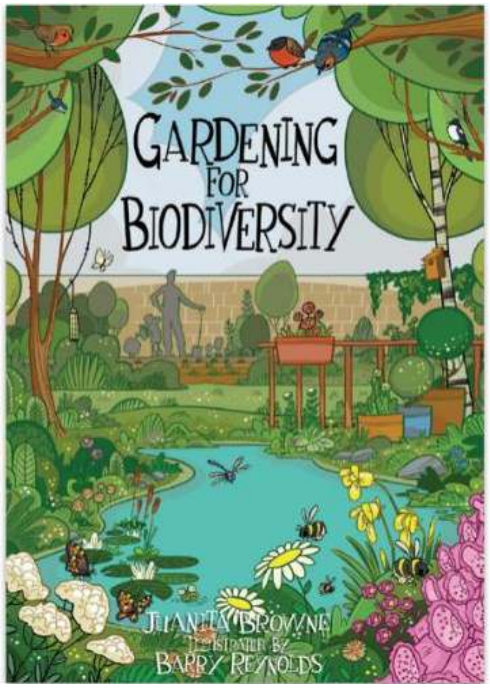
X Do not use lawn products containing selective weedkillers or moss-killers,

* https://invasivespeciesireland.com/wp-content/uploads/2017/10/GARDENING_BOOK2.pdf

[5] https://pollinators.ie/wordpress/wp-content/uploads/2018/04/Gardens_actions-to-help-pollinators-2018-WEB.pdf

[6] https://www.mayo.ie/heritage/biodiversity-natural-heritage/things-you-can-do

Figure 10: These guides contain useful information and ideas for wildlife gardeners.* Gardens: actions to help pollinators *(left) is available on the pollinators.ie website[7]. Gardening for Biodiversity is a booklet produced by the Local Authority Heritage Officer Network. For more details, see the Mayo County Council website[8]



7.10 Birds

The following sections provide information on enhancing conditions for birds.

7.10.1 Birds Habitats

The loss of suitable habitats is one of the major pressures on birds in urban areas. While a few species, such as pigeons and jackdaws, can adapt quite well to urban conditions, many of our native birds are unable to do so. In order to feed, nest, breed and raise their chicks, they need habitats that are traditionally associated with the countryside, such as woodlands, hedgerows, or meadows. The loss of such habitats in urban areas, and also in many parts of the countryside, has caused a decline in many of our native bird species. Many birds that were once common are now under threat, and have been assigned 'red' or 'amber' status in the *Birds of Conservation Concern in Ireland* assessment.[9] These include house sparrows, linnets, mistle thrushes, robins, swallows and curlews.

However, there is a lot that can be done in towns such as Castlebar to provide more habitats for birds, and it is encouraging to remember that some birds can do well in towns when

[7] https://pollinators.ie/wordpress/wp-content/uploads/2018/04/Gardens_actions-to-help-pollinators-2018-WEB.pdf
[8] https://www.mayo.ie/heritage/biodiversity-natural-heritage/things-you-can-do
[9] https://birdwatchireland.ie/birds-of-conservation-concern-in-ireland-2014-2019/

consideration is given to their needs. The following points describe some of the ways in which bird habitats could be improved.

- More groves of trees in many of the public green areas throughout the town. This measure alone would be a significant improvement in conditions for birds in the town, especially if natural woodland vegetation is allowed to develop underneath or around the trees.
- There are many places where native mixed hedges would do much to enhance both the biodiversity and aesthetics. New hedges should be planted in such areas, and the local authorities should also encourage gardeners and farmers to plant native hedges, and maintain them as described in the All-Ireland Pollinator Plan[10]. Where existing hedges or shrubberies in parks or gardens are being replaced or replanted, native species should be used where possible.
- Meadows and semi-natural grasslands are much more useful to birds (and to many other species) than the areas of short, mown grass which are so ubiquitous in modern towns. Wildflower meadows can be established in these areas. This can be done quickly and easily, and should be facilitated by the local authorities.
- Gardeners should avoid using toxic slug pellets, as these can also poison birds that eat slugs and snails, such as thrushes. Many alternatives are available, as detailed by the Royal Society for the Protection of Birds[11].
- Putting up bird feeders in public areas, parks, and gardens can help birds by providing supplemental food, and are also useful to encourage interest in birds from locals, as many people enjoy watching birds at feeders. BirdWatch Ireland provides useful information[12] on the different sorts of foods that can be provided for wild birds at different types of year. It is important that bird feeders are maintained and cleaned occasionally, and they should be kept topped up regularly, as birds may come to depend on them in times when other food is scarce. Ideally, they should also be sited in a place with natural cover (such as a hedge or shrubs), where small birds can take refuge from predators such as sparrowhawks. Care should also be taken to position feeders out of the reach of cats. Where feeders are provided in public areas, an information stand or sign, showing how to identify some bird species, could also help to encourage interest and enthusiasm from the public.

7.10.2 Nesting Boxes

While hedges and trees take a little time to become established, bird nesting boxes can be put up quickly and can encourage birds to start nesting in public spaces and gardens around the town.

- It is good to provide a variety of nest boxes, including both the traditional boxes with a round hole in the front, as well as open-fronted nest boxes. The latter are preferred by some birds, such as robins and blackbirds.

[10] https://pollinators.ie/wordpress/wp-content/uploads/2018/04/Farmland_actions-to-help-pollinators-2018-WEB.pdf
[11] https://www.rspb.org.uk/birds-and-wildlife/advice/gardening-for-wildlife/animal-deterrents/organic-pest-control/non-toxic-slug-control/
[12] https://birdwatchireland.ie/irelands-birds-birdwatch-ireland/garden-birds/feeding-your-garden-birds/

- With traditional boxes, the size of the entrance hole will determine which species can use the box. Boxes with very small (25 mm) entrances can be used by blue tits or coal tits, whereas boxes with larger openings can be used by a range of species, including sparrows and great tits.
- Many birds are territorial, so nest boxes shouldn't all be placed together, or very close to each other, but instead spaced out within the space available. However, house sparrows are exceptions to this as they like to live in groups. Terrace nesting boxes are suitable for sparrows.
- Birds are more likely to use nesting boxes that are positioned among some sort of cover, such as a tree, rather than a box on a bare wall, as these are less vulnerable to predators.
- Special boxes for particular species, including treecreepers, owls and swallows are also available. BirdWatch Ireland provides further information on different types of nest boxes[13]. Swifts also use specialised boxes, and good work is being done in County Mayo to protect swifts, as described in the following section.

Plate 59: An open-fronted nesting box may be used by a robin or blackbird

Plate 60: Nesting boxes can be attached to trees in public areas

[13] https://birdwatchireland.ie/irelands-birds-birdwatch-ireland/garden-birds/nestboxes/

Swifts

The swift (*Apus apus*) is a small migratory bird that travels from southern Africa to Ireland in the month of May each year, spending the summer here before returning to Africa by late August. In Ireland, urban areas are especially important to swifts, as they nest in crevices or gaps in buildings, and in the eaves of houses. Sometimes they also nest in natural cavities such as rock crevices or holes in trees. Swifts pair for life, and each pair returns to the same nesting site each year. Swift numbers have seriously declined in recent years, probably due in part to lack of nesting sites, as old buildings are demolished or renovated, and new buildings have few suitable cavities or entrances. A decline in insect numbers is also likely to be partly responsible, as swifts eat flies, midges, and other airborne invertebrates.

Swift Conservation Ireland give the following guidelines for helping swifts:

- Try to identify the places where swifts nest locally
- Leave any known nesting sites undisturbed
- When repairing fascia, soffits or gutters, don't block up access holes that may be used by swifts
- Do not carry out this kind of maintenance during the swift breeding season (May-August)
- Try to prevent access to the nest site being blocked by bushes etc.
- Erect swift nest boxes or built-in swift blocks to provide additional nest sites
- Inform the National Biodiversity Data Centre or BirdWatch Ireland about known swift nesting sites
- Protect nest sites from cats, by removing items that might help them to get access

Local authorities, public bodies, schools and colleges can help swifts in several ways:

- Incorporate swift nest boxes in new buildings, or retro-fit existing buildings
- Encourage swift conservation projects through funding or other supports
- Include swift conservation measures in county development plans
- Mitigate for any nest sites that are inevitably lost, by providing alternatives
- Provide training for staff who work with and maintain these buildings

Saving Swifts, a booklet published by BirdWatch Ireland, provides further guidance, including advice on choosing, making and installing swift boxes. Swift Conservation Ireland has produced a detailed guide to installing swift boxes in concrete block walls[14].

The swimming pool in Castlebar has had 24 built-in swift boxes incorporated; as of 2020, 12 of these have been occupied. In Galway-Mayo Institute of Technology (GMIT) in Castlebar, external swift boxes have been fitted; 12 of these have so far been occupied by swifts. It is recommended that any new public buildings being constructed, including schools and local authority buildings, should have built-in swift boxes incorporated (**Plate 61**). This can be easily done during construction, as concrete nest boxes are available which simply take the place a concrete block in the building. When buildings are being renovated or extended, it is important to consider swifts, as these birds tend to return each year to traditional nesting

[14] http://www.swiftconservation.ie/wp-content/uploads/2019/02/BUILDING-in-SWIFT-NEST-BOXES-1.pdf

sites. New swift boxes should be provided, especially if the renovation is likely to disturb established nest sites, and this work should not be done during the nesting season.

For these, and for all renovation projects where swift nest sites are known or thought to be present, it is important that the designers and builders should work with Swift Conservation Ireland in order to protect these birds and their nest sites.

Plate 61: Swift nesting boxes can be easily incorporated into concrete block walls of buildings (pictures from Swift Conservation Ireland)

7.11 Bats

Ireland has nine species of bats, all of which are legally protected. Daubenton's bats and soprano pipistrelles have been recorded in Castlebar. It is an offence to intentionally disturb, kill or injure a bat or its resting place. Any work that might affect bats must be carried out with advice and under licence from the National Parks and Wildlife Service. Local Authorities should see that bat roosts are protected and that they are not negatively affected in the planning process. Old buildings, such as those shown in **Plate 63** can provide useful roosting places for various bat species.

Bat Conservation Recommendations

The Mayo Bat Group has provided the following recommendations for this plan, in the interests of conserving bats and protecting their habitats:

- Leave hedges higher when cutting and trimming, all wildlife use these as corridors which provide shelter for them when foraging for the insects that live in and around

them. Bats eat the insects that make their homes in hedges, and birds and wild mammals use them for shelter and for nest building sites.

- Plant wild flowers to provide pollinators and other insects with the means to survive and increase their numbers. This also saves money on mowing all the verges and grassy areas, not to mention the smaller carbon imprint by not mowing.
- Ensure that there is a dedicated wildlife and animal abuse officer to help protect animals within County Mayo.
- Provide a dedicated page on the Mayo County Council website for contacting animal rescue services and rehabilitation specialists when injured animals and wildlife are found by the general public. The Mayo Bat Group can be contacted through the Facebook page of Mayo Bat Group or by email at mayobatgroup@gmail.com.
- Provide a page on the Mayo County Council website that gives brief instructions on how to contain animals needing assistance until they can be collected by the relevant people.
- Provide an education package to ensure that students of all ages are given information on how important species diversity is to the whole planet, with a focus on wildlife in their own locality.
- Give more educational talks in schools on how to protect and enhance the locality for wildlife, including how to feed birds over winter and how to observe them.
- Bat Conservation Ireland provide leaflets, including e-leaflets, which can be downloaded from batconservationireland.org, and which refer to bat species, their habitats, how to look for and detect them and how to deal with various problems that people may have concerning these protected species.
- Start a bat box project, which might prove to be beneficial to bats in the area.

Bat Conservation Ireland has produced a guide to choosing, making, and installing bat boxes.[15] .

Church towers (**Plate 62**) and old buildings (**Plate 63**) have good potential for roosting bats.

[15] https://www.batconservationireland.org/wp-content/uploads/2013/09/Leaflet_3_batboxes.pdf

Plate 62: Church towers can provide a roosting place for bats

Plate 63: Old buildings like these can provide roosting places for bats

7.12 Invasive Species in Castlebar

Invasive species are species that are not native to Ireland and which tend to displace native species as a result of their competitiveness and persistence.

Appendix 2 gives further information about the invasive species recorded in Castlebar. Significant invasive species that cause problems in Ireland, including the degradation of habitats and biodiversity, include laurel (*Prunus laurocerasus*), rhododendron (*Rhododendron ponticum*), Japanese knotweed (*Fallopia japonica*), and various aquatic species. The Invasive Species Ireland website[16] gives comprehensive accounts of problem invasive species, and how these can be identified. Sightings of invasive species in the Castlebar are can be reported to Mayo County Council.[17]

[16] http://invasivespeciesireland.com/
[17] https://www.mayo.ie/heritage/invasive-species

8. Recommendations for specific sites in Castlebar

This section proposes suggestions and ideas for improvements and biodiversity-enhancement projects in specific areas in Castlebar. These are summarised briefly below, and more detail is given in the following sections.

- ***Castlebar Town Park:*** A larger area to be set aside for a native wildflower meadow, and a new native hedge to extend the semi-natural vegetation present along the river banks; the addition of a maze; better maintenance of plants within formal areas of the park.

- ***Lakeview:*** Allow a natural wet meadow to develop in the very damp amenity grassland habitat.

- ***Main Street, Bridge Street & Ellison Street:*** Larger planting areas around the existing street trees; new flower beds linking some of the trees; light maintenance on the existing trees; additional window boxes and planters.

- ***Upper Thomas Street & Lower Chapel Street:*** New street trees for these two streets.

- ***Marian Row & St. Bridget's Crescent:*** New areas of native streamside vegetation along sections of the stream; removal of rubbish and debris; the local authority could assess the condition of the concrete banks and consider improvement works.

- ***McCormack Estate:*** A formal planting area to replace some of the paving; more seats, facing onto the new planting scheme.

- ***Riverdale Court & Knockthomas Drive:*** A community garden with raised beds for growing flowers, herbs or vegetables, after consultation with the local residents.

8.1 Castlebar Town Park

The Castlebar Town Park adjoins a stretch of the Castlebar River, and is one of the large public green areas in the town. The park includes a playground for children, games areas, exercise areas, a small wildflower area, paved areas, and park benches.

Much of the area of the park is presently made up of amenity grassland. This is species-poor grass, cut short, and is of little use to most forms of wildlife. While some areas of amenity grassland are needed for recreation or games, a more diverse combination of habitats would be more beneficial to the local biodiversity, as well as being of more interest to some of the park's visitors, and more educational for both children and adults alike.

While a small wildflower area is already provided in the park, a much larger area could well be used for native flowers, and cut once a year in late summer or autumn. The All-Ireland

Pollinator Plan 2021-2025 has produced useful guides on establishing and managing wildflower areas (see Section 1.3 of this report).

The east side of the park adjoins the Castlebar River, and on the opposite bank is part of the Great Western Greenway. This part of the park which runs along the river bank could be much enhanced for wildlife by adding a wide native hedge to extend the semi-natural vegetation along the river. At present, a fence runs along the park edge (**Plate 64**). A 2-metre native hedge, incorporating occasional native trees, could be planted inside this fence. See Sections 4.2 and 5.7 for more details on hedgerows.

Plate 64: This side of the Castlebar Town Park, which runs along the Castlebar River, could be enhanced for wildlife by adding a native hedge

Another way to introduce diversity of habitats, as well as providing more interest for both children and adults, would be to plant some of the area next to the children's playground with a maze. An outdoor maze, planted with low hedges, can be a fun feature and can also provide extra habitats for birds and insects (**Plate 65**). In the interests of safety, the hedges which make up a maze can be maintained at a low height so that children are always visible from outside. Another option for a wildlife-friendly maze is to allow the grass to grow as a meadow, and mow paths through it to form the maze.

Plate 65: A garden maze can be fun for both adults and children, while also providing a habitat for birds and other forms of wildlife

While some trees have been planted in the park, there is a lot of open space, much of which has only a cover of close-mown grass (**Plate 66**).There is, therefore, a good opportunity to add more trees. While groves or copses of trees are a good option, as discussed in Section 7.6, in this case it would be worth considering an arboretum for the town park. An arboretum is a collection of trees of different kinds, and can be developed with any of several aims – conservation of species, education, recreation, scientific interest, or simply because people like to wander in a pleasant space among interesting trees. An arboretum differs from a woodland in a few ways. In an arboretum, it is common to space out trees in such a way that each tree can be admired and appreciated individually (**Plate 67**). An arboretum, being a tree collection, also usually contains trees of many different species or varieties. In Castlebar, it would be preferable to focus on developing a collection of Irish species in particular, although there is no reason why other suitable tree species, such as beech, would not also be included. The development and growth of an arboretum is a long-term process, the results potentially lasting for centuries, and it would be a fine investment for the future of the town.

Plate 66: Castlebar Town Park has a lot of open areas and opportunities for planting trees

Plate 67: An arboretum is a collection of trees, usually spread out to provide plenty of space in between so that visitors can appreciate individual trees

Inspiration and guidance can be drawn from existing arboretums in the country, such as the one in the National Botanic Gardens, Glasnevin, the John F. Kennedy Arboretum in Wexford, the arboretum at Fota, Co. Cork, or Kilmacurragh Botanic Gardens, Co. Wicklow.

Finally, **Plate 68** shows formal areas within the park where the plants could be maintained to a higher standard. While wildflowers or 'weeds' can be beneficial to wildlife, they don't look appropriate in formal sections of the park; it would be best to maintain formal areas formally, and develop wildlife areas elsewhere in the park as discussed in the preceding paragraphs.

Plate 68: Some parts of the town park are laid out with formal beds or borders, but the plants in these could be maintained better

8.2 Lakeview

The Lakeview estate, on the northern outskirts of Castlebar, adjoins a small lake. At present, a large area of the estate, along the south of the lake, is maintained as amenity grassland. This is a very wet area, muddy in places, with water pooling on the surface (**Plate 71**).

The current amenity grassland habitat here, maintained by regular mowing, is of little use to biodiversity, and is too wet to be of much use to local residents for most amenity purposes. A narrow margin along this side of the lake contains reeds, willow and other natural vegetation, and the present amenity area would very likely form a natural wet meadow if allowed to do so.

Figure 11: The large green area at Lakeview estate, along the south of the small lake, offers good opportunities for biodiversity enhancement

Plate 69: The small lake along the Lakeview estate has a margin of reeds and occasional willows

Plate 70: A large area to the south of the lake is maintained as amenity grassland, which has little value for biodiversity

Plate 71: Parts of the current amenity grassland are very wet, with shallow pools of water at the surface in places

It is recommended that a strip of land along the lake margin, 20 – 25 metres in width, be fenced off and allowed to develop naturally. Birch or alder trees could also be planted here in order to help the regeneration of the lakeside vegetation. The remainder of the present grassy area could be allowed to revert to a wet meadow. The resources and publications which are part of the All-Ireland Pollinator Plan[18] offer useful guidance and practical information on establishing natural meadows. Such areas generally need to be cut only once a year, in late summer or early autumn. Maintaining this area as a wet meadow would be cheaper and less labour-intensive, and would result in an area which is of much more use to local wildlife, as well as being visually more attractive (**Plate 72**). Paths could be cut into the meadow to help local people appreciate and use the area, and a narrow strip along the road could also be cut short if desired.

The area could be further enhanced for wildlife by putting up bird nesting boxes (see Section 7.10.2) on some of the existing trees, in order to facilitate nesting birds. As bats often use waterside areas for foraging and commuting, it would also be worthwhile to put up some bat roosting boxes in order to provide roosting opportunities.

Plate 72: A waterside area in Ballina shows how natural wet grassland vegetation can be beautiful as well as being great for pollinating insects

[18] https://pollinators.ie/resources/

8.3 Main Street, Bridge Street & Ellison Street

The main thoroughfare in the centre of Castlebar, including Main Street, Bridge Street and Ellison Street has been planted along one side with hornbeam trees (**Plate 73**) bringing a fresh green tone to the street. In winter, these trees are hung with Christmas lights. Around the bases of these trees are very small flower beds, planted with bedding plants. There are also occasional benches and planters (**Plate 74**), and some businesses have colourful floral displays (**Plate 75**). While some of the buildings have attractive stonework or other features, there are also those which are empty or derelict.

Plate 73: Street trees on Main Street, Castlebar

Plate 74: A stone bench and a planter in Castlebar

Plate 75: Hanging baskets and window boxes outside a pub in Castlebar

Plate 76: Some buildings on Main Street in Castlebar have attractive stonework

The flower beds around the existing hornbeam trees are very small, and look somewhat out of proportion with the tree and the surroundings (**Plate 77**). Larger beds (at least 1 m x 1 m) would look better and would also allow more room for plants.

Plate 77: The flower beds around the trunks of the trees on Ellison Street and Main Street are very small, and could be expanded to provide more planting space and to appear more in proportion with the trees

There are places along the main street (**Plate 78**) where a long plant bed could be introduced to connect two of the existing trees, while also providing a partial barrier to the busy street. This could be done at intervals along the street and could be used to introduce attractive colours and scents, as well as providing suitable flowers for pollinating insects. The beds could be approximately 1 m wide and could be planted with plants of such a height as to discourage people from trying to step across them. A low verge could also be built along the edge of the planting area to keep out the wheels of pushchairs or prams. Plants could include some evergreen species, and could feature a combination of colourful herbaceous perennials, elegant grasses, and shapely ferns. These could include, for example:

- *Rudbeckia* 'Goldsturm' – bright, cheerful yellow flowers
- *Heuchera* – several varieties available with colourful evergreen leaves
- Lavender – evergreen scented foliage and summer flowers
- Geranium 'Rozanne' – light blue flowers over a long period each year
- Anthemis tinctoria 'E.C. Buxton' – a perennial with yellow daisy-like flowers
- Stipa tenuissima 'Pony Tails'

Plate 78: In addition to enlarging the planting areas around individual trees, long low flower beds could be built to connect one tree to another. The photo on the right

shows an example of how plants can be used to separate a footpath from an adjacent road, while adding colour and variety. In this case, perennials would be more appropriate than bedding plants, as discussed in the text.

Some light maintenance could be done on the existing trees in order to remove dead twigs or branches (**Plate**) and to ensure there are no cords or wires (e.g. from Christmas lights) damaging the trees.

Plate 79: A few of the hornbeam trees along the street would benefit from light pruning to remove a few dead twigs and small branches

While some businesses along the street have already some colourful containers or hanging baskets, there are additional opportunities to introduce attractive and biodiversity-friendly planting. Some buildings have low windowsills (**Plate 80**) which would be very suitable for window boxes. More stone planters like the one shown in **Plate 74** would also be attractive

features if planted with pollinator-friendly plants. The guides published as part of the All-Ireland Pollinator Plan[19] give lots of details on suitable plants to use.

Plate 80: Low window sills along the street could be fitted with window boxes

[19] https://pollinators.ie/resources/

8.4 Upper Thomas Street & Lower Chapel Street

As noted in Section 7.6 of this plan, trees can bring several benefits to urban areas, such as providing visual structure and interest, delineate routes, and providing nesting sites and cover for birds.

These two streets in Castlebar would benefit from the planting of trees. Upper Thomas Street and Lower Chapel Street are rather lacking in natural features or vegetation, are are dominated visually by hard surfaces and buildings (**Plate 81 and 83**). Trees would soften the appearance of these areas, and make them more attractive both for people and for biodiversity. Section 7.6 provides suggestions on suitable trees for towns.

Upper Thomas Street is a large, wide street, and already has some wide areas of pavement (**Plate 81**) which could accommodate trees. There are also existing gravel areas along some of the buildings (**Plate 82**) which could be used for perennial planting schemes, perhaps using grasses and ferns.

Lower Chapel Street (**Plate 83**) is narrower, but could still accommodate a line of trees along one side, especially if fairly narrow or fastigiate trees are used, such as upright hornbeam (*Carpinus betulus* 'Fastigiata').

Plate 81: Upper Thomas Street, Castlebar. Street trees would improve the street's appearance and biodiversity interest

Plate 82: Upper Thomas Street has some wide areas of pavement (left) which could accommodate street trees, as well as gravel areas along some of the buildings (right) which could be utilised for planting schemes


Plate 83: Lower Chapel Street, Castlebar. Street trees would soften the street's appearance and improve its biodiversity interest


8.5 Marian Row & St. Bridget's Crescent

The sector-shaped green area between Marian Row & St. Bridget's Crescent[20], off Pound Road, is presently occupied by closely-mown amenity grassland with occasional trees (**Plate 84**). This area is proposed in Section 7.6 of this plan as a site where groves of trees could be introduced in order to improve its biodiversity interest and value. Another feature of particular biodiversity interest at this site is a shallow stream which runs along one side of the green area, parallel to Marian Row (**Plate 85**). This stream has sloping concrete sides, which have become partly colonised by vegetation in some areas. There are also places where the concrete is broken and pieces have fallen into the stream (**Plate 86**). The location of the stream and direction of flow are shown in **Figure 12**.

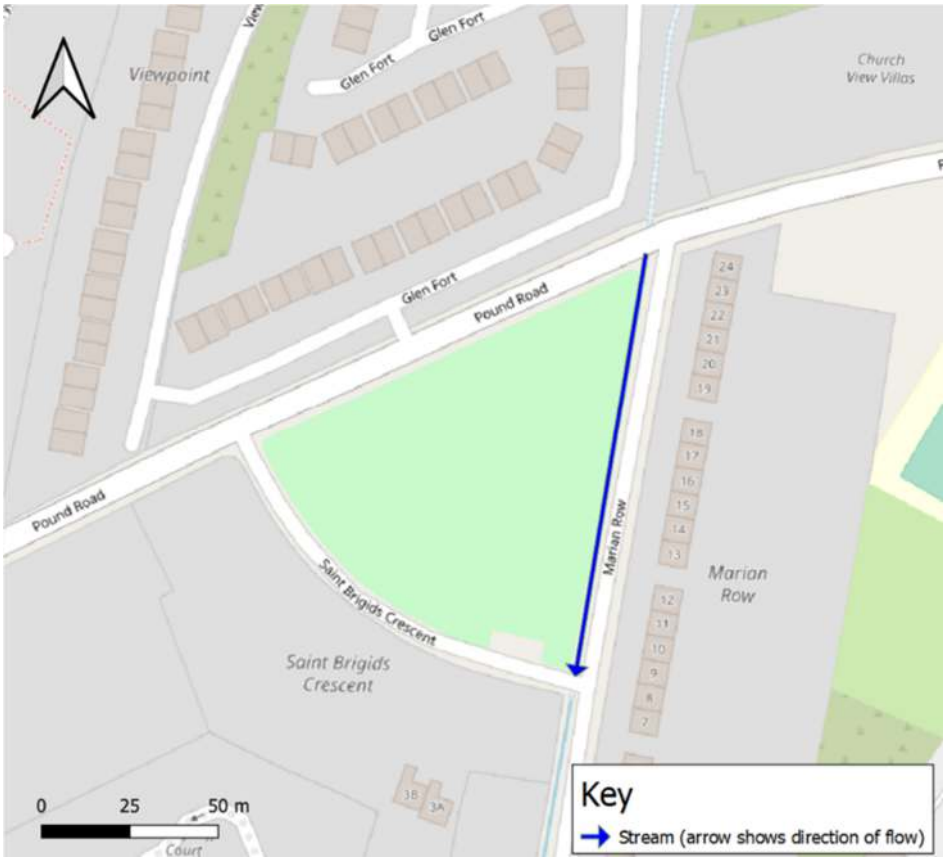
[20] spelled "St. Brigid's Crescent" on some maps

Plate 84: The green area between Marian Row & St. Bridget's Crescent


Plate 55: A shallow stream runs parallel to Marian Row

Plate 86: The stream along Marian Row, showing some areas of streamside vegetation and areas where the concrete bank has fractured


Figure 12: The location of the stream which flows parallel to Marian Row. The flow direction is shown by the blue arrow.



The introduction of new areas of native streamside vegetation along sections of the stream would greatly enhance the area for wildlife such as birds and invertebrates. Two areas are suggested, each of which should be at least 20 m in length (parallel to the stream), and 12 m in width (extending this distance into the currently-grassy area). These areas should be planted with a mixture of native shrubby vegetation, such as Guelder rose, hawthorn, holly, honeysuckle, blackthorn, spindle, elder, and wild roses. It is likely that the newly-planted areas would need to be fenced off from the amenity grassland, at least until the plants become well-established. During planting, precautions should be taken to ensure that no soil or sediment is washed into the stream.

The rubbish and debris which is currently in the stream (including pallets, a shopping trolley and concrete blocks) should be removed, and the area should be monitored by the local authority to prevent any future accumulation of rubbish.

It is also suggested that the local authority would access the condition of the concrete banks along the stream, and consider improvement works, especially where pieces of broken concrete have fallen into the water (**Plate 86**). Appropriate Assessment (AA) screening may be required for improvement works, as the stream has a hydrological connection to the River Moy SAC.

8.6 McCormack Estate

The pedestrian entrance to McCormack Estate, adjacent to Castle Street car-park, has a large expanse of concrete and paving (**Plate 87**). While there are trees within the estate, and a fine ivy-clad stone wall on the opposite side of the road, this large paved area looks very bare and could be improved and softened by introducing some plants. This appears to be quite a busy pedestrian area, and two seats are already in place, although these do not appear to be in frequent use (**Plate 88**). Introducing more planting and nature interest may encourage people to use the area more than at present. The road alongside this area is also busy at times, which may dissuade walkers from lingering. Nonetheless, being close to lots of homes in the McCormack Estate, it has the potential to be used by many more people if it were made more attractive.

Plate 87: The pedestrian entrance to McCormack Estate (adjacent to Castle Street car-park), with a large expanse of paving and concrete

Plate 88: This area has seats, but little of aesthetic or biodiversity interest

In a setting such as this, a quite formal planting scheme can be very successful, bringing colour and structure, as well as opportunities for pollinating insects and foraging birds. **Plate 89** shows an example of this. Low box hedging, clipped once or twice a year, successfully delineates the area, provides evergreen structure, and protects the plants within from the wheels of tricycles and pushchairs. There is already a triangular area marked out by paving outside the entrance to McCormack Estate (Plate 90), which would be a suitable area for this sort of planting scheme.

Plate 89: An example of how a formal planting scheme can bring year-round colour and interest to a public area.

Plate 90: This triangular area outside the entrance to McCormack Estate would be a nice location for a formal planting scheme.

The plants used within the box hedging framework should be a combination of perennials and low evergreen shrubs. A colour theme can bring a pleasant coherence to a formal planting scheme. In this setting, various shades of blue and purple would be visually calming and would contrast nicely with the fresh green colour of the low box hedging.

Lavender is a nice choice, being fragrant and very attractive to bees. *Agapanthus* (African Lily) is a fine plant which produces large clusters of flowers each summer. Several varieties are available, mostly in shades of blue and purple. Other good choices in shades of blue and purple are *Geranium* 'Rozanne', catmint (*Nepeta*) and hyssop (*Hyssopus officinalis*). In a formal scheme, plants can be planted in the ground (**Plate 89**) or in pots (**Plate 92**), although if pots are used they should be large enough to deter theft.

Plate 91: Hardy cranebills (Geraniums) flower each summer

Plate 92: Planting options for the proposed new formal space

Additional seats could also be added along the existing stone wall, facing the new planting area. This would allow people to sit and enjoy the new plants, rather than sitting and facing the road, as is the case with the two seats which are in place at present.

8.7 Riverdale Court & Knockthomas Drive

The large grassy area at Riverdale Court and Knockthomas Drive has already been listed (Section 7.1) as a suitable place for an area of wildflower meadow. This site is mostly made up of closely-mown grass (**Plate 93**), with some planters (**Plate 94**). A few trees and shrubs are present at one end, although a sign for the area is almost obscured by a large *Phormium* (New Zealand Flax) (**Plate 95**). A planting bed adjacent to the grassy area is attractive and well cared-for (**Plate 96**).

Plate 93: An area of closely-mown grass at Riverdale Court

Plate 94: A row of planters at Riverdale Court / Knockthomas Drive

Plate 95: A large Phormium almost obscuring the sign at Riverdale Court & Knockthomas Drive

Plate 96: An attractive plant bed at Riverdale Court

In addition to the wildflower meadow proposed in Section 7.1, this would be a pleasant site for a community garden, as the soil appears to be quite firm and well-drained, and the area seems to be relatively quiet and peaceful, with plenty of birds singing. A community garden could be used by the residents to grow flowers, herbs or vegetable, but they should first be consulted to find out how much interest there is in the idea.

Raised beds are useful in a community garden, being versatile and easy to access (**Plate 97**). Raising the flowers or herbs up from ground level means they are also more accessible and enjoyable for people with reduced mobility. A paved or gravel area between the raised

beds would facilitate this further. Many brightly-flowered and scented plants could be included, to appeal to both the local biodiversity and to the local people.

Plate 97: Raised beds can be used for flowers, herbs or vegetables, as in these examples in Sligo town

If it is found that the local residents are interested in such a garden, it would be useful for the local authority to install raised beds as described above, as a means of fostering a sense of community, improving the area aesthetically, and helping the area's biodiversity.

9 Caring for biodiversity – some good examples

At this stage, it is worth noting and appreciating some of the good work that is already being done in Castlebar to help biodiversity. The following photographs show some good examples from the town.

Plate 56: Leaving stone walls undisturbed allows them to become great habitats for a variety of ferns and other native plants

Plate 99: Allowing wildflowers to grow and flower in public areas in the town provides resources to pollinating insects, and also provides a fine colourful display for the human population

Plate 57: Dense coverings of ivy provide habitats for birds, and food for insects and other animals

Plate 101: Sculptures in the town which focus on animals or other wildlife themes can raise our consciousness about the beauty of nature around us

Plate 102: Although thistles are often seen as weeds, they are important to bees and butterflies, and are quite beautiful when seen up close

Plate 103: Allowing moss to grow on walls softens and naturalises their appearance, and provides a habitat for the mosses and the small creatures which live among them

Plate 104: Letting roadside vegetation grow in spring and summer before cutting allows orchids and other plants to flower

Plate 105: Allowing dead timber to remain in place provides a habitat for a range of small invertebrate animals

Plate 58: Providing seats beside areas of wildflowers encourages people to stop and appreciate the flowers and pollinators

Plate 107: Providing bird boxes and bat roosting boxes in the town help to encourage the local wildlife

Plate 59: Areas can be managed for pollinators by referring to the All-Ireland Pollinator Plan

Plate 60: Mature bushes, hedges and areas of scrub are important to birds and other wildlife

Plate 110: A miniature garden on a tree branch: lichens and mosses do not harm trees and are a natural feature of the landscape

Plate 111: Loose tufts of moss are useful to birds in building their nests

Plate 61: Leaving a pile of leaves or old timber in a corner can attract invertebrates or even hedgehogs

Plate 62: Even when grass is cut short at the edges of an area or along paths, other parts can be allowed to grow and flower

Appendix 1: Bibliography / Sources

The following sources of information were used in the preparation of this plan:

- National Biodiversity Action Plan 2017-2021, Department of Culture, Heritage & the Gaeltacht
- EPA (Environmental Protection Agency) maps, available at https://gis.epa.ie/EPAMaps/
- NPWS (National Parks & Wildlife Service) data and documentation on protected areas, available at www.npws.ie/protected-sites
- NBDC (National Biodiversity Data Centre) records, available at https://www.biodiversityireland.ie/
- All-Ireland Pollinator Plan 2021-2026, published by the National Biodiversity Data Centre
- All-Ireland Pollinator Plan 2015-2020, published by the National Biodiversity Data CentreHow-to-guide - Hedgerows for Pollinators, published by the National Biodiversity Data CentreMayo County Development Plan 2014-2020, published by Mayo County Council
- County Mayo Heritage Plan 2011-2016, published by Mayo County Council
- County Mayo Biodiversity Action Plan 2010-2015
- Saving Swifts – published by BirdWatch Ireland
- We are swifts - we are in trouble, booklet produced by Carra Books and Swift Conservation Ireland
- A Guide to Habitats in Ireland, by Julie Fossitt, published by The Heritage Council
- How to build swift nest boxes into cement block walls, by Lynda Huxley, Swift Conservation Ireland.
- Gardening without harmful invasive plants, produced by the Royal Horticultural Society.
- Bats & Bat Boxes Guidance Notes for Agri-environmental Schemes, produced by Bat Conservation Ireland
- The Heritage Council (2011) Guidance for the Care, Conservation and Recording of Historic Graveyards
- Wild Mayo (2009), a book by Michael Viney, published by Mayo County Council

Appendix 2: Invasive species

Invasive species are non-native species which can damage habitats by outcompeting our native species or by changing the nature of a habitat. Many non-native plants are grown in gardens or on farms, and most of these do not cause significant problems. **Error! Reference source not found.** and the maps on the following pages show locations where invasive species were noted in Castlebar, and are followed by short descriptions of these. In addition, it was noted that cases of Japanese knotweed in the town have been treated and marked with signs (**Plate 63**); no additional instances of this species were recorded. Invasive Species Ireland has provided guidelines for management of invasive plants[21] and a field guide to help with identification[22].

Table 2: Locations of invasive species noted in Castlebar

Species	X (ITM)	Y (ITM)
Crocosmia	-9.284664905	53.86082936
Japanese Knotweed treated	-9.284076495	53.86251391
Japanese Knotweed treated	-9.285466885	53.86195019
Crocosmia	-9.282376645	53.86086888
Crocosmia	-9.281949336	53.86102839
Buddleia	-9.281579023	53.8611467
Buddleia	-9.29212681	53.85856009
Buddleia	-9.29130597	53.85907729
Crocosmia	-9.291859176	53.85860346
Crocosmia	-9.308808977	53.8529031
Japanese Knotweed treated	-9.290638939	53.86202575
Crocosmia	-9.296238888	53.86203292
Crocosmia	-9.28784064	53.86104017

[21] https://invasivespeciesireland.com/invasive-plant-management/
[22] http://invasivespeciesireland.com/wp-content/uploads/2018/06/field_guide_to_invasive_species_in_ireland_booklet_2ndedition_updated_May_2018-3.pdf

Figure 13: Invasive species recorded in Castlebar – Map 1

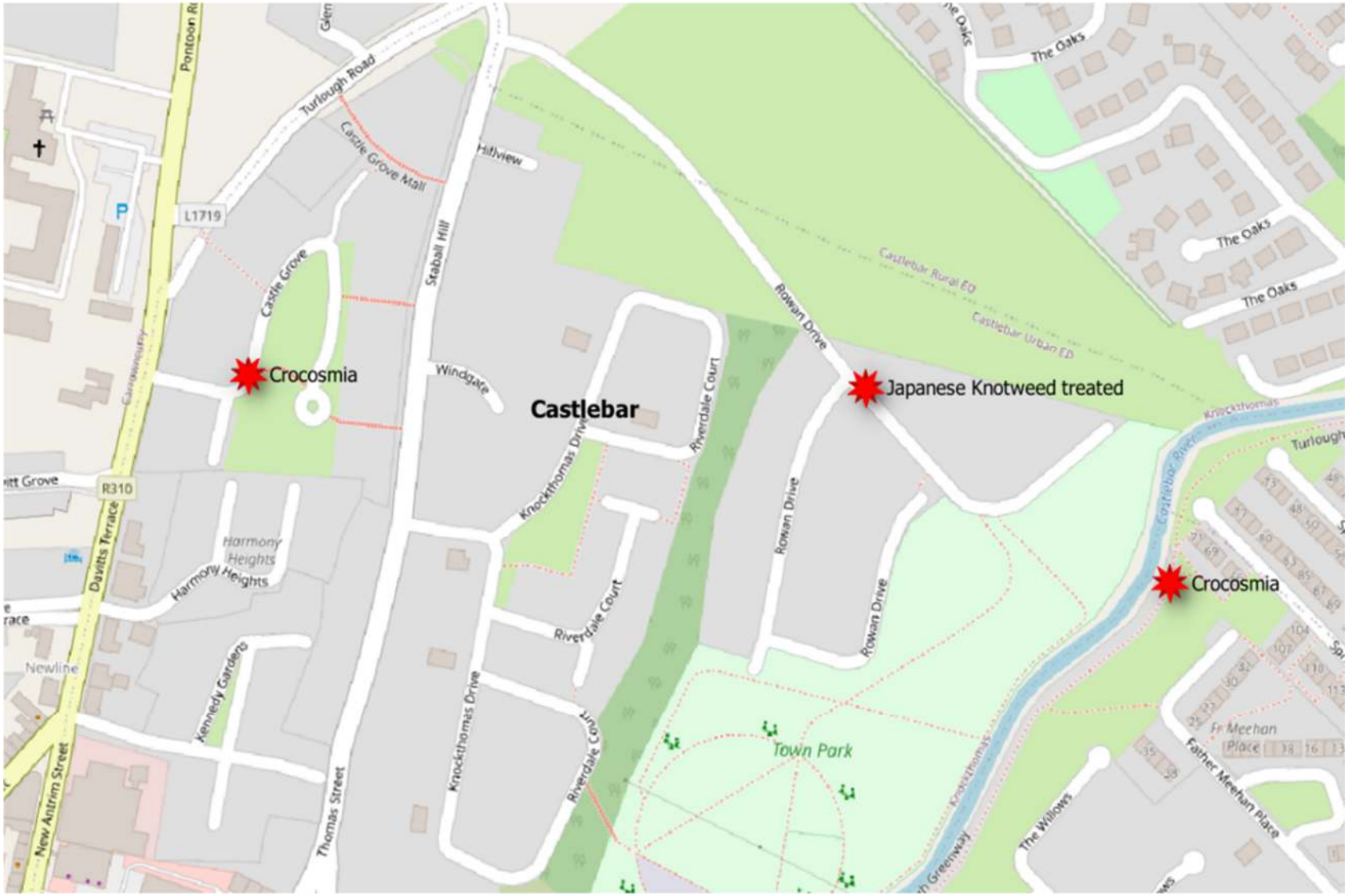


Figure 14: Invasive species recorded in Castlebar – Map 2

Figure 15: Invasive species recorded in Castlebar – Map 3

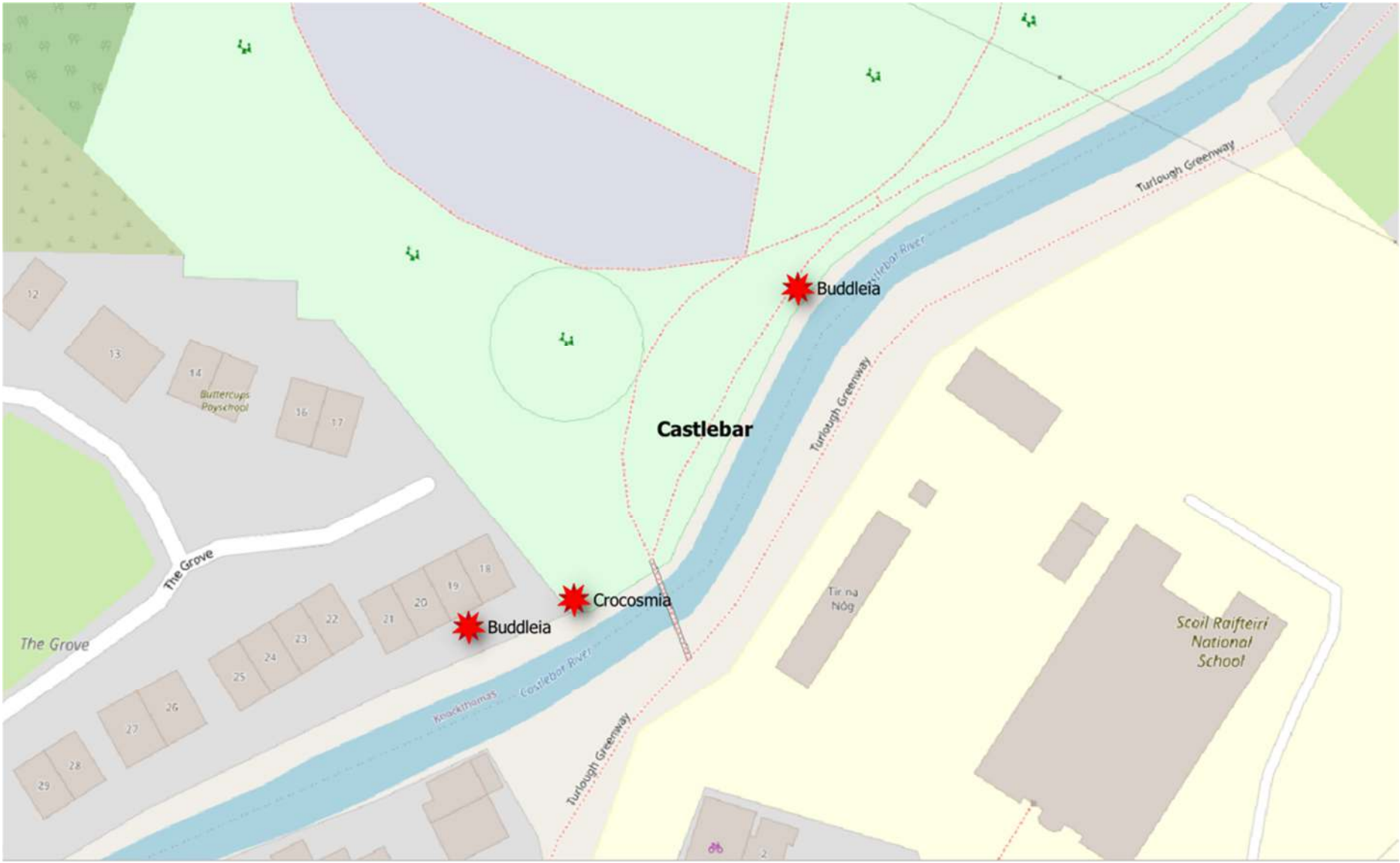


Figure 16: Invasive species recorded in Castlebar – Map 4

Butterfly Bush *Buddleia davidii*

This plant, as its name suggests, is very popular with pollinating insects, and is also a colourful garden plant. It can also be invasive, and often pops up on disused ground or abandoned sites. Further information is available on the Invasive Species Ireland website[23].

Montbretia *Crocosmia x crocosmiiflora*

This attractive plant has escaped from gardens in many parts of the country, and tends to spread into large swathes, potentially damaging the natural habitat by outcompeting native species. Further information is available on the Invasive Species Ireland website[24].

Japanese Knotweed *Fallopia japonica*

This is a very troublesome invasive species which can spread quickly to form tall, dense stands, and which grows through concrete and tarmac in some cases. A small piece of the plant is capable of growing into a new plant, making this species difficult to eradicate. Some areas in Castlebar have been chemically treated for Japanese knotweed. Further information is available on the Invasive Species Ireland website[25].

Plate 63: Some areas within Castlebar have been treated to kill Japanese knotweed

[23] http://invasivespeciesireland.com/species-accounts/established/terrestrial/butterfly-bush
[24] http://invasivespeciesireland.com/species-accounts/established/terrestrial/montbretia
[25] http://invasivespeciesireland.com/species-accounts/established/terrestrial/japanese-knotweed

Appendix 3: Protected areas near Castlebar

European Sites

European sites are SACs (Special Areas of Conservation) and SPAs (Special Protected Areas), designated under the Habitats Directive and Birds Directive. There are no SACs or SPAs in the town of Castlebar, but there are three SACs in the surrounding area:

- River Moy SAC
- Newport River SAC
- Balla Turlough SAC

These sites are shown in **Figure 17**. There are no SPAs close to Castlebar.

Each of these sites has particular conservation objectives, as set out below, and it is important that these be considered in managing the biodiversity of the region.

Figure 17: Special Areas of Conservation (SACs) in proximity to Castlebar

River Moy SAC (Site Code 002298)

Two rivers which are part of the River Moy SAC, the Clydagh River and Manulla River, flow to the north and east of Castlebar, respectively. The River Moy SAC is extensive within County Mayo and covers over 135 km^2. While this SAC does not occur within Castlebar, it is considered regionally important.

The River Moy SAC is designated for the following important habitats and species:

- Raised Bog (Active)
- Degraded Raised Bog
- *Rhynchosporion* Vegetation
- Alkaline Fens
- Old Oak Woodlands
- Alluvial Forests
- White-clawed Crayfish (*Austropotamobius pallipes*)
- Sea Lamprey (*Petromyzon marinus*)
- Brook Lamprey (*Lampetra planeri*)
- Atlantic Salmon (*Salmo salar*)
- Otter (*Lutra lutra*)

The objectives are to maintain or restore the favourable conservation status of these habitats and species. Specific objectives for each qualifying interest are available in the NPWS Conservation Objectives document for this site[26].

While the River Moy SAC does not occur within Castlebar, locations along the tributaries mentioned above near Castlebar are noted fishing locations. The following short extracts from the Site Synopsis[27] describe the salmon population, and some of the other species that occur in the SAC.

> *"The Moy system is one of Ireland's premier salmon waters and it also encompasses two of Ireland's best lake trout fisheries in Loughs Conn and Cullin. Although the Atlantic Salmon (Salmo salar) is still fished commercially in Ireland, it is considered to be endangered or locally threatened elsewhere in Europe and is listed on Annex II of the E.U. Habitats Directive. The Moy is a most productive catchment in salmon terms and this can be attributed to its being a fingered system with a multiplicity of 1st to 5th order tributaries which are large enough to support salmonids < 2 years of age while at the same time being too small to support significant adult trout numbers and are therefore highly productive in salmonid nursery terms."*

> *"The site is also important for the presence of four other species listed on Annex II of the E.U. Habitats Directive, namely Sea Lamprey, Brook Lamprey, Otter and White-clawed Crayfish… In addition, the site also supports many of the mammal species occurring in Ireland. Those which are listed in the Irish Red Data Book include Pine Marten, Badger, Irish Hare and Daubenton's Bat. Common Frog, another Red Data Book species, also occurs within the site."*

[26] NPWS - https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO002298.pdf
[27] NPWS - https://www.npws.ie/sites/default/files/protected-sites/synopsis/SY002298.pdf

Newport River SAC (Site Code 002144)

The nearest portion of the Newport River SAC to Castlebar is just over 5 km to the northwest. This SAC extends from Newport to the northeast and curves north to Dereen.

This SAC is designated for the following important habitats and species:

- Freshwater pearl mussel (*Margaritifera margaritifera*)
- Salmon (*Salmo salar*)

The freshwater pearl mussel population in the Newport River SAC is considered significant. The Site Synopsis[28] discusses this population.

> *"The interest of this site lies primarily in the presence of a significant population of freshwater pearl mussel, a species listed on Annex II of the E.U. Habitats Directive and also protected under the Wildlife Act, 1976. A survey in 1995 estimated the population within the site at approximately 5,000 individuals. The water quality of the river is good and the mussels were found throughout the river system in both gravel and rocky beds."*

Indirect impacts to these population could originate from Castlebar. The objectives are to maintain or restore the favourable conservation status of the habitats and species listed above. Specific objectives for each qualifying interest are available in the Conservation Objectives[29].

Balla Turlough SAC (Site Code: 000463)

Balla Turlough lies close to the village of Balla, approximately 12 km south-east of Castlebar. Turloughs are priority habitats within the EU, and are almost unique to Ireland. The conservation objective for Balla Turlough is to maintain or restore its favourable conservation status.

This SAC is designated for the following habitat:

- Turloughs

The following extract from the Site Synopsis[30] describes the important features and ecological communities of Balla Turlough:

> *"The peat dome has a uniform vegetation of Purple Moor-grass (Molinia caerulea) and sedges (Carex panicea and C. hostiana), with scattered Meadowsweet (Filipendula ulmaria) and Meadow Thistle (Cirsium dissectum). This vegetation type is extensive at Balla, compared to other Irish turloughs. In damper places, Marsh Cinquefoil (Potentilla palustris) and Brown Sedge (Carex disticha) become abundant, and here the scarce plant Marsh Stitchwort (Stellaria palustris) occurs,*

[28] NPWS - https://www.npws.ie/sites/default/files/protected-sites/synopsis/SY002144.pdf
[29] NPWS - https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO002144.pdf
[30] NPWS - https://www.npws.ie/sites/default/files/protected-sites/synopsis/SY000463.pdf

with Yellow Loosestrife (Lysimachia vulgaris) and Bogbean (Menyanthes trifoliata). Marsh Stitchwort is a relatively rare species in the central lowlands of Ireland, and occurs in few turloughs. Around the peat dome, the vegetation consists of dry and wet mesotrophic grassland, which is more typical of turlough habitats. Amphibious Bistort (Polygonum amphibium) and sedges (Carex nigra and C. vesicaria) are frequent in wet grassland, while Mat-grass (Nardus stricta) and Quaking-grass (Briza media) occur in drier areas. Standing water supports an emergent community with Common Club-rush (Scirpus lacustris) and sedges (Carex rostrata and C. elata), with aquatic plants such as Shoreweed (Littorella uniflora) and Fen Pondweed (Potamogeton coloratus). Marl ponds also contain oligotrophic communities with Bulbous Rush (Juncus bulbosus) and Floating Club-rush (Scirpus fluitans). This community is more a feature of the Burren turloughs, and its occurrence here is unusual for the region. Most of the turlough is open to cattle but grazing is light. Peat-cutting took place in the past but ceased a long time ago.

The main threats to turloughs are drainage and agricultural reclamation. Balla Turlough lies in the Moy (Manulla) catchment, which was drained in the 1960's-70's. Due to local catchment conditions, the turlough still floods regularly and retains its habitat quality. The site remains oligotrophic, but this would be threatened in the event of nutrient input into its system. The turlough and surrounding grasslands attract significant numbers of waders in winter. Counts made in one season from 1984/85 to 1986/87 indicate locally/regionally important numbers of Golden Plover (380), Lapwing (190) and Curlew (110). Swans also use the area in winter. Balla Turlough occurs at the northern edge of the main range of turloughs in Mayo and Roscommon, and is one of very few within the Moy catchment. Overall, the turlough is of high ecological value for its range of unusual topographical features and vegetation communities. The amount and physical shape of the peat present here is of interest in offering a comparison with other northern turloughs where peat-cutting has been widespread. Turloughs are an increasingly rare habitat in Europe and Ireland, and Balla is important as an excellent example of an unusual turlough in a very natural condition."

National Sites

National sites are areas that are considered nationally important for biodiversity. These are called Natural Heritage Areas (NHAs) and proposed Natural Heritage Areas (pNHAs). There are no NHAs or pNHAs within Castlebar but there are two NHAs approximately 5 km to the northwest and northeast of Castlebar. These are shown in **Figure 18**.

Figure 18: Natural Heritage Areas (NHAs) approximately 5 km from Castlebar