Kiltimagh Amenity Park

Kiltimagh, Co Mayo

Ecological Survey

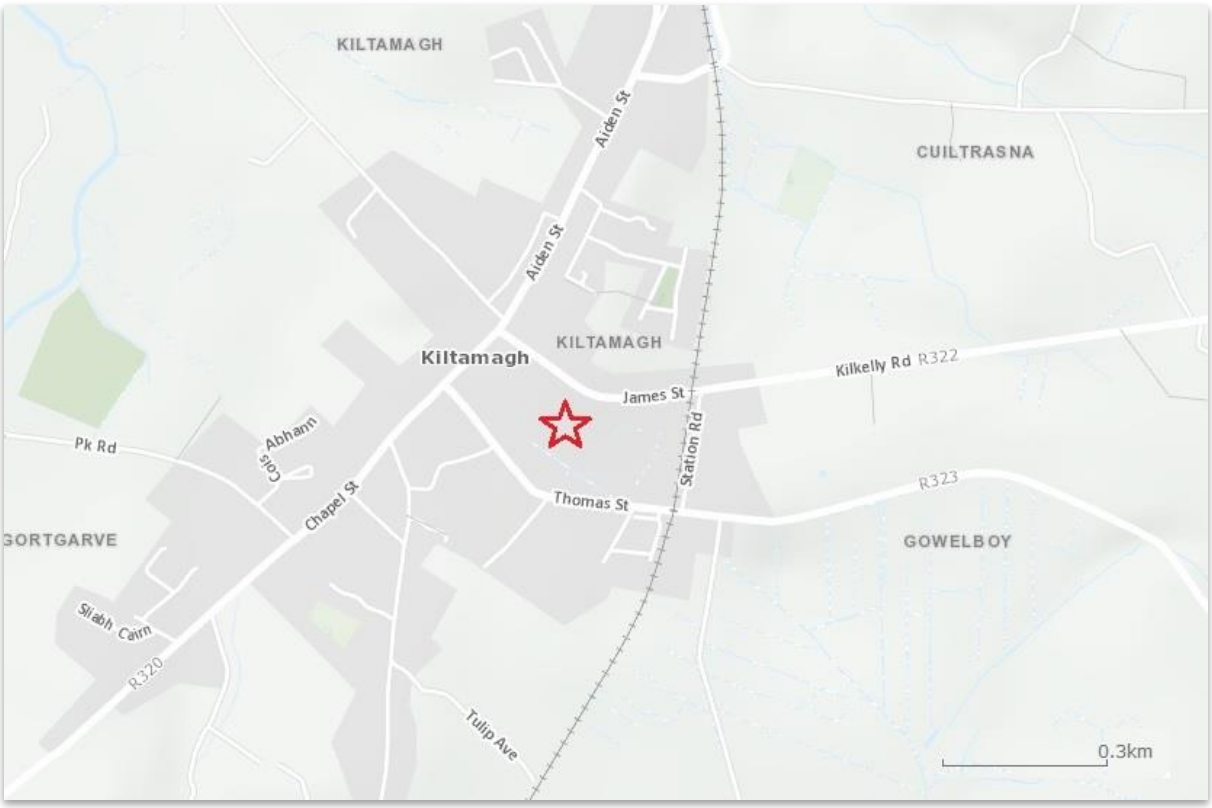
July 2020

Giorria Environmental Services

Contents

1.0 Introduction

Giorria Environmental Services were commissioned by Gary Smyth, KAP Committee to undertake an ecology survey on their site in Kiltimagh, Co Mayo. The aim of the survey and report is to identify habitats and species in the area of the proposed Amenity Park. This report was compiled and written by Dr. Karina Dingerkus, ecologist.



Map 1: Showing location of site in Kiltimagh, Co Mayo
(Map source: myplan.ie)

2.0 Site Survey and Assessment Methodology

The survey involved a desktop study and walk over surveys of the site in Kiltimagh Town. The walk over surveys took place on the 12th and 23rd June 2020.

2.1 Desk-top Survey

The National Biodiversity Data Centre flora and fauna records for the area were examined.

2.2 Walkover Survey

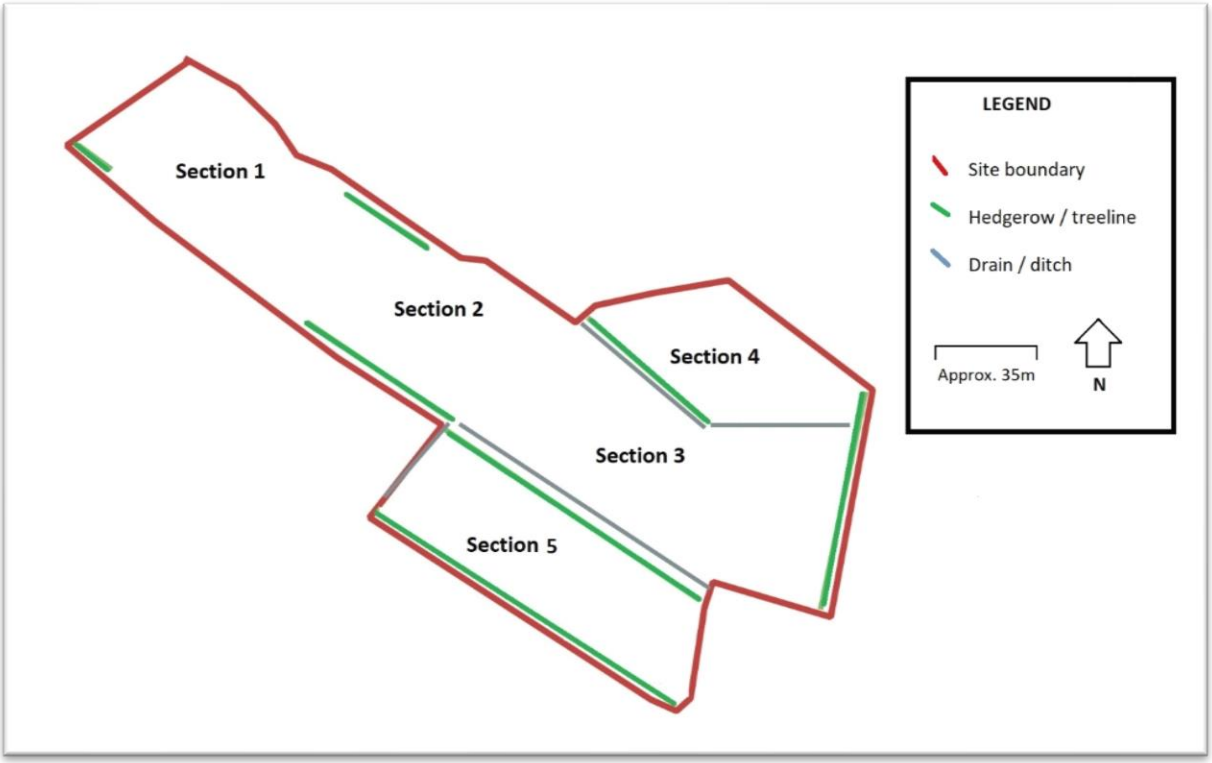
On the 12th June 2020, the site was traversed by ecologist Dr Karina Dingerkus, Gary Smyth and Patricia Tyrrell, Landscape Architect. On the 23rd June 2020 the site was traversed by two ecologists, Dr. Karina Dingerkus and Dr Richard Stone and all flora and fauna species were noted and recorded.

3.0 Results

3.1 Site Description

The site lies in Kiltimagh town between the R322 (James Street) and the R323 (Thomas Street) at central grid reference M344892. The site is composed of three fields (though can be divided into 5 distinct areas) comprising of improved grassland and acid grassland / bog. Field boundaries consist of hedgerows, walls, timber fences, post and wire fencing and field drains. The site is bordered on the north, south and west by housing. To the east the site is bordered by Kiltimagh Sculpture Park. Surrounding habitats include one improved grassland field, rear gardens of houses and yards of commercial buildings. The underlying geology is of Marine shelf facies; Limestone & calcareous shale. The area is classed as having poorly drained soil. The soil type is generally classed as Clashmore (1100CM), which is further described as coarse loamy drift with siliceous stones. Under the National Soil Survey, the soils are described as AminPD – Surface water Gleys / Ground water Gleys Acidic. See also Appendix 1.

The site can be divided into five sections depending on ground flora (see Map 2 below). A description of each follows.



Map 2: Kiltimagh Amenity Park site - sections

3.2 Grassland Habitats

Section 1

Access is through a farm gate at rear of West-A-Wake business. The ground here is dominated by grasses and rushes. There are large patches of brambles (*Rubus* spp.) along the north and south boundaries. Other common species here include nettles (*Urtica dioica*), docks (*Rumex* spp.), meadow buttercup (*Ranunculus acris*), creeping buttercup (*Ranunculus repens*), silverweed (*Potentilla anserina*) and cleavers (*Galium aparine*), lesser stitchwort (*Stellaria graminea*) and dandelion (*Taraxacum officinale* agg). Grasses include Yorkshire fog (*Holcus lanatus*), false oat grass (*Arrhenatherum elatius*), sweet vernal grass (*Anthoxanthum odoratum*) and cockfoot (*Dactylis glomerata*).

The is a small incline in the northern part of this section. It is surrounded by bramble and has one sycamore sapling growing on it.

Photographs of Section 1

Looking SE

Looking NW

Section 2

This section is an area of transition between section 1 and section 3 which has more acid and damp tolerant species. The ground flora in section 2 is similar to section 1 but also contains further species such as sowthistle (*Sonchus* spp), spear thisle (*Cirsium vulgare*) and creeping thistle (*Cirsium arvense*). And flowers such as herb-robert (*Geranium robertianum*), cut-leaved cranesbill (*Geranium dissectum*), meadowsweet (*Filipendula ulmaria*) and bush vetch (*Vicia sepium*).

There are also some foxgloves (*Digitalis purpurea*), but these could be garden escapees. There is also an area that people are using to dump grass mowings and some soil / rubble has been dumped in this area in the past. Bracken (*Pteridium aquilinum*), which can become invasive, is also present in this area.

Photographs of Section 2

Looking SE

Looking NW

Section 3

The ground becomes more peaty in this area and this is evident in the ground flora. While many of the previously listed species are present in this area other plants such as tormentil (*Potentilla* spp.), bedstraw (*Gallium* spp.), willows (*Salix* spp.), meadowsweet and an array of mosses are also present. All of which prefer the wetter conditions. Fescue grasses are also more prevalent, and rushes dominate in some areas. Other general species that occur here include willowherb (*Epilobium* spp.), meadow vetchling (*Lathyrus pratensis*), bush vetch. Willow and alder (*Alnus glutinosa*) sapling are scattered throughout this area.

Photographs of Section 3

Section 4

This area is totally dominated with rushes and was hard to access. Bramble and willow scrub are encroaching throughout. Some bracken and other ferns were also present.

Photographs of Section 4

Section 5

The vegetation in this area is more similar to that in section 1. Again, rushes dominate much of the area. Grasses include false oat grass, Yorkshire fog and sweet vernal grass. Both creeping and meadow buttercup are present along with meadowsweet and lesser stitchwort.

Photographs of Section 5

3.3 Field boundaries – treelines and drains

The external boundaries consist of a variety of stone / brick walls, garden fencing, and one hedgerow at the eastern end of the site (see Map 3). The internal field boundaries are mainly composed of drains some with tree lines. The drains are hard to access as many are surrounded by brambles, but they appear well vegetated. Species such as bulrushes (*Typha latifolia*) as well as a variety of *Juncus* species and some sedges were recorded.

Field Boundary 1

The trees along this boundary are composed of semi-mature willow, sycamore, hawthorn as well as garden species such as leylandii. Some of these trees may originate in the gardens of the neighbouring houses.

Field Boundary 2

This area has a mix of alder, rowan and holly trees. The trees are scattered along the boundary next to a drain. One or two of the ash are showing sign of Ash die-back. Ash dieback (or Chalara) is a disease of ash trees caused by the fungus *Hymenoscyphus fraxineus*. The disease causes leaf loss and crown dieback in affected trees and can lead to the death of the tree.

Field Boundary 3

Here the trees are predominately alder, with the occasional hawthorn. At the south eastern end of this hedgerow there is more hawthorn, ash and rowan.

Field Boundary 4

Willow is the predominant species along this southern boundary

Field Boundary 5

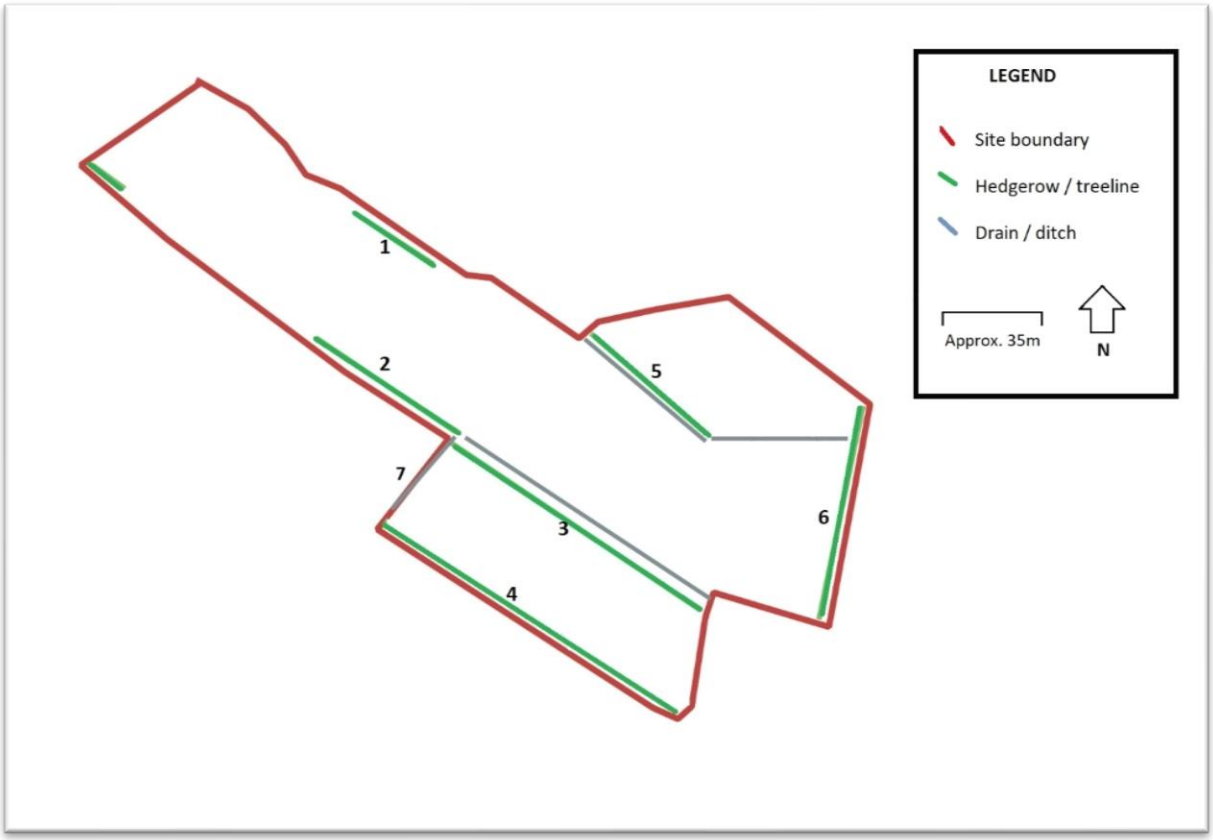
It appears that this may have once been a native hedgerow. It has however been planted with a line of Sika spruce trees. The trees have become large and have created too much shadow for the native hedgerow to survive. There is the odd hawthorn remnant and some honeysuckle present at the base of the spruce trees.

Field Boundary 6

This native hedgerow separates the site from the Sculpture Park. The hedge is composed mainly of hawthorn.

Field Boundary 7

This boundary is primarily an open drain. Some gorse occurs in the drain.



Map 3 showing field boundaries

Sitka spruce treeline

Alder treeline on the right

Drain between section 3 and 4

Drain on boundary of section 5

3.4 Habitat overview

Surrounding habitats are mainly urban. Bog and improved grassland lie in the further hinterland.

The legal protection of habitats and species provided by the Habitats Directive has been implemented through the EU by the establishment of a network of designated conservation sites known as the Natura 2000 Network. These areas include special areas of conservation (SAC) and special protection areas (SPA). The nearest Natura 2000 sites are the River Moy SAC (737m from site) (see Appendix 2).

Further Annex I habitat, namely Wet Heath, lies 408m to the south east of the site.

3.5 Flora

Vascular plants

The flora within the site is typical of improved grassland and wet acid grassland. No unusual species were recorded during the site survey. Many of the flora species present in the eastern half of the site reflected the damp nature of the habitats. These included species such as meadowsweet, bedstraw, rush and sedge species. A list of flora recorded on the day of the survey (23rd June 2020) is given in Appendix 3. An additional list of flora (and other species) recorded within the 1km^2 M3489 is given in Appendix 4.

Gallium Spp.

Potentilla Spp.

Trees and shrubs

The site contains mainly common, native trees and occasional non-native trees and shrubs. Some trees have been planted such as the Sitka spruce. Willow and alder saplings are common particularly in the south eastern half of the site.

Willow Sapling

Alder tree

3.6 Fauna

Invertebrates

On the day of the survey several invertebrates were recorded.

Butterflies

The following butterflies were recorded on the day of the field survey: meadow brown, ringlet, tortoiseshell and red admiral. All these species are common and widespread throughout Ireland. Meadow brown and ringlet are species that would regularly occur in meadows as the caterpillars of both feed on grasses. The tortoiseshell and red admiral larva food plants are nettles which were also present on site. The site generally has a low number of flowering plants, that would provide nectar for butterflies, but they may find sufficient food in adjacent gardens.

Bees

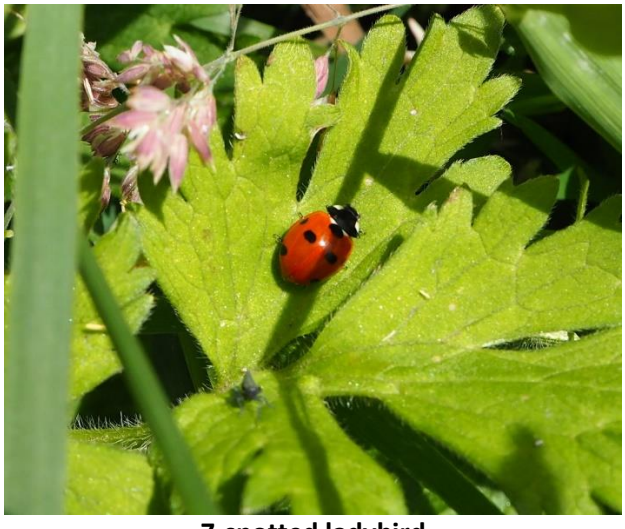
Only a couple of bees were recorded on the day of the survey. Again, the lack of flowering plants may be a factor here. A garden bumblebee was seen (*Bombus hortorum*) and a honeybee (*Apis melifera*).

Other invertebrates

Other invertebrates recorded were ladybirds, droneflies, hoverflies including a pair of *Volucella bombylans*, cranefly, and froghopper (see Appendix 3 for full list).

Ladybirds numbers were particularly noticeable on the day of the survey. Approximately ten were recorded. All were 7-spotted ladybirds.

Ringlet butterfly



7-spotted ladybird

Amphibians

No amphibians were recorded on the day of the survey, but the site is likely to support frogs.

Mammals

There were some small animal tracks recorded on the site. Most of these tracks were small and are likely to be rodents. One fox scat was recorded adjacent to an area of flattened grass which appeared to have been recently used. It is likely that foxes use the site as a thoroughfare. Foxes are very adaptable and are often found in urban and sub-urban areas.

Mammal trail

Fox scat

Birds

The following birds were recorded during the field survey:

Reed bunting, great tit, blackbird, robin, wren, willow warbler, chaffinch, swallow, wood pigeon, hooded crow, grey wagtail, dunnock, jackdaw, house sparrow, greenfinch, collared dove, swift, blackcap, starling and blue tit.

It is likely that other birds occur in the area. The numerous trees on the site and the cover provided by the bramble provide plentiful nesting and roosting site for birds.

4.0 Ecological Evaluation

4.1 Survey Limitations

Only two field visits took place and all other records were attained from a desk-top survey. Ideally more site surveys would occur during different times of the year to get a more accurate picture of the species the site supports.

4.2 Survey Findings

The site is composed of improved grassland, semi-improved grassland and acid grassland, with field boundaries in the form of drains and hedgerows / treelines. The site supports a range of common flora and fauna species typical of sites in the west of Ireland. The site has not been cut or grazed in the last couple of years and this is leading to further encroachment of brambles and willow scrub, and also rushes in the more open field areas.

4.3 Species of interest

No uncommon species were recorded during the surveys. However, the acid grassland does support several interesting plants including bedstraw. The site supported a good diversity of bird species. The number of 7-spotted ladybirds recorded on the day of the survey was notable.

4.4 Proposed development of Kiltimagh Amenity Park

It is proposed to develop an amenity park at the site. A concept landscape plan has been developed. The park will include a community garden, enclosed community area, birch woodland, an open water area with willow wetland, a meadow/woodland natural play area and outdoor class and a MUGA area.

The community garden will be in the north western part of the site. The open water and wetland area will be in the eastern part of the site.

The proposed development is unlikely to have a negative impact on the site. In effect the proposed development is likely to increase the biodiversity and ecological value of the site. The proposed wetland area is a naturally wet area and so is the ideal location for the open water area. Ponds are particularly beneficial for a wide range for species both aquatic and terrestrial. The proposed willow planting around part of the pond will provide good cover for a range of birds. This area also includes one of the existing drains on site. If the pond includes area where drain it is should become naturally colonised by the local wetland vegetation including bulrushes which occur in the drain.

The proposed garden is in an area that will be easily accessible to the general public. It is also in what is probably the more fertile part of the site.

The proposal to include further trees (specimen oak and ash) as well as a birch woodland is also likely to increase biodiversity. However, ash die back disease is now prevalent throughout the country and many ash trees are dying. Therefore, the inclusion of ash is probably not advisable at the present time. Other trees species can be planted (see recommendations below).

The proposed enclosed community area is in an ideal location at a slight rise on the site. This area will probably be the driest area of the site.

It is proposed to remove the majority of the existing Sitka spruce trees. This is good idea as this species is not native to Ireland. The trees have also been planted in what may have been a native hedgerow as some hawthorn and honey suckle grow here.

5.0 Conclusions and recommendations

In terms of biodiversity the site supports common species reasonably typical of a relatively urban site in western Ireland. The site has a good diverse range of bird species probably because of the good cover within the site. It appears the site has not been managed in any way for the last couple of years and this is leading to encroachment of bramble in the north west and willow and alder in the south east of the site.

Recommendations

From an ecological viewpoint the proposed layout is suitable for the site. Some recommendations and suggestions are made below.

1. Do not remove all the bramble if possible. Bramble is a valuable source of food for pollinators (flowers) and birds (fruit).

2. Look at including a larger range of trees in the planting scheme. Do not include ash as ash-dieback is in the area. Specimen trees could include rowan, white beam, holly and Scots pine. The birch woodland could also include other species. Hazel and elderberry could be planted as an understorey to the birch woodland. Also include rowan and wild cherry as woodland trees particularly around the edges of the woodland. These species provide flowers for pollinators and berries for birds.

3. Consider underplanting woodland area with native bluebells and red campion.

4. In pond area consider allowing willow to regenerate naturally. Alternatively take cutting from existing willow trees on site and plant these. Willow will regenerate from cuttings easily (though ideally should be planted in early spring).

5. In addition, in the willow wetland area also include alder. Alder like willow occurs naturally through this lower section of the site. The seeds of the alder are also an important food source for many small birds during the winter and early spring.

6. Aquatic plants will more than likely colonise the pond naturally, particularly if the existing drain is incorporated into the new pond design. If pond plants are to be planted ensure these are native plants (see Appendix 5).

7. During construction work, try to avoid where possible soil compaction.

8. Install bird, bat, insect and hedgehog boxes to provide homes for wildlife throughout the site.

9. It will be important to try and increase the wildflower resource in the site to make it more biodiverse and to increase food resources for insects. Some of this will happen naturally by just cutting and removing/composting clippings once a year. If wildflowers are to be supplemented, then ideally these flower seeds should be sourced locally. It would be possible to engage the local schools in collecting wildflower seed and

potentially growing seed on to plug plants which could then be planted by the children in the park. The natural play area would be suitable location for planting as well as areas around the pond. Suitable plants for growing are listed in Appendix 5 below.

10. When cutting down the Sitka spruce trees leave one or two trees in position. These trees are tall and provide a bit of height to the site. Also, they would be good place for sighting bat boxes.

11. Create log and brash piles with the felled trees. Log piles are valuable habitats for insects and amphibians. Brash piles provide nesting please for small birds.

6.0 References

Web sites consulted:

National Biodiversity Data Centre – Biodiversity maps

https://maps.biodiversityireland.ie/

EPA Maps

https://gis.epa.ie/EPAMaps/

Ordnance Survey Ireland

https://www.osi.ie/

ESM Webtool

https://airomaps.geohive.ie/ESM/

7.0 Resources

Seed collecting guide

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

Local Communities Actions for Pollinators

https://pollinators.ie/wordpress/wp-content/uploads/2018/04/Local-Communities_actions-to-help-pollinators-2018-WEB.pdf

Other local community pollinator resources

https://pollinators.ie/communities/resources-for-community-groups/

8.0 Appendices

APPENDIX 1 - Irish Soils Information System

Clashmore (1100CM)
Description: Coarse loamy drift with siliceous stones
Texture: Coarse loamy
Substrate type: drift with siliceous stones
Substrate 1: drift
Substrate 2: siliceous stones

Soil taxonomy
Subgroup: Typical Brown Earths
Great group: *Brown Earth*

APPENDIX 2 - Natura 2000 sites within 15km radius of site

Site Code	Site Name	Distance To (m)	Qualifying Interests (* denotes a priority habitat)
002298	River Moy SAC	737.23	**Habitats** 7110 Active raised bogs* 7120 Degraded raised bogs still capable of natural regeneration 7150 Depressions on peat substrates of the Rhynchosporion 7230 Alkaline fens 91A0 Old sessile oak woods with Ilex and Blechnum in the British Isles 91E0 Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae)* **Species** 1096 Brook Lamprey *(Lampetra planeri)* 1106 Salmon *(Salmo salar)* 1355 Otter *(Lutra lutra)* 1092 White-clawed Crayfish *(Austropotamobius pallipes)* 1095 Sea Lamprey *(Petromyzon marinus)*
000463	Balla Turlough SAC	9021.64	**Habitats** 3180 Turloughs*
001571	Urlaur Lakes SAC	13796.05	**Habitats** 3140 Hard oligo-mesotrophic waters with benthic vegetation of Chara spp.
002081	Ballinafad SAC	14325.36	**Species** 1303 Lesser Horseshoe Bat *(Rhinolophus hipposideros)*
004228	Lough Conn and Lough Cullin SPA	15735.06	**Birds** A395 Greenland White-fronted Goose *(Anser albifrons flavirostris)* A061 Tufted Duck *(Aythya fuligula)* A065 Common Scoter *(Melanitta nigra)* A182 Common Gull *(Larus canus)* **Habitats** Wetlands

APPENDIX 3 – Flora and Fauna recorded on site

List of flora recorded during field survey 23rd June 2020

Common name	***Scientific name***
Bedstraw spp.	*Gallium spp.*
Bracken	*Pteridium aquilinum*
Bramble spp	*Rubus spp*
Brambles	*Rubus fruticosus agg.*
Bulrush	*Typha latifolia*
Buttercup, creeping	*Ranunculus repens*
Buttercup, meadow	*Ranunculus acris*
Cleavers	*Galium aparine*
Clover, spp.	*Trifolium spp.*
Cocks Foot	*Dactylis glomerata*
Coltsfoot	*Tussilago farfara*
Cranes-bill, cut-leaved	*Geranium dissectum*
Dandelion	*Taraxacum officinale agg.*
Dock spp.	*Rumex spp.*
False oat grass	*Arrhenatherum elatius*
Fescue grasses	*Fescus Spp.*
Foxglove	*Digitalis purpurea*
Hard fern	*Blechnum spicant*
Herb-Robert	*Geranium robertianum*
Hogweed	*Heracleum sphondylium*
Horsetail spp.	*Equisteum spp.*
Ivy	*Hedera hibernica*
Knapweed, common	*Centaurea nigra*
Lesser hawkbit	*Leontodon saxatilis*
Meadowsweet	*Filipendula ulmaria*
Nettle	*Urtica dioica*
Red clover	*Trifolium pratense*
Rush spp	*Juncus spp.*
Sedges	*Carex spp.*
Silverweed	*Potentilla anserina*
Soft Rush	*Juncus effusus*
Sorrel,spp	*Rumex*
Sow-thistle spp.	*Sonchus spp.*
Stitchwort, lesser	*Stellaria graminea*
Sweet vernal grass	*Anthoxanthum odoratum*
Thistle, creeping	*Cirsium arvense*
Thistle, marsh	*Cirsium palustre*
Thistle, spear	*Cirsium vulgare*
Timothy-grass	Phleum pratense
Tormentil	*Potentilla* spp.
Vetch, bush	*Vicia sepium*

Vetchling, meadow	*Lathyrus pratensis*
Willowherb,spp	*Epilobium spp.*
Yorkshire fog	*Holcus lanatus*

List of trees / shrubs recorded during field survey 23rd June 2020

Common name	***Scientific name***
Alder	*Alnus glutinosa*
Ash	*Fraxinus excelsior*
Gorse	*Ulex europaeus*
Hawthorn	*Crataegus monogyna*
Holly	*Ilex aquifolium*
Leyland Cypress	*Cupressus Leylandii*
Rowan	*Sorbus aucuparia*
Sika Spruce	*Picea sitchensis*
Sycamore	*Acer pseudoplatanus*
Willow Spp.	*Salix spp.*

List of birds recorded during field survey 23rd June 2020

Common name	***Scientific name***
Blackbird	*Turdus merula*
Blackcap	*Sylvia atricapilla*
Blue tit	*Parus caeruleus*
Chaffinch	*Fringilla coelebs*
Collared dove	*Streptopelia decaocto*
Dunnock	*Prunella modularis*
Great tit	*Parus major*
Greenfinch	*Carduelis chloris*
Grey wagtail	*Motacilla cinerea*
Hooded crow	*Corvus cornix*
House sparrow	*Passer domesticus*
Jackdaw	*Corvus monedula*
Reed bunting	*Emberiza schoeniclus*
Robin	*Erithacus rubecula*
Starling	*Sturnus vulgaris*
Swallow	*Hirundo rustica*
Swift	*Apus apus*
Willow warbler	*Phylloscopus trochilus*
Woodpigeon	*Columba palumbus*
Wren	*Troglodytes troglodytes*

List of invertebrates recorded during field survey 23rd June 2020

Common name	***Scientific name***
7-spotted ladybird	*Coccinella septempunctata*
Cranefly	*Tipula spp.*
Dronefly	*Eristalis spp.*
Frog hopper	*Philaenus spumarius*
Garden Bumblebee	*Bombus hortorum*
Honeybee	*Apis melifera*
Hoverfly	*Helophilus spp.*
Hoverfly	*Volucella bombylans*
Meadow brown	*Maniola jurtina*
Ringlet	*Aphantopus hyperantus*
Tortoiseshell	*Aglais urticae*

APPENDIX 4 – Biodiversity Records for one km^2 M3489

List of species records for M3489 from National Biodiversity Data Centre.

Species name	Date of record	Title of dataset
Bracken (Pteridium aquilinum)	28/07/2015	Irish Vascular Plant Data - Paul Green
Hart's-tongue (Phyllitis scolopendrium)	28/07/2015	Irish Vascular Plant Data - Paul Green
Male-fern (Dryopteris filix-mas)	28/07/2015	Irish Vascular Plant Data - Paul Green
Alder (Alnus glutinosa)	28/07/2015	Irish Crop Wild Relative Database
American Willowherb (Epilobium ciliatum)	28/07/2015	Irish Vascular Plant Data - Paul Green
Annual Meadow-grass (Poa annua)	28/07/2015	Irish Crop Wild Relative Database
Ash (Fraxinus excelsior)	28/07/2015	Irish Crop Wild Relative Database
Autumn Hawkbit (Leontodon autumnalis)	28/07/2015	Irish Vascular Plant Data - Paul Green
Biting Stonecrop (Sedum acre)	28/07/2015	Irish Vascular Plant Data - Paul Green
Blackthorn (Prunus spinosa)	28/07/2015	Irish Crop Wild Relative Database
Bramble (Rubus fruticosus agg.)	28/07/2015	Irish Crop Wild Relative Database
Broad-leaved Dock (Rumex obtusifolius)	28/07/2015	Irish Vascular Plant Data - Paul Green
Broad-leaved Willowherb (Epilobium montanum)	28/07/2015	Irish Vascular Plant Data - Paul Green
Bush Vetch (Vicia sepium)	28/07/2015	Irish Crop Wild Relative Database
Butterfly-bush (Buddleja davidii)	28/07/2015	Irish Vascular Plant Data - Paul Green
Calystegia sepium subsp. roseata	28/07/2015	Irish Vascular Plant Data - Paul Green
Cat's-ear (Hypochaeris radicata)	28/07/2015	Irish Vascular Plant Data - Paul Green
Cleavers (Galium aparine)	28/07/2015	Irish Vascular Plant Data - Paul Green
Cock's-foot (Dactylis glomerata)	28/07/2015	Irish Crop Wild Relative Database
Common Bent (Agrostis capillaris)	28/07/2015	Irish Crop Wild Relative Database
Common Chickweed (Stellaria media)	28/07/2015	Irish Vascular Plant Data - Paul Green
Common Couch (Elytrigia repens)	28/07/2015	Irish Crop Wild Relative Database
Common Field-speedwell (Veronica persica)	28/07/2015	Irish Vascular Plant Data - Paul Green
Common Figwort (Scrophularia nodosa)	28/07/2015	Irish Vascular Plant Data - Paul Green
Common Mouse-ear (Cerastium fontanum)	28/07/2015	Irish Vascular Plant Data - Paul Green
Common Nettle (Urtica dioica)	28/07/2015	Irish Crop Wild Relative Database
Common Ragwort (Senecio jacobaea)	28/07/2015	Irish Vascular Plant Data - Paul Green
Common Sorrel (Rumex acetosa)	28/07/2015	Irish Crop Wild Relative Database
Creeping Bent (Agrostis stolonifera)	28/07/2015	Irish Crop Wild Relative Database
Creeping Buttercup (Ranunculus repens)	28/07/2015	Irish Vascular Plant Data - Paul Green
Creeping Thistle (Cirsium arvense)	28/07/2015	Irish Vascular Plant Data - Paul Green
Curled Dock (Rumex crispus)	28/07/2015	Irish Vascular Plant Data - Paul Green
Cut-leaved Crane's-bill (Geranium dissectum)	28/07/2015	Irish Vascular Plant Data - Paul Green
Cymbalaria muralis subsp. muralis	28/07/2015	Irish Vascular Plant Data - Paul Green
Daisy (Bellis perennis)	28/07/2015	Irish Vascular Plant Data - Paul Green
Elder (Sambucus nigra)	28/07/2015	Irish Crop Wild Relative Database
False Oat-grass (Arrhenatherum elatius)	28/07/2015	Irish Crop Wild Relative Database
Festuca rubra agg.	28/07/2015	Irish Crop Wild Relative Database

Field Wood-rush (Luzula campestris)	28/07/2015	Irish Vascular Plant Data - Paul Green
Flowering Currant (Ribes sanguineum)	28/07/2015	Irish Vascular Plant Data - Paul Green
Fuchsia magellanica	28/07/2015	Irish Vascular Plant Data - Paul Green
Germander Speedwell (Veronica chamaedrys)	28/07/2015	Irish Vascular Plant Data - Paul Green
Glaucous Sedge (Carex flacca)	28/07/2015	Irish Vascular Plant Data - Paul Green
Great Willowherb (Epilobium hirsutum)	28/07/2015	Irish Vascular Plant Data - Paul Green
Greater Plantain (Plantago major)	28/07/2015	Irish Vascular Plant Data - Paul Green
Ground-elder (Aegopodium podagraria)	28/07/2015	Irish Vascular Plant Data - Paul Green
Groundsel (Senecio vulgaris)	28/07/2015	Irish Vascular Plant Data - Paul Green
Guelder-rose (Viburnum opulus)	28/07/2015	Irish Vascular Plant Data - Paul Green
Hairy Bitter-cress (Cardamine hirsuta)	28/07/2015	Irish Vascular Plant Data - Paul Green
Hawthorn (Crataegus monogyna)	28/07/2015	Irish Crop Wild Relative Database
Heath Wood-rush (Luzula multiflora)	28/07/2015	Irish Vascular Plant Data - Paul Green
Hedge Mustard (Sisymbrium officinale)	28/07/2015	Irish Vascular Plant Data - Paul Green
Hedge Woundwort (Stachys sylvatica)	28/07/2015	Irish Vascular Plant Data - Paul Green
Herb-Robert (Geranium robertianum)	28/07/2015	Irish Vascular Plant Data - Paul Green
Hoary Willowherb (Epilobium parviflorum)	28/07/2015	Irish Vascular Plant Data - Paul Green
Hogweed (Heracleum sphondylium)	28/07/2015	Irish Vascular Plant Data - Paul Green
Japanese Knotweed (Fallopia japonica)	28/07/2015	Irish Vascular Plant Data - Paul Green
Jointed Rush (Juncus articulatus)	28/07/2015	Irish Vascular Plant Data - Paul Green
Knotgrass (Polygonum aviculare)	28/07/2015	Irish Vascular Plant Data - Paul Green
Lesser Stitchwort (Stellaria graminea)	28/07/2015	Irish Vascular Plant Data - Paul Green
Lesser Trefoil (Trifolium dubium)	28/07/2015	Irish Crop Wild Relative Database
Marsh Foxtail (Alopecurus geniculatus)	28/07/2015	Irish Crop Wild Relative Database
Marsh Ragwort (Senecio aquaticus)	28/07/2015	Irish Vascular Plant Data - Paul Green
Marsh Thistle (Cirsium palustre)	28/07/2015	Irish Vascular Plant Data - Paul Green
Meadow Buttercup (Ranunculus acris)	28/07/2015	Irish Vascular Plant Data - Paul Green
Meadow Foxtail (Alopecurus pratensis)	28/07/2015	Irish Crop Wild Relative Database
Meadow Vetchling (Lathyrus pratensis)	28/07/2015	Irish Crop Wild Relative Database
Meadowsweet (Filipendula ulmaria)	28/07/2015	Irish Vascular Plant Data - Paul Green
Mind-your-own-business (Soleirolia soleirolii)	28/07/2015	Irish Vascular Plant Data - Paul Green
Montbretia (Crocosmia pottsii x aurea = C. x crocosmiiflora)	28/07/2015	Irish Vascular Plant Data - Paul Green
Nipplewort (Lapsana communis)	28/07/2015	Irish Vascular Plant Data - Paul Green
Oxeye Daisy (Leucanthemum vulgare)	28/07/2015	Irish Vascular Plant Data - Paul Green
Pale Willowherb (Epilobium roseum)	28/07/2015	Irish Vascular Plant Data - Paul Green
Perennial Rye-grass (Lolium perenne)	28/07/2015	Irish Crop Wild Relative Database
Petty Spurge (Euphorbia peplus)	28/07/2015	Irish Vascular Plant Data - Paul Green
Red Bartsia (Odontites vernus)	28/07/2015	Irish Vascular Plant Data - Paul Green
Red Clover (Trifolium pratense)	28/07/2015	Irish Crop Wild Relative Database
Redshank (Persicaria maculosa)	28/07/2015	Irish Vascular Plant Data - Paul Green
Ribwort Plantain (Plantago lanceolata)	28/07/2015	Irish Vascular Plant Data - Paul Green
Rosebay Willowherb (Chamerion angustifolium)	28/07/2015	Irish Vascular Plant Data - Paul Green
Rough Meadow-grass (Poa trivialis)	28/07/2015	Irish Crop Wild Relative Database
Rusty Willow (Salix cinerea subsp. oleifolia)	28/07/2015	Irish Crop Wild Relative Database

Selfheal (Prunella vulgaris)	28/07/2015	Irish Vascular Plant Data - Paul Green
Shepherd's-purse (Capsella bursa-pastoris)	28/07/2015	Irish Vascular Plant Data - Paul Green
Short-fruited Willowherb (Epilobium obscurum)	28/07/2015	Irish Vascular Plant Data - Paul Green
Silverweed (Potentilla anserina)	28/07/2015	Irish Vascular Plant Data - Paul Green
Smooth Sow-thistle (Sonchus oleraceus)	28/07/2015	Irish Vascular Plant Data - Paul Green
Snow-in-summer (Cerastium tomentosum)	28/07/2015	Irish Vascular Plant Data - Paul Green
Soapwort (Saponaria officinalis)	28/07/2015	Irish Crop Wild Relative Database
Soft-brome (Bromus hordeaceus)	28/07/2015	Irish Vascular Plant Data - Paul Green
Soft-rush (Juncus effusus)	28/07/2015	Irish Vascular Plant Data - Paul Green
Spear Thistle (Cirsium vulgare)	28/07/2015	Irish Vascular Plant Data - Paul Green
Square-stalked St John's-wort (Hypericum tetrapterum)	28/07/2015	Irish Vascular Plant Data - Paul Green
Sun Spurge (Euphorbia helioscopia)	28/07/2015	Irish Vascular Plant Data - Paul Green
Sweet Vernal-grass (Anthoxanthum odoratum)	28/07/2015	Irish Vascular Plant Data - Paul Green
Sycamore (Acer pseudoplatanus)	28/07/2015	Irish Vascular Plant Data - Paul Green
Tall Ramping-fumitory (Fumaria bastardii)	28/07/2015	Irish Vascular Plant Data - Paul Green
Taraxacum aggregate	28/07/2015	Irish Vascular Plant Data - Paul Green
Toad Rush (Juncus bufonius)	28/07/2015	Irish Vascular Plant Data - Paul Green
Tufted Vetch (Vicia cracca)	28/07/2015	Irish Crop Wild Relative Database
Upright Hedge-parsley (Torilis japonica)	28/07/2015	Irish Vascular Plant Data - Paul Green
Wall Speedwell (Veronica arvensis)	28/07/2015	Irish Vascular Plant Data - Paul Green
Wavy Bitter-cress (Cardamine flexuosa)	28/07/2015	Irish Vascular Plant Data - Paul Green
White Clover (Trifolium repens)	28/07/2015	Irish Crop Wild Relative Database
Yellow Iris (Iris pseudacorus)	28/07/2015	Irish Vascular Plant Data - Paul Green
Yorkshire-fog (Holcus lanatus)	28/07/2015	Irish Vascular Plant Data - Paul Green
7-spot Ladybird (Coccinella septempunctata)	27/06/2018	Ladybirds of Ireland
Blunt-tailed Snake Millipede (Cylindroiulus punctatus)	20/11/1999	Millipedes of Ireland
Boreoiulus tenuis	20/11/1999	Millipedes of Ireland
Brachydesmus superus	20/11/1999	Millipedes of Ireland
Eyed Flat-backed Millipede (Nanogona polydesmoides)	20/11/1999	Millipedes of Ireland
Ophyiulus pilosus	20/11/1999	Millipedes of Ireland
Snake Millipede (Proteroiulus fuscus)	20/11/1999	Millipedes of Ireland

APPENDIX 5 – List of suitable wildflowers for site

Plants suitable for pond and pond edge areas

Common name	Latin name	Comment
Common water-crowfoot	*Ranunculus aquatilis*	Deeper water (submerged and oxygenating plants)
Common water-starwort	*Callitriche stagnalis*	Deeper water (submerged and oxygenating plants)
Lesser pondweed	*Potamogeton pusillus*	Oxygenating plant
Broad-leaved pondweed	*Potamogeton natans*	Floating-leaved plants
White waterlily	*Nymphaea alba*	Floating-leaved plants
Yellow waterlily	*Nuphar lutea*	Floating-leaved plants
Amphibious bistort	*Persicaria amphibia*	Marginal plants
Bogbean	*Menyanthes trifoliata*	Marginal plants
Brooklime	*Veronica beccabunga*	Marginal plants
Creeping Jenny	*Lysimachia nummularia*	Marginal plants
Iris, Yellow (also called Flag iris, yellow flag)	*Iris pseudacorus*	Marginal plants
Lesser spearwort	*Ranunculus flammula*	Marginal plants
Marsh-marigold	*Caltha palustris*	Marginal plants
Ragged robin	*Lychnis flos-cuculi*	Marginal plants
Water avens	*Geum rivale*	Marginal plants
Water forget-me-not	*Myosotis scorpioides*	Marginal plants

Invasive ponds plants

Note: There are several of highly invasive aquatic plants that are often unwittingly sold in garden centres as “suitable” for ponds. Please avoid these species totally. They include the following:

Canadian Waterweed, *Elodea canadensis*.

Curly-leaved Waterweed, *Lagarosiphon major* (also sold as Elodea Crispa)

Floating Pennywort, *Hydrocotyle ranunculoides* (also sold as water pennywort or simply pennywort)

Large-flowered Waterweed, *Egeria densa*.

New Zealand pigmyweed *Crassula helmsii* (also known as Australian swamp stonecrop and also sold incorrectly as *Crassula recurva*, *Tillaea recurva* and *Tillaea helmsii*)

Nuttall's Waterweed, *Elodea nuttallii.*

Parrots-feather, *Myriophyllum aquaticum* also sold as Brazilian water-milfoil or as ‘oxygenator’ and *Myriophyllum Brasiliense* or *Myriophyllum proserpinacoides*

Water fern *Azolla filiculoides* (also known as fairy fern)

Water primrose *Ludwigia grandiflora, Ludwigia uruguayensis* or *Ludwigia peploides* also sold incorrectly as Jussiaea).

For more information see:

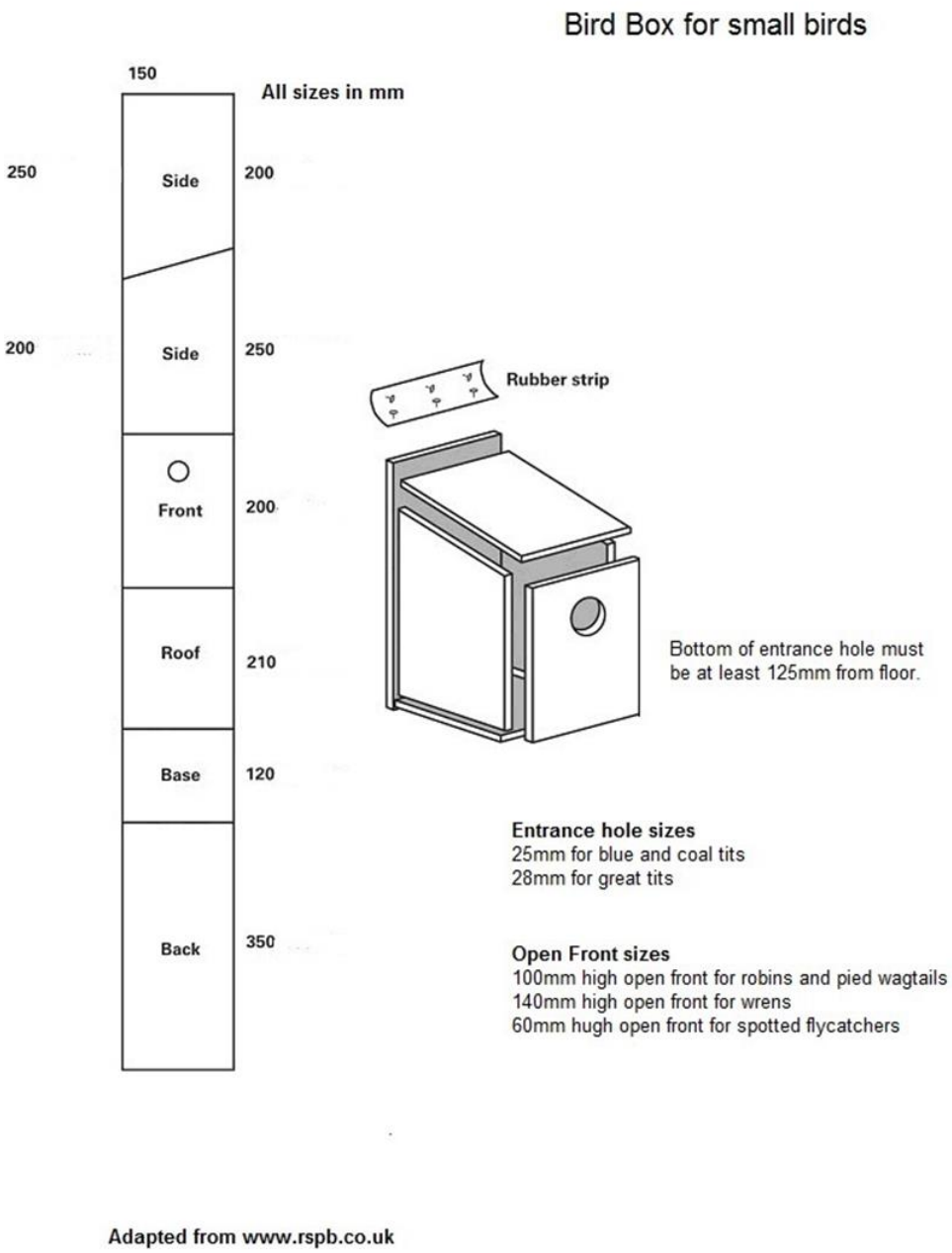
https://invasivespeciesireland.com/what-can-i-do/be-plant-wise/know-what-you-grow/

https://invasivespeciesireland.com/what-can-i-do/be-plant-wise/know-what-you-grow/alternative-plants/

Wildflowers that would be suitable for different sections that could be added as seed or plug plant.

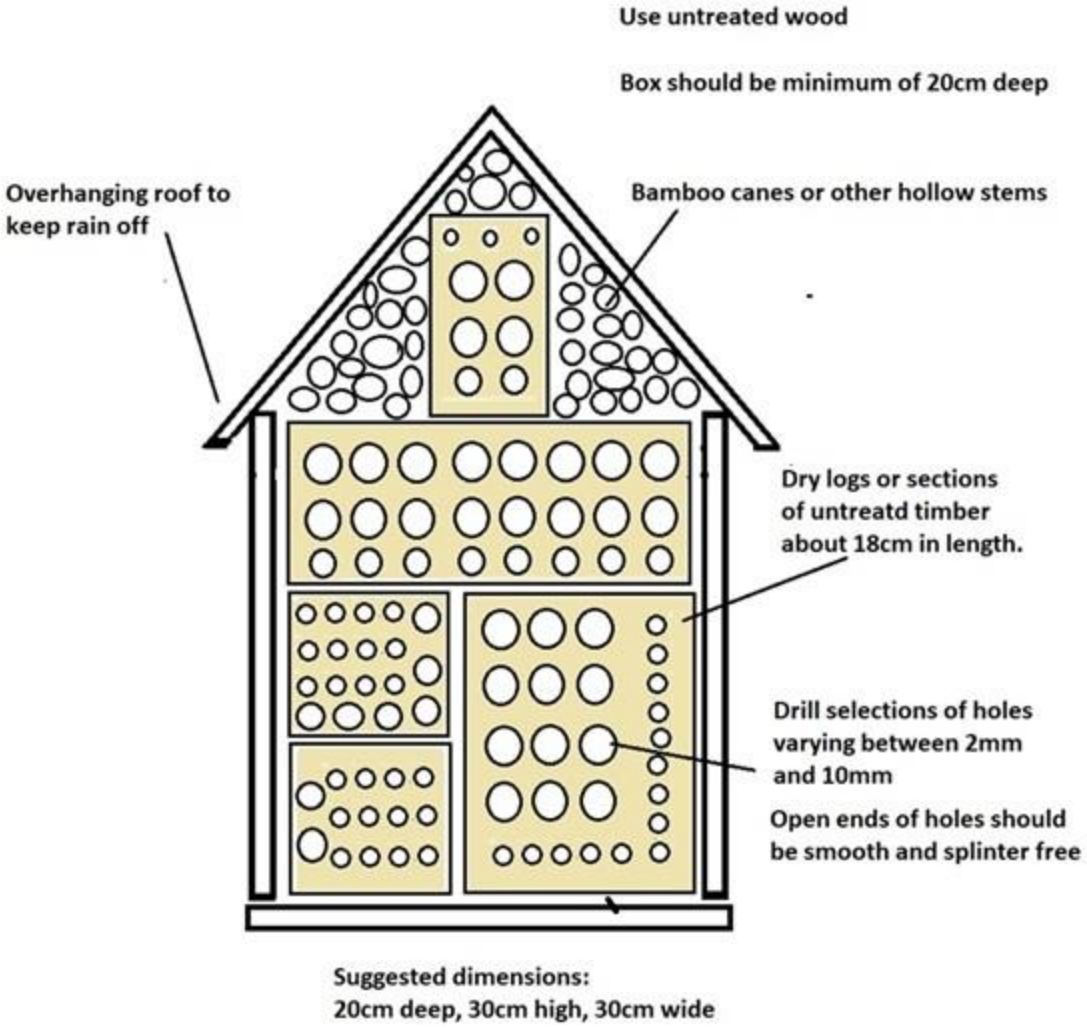
Common name	***Scientific name***	**Suitable for Section**
Avens, wood	*Geum urbanum*	1
Bedstraw, heath	*Galium saxatile*	2
Bedstraw, lady's	*Galium verum*	1,2,5
Birds-foot-trefoil, common	*Lotus corniculatus*	3
Bluebell	*Hyacinthoides non-scripta*	woodland
Bog asphodel	*Narthecium ossifragum*	3
Bog-myrtle	*Myrica gale*	3
Bugle	*Ajuga reptans*	1
Buttercup, meadow	*Ranunculus acris*	1
Butterwort, common	*Pinguicula vulgaris*	3
Campion, red	*Silene dioica*	1, woodland
Celandine, lesser	*Ranunculus ficaria*	1
Cinquefoil, marsh	*Potentilla palustris*	3
Clover, red	*Trifolium pratense*	1,2,5
Clover, white	*Trifolium repens*	1,2,5
Cowslip	*Primula veris*	1
Cranes-bill, cut-leaved	*Geranium dissectum*	1,2
Daisy, ox-eye	*Leucanthemum vulgare*	1,2,5
Foxglove	*Digitalis purpurea*	1,2,5
Hawkbit, autumn	*Leontodon autumnalis*	all
Hawkbit, lesser	*Leontodon saxatalis*	all
Hawkbit, rough	*Leontodon hispidus*	all
Hawk's-beard, marsh	*Crepis paludosa*	all
Hawk's-beard, rough	*Crepis biennis*	all
Hawk's-beard, smooth	*Crepis capillaris*	all
Hawkweed	*Hieracium anglicum*	all

Hawkweed	*Hieracium cerinthiforme*	all
Hawkweeds	*Hieracium agg.*	all
Heath, cross-leaved	*Erica tetralix*	3,4
Heather, bell	*Erica cinerea*	3,4
Heather, ling	*Calluna vulgaris*	3,4
Herb-robert	*Geranium robertianum*	all
Honeysuckle / Woodbine	*Lonicera periclymenum*	Hedgerow
Iris, yellow	*Iris pseudoacorus*	3
Knapweed, common	*Centaurea nigra*	1
Lady's smock	*Cardamine pratensis*	all
Marjoram, wild	*Origanum vulgare*	3
Meadowsweet	*Filipendula ulmaria*	3,4
Milkwort, common	*Polygala vulgaris*	3,4
Mint, water	*Mentha aquatica*	3,4
Purple-loosestrife	*Lythrum salicaria*	3,4
Ragged Robin	*Lychnis flos-cuculi*	3,4
Ramsons	*Allium ursinum*	woodland
Scabious, devils-bit	*Succisa pratensis*	1,2,3,4
Scabious, field	*Knautia arvensis*	5
Selfheal	*Prunella vulgaris*	1,2
Stitchwort, lesser	*Stellaria graminea*	1
Tormentil	*Potentilla erecta*	3,4
Vetch, bush	*Vicia sepium*	1,2,5
Vetch, tufted	*Vicia cracca*	1,2,5
Vetchling, meadow	*Lathyrus pratensis*	all
Woundwort, hedge	*Stachys sylvatica*	Hedgerow
Yellow-rattle	*Rhinanthus minor*	1,2,5



- Place 2-4m off the ground if it's a nest-box with a hole. 2m up is adequate once there's no way for cats to get near it.
- If attaching it to a tree, don't drill or nail it as this will damage the tree, instead use a wire strap wrapped around the tree.
- Ideally face north or south-east away from prevailing winds (and rain).
- Place individually boxes 20-25m part (40-50 for great tit boxes).
- For more information see - birdwatchireland.ie/irelands-birds-birdwatch-ireland/garden-birds/nestboxes/

Solitary Bee Box

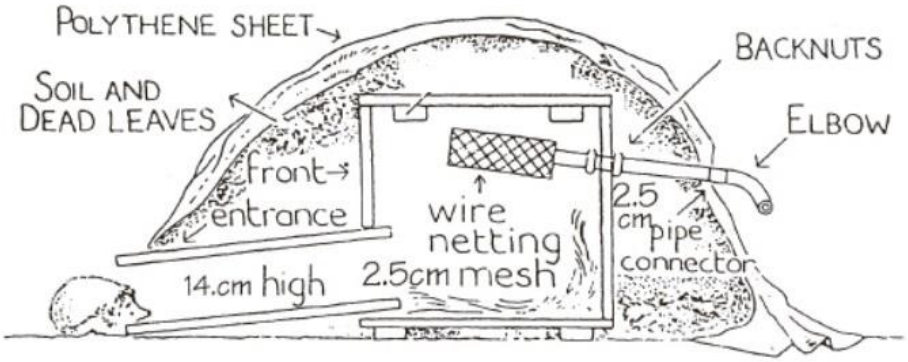


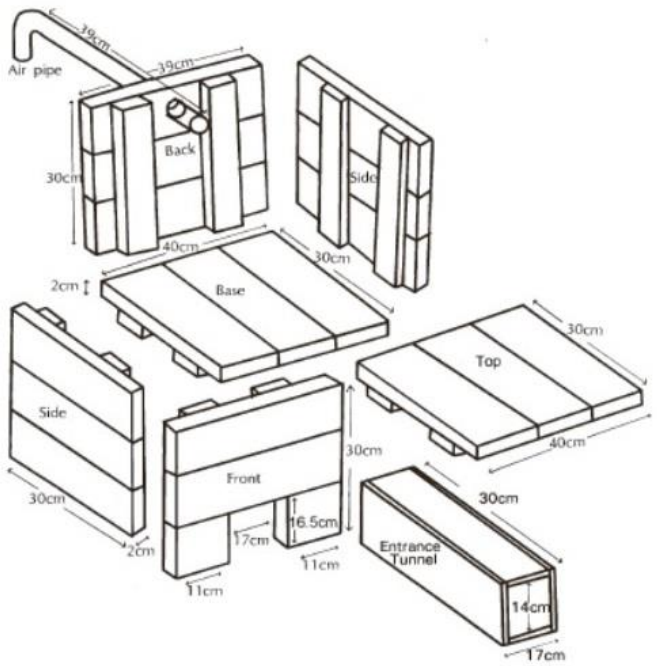
Fix firmly at about waist or chest height, for example on wall or fence.

Place box so it is facing south in a sunny position, ideally near some bee-friendly flowers and shrubs.

Hedgehog Box

Adapted from - www.hedgehogstreet.org





- Make sure entrance hole is no bigger than 14cm otherwise cats may enter
- Do not face north
- Do not disturb hibernating hedgehogs
- To learn more about hedgehogs and take part in survey see - www.irishhedgehogsurvey.com/

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