Clann Ard Carrig

Biodiversity Action Plan 2023-2027

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Acknowledgements

Sincere thanks to the residents Ard Carrig residents who took the time to consider how they would like to help nature. We hope that this Biodiversity Action Plan will be a useful addition to your beautiful outdoor space.

A particular note of thanks to Joanne O'Brien for organising meetings and visits.

1. Introduction

This Biodiversity Action Plan (BAP) was commissioned by the residents of Clann Ard Carrig in 2022. The BAP was carried out under funding from the Community Foundation for Ireland (CFI) Environment and Nature Biodiversity Grants 2022. 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*'. The residents of Ard Carrig engaged Wild Work to work with them to produce this BAP.

Clann is and age-friendly housing body and is dedicated to providing quality housing and services that enable people to create homes and thriving communities. Ard Carrig is a purpose built Clann scheme located in Carrigtwohill consisting of 33 one and two-bedroom apartments.

Recently the residents of Ard Carrig celebrated the opening of their new community garden. With a water fountain, seating area and filled with flowers and shrubs the garden is beautiful and relaxing place for residents to gather outdoors. There is also raised beds which residents grow flowers and food crops.

The residents take huge pride in their in their community garden and all planting and maintenance is carried out by them. They also take care of and maintain the green areas and beds at the entrance to the apartments.

Beyond maintaining these areas, the residents were also keen to learn how to make their garden and green spaces more wildlife friendly. This Biodiversity Action Plan focuses on the actions that can be taken in gardens, and by gardeners, to help nature. It also contains some information about the plants, animals and habitats in the area around Ard Carrig to create awareness of the nature that surrounds us, and that we sometimes overlook or fail to notice.

Readers of this BAP are encouraged to read the Wild Work Carrigtwohill Biodiversity Plan to learn more about nature in the wider Carrigtwohill area[1]

[1] https://wildwork.ie/wp-content/uploads/2022/02/CarrigtwohillBAP2019.pdf

1.1 Biodiversity and Biodiversity Plans

The term biodiversity began to be used widely in the 1980s. It is a shorthand way of saying ***bio***logical ***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 they naturally live', or just 'nature'.

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. Ireland ratified the convention 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'*.

Cork County Council published its first Biodiversity Action Plan in 2009[2].

[2] http://www.globalislands.net/greenislands/docs/ireland_734358998.pdf

In general 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, in what timeframe as well as what resources are needed to carry out the plan and who can help.

A good local Biodiversity Action Plan also makes sure that we don't harm nature when we want to help nature. Making a plan means we have to think about nature in our area, how we would like to help nature in our area and helps us keep track of the actions we take to help nature.

Ideally making 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, what still needs to be worked on and how future actions might be resourced.

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 also very important to humans. It is possible to figure out the economic value of ecosystems and biodiversity to us, 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

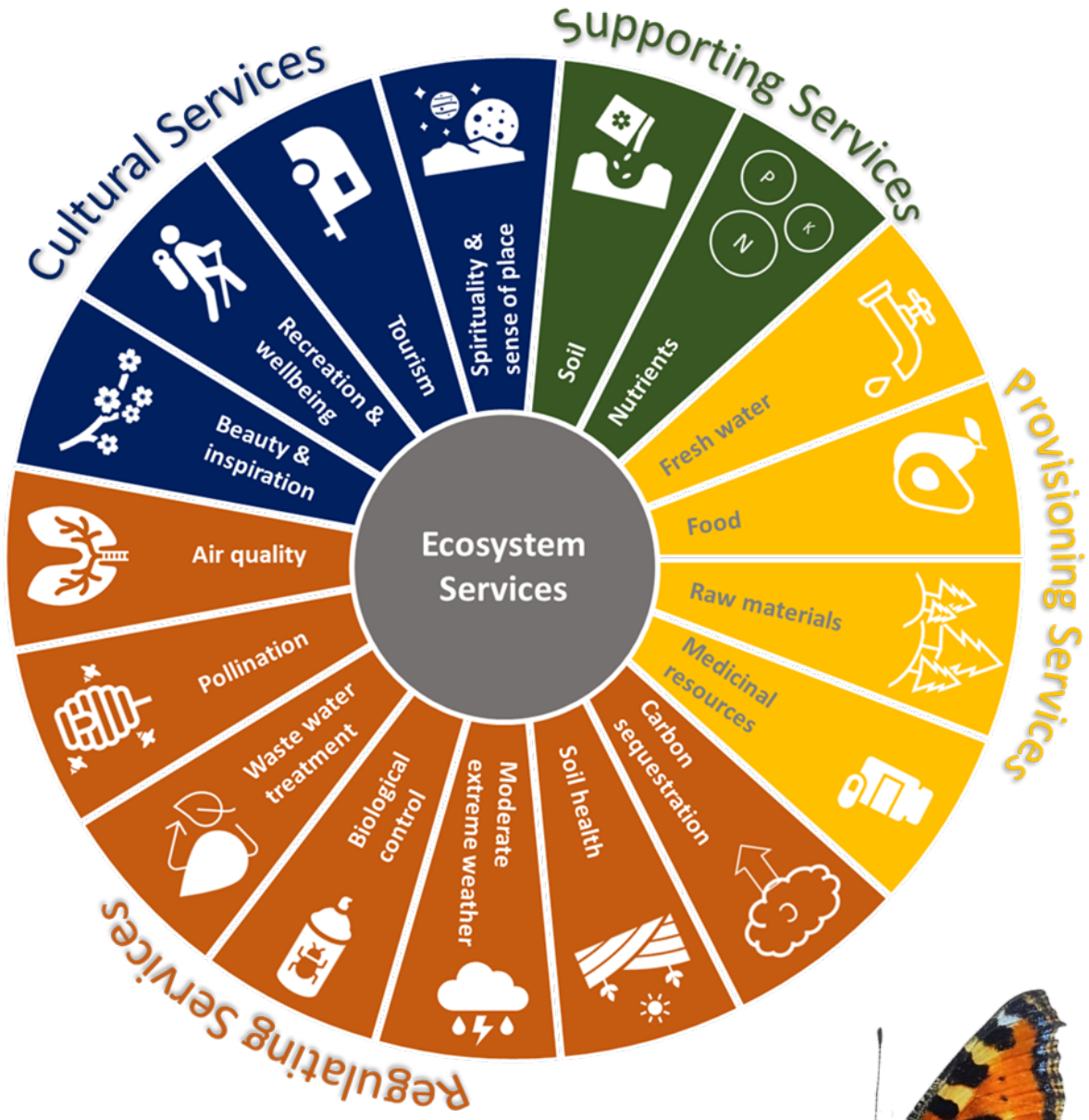
"…the conditions and processes through which natural ecosystems, and the species that make them up, sustain and fulfil human life" ***Invalid source specified.***

Ecosystem Services can be 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, including services such as purification of water, flood control, regulation of the climate etc.
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



1.3 Threats to Biodiversity

Every 6 years, EU member states must produce a report on how they have put in place measures to protect habitats and species listed in the EU Habitats Directive and how these habitats and species are doing. This means threats and pressures on these habitats and species need to be looked at. **Figure 1** shows the percentage of Habitats Directive habitats that are affected by the top 10 combined Medium and High importance threats from the 2019 report for Ireland.

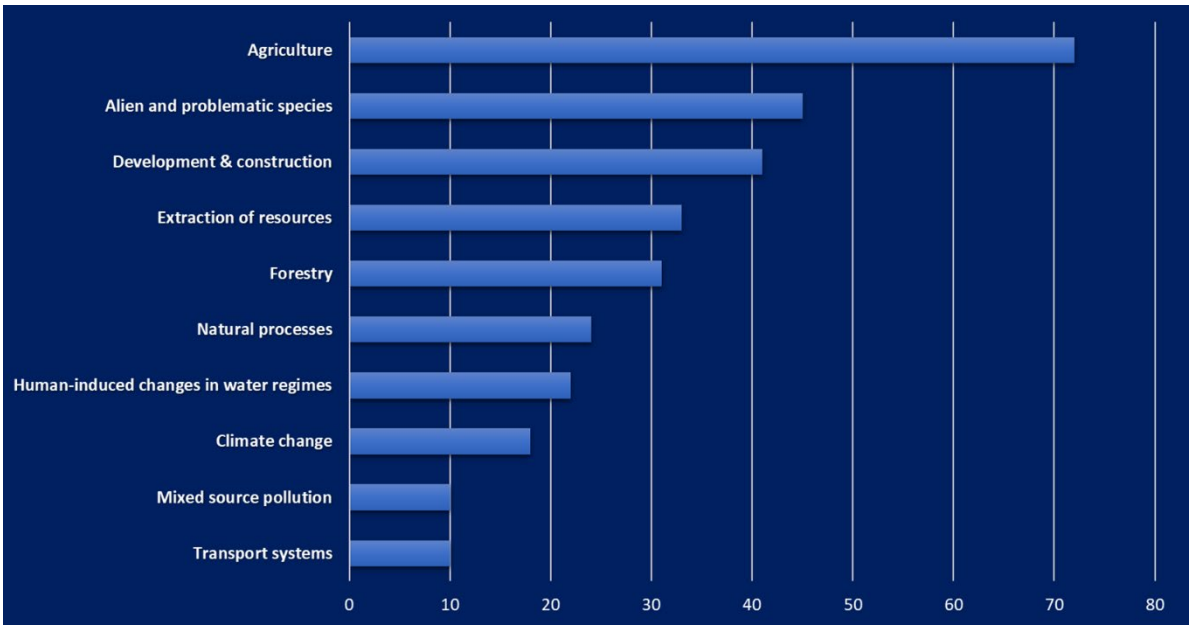


Figure 1 Top 10 High and Medium Impact Threats to Habitats Directive Habitats. Adapted from (NPWS, 2019a).

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 sites where these habitats and species are found.

There are many species, habitats and sites that do not have this kind of protection.

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’. For 13% of species the assessment was recorded as ‘unknown’.

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 living things
- 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 Birds of Conservation Concern in Ireland 4: 2020–2026 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.

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

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

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)[3]

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'.**

[3] 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 made

2.1 Desktop Study

For background on biodiversity in and around Ard Carrig the National Biodiversity data Centre was consulted.

Species records from the National Biodiversity Data Centre (NBDC) were looked at for the 2-kilometre Irish Grid squares surrounding Ard Carrig. The grid squares consulted for records can be viewed in Appendix I

Most of the data held by the NBDC is free to anyone to look at. Information can be downloaded from the Maps section of the NBDC website[4] . There are tutorials on how to use it in the Help section.

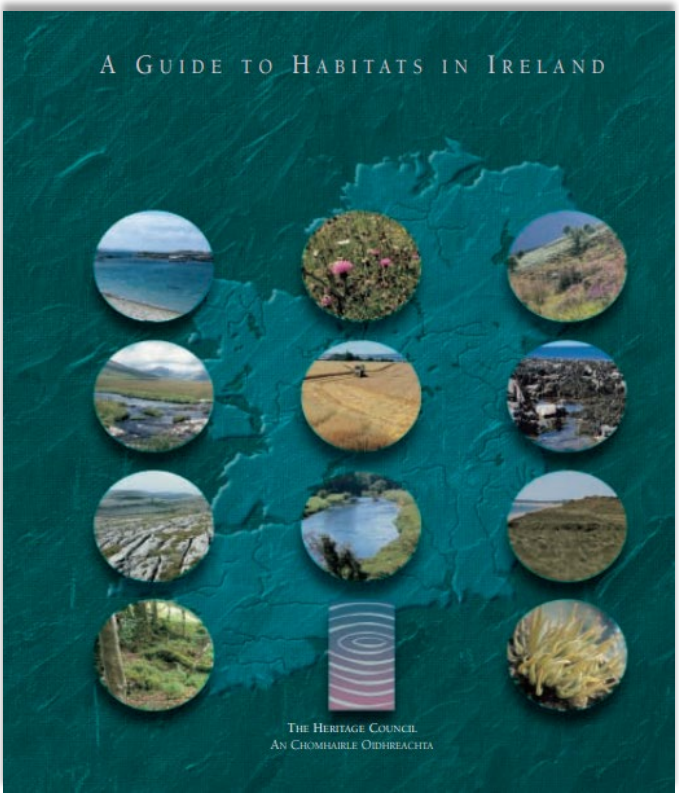
Recent and historical maps for the area available from the online Ordnance Survey Ireland (OSI) GeoHive[5] service were reviewed.

[4] https://maps.biodiversityireland.ie/
[5] https://www.geohive.ie/

2.2 Habitat Mapping and other fieldwork

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 book called 'A Guide to Habitats in Ireland' 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' or simply 'Fossitt'.

3. Biodiversity in and around Ard Carrig

3.1 Nature Conservation Sites in and around Ard Carrig

Carrigtwohill lies within the City Harbour and Estuary Landscape Character Area, an area of very high landscape value and sensitivity. The Cork County Draft Landscape Strategy has suggested that this area is of national landscape importance (Cork County Council, 2022).

Much of Cork Harbour is recognised as being internationally important for habitats and species, particularly bird species. The harbour has two important designations:

- Cork Harbour SPA
- Great Island Channel SAC

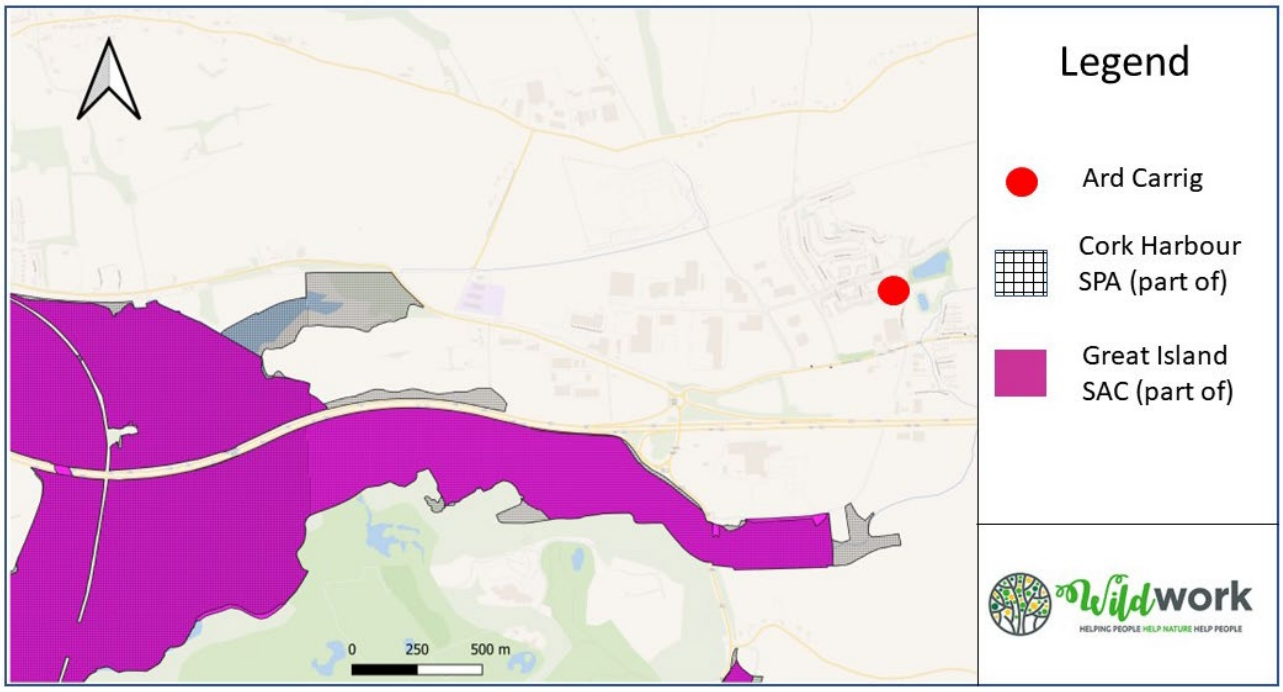


Figure 2 Cork Harbour SPA and Great Island SAC in relation to Ard Carrig

The mudflats and saltmarshes of the Great Island Channel SAC provide homes for a large number and diversity of invertebrates, mainly marine worms, clams, shrimp and snails (NPWS, 2013). These provide great food for resident and migrating bird species. Grasslands, wetlands and woodlands around the area provide roosting or feeding places for birds as well as habitat for other animal and plant species (NPWS, 2013).

A few of the bird species Cork Harbour SPA was designated for includes (clockwise from left), Common Gull, Lapwing, Redshank, Grey Heron and Oyster Catcher (NPWS, 2015)

Figure 3 Birds of Cork Harbour SPA

3.2 Plants and animals of Ard Carrig

This section of the Biodiversity Action Plan is intended to give a taste of the variety of species that have been recorded around Ard Carrig over the years. The mapping tool of the NBDC was used to extract these records from two 2-km grid squares surrounding Ard Carrig. The extent of grid squares this area can be seen in **Appendix I** This is tool is free to use to everyone to explore the species records in their area[6].

3.2.1 Vascular Plants

Vascular plants have evolved structures for carrying water, minerals, and food through the plant. The National Biodiversity Data Centre's records shows that 96 different kinds of vascular plants have been recorded in and around the BAP area. Round-leaved Crane's-bill (*Geranium rotundifolium*) is on the Red Listed plants but is classified as 'Least Concern'. Common plant species are very important too. They are a widespread and abundant food source for insects, birds, fish, and mammals-including humans. Common Knapweed, Greater Bird's-foot-trefoil, Cuckooflower, Bush Vetch and Hogweed, pictured clockwise from top right, are common around Ad Carrig.

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

Common plants recorded around Ard Carrig

3.2.2 Mammals

The following protected mammals have been recorded in the BAP area. Source National Biodiversity Data Centre.

Table 2 Protected mammals recorded in the NBDC 2km squares around Ard Carrig

Common Name	Species Name	Legislation Protected under
European Otter	*Lutra lutra*	Habitats Directive Annex II
Irish Hare	*Lepus timidus subsp. hibernicus*	Habitats Directive Annex V
Pine Marten	*Martes martes*	Habitats Directive Annex V
Eurasian Badger	*Meles meles*	Wildlife Acts
Eurasian Red Squirrel	*Sciurus vulgaris*	Wildlife Acts
West European Hedgehog	*Erinaceus europaeus*	Wildlife Acts

The Red Fox has been recorded in the area but is not protected in the same way species in **Table 2** is.

The record for Pine Marten dates from 1994, with no other records since. The Pine Marten is one of Ireland rarest mammals. It makes its home mainly in woodland but has also adapted to scrubland. Hunted for its fur, and loss of its habitat, nearly drove Pine Martins to extinction in Ireland. Small, isolated populations clung on in the west of the country. With legal protection given to the species in 1976, numbers have steadily increased.

A more recent record was taken in Midleton in 2020, so Pine Martens are in the greater area – one to keep an eye out for!

Pine Martin

3.2.3 Birds

A total of 74 bird species were recorded within the NBDC 2km squares surrounding the BAP area. With Cork Harbour SPA nearby, it is not surprising that a large number of species have been recorded in a small area. As birds are highly mobile, many more species are likely to travel through the area.

Red listed species from Birds of Conservation Concern Ireland (Gilbert, et al., 2021) recorded are shown in **Table 3** below (see previous section on Birds of Conservation Concern under **Threats to Biodiversity**)

Table 3 Red listed birds recorded in the NBDC 2km squares around Ard Carrig

Common Name	Species Name	BoCCI 2020-2026
Bar-tailed Godwit	*Limosa lapponica*	Red
Black-tailed Godwit	*Limosa limosa*	Red
Kestrel	*Falco tinnunculus*	Red
Redshank	*Tringa totanus*	Red
Snipe	*Gallinago gallinago*	Red
Curlew	*Numenius arquata*	Red
Oystercatcher	*Haematopus ostralegus*	Red
Woodcock	*Scolopax rusticola*	Red
Grey Wagtail	*Motacilla cinerea*	Red

Meadow Pipit	*Anthus pratensis*	Red
Redwing	*Turdus iliacus*	Red

Kestrels were once one of the most common and well-known bird of prey in our countryside. However, changes in land use and in farming practices have affected the Kestrels' prey. This along with illegal shooting and poisoning, as well as secondary poisoning via the use of rodenticides to control rats and mice, have caused Kestrels to decline in Ireland by 53% over the past 25 years (Gilbert, et al., 2021). In the most recent publication of 'Birds of Conservation Concern in Ireland' the Kestrel was a new entry on the Red List, indicating the highest level of concern for their populations (Gilbert, et al., 2021).

Kestrel

3.2.4 Invertebrates

Humans and other mammals 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 some insects 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 Ard Carrig area. These include Caddisflies (*Trichoptera*), True

Flies (*Diptera*), True Bugs (*Hemiptera*) and Stoneflies (*Plecoptera*). Some of those recorded groups, such as bees and butterflies, are explored in depth below because there are national monitoring or survey programmes and / or Red Lists for them

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). Records of 4 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

Table 4 Bees recorded in the NBDC 2km squares around Ard Carrig

Common Name	Scientific Name	Red List Assessment
Moss Carder-Bee	*Bombus muscorum*	Near Threatened
Common Carder Bee	*Bombus pascuorum*	Least Concern
Grey Mining Bee	*Andrena cineraria*	Least Concern
Halictus rubicundus	*Halictus rubicundus*	Least Concern

Moss Carder-Bee

The Moss Carder-Bee was assessed as Near Threatened in the most recent Red List of Irish Bees (Fitzpatrick, et al., 2006). In the assessment it was noted this species is declining across Europe and is beginning to show evidence of decline in Ireland. Habitat loss is a major cause of its decline – in the past the Moss Carder-Bee was associated with hay meadows. As this habitat has declined, so has this bee. However, urban environments like gardens could be a habitat that the Moss Carder-Bee can use instead (Fitzpatrick, et al., 2006).

Butterflies

There are 32 species of butterfly that are resident on the island and 3 – the Red Admiral, the Painted Lady, and the Clouded Yellow that regularly migrate to it (Regan, et al., 2010).

Two of our current species- the Comma and the Essex Skipper-only became established here after 2005.

There are records for 16 species of butterflies in the BAP area, 4 are listed as endangered, vulnerable or near threatened (Regan, et al., 2010).

Table 5 Red listed Butterflies recorded in the NBDC 2km squares around Ard Carrig

Common Name	Scientific Names	Red List Assessment
Wall	*Lasiommata megera*	Endangered
Dark Green Fritillary	*Argynnis aglaja*	Vulnerable
Small Heath	*Coenonympha pamphilus*	Near Threatened
Wood White	*Leptidea sinapis*	Near Threatened

The beautiful Wall Butterfly was last recorded in the 2-km squares surrounding Ard Carrig in 1971. It is assessed as Endangered in the Butterfly Red List (Regan, et al., 2010). The Wall Butterfly has suffered widespread declines in Ireland (Regan, et al., 2010). The habitats the Wall is associated with in Ireland are unimproved dry calcareous grassland, coastal dunes, machair, vegetated sea-cliffs, limestone pavement and cutover bog. The future prospects for these habitats are considered poor or bad, and as result, so are those of the Wall Butterfly.

Wall Butterfly

Moths

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

Many of these are quite small – they usually have a wingspan under 20mm- and are difficult to identify for most of us. These smaller moths are often referred to as micro-moths.

Of the 1,500 moth species in Ireland 578 species are referred to as macro-moths, and in general have a wingspan over 20mm. A Red List for Irish macro-moths was produced in 2016 (Allen, et al., 2016). In that 43 of the Irish species assessed were listed as threatened and 20 as near threatened.

One of the species recorded in and around the 2km grid is listed on that Red List – the Yellow Shell, which is Near Threatened.

Yellow Shell

Dragonflies and damselflies

There are currently 24 species of Odonata (the Order to which the Dragonfly and Damselfly belong) resident in Ireland (Nelson, et al., 2011). These rely on freshwater particularly for the larval stage of their life cycle and the adult stage is rarely found far from freshwater.

There are 7 records for Odonata recorded in and around the BAP area. None of these species are listed as threatened (Nelson, et al., 2011).

Some of the Odonata species recorded in the area (L-R) Azure Damselfly; Emperor Dragonfly and Four-spotted Chaser

3.2.5 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 in data obtained from the NBDC that are noted as invasive species. **Figure 1 Top 10 High and Medium Impact Threats to Habitats Directive Habitats.**

Adapted from (NPWS, 2019a). at the beginning of this plan 'Alien and Problematic Species' were listed as one of the many 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.

Table 6 Invasive species recorded in the NBDC 2km squares around Ard Carrig

Common Name	Species Name	Invasive Impact Level
Cherry Laurel	*Prunus laurocerasus*	High
Canada Goose	*Branta canadensis*	High
Common Cord-Grass	*Spartina anglica*	High
Indian Balsam	*Impatiens glandulifera*	High
Rhododendron ponticum	*Rhododendron ponticum*	High
Sycamore	*Acer pseudoplatanus*	Medium
European Rabbit	*Oryctolagus cuniculus*	Medium

The Invasive Impact Level risk ratings in Table 6 are from lists published on the NBDC website (NBDC, 2021a), (NBDC, 2021b).

You can find out more about the biodiversity in the wider Carrigtwohill area in the Biodiversity Action Plan for Carrigtwohill developed by Wild Work in 2019

4. Habitats of Ard Carrig

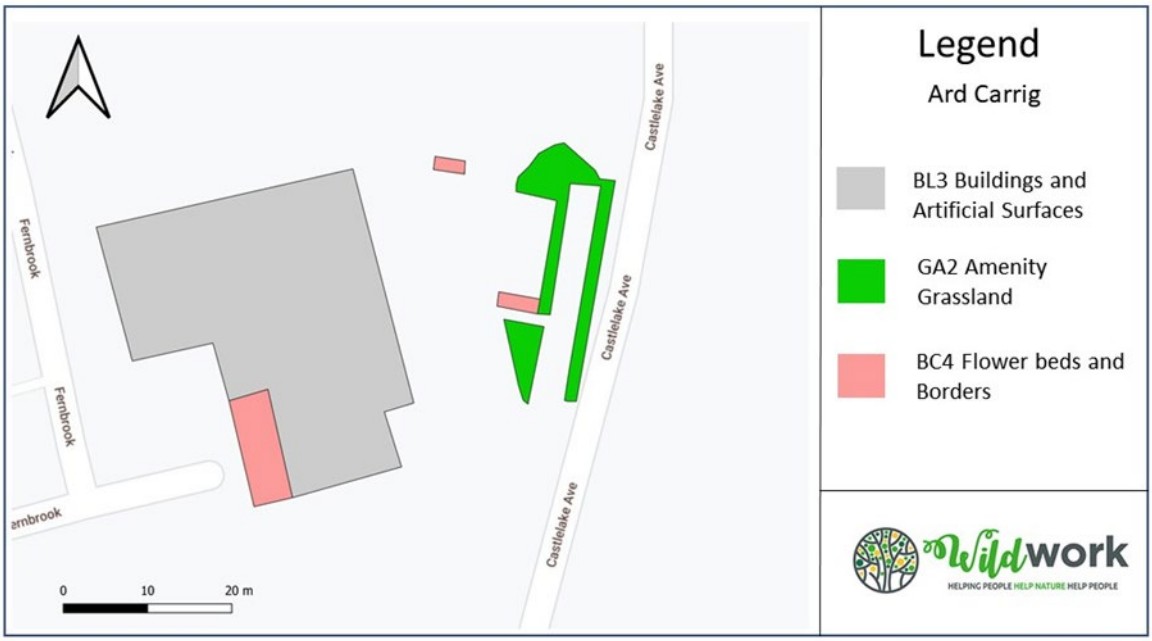


Figure 4 Habitats at Ard Carrig

4.1 Buildings and Artificial Surfaces (BL3)

The apartment building at Ard Carrig, car park and other paved areas occupies the most space at Ard Carri. '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. 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.

4.2 Flower Beds and Borders (BC4)

This is the main habitat type within the community garden. There are also flower beds and flowerpots surrounding the car park and at the entrance of the apartments. This habitat type can support biodiversity depending on the composition of plants used.

Figure 5 Flowerbed and borders at Ard Carrig

4.3 Amenity Grassland (GA2)

Amenity Grassland is a type of grassland that managed for purposes other than grass production and is associated with lawns and other managed grassland areas in gardens. It generally has low biodiversity due to the way it is managed and so changing the way areas of amenity grassland are managed is an easy win for biodiversity.

Patches of Amenity Grasaland at Ard Carrig can be founf in the community garden and along Castlelake Avenue.

Figure 6 Amenity Grassland at Ard Carrig

5. Actions

This section details suggested action that can be taken at Ard Carrig. Actions for each heading are presented in Table form at the end of each heading section. A combined table is provided in Appendix III. Directions to some key reading available in Resources Section are indicated throughout.

5.1 Management Structure

To effectively manage the implementation of this Biodiversity Action Plan, a structure to manage and communicate the plan needs to be put in place.

1	Number	Action: Management Structure	Year
	1.1	Establish a management structure among the residents to oversee the implementation of this plan.	1

5.2 Amenity Grassland

Perfectly manicured lawns may be the ultimate symbol of well-maintained garden, but they are in truth green deserts for wildlife. With a few changes in management, lawns can be transformed into mini meadows that support local biodiversity.

Short Flowering (4- 6-week) Meadow Lawns

One of the best ways to increase wildflowers in the garden is to do less – cut your grass less! To create a short flowering meadow/lawn do not cut your lawn until mid-April. The delay to mid-April allows Dandelions to flower for pollinators in early spring, and to be cut before they set seed. If you don't mind the Dandelion setting seed, you can delay cutting for a No Mow May. May is vital time for bumblebees and solitary bees starting new nests, which require lots of pollen and nectar. Dandelion seeds also provide food for seed-eating birds like Bullfinch and Goldfinch.

Bullfinch feasting on Dandelion seeds

Grass is then cut ideally on a 6-week rotation. This means a cut at the end of May and not cutting again until mid-July which allows Clovers, Self-heal and other pollinator resources to flower.

An important part of this management regime is to remove the cuttings and compost them off the lawn. Removing all cuttings helps lower soil fertility which encourages wildflower growth. Leaving grass clippings or mulching adds fertility to the soil and will only encourage grasses to grow, outcompeting the wildflowers in the lawn. The cut schedule will be as follows:

- **First cut** - After 15th April
- **Second cut** – End of May (or first cut now if taking part in No Mow May)
- **Third cut** – Mid-Late July
- **Fourth cut** – End of August
- **Fifth cut** – After Mid-October

Long Flowering Meadow Lawn

If you are willing to let your grass grow a little longer (or you would like to do even less mowing!) you can try a long flowering meadow. This is when grass can be left to flower through the year with 1 or 2 cuts and cuttings removed. The cut and lift is usually done in September. If grass is dominating, particularly in the first few years, a cut and lift can also be done between June and July. The cut schedule will be as follows:

- Cut and lift **September**
- If grass is dominating a cut and lift in **June-July** as well.

To maintain a managed look in these meadows a strip of grass could be tightly mowed at the margins, or a path may be maintained through the longer grass.

Mown path though wildflower rich meadow lawn. Typical wildflowers in lawns include Self Heal (top) and Hawkweeds and Red Clover (bottom)

Both of these management techniques require a little patience to see results. By eliminating fertilisers and removing cutting you gradually reduce fertility and allow more and more wildflowers to appear over the years.

Wildflower Plugs

It is more sustainable and cost effective to let lawn meadows regenerate naturally through timely mowing and removal of cuttings. The plants that grow naturally in the regenerating lawn meadow will also be the ones best suited to the unique conditions of that particular meadow. However, if your grass has been regularly cut and fertilised for years there may few wildflower seeds in it, and they will struggle to compete with the grass. The process can be sped up by harvesting local wildflower seed and seeding or planting plugs. Wildflower seed from local sites can be collected and grown as plugs over the winter, for planting out the following spring. There are how-to-guides in the **Resources** section on how to collect seed from native plants and save them successfully for sowing yourself.

Wildflower Seed

With the increase in interest in helping pollinators and other wildlife, sowing wildflower seeds has become very popular in gardens and community spaces. While we see shops and online websites advertising “wildflower seed bombs” and “native wildflower mixes”, the truth is many of these contain seeds that are not native to Ireland and are not appropriate for planting in the natural environment apart from in pots or planters. Best practice advice from agencies such as the All-Ireland Pollinator Plan and Grassland experts is to avoid wildflower seed mixes and to work with nature and allow the natural seedbank in the ground to flourish instead.

The best meadows for wildlife contain lots of native wildflowers and a high percentage of native grasses. They are less colourful than flower meadows but are full of native biodiversity.

Flower Meadow - Attractive to humans

Wildflower Meadow - Attractive to wildlife

If buying wildflower seed for a meadow project, ensure that they are native Irish plants and of Irish providence – this means they are **native species grown and harvested** in Ireland. This prevents genetic pollution by non-Irish plants and eliminates the risk of plants diseases brought in with imported seeds. Plants of Irish providence are also better suited to our local climate.

Why include native plants?

One of the joys of gardening is growing exotic and interesting non-native plants. They are great in a garden setting, and some are useful for providing food for pollinators when few of our native plants are flowering. However, native plants overall provide more food for our native animals. This is particularly the case for juvenile stages of insects, like moth and butterfly caterpillars. Juvenile insects often have a narrow range of food plants they can eat, and with which they have evolved alongside over millennia. Many native insects cannot feed on exotic plants (Tallamy, et al., 2021).

Blue Tit with caterpillar

Insects like caterpillars provide food for other animals such as birds, especially baby birds who rely on this protein rich food source. Consider this - each Blue Tit chick can eat 100 caterpillars a day, so to feed a brood of ten, adults need to find as many as 1,000 caterpillars a day!

2	Number	Action: Lawns	Year
	2.1	Manage lawns at Ard Carrig as Short Flowering (4- 6-week) Meadow Lawns	1-5
	2.2	Take part in 'No Mow May' and allow Dandelions to flower	
	2.3	Consider adding floral diversity to internal patches of grass with native wildflower plugs	2

5.3 Pollinators

In Ireland, we have 100 bee species – 1 honeybee, 21 bumblebees, and 78 solitary bee species.

Irelands Bee species – 1 Honeybee, 21 Bumblebees, 78 Solitary Bees

It is our wild bees, not honeybees, that are responsible for most pollination, particularly of wildflowers. Unfortunately, one-third of our wild bee species are at risk of extinction. This is because we have drastically reduced the amount of food and safe nesting sites in our landscapes. The All-Ireland Pollinator Plan[7] was developed to create an Ireland where pollinators can survive and thrive. As part of the plan a variety of resources have been produced for all sectors across Irish society, including gardeners. Links to these very useful documents can be found in the Resources Section.

Pollinators need floral resources throughout the season. Spring and late autumn can be particularly lean times for pollinators. The Pollinator Friendly Planting Code has examples of plants to include in the garden to ensure food is available to pollinators for as long as possible[8].

3	Number	Action: Pollinators	Year
	3.1	Include nectar and pollen rich plants in the garden	1-5
	3.2	Include a range of plants that will ensure floral resources are available throughout the season	1-5

5.4 Bird and Bee Baths

One would think that with a climate like Ireland's there would be plenty of standing water in the landscape. But agricultural intensification along with land drainage has greatly reduced the number of ponds and other standing water. Garden ponds could help reduce this loss and attract slightly more unusual garden wildlife like dragonflies, damselflies, and newts.

[7] https://pollinators.ie/
[8] https://pollinators.ie/wordpress/wp-content/uploads/2018/04/Planting-Code-2018-WEB.pdf

Even in smaller garden, or ones where there is no room for a pond, water can be provided for wildlife in the form of bee and bird baths. Bee baths are shallow dish or bowl with pebbles/stones added to allow insect to climb out.

Examples of a bee bath and bird bath

In summer bird baths may need to be cleaned daily depending on use. Continue providing water in winter, particularly when temperatures go below freezing.

4	Number	Action: Ponds	Year
	4.1	Install one or more bird baths	1
	4.2	Install one or more bee baths	1

5.5 Wildlife Homes

A whole industry has sprung up selling wildlife homes to the nature conscious – bird and bat boxes, hedgehog houses and insect hotels. While some of these are very useful, others won't be used by wildlife, or are outright dangerous. Igloo style Hedgehog houses often sold in supermarkets chains have been the cause of injury and quite probably deaths of Hedgehogs (Petter, 2020).

Insect hotels are often badly designed and offer unsuitable homes to the target insects. Bee hotels target cavity-nesting species but only 10 of our bee species will use such bee hotels. The majority of Irish solitary bee species are mining bees and simply require some bare soil in a south facing direction.

Off-shelf insect hotels or build-your-own websites often do not come with clear guide on maintenance, which is very important in ensuring the survival of the insects. Large insect hotels using wooden pallets are becoming very popular but natural insect habitats occur as

small separate nests, and large insect hotels pose risk of disease and parasitism to the insects inhabiting in high density inside. Taking care of an insect hotel is just as important as building one. When not managed and regularly cleaned, parasites and mould can build up quickly.

Instead of store-bought insect hotels, recreating natural habitats in garden can be much more effective. A habitat that is often overlooked and undervalued is decaying vegetation and dead wood. In the natural world these habitats teem with life. We can recreate them by leaving standing and fallen decaying wood in our gardens. Even a small pile of twigs and leaves are of great value to insects, fungi, mosses and lichens.

Piles of wood left to rot are habitats for many different species

Solitary bees and wasps, lace wings and ladybirds nest in dead plant stems and hollow stalks or hibernate in them over winter. Fallen leaves are a fantastic garden resource. Piled around the base of shrubs and trees they provide valuable shelter for all manner of insects and mammals and provide a soil improving mulch.

If you do wish to provide any nest boxes or insect hotel do a little research on the best types and get them from specialist wildlife providers. They will cost a little more than the ones in supermarkets, but they will be safer and have a higher chance of being used. See more about the maintenance of various wildlife homes in resource section.

5	Number	Action: Wildlife Homes	Year
	5.1	Create a small log or twig pile in a suitable sunny corner	1
	5.2	Clean out bee hotels each year	1-5

5.6 Invasive Species

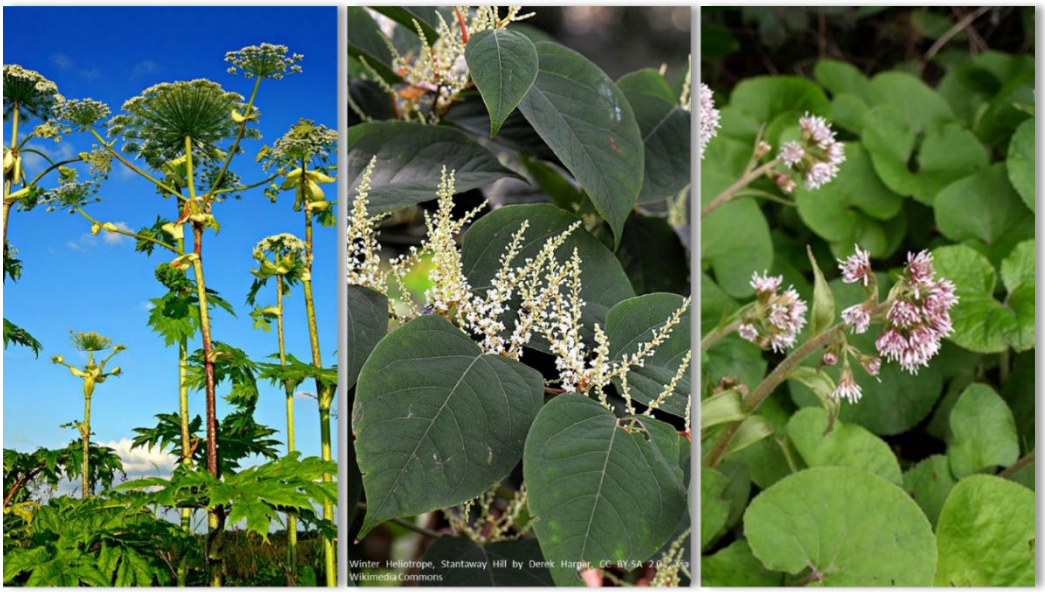
A large number of our garden ornamentals and agricultural crops are non-native plants. Most of these non-natives do not cause problems by becoming weedy or invasive. However, a small

percentage of these introductions can “behave badly” becoming invasive and impacting on biodiversity and ecosystem services. These species can have significant ecological or economic consequences or become harmful to human health.

As the climate warms, more exotic plants will be able to “jump the garden fence” and establish in our wild spaces. Gardeners should be aware of invasive and potentially invasive species. The National Biodiversity Data centre runs a website dedicated to invasive species information[9].

To help stop the spread and introduction of invasive species associated with horticultural activities, a Horticultural Code (Kelly, 2012)[10] was developed by Invasive Species Ireland. The Code is voluntary and aims to promote good practice to help to ensure compliance with legislation and prevent the spread and introduction of invasive species in Ireland. The Code is aimed at horticultural importers, but you can always inquire whether your garden centre or horticultural suppliers knows about, and follows the code.

One route that garden plants escape is via irresponsible dumping of garden waste. Always dispose of plants by composting them or using your local green waste. However, some plants like Japanese Knotweed are not suitable for composting and should of be disposed of correctly (see Invasive Species Ireland Website[5]).



Invasive Garden escapees. Left to right: Giant Hogweed, Japanese Knotweed, Winter Heliotrope.

[9] https://invasives.ie/
[10] https://invasives.ie/app/uploads/2021/09/Horticulture-Code-Final-October-2017.pdf

It is not only invasive plants we should be aware of. Hitch-hiking pests on plants, in soil or growing media can also escape into wild spaces. The New Zealand flatworm is thought to have been introduced into Ireland in contaminated plant potting soil.

New Zealand Flatworm

This flatworm preys on earthworms and has been shown to significantly reduce earthworm numbers in both agricultural lands and gardens in Ireland.

An alternative to buying plants from nurseries is to grow on plants from seed. Even more sustainable is to save seeds from the garden or swop seeds with other gardeners.

Perennial plants also decrease both cost and labour in the long-term as they rule out the need to buy new plants each summer.

6	Number	Action: Invasive Species	Year
	6.1	Ask if your Garden Centre follows the Horticultural Code of Practice	1
	6.2	Ensure garden waste disposed of correctly or composted	1-5
	6.3	Be aware of invasive and potentially invasive plants and avoid adding them to the garden	1-5
	6.4	Investigate local seed swop organisations or consider starting one with local organisations such as Tidy Towns or Men's Shed	2
	6.5	Plant more perennials, particularly ones listed in Pollinator Friendly Planting Code (see Resources Section)	1-5

5.7 Pesticides

Pesticides are responsible for biodiversity loss and water and soil contamination. While there has been a rise in the numbers of people opting to buy organically produced food, it is unlikely there will be a major decline in the use of pesticides in food production anytime soon. So, let's make our gardens pesticide free. When we grow food and or other plants at home, we can guarantee its quality and make sure that it does no harm to the ecosystem.

A wildlife friendly garden will also attract more predators of pest species, helping to keep pests under control.

There are suggestions on alternatives to pesticides on the website of the All-Ireland Pollinator Plan, https://pollinators.ie/ and more information in the Resources section.

7	Number	Action: Pesticides	Year
	7.1	Work to minimise using herbicides, insecticides, fungicides and any other pesticides or chemicals where possible.	1

5.8 Peat free

Peat is the surface organic layer made up of partially decomposed organic matter, mostly plant material, which has accumulated under conditions of waterlogging, oxygen deficiency, high acidity and nutrient deficiency. It is used principally as a growing medium within horticulture industry and by amateur and professional gardeners. However, peat is not a renewable resource on a human time scale – it takes 10 years for 1cm of peat to form. Peat bogs also store carbon, control flooding are rich and vital wildlife habitats.

Peat bog plants. Top left to right: Sundew and Bog Cotton; Bottom left to right: Bog Asphodel and Sphagnum Moss

Peat-free growing media, compost and soil conditioners are increasingly available to buy, however many products still use peat as their organic ingredient. Even 'Low peat' products, those that claim to be from 'sustainable sources' and the soil in potted plants can still contain a high proportion of peat. Ask your garden centre if they can provide peat *free* products, and to stock them if they don't already.

Creating you own compost will also help in going peat free by reducing or eliminating the need to buy compost. An enclosed composter would deal with a fair amount of the garden waste produced throughout the year.

8	Number	Action: Peat Free	Year
	8.1	Use peat free compost in the garden	1-5
	8.2	Instal a composter or wormery to make your own garden compost	2

5.9 Conserve Water

It might seem like it always rains in Ireland, but droughts – extended period of abnormally dry weather – do occur during the spring/summer, just when we gardeners are looking for rain. And this trend is likely to increase in a warming world (Spinoni, et al., 2018). There are a number of actions we take to conserve water and make our gardens more drought resistant.

9	Number	Action: Water Conservation	Year
	9.1	Install a water butt to collect rainwater	1
	9.2	Mulch (wood bark or coarse home compost) around established plants stop water evaporating	1-5
	9.3	Water early morning or late at night so that water doesn't evaporate in the heat of the day	1-5
	9.4	Let grass grow longer in dry spells to keep moisture in the soil	1-5
	9.5	Add organic matter to the soil to improve structure and moisture retaining potential	1-5

More ideas and tips can be found in the **Resources** section

Collect rain to help conserve water

5.10 Monitoring and Learning

The actions in this BAP are designed to increase nature and wildlife at Ard Carrig. They require, to various degrees, time and resources – so it is important to see if they are working! Surveying and monitoring wildlife will not only tell you more about how biodiversity is doing at Ard Carrig, but these records will be part of nation monitoring schemes, helping us understand the overall picture of biodiversity in Ireland. This is Citizen Science – data collection by members of the public which helps answer scientific question.

There are a number of citizen science monitoring schemes in Ireland, and several that can be carried out in the garden. For links to these surveys, see Resources Section.

Table 7 Citizen Science projects suitable for gardens

Survey	Run By
Flower-Insect Timed Count (FIT Count)	National Biodiversity Data Centre
Irish Garden Bird Survey	Birdwatch Ireland
Spring Flowering Plants Project	National Biodiversity Data Centre
Backyard Biodiversity	National Biodiversity Data Centre

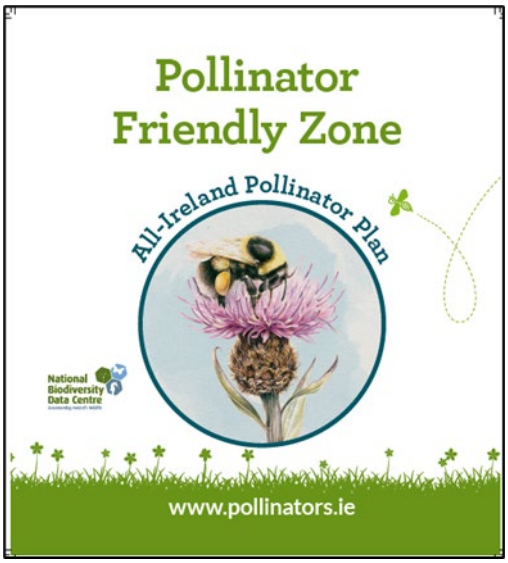
This BAP provides just a taste of the incredibly nature in and around Ard Carrig and Carrigtwohill. Residents may wish to continue learning about the plants and animals that surround them. There are lots of training resources to help you learn about Irish nature and

wildlife available online that can be accessed for free – but these should be from reliable sources. See the resources section for recommended sites.

There may be amateur experts in the community that will volunteer to give talks or lead walks in the area. Harper's Island often run free led walks and Fota House has interactive Pollinator Trail.

The Carrigtwohill Biodiversity Action Plan highlights more special areas of biodiversity that can be visited[11]. Consider running joint training events with Tidy Towns or other groups– it may reduce cost and foster co-operation in other areas.

Providing resources to the residents will also encourage further learning. A biodiversity library can be created in the common room by providing books on wildlife, wildlife gardening and a copy of the Ard Carrig Biodiversity Plan. Included in this library can be equipment that might be needed to undertake some of the monitoring programmes such as insect pots, butterfly nets and identification guides.



Example of pollinator sign

Let visitors know about the biodiversity actions taken in Ard Carrig by putting up signs – templates can be downloaded from the NBDC[12]. This biodiversity plan can also be shared with friends and family – many of the actions will be suitable for all gardens.

Celebrate the actions for pollinators that are taken by logging them on the 'Actions for Pollinators' website (a guide is available[13]). This is a publicly available online mapping system. It allows everyone that has taken pollinator friendly actions to log their location and the actions taken.

[11] https://wildwork.ie/wp-content/uploads/2022/02/CarrigtwohillBAP2019.pdf
[12] https://pollinators.ie/resources/signs/
[13] https://pollinators.ie/wp-content/uploads/2020/07/Actions-for-Pollinators_Tutorial_Gardens-1.pdf

10	Number	Action: Monitoring and Learning	Year
	10.1	Take part in one or more Citizen Science monitoring schemes	1-5
	10.2	Organise trips to local biodiversity hotspots	1-5
	10.3	Invite local wildlife experts to give talks/lead walks	1-5
	10.4	Liaise with Tidy Towns and Men's Shed to put on nature-based events	1-5
	10.5	Create a nature library with books and wildlife equipment	1
	10.6	Put up signs letting residents and visitors know about the biodiversity action happening at Ard Carrig	1-2
	10.6	Log actions for pollinators on the Actions for Pollinators website.	1-2
	10.7	Share this biodiversity action plan with friends, family and wider community!	1-5

6. Resources

There are lots of resources available online that can be accessed for free – but not all will be reliable sources. Stick to getting your information from trustworthy organizations with real experience in environmental matters.

General Wildlife Gardening	
Garden Wildlife Booklet	https://laois.ie/wp-content/uploads/Garden-Wildlife-Booklet-WEB-17MB.pdf
Wildlife Trusts Wildlife Gardening	www.cumbriawildlifetrust.org.uk/sites/default/files/2018-08/Wildlife-Gardening-Leaflet-2013.pdf
Biodiversity In Your Garden - A Colouring Book	www.donegalcoco.ie/media/donegalcountyc/heritage/pdfs/Biodiversity%20in%20Your%20Garden%20Colouring%20Book.pdf
Pollinator Friendly Planting Code	https://pollinators.ie/wordpress/wp-content/uploads/2018/04/Planting-Code-2018-WEB.pdf
Lawn Management	
Take Action for Wildlife: Don't mow, let it grow!	https://iwt.ie/dont-mow-let-it-grow/
Pollinator friendly grass cutting	https://pollinators.ie/wp-content/uploads/2019/04/Pollinator-friendly-grass-cutting-A5-Flyer-PRINT.pdf
Actions for Pollinators	
All-Ireland Pollinator Plan 2021-2025	https://pollinators.ie/wp-content/uploads/2021/03/FINAL-All-Ireland-Pollinator-Plan-2021-2025-WEB.pdf

Junior-Pollinator-Plan	https://pollinators.ie/wp-content/uploads/2018/04/Junior-Pollinator-Plan-2018-WEB.pdf
Gardens actions to help pollinators	https://pollinators.ie/wordpress/wp-content/uploads/2018/04/Gardens_actions-to-help-pollinators-2018-WEB.pdf
Native Tree Nursery	
Our Trees – a guide to growing Ireland's Native Trees	https://cdn.ringofgullion.org/2015/09/OurTrees.pdf
Woodland of Ireland - Native Tree Seed Collection	https://www.woodlandsofireland.com/woodlands-of-ireland-publish-webinars-on-native-seed-collection/
Tree Growers Guide	https://treegrowersguide.org.uk/
Ponds	
How to build a wildlife pond	https://www.wwt.org.uk/discover-wetlands/gardening-for-wetlands/how-to-build-a-wildlife-pond/
Creating Garden Ponds for Wildlife	https://freshwaterhabitats.org.uk/wp-content/uploads/2013/09/Creating-Garden-Ponds-for-Wildlife-1.pdf
Composting	
Stop Food Waste	https://stopfoodwaste.ie/
Composting Booklet	https://stopfoodwaste.ie/wp-content/uploads/2018/04/2017-Compost-Booklet-Web-Version-1.pdf
Wildlife Habitats and Homes	
The Wildlife Trusts. How to make a log shelter	https://www.wildlifetrusts.org/actions/how-make-log-shelter
RSPB Dead Wood Log Piles for Wildlife	https://www.rspb.org.uk/birds-and-wildlife/advice/gardening-for-wildlife/dead-wood-for-wildlife/

Bees	https://pollinators.ie/wordpress/wp-content/uploads/2018/04/How-to-guide-Nesting-2018-WEB.pdf
Hedgehog Houses	https://hedgehogcabin.info/buying-a-house
Bats	https://www.batconservationireland.org/wpcontent/uploads/2015/05/BCIrelandGuidelines_BatBoxes.pdf
Birds	https://birdwatchireland.ie/irelands-birds-birdwatch-ireland/garden-birds/nestboxes/
Hoverfly Lagoons	https://hoverflylagoons.co.uk/
Invasive Species	
10 Most Unwanted Species	https://biodiversityireland.ie/top10/10-most-unwanted-species/
Invasive Species Ireland	https://invasivespeciesireland.com/
Field Guide to Invasive Species in Ireland	http://invasivespeciesireland.com/wp-content/uploads/2018/06/field_guide_to_invasive_species_in_ireland_booklet_2ndedition_updated_May_2018-3.pdf
Invasive Species ID Cards	http://invasivespeciesireland.com/wp-content/uploads/2010/07/Invasive-Species-ID-Cards.pdf
Seed saving and Plant Swops	
Collecting and using pollinator friendly wildflower seed	https://pollinators.ie/wordpress/wp-content/uploads/2018/04/How-to-guide-Seeds-2018-WEB.pdf
Cork Plant Swop Facebook	https://www.facebook.com/groups/2658770840805707/about/
Grow It Yourself Cork	https://www.facebook.com/groups/2658770840805707/about/
Irish Seed Savers	https://irishseedsavers.ie/

Pesticides	
Greener Gardening Your Guide To Chemical-Free Affordable Gardening	https://ctc-cork.ie/wp-content/uploads/2021/03/Greener-Gardening-web-sept-2014.pdf
Fresh Air, Fresh Savings, Greener Gardening Your Guide to Chemical-Free Affordable Gardening	https://www.mywaste.ie/wp-content/uploads/2020/04/SRWMO-Greener-Gardening-Booklet-Onscreen-Use-AW.pdf
Water Conservation	
My Waste Saving water in the garden	https://www.mywaste.ie/news/saving-water-in-the-garden/#:~:text=water%20early%20in%20the%20morning,roots%20shallow%20and%20weaken%20plants
Irish Water How we can all conserve water	https://www.water.ie/conservation/conserve/
Monitoring and Recording	
Bumblebee Monitoring Scheme	https://biodiversityireland.ie/surveys/bumblebee-monitoring-scheme/
Butterfly Monitoring Scheme	https://biodiversityireland.ie/surveys/butterfly-monitoring-scheme/
Flower-Insect Timed Count (FIT Count)	https://pollinators.ie/record-pollinators/fit-count/
Irish Garden Bird Survey	https://birdwatchireland.ie/our-work/surveys-research/research-surveys/irish-garden-bird-survey/
Spring Flowering Plants Project	https://biodiversityireland.ie/surveys/spring-flowers-project-2022/#:~:text=The%20Spring%20Flowers%20Project%20is,form%20specifically%20for%20the%20project.
Backyard Biodiversity	https://biodiversityireland.ie/surveys/backyard-biodiversity/
General Species Recording	https://records.biodiversityireland.ie/start-recording

Training Resources	
NBDC resources and workshops	https://biodiversityireland.ie/training-resources/
Trees	https://www.treecouncil.ie/ https://www.dlrcoco.ie/sites/default/files/atoms/files/dlr_tree_guide.pdf
Birds	https://birdwatchireland.ie/
Books and Guides	
Guides for various species	https://biodiversityireland.ie/shop/

Identification Guide to Garden Insects of Britain and North-West Europe. Dominic Couzens

Ireland's Garden Birds. Oran O'Sullivan

The Wildflowers of Ireland: A Field Guide. Zoe Devlin

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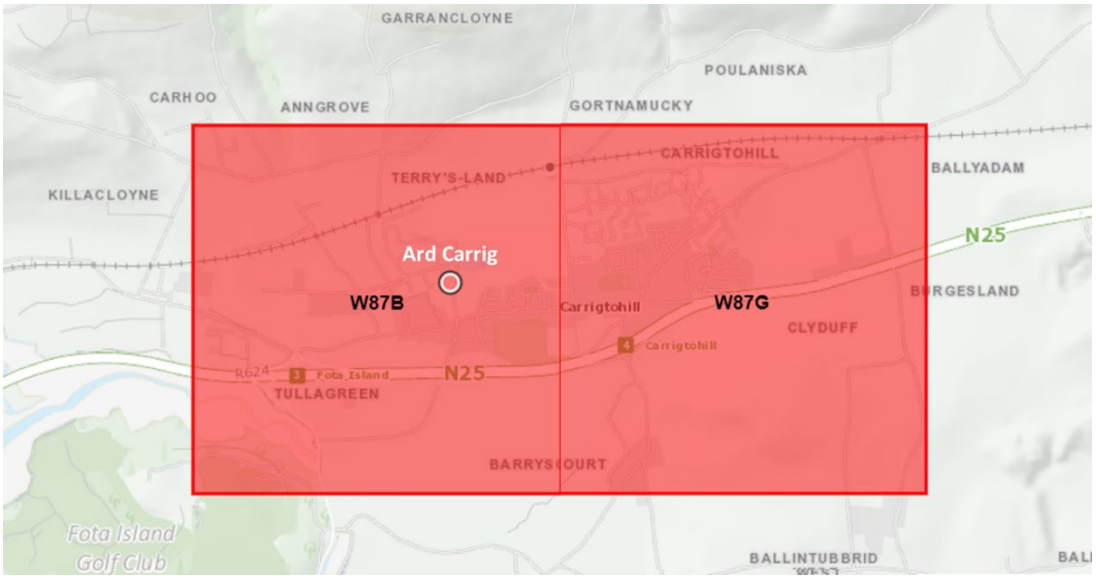
Appendix I

National Biodiversity Data Centre 2km Squares

Species records were downloaded for this BAP from the NBDC website from the following 2km Grid Squares: W87G and W87B.



Appendix II Useful Contacts

Cork County Council Heritage Officer
Name: Conor Nelligan
Phone: 021 428 5905
Email: conor.nelligan@corkcoco.ie
Website: https://www.heritagecouncil.ie/

National Parks and Wildlife Services (NPWS)
Southern Division Regional Manager
Phone: (01) 539 3208
District Conservation Officer (Cork city, Cork south and west, Kerry south-west)
Phone: (01) 539 3396
Website: https://www.npws.ie/

An Taisce Cork
Head Office Phone: 01 454 1786
Local Email: cork@antaisce.org
Administration Email: info@antaisce.org
Website: https://www.antaisce.org/

National Biodiversity Data Centre
Phone: (051) 306 240
Website: https://biodiversityireland.ie/

Birdwatch Ireland – Cork Branch
Email: info@birdwatchcork.com
Facebook:
www.facebook.com/BirdWatchIrelandCorkBranch/
Local Branch Website: https://birdwatchcork.com/
Website: https://birdwatchireland.ie/

Carrigtwohill Tidy Towns
Website: http://carrigtwohillcommunity.ie/tidy-towns/
Facebook:
www.facebook.com/profile.php?id=100064559865446
Phone: 021-4882265
Email: info@carrigtwohillcommunity.ie

Carrigtwohill Mens Shed
Name: Ger Murphy
Phone: 087 1646 459
Website:
https://menssheds.ie/sheds/carrigtwohill-mens-shed/

Bat Conservation Ireland
Email No local Branch in Cork
Website: www.batconservationireland.org/

Environmental Trust Ireland
Email: environmentaltrustireland@gmail.com
Website: https://environmental-trust-ireland.business.site/

Irish Wildlife Trust
Phone: 01 445 7259
Email: info@iwt.ie
Local Branch Facebook:
www.facebook.com/IrishWildlifeTrustCork/
Website: https://iwt.ie/

Cork Environmental Forum
Website: https://www.cef.ie/
Facebook
:www.facebook.com/CorkEnvironmentalForum
Phone: 083 146 8064
Email: info@cef.ie

Cork Nature Network
Phone: 087 228 2040
Email: contact@corknaturenetwork.ie
Facebook:
https://www.facebook.com/corknaturenetwork/
Website: https://corknaturenetwork.ie/

Appendix III

1	Number	Action: Management Structure	Year
	1.1	Establish a management structure among the residents to oversee the implementation of this plan.	1
2	**Number**	**Action: Lawns**	**Year**
	2.1	Manage lawns at Ard Carrig as Short Flowering (4- 6-week) Meadow Lawns	1-5
	2.2	Take part in 'No Mow May' and allow Dandelions to flower	
	2.3	Consider adding floral diversity to internal patches of grass with native wildflower plugs	2
3	**Number**	**Action: Pollinators**	**Year**
	3.1	Include nectar and pollen rich plants in the garden	1-5
	3.2	Include a range of plants that will ensure floral resources are available throughout the season	1-5
4	**Number**	**Action: Ponds**	**Year**
	4.1	Install one or more bird baths	1
	4.2	Install one or more bee baths	1
5	**Number**	**Action: Wildlife Homes**	**Year**
	5.1	Create a small log or twig pile in a suitable sunny corner	1
	5.2	Clean out bee hotels each year	1-5
6	**Number**	**Action: Invasive Species**	**Year**
	6.1	Ask if your Garden Centre follows the Horticultural Code of Practice	1
	6.2	Ensure garden waste is disposed of correctly or composted	1-5
	6.3	Be aware of invasive and potentially invasive plants and avoid adding them to the garden	1-5
	6.4	Investigate local seed swop organisations or consider starting one with local organisations such as Tidy Towns or Men's Shed	2

	6.5	Plant more perennials, particularly ones listed in Pollinator Friendly Planting Code (see Resources Section)	1-5
7	**Number**	**Action: Pesticides**	**Year**
	7.1	Work to minimise using herbicides, insecticides, fungicides and any other pesticides or chemicals were possible.	1
8	**Number**	**Action: Peat Free**	**Year**
	8.1	Use peat free compost in the garden	1-5
	8.2	Instal a composter or wormery to make your own garden compost	2
9	**Number**	**Action: Water Conservation**	**Year**
	9.1	Install a water butt to collect rainwater	1
	9.2	Mulch (wood bark or coarse home compost) around established plants stop water evaporating	1-5
	9.3	Water early morning or late at night so that water doesn't evaporate in the heat of the day	1-5
	9.4	Let grass grow longer in dry spells to keep moisture in the soil	1-5
	9.5	Add organic matter to the soil to improve structure and moisture retaining potential	1-5
10	**Number**	**Action: Monitoring and Learning**	**Year**
	10.1	Take part in one or more Citizen Science monitoring schemes	1-5
	10.2	Organise trips to local biodiversity hotspots	1-5
	10.3	Invite local wildlife experts to give talks/lead walks	1-5
	10.4	Liaise with Tidy Towns and Men's Shed to put on nature-based events	1-5
	10.5	Create a nature library with wildlife books and equipment	1
	10.6	Put up signs letting residents and visitors know about the biodiversity actions happening at Ard Carrig	1-2
	10.6	Log actions for pollinators on Actions for Pollinators website.	1-2
	10.7	Share this biodiversity action plan with friends, family and wider community!	1-5