DOUGLAS BIODIVERSITY ACTION PLAN 2022-2027

Douglas Tidy Towns

Community, Heritage, Biodiversity

The Community Foundation for Ireland

Wildwork

HELPING PEOPLE HELP NATURE HELP PEOPLE

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Summary

This Biodiversity Action Plan (BAP) was commissioned by Douglas Tidy Towns in 2020. The BAP was carried out under funding from the Community Foundation for Ireland (CFI) Environment and Nature- Biodiversity Grants 2019. This grant aims '*to enhance biodiversity in communities throughout the country by combining the expertise of qualified ecologists with the skills, experience and enthusiasm of local community groups'*. Douglas Tidy Towns engaged Wild Work to work with them to produce this BAP.

Key to the development of a Biodiversity Action Plan is creating a partnership with the local council and key stakeholders and landowners, including community groups, schools, business and local citizens. Cork City Council has been very supportive of this project from the outset. As an All-Ireland Pollinator Plan Partner, they support the ethos of the All-Ireland Pollinator Plan; consider the plan in policies, plans (including the proposed City Development Plan 2022-2028 and the draft Cork City Heritage and Biodiversity Plan (2021-2026)) and management decisions where possible, and carry out pollinator-friendly actions as outlined in the plan, all of which demonstrate the Council's commitment to preserving and enhancing biodiversity. The Douglas Biodiversity Action Plan will contribute and inform the further development of these Plans, with particular reference to the Douglas area.

'This village, which is situated at the head of a small bay called Douglas channel, on the eastern side of Cork harbour... Its origin is attributed to the settlement of a colony of linen weavers from Fermanagh, who in 1726 commenced here the manufacture of sail-cloth... The environs of Douglas are exceedingly pleasant and the scenery richly diversified and embellished with numerous elegant seats and tasteful villas ; the surface is undulated, rising in some places into considerable eminences and commanding extensive and interesting views.

From Lewis' Topographical Dictionary 1837.

1 Introduction

Douglas Tidy Towns' operational area (Figure 1 below) is, since 31 May 2019, part of Cork City, lying towards the south east of the City. Prior to that date the Tidy Towns area was located partly in the administrative area of Cork City Council, however the greater part was within that of Cork County Council.

At the time of writing, the Cork City Development Plan 2015-2021 and the Cork County Development Plan 2014 are operational. Zoning and Local Area Plans for areas that transferred from Cork County Council to Cork City Council apply until such time as new plans are put in place by Cork City Council. Consultation for the Cork City Development Plan 2022-2028 began in 2020 and is ongoing.

Figure 1 Douglas Tidy Towns Operational Area

Much of the operational area is built land, mainly residential with retail, light industry and services such as schools, sports facilities and transport infrastructure. There is also a good amount of green space, much of which is publicly accessible. There are a number of water features in and around the area, both freshwater and saline. The area to the south is

undulating with three river valleys through the hills. These river valleys form corridors connecting the urban areas to agricultural land extending south from Douglas. Further north the area becomes flatter. Part of Cork Harbour Special Protection Area bounds the operational area to the north-east.

The operational area has seen considerable population growth in the last 50 years. In the mid-19th century and into the early 20th century much of the area was occupied by large houses with extensive grounds. Some of these names are found in the names of housing estates that took their place such as Montpelier, Shamrock Lawn, Grange Erin, and Westgrove. See Box 1 below for information on the growth of Douglas.

In Lewis' Topographical Dictionary of Cork (Lewis, 1837) the population of Douglas Village was given as 816 inhabitants.

Douglas Tidy Towns' operational area covers sections of a number of District Electoral Divisions (DEDs), all of which have seen population large population expansion in the recent past.

The population of the wider District Electoral Division (DED) of Douglas, for example, was recorded as 2,374 in 1911. It was almost 7,000 in 1979 and by 2016 had grown to over 21,000, according to Central Statistics Office records.

Box 1.

Since 2000, Douglas Tidy Towns, with the support of Douglas Community Association, has been working as a voluntary group to enhance Douglas Village. Their aims include working with the local community to enhance, develop and maintain our environment, to include both natural and build heritage. Volunteer activities include litter picking, wild area management to include removal of alien species and biodiversity projects, as well as running workshops and developing walking trails. They also work closely with Cork City Council on the upkeep of the area.

Douglas Tidy Towns has worked to enhance biodiversity in its operational area. This has included:

- Developing a pollinator corridor
- Working to reduce the use of pesticides in public spaces
- Organising the delivery of biodiversity related educational events in public spaces and in schools
- Liaising with local authorities and others to tackle Japanese Knotweed in Ballybrack Woods (also known as The Mangala)
- Planting trees
- Liaising with local authorities and others to manage grassland to benefit biodiversity
- Planting wildflower strips
- Working with the local Men's Shed, Scout Groups and local environmental groups to put bat boxes in Ballybrack Woods
- In 2016 Douglas Tidy Town commissioned a biodiversity action plan of Ballybrack Woods, one of a number of areas of biodiversity interest in its area.

1.1 Biodiversity and Biodiversity Action Plans

The term biodiversity began to be used widely in the 1980s. It is a shorthand way of saying 'biological diversity'. The Convention on Biological Diversity includes the places living things inhabit in its definition of biodiversity; '*the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems*' (United Nations, 1992). Based on that, a simpler way to describe 'biodiversity' might be living things and the places in which they naturally live.

The convention has three main objectives which are to make sure that:

- Biodiversity is protected
- The benefits of Biodiversity are shared equally
- Biodiversity is kept safe for future generations.

In 1992 Ireland was one of 168 countries that became signatories to the Convention and subsequently ratified the protocol in 1996. Article 6 of the Convention states that each contracting party shall '*Develop national strategies, plans or programmes for the conservation*

and sustainable use of biological diversity or adapt for this purpose existing strategies, plans or programmes…'.

Ireland published its first National Biodiversity Action Plan in 2002. Action 10 of this plan was: '*Each Local Authority to prepare a Local Biodiversity Plan in consultation with relevant stakeholders*.'

Both Cork City Council and Cork County Council published Biodiversity Action Plans in 2009.

Biodiversity Action Plans look at what species and habitats are in an area and what issues there might be for species and habitats in that area. A good plan will then identify what actions are needed to address any issues, who is going to carry out the actions and in what timeframe, as well as what resources are needed to carry out the plan, and who can help.

A local Biodiversity Action Plan such as this one might choose to look at what can be done to enhance the local area to benefit biodiversity, together with actions identified as well as the who, when and how. Not everything a group might like to do may be achievable at once, so it is a good idea to prioritise actions based on resources available.

A good local Biodiversity Action Plan should also sure that we don't harm nature when we actually want to help nature. Creating a plan means we have to think about nature in our area and how we would like to help nature in our area and then helps us keep track of the actions we take to help nature. Ideally developing and implementing a local Biodiversity Action Plan means we learn more about nature in our area, value nature in our area more and conserve and enhance nature in our area more.

Biodiversity Action Plans such as this should be reviewed every 5 years, as that provides an opportunity to look at what has been achieved and to look at issues still to be worked on, and how future actions might be resourced.

This Biodiversity Action Plan is presented in four sections. The first looks at what biodiversity is, threats to biodiversity and some of the legislation that protects it. The second looks at how this plan was developed and the third looks at habitats, species and places of biodiversity importance or interest. The fourth recommends actions that could be taken to conserve or enhance biodiversity in the operational area.

1.2 Why is Biodiversity important?

It could be said that biodiversity has a value in and of itself, outside of its importance to humans. But it is very important to humans. It is possible to estimate the economic value of ecosystems and biodiversity to humans, but some wonder if this is a good idea from a conservation point of view (Schröter, et al., 2014).

The concept of Ecosystem Services places a value on '*the direct and indirect contributions of ecosystems to human wellbeing*' (The Economics of Ecosystems and Biodiversity (TEEB), 2020). This idea has been around since at least the 1970s, becoming more popular since the United Nations led Millennium Assessment (MA) which began in 2001.

Ecosystem Services

"the conditions and processes through which natural ecosystems, and the species that make them up, sustain and fulfil human life" (Daily, 1997)

Ecosystem Services have been organised into 4 broad categories:

Supporting services	These are services, such as nutrient cycling and soil formation, which are needed for the production of all other services.
Provisioning services	Products obtained from ecosystems, such as food or timber.
Regulating services	The benefits obtained from the regulation of ecosystems, such as water purification, flood control, or climate regulation.
Cultural services	The benefits people obtain from ecosystems through spiritual enrichment, reflection, recreation, and aesthetic experiences.

Source: (Science Communication Unit, University of the West of England, 2015) See also infographic overleaf.

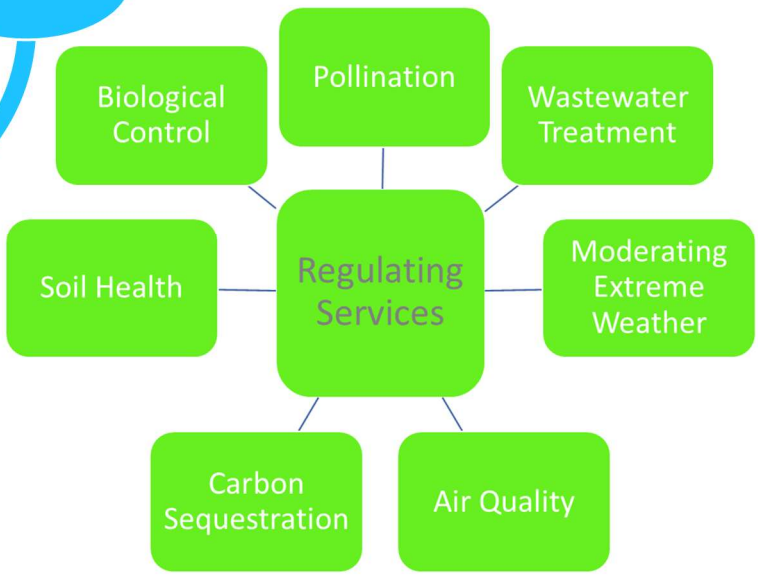
EXAMPLES OF ECOSYSTEM SERVICES

PROVISIONING SERVICES

REGULATING SERVICES

SUPPORTING SERVICES

CULTURAL SERVICES



1.3 Threats to Biodiversity

Every 6 years EU member states are required to produce a report on the implementation of conservation measures taken for the protection of habitats and species listed in The Habitats Directive, as well as the conservation status of these habitats and species. The status of habitats and species requires an evaluation of threats and pressures to them. Figure 2 below shows the percentage of Habitats Directive habitats that are affected by the top 10 combined Medium and High importance threats taken from the 2019 report for Ireland. For more information on the Habitats Directive see Section 1.4, Biodiversity and the Law.

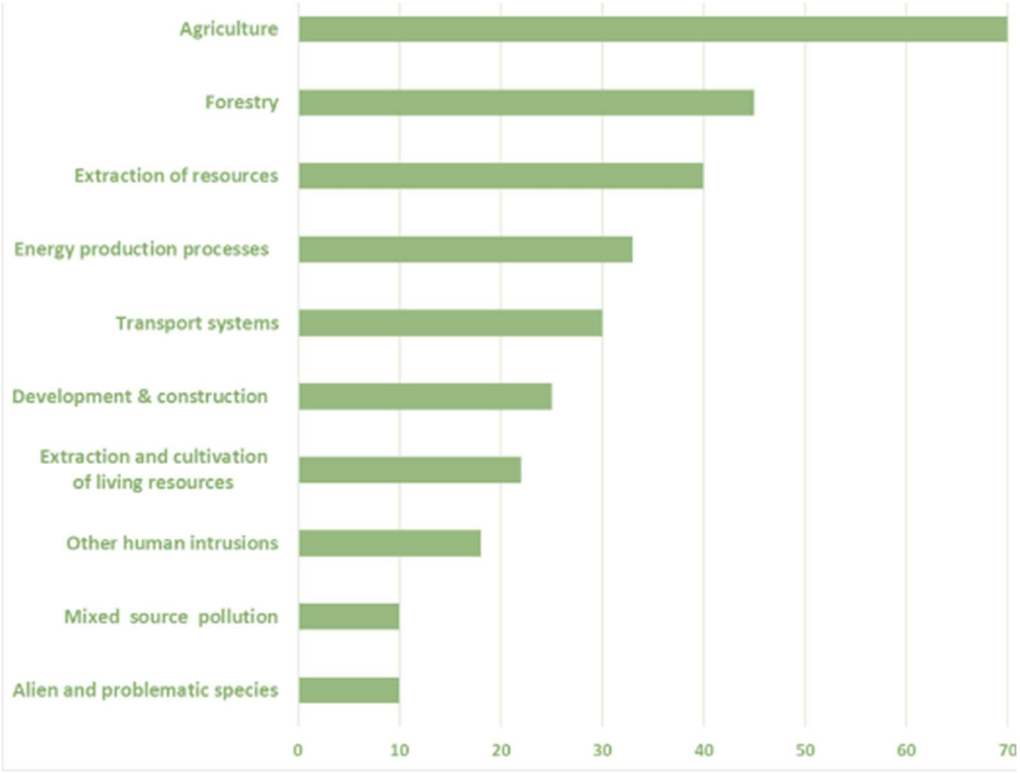


Figure 2 % of Habitats Directive Habitats affected by High and Medium Impact Threats. adapted from (NPWS, 2019a).

In Figure 2. above agriculture and forestry appear to be the greatest threats to Habitats Directive habitats and species. However, agriculture covers c. 65% of land use in Ireland and commercial forestry c. 10.5%, while c. 2% of Ireland is under built land. Agriculture and forestry then might be expected to have bigger impact because they cover so much more of our land area.

Habitats and species are listed in the Habitats Directive because they are threatened at a European level, and the Directive aims to restore these to favourable condition or maintain

them at favourable condition. There is legislation to protect some of sites where these habitats and species are found. Many species, habitats and sites that do not have this kind of protection. See Section 1.4 on Biodiversity and the Law below.

On our planet the top five factors damaging biodiversity over the past 50 years have been:

- Changes in land and sea use
- Direct exploitation of organisms
- Climate change
- Pollution
- Invasion of alien species (Díaz, et al., 2019).

Overall, for the 2019 assessment in Ireland, 85% of Habitats Directive habitats are categorised as being in 'Unfavourable' condition.

For species, 30% were assessed as 'Unfavourable' and for 13% of species, the assessment was recorded as 'unknown'

Birdwatch Ireland has produced a list of 'Birds of Conservation Concern in Ireland 4: 2020–2026' (Gilbert, et al., 2021). This assessed the conservation status of 211 Irish bird species recorded in Ireland. Birds of Conservation Concern Ireland 4 (BOCCI 4) ranks bird species as Red, Amber, or Green.

Red listed species are those of highest conservation priority, being globally threatened, declining rapidly in abundance or range, or having undergone historic declines from which they have not recently recovered.

Amber listed species have an unfavourable status in Europe, have moderately declined in abundance or range, a very small population size, a localised distribution, or occur in internationally important numbers.

Green listed species do not meet any of these criteria and therefore require little direct conservation action.

In the BOCCI report:

- 54 bird species were 'red' listed
- 79 species were 'amber' listed
- 78 species were 'green' listed.

There has been an increase of 17 species 'red' listed since an assessment from 2013.

'Birds of Conservation Concern in Ireland 4: 2020–2026' mentions issues such as drainage, afforestation on peat bogs, and changes in farmland management as threats to populations of Irish species.

Another way of looking at threats to Irish Biodiversity is to look at Red Lists. This is a method devised by the International Union for the Conservation of Nature (IUCN) to assess the conservation status of species. This was originally intended to look at species at a global level, but they adapted it to be used also at a regional level. A number of assessments for different groups have been done in Ireland. Some of these are presented in Table 1 below.

Group	**CR**	**EN**	**VU**	**NT**	**LC**	**DD**	**NE**	**RE**
Vascular Plants	20	25	61	98	887	n/a	105	15
Bees	6	10	14	12	38	16	3	3
Butterflies	0	3	3	5	21	0	0	1
Macro-moths	7	9	27	20	420	4	78	14
Freshwater Fish	1	0	5	1	7	1	1	0
Amphibians & Reptiles	0	1	0	0	4	0	5	0

Table 1 Irish Red List Assessments for selected groups with numbers of species in each category.

CR Critically Endangered:	**In a particularly and extremely critical state.**
EN Endangered:	**Very high risk of extinction in the wild.**
VU Vulnerable:	**At high risk of unnatural (human-caused) extinction without further human intervention.**
NT Near Threatened:	Close to being at high risk of extinction in the near future.
LC Least Concern:	Unlikely to become extinct in the near future.
DD:	Data Deficient
NE:	Not Evaluated
RE:	Regionally Extinct

More Red Lists for Ireland can be found on the website of the National Parks and Wildlife Service (NPWS)[1]

1.4 Biodiversity and the Law

EU Directives

Two very important and powerful pieces of legislation that are designed to protect wildlife, and as such biodiversity, have already been mentioned. These are:

- Council Directive 79/409/EEC (and as amended) 'on the conservation of wild birds' (commonly known as **'The Birds Directive'**).
- Council Directive 92/43/EEC (and as amended) 'on the conservation of natural habitats and of wild fauna and flora' (commonly known as **'The Habitats Directive'**).

The main instruments transposing these EU directives into Irish law is the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477 of 2011), and S.I. No. 293/2010 - European Communities (Birds and Natural Habitats) (Control of Recreational Activities) Regulations 2010, but they are also incorporated under the Planning and Development Act 2000 (and as amended).

Other important EU directives concerned with environmental protection, including wildlife, are:

- Council Directive 85/337/EEC (and as amended) 'on the assessment of the effects of certain public and private projects on the environment' (commonly known as the **'Environmental Impact Assessment Directive'**).
- Council Directive 2001/42/EC 'on the assessment of the effects of certain plans and programmes on the environment' commonly known as the **'Strategic Environmental Assessment Directive'**.
- Directive 2000/60/EC 'establishing a framework for Community action in the field of water policy', commonly known and the **'Water Framework Directive'.**

[1] https://www.npws.ie/

National Legislation

National legislation protecting wildlife includes:

- Wildlife Acts, 1976
- Wildlife (Amendment) Act, 2000 and as amended
- Flora (Protection) Order, 2015 (S.I. No. 356 of 2015)
- Heritage Act 2018 (no. 15 of 2018), Part 3

Protected Areas

Arising from the legislation discussed above, certain sites around the country have been given legal protection.

- **Special Protection Areas** (SPAs) arise from the Birds Directive and are designated to protect all migratory birds and 194 species and sub-species of bird that are particularly threatened.
- **Special Areas of Conservation** (SACs) arise from the Habitats Directive are designated to protect:
    - Natural Habitat Types of Community Interest – listed under Annex I of the Directive.
    - Animal and Plant Species of Community Interest– listed under Annex II of the Directive.

    SPAs and SACs across Europe form the Natura 2000 ecological network.

- **Natural Heritage Areas** (NHAs) have been designated under the Wildlife Acts, in order to protect habitats and / or species in them
- **Statutory Nature Reserves** under the Wildlife Acts
- **Wildfowl Sanctuaries** under the Wildlife Acts.

There is much crossover between designations so many Natural Heritage Areas are also Statutory Nature Reserves and/or SACs and/or SPAs. Many Wildfowl Sanctuaries are also SPAs.

At the time of writing there are 148 Natural Heritage Areas that have been given legal protection under the Wildlife Acts. However, there are 630 sites that were proposed as Natural Heritage Areas in 1995 that have never been given statutory legal protection. Some of these **proposed Natural Heritage Areas (pNHAs)** coincide entirely or partly with areas that do have protection under other legislation e.g. SPAs or SACs, however very many of them have no current legal protection.

2 How this plan was developed

Desktop study

For background on biodiversity in and around the operational area, a number of sources were consulted. This included species records from the National Biodiversity Data Centre (NBDC) for the 1-kilometre and 2-kilometre Irish Grid squares that intersect with the boundary provided by Douglas Tidy Towns. This boundary is referred to as 'the BAP area' in this Biodiversity Action Plan. The grid squares in question are listed in Appendix I.

Most of the data held by the NBDC is free to anyone to look at. You can download information from the Maps section of the NBDC website[2]. There are tutorials on how to use it in the Help section.

Details of nearby protected sites were found on the Protected Sites page of the National Parks and Wildlife Service (NPWS) website[3].

Recent and historical maps for the area available from the online Ordnance Survey Ireland (OSI) GeoHive service[4], were reviewed.

The Geological Survey of Ireland (GSI) website[5] was used for geological information.

Unpublished information such as surveys commissioned in connection with planning applications, etc. were also consulted. Where such data is used in this Biodiversity Action Plan, it is referred to in the text.

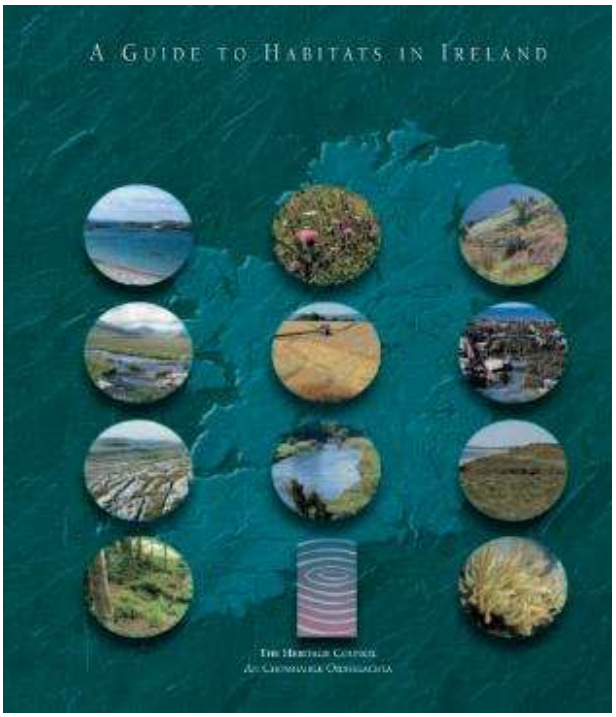
Mapping and other fieldwork

Habitats and species in the Douglas area were recorded during visits throughout 2020 and 2021. Habitats were classified using 'A Guide to Habitats in Ireland' (Fossitt, 2000). Other classification systems may be referred to under particular habitats in this BAP and are referenced where this is the case.

[2] https://maps.biodiversityireland.ie/
[3] https://www.npws.ie/
[4] https://www.osi.ie/
[5] https://www.gsi.ie/

Habitats are where living organisms live. A habitat is made up of living and non-living components. Living components include plants, animals, fungi and bacteria. Non-living components include soil, moisture, temperature, pH, bedrock and many others.

So that there is a common understanding of different habitat types to be found in Ireland, 'A Guide to Habitats in Ireland' (Fossitt, 2000) was commissioned by the Heritage Council of Ireland and was released in 2000.



A number of experts from different fields contributed to the book, however the text was compiled by Julie A. Fossitt. 'A Guide to Habitats in Ireland' is often referred to as 'The Fossitt Guide', 'The Fossitt Classification', or simply 'Fossitt'.

The names of many species are included in tables in this BAP. Where this is the case their scientific names are included in those tables. For named species not included in tables, their scientific names can be found in Appendix II.

3 Biodiversity in Douglas

3.1 Protected Nature Conservation Sites

Cork Harbour Special Protection Area

A part of the Cork Harbour Special Protection Area (SPA) lies inside the BAP area. As mentioned previously, SPAs are designated to protect birds and are sites of international conservation importance.

The Douglas River Estuary proposed Natural Heritage Area (pNHA) overlaps with the Cork Harbour SPA to a large extent, and that section of the pNHA within the BAP area is entirely within the SPA.

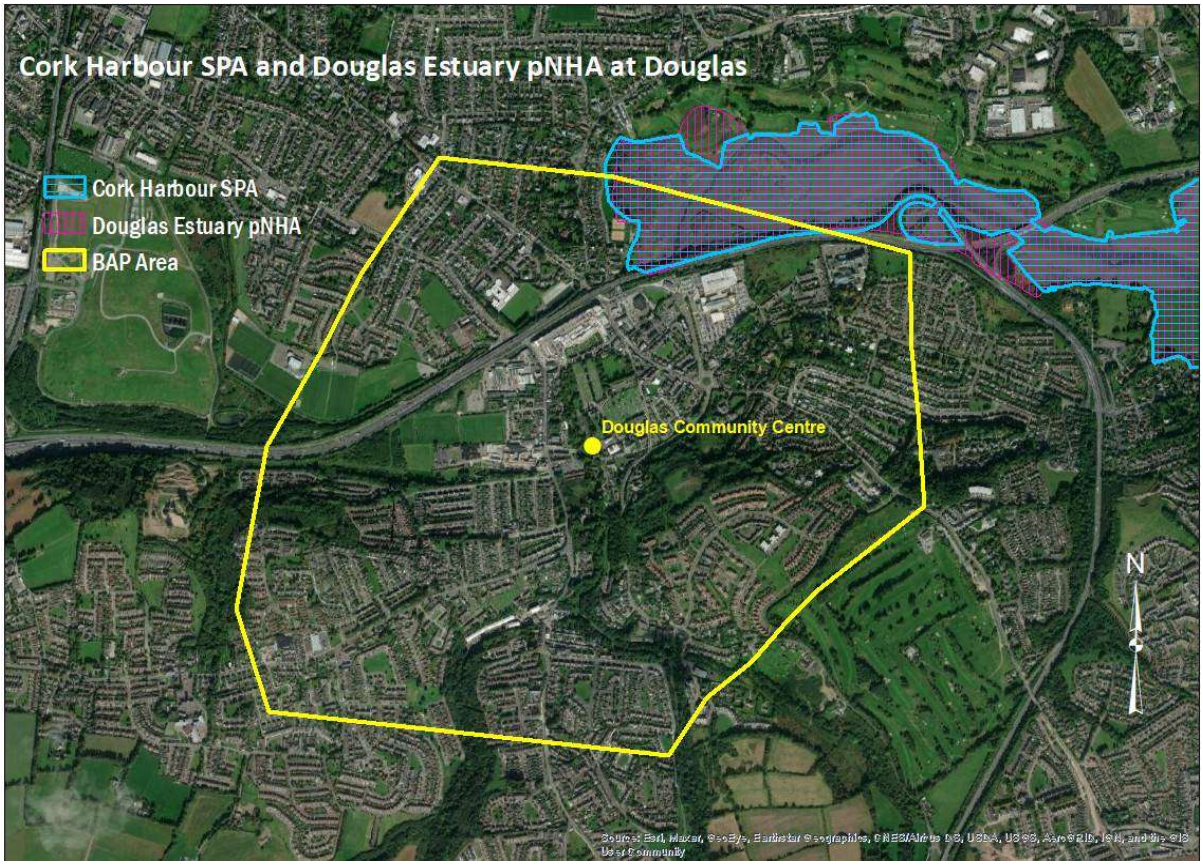


Figure 3 Cork Harbour SPA and Douglas Estuary pNHA at Douglas

Table 2 overleaf shows the birds the SPA was designated for. It also shows the most recent assessment of their status within the SPA by the NPWS (NPWS, 2014), and Birdwatch Ireland (Gilbert, et al., 2021).

Common Name	Scientific Name	NPWS 2014 Assessment	BoCCI 2020-2026
Pintail	*Anas acuta*	*Highly Unfavourable*	
Shoveler	*Spatula clypeata*	*Highly Unfavourable*	
Black-headed Gull*	*Chroicocephalus ridibundus*	*Highly Unfavourable*	
Common Gull*	*Larus canus*	*Highly Unfavourable*	
Lesser Black-backed Gull*	*Larus fuscus*	*Highly Unfavourable*	
Red-breasted Merganser	*Mergus serrator*	*Highly Unfavourable*	
Cormorant*	*Phalacrocorax carbo*	*Highly Unfavourable*	
Grey Plover	*Pluvialis squatarola*	*Highly Unfavourable*	
Lapwing*	*Vanellus vanellus*	*Highly Unfavourable*	
Wigeon*	*Anas penelope*	*Unfavourable*	
Dunlin*	*Calidris alpina alpina*	*Unfavourable*	
Curlew*	*Numenius arquata*	*Unfavourable*	
Great Crested Grebe	*Podiceps cristatus*	*Unfavourable*	
Shelduck*	*Tadorna tadorna*	*Unfavourable*	
Redshank*	*Tringa totanus*	*Unfavourable*	
Teal*	*Anas crecca*	*Intermediate Unfavourable*	
Grey Heron*	*Ardea cinerea*	*Intermediate Unfavourable*	
Oystercatcher*	*Haematopus ostralegus*	*Intermediate Unfavourable*	
Bar-tailed Godwit	*Limosa lapponica*	*Favourable*	
Black-tailed Godwit	*Limosa limosa*	*Favourable*	
Golden Plover*	*Pluvialis apricaria*	*Favourable*	
Little Grebe*	*Tachybaptus ruficollis*	*Favourable*	
Common Tern	*Sterna hirundo*	*Data not presented*	

Table 2 Status of Cork Harbour SPA Special Conservation Interest Birds in the SPA and Ireland

Species marked with an asterisk* appear in records in the National Biodiversity data Centre examined for the BAP area. The Red-breasted Merganser and the Common Tern have both been recorded in the Harty's Quay area of the Douglas Estuary.

The terms in Table 2, for the NPWS Assessment of Special Conservation Interest birds in the Cork Harbour SPA (NPWS, 2014) are explained overleaf:.

- **Favourable** means the population is stable/increasing.
- **Intermediate (unfavourable)** means the population declined in the range 1% – 24.9% from the baseline reference value[1].
- **Unfavourable** means the population declined in the range 25% – 49.9% from the baseline reference value.
- **Highly Unfavourable** means the population declined more than 50.0% from the baseline reference value.

[1]The baseline reference value was for records made during winter months from 1995/96 to 1999/2000.

Because wetland habitats within the SPA are considered important for birds, they are considered of Special Conservation Interest. In the 2014 NPWS Conservation Objectives Supporting Document habitats in the SPA overall were defined in 4 broad categories:

1. **Subtidal areas**: Those areas contained within the SPA that lie below the mean low water mark and are predominantly covered by marine water (doesn't occur in the BAP area)
2. **Intertidal areas**: Areas contained between the mean high-water mark and the mean low water mark
3. **Supratidal and associated habitats**: Areas that are not frequently inundated by the tide (i.e. occurring above the mean high-water mark) but contain shoreline and coastal habitats and can be regarded as an integral part of the shoreline
4. **Lagoon and associated habitats**: Lagoons and brackish lakes and their associated wetland habitats.

Using 'A Guide to Habitats in Ireland' (Fossitt, 2000) classification, the habitats in that part of the SPA inside the BAP area are mainly:

Fossitt Habitat Name	Fossitt Habitat Code
Reed and large sedge swamp	FS1
Mud shores	LS4
Tidal rivers	CW2
Upper Salt Marsh	CM2
Sea walls, piers and jetties	CC1
Estuaries	MW4

There is also a small area of woodland at Douglas Hall Lawn and within the SPA that has the character of a wet woodland type, but most of the trees here are non-native species.

Upper Salt Marsh in the SPA at Douglas.

3.2 Animals and Plants of Douglas

This section of the Biodiversity Action Plan is intended to give a taste of the variety of species that can be found even in an urban area such as Douglas. There are many more species and species groups recorded in Douglas than could be meaningfully explored here. There is more information on these other groups that is publicly available, much of it from the National Biodiversity Data Centre (NBDC).

The data in this section comes from several sources. For much of the information relating to animals the data is from records held by the NBDC. This was downloaded from the map section of their website[6] for the grid squares listed in Appendix 1. The data was downloaded in March 2020. Where other data sources are used, they are referred to in the text.

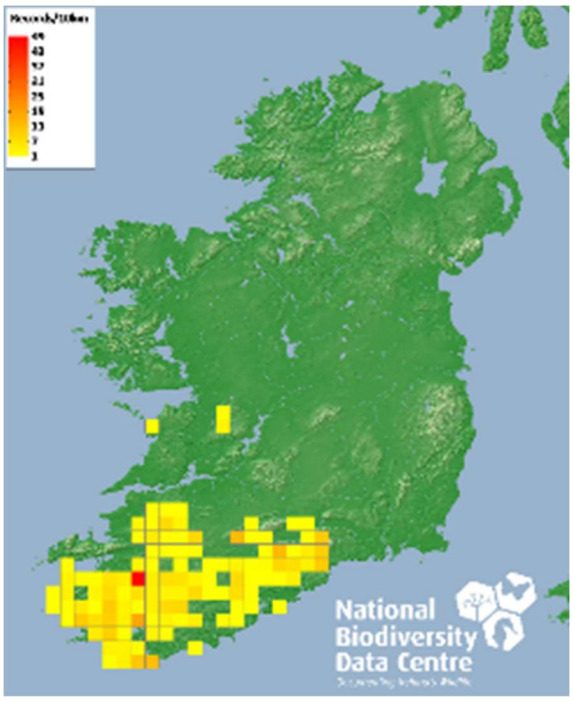
3.2.1 Vascular Plants

Vascular plants have evolved structures for carrying water, minerals, and food through the plant.

[6] https://maps.biodiversityireland.ie/

NBDC and Botanical Society of Britain and Ireland (BSBI) data shows over 230 different kinds of vascular plant have been recorded in and around the BAP area, but no protected species were recorded. There are records for Irish Spurge which is one of a group of 15 or so Irish wildflowers that has puzzled scientists for a couple of hundred years. These are often called the 'Lusitanian flora of Ireland'.

Irish Spurge. Photo by Wild Work



National Biodiversity Data Centre, Ireland, Irish Spurge (*Euphorbia hyberna*), image, accessed 04 January 2021

In Ireland, Irish Spurge is common in the south-west, but not found much anywhere else in Ireland. It is rare in the United Kingdom and northern France and only common again in northern Spain and Portugal, as well as central and southern France.

The puzzle is, why is it only common in the south west, and how did it get to the south of Ireland after the last time Ireland was covered with ice?

The sap of Irish Spurge can irritate the skin, so it is best not to pick it.

Typical woodland plants recorded in Douglas. Photos by Wild Work

Some wooded areas extend quite a way into urban Douglas and woodland plant species such as Wood Anemone, Woodruff and Pignut (pictured left to right above) can be found a short walk from the main shopping area.

As this is an urban area it is not a surprise that non-native plant species that have 'jumped the garden wall', can be found growing on walls and other places. For the most part this is not an issue, however a small number of these non-native plants can cause problems.

Common Name	Scientific Name	Impact Level
Japanese Knotweed*	*Fallopia japonica*	High
Giant Rhubarb *	*Gunnera tinctoria*	High
Himalayan Balsam*	*Impatiens glandulifera*	High
Cherry Laurel	*Prunus laurocerasus*	High
Sycamore	*Acer pseudoplatanus*	Medium
Three-cornered Garlic*	*Allium triquetrum*	Medium
Butterfly Bush	*Buddleja davidii*	Medium
Traveller's Joy	*Clematis vitalba*	Medium
Garden Yellow-archangel	*Lamiastrum galeobdolon subsp. argentatum*	Medium
Himalayan Honeysuckle	*Leycesteria formosa*	Medium

Table 3 Invasive and problematic plant species recorded in and around Douglas.

Species marked with an asterisk* in Table 3 are subject to control under the European Communities (Birds and Natural Habitats) Regulations 2011.

Traveller's Joy is also commonly called Old Man's Beard and Butterfly Bush is sometimes called Buddleja, while some people know Three-cornered Garlic as Three-cornered Leek. Giant Rhubarb is also known simply as Gunnera.

Most of the species in Table 3 on the previous page have been assessed for their impact as invasive species (Kelly, et al., 2013). Winter Heliotrope which has been recorded in the BAP area was not assessed in that document, but has been identified as a problematic species by the National Roads Authority (National Roads Authority, 2010)[7]. Botanists in the south of Ireland consider this species to very problematic in certain locations - see for example Wildflowers of Cork City and County (O'Mahony, 2009). It was found in as many 2 km squares examined for this Biodiversity Action Plan, just as Japanese Knotweed was. While this species is considered a pest due to the problems it causes for many Irish species, it does act as an early food source for bees.

One species recorded on the Tramore river near Willow Park is Buttonweed. This species is native to South Africa. It is used as a garden plant but can escape into the wild. It is known to have 'jumped the garden wall' in Ireland since the 1980s, if not as early as the 1960s but is not often recorded in the wild. It does well on open muds in estuaries where it can become invasive.

Buttonweed

Garden Yellow-archangel
Photo by Wild Work.

Garden Yellow archangel has also been recorded. This yellow flowered species is often thrown out of gardens when it starts to take over and can then invade semi-natural habitats.

Vascular plants do not include bryophytes (mosses, liverworts, and hornworts) or algae.

[7] Now Transport Infrastructure Ireland (TII)

3.2.2 Mammals

There are three species of Pipistrelle bat in Ireland: Common, Soprano and Nathusius's. The Soprano and Common Pipistrelle were only accepted as separate species around 1990. There are records for the Soprano Pipistrelle in the Douglas area from the NBDC, and the Common Pipistrelle from surveys associated with the Douglas Flood Relief Scheme (ARUP, 2017). Nathusius's Pipistrelle only bred on the island of Ireland in 1997. It does occur in Cork but the NBDC does not have records for it from the Douglas area as yet.

Common Pipistrelle

Common Name	Scientific Name	Legislation
Daubenton's Bat	*Myotis daubentonii*	Habitats Directive Annex IV
Lesser Noctule	*Nyctalus leisleri*	Habitats Directive Annex IV
Common Pipistrelle	*Pipistrellus pipistrellus s.l.*	Habitats Directive Annex IV
Soprano Pipistrelle	*Pipistrellus pygmaeus*	Habitats Directive Annex IV
Daubenton's Bat	*Myotis daubentonii*	Habitats Directive Annex IV
Otter	*Lutra lutra*	Habitats Directive Annex IV
Badger	*Meles meles*	Wildlife Acts
Irish Stoat	*Mustela erminea subsp. hibernica*	Wildlife Acts
Red Squirrel	*Sciurus vulgaris*	Wildlife Acts
Hedgehog	*Erinaceus europaeus*	Wildlife Acts

Table 4 Protected mammal species in and around Douglas.

The Red Fox and the Wood Mouse have been recorded in the Douglas area but are not protected in the same way species in Table 4 are.

Also recorded are the European Rabbit, Brown Rat and the Greater White-toothed Shrew, which are considered invasive mammal species in Ireland.

3.2.3 Birds

In total 71 bird species were recorded in the grid squares examined for this Biodiversity Action Plan. In addition to the species listed in Table 4 below another 15 bird species recorded in the Douglas area are Amber listed in the Birds of Conservation Ireland 2020-2026 assessment. There is more information on bird species recorded in Douglas in the section on Cork Harbour SPA earlier in this document.

Common Name	Scientific Name	Birds Directive Annex	BoCCI 2020-2026
Swift	*Apus apus*		Red
Curlew Sandpiper	*Calidris ferruginea*		Red
Dunlin	*Calidris alpina alpina*		Red
Kestrel	*Falco tinnunculus*		Red
Oystercatcher	*Haematopus ostralegus*		Red
Grey Wagtail	*Motacilla cinerea*		Red
Curlew	*Numenius arquata*		Red
Golden Plover	*Pluvialis apricaria*	I	Red
Redshank	*Tringa totanus*		Red
Redwing	*Turdus iliacus*		Red
Lapwing	*Vanellus vanellus*		Red
Kingfisher	*Alcedo atthis*	I	Amber
Mediterranean Gull	*Larus melanocephalus*	I	Amber
Little Egret	*Egretta garzetta*	I	Green

Table 5 BoCCI Red listed and Birds Directive Annex I species recorded in and around Douglas

Curlew (l), Redshank (r) Photos by Wild Work

3.2.4 Reptiles

There is only one native terrestrial reptile species in Ireland, the Viviparous or Common Lizard. The NBDC does not have records for it in the BAP area, but there are places in the area that would provide suitable habitat for this species.

3.2.5 Amphibians

The NBDC has records for only one of Ireland's three native amphibians from the BAP. The Common Frog is protected under the Habitats Directive and under the Irish Wildlife Acts. In the most recent assessment for the Habitats Directive (NPWS, 2019b) the species is described as 'a widespread and very abundant species throughout the country, occurring in a broad range of habitats from uplands to urban gardens'. It was assessed as 'Least Concern' in the most recent Irish Red List.

Common Frog

The other two Irish amphibians are the Natterjack Toad and the Smooth Newt.

The Natterjack Toad has a very restricted distribution in Ireland and is found, as a native, only in County Kerry, although there is a translocated population in Wexford.

The Smooth Newt, also called the Common Newt, is described as 'widespread in Ireland, but locally distributed and under-recorded' in the recent Irish Red List Assessment. Douglas certainly has some of the freshwater habitat it likes.

3.2.6 Invertebrates

Human beings are in a group of animals known as vertebrates – animals that have a backbone. Less than 5% of all animal species on the planet are vertebrates. Most species of animal, over 95%, are invertebrates – they don't have a backbone.

Invertebrates include butterflies and bees, snails and squid, earthworms, jellyfish, sea anemones and corals.

Insects

The insect class contains the highest number of animal species for any class on earth. They are hugely important as a food source, as pollinators and in nutrient cycling. They have long been used as indicators of the health of ecosystems. Along with other invertebrate groups they are used to assess the health of freshwater systems all over the world, including Ireland, and are increasingly being used to assess the health of other ecosystems.

Insects are also under threat at a global scale, both in terms of abundance and in terms of species diversity (Sánchez-Bayoa & Wyckhuysb, 2019).

There are records for many groups in the insect class in data sourced from the National Biodiversity Data Centre for the Douglas area. These include Caddisflies (*Trichoptera*), True Flies (*Diptera*), Beetles (*Coleoptera*), Grasshoppers and Crickets (*Orthoptera*) and True Bugs (*Hemiptera*). Some of the recorded groups, such as bees and butterflies, are explored in depth below as there are national monitoring or survey programmes and/or Red Lists for them.


Janet Graham CC BY 2.0

The caddisfly *Limnephilus sparsus*, left, has been recorded in the Douglas area. Larvae of some caddisflies are used to assess the quality of freshwater bodies in Ireland. As many as 63% of caddisfly species are estimated to be threatened with extinction globally (Sánchez-Bayoa & Wyckhuysb, 2019).

The adult Marmalade Hoverfly, a true fly (pictured right) pollinates plants while its young (larvae) eat aphids -greenfly (Speight, 2014). Hoverflies are also important pollinators (NBDC, 2015).

Bees

The survival of up to 30% of Bumble Bee and Cuckoo Bee species is threatened across central and western Europe (Kosior, et al., 2007). This figure is also true for Irish bee species assessed for a 2006 Red List of Irish Bees (Fitzpatrick, et al., 2006).

Common Name	Scientific Name	Red List Status
Gooden's Nomad Bee	*Nomada goodeniana*	EN
Buffish Mining Bee	*Andrena nigroaenea*	VU
Gipsy Cuckoo Bee	*Bombus bohemicus*	NT
Large Red-tailed Bumble Bee	*Bombus lapidarius*	NT
Bronze Furrow Bee	*Halictus tumulorum*	NT

Table 6 Bees of conservation concern recorded in and around Douglas.

Records of 25 bee species in the BAP area found in the NBDC database. Of these, 5 were assessed as threatened or near threatened in the most recent Red List of Bees for Ireland Bees (Fitzpatrick, et al., 2006). Two of the species, the Buffish Mining Bee and Gooden's Nomad Bee (pictured top and bottom), have an interesting relationship. The endangered Gooden's Nomad Bee is a 'cuckoo' bee. It is a parasite of other bee species, laying its eggs in their nests. Its host species includes the Buffish Mining Bee which was assessed as vulnerable in 2006. There are records for both species from the Douglas area in the last 5 years.

Butterflies

There are 32 species of butterfly that live on the island of Ireland and 3, the Red Admiral, the Painted Lady, and the Clouded Yellow, migrate here regularly (Regan, et al., 2010). 2 of our current species- the Comma and the Essex Skipper-only became established here after 2005. All but one species of butterfly recorded in Douglas since 2000 are assessed as Least Concern in the most recent Red List of Irish butterflies (Regan, et al., 2010).

Common Name	Scientific Name
Peacock	*Aglais io*
Small Tortoiseshell	*Aglais urticae*
Orange-tip	*Anthocharis cardamines*
Ringlet	*Aphantopus hyperantus*
Holly Blue	*Celastrina argiolus*
Clouded Yellow	*Colias croceus*
Small Copper	*Lycaena phlaeas*
Meadow Brown	*Maniola jurtina*
Speckled Wood	*Pararge aegeria*
Large White	*Pieris brassicae*
Green-veined White	*Pieris napi*
Small White	*Pieris rapae*
Common Blue	*Polyommatus icarus*
Gatekeeper	*Pyronia tithonus*
Red Admiral	*Vanessa atalanta*
Painted Lady	*Vanessa cardui*

Table 7 Butterflies recorded around the Douglas area since 2010.

The Gatekeeper (pictured right) was assessed as Near Threatened. The last known record in Douglas is from 2003. According to the 2010 assessment it favours '*warm sites with woody shrubs and rough grassland*'. It also says that for the vice-county of mid-Cork (the vice-County where Douglas is situated), there was a decline during the assessment period.

Photo by Wild Work

There are two species not in Table 7 above that were recorded in Douglas in the 1990s. These are the Silver Washed Fritillary (pictured left) and the Cryptic Wood White. Neither is scarce in the south of Ireland, so they probably still occur in the area.

Moths

Moths are in the same order (Lepidoptera) as butterflies. There are differences between moths and butterflies but sometimes it can be difficult to tell which is which. In general though, most Irish moths have feathery antennae on their heads, while butterflies have club shaped ones, and most Irish moths hold their wings out flat when at rest, while butterflies hold theirs folded above them.

In Ireland over 1,500 species of moth have been recorded (Allen, et al., 2016). This is compared to 32 species of butterfly.

The NBDC has records for over 300 moth species in and around the BAP area. Most of these records come from the 1980s and 1990s, with some from the 1970s. There are only 15 species recorded from 2000 onwards. This probably doesn't mean there are far less species to be found in the area, but more likely that there has been far less moth recording.

Many moths are quite small; they have a wingspan under 20mm and are difficult to identify for most of us. These smaller moths are known as micro-moths.

578 species in Ireland are referred to as macro-moths - these have a wingspan over 20mm. A Red List for Irish macro-moths was produced in 2016 (Allen, et al., 2016) in which 43 of the Irish species assessed were listed as threatened and 20 as near threatened. Two species of macro-moth that were recorded in Douglas before 2000 were assessed as Near Threatened in the 2016 Red List assessment. One was assessed as Critically Endangered.

Table 8 Some moths of conservation concern recorded around Douglas.

Common Name	Scientific Name	2016 Red List Assessment
Feathered Gothic	*Tholera decimalis*	Critically Endangered
Mouse Moth	*Amphipyra tragopoginis*	Near Threatened
Yellow Shell	*Camptogramma bilineata*	Near Threatened

The 2016 Red List notes that all three are now more likely to be found in coastal areas and two species are associated with 'rough, unimproved grassland' which can be found in and around Douglas, for example in Ballybrack Woods and east of Vernon Mount Valley Wood. The three species are pictured left to right below.

Left to right: Feathered Gothic, Yellow Shell, Mouse Moth

In comparison to butterflies, moths are often thought of as 'dull' but this is not always the case. Species such as the Hummingbird Hawkmoth, the Brimstone and the Elephant Hawkmoth (all recorded in and around Douglas) are very distinctive and bright. Even some of the commoner species such as the Six-spot Burnet can be striking. As can be seen from the photographs, not all moths fly only at night.

Hummingbird Hawkmoth

Brimstone Moth

Six-spot Burnet Moth.

Elephant Hawkmoth,

Recent research indicates that moths, like bees and hoverflies, play a key part in wild plant pollination (Walton, et al., 2020).

Dragonflies and Damselflies

In Ireland there are currently 24 resident species of Odonata, the order to which the Dragonflies and Damselflies belong (Nelson, et al., 2011). These mostly rely on freshwater, particularly for the larval stage of their life cycle, and the adult stage is rarely found far from freshwater. The Blue-tailed Damselfly *will* use brackish water such as that found in pools in the Douglas Estuary. None of the Odonata recorded in and around the BAP area have been assessed as threatened in the most recent Irish Red List assessment (Nelson, et al., 2011).

Common Name	Scientific Name
Common Blue Damselfly	*Enallagma cyathigerum*
Blue-tailed Damselfly	*Ischnura elegans*
Large Red Damselfly	*Pyrrhosoma nymphula*
Emperor Dragonfly	*Anax imperator*
Common Darter Dragonfly	*Sympetrum striolatum*

Table 9 Odonata recorded in and around the Douglas area since 2000.

The Emperor (pictured right) was first recorded in Ireland in Waterford in 2000 but has spread widely since then. It was recorded in Douglas in 2017. The dragonfly records for the BAP area come from the 1km grid square W7069. The most suitable habitat in that square is likely the wetland areas accessed via Belgard Downs.

Another dragonfly, the Four-spotted Chaser (pictured left), was recorded in the area in the late 1980s. In the last 10 years or so it has been recorded at other locations in Cork city and in the Carrigaline area, so it might still occur around Douglas.

Damselflies are generally slenderer and more delicate looking than Dragonflies. When resting, Damselflies fold their wings along the sides of their bodies while Dragonflies hold their wings out at right angles to their bodies.

Dragonfly Ireland 2019-2024 is a survey being run on the island of Ireland by the NBDC and the Centre for Environmental Data and Recording (Northern Ireland). It is funded by the Environmental Protection Agency.

3.2.7 Invasive Species

The International Union for the Conservation of Nature (IUCN) defines an invasive alien species as

'a species introduced outside its natural past or present distribution.

***If this species becomes problematic, it is termed an invasive alien species* (IAS).'**

There are records for several species that are noted as invasive aliens in data obtained from the NBDC. In Figure 1 at the beginning of this plan 'Alien and Problematic Species' were listed as one of the threats to Habitats Directive habitats in Ireland, in a report to the European

Union (NPWS, 2019a). 'Alien and Problematic Species' were also indicated to have an impact on Habitats Directive species in the same report. Those species for which NBDC holds records in the BAP area are listed in Table 10 below The risk ratings in Table 10 are from lists published on the NBDC website (NBDC, 2021a), (NBDC, 2021b).

Common Name	Scientific Name	Invasive Impact Level
Japanese Knotweed*	*Fallopia japonica*	High
Himalayan Balsam*	*Impatiens glandulifera*	High
Cherry Laurel	Prunus laurocerasus	High
Sycamore	Acer pseudoplatanus	Medium
Three-cornered Garlic*	Allium triquetrum	Medium
Butterfly-bush	Buddleja davidii	Medium
Traveller's-joy	Clematis vitalba	Medium
Himalayan Honeysuckle	Leycesteria formosa	Medium
Greylag Goose*	Anser anser	High
New Zealand Flatworm	*Arthurdendyus triangulatus*	High
Harlequin Ladybird*	*Harmonia axyridis*	High
Australian Flatworm	*Australoplana sanguinea*	Medium
Brown Rat	*Rattus norvegicus*	High
Greater White-toothed Shrew	*Crocidura russula*	Medium
European Rabbit	*Oryctolagus cuniculus*	Medium

Table 10. Invasive species recorded in the BAP area.

The rating of High and Medium impact in Table 10 is based on ratings from Invasive Species Ireland and on whether species are included in schedule 3 of the Birds and Natural Habitats Regulations 2011. Those listed in the regulations are marked with an asterisk in Table 10 above.

The New Zealand Flatworm is a predator of our native earthworm species. Uncontrolled, this species can have devastating effects not only on our native wildlife, but our economy and food security - see for example Murhcie & Gordon, 2012.

Many of us will have heard that our native ladybird species are great at controlling pests such as aphids (greenfly). The non-native Harlequin Ladybird has been used specifically for controlling aphids in agricultural and other settings for some time (Orlova-Bienkowskaja, 2013). It 'jumped the fence' however and is now a major pest, devastating native ladybird populations across the globe. It also has impacts on other insects, crops, and on human health. It was first recorded in Ireland in 2007.

A Harlequin ladybird
Photo by Wild Work

The Harlequin can have many different colouring variations and often looks very like some of our native species. There are identification guides available online from a variety of sources including the NBDC.

The Greylag Goose is listed in Schedule 3 of the Birds and Natural Habitats Regulations 2011. However, it is also listed as protected under the Birds Directive and is Amber listed in Birds of Conservation Concern Ireland 2014-2019. In winter large populations migrate to Ireland, principally from Iceland. 'Feral' birds are also present in Ireland that have escaped or have been released from flocks that were bred for sport or ornament (Owen & Salmon, 1988). The wintering populations are protected while the feral populations are considered invasive.

Problematic plant species in Douglas are also covered in the section on Vascular Plants.

3.3 Habitats of Biodiversity Interest in Douglas

3.3.1 Rivers and streams

For an area with a relatively large number of water bodies, there were no records available for fish in the records from the NBDC examined for this Biodiversity Action Plan.

However, a 2014 Constraints Report in connection with the Douglas Flood Relief Scheme (ARUP, 2014) notes that Brown Trout is known in both the Tramore River and the Douglas/Ballybrack stream. In the report Douglas/Ballybrack stream is described as 'an important community resource' due to its trout population. The Douglas/Ballybrack, Donnybrook and Vernon Mount Valley streams are all noted by Inland Fisheries Ireland in the Constraints Report as having spawning habitat for salmonids such as the Brown Trout.

There is no current water quality assessment available from the EPA for any of these water bodies individually. For Water Framework Directive monitoring, streams in the Douglas area are in the 'Moneygourney 010' waterbody group of the 'Glasheen (Cork City) 010 sub-catchment of the Lee, Cork Harbour and Youghal Bay Catchment'. All waterbodies in the Glasheen sub-catchment are considered 'At Risk' of not reaching good water quality status under the Water Framework Directive. This is due to elevated phosphate concentrations and it is noted that further investigation is necessary to determine the cause for this (EPA, 2019). The fact that the Moneygourney waterbody group overlaps with Cork Harbour SPA is noted in the assessment. A recommended action in the 2019 EPA report is that a 'Determination of Water Quality' be made by Cork City Council for the Moneygourney waterbody group.

In the section on invertebrates it was mentioned that they are often used to assess the quality of water in rivers and streams. Some types of invertebrates are very sensitive to pollution and other disturbance to their environment, while others can cope with higher levels of pollution and disturbance. Taking samples, usually from the streambed or riverbed, and looking at the proportion of different types of invertebrates in the samples can give an idea of whether a waterbody is polluted, and how polluted it is. This is one of the ways water quality in Ireland is monitored.

Tramore River

The Tramore River enters the Douglas River Estuary section of Cork Harbour SPA at Douglas Hall. The Tramore River carries water from the Glasheen sub-catchment of the 'Lee, Cork Harbour and Youghal Bay' water catchment area. Two of the Tramore River's tributaries are in, or just next to the BAP area. The course of the Tramore River through Douglas has been much changed by people over time - its channel has been straightened and covered over.

There is a tidal influence at the eastern end of the Tramore River.

Surveys in connection with the Douglas Flood Relief Scheme in 2014 noted ongoing problems with water quality in the Tramore River, nonetheless it was supporting populations of Brown Trout and Eel. The Eel is critically endangered in Ireland, and in other parts of the world (King, et al., 2011).

Douglas/Ballybrack stream

One of the Tramore tributary streams is known locally as the Douglas or Ballybrack Stream, (pictured right). It runs through Douglas Village, including Douglas Community Park where it is culverted at Church Street and meets the Tramore River, under the N40 road.

Douglas/Ballybrack steam in Ballybrack Woods

The Douglas/Ballybrack stream itself has three tributary streams within the BAP area. Two of these streams meet at the south east end of Ballybrack Woods. A survey associated with an Environmental Impact Assessment Report for a residential development in Castletreasure (Cairn PLC, 2019) gave the more easterly of these of these a Q value of 4 which indicates quite good water quality. Q values are based on which types of invertebrates are found in rivers and streams.

Until just before it leaves Ballybrack Woods, this stream has a fairly natural structure with riffles, pools and glides. It has been modified as part of flood management measures after that.

The name Ballybrack is an adaptation of the Irish place name *Baile Breac.* Breac has a few meanings in Irish, one of them being trout. Brown Trout were seen in this stream during fieldwork for this BAP.

Donnybrook Stream

The third tributary of the Douglas/Ballybrack stream joins it in Ballybrack Woods near Donnybrook Hill. It runs through Doman's Wood and is named as Donnybrook Stream on Ordnance Survey Ireland (OSI) River and Lake maps downloaded from the Environmental Protection Agency (EPA) Geoportal. In the environmental impact statement related to the Douglas Flood Relief Scheme (ARUP, 2017), it is noted that this has a natural structure

through the upper parts of Doman's Wood, but below Glenside there is evidence of nutrient enrichment and other discharges causing issues to water quality.

Brown Trout were seen in the steam during fieldwork for this BAP.

Vernon Mount Valley Stream

The other Tramore tributary stream runs through Vernon Mount Valley Wood and in this BAP is called Vernon Mount Valley stream. On OSI River and Lake maps downloaded from the (EPA) Geoportal it is named 'Grange 19'- the same name applied to a tributary of Donnybrook Stream further east. The Vernon Mount Valley Wood stream runs from south to north close to the western boundary of the BAP area. It is culverted under the R851 at the south end of the wood and under the N40 before it joins the Tramore River.

The stream is narrow, generally less than 1 metre wide, and its banks are steep sided for much of its course through Vernon Mount Valley Wood, until a short distance before it runs under the N40. To the north, on its west bank, tracks from a motorcycle club run close to the bank, which is bare soil in many places.

To the south end of the wood, the stream is often heavily shaded by the invasive species, Cherry Laurel. No fish were observed in this stream during fieldwork for this BAP.

3.3.2 Wetlands

Wetlands are threatened in Ireland and globally. Threats include destruction through infilling, drainage, pollution, and disturbance of water supply. Across Europe two thirds of wetlands have been lost over the last 100 years (European Commission, 2007).

In the BAP area at Douglas are wetlands of international importance in the form of the Cork Harbour SPA and wetlands of local importance at Belgard Downs.

The wetlands in the SPA have been discussed earlier and those at Belgard Downs are discussed in Section 3.4 - Places of Local Biodiversity Interest in Douglas.

3.3.3 Grassland

There is a considerable amount of grassland in the BAP area, some of which is within the Places of Local Biodiversity Interest described in Section 3.4. There are also large expanses of grassland that are managed for specific amenity purposes, such as playing pitches associated with sporting clubs and schools.

Meadow management in the Mangala

Also, there are areas of grass that are green spaces within housing estates and how these are currently utilised varies with location. If there are young families in a particular estate, these greens may be partly used as play areas; in other estates they may be managed as lawns. If a smaller area within each of these green spaces was managed to benefit wildlife, the overall impact for wildlife in the BAP area could be significant.

Some schools in the area have large grassed areas that are not used for sports amenities and these have potential to be managed to benefit wildlife, as indeed some already are. Grassed areas in the grounds of religious, cultural and sports bodies, as well as commercial interests, also have the potential to be managed to benefit biodiversity.

Wildflower meadow at Alden Grove

Closer to home, for those fortunate enough to have a garden, perhaps part of it could be managed in a nature friendly way too.

Just changing when and how often an area is mown can introduce changing colour through the year, benefitting biodiversity and mental well-being by bringing nature into the city. There are suggested actions on managing grassland areas in the Actions Section.

3.3.4 Woodlands

Looking at aerial imagery of the BAP area, it is notable that there are areas with extensive tree cover. These include Ballybrack Woods, Doman's Wood and Vernon Mount Valley Wood. These are discussed in depth in the Section 3.4 - Places of Local Biodiversity Interest in Douglas. There are also some smaller wooded areas, for example at Inchisarsfield, Castletreasure and north of The Dales/Yewlands estates.

In Ireland there is very little semi-natural woodland; that is woodland where most plant species are native species. It is estimated that only about 1% to 2% of Ireland's land cover is semi-natural woodland (Perrin, et al., 2008). Old semi-natural woodlands are of greater value from a biodiversity and nature conservation value than other woodland types.

Apart from the wooded areas described in Section 3.4, there are some recently planted pockets of woodland within some housing estates. At the west end of the Tramore Valley Walk there is a significant area of wet woodland, part of which is within the BAP area.

In woodlands, hedgerows, treelines, parks, churchyards, schools, and residential greens throughout Douglas there are old trees, large trees, trees with unusual shapes, or trees that may be valued by the community for some other reason. Some may be many hundreds of years old. Some may be native, others non-native. Native trees especially can be very valuable for other wildlife as they grow older, and even when they have died.

As they get older, native oaks can support 100s of different species including species of fungi, moss, lichen, other plants, birds, mammals, a huge variety of invertebrates such as the caterpillars of different moth and butterfly species, and beetles. Some non-native trees that are quite old can also be good for wildlife. As well as being important for wildlife, because they have lived for so long, old trees might be important to local people because they are remembered over generations. Older trees can develop interesting shapes as they age and might be valued by people because of the way they look.

The tree on the left of the group of old trees (pictured right) is a Hawthorn from a hedgerow in Castletreasure. It is potentially a couple of hundred years old. Hawthorns can live to over 400 years. Depending on why they are considered important, trees are called 'ancient', 'veteran', 'notable', 'heritage', or 'champion'. To make things simple they are called Local Hero Trees in this BAP.

Some 'Local Hero' trees in Douglas

Some old trees are protected, for example by local authority planning guidelines and tree preservation orders, but many are not. If there is a tree or a group of trees in your community that you feel is valuable and you don't want to lose it, it is always a good idea to record it and make this known to your local authority.

3.3.5 Scrub

Scrub is also a woodland type in the Fossitt classification and can consist of low growing trees or shrubs, including Brambles and Common Gorse. For scrub the height of the canopy is usually less than 5 metres in height and overall, the area is wider than 4 metres and most of the area should not be dominated by non-native species. Scrub is very valuable for wildlife, in particular invertebrates (Day, et al., 2003).

Scrub is a 'transitional' or 'successional' habitat. For example, if an area of grassland in Ireland was not managed through grazing or mowing, it would probably develop into scrub and eventually then into woodland. In exposed areas scrub can survive over time, however it usually needs management, or it will become woodland in most cases.

Areas of scrub are discussed in the Section 3.4 - Places of Local Biodiversity Interest for some specific places in Douglas where they are found.

3.3.6 Hedgerows, Treelines

Hedgerows and treelines are types of woodland, 'Linear Woodland' in the Fossitt classification. Hedgerows may have elements of woodland, scrub, and grassland habitats. Properly maintained they act as a corridor for plant and animal species to move through the landscape. They also provide shelter and food for many species including pollinating insects, birds, and mammals.

In Ireland hedgerows have been widely used to mark field boundaries and protect livestock for at least the last 300 years and to mark townland and other significant boundaries for over 1000 years. They are an important element of our landscape, visually and culturally (Foulkes, et al., 2013).

Treelines can develop from hedgerow over time, particularly if traditional hedgerow management in not continued. Treelines and hedgerows are often planted for landscaping purposes.

Old treeline near The Vicarage, Castletreasure

As Douglas is an urban/suburban area, apart from at Castletreasure (see Section 3.4), there is not very much habitat that would fit with hedgerow habitat in the BAP area. Linear woodland along sections of the Tramore River entrance track from Douglas has typical hedgerow tree species.

On the north boundary of St. Columba's Girl's National School a line of native trees was planted to develop as a hedgerow, where linear woodland is seen on mid-19th century maps. There is a length of linear woodland along the south boundary of St. Columba's that continues

west along Inchvale Road into Alden and Alden Grove. Inchvale Road - Alden follows the line of an access lane to fields seen on late 19th and early 20th century maps. It is named Inchvale Lane on those 20th century maps. Some large Beech, Sycamore, and other non-natives as well as native Ash form a tall treeline here. This linear feature is over 1 kilometre in length forming a corridor that almost links Vernon Mount Valley Wood with Ballybrack Woods. Donnybrook Hill interrupts the connectivity at the east end of Inchvale.

From opposite the entrance to Inchvale Park to Alden it is still predominantly treeline with a mixture of native species and introduced species. There is a higher number of native shrubs along this stretch including Hawthorn and Elder, with Dog Rose and Bramble here too. here is a lot of Elm here which unfortunately will probably start to die back from Dutch elm disease after it gets a bit older. However, it will hopefully regenerate from the roots again. From Alden Grove it takes on the character of a hedgerow, albeit with some non-natives such as Sycamore and Cherry Laurel.

There is a line of linear woodland of primarily native shrubs and trees along Galway's Lane close to the commercial centre of Douglas. Galway's Lane is seen as an access lane to fields and an Osiery (willow trees planted for basket-making etc.) on historic maps. Native berries and flowers such as those growing in this hedge are important for wildlife.

Autumn fruit and flowers on Galway's Lane.

In the BAP area are stretches of hedge mainly of non-native shrubs, planted as screening and landscaping. These would be mapped as Hedgerow in the Fossitt Classification, however would not be of the same biodiversity value as a traditionally managed, native hedgerow.

There is a lot of treeline in the BAP area. Where more mature treeline is found it corresponds to boundary lines of fields as seen on historical maps. It is likely that in the past some these were hedgerows, but management ceased prior to or after the fields were built on. Some of these remnant treelines have been modified.

Examples of remnant field boundaries can be seen, for example, between Oakview Drive and Alden. At the recently completed The Vicarage housing development there is another example of treeline, likely developed from hedgerow. The fields adjacent to this were in agricultural use until relatively recently and, for now, this treeline retains its earth bank and associated species rich, pollinator friendly vegetation.

There are other examples of such treeline in the BAP area, some of which are discussed in Section 3.4 - Places of Local Biodiversity Interest.

When these hedgerows were part of agricultural field systems they would have been maintained by the farmer. However, when they are kept on after those fields have been built on, the danger is that they will not be managed appropriately.

3.3.7 Old Stone Walls

Old stone walls are also an important habitat type and are included as the habitat type 'Stone walls and other stonework BL1' in the Fossitt classification. Stone walls have characteristics of habitats like stone cliffs and other bare rock habitats. Old walls with traditional lime mortar can have a diverse range of plants. Ferns and other plants, including mosses, as well as lichens can find a home here. Ivy is often considered to be a danger to stone walls and other structures, but this is not always the case. In some cases, it can protect old walls and other stonework (Coombes, et al., 2017). However, if Ivy roots into old walls it can damage them. The value of Ivy to other wildlife is considerable; its flowers provides food for bees, butterflies, moths and other invertebrate species into the Autumn and its berries are valuable to birds in the Winter. It provides shelter for bats and other small mammals as well as for birds and other wildlife.

Some old stone walls in Douglas

Invertebrates will live in old walls and, under certain conditions, birds, and small mammals including bats may make a home in them. Stone walls can be important as a guideline for some bat species when hunting for food. Locations of some stone walls of nature value in the BAP area are discussed in Section 3.4 Places of Local Biodiversity Interest.

3.3.8 Buildings (and gardens)

'Buildings and artificial surfaces, (BL3)' is a habitat type in 'A Guide to Habitats in Ireland' (Fossitt, 2000). While artificial surfaces such as roads, paved carparks and AstroTurf pitches may not be of much biodiversity value, some buildings can be and in urban areas there is certainly no lack of this type of habitat.

St. Luke's Church, Douglas

Many of us might think of old buildings such as churches as being somewhere that bats might feel at home, but they will happily use modern buildings too.

Some bird species will use old buildings. Peregrine Falcon have been spotted on Shandon Cathedral in Cork City, and on the chimney of the old waterworks building on the Lee Road. However, they have also been spotted using the County Hall – a much more modern building.

The House Martin, its relative the Swallow, and the similar looking Swift, all summer bird visitors to Ireland, will build nests on buildings. And, of course the Barn Owl gets its common name from a type of building that it likes to use.

Most houses in Douglas have a garden and these can be a great place for attracting and watching wildlife. Even a window-box managed in the right way can be a micro nature reserve.

3.4 Places of Local Biodiversity Interest in Douglas

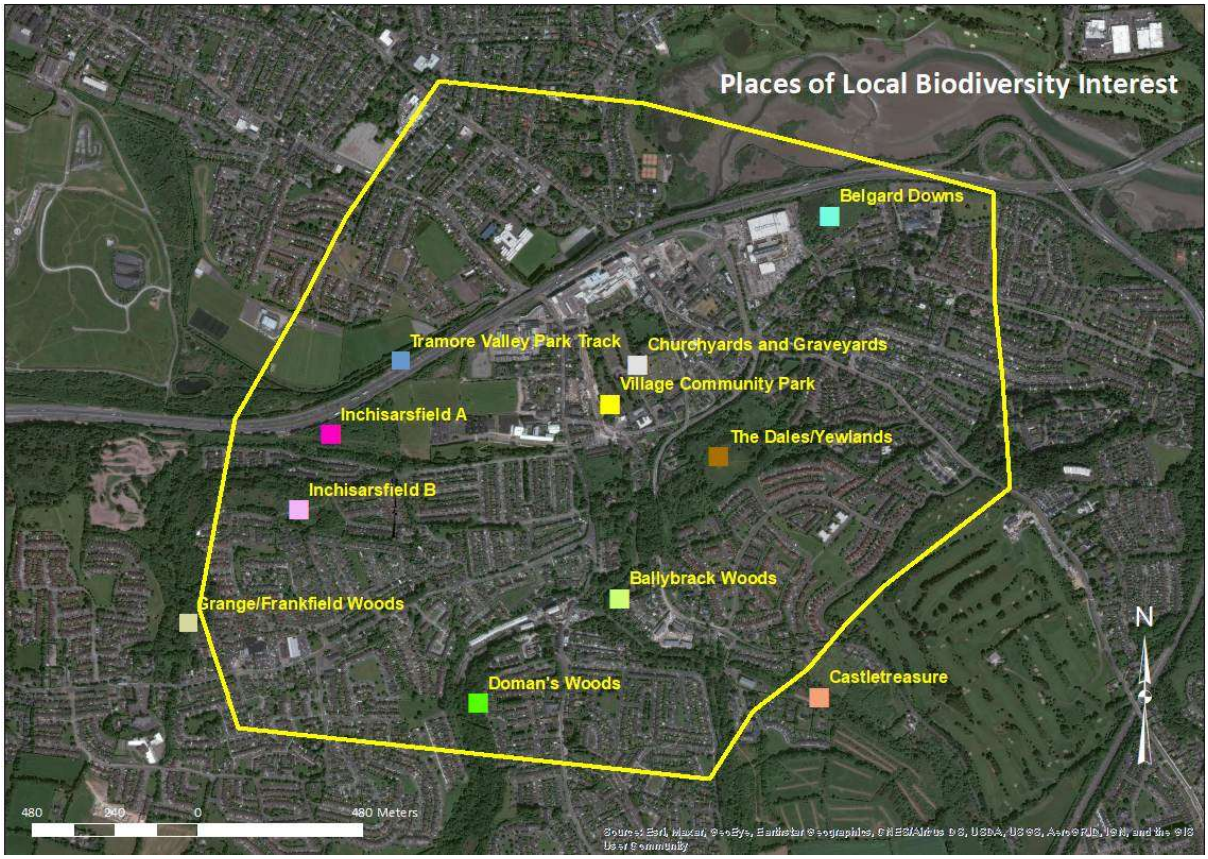


Figure 4 Places of Local Biodiversity Interest in Douglas

3.4.1 Douglas Community Park

Close to the centre of Douglas Village is the Douglas Community Park - a space for exercise, gathering, and relaxation. Douglas Community Centre is based in the Park and adds to the feeling of the Park as a hub for community activity. While a lot of tree cover on the west of the park was lost during recent flood relief works, there is still tree cover in the centre and east. Paths through the Park divide grassland and wooded areas into discrete parcels. The grassland areas are managed for amenity.

Trees in Douglas Community Park

Douglas Tidy Towns has established a pollinator garden on the east of the Park, along a section of stone wall that forms the boundary between the Park and St. Luke's churchyard.

Furthermore the focus of planting undertaken by Douglas Tidy Towns in the Park is on perennial pollinators. A similar stone wall bounds the west part of the Council graveyard nearby, and there are similar stone walls around Church Road, the Carrigaline Road, Donnybrook Hill and elsewhere.

Douglas/Ballybrack Stream connects the Park with Ballybrack Woods, the entrance to which is a small distance south of the Park. The stream is heavily modified at this point.

Green areas of Douglas Community Park are zoned as 'Open Space' on current development plans.

3.4.2 Churchyards and graveyards

In addition to their profound family and cultural value, the graveyards here, as with graveyards elsewhere, are themselves nature reserves in miniature. Graveyards can have extensive grassland areas and large old trees within or bounding them, providing habitats for other species.

Headstones provide a home for 'saxicolous' lichen to grow, as seen in the photograph on the left. Saxicolous means 'living on (colous) rock (saxi)'. Lichens are made up of a fungus living closely with an alga, or blue-green alga, in a symbiotic relationship.

St. Luke's Churchyard

St. Luke's is a mini-nature reserve and this is primarily due to the way it is managed. There is a great balance between formal landscaping in areas where graves are regularly visited, and less used areas that have been allowed to go a bit wilder to benefit nature. The church itself forms a

St Luke's Churchyard

visual barrier between an older and newer sections of the graveyard. At the time of the field visits grass in some areas was kept very short and in others it was left to grow longer. This allowed a variety of forbs (herbaceous vascular plants that are not grasses, rushes, or sedges) to flower too, providing food for pollinating insects.

Hedge Woundwort, a great resource for bees, flowering along the north boundary wall of St. Luke's Churchyard

There are trees here that are quite old, tall, and/or with interesting shapes, and there has been recent planting of young Rowan. The stump of an old tree has been kept as deadwood.

Small areas of scrub have been allowed to develop in older, less visited section of the churchyard. The old stone boundary walls are home to flowering plants and ferns, as well as invertebrates.

Flowers and berries in St. Luke's Churchyard

St. Columba's Cemetery

St. Columba's is a little smaller than St. Luke's and has less visual separation between new and older areas, but it does have areas of open grassland and there are trees dotted across the graveyard. On its west side there are old stone walls of similar age to those bounding St. Luke's graveyard. On its east side the boundary walls are of concrete built over a foundation of older stone wall, but these still support lichens and some Ivy.

Ivy flowers and Rose hips in the Council Graveyard

In the north east corner, a section of the old wall was coated with a mixture of Ivy, Dog Rose, and Bramble at the time of a visit in September. This was alive with bees and hoverflies. This mix of flowers and berries at this time of year is a great resource for wildlife. In the south east corner was a pile of Ivy that has been removed from elsewhere in the cemetery. There are two problematic plants here: the invasive alien species Winter Heliotrope and Travellers' Joy.

St. Columba's Church and Douglas Scout Hall

These community resources have quite limited opportunities for biodiversity enhancement. St. Columba's church does have a small amount of green space, which is neatly maintained lawn and shrubbery. There is a fine old copper Beech in the car park. The scout hall fronts onto the same paved car park. Both buildings date to the 19th century, although the Scout Hall is not as old as the church. Older buildings such as these can be important for bats and birds.

3.4.3 Belgard Downs

At Belgard Downs an area of rough grassland, wet grassland, and scrub contains a reedbed at its north west corner. This reedbed is separated from the grassland area by an above ground drainage pipe that runs from south west to north east in this corner. There is wet grassland and a small area of wet woodland situated near this pipe which had standing freshwater when visited in spring of 2020. Later in the year this was drier but still with a range of wetland plant species including Common Spike-rush, Marsh-bedstraw, Cuckooflower, Soft Rush, and Compact Rush.

Historical maps show this area as 'covered by Spring Tides' and on those maps, drainage features are shown, one of those in the position where the pipe is today. At that time there is no infrastructure shown separating this area from the estuary, so part of this area may have been upper salt marsh like that found at Douglas Hall Lawn today. Based on the species present, the wet grassland and wet woodland in the photographs below are freshwater. It was not established by testing whether the water in the reed bed was fresh or saline.

Wet woodland and grassland above, Reedbed right.

The pipe that divides the two areas connects to the estuary and there is a line of Poplars bounding the pipe at its south west end. Many of these appear to have died back. These

were live on aerial photography from c. 10 years ago, so it is possible saline water is present, leaking from the pipe.

This wetland/ grassland/scrub area is marked as 'Town Centre' on current development plans. In the current plan it is noted that any development here '*will have to include the wetland site to the rear. At the moment it is informal open/green space. There is an opportunity here for a park or other amenities for the benefit of the wider community*.'

3.4.4 The Dales/Yewlands

This contains a large area of open grassland, as well as wooded areas, linear woodland, scrub, and dense bracken.

Some of the linear woodland features here follow field boundaries and treelines seen on mid-19th century maps. One treeline follows the townland boundary between Ardarrig and Douglas townlands. A length of linear woodland along the west boundary forms a closed canopy with established woodland canopy in Ballybrack Woods, over the Carrigaline Road (R855). This is an important connection allowing wildlife such a birds and small mammals like the Red Squirrel, which is known to be in the Douglas area, to move more safely across the landscape. There are some small closed canopy sections of woodland within this area, where the uncommon, delicate, woodland plant species Three-nerved Sandwort has been recorded.

Three-nerved Sandwort
Photo by Wild Work

At least one section within this area was managed as agricultural land up to 2000 but had likely gone out of use by 2010, if not before. The grass is quite short in one section, but there is evidence of rabbits in the area, whose grazing may be maintaining a low sward and there is some trampling from people using the area.

There are large areas of Common Gorse scrub in one section, while Rusty Willow dominates in other areas. There are areas of dense Bracken which can be an important habitat type and add diversity when in occurs with other habitat types. It can stabilise soil on steep slopes when there is no other vegetation present to do so. It can however become a problem, for example if it reduces the area of other semi-natural habitats more than may be desired.

Grassland and scrub at The Dales/Yewlands open area

Some non-native shrubs have found their way in here, likely through bird-dispersal, including Chinese Bramble. Often planted as ground cover in amenity planting, its seeds can be spread by birds and it can become quite rampant and smother native vegetation. It has appeared in a 2011 'horizon scanning' list of potential invasive species by Natural England (Natural England, 2011).

This area is zoned as 'Open Space' on current development plan maps. It is suggested that it be used as '*Active open space for informal public recreation to be landscaped and planted'*. It also says that '*The development of a school can be accommodated on a portion of this site*' pending the satisfaction of certain conditions.

3.4.5 Castletreasure

In Castletreasure townland, immediately south of The Vicarage, is an area of land comprised of grassland, woodland, scrub, and streams. Until relatively recently most of the grassland and some of the scrub was under agricultural use. It is outside, but connected to, the BAP area. It contains habitats that are valued by the local community for their nature and amenity value.

This plot of land has been known locally as 'The NAMA Fields'. On the most recent development plan maps it is zoned for residential development and planning permission was granted for a large (c.472 homes) residential development. Development on this plot commenced in 2021, however habitats are discussed as surveyed in 2020.

This area is bounded on its east and west by wooded streams – on its west side is part of Ballybrack Woods (The Mangala) woodlands and on the east side woodland and some small open areas line the banks of the stream.

One section of this woodland, near the boundary of Douglas Pitch and Putt Club, has a large colony of Wood Horsetail. This is not a very common species in County Cork, and as such might be considered as of local biodiversity importance.

There was a single plant of the invasive non-native plant species Giant Rhubarb, also called Gunnera, recorded on the bank of the stream to the east of the area. This can become invasive along stream banks and other wet areas and should be monitored in the future.

There is a network of connective hedgerow and treeline field boundaries on this plot. As it has not been in agricultural use for several years, some of the grassland here, although not very species diverse, is of more biodiversity value than it had been previously. A large population of Irish Marsh-orchid was noted here during fieldwork.

Wood Horsetail and Irish Marsh Orchid at Castletreasure Photos by Wild Work

3.4.6 Ballybrack Woods

There is an explanation of woodland structure in Appendix III that might be useful when reading this section.

Ballybrack Woods, known locally as 'The Mangala', is made up of several habitat types, not just woodland. These include grassland, as well as artificial surfaces, areas of scrub, and the streams that come together here to form the Douglas/Ballybrack stream. Woodland is the largest habitat type by area and there are different woodland types within this. The woodland extends beyond the BAP area, along a wooded river valley into Castletreasure townland and the source of one of the streams.

Ballybrack Woods come almost to the heart of urban Douglas village. As well as its intrinsic nature value, it is also a transport route – there are paved walking and cycling routes through it, as well as unpaved trails and desire lines. There are a number of schools located near the north entrance to the Woods as well as a number of community facilities such as the Community Centre and the Community Park. Due to its location and ease of access, Ballybrack Woods has often been the focus for community activities, biodiversity-related and otherwise. It is often used as an outdoor education space by local schools and community groups.

It was noted earlier in the section on vascular plants that a number of native plant species typical of the field layer of more established woodlands can be found in the wood, close to the Douglas village centre.

Looking at older maps of the wood it can be seen that not all of the wooded areas of today have been consistently wooded over time, but one area has been consistently wooded since at least the mid-19th century. This is a section adjacent to the Carrigaline Road, north of Ardarrig Park. It is in this wooded area that species such as Wood Anemone, Pignut and Woodruff were recorded.

Ballybrack Woods is zoned as 'Existing Built Up Areas' on current development plan maps. Ballybrack Woods has its own, current, biodiversity action plan developed by Wild Work with Douglas Tidy Towns.

Ballybrack Woods

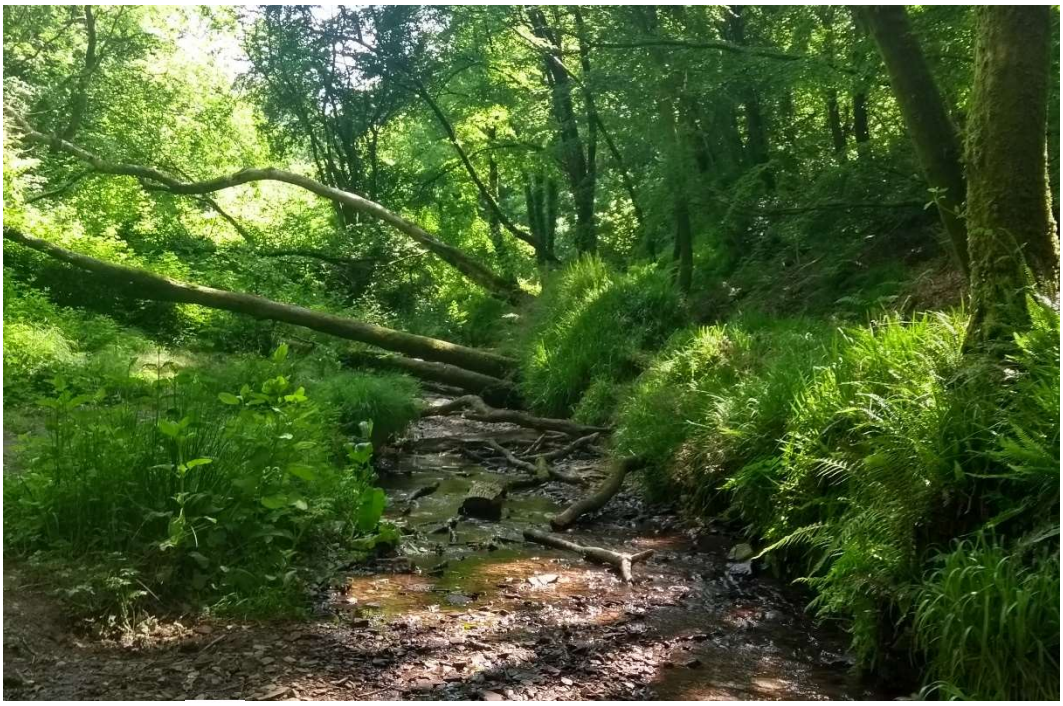
3.4.7 Doman's Wood

There is an explanation of woodland structure in Appendix III that might be useful when reading this section.

In common with what little broadleaved woodland there is still to be found in Ireland, Doman's Wood is located on the sides of a steep river valley. Such locations are generally not suitable for agriculture or other development.

Of the three larger woodlands in the BAP area, Doman's Wood, despite the high number of non-native tree species in the canopy, has the most diverse and well-developed native shrub and field layer. Beech and Sycamore are the most common non-native tree species here.

Unlike Ballybrack Woods and Vernon Mount Valley Wood, Doman's Wood has no hard transport infrastructure through it. Any paths are those worn by foot. While this means there is less disturbance to wildlife than in those other woodlands, it also gives respite to people; it is easy to forget that this wood is bounded by housing estates when walking through it.



Doman's Wood

As Doman's Wood is a steep sided river valley, there is a variation in canopy and field layer plant species with height; species typical of drier habitats are found higher up and species typical of wetter habitats are found on the valley bottom Although there is a relatively high proportion of non-native tree species in the canopy at Doman's Wood, there are also some quite large old Oaks and Ash.

Overall, that section of Doman's Wood found in the BAP area would be classified as '(Mixed) Broadleaved woodland, (WD1)' according to A Guide to Habitats in Ireland, (Fossitt, 2000). This is due to the high proportion of non-native tree species in the canopy.

As mentioned previously, vegetation in Doman's Wood varies with altitude. In some higher areas of Doman's Wood, Beech dominates the canopy and is almost constant throughout. In some Beech dominated areas, field and ground layer vegetation was noted to be quite low in diversity or non-existent. Beech leaf litter is noted for its ability to suppress field and ground layer vegetation due its slow rate of decomposition. It is likely that higher foot traffic in some Beech-dominated areas may play a role too.

In one or two small areas the native tree species Pedunculate Oak, Ash, and Downy Birch in the canopy are accompanied by the natives Holly and Hazel in the shrub layer. Ash is frequent in the canopy throughout the wood, as is the non-native Sycamore. The field layer throughout

the wood has a high cover of Bramble with this dominating in sections. Atlantic Ivy and various fern species were frequent to abundant throughout.

The presence on higher slopes of species such as Wood Anemone, Pignut, Bluebell, Wood Speedwell, Barren Strawberry, and Sanicle suggest the Fossitt 'Oak-ash-hazel Woodland, (WN2)' classification as the semi-natural woodland type that might apply in the absence of non-native trees species.

As the valley sides slope down to the stream that runs through the woods, in some places the bank is quite high relative to the stream and there is no valley floor as such. Here the woodland retains the character found on higher slopes. Where the bank is low and there is a relatively wide flat floor, a woodland of quite a different character is found. European Alder and willows – mainly Rusty Willow appear more frequently. Just upstream of where a tributary joins the main stream, there is a small section of woodland where wetland species such as the impressive Greater Tussock Sedge, Yellow Flag Iris, Wild Angelica and others occur in the field layer.

Irish Spurge was recorded in both the wet woodland and on the remnant bank. This species is part of the Hiberno-Cantabrian, or Lusitanian, flora of Ireland. These are species that, while found in Ireland, are generally absent from mainland Britain, but are found in other western European countries bounding the Atlantic.

Irish Spurge in Doman's Wood
Photo by Wild Work

Fallen dead wood, in various states of decomposition is scattered through Doman's Wood; this is an important resource for wildlife.

Older maps of Doman's Wood suggest that current wooded areas were not always wooded in the past. From these older maps and other research, we see that Doman's Wood and the stream running through it has connections with Donnybrook House and the linen mills that were once such a major part of Douglas life. Doman's Wood is zoned as 'Existing Built Up Areas' on current development plan maps.

3.4.8 Vernon Mount Valley Wood

There is an explanation of woodland structure in Appendix III that might be useful when reading this section.

Vernon Mount Valley Wood is another wooded river valley through which a stream runs. The west side of the wooded valley is within the grounds of Vernon Mount, an historic demesne currently used as a motocross park. 19th century maps show wooded areas on the Vernon Mount side; with symbols on the maps showing conifer species thus indicating it was planted rather than naturally developed woodland, perhaps not surprising given the demesne location. Today on the Vernon Mount side non-native Cherry Laurel dominates some sections.

A walking trail was developed on the east side of the valley in 2013-2014 by the local Grange-Frankfield Partnership in association with SECAD Partnership CLG and the residents' association of the adjacent Amberly estate. On the modern day Amberly Estate side, open fields and some furze and rough pasture are indicated on historical maps.

In addition to woodland, there are areas of scrub, and the stream that runs through the wood. Because there are so many non-native trees in the canopy, the wood here would be classified as WD1 (Mixed) broadleaved woodland according to 'A Guide to Habitats in Ireland' (Fossitt, 2000).

The mix of species in the canopy varies throughout, but only in one or two small areas visited was there a mix of plant species that suggested the native semi-natural woodland type that might occur naturally. As with Doman's Wood, this suggested WN2 Oak-ash-hazel woodland. Some of the species indicative of this woodland type such as Wood Speedwell, Sanicle, Pignut, and Ramsons were recorded in the woods but none, apart from Wood Speedwell was recorded frequently. Where these species were recorded, they were usually at the edge of existing paths. The field layer for much of the woodland in dominated by Bramble and unfortunately, in some areas, by Winter Heliotrope. Ferns of various species were frequent throughout.

There have been efforts to control the Cherry Laurel on the east side with some success although patches remain. On the west side however, there are large areas of Cherry Laurel.

There is a non-native tree species that is quite frequent in Vernon Mount Valley Wood that is not recorded regularly in Ireland. This is the Grey Alder which seems to be more common here than the more usual non-native, Sycamore. As with Doman's Wood, there is a good amount of fallen dead wood that has remained in situ.

Clockwise from top left: Sanicle, Ferns, Deadwood, and Winter Heliotrope in Vernon Mount Valley Wood. Photo by Wild Work

Vernon Mount Valley Wood is in an area where the current development zoning is 'Open Space'. In the most recent Local Area Plan (Cork County Council, 2017) the objective is '*for informal pubic recreation including amenity walks and urban forestry*' and the '*area will also contain a proposed Pedestrian/Cycleway Bridge over the N40 to connect with*' Tramore Valley Park. Construction on this Pedestrian/Cycleway began in early 2021.

3.4.9 Inchisarsfield

Adjacent to Vernon Mount Valley Wood is a complex of linear woodland, woodland, scrub, grassland, and dense bracken. Much of the linear woodland here follows the line of field boundaries seen on historical maps.

Inchisarsfield A

This area, between Alden and Amberly Heights, holds linear woodland, woodland, grassland, scrub, and dense bracken.

Grassland, scrub Grassland, scrub, and treeline east of Amberley

Scrub is a valuable habitat from a biodiversity point of view, but in many cases requires management to be maintained. It can develop in to woodland, and this may be desirable in some areas here, however managing some areas as scrub adds to overall biodiversity (Mortimer, et al., 2000).

The Fossitt habitat type Dense Bracken (HD1) can be an important habitat type and add diversity when in occurs with other habitat types. It can stabilise soil on steep slopes when there is no other vegetation present to do so. It can, however, become a problem in some situations, if for example it invades other semi-natural habitats.

In the bramble scrub and grassland area just south of the footpath connecting Amberly and Oakview, there is a stand of Rosebay Willowherb. This species was once a rare species of

upland areas in Ireland and the UK and considered native in those areas. Since the mid-20th century, it began to be recorded outside of its native areas. The exact reasons or this spread are not clear but may be to do with changes in land use practices and/or introductions from other countries. It can take over areas of soil that are disturbed through digging, burning, etc.

The treeline running from Amberly Heights to the rear of The Marlings runs along the same line as a treeline seen in maps from the mid-19th century. Conifers are indicated on the older maps. There are some quite old Scots Pine in the treeline today, so these could potentially be quite old.

There are areas of grassland in this section that could be considered semi-natural. In some areas the grass is being kept short due to trampling, rabbit activity, or possibly mowing.

Zoned as 'Open Space' on current development plans the current Local Area Plan (Cork County Council, 2017) objective (SE-O-07) suggests that this area be used '*for informal pubic recreation including amenity walks and urban forestry*' and the '*area will also contain a proposed Pedestrian/Cycleway Bridge over the N40 to connect with*' Tramore Valley Park. This is in the same 'Open Space' parcel as Vernon Mount Valley Wood.

Inchisarsfield B

Grassland, scrub, and treeline south of Alden

Another section of grassland, scrub, and woodland lies between the N40 and Alden housing estate. This is zoned as 'Open Space' on current development plans.

The current Local Development Plan objective (SE-O-13) suggests '*Provision of a multi-purpose leisure facility in Douglas to cater for sports clubs, community organisations and leisure activities. In addition, playing fields, parks and walkways/cycleways that provide a link to the Tramore Valley Park over the N40 and access to Vernon Mount through to Grange, should be provided*.' Construction on this walkways/cycleway began in early 2021.

There is a small population of the non-native plant species Lesser Knotweed near the informal entrance near the junction of Inchvale Road and Alden. Rated as being of low potential impact on native biodiversity in Ireland (Kelly, et al., 2013), it is probably still worth monitoring.

There are areas of grassland, large and small, in this section that could be considered semi-natural. In some areas the grass is being kept short due to trampling. In other areas the grass is becoming 'rank 'through lack of management and is made up of a few tall grass species and few other tall herbaceous plants: this type of grassland can be less biodiverse than grasslands that are managed in some way. Left un-managed it can develop into scrub.

Over a hectare in area of woodland dominated by Willows has developed adjacent to the Douglas GAA grounds over the last 20 years.

Overall, this is a popular transit route for walkers, human and canine, and habitat management could add to their enjoyment, as well as benefitting biodiversity.

3.4.10 Tramore Valley Walk

Tramore Valley Park is located on a landfill site that operated from the 1960s to 2009. After intensive remediation work, Tramore Valley Park was opened in 2019. Much of the area of the Park is for amenity use, however there are large areas of semi-natural habitat here too.

In the Park there are remnants of what were once more extensive areas of wetland bounding the Tramore River in this area. In 'The Botanist's Guide for the County of Cork' (Power, 1846) there are references to plant species found in 'Ballyphehane Bog'. Late 19th century/early 20th century maps indicate the land here as being 'liable to floods'.

In the Ordnance Survey name-books associated with the first Ordnance Survey of Ireland in the mid-19th century there is some confusion as to how the Irish name for Ballyphehane, Báile Féitheán, should be interpreted, but certainly 'féitheán' carries the meaning 'a swampy place' (ed. Dinneen, 1927). It has been known colloquially as 'Carroll's Bog'.

There is access to the Park in the BAP area via the Tramore Valley Walk that includes a length of hard surface walkway/cycleway. This walkway runs along the south bank of the Tramore river and is bounded by linear woodland for much of its length, but also by scrub, improved

grassland, semi-natural grassland. It enters a more extensive area of wet woodland at its western end, which is a valuable habitat type from an ecological perspective.

There are many native tree species along this walk including willows, Hawthorn, and Hazel. Douglas Tidy Towns has planted more native trees here in the recent past and signage highlighting the biodiversity value of the habitats here has been installed.

There are also some mounds of re-colonising bare ground along the track that were being used by solitary mining bees when the area was surveyed for this BAP.

Winter Heliotrope along the Tramore Valley Walk. Photo by Wild Work

There is a lot of Winter Heliotrope along the walk and some evidence of 'guerrilla gardening'[8] of non-native plants in the small semi-natural grassland area situated approximately 700 metres west of the entrance at Willow Park. Tramore Valley Park and the Tramore Valley Walk are zoned as 'Open Space' on current development plans.

[8] Raising food plants or flowers on land that the gardeners do not have the legal rights to cultivate, such as abandoned sites or areas that are not being cared for.

3.5 Habitats Recorded in Places of Local Biodiversity Interest

Habitats listed in Table 11 below are classified according to 'A Guide to Habitats in Ireland' (Fossitt, 2000)

Fossitt Habitat Name	Fossitt Code
Eroding/upland rivers	FW1
Depositing / lowland rivers	FW2
Reed and large sedge swamps	FS1
Amenity grassland (improved)	GA2
Dry meadows and grassy verges	GS2
Wet grassland	GS4
Dense bracken	HD1
Wet pedunculate oak-ash woodland	WN4
Wet willow-alder-ash woodland	WN6
(Mixed) broadleaved woodland	WD1
Scattered trees and parkland	WD5
Scrub	WS1
Ornamental/non-native shrub	WS3
Hedgerows	WL1
Treelines	WL2
Spoil and bare ground	ED2
Recolonising bare ground	ED3
Horticultural land	BC2
Flower beds and borders	BC4
Stone walls and other stonework	BL1
Earth banks?	BL2?
Buildings and artificial surfaces	BL3
Lagoons and saline lakes	CW1
Tidal Rivers	CW2
Upper salt marsh	CM2
Sea walls, piers and jetties	CC1
Estuaries	MW4

Table 11 Habitats recorded in the BAP area

4 Actions

Actions are grouped under the headings 'Habitats of Biodiversity Interest in Douglas', and 'Places of Local Biodiversity Interest' that will be familiar from Section 3 above. There is also three further sections on 'General', 'Survey and Monitoring' and 'Training'. Actions for each heading are presented in Table form at the end of each heading section.

Links to some key resources are provided in the footnotes, with further information available in Section 5 – Resources.

The operational area that this Biodiversity Action Plan covers is essentially an urban area. It does, however, contain a number of habitats including woodland, grassland, wetland, and watercourses that are important for biodiversity.

One small area of Cork Harbour SPA is within the area and is legally protected. Some waterbodies are afforded protection by legislation covering water quality and fisheries. Other features such as woodlands have a degree of protection under objectives of current development plans.

There are other areas that contain habitats that are of biodiversity value but that have very little protection. While a number of these are in private ownership, land use objectives in current development plans include maintaining parts of some of them as open space. Suggestions for these latter areas are made here, for if and when they are developed. If some management could be agreed in the interim that would be of benefit too.

4.1 General

4.1.1 Management of the Biodiversity Action Plan

To effectively implement this Biodiversity Action Plan, a structure to manage and communicate the Plan needs to be put in place. Douglas Tidy Towns is happy to facilitate this in partnership with key stakeholders, including Cork City Council.

Ref	Action	Year
MS-1	Schedule and facilitate a BAP Review Meeting with Cork City Council	1
MS-2	Establish a management structure to oversee the implementation of this BAP	1
MS-3	Regular Action Review Meetings with the City Council and other key stakeholders	1-5

4.1.2 Use of Pesticides

As well as being damaging to pollinators, pesticides[9] also harm birds and mammals. Douglas Tidy Towns are active supporters of the All-Ireland Pollinator Plan and as such, are working to reduce the use of pesticides to the absolute minimum in their work. Cork is an important county for some plant species which are unfortunately often killed by spraying. Some local authorities in Ireland are looking at alternatives to herbicides (Environment Strategic Policy Committee, 2018). Furthermore, Douglas Tidy Towns is working with the Cork City Council and other key stakeholders to reduce pesticide use in the Douglas area.

For some invasive alien plant species pesticides may have to be used as an option of last resort, but this should always be done using Sustainable Use protocols (DAFM, 2103) – See Section 4.1.4 below.

Ref	Action	Year
PI-1	Review sources of information and ideas for reduction of pesticide use to include: Pesticide Free Towns[10] and Environmental Protection Agency (EPA) - Greener Gardening, Your Guide to Chemical-Free Affordable Gardening'[11]	1-2

[9] a substance used for destroying insects or other organisms harmful to plants or to animals – this includes both insecticides and herbicides
[10] www.pesticide-free-towns.info
[11] www.epa.ie/pubs/reports/waste/wpp/Greener%20Gardening%20(web).pdf

PI-2	Work with Cork City Council to develop a Use of Pesticide Policy for the Douglas operational area, with reference to the Sustainable Use Directive (Directive 2009/128/EC) and the All-Ireland Pollinator Plan	1-5
PI-3	Work with Cork City Council and other relevant groups to eliminate the inappropriate use of pesticides and reduce pesticide use to the absolute minimum across our operational area	1-5
PI-4	Provide information to the local community to help eliminate the inappropriate use of pesticides and reduce pesticide use to the absolute minimum	1-5

4.1.3 Pollinator-Friendly Planting

In continuing support of the All-Ireland Pollinator Plan[12], Douglas Tidy Towns will continue to work to highlight the importance of pollinator-friendly plants across the operational area, whether in formal public spaces, green spaces or private gardens. Planting pollinator-friendly perennials in areas that are currently sprayed repeatedly with herbicides to manage 'weedy' plants can have biodiversity, financial, and human health benefits by reducing the need to use pesticides.

Ref	Action	Year
PF-1	Continue to focus on pollinator-friendly planting in all planting schemes initiated and managed by Douglas Tidy Towns	1-5
PF-2	Work with Cork City Council to focus on pollinator-friendly planting in all planting schemes initiated and managed by the Council in the operational area	1-5
PF-3	Continue to sow and manage native wildflower strips where appropriate	1-5
PF-4	Continue to develop and maintain the Pollinator Garden in Douglas Community Park	1-5
PF-5	Work with Cork City Council to identify, manage and protect informal 'wild' wildflower areas for the benefit of pollinators	1-5
PF-7	Provide information to the local community to encourage the use of more pollinator-friendly plants in private gardens, schools, sports fields, workplaces, graveyards, etc.	1-5

[12] www.pollinators.ie

4.1.4 Invasive Species Management

Douglas Tidy Towns has been working with both Cork City and Cork County Councils and Wild Work to manage Japanese Knotweed and Cherry Laurel in Ballybrack Woods and will use this experience to inform the development of an Invasive Species Management Strategy for the operational area, in conjunction with Cork City Council.

There are a number of problematic, non-native species that have been recorded in and around the operational area. These are listed in the sections on Invasive Species (3.2.7) and in Vascular Plants (3.2.1). The problems caused by each species and appropriate management thereof are particular to each species. Handy guides on how to identify these species are available from the National Biodiversity Data Centre (NBDC)[13].

Douglas Tidy Towns recognises that eradication of all the problematic, invasive non-native species in their operational area is a long-term project and therefore will focus on four initial species (Japanese Knotweed, Cherry Laurel, Traveller's Joy and Winter Heliotrope) for the five year period of this Biodiversity Action Plan.

Ref	Action	Year
IS-1	Work with Cork City Council to develop an Invasive Species Management Strategy for the operational area	1-2
IS-2	Identify and map the location of four initial species (Japanese Knotweed, Cherry Laurel, Traveller's Joy and Winter Heliotrope) in the operational area	1-5
IS-3	Agree a Management Plan for the four initial species with Cork City Council and monitor the progress thereof	1-2
IS-4	Develop a community-based invasive species education, mapping, and reporting scheme using resources available from the NBDC website[14]	1-2
IS-5	Identify and map the location of further species (to be agreed) in the operational area for future action	5

4.1.5 Biodiversity Corridors

The wooded river valleys, hedgerows and treelines, scrub, and other habitats in the BAP area connect with each other for the most part, and this connectivity extends beyond the BAP

[13] www.biodiversityireland.ie/projects/invasive-species/
[14] www.biodiversityireland.ie/projects/invasive-species/

area. This connectivity is vital to ensure recruitment of wildlife into the BAP area and its dispersal across and beyond the BAP area. In an increasingly fragmented landscape, it is important to ensure these corridors are preserved, but equally that opportunities are taken to increase and expand them. Objective 10.8 in the current (2015-2021) Cork City Development Plan highlights the council's commitment to work with community groups and others to encourage the management of features which '*by virtue of their linear or continuous nature, e.g. rivers, tree groups or hedgerows are essential for the migration dispersal and genetic exchange of wild species*'.

While important for wildlife, these features are also important for people in the area who value the opportunity to engage with wildlife in their daily lives. Outdoor lighting can disrupt functioning of hedgerows and treelines as wildlife corridors and the placement of any future outdoor lighting will need careful consideration by the Council when reviewing planning applications.

Ref	Action	Year
BC-1	Identify opportunities to preserve, extend and enhance biodiversity habitat corridors within the operational areas and to connect with corridors in adjacent areas.	1-5

4.2 Rivers and Streams

Everyone in the community can help to maintain the quality of rivers and streams which flow through the operational area. This includes not littering, thinking about the types of chemicals that we may be putting into water through our daily activities such as bathing, laundering or washing the car. There are links to information on simple things individuals can do in the Resources section.

Ref	Action	Year
RS-1	Work with our Community Water Officer from our Local Authority Waters Programme (LAWPRO)[15] to design a Citizen Science programme to monitor water quality in the rivers and streams in the operational area.	1
RS-2	Work with our Community Water Officer to implement the programme to include activities with local schools	1-5

[15] http://watersandcommunities.ie/about/

RS-3	Work with our Community Water Officer to liaise with Cork City Council, Ryan's SuperValu and Bishopstown and Togher Tidy Towns to monitor the quality of water in the Tramore River and develop an action plan	1-2

4.3 Wetlands

The Douglas Estuary section of Cork Harbour SPA is very close to the operational area, however since the N40 was built, suitable access is minimal. The understanding of the important of the SPA would be enhanced if the local community, but especially students from local schools, could access it for educational purposes, as well as birdwatching, species monitoring, etc. Access could be made available via Douglas Hall Lawn and Mahon Golf Club (which is a municipal course). However, due to the importance of Douglas estuary to birds, access should be carefully managed and controlled and due consideration given to the impact of such access on the local wildlife. It is recommended that the creation of any additional access or vantage points be done only in consultation with and on the advice of appropriate experts such as NWPS or Birdwatch Ireland.

Ref	Action	Year
WL-1	Work with Cork City Council, NPWS, Birdwatch Ireland and relevant landowners to explore appropriate managed access to the Douglas Estuary section of Cork Harbour SPA, as well as the installation of appropriate signage for educational purposes.	1-5

Wetland actions for specific sites of local biodiversity interest are included under the actions for those particular sites.

4.4 Grasslands

Changing the way areas of amenity grassland, such as greens in housing estates, are managed is an easy win for biodiversity. The All-Ireland Pollinator Plan recommends 2 main management methods for grasslands:

Long flowering meadow:

Here an area of grass can be left to flower through the year and not cut until September. The cuttings are removed which reduces nutrients so year by year, thus there should be an increase in the ratio of flowers to grasses.

Short flowering (4- 6-week) meadows:

Here an area of grass is not cut until mid-April, and cuttings are removed. The delay to mid-April allows Dandelions to flower for pollinators in early spring, and to be cut before they set seed. Grass is then cut ideally on a 6-week rotation and clippings removed.

Ref	Action	Year
GL-1	Work with Cork City Council to expand the implementation of All Ireland Pollinator Plan recommended grassland management techniques in publicly managed areas and monitor the effectiveness and impacts thereof.	1
GL-2	Provide information to the local community to encourage All Ireland Pollinator Plan grass management in private gardens, schools, workplaces, graveyards, sport fields and workplaces	2-5

Grassland actions for specific sites of local biodiversity interest are included under the actions for those sites

4.5 Woodlands

There are native trees and shrubs growing in and around Douglas. Oak, Ash, Alder, Willows, Hawthorn, Blackthorn, Birch, Holly, Cherry, Hazel and others are to be found, as can their seeds. If these seeds are harvested and grown on, native trees could be ready to plant to replace trees that will be lost in the future - or to plant in areas where there are no trees now.

Blackthorn and Hawthorn are relatively small trees (some people think of these shrubs) and might be suitable to plant in some gardens. Shrubs like native Wild Privet and Common Gorse can be used with other native species in hedges.

Local schools, clubs and other organisations might think about harvesting seeds and cuttings from native trees and growing them for use in their own grounds and the wider community. It should be noted that if trees and shrubs are on private land, permission will be needed first and also remember not to harvest too much from any one place because the fruit are valuable for wildlife in Autumn and Winter. Consideration should also be given to the existing habitat of the location - a lot of trees should not be planted in an area where there is already a valuable habitat, for example semi-natural grassland. Local hero trees will eventually die, so for future generations in Douglas to enjoy and benefit from trees, it is a good idea to plan for that now.

There are details in the Resources section on where to access information on growing native trees and shrubs, examples of how community tree nursery schemes have been set up elsewhere, as well as information on deadwood and veteran trees.

Ref	Action	Year
WD-1	Work with Cork City Council and relevant landowners and stakeholders to agree a Tree (and Hedgerow – see Action HD-1) Management Strategy for the operational area	1
WD-2	Develop an implementation plan for the strategy to include: • Controlling non-native saplings and seedlings in areas where native tree species pre-dominate in the canopy • Keep deadwood in woodlands in which they fall • Where old trees fall and a space in the canopy results, control non-native saplings and seedlings and plant native trees there • Plant more native trees (and hedgerows) in suitable areas	1-5
WD-3	Undertake a community-based survey of local hero trees.	2-5
WD-4	Develop a community-based native tree nursery scheme	2-5

Woodland actions for specific sites of local biodiversity interest are included under the actions for those sites.

4.6 Scrub

Areas of scrub are discussed in the Section 4.10 for particular places in Douglas where they are found. There are details on where to find more information on creating and managing areas of scrub in the Resources section[16]. While scrub encroachment on grasslands habitats of high conservation value will need management, it is also important to note that scrub can form vital wildlife corridors connecting habitats and allowing animals like bats to more through the landscape.

Ref	Action	Year
SC-1	Work with Cork City Council and relevant landowners and stakeholders to agree a Scrub Management Strategy for the operational area, with particular reference to The Dales/Yewlands – See also DY-3	1-3

[16] http://publications.naturalengland.org.uk/publication/72031

4.7 Hedgerows and Treelines

While Ireland has one of the lowest levels of woodland cover in Europe, it is estimated that hedgerows cover more area than all our broadleaved woodland and hold 15% of our broadleaved trees (Hickie, 2004). Hedgerows and some types of treeline are hugely important for wildlife in Ireland, as a resource for food, shelter, and to move safely across the landscape. Maintaining these, as well as creating new native hedgerows, is a great way to help nature. Planning to make sure these are preserved and maintained is a long-term project, and that takes a good deal of co-ordination.

Ref	Action	Year
HD-1	Work with Cork City Council and relevant landowners and other stakeholders to agree a Hedgerow (and Tree – see Action WD-1) Management Strategy for the operational area	1-3
HD-2	Work with key stakeholders and landowners to develop an implementation plan for the strategy to include planting native hedges in suitable areas in schools, sports fields, and amenity areas; and replacing mature trees in historic hedgerows, when they are lost, with native trees species	2-5

Inchvale Road/Alden Treeline

The linear woodland that runs along the north side of Inchvale Road and Alden is over 1 kilometre in length and is likely an important corridor for wildlife. Thus its entire length should be preserved. There are many native species that could be used to source seed for hedgerow and tree planting elsewhere in Douglas.

Ref	Action	Year
HD-3	Work with relevant stakeholders to preserve the linear woodland feature along the north side of Inchvale Road/Alden	1-5
HD-4	Gather seed to use as a source for the community-based native tree nursery scheme as described in WD-4	1-5

Galway's Lane Hedgerow

Given that it is located so close to the urban heart of Douglas, the remnant hedgerow/ treeline along the north boundary of Douglas GAA ground is an incredible resource from both a biodiversity and cultural perspective. It is quite rich in native tree and shrub species including

Holly, Ash and Blackthorn, as well as Wild Privet, Bramble, Ivy, Dog Rose and Hedge Bindweed. There are some gaps in the hedgerow that could be filled with native species which could be grown from seed or cuttings taken from the hedgerow. The hedgerow could also be used as one source for seed to create native hedgerow elsewhere in Douglas.

The non-native species, Japanese Knotweed and Butterfly Bush occur on waste ground nearby which could make their way into the hedgerow. Action should be undertaken to prevent this from happening.

Ref	Action	Year
HD-5	Develop and implement a management strategy for this linear woodland feature to fill gaps and prevent/remove invasive non-native plant species	1-5
HD-6	Consider signage to highlight the importance of hedgerows and to describe the native plant species found in the hedge	1-5
HD-7	Gather seed to use as a source for the community-based native tree nursery scheme as described in WD-4	1-5

4.8 Old Stone Walls

Old stone walls and other stonework in the operational area are important both from a historic and a nature point of view. Many of the plant species that grow on walls do not cause any structural issues and are good for biodiversity. Some plants can cause structural issues and would need to be carefully managed by the relevant landowner as if not done the right way, both the walls, as well as biodiversity will be damaged.

Further details on how to access information on managing and maintaining old stone walls and ivy on walls are in the Resources Section. Because relatively few species of plant can grow on walls and because they stand out against the stone, they can be a good educational resource for starting to learn how to identify plants.

Ref	Action	Year
OW-1	Encourage local schools to create an educational programme highlighting biodiversity in our stone walls. Information is available from Heritage in Schools [17]	1-5

[17] www.heritageinschools.ie/content/resources/old%20stone%20walls/Old%20Stone%20Walls%20-%20Plants.pdf

OW-2	Publicise guidance available on the management and maintenance on old stone walls - The Historic Monuments Advisory Committee at Cork County Council has produced a booklet on 'Care of Historic Stone Walls'[18]	1-5

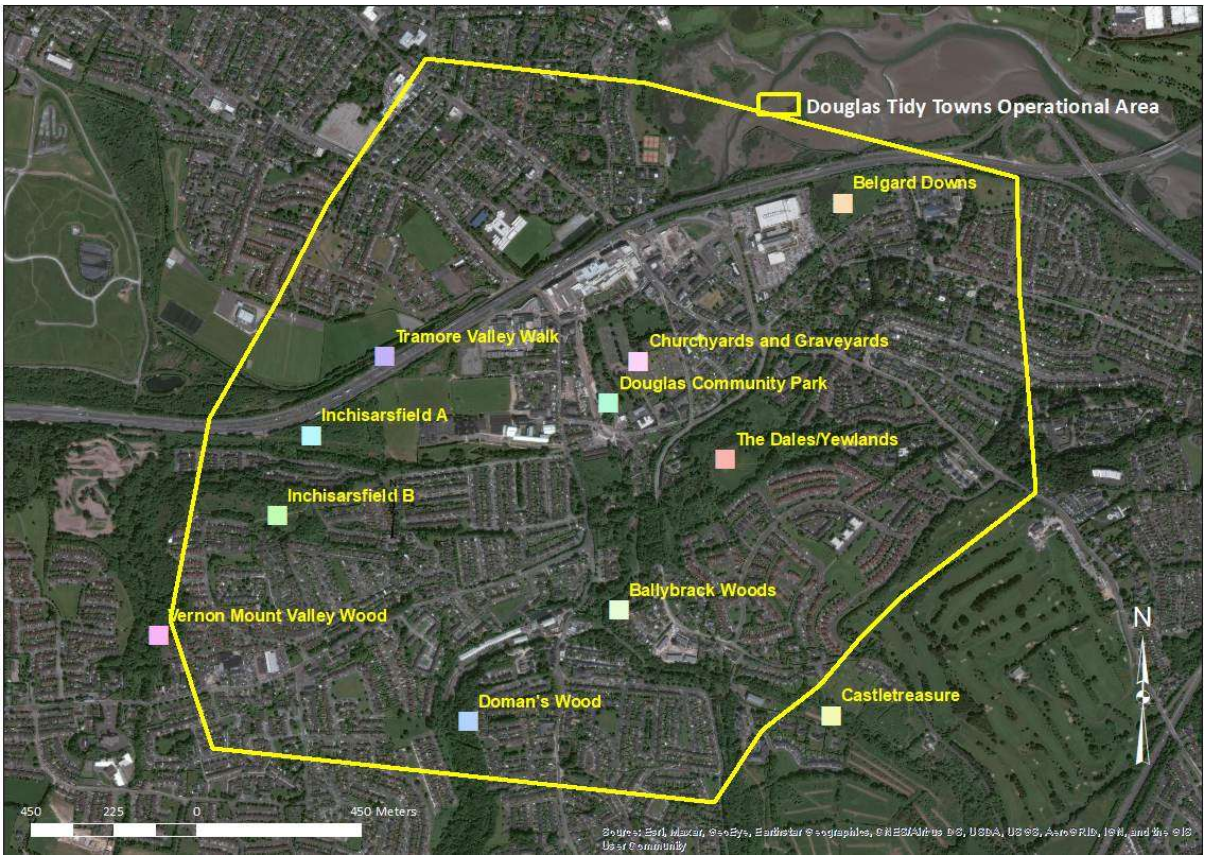
4.9 Buildings and Gardens

While some bird species will nest on buildings, not all buildings are suitable. Part of the reason that Swift numbers are thought to be falling is due to changes in the way we maintain our old buildings and the way we design new buildings. Birdwatch Ireland has produced a guide on how to help Swifts, which includes using Swift bricks and boxes. They also have useful designs for Bird and Bat boxes.

Ref	Action	Year
BG-1	Publicise guidance available on the installation of Bird and Bat Boxes[19]	1-5
BG-2	Publicise guidance available on the managing your garden for hedgehogs and other wildlife[20]	1-5

[18] www.corkcoco.ie/sites/default/files/2018-11/HMAC_Care_of_Walls_DL_web.pdf
[19] https://birdwatchireland.ie/irelands-birds-birdwatch-ireland/nestbox-designs-for-birds-and-wildlife/
[20] https://laois.ie/gardening-for-biodiversity/

4.10 Places of Local Biodiversity Interest in Douglas



4.10.1 Douglas Community Park

As well as being a place to carry out actions to benefit biodiversity (because it is a meeting point for the community in Douglas), the Park is a great place to show how and why these actions are done.

Ref	Action	Year
CP-1	Continue to manage a Pollinator Corridor within the Community Park which includes the Pollinator Garden, pollinator friendly grassland management, and a planted Wildflower Area. See also GL-1 and GL-2	1-5
CP-2	Develop and erect signage highlighting areas and features of biodiversity value in the area. A map of these, and other information of biodiversity in Douglas could be included	1-2
CP-3	Work with Douglas Community Association and Cork City Council on the maintenance of the old stone walls. See also OW-2	1-5

4.10.2 Churchyards and Graveyards

As graveyards have great emotional value for members of the community, this needs to be borne in mind when actions are being considered. Communication and consultation with congregations and cemetery users is very important and interpretive signage is often useful in this regard.

The organisation called 'Caring for God's Acre' has lots of information on how to balance the religious and commemorative aspects of churchyards and graveyards with the opportunities they have for biodiversity. This is available from the Caring for God's Acre website, which also has great educational resources for schools.[21]

St Luke's Churchyard

The churchyard here already has amazing resources and actions for nature, as outlined in Section 3.4.2. St. Luke's Parish might consider removing some trees and other shrubs that have rooted in the walls as this can damage the walls and it is best done while the plants are young. Also, consideration could be given to alternatives to herbicides and other chemicals at the edges of paths, around graves, etc. Managing a small area with hoes and similar equipment for one year could be trialled and outcomes shared with the wider community. Also planting of pollinator-friendly perennials could be considered where 'weeds' are not wanted.

Ref	Action	Year
CG-1	Continue with the many nature friendly actions in St. Luke's described in the Section 3.4.2	1-5
CG-2	Work towards eliminating the need for pesticides in St Luke's Graveyard	1-5
CG-3	Ongoing maintenance of old stone walls in St Luke's Graveyard in line with the guidance available – See also OW-2	1-5

St Columba's Cemetery

There are many opportunities to benefit biodiversity in this cemetery. At the base of the wall at the north east corner Winter Heliotrope, Hedge Bindweed and Bramble grow. While Bramble and Hedge Bindweed are native and valuable for wildlife, they might be considered

[21] www.caringforgodsacre.org.uk/

inappropriate here. Cork City Council might consider allowing a narrow strip of grass here to grow long through the year and cut in the Autumn, or alternatively a sow a strip of appropriate native wildflowers, or plant pollinator friendly perennials. A lot of colour might not be appropriate, but a single species might work in this type of location. See photographs of the area now, and how it could look below:

Ref	Action	Year
CG-4	Work towards eliminating the need for pesticides in St Columba's Cemetery	1-5
CG-5	At the base of the north east wall of in St Columba's Cemetery consider a narrow strip of grass that could be allowed to grow long through the year and cut in the Autumn, or sow a strip of appropriate native wildflowers or plant pollinator friendly perennials. This will reduce the need for pesticides.	1-5
CG-6	Consider pollinator friendly grassland management in the older, western section of in St Columba's Cemetery and monitor the effectiveness and impacts thereof.	1-5
CG-7	Develop a strategy for assessing whether ivy needs to be removed from walls in in St Columba's Cemetery. If Ivy is not rooting in the wall, it may not be causing damage - it may actually be protecting the walls and benefitting biodiversity.	1
CG-8	Remove the Travellers Joy, also commonly called Old Man's Beard, from the walls of in St Columba's Cemetery. The plant can be	1

	removed without the need for chemicals. Develop a strategy to monitor for regrowth.	
CG-9	Develop a strategy to monitor the Winter Heliotrope growing in the cemetery and control it, if it shows signs of spreading.	1
CG-10	Ongoing maintenance of old stone walls in the Cemetery in line with the guidance available – See also OW-2	1-5

St Columba's Church and Douglas Scout Hall

Consideration could be given to actions that would support and enhance biodiversity.

Ref	Action	Year
CG-11	Work towards eliminating the need for pesticides	1-5
CG-12	Consider introducing pollinator-friendly perennials into the formal beds outside the church	1-5
CG-13	Consider allowing a strip along the boundary hedge to develop as a long flowering meadow or sow as a wildflower strip	1-5
CG-14	Consider installing planters with pollinator-friendly perennials outside the Scout Hall.	1-5

4.10.3 Belgard Downs

The Reedbed, wet willow woodland and wet grassland adjacent to Belgard Downs is a great asset for nature and people and should be retained and managed as space for nature in any future development.

However, as it would take a great effort to manage this grassland in a way that might increase plant species richness and given that the area is zoned for development, it is probably best at this point to allow the grassland and scrub areas to continue as an unmanaged wild area until such time as it is developed.

Current planning objectives for this area says the any development will '*have to include the wetland site*' and '*there is an opportunity here for a park or other amenities to benefit the wider public*'.

Ref	Action	Year

BD-1	Clarify the current planning objectives with the City Council and confirm that the wetland areas adjacent to Douglas Court/Belgard Downs are preserved and protected in any future development.	1
BD-2	Ensure that in any future development there is an undeveloped buffer zone around the wetland areas. Study the hydrology of the area, so that it is understood and managed and thus ensure these features can remain for future generations. Interpretive signage could also be installed so that the community understands the value of the area.	1-5

4.10.4 The Dales/Yewlands

There is quite a variety of semi-natural habitats in this area, which include considerable lengths of linear woodland with mature trees; some native, some non-native. The objective for this area, SE-O-15, in the current Local Area Plan includes for it '*to be landscaped and planted*' and also that '*the development of a school can be accommodated on a portion of this site*…'. This could result in some semi-natural habits may be reduced or lost and suggested actions may not be possible. It was noted during fieldwork that the area suffers from anti-social behaviour, specifically littering. Formalising public access and usage is one way that this might be managed.

Ref	Action	Year
DY-1	Clarify the current planning objectives with the City Council	1
DY-2	Develop an approach to ensure the protection of older areas of closed canopy woodland and the historic mature linear treeline in any future development and plan to replace mature trees in historic treeline, when they are lost, with native tree species	1
DY-3	See SC-1 for the Scrub Management Strategy action, with particular reference to this area. Preserve some areas of scrub, both willow and gorse, in any future development particularly where they are connective between grassland and features such as treelines and other woodland	1-3
DY-4	Develop an approach to ensure some areas of current grassland in any future development and manage as long flowering and short flowering meadows	1-2
DY-5	Develop an approach to ensure that native tree and shrub species are used in any future landscaping and where native species are considered inappropriate, use pollinator-friendly perennial, non-invasive plants	1-2
DY-6	Develop a strategy to control the Chinese Bramble and monitor other invasive species here.	1-2

DY-7	Explore the potential for the use of biodiversity features at this site as an education resource and also consider how anti-social behaviour might be reduced or eliminated	1-5

4.10.5 Castletreasure

In this area, the current development objective is for residential development and planning permission has already been granted for 472 houses, with initial works already underway at the time of writing. It is also proposed to rezone a further 22-hectares that are currently designated a greenbelt area as suitable for housing, although at the time of writing, this is under review by the Office of the Planning Regulator.

This area contains considerable lengths of hedgerow and treeline boundary features in addition to woodland, semi-natural grassland and scrub, as well as two waterbodies. Green infrastructure strategy plans for the development indicate that some treeline and hedgerows will be retained as will woodland bounding the streams to the east and west of the site, together with areas of grassland open space (to be seeded with wildflower mix). Landscape planting is proposed to incorporate pollinator friendly species where non-natives are used.

Regardless of these measures, the development will have considerable impact on the biodiversity of the area, as will the extension of the Ballybrack Valley Pedestrian and Cycle Route (Phase 4). However, as protection of closed canopy woodlands, linear woodlands, and streams such as those found in this area is included in objectives of the current Cork City Development Plan, monitoring is recommended.

Ref	Action	Year
CT-1	Work with stakeholders to ensure compliance with the planning permission and the green infrastructure strategy plans, together with ongoing surveys to monitor the positive/negative impact to biodiversity once the development has been completed. In particular, impacts on connective features such as riparian woodland and hedgerows, and on the population of Wood Horsetail and Irish Marsh Orchid.	1-5

4.10.6 Ballybrack Woods ('The Mangala')

There is a current 5-year Biodiversity Action Plan (2020-2024) for Ballybrack Woods in place, which can be accessed via the Douglas Tidy Towns website[22]. Once this Douglas Biodiversity Action Plan is signed off, the Ballybrack Woods BAP will be reviewed to ensure consistency with all actions.

Ref	Action	Year
BW-1	Review of Ballybrack Woods Biodiversity Action Plan to ensure actions are consistent with those in the Douglas Biodiversity Action Plan	1

4.10.7 Doman's Wood

In a few small areas within Doman's Wood there are areas where the canopy and understory are of native tree and shrub species. It would be a good idea to monitor these areas and remove young non-native saplings and seedlings as they appear. If this was done on an annual basis, it could allow these small semi-natural pockets to persist into the future.

As with the other woodlands in the Douglas area, Cherry Laurel and Winter Heliotrope are a problem, however they are not as widespread in Doman's Wood and could be monitored and controlled relatively easily. There is some Japanese Knotweed at the south end of the wood which needs to be monitored.

The section of the Wood closest to Bromley Park and Glenside suffers from anti-social behaviour, specifically littering and drinking groups.

Of the three woods in the operational area, Doman's Wood, despite the high number of non-native tree species, has the most diverse and well-developed native shrub and field layer. It is recommended that Doman's Wood not be developed in a similar fashion to Ballybrack Woods or Grange/Frankfield Wood, but managed as a wildlife refuge, outdoor education resource and informal green space.

Ref	Action	Year
DW-1	Develop a 'light touch' Management Strategy for the Wood as a partnership between Cork City Council, An Gardaí and the adjacent landowners and resident associations, so that it can be maintained as an informal green space for use by the local community and with minimal anti-social behaviour.	1-5

[22] http://douglastidytowns.ie/ballybrack-woods-biodiversity-plan/

DW-2	Develop a monitoring, control and removal plan for invasive species such as Cherry Laurel, Japanese Knotweed and Winter Heliotrope in the Wood as part of the overall Invasive Species Management Strategy for the operational area as described in IS-1	1

4.10.8 Vernon Mount Valley Wood

This woodland has many mature trees, both native and non-native. The woodland structure is variable throughout this wood. This is in part due to the presence of Cherry Laurel, and in part due to its removal. Removal has resulted in openings where dense bramble has developed. In one area there is a pure stand of young Ash. The existing path (Mount Vernon Valley Walk) is scheduled to be widened to 4 metres and paved as part of the Tramore Valley Park Pedestrian/Cycle Link, pre-works for which have already commenced at the time of writing.

Ref	Action	Year
GF-1	Ensure that the contractors involved in the construction of the pedestrian/cycle track follow recommended advice on managing the invasive species (such as Cherry Laurel, Winter Heliotrope and Himalayan Honeysuckle) during development	1-2
GF-2	Monitor the positive/negative impact to biodiversity once the development has been completed to include the return of native plants and if necessary, sourcing seed (e.g. from Doman's Wood) if the current flora does not re-establish	2-5
GF-3	Develop a monitoring, control and removal plan for invasive species such as Cherry Laurel, Winter Heliotrope and Himalayan Honeysuckle in the Wood as part of the overall Invasive Species Management Strategy for the operational area as described in IS-1	2-5

4.10.9 Inchisarfield

There is a good variety of semi-natural habitats in this area. The canopy for some of the wooded areas contain some non-native species but the field layer flora is like that found in some semi-natural woodlands. Linear and other woodland areas form a connectivity with Grange/Frankfield Woodland.

This covers two areas where the development objective s for 'Open space' in the current Cork County Council Local Area Plan - SE-O-13 and SE-O-07 (Cork County Council, 2017). This needs to be reviewed with the City Council to confirm the current status, post transition into the

City Council's remit. Furthermore, as this area is privately owned, any actions would subject to engagement with and approval and support of the landowner.

Ref	Action	Year
I-1	Preserve closed canopy woodland areas	
I-2	Preserve mature historic treeline and hedgerows	
I-3	Plan to replace trees in treelines/hedgerows, when they are lost, with native tree species	
I-4	Monitor for invasive non-native species	
I-5	Maintain connectivity with Vernon Mount Valley Wood.	

Inchisarsfield A - (SE-O-07 section)

Ref	Action	Year
IA-1	Preserve areas of semi-natural grassland that have developed. Develop a plan to maintain these, if required	
IA-2	Monitor the population of Rosebay Willowherb here and manage if it shows signs of spreading into semi-natural habitats	
IA-3	Monitor the population of Bracken here and manage if it shows signs of spreading into semi-natural habitats	

Inchisarsfield B - (SE-O-13 section)

Ref	Action	Year
IB-1	Preserve some areas of current grassland in any future landscaping/development and manage under a traditional hay meadow regime to benefit wildflowers	
IB-2	Monitor the population of Lesser Knotweed here and manage if it shows signs of spreading into semi-natural habitats	

4.10.10 Tramore Valley Walk

The Tramore River runs along the trail and is partly tidal at its eastern end. There is a mix of wet and drier woodland at the western end of the trail. Immediately east of this is an area of scrub and semi-natural grassland that is developing over an area that historic aerial photography shows as bare ground between 1995 and 2000. At this location there are also

mounds of soil and other spoil that are used by mining solitary bees. This section also suffers from anti-social behaviour, specifically littering and drinking groups. Japanese Knotweed was noted near the entrance to the Tramore Valley Park at the west end of the trail, which needs to be monitored.

There is already interpretive signage relating to the valuable linear woodland feature here.

Ref	Action	Year
TW-1	Manage semi-grassland areas using methods in SECTION 4.4	1-5
TW-2	Manage areas of spoil as habitat for ground nesting bees	1-5
TW-3	Consider developing a scrub management plan (see also SC1)	1-5
TW-4	See RS-1 and RS-1 re action to monitor the quality of water in the Tramore River and develop an action plan	1-5
TW-5	Monitor Winter Heliotrope as well as other species such as Japanese Knotweed, Buttonweed (at the tidal end of the river), and any occurrence of Himalayan Balsam. Manage if they show signs of spreading into semi-natural habitats as part of the overall Invasive Species Management Strategy for the operational area as described in IS-1	1-5

4.11 Surveying and Monitoring

One big step to helping species in Douglas is to get to know which ones are here. Hopefully Section 3.2 (Animals and Plants in Douglas) is a step in that direction. More information on species that have been recorded in Douglas can be found through the mapping section of the NBDC website, which includes details on species recorded during fieldwork for this BAP.

Recording species in Douglas and sending that information to the NBDC helps to build up a picture of how well, or badly, species are doing. For example, bats have been recorded in Douglas but for some species the records are quite old. Does this mean there are less bats, or are there less people sending records?

There is a wide variety of citizen science survey and monitoring schemes, programmes and activities organised by various bodies in Ireland that can apply to habitats and species in Douglas. A selection of those that are running at the time of writing of this BAP are listed Section 5 - Resources. Although these may change over time, similar relevant schemes will also be run in the future. These activities can be undertaken as an individual, but some can be done on a household basis, as a family, or as a school, a community group, or a business.

They could even be shared between schools, community groups and businesses as a combined project, which would have the added benefit of building relationships, knowledge, and a valuing of nature in Douglas across the community. It could also be fun! Later in the life of this Biodiversity Action Plan, the knowledge gathered could be shared, perhaps culminating in a community-wide Bioblitz.

For some groups of organisms, such as bats and moths, specialist knowledge, equipment and/or licenses may be required to undertake a survey. This may require commissioning specific survey and may require a funding source. For some groups, e.g. birds and plants, surveys could be done on a seasonal basis and run via social media in a 'Spot the Bird of the Month' fashion with ID tips, etc. with links to NBDC, Birdwatch Ireland and recording locations.

The timing of surveys and monitoring could be considered in relation to habitat management actions. For example, monitoring of Bumblebees and Butterflies is worthwhile in itself, but could also be used to track the success of other actions, such as managing grassland in a more pollinator-friendly manner. Bear in mind though that one cold, wet summer could affect this in a 5-year period! If practical, it might be worth doing survey work in year 1 and starting management actions in year 2, with ongoing monitoring.

Surveys and monitoring in the Douglas area might include:

Ref	Action	Year
SM-1	See RS-1 - work with our Community Water Officer from our Local Authority Waters Programme (LAWPRO) to design a citizen science programme to monitor water quality in the rivers and streams in the operational area	1
SM-2	See IS-1 (develop an Invasive Species Management Strategy), IS-2 (identify and map the location of four initial species (Japanese	1-5

	Knotweed, Cherry Laurel, Traveller's Joy and Winter Heliotrope), IS-4 (Develop a community-based invasive species education, mapping, and reporting scheme using resources available from the NBDC) and IS-5 (identify and map the location of further invasive species)	
SM-3	See WD-3 (Undertake a community-based survey of local hero trees)	2-5
SM-	Promote the following NBDC Citizen Science Monitoring Programmes: Bumble Bee Monitoring Scheme Butterfly Monitoring Scheme Dragonfly / Damselfly Monitoring Scheme* *currently this is scheduled to end in 2024	1-5
SM-5	Consider liaising with an academic institution or others to examine the moth population of the area	1-5
SM-6	Consider a citizen science bat survey of the operational area. There are relatively inexpensive bat recorders now available that can be used by non-experts, although an expert would be useful to help identify locations for roosts, etc.	1-5

4.12 Training

There are a lot of training resources available online that can be accessed for free, but these should always be from reliable sources – See Section 5 (Resources). Also there may be amateur experts in the community that might volunteer to help. Additional specific training may attract a cost, for which funding will be needed. Running such events with other local community groups (including neighbouring Tidy Towns) will help reduce costs, but with the added benefit of fostering co-operation and sharing knowledge. Some suggested areas for training are suggested below.

- Bird Identification (Common species)
- Bumblebee Monitoring
- Butterfly Monitoring
- Dragonfly/Damselfly Monitoring
- Invasive Species Identification
- Lichen/Bryophyte Basics
- National Biodiversity Data Centre Mapping Tool
- Water Quality Monitoring
- Wildlife Friendly Grassland Management

- Wildlife Friendly Hedgerow Management
- Wildlife Friendly Scrub Management

Ref	Action	Year
TR-1	Develop a list of Training needs to meet actions from this Biodiversity Action Plan.	1

5 Resources

All-Ireland Pollinator Plan

Lots of resources here on actions to help pollinators including managing grassy areas and hedgerows.

https://pollinators.ie/

Gardening/pesticide reduction

Greener Gardening Your Guide to Chemical-Free Affordable Gardening. EPA

https://www.epa.ie/pubs/reports/waste/wpp/Greener%20Gardening%20(web).pdf

Gardening for Biodiversity. Juanita Brown

https://laois.ie/gardening-for-biodiversity/

Fresh Air, Fresh Savings, Greener Gardening Your Guide to Chemical-Free Affordable Gardening. mywaste.ie

https://www.mywaste.ie/wp-content/uploads/2020/04/SRWMO-Greener-Gardening-Booklet-Onscreen-Use-AW.pdf

Pesticide Action Network U.K. who have good resources including advice for local authorities and the amenity sector.

https://www.pan-uk.org/

Pesticide Free Towns

https://www.pesticide-free-towns.info/

Dragonfly Survey

Dragonfly Ireland 2019 – 2024

https://www.biodiversityireland.ie/projects/monitoring-scheme-initiatives/dragonfly-ireland-2019-2024/

Rivers and Streams

Useful Tips to Conserve Water at Home. Green Schools Ireland

https://greenschoolsireland.org/water/

10 Ways to Keep Our Lakes and Rivers Clean. PeopleService Inc.

https://www.peopleservice.com/wp-content/uploads/2018/08/23250_10Ways_Flier.pdf

12 Things You Can Do to Clean Up Your Rivers and Streams. Chesapeake Bay Foundation

https://www.cbf.org/join-us/more-things-you-can-do/12-things-you-can-do-to-clean.html

Water Pollution: Keeping Our Rivers Clean. Monaghan County Council
https://monaghan.ie/environment/water-pollution/

Grasslands

See All-Ireland Pollinator Plan
https://pollinators.ie/

Biodiversity, well-being, educational, and financial benefits of nature friendly amenity grass management and links to other resources. Forest Research (U.K.)
https://www.forestresearch.gov.uk/tools-and-resources/urban-regeneration-and-greenspace-partnership/greenspace-in-practice/benefits-of-greenspace/grassland-habitats/

Deadwood

Managing deadwood in forests and woodland. Forest Research (U.K.).
https://www.forestresearch.gov.uk/research/managing-deadwood-in-forests-and-woodlands/

Wood Wise Life in Deadwood. The Woodland Trust
https://www.woodlandtrust.org.uk/search/?q=life+in+deadwood&Submit+search=&p=1

Veteran Trees

Veteran Trees: A guide to good management. Natural England
http://publications.naturalengland.org.uk/publication/75035

Estimating the Age of Large and Veteran Trees in Britain. Forest Research (U.K.).
https://www.forestresearch.gov.uk/research/archive-estimating-the-age-of-large-and-veteran-trees-in-britain/

The importance of smaller veteran trees. Arboricultural Journal
https://www.tandfonline.com/doi/pdf/10.1080/03071375.2017.1295702

Trees for the Future: Growing

Growing Trees. The Conservation Volunteers.
https://treegrowing.tcv.org.uk/grow

Propagation. The Conservation Volunteers.
https://www.conservationhandbooks.com/tree-planting-aftercare/propagation/

Our Trees: A guide to growing Ireland's native trees in celebration of a new Millennium. Woodlands of Ireland

http://www.woodlandsofireland.com/publications/our-trees

How to Collect and Grow Local Tree Seeds Leaf Tree Nursery Project with Kerry Earth Education Project & Learning About Forests Ireland

https://leafireland.org/wp-content/uploads/2020/04/LEAF-Tree-Nursery-Project-low-res.pdf

There are loads of great tree related resources for schools at the leafireland.org resources section

https://leafireland.org/resources/

Germination, sowing and after care information for Wild Privet. Tree Seed online Ltd.

https://www.treeseedonline.com/store/p129/Wild_Privet_%28ligustrum_vulgare%29.html#:~:text=Germinated%20seeds%20can%20be%20planted,them%20in%20a%20permanent%20position.

Some examples of Community Tree Nurseries:

Community tree nurseries are flourishing in Faughan Valley. Derry Journal.

https://www.derryjournal.com/retro/community-tree-nurseries-are-flourishing-faughan-valley-684251

School Tree Nurseries. earthrestorationservice

https://www.earthrestorationservice.org/nursery

Trees for the Future: Managing

The Challenge of Mature Tree Replacement: Contemporary approaches to amenity tree replacement in mature urban landscapes. Treenet

https://treenet.org/resources/the-challenge-of-mature-tree-replacement-contemporary-approaches-to-amenity-tree-replacement-in-mature-urban-landscapes/

Hedgerows and Treelines

Irish Hedge Laying Association

https://hedgelaying.ie/

Planting a Native Hedgerow or Woodland: Bórd Bia

https://www.bordbia.ie/globalassets/lifestyle/resources/organic-gardening-english/planting-a-native-hedgerow-or-woodland.pdf

The Bórd Bia website has a page with loads of other useful tips on organic gardening, wildflower meadows etc. in English and as Gaeilge with links to primary school curriculum – but useful for everyone

https://www.bordbia.ie/primary-school/organic-gardening-for-primary-schools/worksheets/

Hedgerow Planting- Answers to 18 Common Questions: Natural England

http://hedgelink.org.uk/cms/cms_content/files/75_ne_hedgerow_planting.pdf

Wildlife Hedgerow: The Conservation Volunteers
https://treegrowing.tcv.org.uk/grow/planting/hedge

Hedgerows for Pollinators: All Ireland Pollinator Plan

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

Other useful things to consider when planting a native hedgerow: Irish Times

https://www.irishtimes.com/life-and-style/homes-and-property/gardens/dig-in-now-s-the-ideal-time-to-plant-your-native-hedgerow-1.2936324#:~:text=Soak%20the%20root%20systems%20in%20water&text=Using%20a%20garden%20fork%20to,metre%20but%20stagger%20the%20rows.

Tips from A Tidy Towns Group on Hedgerows: Newbridge Tidy Towns

http://www.newbridgetidytowns.com/tidy-towns-competition/wildlife-habitats-natural-amenities/protect-local-hedgerows/

Tips on Managing older Hedgerows: RSPB

http://ww2.rspb.org.uk/images/englishhedgerows1_tcm9-133255.pdf

See the section on 'Trees for the Future: Managing' above for things to consider regarding mature treelines

Scrub

The Scrub Management Handbook: Guidance on the management of scrub on nature conservation sites (IN124). Natural England

http://publications.naturalengland.org.uk/publication/72031

Scrub Management Creating Restoring and Managing Scrub for Wildlife. RSPB

https://www.rspb.org.uk/our-work/conservation/conservation-and-sustainability/farming/advice/managing-habitats/scrub/

Stone Walls

Care of Historic Stone Walls. Cork County Council Heritage Guide. Historic Monuments Advisory Committee.

https://www.corkcoco.ie/sites/default/files/2018-11/HMAC_Care_of_Walls_DL_web.pdf

Managing Churchyards and Burial Grounds 11. Caring for Stone Walls. Caring for God's Acre.

https://www.caringforgodsacre.org.uk/wp-content/uploads/2020/10/A11-Caring-for-Stone-Walls.pdf

Stone Walls. Wall Plants. Heritage in Schools.
http://www.heritageinschools.ie/content/resources/old%20stone%20walls/Old%20Stone%20Walls%20-%20Plants.pdf

Ivy

Ivy on Walls. Historic England.
https://research.historicengland.org.uk/Report.aspx?i=15604

(this includes recommendation on when and when not to remove ivy, how to remove ivy, and how to manage ivy).

Bracken

Bracken management and control (TIN048) Natural England
http://publications.naturalengland.org.uk/publication/35013

Bracken management: ecological, archaeological and landscape issues and priorities (TIN047) Natural England
http://publications.naturalengland.org.uk/publication/33017

Natural England Species Information Note SIN011 Bracken Natural England
Access through: http://publications.naturalengland.org.uk/search?q=bracken&num=100

Churches and graveyards

Caring for God's Acre website
https://www.caringforgodsacre.org.uk/

Buildings and Gardens

Saving Swifts. Birdwatch Ireland. Download through
https://birdwatchireland.ie/our-work/surveys-research/research-surveys/swift-surveys/

Nestboxes for birds and bats. Birdwatch Ireland.
https://birdwatchireland.ie/irelands-birds-birdwatch-ireland/nestbox-designs-for-birds-and-wildlife/

Bats, Birds, Buildings and You. The Heritage Council
https://www.heritagecouncil.ie/content/files/bats_birds_buildings_you_2009_3mb.pdf

Gardening for Biodiversity. Juanita Brown
https://laois.ie/gardening-for-biodiversity/

Invasive Species

National Biodiversity Data Centre Invasive Species Page

https://www.biodiversityireland.ie/projects/invasive-species/

The Management of Noxious Weeds and Non-Native Invasive Plant Species on National Roads. National Roads Authority.

https://www.tii.ie/tii-library/environment/construction-guidelines/Management-of-Noxious-Weeds-and-Non-Native-Invasive-Plant-Species-on-National-Road-Schemes.pdf

Japanese Knotweed Identification

http://www.wildflowersofireland.net/plant_detail.php?id_flower=146&wildflower=Knotweed,%20Japanese

http://www.irishwildflowers.ie/pages/93a.html

Himalayan Balsam Identification

https://www.irishwildflowers.ie/pages/7a.html

http://www.wildflowersofireland.net/plant_detail.php?id_flower=127&wildflower=Balsam,%20Himalayan

Cherry Laurel Identification

https://www.irishwildflowers.ie/pages/305a.html

Three-cornered garlic Identification

http://www.wildflowersofireland.net/plant_detail.php?id_flower=283

Traveller's Joy Identification

https://www.irishwildflowers.ie/pages/172a.html

Winter Heliotrope Identification

https://www.irishwildflowers.ie/pages/200a.html

http://www.wildflowersofireland.net/plant_detail.php?id_flower=139&Wildflower=Heliotrope,%20Winter

Garden Yellow Archangel Identification

https://www.irishwildflowers.ie/pages/602a.html

http://www.wildflowersofireland.net/plant_detail.php?id_flower=326&Wildflower=Archangel,%20Garden%20Yellow

https://www.plantlife.org.uk/uk/discover-wild-plants-nature/plant-fungi-species/variegated-yellow-archangel

Buttonweed Identification

http://www.wildflowersofireland.net/plant_detail.php?id_flower=54&wildflower=Buttonweed

Lesser Knotweed Identification

http://www.irishwildflowers.ie/pages/557a.html

http://www.wildflowersofireland.net/plant_detail.php?id_flower=423&wildflower=Knotweed,%20Lesser

Rosebay Willowherb Identification

http://www.irishwildflowers.ie/pages/196a.html

http://www.wildflowersofireland.net/plant_detail.php?id_flower=317&wildflower=Willowherb,%20Rosebay

Chinese Bramble Identification

https://www.irishwildflowers.ie/pages/527a.html

https://wildflowerfinder.org.uk/Flowers/B/Bramble(Chinese)/Bramble(Chinese).htm

Eat Invasive Plants

https://www.selfsufficientish.com/main/2013/07/himalayan-balsam-impatiens-glandulifera-food-for-free-dave-hamilton/

http://www.carllegge.com/2014/02/three-cornered-leek-recipes/

https://www.finedininglovers.com/article/4-recipes-fall-love-japanese-knotweed

Harlequin Ladybird Identification

http://invasivespeciesireland.com/wp-content/uploads/2020/07/NIEA-ID-Guide-Harmonia-axyridis-Harlequin-ladybird.pdf

https://www.biodiversityireland.ie/projects/additional-survey-schemes/ladybird-atlas-2025/

New Zealand Flatworm Identification

https://www.biodiversityireland.ie/wordpress/wp-content/uploads/New-Zealand-Flatworm.pdf

Australian Flatworm Identification

http://invasivespeciesireland.com/species-accounts/potential/terrestrial/australian-flatworm

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Walton, R., Sayer, C., Bennion, H. & Axmacher, J., 2020. Nocturnal pollinators strongly contribute to pollen transport of wild flowers in an agricultural landscape.. *Biology Letters,* 13 5.

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Appendices

Appendix I NBDC Grid Squares

Data downloaded for this BAP from NBDC website was for the following Grid Squares:

2km grid squares W66Z, W76E, W77A
1km grid squares W6868, W6968, W6969, W7068, W7069, W7070.

Appendix II Scientific Names

Birds	
Common Name	**Scientific Name**
House Martin	*Delichon urbicum*
Peregrine Falcon	*Falco peregrinus*
Swallow	*Hirundo rustica*
Barn Owl	*Tyto alba*

Reptiles	
Common Name	**Scientific Name**
Viviparous Lizard	*Zootoca vivipara*

Amphibians	
Common Name	**Scientific Name**
Natterjack Toad	*Epidalea calamita*
Smooth Newt	*Lissotriton vulgaris*
Common Frog	*Rana temporaria*

Hoverflies	
Common Name	**Scientific Name**
Marmalade Hoverfly	*Episyrphus balteatus*

Butterflies	
Common Name	**Scientific Name**
Silver Washed Fritillary	*Argynnis paphia*
Cryptic Wood White	*Leptidea juvernica*
Comma	*Polygonia c-album*
Gatekeeper	*Pyronia tithonus*
Essex Skipper	*Thymelicus lineola*

Moths	
Common Name	**Scientific Name**
Elephant Hawkmoth	*Deilephila elpenor*
Hummingbird Hawkmoth	*Macroglossum stellatarum*
Brimstone Moth	*Opisthograptis luteolata*
Six-spot Burnet Moth	*Zygaena filipendulae*

Dragonflies	
Common Name	**Scientific Name**
Four-spotted Chaser	*Libellula quadrimaculata*

Fish	
Common Name	**Scientific Name**
Brown Trout	*Salmo trutta*
Eel	*Anguilla anguilla*

Vascular Plants	
Common Name	**Scientific Name**
Ramsons	*Allium ursinum*
European Alder	*Alnus glutinosa*
Grey Alder	*Alnus incana*
Wood Anemone	*Anemone nemorosa*
Wild Angelica	*Angelica sylvestris*
Downy Birch	*Betula pubescens*
Cuckooflower	*Cardamine pratense*
Greater Tussock Sedge	*Carex paniculata*
Pignut	*Conopodium majus*
Hazel	*Corylus avellana*
Buttonweed	*Cotula coronopifolia*
Hawthorn	*Crataegus monogyna*
Irish Marsh-orchid	*Dactylorhiza kerryensis*
Common Spike-rush	*Eleocharis palustris*
Wood Horsetail	*Equisetum sylvaticum*
Irish Spurge	*Euphorbia hyberna*
Beech	*Fagus sylvatica*
Ash	*Fraxinus excelsior*
Woodruff	*Galium odoratum*
Marsh-bedstraw	*Galium palustre*
Atlantic Ivy	*Hedera hibernica*
Bluebell	*Hyacinthoides non-scripta*
Holly	*Ilex aquifolium*
Yellow Flag Iris	*Iris pseudacorus*
Compact Rush.	*Juncus conglomeratus*
Soft Rush	*Juncus effusus*
Wild Privet	*Ligustrum vulgare*

Three-nerved Sandwort	*Moehringia trinerva*
Lesser Knotweed	*Persicaria campanulata*
Winter Heliotrope	*Petasites fragrans*
Barren Strawberry	*Potentilla sterilis*
Blackthorn	*Prunus spinosa*
Bracken	*Pteridium aquilinum*
Pedunculate Oak	*Quercus robur*
Dog Rose,	*Rosa canina agg.*
Brambles	*Rubus fruticosus agg.*
Chinese Bramble	*Rubus tricolor*
Rusty Willow	*Salix cinerea subsp. oleifolia*
Sanicle	*Sanicula europaea*
Hedge Woundwort	*Stachys sylvatica*
Common Gorse	*Ulex europaeus*
Elm	*Ulmus sp.*
Wood Speedwell	*Veronica montana*

Appendix III Woodland Structure

GLOSSARY OF WOODLAND STRUCTURE

1. CANOPY

The tallest, most mature trees form the canopy of a woodland. The leaves of species such as Beech are so effectively patchworked and angled to catch the maximum amount of light, that they cast a very dense shade. This allows few plants to survive underneath.
Ash, by contrast, with its finely divided leaves, allows more light through to the woodland floor, so that layers are more likely to develop

2. UNDERSTOREY / SHRUB LAYER

This layer consists of younger individuals of the dominant trees, together with smaller trees and shrubs which are adapted to grow under lower light conditions. These characteristic understorey trees sometimes have a sprawling sideways growth form (e.g. Hazel). This enables them to increase the surface area available to trap light filtering through the upper canopy. Invasive, non-native species such as Rhododendron, may dominate this layer in some woods.

3. FIELD LAYER

Usually best developed where substantial amounts of light reach the woodland floor, for example in clearings, or newly coppiced areas of woodland. Contains Ferns
Grasses Sedges and other smaller flowering non-woody plants

4. GROUND LAYER

Can consist of a great variety of different mosses. It may also include ivy growing along the ground rather than climbing up in the trees. Mosses require constant high moisture levels, so this layer will be less well developed in drier woods.

http://www.countrysideinfo.co.uk/woodland_manage/struct.htm

Appendix IV Photo Credits

Many of the photos of species used are sourced from www.geograph.org.uk and credits for those are embedded in the photographs as per the suggested method of that source.

Credits and links to sources for other species photos are listed below. Species photos by Wild Work staff are noted in the document. All other non-species photos are by Wild Work staff.

Buttonweed *Cotula coronopifolia*

Gertjan van Noord Goudknopje - Cotula coronopifolia CC BY ND 2.0
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Accessed 27.5.21

Limnephilus sparsus

Janet Graham Limnephilus sparsus, Limnephilidae, Trawscoed, North Wales, August 2012

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Buffish Mining Bee *Andrena nigroaenea*

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Gooden's Nomad Bee *Nomada goodeniana*

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https://commons.wikimedia.org/wiki/User:Aiwok/Tiere#Echte_Bienen_-_Apidae

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Hummingbird Hawkmoth Macroglossum stellatarum

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