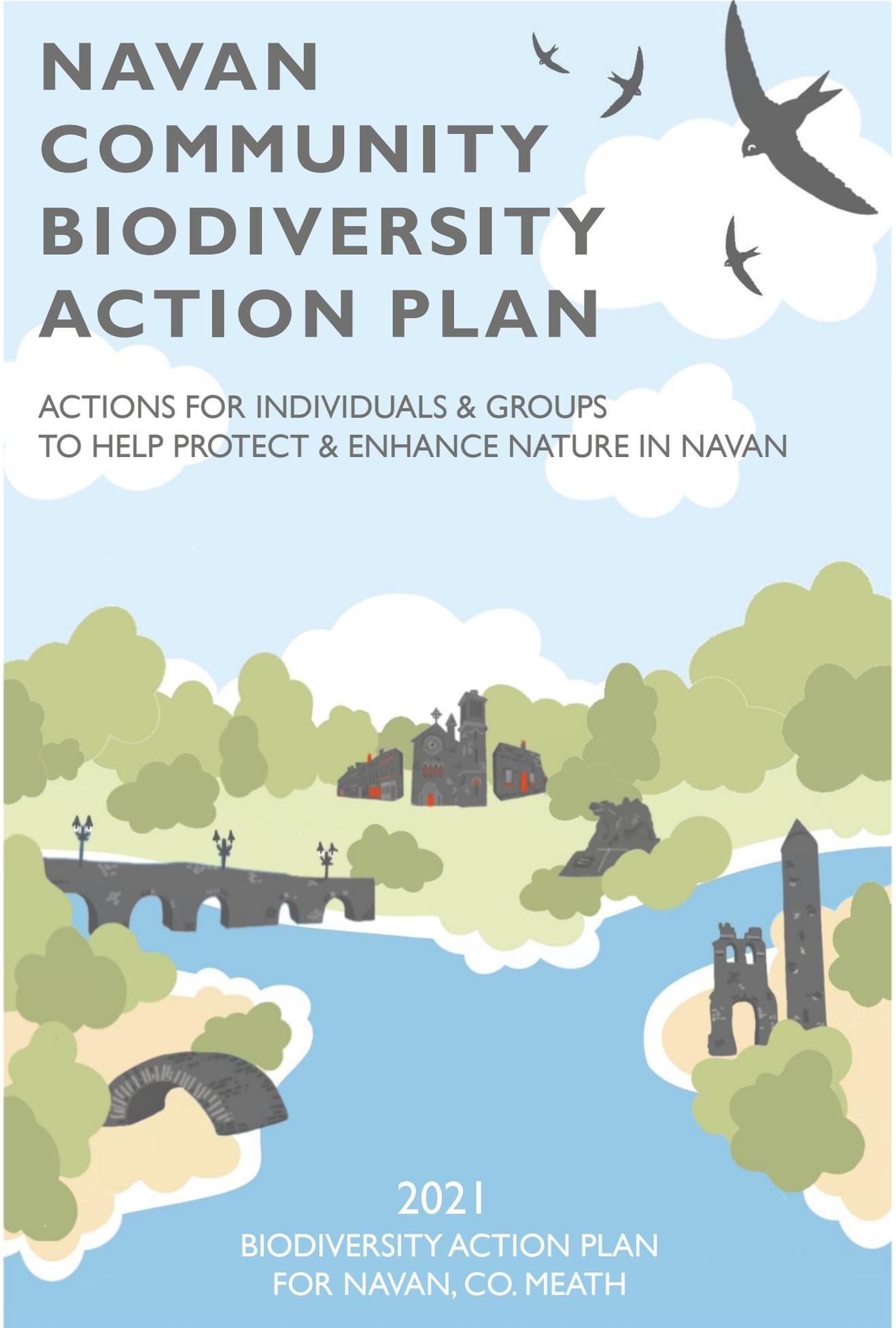


NAVAN COMMUNITY BIODIVERSITY ACTION PLAN

The background of the cover features a stylized illustration of a landscape. At the top, there are white clouds and several black silhouettes of birds in flight. Below the clouds, a blue river flows through the scene. On the left, a dark grey stone bridge with three arches spans the river. In the center, a cluster of buildings, including a church with a tall steeple, is nestled among green trees. To the right, a tall, thin stone tower stands on a small island in the river. The entire scene is framed by a white border.

ACTIONS FOR INDIVIDUALS & GROUPS
TO HELP PROTECT & ENHANCE NATURE IN NAVAN

2021

BIODIVERSITY ACTION PLAN
FOR NAVAN, CO. MEATH



Navan Community Biodiversity Action Plan

Prepared by Simon Barron and Wild About
Navan 2021

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Introduction

This Community Biodiversity Action Plan has been created with a grant from The Community Foundation for Ireland (CFI) Environment and Nature Biodiversity programme. In 2019 CFI awarded grants to 56 groups throughout Ireland to enhance biodiversity throughout the country by combining the expertise of qualified ecologists with the skills, experience, knowledge and enthusiasm of local community groups.

Love Navan, Core Ireland and Youth Work Ireland Meath were successful with their grant application and partnered with Simon Barron, an Ecologist with BEC Consultants Ltd, for this project. Wild About Navan began in 2019 with the aim of promoting, celebrating and improving all aspects of life in Navan. Wild About Navan was originally set up to facilitate a biodiversity survey of Navan and is now established as an urban nature conservation project to explore celebrate and enhance the diverse environment and natural habitats that occur in and around Navan. Simon has been working with representatives of Wild About Navan since late 2019 to bring together the Plan.

The Community Biodiversity Action Plan (CBAP) for Navan is intended to work towards the promotion and celebration of biodiversity within the town and to provide a plan by which it can be enhanced. It was therefore important that all of Navan be covered by the CBAP so Navan town boundary was used as the study area.



The Boyne River Walk

Navan is located at the confluence of the River Blackwater and the River Boyne; the high-ground near the rivers determining the location of the original town. The two rivers have a significant influence on the biodiversity within the town. They largely retain their natural flow and bank side vegetation for much of their length and Navan is fortunate to have corridors of trees, grassland and water running right through the centre of the town. The focus for this Plan is not just the river systems. In Navan there is parkland, hedges, estate greens, playing pitches, railway lines, an abundance of gardens and an enormous number of trees. Biodiversity occurs throughout the town; as are the opportunities for enhancing it.

This Community Biodiversity Action Plan (CBAP) takes account of the habitats and biodiversity currently within the study area, together with any environmental issues and challenges that may be present. Measures are then proposed which are intended to enhance the local environment and address any pressures. Crucially with the CBAP approach adopted by Community Foundation Ireland there is a strong emphasis on community involvement in the development and implementation of the plan with the intention that the community will take ownership of the plan and responsibility for its implementation. The actions involve encouraging participation in a range of Citizen Science initiatives, the development of local Pollinator Plans, actions for Swifts, creation of a dispersed orchard and possibly most importantly, amending the way we view areas of long grass, Dandelions and Brambles.



The River Boyne Weir, Blackcastle Demesne

Main Concepts

Biodiversity

Biodiversity is the variety of living things in a particular place. It is short for 'biological diversity'. All plants and animals contribute to the biodiversity of an area. This therefore includes birds, insects, trees, mushrooms, mosses and algae – and everything else in between. Genetic diversity is also included within the term Biodiversity; this would include differences within species, so the differences from one Blackbird to the next.



Fungi and mosses growing on trees in Johnstown People's Park

Ecological communities with high biodiversity are generally more stable and healthy than others. Biological variety can buffer communities from environmental issues and challenges. It can allow ecological communities to recover more quickly from stresses or disturbances. This is why biodiversity is important, not only for wildlife but for us too. Humans are an important part of the Biodiversity occurring on earth and our actions can affect Biodiversity in both a positive and negative way.



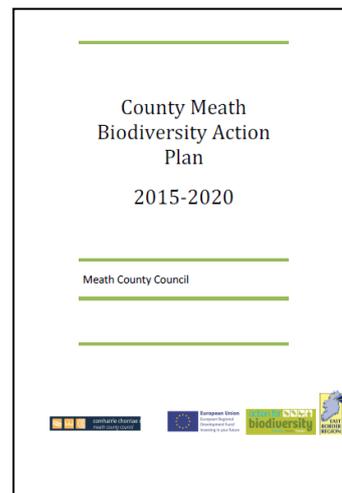
Maidenhair Spleenwort on a wall in Navan and Lords and Ladies coming into fruit on the Ramparts walk

In this plan habitats will be described and the value of them for wildlife will be assessed. A habitat is simply the home of an animal or a plant. Almost every place on Earth is a habitat for some kind of animal or plant. Most habitats are made up of animals and plants, together with water, oxygen, soil and rocks. Habitats within Navan include grassland, hedges, scrub, woodland and the rivers.

Ecosystem is another term used in ecology to describe an area. It is also made up of all living and nonliving things in an area and might include a number of different habitats. The components of an ecosystem are interlinked through nutrient cycles and energy flows. The contribution which ecosystems make to the well-being of humans has been described in recent years as ecosystem services. Examples of ecosystems services would be the role pollinators like bees play in food production, the filtering and cleaning of water by natural vegetation, the shade and oxygen provided by trees and the pleasing areas provided by nature for walking, gardening, recreation and relaxation.

What is a Biodiversity Action Plan (BAP)?

A Biodiversity Action Plan looks at what species and habitats are in an area and what issues there might be facing them. The Action Plan identifies what actions are needed to address these issues, who might carry them out, over what timeframe and where funding might be found. It also looks to include community participation in nature projects through Citizen Science. It may be that not all actions identified can be addressed in a short timeframe so it is good to prioritise actions based on the resources that might be available. A local Biodiversity Action Plan should also ensure no harm comes from the plan through inappropriate management. A plan developed together with the local community allows people to learn more about the wildlife of their area, to appreciate what is there and to conserve and enhance this.



The *National Biodiversity Action Plan for Ireland* sets out its vision for Biodiversity as: “That biodiversity and ecosystems in Ireland are conserved and restored, delivering benefits essential for all sectors of society and that Ireland contributes to efforts to halt the loss of biodiversity and the degradation of ecosystems in the EU and globally.” There is also a *Co. Meath Biodiversity Action Plan 2015-2020*. The four overall objectives of this plan are to:

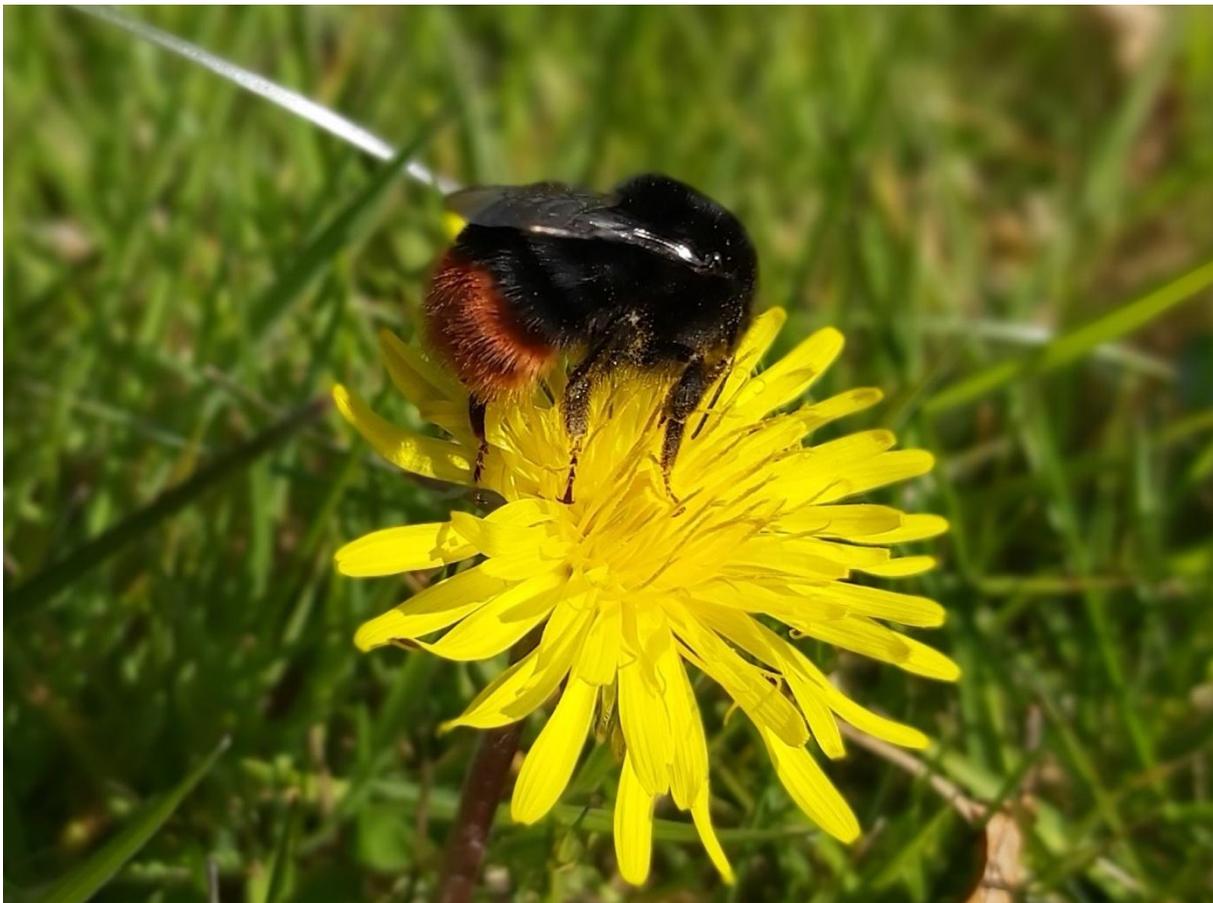
- Raise awareness of biodiversity in Meath,
- To better understand biodiversity in Meath
- Conserve and enhance habitats and species in Meath
- To foster active participation to help biodiversity in Meath



The River Boyne

The Navan Community Biodiversity Action Plan also work towards these objectives at a local level and would therefore sit within the broader national and county approach.

This local Community Biodiversity Action Plan will act as a guide in the management of local areas of biodiversity value. The Plan contains a written report with maps identifying the areas of biodiversity importance within the town. It then describes a number of actions that can be practically achieved. Additional detail on these Actions is given in the Appendices together with the detail of the walkover survey.



Leaving Dandelions to flower provides food for pollinators like this queen Red-tailed Bumblebee

Local Context

Navan is located in the centre of Meath and is surrounded by the rich agricultural land that Meath is famous for. The confluence of the rivers effectively separates the town into three areas with broad swathes of semi-natural habitat between them.

When viewed from above Navan, compared to other Irish towns of a similar size, appears quite wooded. The woodlands along the Ramparts walk between Boyne Road and the River Boyne are well known. Additional woodland occurs at the Blackcastle Demesne on the opposite side of the River Boyne. Woodland in both these locations are indicated on the 1st Edition Ordnance Survey maps (1837-1842) and as such would be classed as Long-established Woodland; by definition a finite resource in Ireland. In addition to the tracts of woodland along the rivers, there are smaller pockets of woodland and treelines including those along the Kells Road near the Fire Station, screening the Tara Mines along the Kells Road, along the railway lines, around the Andy Connelly Roundabout on the Athboy Road and around the junction of Trim Road and St Columbus Crescent.

Blackwater Park is a fantastic resource near the centre of Navan town with large open grassland areas, access to the river, developing scrub, steep banks, hedgerows and woodland strips along the eastern perimeter. There is huge opportunity for enhancing the biodiversity of this recently developed area and providing space for a range of multiple users.

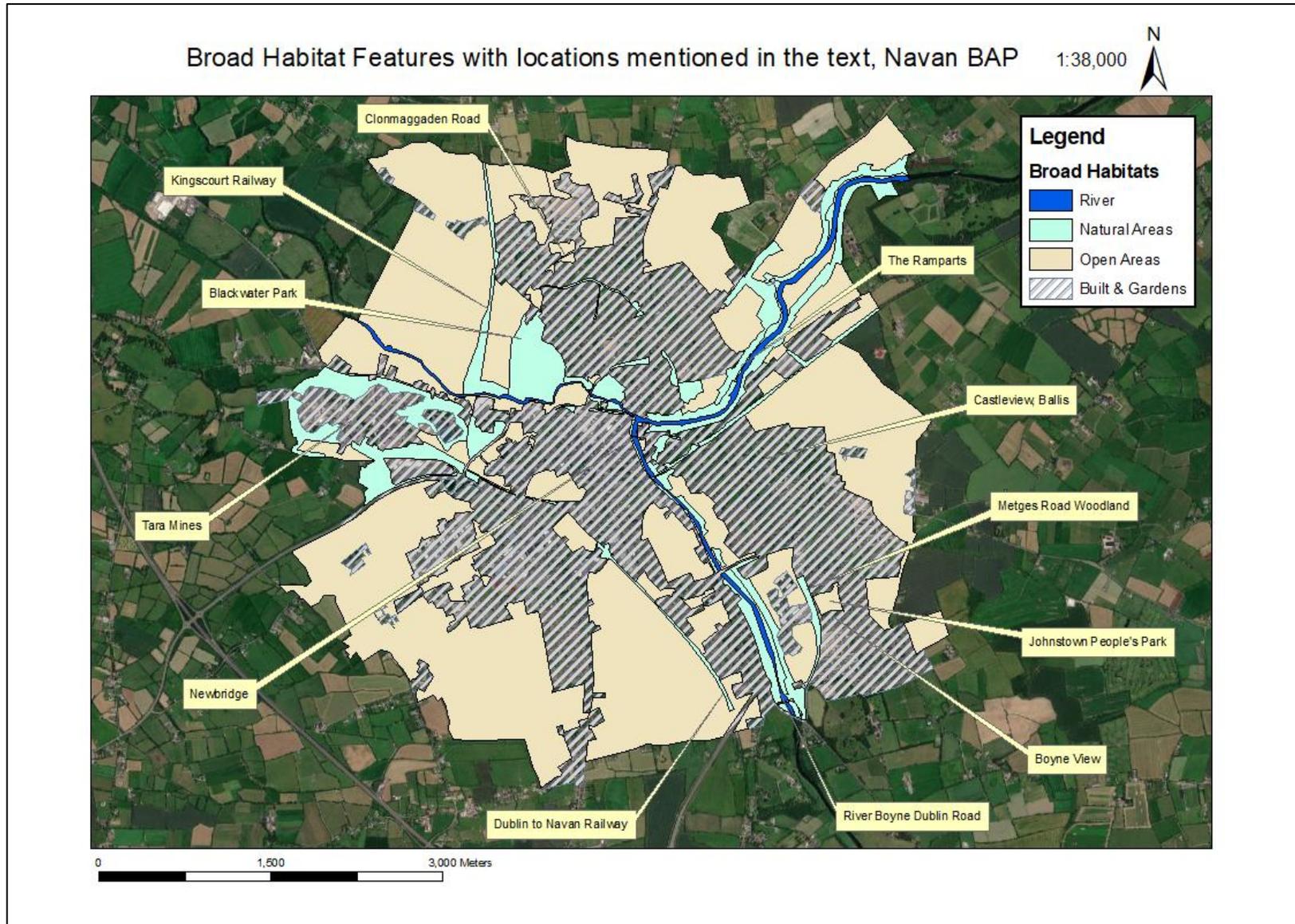
The River Boyne and River Blackwater have two nature conservation designations. They comprise the River Boyne and River Blackwater Special Area of Conservation (SAC) on the basis of the populations of Otter, and the two fish species Salmon and River Lamprey. The SAC designation also includes wet woodland, examples of which can be seen at Oldbridge and on Yellow Island beneath the Mary McAleese Bridge where dense areas of willow woodland grow. Examples of this habitat are also found within Blackwater Park alongside the river. A further habitat for which the site is designated is Alkaline Fen, these occurring some kilometres upstream of Navan. The Rivers also form the River Boyne and River Blackwater Special Protection Area (SPA) for the presence of an internationally important population of Kingfisher. The area designated as SPA is largely limited to the rivers and the associated banks while the SAC is broader and includes some of the woodland and grassland alongside the rivers.

The River Boyne is 113 km long, the river catchment covers an area of 2,690 km² and includes parts of Counties Meath, Louth, Cavan, Westmeath, Offaly and Kildare.

Throughout their length rivers such as the Boyne and Blackwater act as wildlife corridors from their upper reaches to the sea. Wildlife corridors are areas in the environment that provide connectivity for plant and animals. These corridors facilitate the movement of wild species, offering relatively safe places for animals to travel when compared to more open areas. This allows the dispersal of species and the migration of individuals. Wildlife corridors do not always need to be physically linked, animals like birds and bats able to move between gaps. Additional wildlife corridors in Navan are provided by the railway lines, particularly the Kingscourt branch line, hedgerows and treelines, both those associated with farmland and those within housing estates and smaller streams.

The Habitat Map

A broad habitat map has been produced for Navan, through review of aerial photographs. The town boundary shown in the County Development plan was used to identify the area for the map but the area around Tara Mine was included as it appears such an integral component of the town landscape when viewed from above, and it also brings in a swathe of woodland along the Kells Road. Working at a large-scale it has been necessary to merge areas into the broad categories. These are Natural Areas, which include woodlands and some defined hedges and treelines as well as Blackwater Park. Open Areas are mainly areas of agricultural land on the outskirts of the town, grassland adjoining the rivers and some of the larger open area spaces within town. A large component of the mapped area covers Built Areas and Gardens and it is within these areas that the myriad gardens, lawns, hedges, treelines, estate greens and small parks occur. The course of the Rivers is consistent with Natural Areas for much of their length forming biodiverse corridors through the town. There are also corridors formed along the railways, both the closed lines to Kingscourt and Navan, and the Drogheda line. The areas which have been surveyed in more detail are described in Appendix 2 and the locations are shown on the map.



Actions for Biodiversity

In the table below is a summary of the recommended Actions for the Navan Community to undertake for the benefit of biodiversity in and around the town. More detail on these is given in the Appendices. These Actions are intended to cover a range of Actions from those which are relatively easy to achieve through to more involved multi-year projects, which may have a range of facets to them. The overall objectives of the Actions are to enhance the biodiversity features of Navan and to increase community engagement and connection with the local natural environment.

In Ireland our pollinators really are in trouble and the AIPP provides a way for us all to get involved in addressing this. There is therefore an emphasis on providing for pollinators within the Actions given and some overlap between these. Though there is a general Action for encouraging involvement in Citizen Science there are some initiatives that are considered so fundamental to the success of enhancing and measuring biodiversity that they have been highlighted as Actions in their own right.

ACTION NUMBER	ACTION	LOCATIONS/ VENUE	TIMEFRAME
1	<i>#WildAboutSwifts</i>	Throughout Navan	Short-term onwards
2	<i>#Dispersed Urban Orchard</i>	Throughout Navan	Short-term onwards
3	Continue Wild About Navan Instagram and Facebook pages	Social Media and traditional media	Short-term onwards
4	Raise awareness of Citizen Science initiatives	Throughout Navan and beyond	Short-term onwards
5	Map invasive species	Throughout Navan	Short-term onwards
6	Host the Navan Local Bioblitz	Throughout Navan	Possibly 2022 / 2023
7	Organise a dawn (or/and a dusk) chorus walk	Woodlands on the Ramparts or Blackwater Park	First Sunday in May (national bird chorus day)
8	Make Navan more friendly to bees and other pollinators	Throughout Navan	Short-term onwards
9	Enhance for wildlife the open spaces of Navan's housing estates	Housing estates in Navan	Short-term onwards
10	Plant native trees	Gardens and suitable green spaces.	Short-term onwards
11	Construct and erect bird and bat boxes	In gardens. In public places where there are trees.	Medium term
12	Plant a Community Hedge	Blackwater Park	Medium term
13	Annual events	Navan	Medium term
14	FIT Counts	Throughout Navan.	Short-term onwards
15	Log 'Actions for Pollinators' on the AIPP mapping system	Throughout Navan.	Short-term onwards
16	Water pollution awareness and reducing water use	Social Media	Short-term onwards

Project Review

As with any project of this type it will be worth reviewing the plan after a given time to reflect on what has been achieved and to set new targets. A suitable timeframe is likely to be 5 or 6 years. At that time it will be worth considering which Actions have been achieved and those which have not, together with consideration of the reasons for this. This review process will help in setting realistic targets for the future or in identifying where additional assistance might be needed.



A queen Buff-Tailed Bumblebees feeding on the pollen of a crocus in early spring. They will even spend the night inside the flowers which close up around them. Plant some crocus bulbs this autumn, to provide springtime food, shelter and colour.

Appendix 1 Detailed Table of Actions

Additional detail on the recommended Actions are given in this section

ACTION NUMBER	ACTION	Type/Topic	REASONS	LOCATIONS/ VENUE	Potential Dates	Social media	METHODS/Resources Required
1	Navan Swift Project <i>#WildAboutSwifts</i>	Citizen Science Protecting endangered species Engagement	Swifts in screaming groups is a common feature on summer evenings in many Irish towns and villages but they have experienced a 40% decline in numbers and need our help. Swifts are present in Ireland for just four months from the end of April to mid-August. The aim of the project is to secure the future of swifts in Navan. Raise awareness of the plight of Swifts. Identify and protect existing nest sites. Provide additional nest sites.	Throughout Navan	<ul style="list-style-type: none"> • Swift cycle May 2021 • Begin Swift Survey May 2021 • Zoom event 2021 • The first nest boxes were installed in early May 2021. Consider more for subsequent years • Monitor nest boxes to see if these are used 	Have you seen a swift nest in Navan? Send us a photo and the location of the nest so we can map which areas would benefit from more nests in the future! Mobilise the WAN community to help with mapping and reporting on the Swift Survey. Approach property owners about providing locations for nest boxes.	A survey of Swifts in Navan will build on the work done by BWI in 2019 and establish the current number of nesting sites and provide a baseline for installation of additional nest boxes. Raise awareness of the plight of Swifts through events like: the Swift Cycle (May 2021), a Zoom talk with Lynda Huxley of Swift conservation Ireland (April 2021). MCC Heritage Department provided the first nest boxes.
2	Create a dispersed urban orchard across Navan. Record existing apple trees within the town	Ecosystem services Providing for pollinators Food Waste Engagement	Apple trees provide food for pollinators (blossom) and for people (apples!) A dispersed urban orchard is formed when people plant apple trees in their garden, a park or other open area. Pollinators will travel from tree to tree pollinating the fruits. It would also be good to identify any established orchards within Navan and potentially any old Irish varieties of apple. Identify if there are apples or other fruit currently going to waste. A lot of space is not needed for apple trees and trees can be chosen to suit the space available. Smaller varieties can even be grown in containers.	Gardens and suitable green spaces throughout Navan. The broader the area the better.	<p>Planting between November and March. Begin March 2021.</p> <p>Mapping existing apple trees through summer 2021</p> <p>Adopt a tree 2022</p> <p>Can be added to in later years</p>	Would you like to grow an apple tree in your garden or open area? We need your help in identifying all the apple trees in Navan! Send in a photo and location of an apple tree you know, and whether you know if apples (or other fruit) are going to waste in the autumn. Information event via Zoom or public meetings on growing and maintaining (pruning) apple trees, food waste,	Trees can be sourced from a good supplier and provided to members of the WAN community for planting. The new apple tree planting would be complemented by identifying established orchards or other apple or fruit trees in the town. Engage with MCC and MEN for funding to plant in winter 21-22.

						juice making, cider making, apple cake competitions etc.	
3	Continue Wild About Navan Instagram and Facebook pages	Community Engagement General	The Wild About Navan Instagram and Facebook pages have been initiated for and by the people of Navan. The posts help people to explore, celebrate, appreciate, protect and enhance the natural habitats that surround Navan. Occasional additional articles in the Meath Chronicle (like the one on Swifts 24.03.21) will help reach a wider audience. Posts include competitions, foraging wild foods, exploring local sites, and spotlight on different common species.	Social Media and traditional media	Continuation	Continue the intelligent information provision through the Wild About Navan Facebook and Instagram pages. Also occasional newspaper articles to increase exposure.	Current social media calendar for 2-3 posts a week to maintain interest and to keep up-to-date, also occasional items about events in the local newspaper. Future posts to include features on apps like the plant ID LeafSnap, River Obstacles and See It? Say It!, invasive species, installing water butts to reduce water use and how to report pollution incidents to MCC.
4	Raise awareness of Citizen Science initiatives that are being run	Engagement Citizen Science	Citizen Science is research carried out by members of the public who volunteer to collect scientific data. The widespread use of smartphones means data can be easily collected and shared. Participation increases public engagement with and understanding of important environmental issues and encourages people of all ages to get out into nature. It can also contribute to an increased sense of community.	Throughout Navan and beyond	Short-term onwards	Projects can be highlighted at particular times of the year through WAN social media Where possible check the engagement level for Navan before and again after awareness raising of a particular CS project or App.	Specific Citizen Science actions have been detailed above for Invasive Species recording and the Bioblitz event. Additional examples are the Hop to It project, Dragonfly Ireland 2019-2024, Butterfly surveys, Backyard Biodiversity (20 recognisable species to record), the Coastwatch Survey and submitting records to NBDC.
5	Map invasive species	Citizen Science Contributing to the fight against Invasive Species	Invasive species are an increasing problem for Ireland's native biodiversity and, unfortunately, an issue within and around Navan town. Japanese Knotweed and Himalayan (or Indian) Balsam are particular issues in Navan. The first step to dealing with this issue is knowing where the invasive species are. <i>Mapping invasive plants is an excellent introduction to Citizen Science recording.</i>	Throughout Navan	Short-term onwards	Posts can be added at the time of year when particular species are coming into season. Himalayan Balsam flowers July to October. Could promote a weekend of Invasive species mapping	Invasive Species can be mapped by the WAN Community using the Invasive Species App run by Limerick County Council. Records are verified and then sent to the National Biodiversity Data Centre. These records are then forwarded to the County Councils. The app has photos to help identification.

Biodiversity Action Plan for Navan, Co. Meath

6	Host the Navan Local Bioblitz	Event General Engagement	A Bioblitz is an event when as many plants and animals as possible within Navan are recorded within a 24 hour period. Events are run through the day such as a dawn chorus walk, pond dipping, a bat walk, wildflower recording, moth trapping, etc	Throughout Navan	Possibly 2022 or 2023	Social media advertising of event and key species	These events require significant organisation as different experts need to be involved and a base for collation of data is required. The NBDC will be able to advise on this and MCC will be able to assist.
7	Organise a dawn (or/and a dusk) chorus walk	Event Animals	Community involvement and raising public awareness. The Ramparts Walk is likely to be a suitable area. Or the woodland strip along the east of Blackwater Park	Woodlands on the Ramparts or Blackwater Park	First Sunday in May (national bird chorus day)	Feature videos of birdsong	May is the best month to experience the birds in chorus. In association with BWI Meath
8	Make Navan more friendly to bees and other pollinators	Engagement Biodiversity	The All Ireland Pollinator Plan (AIPP) is a national pollinator strategy that has developed from the ground up with the aim of making Ireland a place where pollinators can survive and thrive. If we get conditions right for pollinators we will have it right for most other biodiversity that is likely to occur in and around Navan.	Throughout Navan	Winter moving into spring is a good time to remind people of the need for the AIPP. Remind people of timing for a Flower-rich 6 week meadow.	Let us know about pollinator friendly areas in your area. Are there areas that you could manage for pollinators? If you are going to the garden centre this month be sure to get some pollinator friendly plants. Advertise the 'Don't Mow Let it Grow' approach. Remind people to not cut their lawn until April.	The AIPP emphasises that everyone can play a part in improving the situation for pollinators. There are guidelines for schools, businesses, farmers, sports clubs, gardeners, golf courses, Tidy Towns groups, Council Councils, faith groups.
9	Enhance for wildlife the open spaces of Navan's housing estates	Engagement Biodiversity	Housing estates provide a great opportunity for improving the biodiversity of Navan, particularly for pollinators, birds and bats. Planting areas can be made more pollinator friendly, sections of grass not used by people can be mown less frequently and native trees can be planted, a corner can be left to grow tall plants.	Housing estates in Navan	Short-term onwards	Identify one estate and pilot approach with a clear framework as to how to roll out e.g. The Orchard. Advertise that we are looking for pollinator friendly estates in Navan	Consultation with MCC may be needed in relation to the mowing of some areas. Identifying local Biodiversity Champions will be key to progress this actions at a local level.
10	Plant native trees	Event	Everybody loves trees and many people love planting trees. Native	Gardens and suitable	Planting to be done between November	Where in Navan would you like to see more	Groups of 3-5 trees are preferable to single trees. Semi-

		Plants Engagement	trees and shrubs make a beautiful addition to gardens, public green spaces and the broader landscape. They also have enormous benefits for wildlife and the environment including the storage of carbon. There is great scope for additional tree planting in many areas of Navan, including in gardens, school grounds, on roundabouts. A first step is to get people to think about the trees that are within the community.	green spaces.	and March when the ground is not waterlogged and it is not frosty.	trees? Send in a photo and a short description of the area! If you have planted any native trees this winter let us know. Which is your favourite tree in Navan? Which tree is closest to where you live?	mature trees are more expensive but where there is a concern of smaller trees being vandalised this may be the best option. Do not use herbicides to keep down weeds; use biodegradable mulch, weed mat or pull weeds by hand. Trees need plenty of water in their first few years. MCC are able to provide trees to community groups.
11	Construct and erect bird and bat boxes	Workshop Animals	Providing artificial nest boxes for birds and summer roosts for bats can help increase the numbers of these animals. Making the boxes creates opportunity for community engagement with wildlife. Seeing boxes in position raises awareness of the work being done for wildlife in Navan. Holding a bat walk would likely surprise many people as to how many bats there living in Navan.	In gardens. In public places where there are trees.	These are best put in place in the winter months; they can be made any time of year.	Can you help making or putting bird or bat boxes into position? Do you have somewhere suitable for installing a bird or a bat box?	There are plans available online for how to build and where to locate bird boxes for different species of birds and bat boxes. Youth groups/community groups could work with eg the local Men's Shed on the construction of boxes. When in place there could be a launch with a community 'bat walk' or a dawn (or evening) chorus walk.
12	Plant a Community Hedge	Event Habitat creation	Planting hedges adds structure to areas, can provide food and shelter for birds and insects, buffer storm water, store carbon and help reduce air pollution. An area within Blackwater Park has been suggested for a Community Hedge.	Blackwater Park	Planting to be done between November and March.	A social, active, productive day out for the WAN community. Put down some roots in Navan and help plant a native Community Hedge	MCC will be able to assist with selecting a location for planting and may provide the trees.
13	Annual events	Engagement	To tie in with the appreciation of nature within Navan WAN should aim to hold at least one event during Heritage Week.	Navan	This year Heritage Week is 14 th -22 nd August 2021	This could be biodiversity recording along the Ramparts Walk, a Bat Walk, coordinated dispersed invasive species recording (covid restriction friendly).	Opportunity for the WAN community to get together and to bring in some additional members.

14	FIT Counts	Citizen Science	Flower-Insect Timed Counts (FIT Counts) record the numbers of pollinators landing on a small patch of flowers over a 10 minute period. They are simple and quick to do will be invaluable in monitoring the effects of improved conditions for pollinators in Navan over time. Hopefully we will see an increase in numbers over the coming years.	Throughout Navan. Particularly places where actions for pollinators are being conducted.	April through to autumn, when the sun is shining and it is around 12°C	Working from home? Get away from the desk and take 10 minutes to record pollinators in your garden during lunch. Weekend walk? Sit and relax for 10 minutes to record pollinators: https://www.youtube.com/watch?v=lrKqKm3dRV8&t=4s	These surveys are designed to be quick and simple. When many of them are done across Ireland a picture of the situation for pollinators is developed. They will provide the baseline of pollinator numbers in Navan.
15	Log 'Actions for Pollinators' on the AIPP mapping system	Citizen Science	The Actions for Pollinators page of the AIPP website can be used to track progress of pollinator friendly actions across Navan. This can include parks and gardens being managed without chemical, reduced mowing, planting an apple tree or having a window box with flowering herbs.	Throughout Navan.	Short-term onwards	Be part of the All-Ireland Pollinator Plan and put your actions for pollinators on the map.	Recording Actions for Pollinators is a way for the AIPP to track the build up of food, shelter and safety for pollinators. https://pollinators.biodiversityireland.ie/
16	Water pollution awareness and reducing water use	Education	Toilets, sinks and drains are tributaries of our rivers and what we put in them has a huge capacity to impact our local water and biodiversity. As do any herbicides and pesticides used in our gardens. Improvements in water quality would result in increases in aquatic life in our rivers which in turn would be of benefit to creatures such as Salmon, Kingfisher, bats and Otter.	Social Media	Short-term onwards	WAN posts are a fabulous mix of the celebration of nature, education and encouraging others to engage. Gentle reminders of the impact day-to-day choices can have on our environment can be woven into the information provided.	WAN social media could take an increased role in raising awareness of pollution and reducing water use by, for instance collecting water for use in the garden. The Local Authority Waters Programme (LAWPRO) and MCC may provide funding for community information training.

Additional Actions

As well as the main actions listed in the table above, a number of additional actions which could be considered are listed here. They would all be for the benefit biodiversity in Navan and the appreciation of our natural environment but have not been developed fully as Actions for the town at present. It should be noted that any measures carried out for the betterment of biodiversity, can be considered for inclusion in submissions to the Tidy Towns competition and, where relevant, be added to the Actions for Pollinators section of the All-Ireland Pollinator Plan website.

- Encourage Meath County Council to fully implement the Actions set out in the AIPP's guidelines for *Councils: Actions to Help Pollinators*.
- Input into the development of a Management Plan for Blackwater Park. The Park is a large area which can accommodate a range of users and there is ample room for improving the biodiversity aspects of the Park in addition to providing *Natural and Inclusive Playspaces* as is being done in South Dublin (see https://www.youtube.com/watch?v=VsApInCzW_o). The way we engage with our green spaces has changed fundamentally since the onset of Covid19 and the management of these spaces should reflect this. There are enormous benefits to enhancing the connectivity between young people and the natural environment and there is a huge opportunity to provide meaningful engagement with nature within Blackwater Park. There is scope to encourage informal play and provide natural experiences within a safe setting, in addition to the more standard playground equipment and sports areas. Enhancing the Park in this way would go towards making Blackwater Park a regional attraction as opposed to a town park.



Images from the Natural and Inclusive Playspaces presentation by Laurence Colleran

It would be suggested that high-maintenance areas of planting are limited to the northern part of the Park near the car park and the formal playground. Seating around the Park would encourage older users and those less able on their feet. These can include informal resting spots such as boulders or logs that are more sensory than park benches. For children they are

more fun to climb on, lower maintenance, tactile, but still provide somewhere to stop and rest for a while as needed. There is some suggestion that reminders about dog fouling are more effective if painted on the ground rather than high up on posts. The posts add to clutter within the park and herbicide is being used to spray around the base of the posts. In relation to biodiversity a mowing regime will be required to maintain the areas as open habitat and to prevent them from developing into Bramble and scrub. Cutting and lifting grass is done once a year at sites such as Newbridge Demesne, Castletown House and Oldbridge. Areas of woodland can be allowed to develop, particularly on the western fringes. Some of the cycle mounds can be retained as bare earth for mining bee nests.



Examples of formal planting and dog-fouling signs, Blackwater Park

- Investigate if the local woodland areas in Navan can be considered Ancient or Long-Established. This might lend itself to development as an undergraduate thesis. Additional information on this can be found at <https://www.npws.ie/sites/default/files/publications/pdf/IWM46.pdf>.
- Develop a woodland strategy for the forests within Navan. The town has a high abundance of trees, mature woodland and riverside habitat running through the centre of the town. Some of this is Long-Established woodland and as such, a finite resource. These woodlands provide a wonderful visual amenity but as habitats they are largely neglected and few are visited. The strategy would establish how best to manage these woodlands to ensure they can be enjoyed as natural wildlife havens by future generations.
- Develop a strategy for managing the hedgerows within Navan town. The value of hedges within a town such as Navan is difficult to overstate. They provide screening for housing and road users, improve the appearance of new estates, absorb noise from traffic and regulate percolation of rain to groundwater. They also provide food and shelter for animals with many pollinators using the margins and verges for food and shelter. They can form wildlife corridors

for animals to move through the landscape. Urban hedgerows have been taken out of the normal hedgerow maintenance regime conducted by farmers and landowners but they do require management if they are to remain vibrant and healthy and to continue to provide the services outlined above. Options for management might include coppicing of trees, hedge-laying or re-enforcement planting. A hedgerow strategy for Navan would ensure the correct management is undertaken for these important ecosystem service providers and to ensure they remain part of the landscape of Navan for future generations.

- Supporting the establishment of the 'Boyne River Trust' would assist enormously in the management of the river at a catchment scale. This would allow a coordinated approach to river clean-ups, tackling invasive species, riverside improvements and water quality issues.
- Use the State Asset Database available at <https://lda.ie/state-asset-database/> to review MCC owned land in and around Navan with a view to creation of a community woodland. This can be applied for through the *Woodland Creation on Public Lands* scheme announced by the Government in August 2020. With any woodland creation it is important that habitats of value such as species-rich grassland and wetlands are not lost. Planting with trees is not always the best option.
- Discuss with MCC proposals for the land between Dublin Road and The River Boyne which is owned by MCC. Ideally the habitat value of the area should be improved before it develops into scrub. Ideally it would be managed as species-rich wet grassland while retaining its function as a floodplain. It is likely some grazing would improve the habitat quality.
- Raising the potential for removing some of the obstacles along the Boyne and Blackwater Rivers with MCC, Inland Fisheries Ireland and NPWS would be a valuable medium to long-term plan. Or at least ensuring there is provision made for fish and smaller species to move up and down our rivers.
- Local biodiversity themed photography competitions could become a regular event.
- WAN posts on lichens, Ivy-leaved Toadflax and other plants growing on walls and trees would emphasise the biodiversity all around us. Posts on other less-loved species like mushrooms, wasps, worms, and mosses will all help people to look at biodiversity differently.
- Hosting a workshop on Grow Your Own vegetables would link in with concepts of engaging with the environment, reducing food-miles and planting for pollinators through growing herbs and vegetables.
- Workshops on setting up Rivers Trusts, tackling invasive species are available at <https://www.limerick.ie/council/newsroom/news/what-impact-are-invasive-species-having->

[limericks-countryside](#) The Limerick European Green Leaf City YouTube channel is a fabulous resource for Community groups and Tidy Towns and anyone else interested in their environment.

- Map sources of pollution. Pollution can enter the Boyne and Blackwater Rivers through pipes, streams and drains. If water appears discoloured or cloudy, or if the water smells of sewage or detergent, this can indicate misconnections in the sewage system. These can be mapped and photographed via the EPA's 'See it? Say it!' App. This information can feed into work done by MCC in addressing water quality within the river systems.

Appendix 2 Field survey findings

Overview

Due to the scale of Navan town a number of locations were selected for more intensive survey, this was completed in June 2020. These represent some of the best known natural areas within Navan, some housing estates and some lesser known areas and areas where the biodiversity value might be overlooked. The biodiversity features of these areas are given, together with a description of the habitats which includes as many of the species as were recorded. Some recommendations for enhancing the biodiversity of these areas are given, particularly in relation to the pollinators which might occur, or which might be encouraged to the area. It is hoped the approach taken here can be applied to other areas in Navan with similar features the features recognised for their biodiversity value and the ideas for improvement can be applied to these also.

Woodland on Metges Road

The woodland to the west of Metges Road, opposite Johnstown Peoples Park is a young, developing woodland composed of Ash and Alder with some Elder and Grey Willow. The canopy has a rather uniform structure. There is a tall ground flora beneath with Cow Parsley, Hogweed, Nettle, Ivy, Cleavers and Bramble. Review of the historic aerial photographs on <http://map.geohive.ie/mapviewer.html> indicates Metges Road was constructed between 1995 and 2000. The woodland has developed subsequently, so would be only around 20 years old.



Woodland at Metges Road

As such it is progressing well. On the eastern side of the woodland there is a very substantial bank and ditch system, supporting a number of large trees. The historic maps on mapviewer indicate this is the townland boundary between Athlumney and Johnstown which would make this bank and ditch of historical and cultural significance. The woodland had a number of paths through it and it is used for informal outdoor gatherings, which unfortunately leads to littering. There is also some dumping of garden waste along the western edge which can result in the release of non-native invasive plants into the woodland. Blackbird, Robin and Woodpigeon were recorded here.

Johnstown People's Park

This Park area has a good run of under mature trees along the Metges Road with mainly Birch, also Beech, Lime and Cherry. Though relatively young the trees do support a fine collection of mosses and lichens. The grass beneath is relatively species-rich with Yarrow, Creeping Buttercup, Red Clover and White Clover. The grass beneath the trees, between the railings along Metges Road and the footpath may lend itself to a reduced mowing regime. A strip alongside the path could continue to be mown to ensure the area remains neat. It would be worth considering planting a hedge inside the railings along Boyne View.



Trees alongside the Metges Road within Johnstown Peoples Park and lichens and moss growing on some of these trees

Boyne View

At the entrance to Boyne View there are three majestic Ash trees. They are part of the significant treeline which has been retained along Boyne View, opposite houses 1-10. There are Ash, Hawthorn and Elder trees with Ivy, Bramble and Dog Rose towards the base. The treeline is upon a fine hedgebank with Creeping Buttercup, Ragwort, Wood Dock, Dandelion, Cleavers, Bush Vetch and the grasses Yorkshire Fog, Cock's-foot and Red Fescue.



A treeline and hedgebank at Boyne View providing food and shelter for birds, bats and pollinators

The trees and hedgebank are a remnant of the former farmland and form a fabulous refuge for birds and pollinators. The grass verge on the north side of the hedgebank is particularly well-developed. The grassland to the north supports the wildflowers White clover, Red Clover, Creeping Buttercup, Dandelion and Greater Plantain. There is a well-maintained Beech hedge to the north of the grassland which provides structural variation and likely nesting places for birds, though it does not provide food for birds or pollinators. When considering developing a Pollinator Plan the AIPP has as its first principle to ‘protect existing sources of food and shelter for pollinators’. The treeline and hedgebank here are exactly the type of area that should be recognised, valued and protected.

It would be prudent to consider native replacements for these Ash trees. It is possible they may succumb to ash dieback and as mature trees replacement will be necessary at some point to ensure future generations get to experience such treelines. Oak trees would provide the same stature as Ash; Birch or native Cherry can also grow to significant sized trees. The grassland could be considered for a reduced mowing regime. This would depend on the current uses of the area, though it does not appear to be frequently used other than for dog walking.

River Boyne, Dublin Road

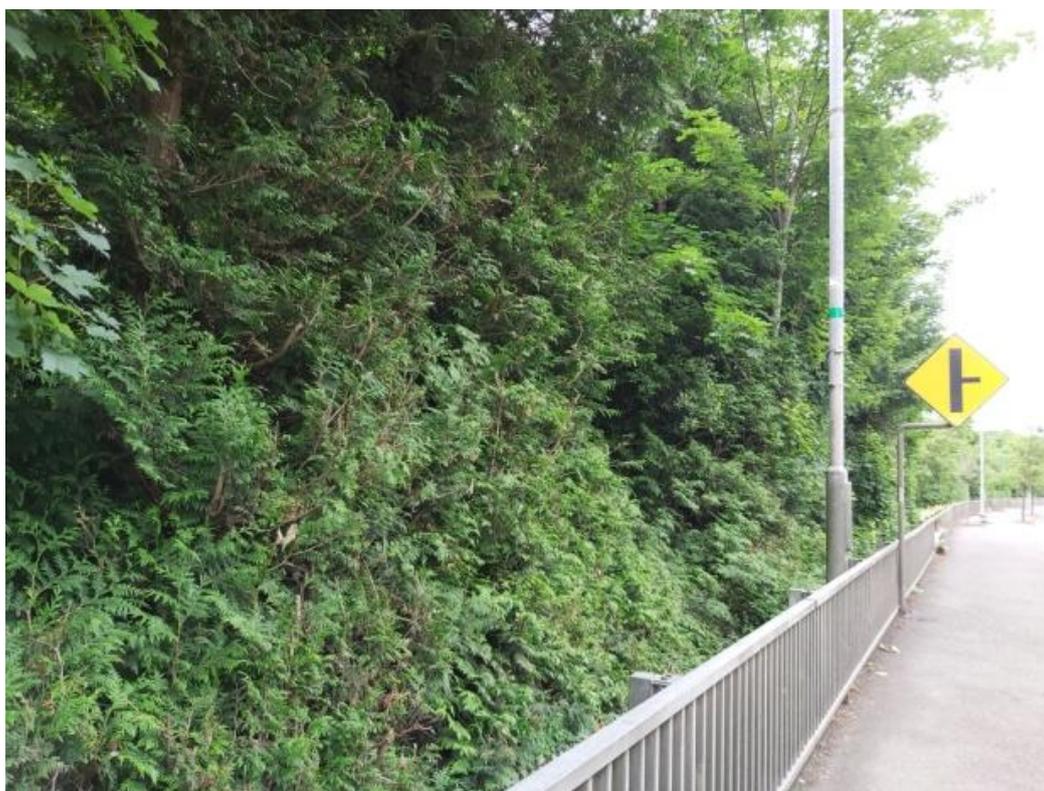
Between Dublin Road and the River Boyne is a large expanse of wet grassland which appears to be experiencing some neglect and is being encroached by Bramble scrub. It would be a shame for the biodiversity value of this area to be allowed to reduce; though Bramble scrub is of value there is greater biodiversity value to wet grassland. The area appears from the Land Registry <https://www.landdirect.ie/pramap/> to be under ownership of MCC. It would be worth getting in touch with the MCC to see what their plans are for management of the area. As the land is within the River Boyne and Blackwater SAC and is a flood zone there are some limitations to what can be done but keeping it as open grassland through grazing would be of conservation value. Another possibility would be to link in with the proposed Athlumney Riverside walk such that walkers could cross the old bridge at the south and then return towards town on the opposite side of the river.



Wet grassland areas between the Dublin Road and the River Boyne

Moving north towards town there is an increasing amounts of Sycamore and some Leylandii trees which block views of the River from pedestrians using the road. This creates disconnect between the pedestrian and the river. Additionally the Leylandii are of little ecological value. There is also an amount of street furniture in places which makes use of the footpath difficult in places. Some of the tree planting areas do not contain trees but add to the pavement clutter. There are some benches

along the stretch which are in some disrepair. Litter occurs along the banks of the river at many points along Dublin Road and into the river at some points. Some recommendations here would be to work with MCC to improve accessibility for pedestrians along this road, ensuring there are views to the river from the benches that are in place. In consultation with MCC and NPWS, consider removing the non-native trees from alongside the River Boyne, particularly the *Leylandii* and other trees between Circular Road and Timmons Hill. Removal of trees can be unpopular and it would be important to convey the positive reasons for doing this: enhancing connectivity of pedestrians and cyclists with the River Boyne and allowing space for native plants.



Leylandii and Sycamore trees along the River Boyne. Leylandii trees in particular are of little biodiversity value.

New Bridge

In 2013, in preparation for adding the cantilevered pedestrian section on New Bridge a survey of the lichens on the bridge was carried out. This recorded 23 different lichens. Survey work for bats was also carried out and Daubenton's Bat were recorded catching swarming insects along the river. The invasive plant Himalayan Balsam was also recorded here during the surveys. During the June 2020 survey Ivy-leaved-Toadflax was noted clinging to the mortar of walls. Though this species was introduced from Mediterranean countries in the seventeenth century it is not a plant of concern and

can provide a pleasing spot of colour on the walls when in flower. The ferns Wall Rue and Maidenhair Spleenwort also grow on the walls of the bridge. None of these plants cause any damage to the walls and it would be great if space were retained for these plants within the community and that they are retained on the walls.



Ivy-leaved Toadflax, Wall Rue and Maidenhair Spleenwort growing on New Bridge

The Ramparts

The Ramparts is a favourite local spot for many people from Navan, with its tall, mature trees, majestic expanses of river and pond like sections of canal with ducks and Moorhens. Reminders of the past are provided by the lockgates, bridges and paths. People living in Navan are extremely fortunate to have easy access to such a high quality natural environment, a resource which would be the envy of many Irish towns. Trees along the ramparts include Lime, Sycamore, Beech, Alder, Horse Chestnut, Oak and Hawthorne. There is also some standing deadwood which adds structural diversity and creates a habitat niche for insects and fungi. To maintain that woodland structure it is important to keep fallen deadwood on site wherever possible. Woodlands are not tidy and it is important not to overly manage them. The woodland ground flora includes Herb Robert, Ivy, Lords-and-Ladies, Enchanter's Nightshade, Creeping Thistle, Wild Angelica, Broad-leaved Dock, Wild Strawberry, Red Valerian, Remote Sedge, Nettle, Cleavers and the woodland grass False Brome.



Standing deadwood on the Ramparts Walk. A valuable resource for insects and bats.

The area is not without its issues; extensive patches of Japanese Knotweed occur at the back of the buildings near Ruxton's Bridge. There are also patches of Himalayan Balsam on the main river, downstream of the Ruxton's Bridge. The woodland to the south of the canal contains significant amounts of Cherry Laurel, an invasive shrub and an abundance of the non-native Horse Chestnut. These non-natives have replaced the native woodland shrubs and trees and generally suppress the native ground flora through reducing the amount of light which reaches the woodland floor.

At the open section of the Boyne Walk there is Meadowsweet, Hogweed, Meadow Buttercup, Angelica, Cock's-foot, Creeping Buttercup, Butterbur, Nettle, White Clover, Water Mint, Yellow Iris, Broad-leaved Dock and Reed Canary-grass. The area is not managed too intensively, has a natural, informal feel and views of the broad expanses of the river occur. Between the path and the Canal the area has been allowed to grow fully, allowing plants to come into flower. Within the River Boyne there are Yellow Water-Lily, Water Plantain, Grey Clubrush, and Branched-Bur-reed. Cormorant, Moorhen, Robin, Tree Creepers and Tortoiseshell Butterfly were recorded.



One of the lock gates on the Ramparts Walk

The path along the Ramparts is likely to be developed as a Greenway from Navan through to Drogheda. There are guidelines for Pollinator-friendly Management of: Transport Corridors available on the AIPP website. It should be emphasised the path already supports a host of native wildflowers which are pollinator friendly and introducing new flower seed is not required. It is a question of

allowing what is there to grow and to flower. It would be important that the greenway is developed with sensitivity to both the river and the bank side habitats such that the existing biodiversity value and attractiveness of the area is not lost under a wide strip of tarmac.

Clonmaggaden Road

At Clonmagadden Fort there are fine hedges that have been planted alongside the wall and railings. The hedge is comprised of Hawthorn with standard trees of Maple. There are also Willow and Hornbeam trees. The grass within Clonmagadden Fort had been left to grow long at the time of survey and had Creeping Buttercup, Red Clover, White Clover, Common Chickweed, Dandelion and hawksbit. There was also some Blackthorn seeding into the grass.



A hedge and tree line at Clonmaggaden Fort

The hedge here is a good example of the type of hedge that can be grown and maintained within a housing estate alongside a busy road and a wall. A suggested enhancement would be some long grass at the base of the hedge which some bumblebees would be able to use for nesting.

Further along Clonmagganden Road at the Aura Leisure Navan, there is a well-maintained reedbed area, most likely a component of the sustainable urban drainage system (SUDS) for the complex. This provides a good area of wetland habitat for birds and insects. It would be good if the landscapers of the grounds could be persuaded to adopt a less-intensive management regime alongside the pavement and reduce (or eliminate) the use of herbicides.



Intensive use of herbicides near Aura Leisure

Castlevew, Ballis

A fine example of a hedge with a verge of long grass supporting wildflowers and therefore supporting pollinators was noted at Castlevew, Ballis. Growing in the verge are the grasses, Yorkshire fog, False Oat-grass, Crested Dog's-tail and Perennial Rye-grass. Flowers include Creeping Buttercup, Creeping Thistle, Yarrow, Ragwort, Dandelion, White Clover and Ivy. The tall grasses and flowers add structure to the boundary between the hedge and the more formal lawn, softening the habitat change and providing an additional habitat niche.



Pollinator and people-friendly mowing at Castleview, Ballis

Blackwater Park

Blackwater Park is a fantastic resource for the people of Navan and beyond. It has great biodiversity features at the moment and there is potential to improve the value of the Park for both people and biodiversity. The Park opened in 2015 so is reasonably young as a town park. It can be broadly divided into two sections with a more formal area to the north of the treeline with the car park, playground and tightly mown grass areas and then a larger, less-intensively managed area to the south, though some high-maintenance areas are being developed here also.

South of the playground there is an area of grassland with a neatly mown 1m strip beside the path. In the tall vegetation there are the grasses Yorkshire Fog, Common Bent, Perennial Rye-grass, Meadow Foxtail, Sweet Vernal-grass, and False Oat-grass, together with the flowering plants Ribwort Plantain, Creeping Buttercup, Silverweed, Red Clover, White Clover, Creeping Cinquefoil, Creeping Thistle, Broadleaved Dock, Common Mouse-ear and Ragwort. Also growing within the grassland are the woody plants Bramble, European Gorse, and Grey Willow.



Neatly mown grass alongside the path with longer grass beyond, Blackwater Park. A neat edge indicates the grass has been intentionally left to grow long.

These woody shrubs will expand at the expense of the more delicate wildflowers if there is no mowing (or grazing) undertaken. The ground is rather uneven underfoot. Grasshoppers could be heard in the grass. This rough grassland continues to the south of the hedgerow with a similar suite of species. There is a wetter area off the main path which provides some variation. This has Yellow Iris, Nettle, Reed Sweet-grass, and Tufted Hair-grass. The grassy footpaths cut through the grass are a welcome addition, encouraging people to leave the tarmac path and explore the surrounding area.



Grassy paths cut into the long-grass encourage people to explore away from the main path

The central area has a number of hills and steep slopes. There are also areas which have denser cover of Grey Willow Scrub. There is woodland along the eastern perimeter with a number of paths leading through it. The canopy has Beech, Sycamore, Goat Willow, suckering Grey Poplar and occasional Hazel. The woodland floor has Herb Robert, Blackthorn seedlings, Ivy, Bramble, Nettle, False Brome, Wood Avens, Soft Rush and Crested Dog's-tail. Despite the many non-natives in the canopy it has a natural feel.



Flower-rich grassland in Blackwater Park. Clovers and Buttercups are great for pollinators.

The old hedge is being allowed to broaden and is effectively a narrow woodland. Species here include Elder, Grey Willow, Hawthorn, Ash, Blackthorn, Alder, Holly and, Bramble. The long grassy edge alongside the hedge has Yorkshire fog, Herb Robert, White Clover and Rosebay Willowherb. There is also some Japanese Knotweed within the hedge to the west of the coming from the playground.

Blackwater Park is a large area which can accommodate a range of users and there is ample room for improving the biodiversity aspects of the Park. It would be a missed opportunity if the grassland areas develop into scrub as these will be less valuable as a biodiversity resource and less pleasing as a Park. Options include long grass/wildflower meadows (cutting and lifting grass once a year as is done at sites such as Newbridge Demesne, Castletown House and Oldbridge) which could become an annual social event. Allowing some areas to develop into woodland, particularly on the western

fringes would provide structural diversity and habitat for birds and mammals. Some of the cycle mounds can be maintained as bare earth for mining bee nests.



Possible locations for the WAN Community Hedge

Planting a new native hedge within Blackwater Park as an event initiated by WAN would be a further positive action. Possible locations for this are shown in the map below. Discussion with MCC would be needed in relation to selecting the site. These locations have been suggested as they link in with the existing hedge network, and they are close to the path such that those who did the planting can easily watch it develop.

Appendix 3 Water in the Boyne and the Blackwater Rivers

Water Quality Monitoring

The water quality of the Boyne and Blackwater Rivers is monitored as part of the EPA (Environmental Protection Agency) water quality monitoring programme. Q-Ratings (or quality ratings) are applied to rivers based on the samples of the animals (mainly larval stages of insects, but also snails, worms and shrimps etc) that live in the rivers. Some animals are able to tolerate pollution and some even thrive in polluted waters, while others are more sensitive to pollution and would be unable to live in polluted waters. The Q-Rating is assigned based on what collection of animals is found and the level of pollution they indicate. A two minute kick sample is carried out in areas of stones and gravel with the animals that are disturbed by this washed into a net, collected and identified. There are four monitoring points in and around Navan and they all indicate the water quality is Poor to Moderate. This scale has five categories ranging from High quality water, through Good, Moderate, Poor and Bad. The water quality of the Boyne and Blackwater is therefore towards the lower end of the scale. Of these four monitoring points the water quality at the Slane Road Bridge, just upstream of the confluence with the River Boyne is the lowest quality. It can however be seen that some of the records available are almost 20 years old.

Station Name	100m d/s New Bypass Bridge	Slane Rd Bridge Navan	Boyne - Railway Bridge Navan	2km d/s Navan
River	Blackwater	Blackwater	Boyne	Boyne
Year	2012	2018	2003	2003
Q Value Score	3-4	3	3-4	3-4
Q Value Status	Moderate	Poor	Moderate	Moderate

These data are from <https://gis.epa.ie/EPAMaps/>.

Water Pollution

The idea of managing a river can be rather daunting. There are however a number of achievable measures that can be taken. An important first step to improving the water quality of our rivers is to increase our awareness: the importance of water as a resource to us and to wildlife, the impact we can have on water quality through pollution, using water unnecessarily, the linkages from our drains to our rivers and the link from water to wildlife.

It is relatively straight-forward to make the association between water pollution and large factories or some farming practices but we can play our part to. Some suggestions would include avoiding using pesticides and herbicides in the garden which can end up being washed into rivers, doing less laundry as this can lead to small fragments of plastic and phosphorus entering the water system, returning old or unused medicines to the pharmacy rather than flushing them down the toilet or putting them in the bin. Reduce the amount of water we use by using water butts to collect water for use in the garden or for washing the car. All of these measures will help reduce the pressure we are putting on our rivers.

Litter clean-ups

Removing litter from within and alongside rivers is of benefit to wildlife, improves habitats and gives communities genuine engagement with their environment. A river clean-up of a large river like the Boyne/Blackwater is challenging but possible.



Community clean-up of the St John's River, Waterford City. Photo from www.catchments.ie

Litter was removed from the St John's River, a tributary of the River Suir in Waterford City by the local community <https://www.catchments.ie/community-clean-st-johns-river-waterford/>. The majority of the litter on the Boyne/Blackwater is along the river banks rather than within the river itself. These are best conducted in the winter months when the vegetation is low such that the litter can be more easily spotted. Before commencing on a clean-up a review of the particular spots to be tackled should be done, looking into the feasibility of this. The Community Water Development

Fund, which is generally open for applications between November and early February, would be able to assist with this project.

The Boyne River Trust

The Boyne River Trust is currently being developed with support of The Rivers Trust and the Local Authorities Water Programme. Rivers Trusts are charities established to look after a river catchment, to protect and improve the habitats and water quality and to advance education of the public. WAN will certainly have a role to play in this exciting local development.

Citizen Science Stream Index

Exploring what is living within our rivers is a great way of engaging with our local environment. All waterways can be dangerous and safety will always be the primary concern but sections of the Rivers Boyne and Blackwater do lend themselves to people pulling on their waders, stepping in and finding out what is in there.

A simplified Citizen Science approach to recording water quality is about to be launched across Ireland where just six species are looked at. This is the Citizen Science Stream Index (CSSI). Training on CSSI this can be provided to the community through LAWPRO or MCC, but it is really a case of getting some recording equipment, getting out to the rivers and stream and getting familiar with the creatures that are there. This could be supported by the purchase of sample nets, sampling trays and species ID cards. These could then be loaned out to people interested in undertaking these surveys.

Additionally MCC or LAWPRO can be approached with a view to providing training in CSSI as the approach rolls out.

Suitable equipment is available on www.nhbs.com. There are options for starter kits at around €17.50 which give a mini net, sampling pots, bug magnifying pot, sample tray pipette and an identification chart. Though the chart is from the UK these ID guides would be suitable for introductory level identification in Ireland. The mini net does not seem the most robust and it would be worth purchasing a student net with a 1 mm mesh. The long handle on this can help with steadying yourself when wading along the river. It would therefore cost less than €100 to purchase and deliver one set of equipment that two people could use. This type of activity would be possible outside, in small groups and would therefore be suitable during some stages of Covid Restrictions. A

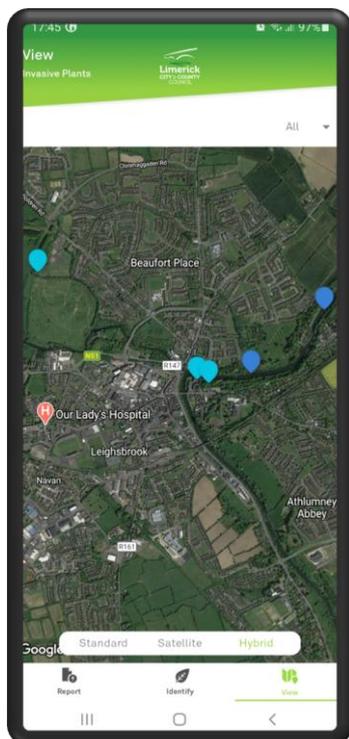
small grant from the County Council or LAWPRO, or a corporate donation could help fund this equipment.

<https://www.nhbs.com/pond-dipping-kit-mini-net?bkfno=246677>

<https://www.nhbs.com/student-hand-net-with-wooden-handle-200mm-wide>

<https://thewaterforum.ie/sfi-science-week-8th-to-15th-november/>

Appendix 4 Invasive plants



Recording the location of invasive species is the first step towards their effective management. Invasive species can be mapped by Community Group members using the App 'Report Invasive Plants'. This is run by Limerick County Council, who verifies the records, post them on the app and then send the information to the National Biodiversity Data Centre. The information is then sent to the County Councils. The app allows users to take/upload a photograph and embed GPS coordinates of the location. Records can be submitted from anywhere in Ireland. The screenshot here shows the records that have been recorded so far in and around Navan.

<https://www.limerick.ie/smart-limerick/programme-1-engagement-participation/invasive-species-app>

The main invasive species of concern in Navan are Japanese Knotweed (*Fallopia japonica*) and Himalayan, or Indian Balsam (*Impatiens glandulifera*). Japanese Knotweed reduces species diversity and alters habitats for wildlife. It is extremely persistent and difficult to remove and its management is subject to national and EU legislation. It is therefore necessary for specialist advice to be sought for managing this species but mapping of the extent of the species is of great value in the effort to deal with the plant.

Himalayan Balsam

Himalayan Balsam shades out native plants and grasses during the summer. It then dies back in the winter leaving the river bank exposed to weathering and erosion. The nectar of its flowers is very attractive to bumblebees, attracting pollinators away from native flowers, giving the Himalayan Balsam a further advantage over native plants.

The plant does however lend itself to being tackled by community groups as they can be easily pulled up. It is preferable if they are tackled on a catchment basis as, where seed sources remain upstream, recolonisation is likely. However, there is benefit to reducing the number of plants at a local level as this will give opportunity for native plants to grow back in the areas where Himalayan Balsam plants have been pulled out. It will also reduce the number of seeds being cast within the river system.

'Balsam Bashing'

'Balsam Bashing' takes advantage of the shallow root system and the delicate stem of the plant which means plants can easily be pulled up and broken. It is important to do this before seed pods develop. This depends on how much light the plants are getting with flowers in full sun setting seed in June and shaded plants later in the year. Any attempt to remove the plant once the seeds have developed will cause the pods to burst, spreading the plants further.



Himalayan Balsam flowering on the banks of the River Boyne

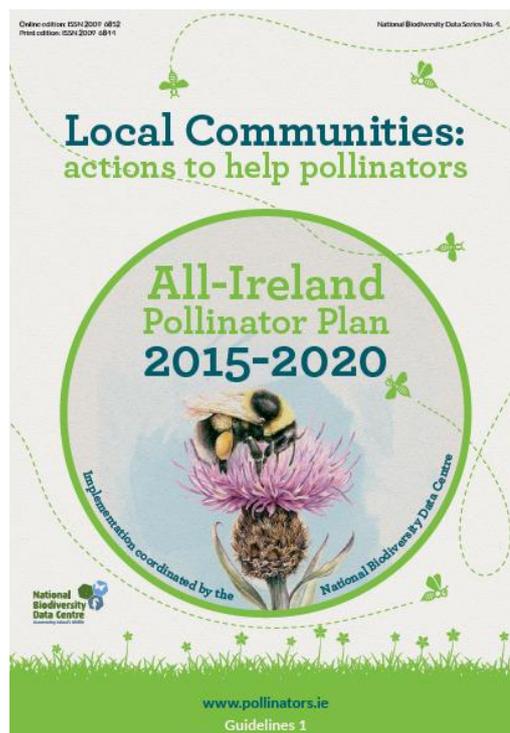
Community Groups in Tipperary are successfully controlling Himalayan Balsam in their area with the help of the LAWPRO office and South Tipperary County Council. Contributing to, or developing into, a project that eliminates Himalayan Balsam from the Boyne/Blackwater catchment would be the ultimate aim.

There are Himalayan Balsam plants on the river bank in the Ramparts and downstream of this. A project that started by managing these plants would be beneficial by reducing the number of seeds being produced within the catchment. There is more significant and substantial infestation further downstream at Yellow Island. Tackling these on a catchment basis would be a more significant task, but hugely beneficial.

<https://www.catchments.ie/balsam-bashing-continues-along-the-banks-of-the-river-suir-blueway/>

Appendix 5 The All-Ireland Pollinator Plan

The All Ireland Pollinator Plan (AIPP) was launched in 2015 and through this a national pollinator strategy has developed from the ground level up. One of the main results of the AIPP is that we are all more aware that pollinators are in trouble. We have 98 different types of bee: the honeybee, 20 different bumblebees and 77 different solitary bees. Most pollination in Ireland is carried out by bees and they are in trouble due to lack of food (flowers), places to nest, pests and diseases and the impact of pesticides and herbicides. One third of our wild bee species are known to be threatened with extinction in Ireland. This is because we have drastically reduced the amount of food and safe nesting sites in our landscapes. We rely on pollinators for the part they play in the production of food by farmers and growers, for pollination of flowers and vegetables in our gardens and the pollination of wildflowers in the landscape which provide food and shelter for birds, mammals and insects.



Through the AIPP a range of guidelines have been prepared aimed at including farmers, community groups, councils, schools, gardeners and sports clubs. Across all these sectors an approach based on the same principles are applied. These principles are:

- A Protecting existing sources of food and shelter for pollinators,
- B Altering the frequency of mowing of grassy areas,
- C Adding pollinator friendly planting,
- D Providing nesting habitat,
- E Reducing the use of pesticides
- F Raising public awareness and
- G Tracking progress

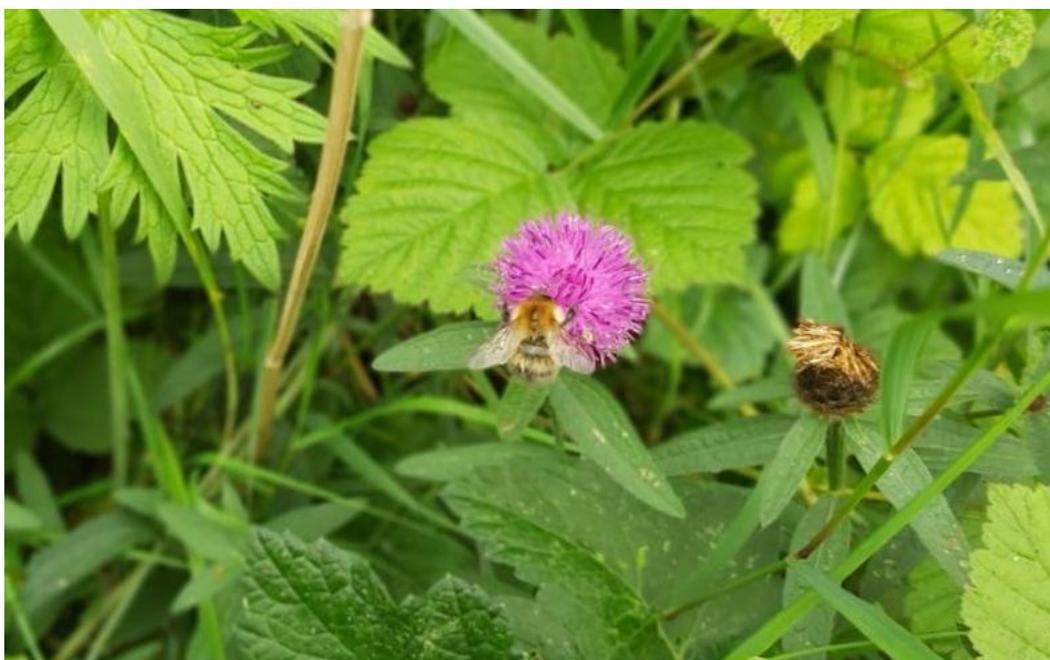
The guides prepared by AIPP are all available at <https://pollinators.ie/> together with a wealth of additional information including guides on how to identify different bumblebees, how to create

wildlife meadows, where to record actions you have carried out for pollinators and templates for information signs that can be downloaded.

The first plan covers the period from 2015-2020 and the new version was launched in March 2021 covering 2021-2025. The overall aim of the AIPP is about all sectors of society coming together to create an Ireland where pollinators can survive and thrive.

Meath County Council is a signatory of the AIPP and (as of April 2021) a small handful of businesses and residents within Navan have recorded their actions on the AIPP website. It is anticipated with further awareness through WAN and work by MCC will result in a far greater number of actions being listed over the lifespan of the new AIPP.

As noted above there are guidelines to suit different organisations, businesses and individuals and people can take from the various recommendations which suit their situation and implement those in their area. A 'plan' can be as simple as reducing the mowing on your lawn and adding some pollinator friendly plants to the pots on the patio through to a sports club, Tidy Towns organisation, business or council adopting a more formal written plan which outlines how they are going to adapt their area to make it more friendly to pollinators. It is really a case of many people doing what they can.



Common Carder Bee on Black Knapweed

It is likely some coordinated effort would be beneficial to help people start the process. For example MCC hosted a Biodiversity Workshop in November 2019 to give attendees information on putting together Pollinator Plans and it is likely worthwhile to run something like this again. Other examples of information sharing are webinar evenings for Tidy Towns groups on Biodiversity organised by Limerick City Council and Sustainable Skerries have provided talks on Gardening for Pollinators.

Such plans are best started off small and a great way to start is by reducing the frequency of mowing in gardens. The 6 week approach to grass cutting is outlined in *Gardening for Biodiversity*. <https://laois.ie/wp-content/uploads/Garden-Wildlife-Booklet-WEB-17MB.pdf>

Appendix 6 Boxes for Bats and Birds

Bats

Bat boxes provide artificial roosting sites for bats where there are few roosts present. Different species of bat have different requirements as regards space so bat boxes come in different shapes and sizes. The design below is for the Kent Bat box and taken from <https://cdn.bats.org.uk/pdf/Our%20Work/Bat-Box-Information-Pack-May-2018.pdf?mtime=20181101151335&focal=none>.

Design and measurements

Simple to construct, self-cleaning and low maintenance, the Kent bat box (designed by the Kent Bat Group) is a great way to encourage bats in your garden or your green space. The box should be rainproof and draught-free.

The only critical measurement is the width of the crevices: between 15-25mm. Other measurements are approximate. Timber should be approximately 20mm thick.

Measurements for one Kent bat box kit would be as follows:

Part	Quantity	Size (mm)
Roof (A)	1	250 x 160 x 20
Back (B)	1	450 x 200 x 20
Centre (C)	1	330 x 200 x 20
Front (D)	1	210 x 200 x 20
Centre Rails (E)	2	330 x 20 x 20
Front Rails (F)	2	210 x 15 x 15
Stand-offs (optional)	2	200 x 20 x 20

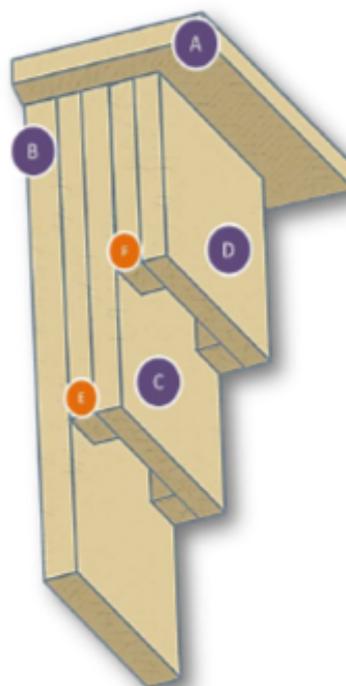
Material and Tools

This kit requires approximately 1.6m of rough wood and 25 screws (8 x 1 ½ inches) to assemble. You can rough it up by scraping with a suitable tool – possibly a saw blade or even a screwdriver but make sure you use untreated wood as some preservative chemicals can kill bats.

Pre-drill the holes to prevent the wood splitting. Alternatively you can assemble your bat box kit with nails although they tend to be less robust than boxes made with screws.

The hanging screws may either be at the edges of the front panel or in the side centre block (not in the rails!). Fixing may be by use of brackets, durable nylon cord or wires.

When installing the box, assess the risks of working at height, use the appropriate fittings and assess where the box will be located, in relation to any public access. Regular checks should be made to ensure the box remains securely fitted, especially after high winds.



Alternatively bat boxes can be purchased from BirdWatch Ireland at <https://birdwatchireland.ie/shop/> or from specialists such as <https://www.greenwoodsecohabitats.co.uk/bats> though note this last website is from a UK company and not all the bats catered for on the website would be present in Ireland.



Garden birds

Modern houses have few holes or crevices for nesting. Also in many instances trees with holes and splits are removed for fear of them becoming dangerous. Nest boxes provide a suitable alternative for nesting sites. The same standard design can be used for many birds though the size of the entrance hole will determine the bird that will use it. Entrance hole sizes for different birds are as follows: Blue Tit (25mm), Coal Tit (25mm), Great Tit (28mm), Tree Sparrow (28mm), House Sparrow (32mm), Starling (45mm). The same basic style of box but with the upper half of the front taken away will be suitable for a Robin, Pied Wagtail or Wren. Some other notes are as follows:

- Nest boxes should be in place before February and ideally set up in the winter as birds may use them for shelter over the winter.
- Unless the site is very sheltered the box should be fixed facing between north and south-east to avoid the hot sun and the wettest winds.

- Position nest boxes away from bird tables, otherwise birds may spend their time chasing away other birds attracted to the food.
- Resist the temptation to keep having a quick peep, as this could potentially result in the parents abandoning the nest.
- In October empty out old nest material and any unhatched eggs and clean the inside of the box with boiling water to kill any parasites.

Further details can be found at <https://birdwatchireland.ie/app/uploads/2019/09/Nestboxes-factsheet.pdf>

Swallows and House Martin

Nest boxes for Swallow and House Martin are available from Birdwatch Ireland. These boxes are quite different to traditional bird boxes and would provide a good visual indication of bird diversity so ideally would be positioned where they can be seen.



House Martin nest box on the right and the open cup for Swallows on the left. Pictures from www.birdwatchireland.ie

Appendix 7 Areas Designated for Conservation

The Rivers Boyne and Blackwater have been designated as Special Areas of Conservation and Special Protection Areas. A link to the maps showing the extent of these designations can be found at: <https://www.npws.ie/maps-and-data>. Information on what these designations mean and reports about the sites can also be found on the website. The page relating to the SAC designation is: <https://www.npws.ie/protected-sites/sac/002299> and the one for the SPA is <https://www.npws.ie/protected-sites/spa/004232>.

There are some proposals, including the river clean-up, invasive species removal and felling of some trees, which would occur within the SAC and the SPA and it would be important to make contact with Annette Lynch the NPWS Conservation Range for Meath before these go ahead. Annette Lynch can be contacted via the North Eastern Divisional office at 076 100 2593.

Water pollution or littering can be recorded through the *See it? Say it!* App. Water pollution could include water that is discoloured or cloudy, or smelling of sewage or detergent; this could indicate misconnections in the sewage system.

Appendix 8 Hedgerows

Hedgerows are one of the most characteristic features of our landscape. They provide important habitat for many species. For birds they provide nesting sites, shelter, sources of food and corridors or pathways to travel across the landscape. They provide similar habitat for insects, including pollinators, as they are sources of pollen and nectar. The base of hedgerows often provides long grasses and vegetation which are places where pollinators can overwinter. In addition to providing for animals they provide a woodland edge type habitat where plants, ferns and mosses can grow. As well as their value to wildlife they have huge benefits for us too. They provide screening for housing and road users, mark boundaries, provide privacy, improve the appearance of new estates, absorb dust, pollution and noise from roads, improve water quality and assist percolation of water, give shade from the sun and protection from the wind and they are great to look at. Despite all of this they are often overlooked and neglected.

Get to know your hedge; who manages it, what grows in it and who lives in it.

In general hedges need to be managed to ensure they maintain their function as a shelter and a refuge for wildlife and so they do not grow out of control and cause issues with neighbours. How to cut a hedge depends on how you want it to look. Cutting hedges to the same height and width each year can make the growing tips too woody and they can lose their ability to produce new growth. A bushier and denser hedge can be grown by cutting at least 2cm above the previous year's growth. This will keep the hedge full of vigour and growth. Most hedge plants such as Hawthorn (or Whitethorn) flower and fruit on the previous year's growth. More vigorous pruning, to bring them back into shape can be done on a portion of the hedge so that there is continued flowering and fruiting. Ideally the sides of a hedge should taper slightly towards the top to allow light and rainwater to reach lower leaves and the ground at the base.

Some hedges will need rejuvenation. This can be done through coppicing or hedge laying. Coppicing is cutting back the stems to within 10-15 cm of the ground and allowing hedge plants to grow back. Gaps can be planted up with native broadleaf trees to increase diversity. Hedge laying is cutting hedgerow stems partly through, near the ground and bending them over without breaking them. The laid stems are intended to provide a stock proof barrier but additionally they continue to provide flowers and food for pollinators and retain the function and visual role of the hedge. By comparison, coppiced hedges will not return to producing flowers and fruits for a number of years.

Hedges that are overgrown can be managed as a treeline. This will depend on its location and the functions that it is performing. Selective thinning and the removal of some branches to allow in light may be necessary and some control of the overall growth.

A wealth of information on hedgerows, recognising species, planting new hedges and hedgerow management can be found at www.hedgeline.org.uk including the *Hedgerow Management Cycle and Scale* (Accessed 13/3/2020) which provides practical advice on recognising what type of management might be appropriate for a particular hedge. Additional advice can be found on the <https://hedgelaying.ie/> and information on suitable planting can be found in the *Hedgerows for Pollinators*. Also see:

https://ptes.org/wp-content/uploads/2014/09/Hedgeline_Hedge_Management_Cycle.pdf

Planting a new hedge

Hedges have enormous wildlife benefits, can screen roads and reduce noise. Rather than occasional trees, some green spaces may be more suited to the planting of a new hedge. These could be located on the southern side of a wall (where they will get sufficient light) in gardens or estates, at the entrance to estates, or in open green areas that are lacking in structure or character.

Ideally a new hedge should link with other habitat features in the area as this will make it easier for insects and plants to migrate to the new hedge, but if this is not critical. Of greater value would be ensuring the new planting would be welcomed by the local community and positioned such that it does not impinge on others.

The trees planted should be suited to the local environment and it is good to copy the species that are found in hedges in the locality. A list of native Irish trees suited to the local area trees that would be suitable for planting in a hedge would be:

Hawthorn/Whitethorn (*Crataegus monogyna*)

Hazel (*Corylus avellana*)

Wild Cherry (*Prunus avium*)

Alder (*Alnus glutinosa*)

Elder (*Sambucus nigra*)

Blackthorn (*Prunus spinosa*)

Holly (*Ilex aquifolium*)

Spindle (*Euonymus europaeus*)

Grey Willow (*Salix cinerea*)

Guelder rose (*Viburnum opulus*)

Planting should be carried out between October and March, though avoiding very cold days. It can be a great community activity. The following guide is adapted from advice given on the gardening for wildlife section on www.rspb.org.uk

- After ensuring there are no pipe or underground cables in the vicinity, dig a trench about a metre wide.
- Mix in compost and position plants in a double row, spacing your tiny whips around 30cm apart, and spreading the roots carefully. Don't expose the roots to the wind for too long as they can dry out very easily. A line can be used to ensure the plants are in a straight line (especially if there are a number of people working together). Firm the soil down and give plenty of water.
- Remove half of the height of the plants after planting. This reduces wind rock and allows the roots to establish quicker. It also encourages bushy growth from near the base of the plant more quickly.
- Newly planted hedges can be damaged by wind, drought and severe weather for the first 2-3 years. Keep moist, and mulch to prevent weeds or remove these by hand. If planting in March, note that April is generally the driest month of the year!
- Never plant climbers into a new hedge. Allow the hedge to establish first; otherwise the vigorous growth of the climbers can overcome the young shrubs. Once the hedge is old enough, climbing rose, dog rose and honeysuckle can be planted.

Depending on where the hedge is located a newly planted hedge may need protection from grazing animals or, unfortunately from vandalism. If this is necessary fencing should be erected around the hedge.

Appendix 9 Enhancing Estates

Housing estates provide a great opportunity for improving the biodiversity of Navan, particularly for pollinators, birds and bats. The best approach to enhancing biodiversity within the green areas of housing estates would be the development of individual plans following the principles of the All-Ireland Pollinator Plan. If we get conditions right for pollinators we will have it right for most other biodiversity that is likely to occur in and around Navan. Individual plans can take into account the particular features of the area and how an area is currently used and managed. These plans should be drawn up by, or with, the residents of the estates such that the residents have ownership of the plan. The plans do not need to be complicated, just an agreed set of things that will be done. One of the most important aspects of a local biodiversity action plan is encouraging people to amend the way long grass, Dandelions and Brambles is viewed.

As part of the development of this Action Plan estates at Boyne View, and Clonmaggaden Road were visited to give an idea of the value of some local features and ideas for how these can be enhanced.

General ideas that would be suitable for many areas are given below.

- Identify what biodiversity features there are already with a view to retaining and enhancing these. This could be a mature tree, a hedgerow, a hedge bank, an old stone wall, a corner of bramble and nettle. Check out if these areas are being used by wildlife; nesting birds or insects.
- Consider how people currently use the grassy areas and work with this. Keep the short grass in areas used for playing, walking or running etc. Other areas can be considered for reducing the frequency of mowing. This can be around trees or a strip alongside a fence, hedge or wall.
- Identify a local Biodiversity Champion. Someone who is onboard with biodiversity, or willing to learn; a person who gets things done.
- Start small, let people get used to the changes.
- Low-cost and low maintenance is generally best.
- Inform people of what is being done with signs or events. People will be more agreeable of the new approaches if they are kept informed and included.
- Following measures for pollinators as given in the All Ireland Pollinator Plan will form the bedrock of biodiversity for other species including birds, mammals, insects and plants. If we get it right for pollinators, we have it right for everything else.
- Wild flowers are pollinator friendly.

- Planting native trees can soften the appearance of an open green area, particularly if the space has a regular, uniform appearance. Planting with small groups of three to five trees has a greater visual impact than single trees. Semi-standard trees are more expensive but make a more immediate visual impression. They are more robust where there is a risk of vandalism. In an estate setting planting apple trees can provide food for pollinators and for people.
- Native species of plants are likely to be of greater benefit to our native wildlife but the Pollinator Plan for Gardens has lists of suitable bulbs, perennials and annual plants such that colourful displays can be created.
- Daffodils are not great for pollinators but pollinator friendly bulbs such as Snowdrops, Allium and Grape Hyacinth (*Muscari armeniacum*) could be added to existing displays.
- Planting into the ground is generally better than tubs or containers as this will cut down on the watering that is needed.
- Introduce new microhabitats where you can like patches of taller grasses or nettle, rock or log piles. A Bee Scrape is a southern facing earth bank that has the vegetation removed from it over an area of about 1 meter x 1 meter. This allows space for mining bees to dig their nests.
- Leave some areas wild during the spring and summer. These can be cut back in the winter, every two or three years.
- Be chemical free, collect rainwater, use peat-free potting compost and make your own compost.
- *Gardening for Biodiversity* gives the *Five Gold-star plants for biodiversity* as Dandelion, Bramble, Clover, Ivy and Willow. It is likely the first four of these occur, at least around the edges of most estates around Navan and Grey Willow can be easily added in the winter by cutting a rod from a tree in the winter and sticking it in the ground.
- Add signs to let people know areas are being Managed for Wildlife. These can be found on the AIPP website.
- Have a Best Biodiversity Estate in Navan Competition.

Great starting points are the AIPP guidelines for Gardens: https://pollinators.ie/wordpress/wp-content/uploads/2018/04/Gardens_actions-to-help-pollinators-2018-WEB.pdf and Gardening for Biodiversity which is available here: <https://laois.ie/gardening-for-biodiversity/>.

Appendix 10 Dispersed Urban Orchard

Monaghan Tidy Towns created a Dispersed Urban Orchard (DUO) to help pollinators move through the town. A DUO is formed when people plant apple trees in their garden, a park or other open area. Pollinators are able to travel from tree to tree pollinating the fruits. A lot of space is not needed for apple trees and trees can be chosen to suit the space available. Smaller varieties can even be grown in containers. As well as providing food for bees and other pollinators, a DUO will provide 'low air miles' food for people, increase the number of trees within Navan and act as a very visual reminder of the link between pollinators and people. It would be a great legacy to create the opportunity for children from Navan to grow up where the pleasure of picking an apple from a tree and eating it immediately is common place.

When creating the Monaghan DUO apple trees were sourced from Seed Savers and included local heritage varieties. What an opportunity for bringing the apple variety Blood of the Boyne back to the region! They advertised a *Fruit trees for a Fiver* initiative and asked people to tell them exactly where the trees were planted. They were then able to build up a map of the connectivity provided to the local pollinators by these apple trees.

This initiative can commence with the planting of just one tree, but it can be added to each winter during the planting season from November through to March. As occurred in Monaghan the locations of planting should be recorded. This can be complimented by locations of existing apple trees and orchards. The online Actions for Pollinators map can be used for this or a separate map record of trees could be kept by WAN.

It would be good to identify any established orchards within Navan and potentially any old Irish varieties of apple. Apples also provide opportunity for exploring Food Waste in Navan. This could be carried out through a social media drive with the collected apples being eaten or juiced. A low tech apple press can be made from a suitable container and a car jack. This could lead to a Community Apple Day with fruit pressing, cider making, baking competitions etc.

Appendix 11 Being Grant Ready

Part of the intention with the Community Biodiversity Action Plan is to have ideas ready such that when funding opportunities arise the ideas can be developed to suit the grant which is available. Potential sources of funding are advertised through the Public Participation Network and the environmental pillar within the PPN is developing with funds becoming available for biodiversity.

Though most Community Groups are proficient in applying for grants a few fundamental pointers would be:

- Keep language positive,
- Keep to the format given on the application form,
- Do your sums and check them,
- Keep a back-up of the text such that it can be adapted, copied and pasted into an additional application form,
- Make contact with the contact person to ensure you are on the right track with your application,
- Match funding is a feature of some applications (LAWPRO). Options for obtaining this include the Corporate Social Responsibility and fund raising,
- Hopefully not a consideration going into the future but, show how the plan has been adapted to Covid 19,
- Get someone to check over the proposal before submitting.

Appendix 12 Helpful Contacts, Organisations and Websites

- Information on river basin management and the Local Authorities Water Programme (LAWPRO). They also provide grants for water-based projects with grant calls generally being open from November to early February. There is also detail of a range of projects set up by community groups from around the Ireland. The officer for Meath is Aoife McGrath 085 808 3682 anamcgrath@lawaters.ie; <http://watersandcommunities.ie/>
- Geohive has an excellent mapviewer where historical maps and aerial photographs can be viewed <http://map.geohive.ie/mapviewer.html>
- A host of invaluable information on promoting pollinator-friendly practices for community groups, gardeners, golf course managers and farmers is available at: <http://pollinators.ie>
- There are a number of bat workers based in Meath including the current Chairperson of Bat Conservation Ireland. Their website includes information on bats projects they are undertaking and talks they hold. <https://www.batconservationireland.org/>
- The Meath Branch of Birdwatch Ireland <https://www.birdwatchirelandmeath.com/>
- NPWS District Conservation Officer for Dublin can be contacted at 076 100 2593 <https://www.npws.ie/>
- Maps of biodiversity records across Ireland, from National Biodiversity Data Centre: <https://maps.biodiversityireland.ie/Map>

- Submitting biodiversity records to the National Biodiversity Data Centre:
<https://records.biodiversityireland.ie/>
- Inland Fisheries Ireland, helpful advice for any inland aquatic issues:
<https://www.fisheriesireland.ie/>
- Details of swift boxes, where to locate them and how to attract swifts. Linda Huxley can be approached in relation to conducting a Swift Project:
<http://www.swiftconservation.ie/>
- Providers of environmentally sensitive Swift Nest Boxes and sound systems:
<https://genesisnestboxes.ie/>
- Report on Ancient or Long-Established woodlands in Ireland can be found at:
<https://www.npws.ie/sites/default/files/publications/pdf/IWM46.pdf>
- Data on water quality from rivers across Ireland can be found at: <https://gis.epa.ie/EPAMaps/>
- NHBS are a UK company that provide equipment and books on ecology and biodiversity. (Be sure to select payment in Euro, such that you do not have to pay import fees):
<https://www.nhbs.com/>

Appendix 13 Useful Apps and Tools

LeafSnap – Plant Identification can be used to help identify either leaves or flowers from photographs you have taken. Like many of these apps which are available it is not 100% reliable but should give an indication of which species to consider. There are many other plant identifier apps available.

iNaturalist can be helpful if you need help identifying something you have photographed. Your photograph is posted up and other users suggest what it is.

River Obstacles developed by Natural Apptitude, Bristol UK is for photographing and recording weirs dams and other obstacles on rivers that limit movement of fish and other aquatic life.

See It? Say It! is an App developed by the EPA for recording environmental complaints such as illegal dumping, water pollution, air/odour and noise. The app sends the details to the Local Authority.

Report Invasive Plants from Limerick City & County Council is a very simple App to use and is a good introduction to biodiversity recording. It has photographs to help with identifying the four main invasive plant species. Records are sent on to the Local Authority.

BirdNET App from Cornell University can be used for identifying bird songs and calls in the field. It is simple to use and gives a level of certainty with any ID. It will help point you in the right direction.

Biodiversity Data Capture is the recording App for the National Biodiversity Data Centre. It is useful if you are familiar with the species you are recording as location is recorded at the time of entering the record. Therefore if you have to check the sample in a book at home it is better to enter the record on the online facility.

All-Ireland Pollinator Plan Newsletter. Signing up to this is a great way to keep up-to-date with pollinator species to look out for in a particular month, seeing what other groups around the country are doing for pollinators, reminders to keep from mowing the grass during ‘No Mow May’ and keeping up-to-date with development in the All-Ireland Pollinator Plan.

Limerick European Green Leaf City YouTube Channel has a great collection of webinars and conferences including Reimagining Irish Rivers, Natural and Inclusive Playspaces, Invasive Species, Ideas for Tidy Towns, Climate Action and Gardening for Biodiversity.

QGIS is free mapping software (similar to ARCGIS or Mapinfo) for creating maps such as habitat maps, plans, records of invasive species management and submissions to Tidy Towns adjudicators. It takes some getting used to but may be something where webinar training specific to Tidy Towns could be provided.

NAVAN COMMUNITY BIODIVERSITY ACTION PLAN

ACTIONS FOR INDIVIDUALS
AND GROUPS TO HELP
PROTECT AND ENHANCE
NATURE IN NAVAN.

This Community Biodiversity Action Plan (CBAP) takes account of the habitats and biological diversity in Navan town and proposes actions to enhance our local environment. The CBAP puts a strong emphasis on community involvement: the aim is for individuals, clubs, and groups in Navan to take ownership of the plan to help implement it.

The Navan CBAP was created with a grant from The Community Foundation for Ireland (CFI) Environment and Nature Biodiversity programme. It was prepared by Simon Barron together with Wild About Navan. Simon is an Ecologist with BEC Consultants Ltd. Wild About Navan was originally set up to facilitate this biodiversity survey and is now established as an urban nature conservation project aiming to protect and enhance nature in Navan.



BEC Consultants – www.BotanicalEnvironmental.com

Wild About Navan – www.WildAboutNavan.ie

The Community Foundation for Ireland –
www.communityfoundation.ie