



**Enviroguide**  
CONSULTING

**Review of Athboy Tidy  
Towns' plans, policies and  
strategy, with  
recommendations for best  
practice in habitat  
management and  
biodiversity**

**AT**

**Athboy, Co. Meath**

**ON BEHALF OF**

**Athboy Tidy Towns**

*Supported by the Heritage Council under the Community Heritage Grant Scheme 2022*


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An Chomhairle Oidhreachta  
The Heritage Council




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# **1 Introduction**

## **1.1 Background**

Enviroguide Consulting was commissioned by Athboy Tidy Towns to undertake a review of Athboy Tidy Towns' plans, policies and strategy, and to make recommendations for best practice in habitat management and biodiversity. This report details the findings of the assessment.

## **1.2 Quality Assurance and Competence**

Synergy Environmental Ltd., T/A Enviroguide Consulting, is wholly Irish Owned multi-disciplinary consultancy specialising in the areas of the Environment, Waste Management and Planning. All Enviroguide consultants carry scientific or engineering qualifications and have a wealth of experience working within the Environmental Consultancy sectors.

Professional memberships include the Chartered Institution of Wastes Management (CIWM), the Irish Environmental Law Association and Chartered Institute of Ecology and Environmental Management (CIEEM). All surveying and reporting is carried out by qualified and experienced ecologists and environmental consultants.

Senior Ecologist Siobhán Atkinson prepared this review document. Siobhán has a B.Sc. (Hons) in Environmental Biology and a Ph.D. in Freshwater Biology from University College Dublin, and extensive experience in desktop research, literature review and reporting, as well as practical field and laboratory experience including environmental DNA analysis, freshwater macroinvertebrate sampling and identification, fish sampling and processing and habitat surveying. Siobhán has prepared Ecological Impact Assessments (EclA), Stage I and Stage II Appropriate Assessment Reports, Habitat Surveys, Habitat Management Plans and Invasive Species Surveys and input and reviewed Ecological and Environmental assessments for several EIA Reports.

## **1.3 Scope of Assessment**

The following outlines the scope of the assessment carried out:

- Desk top review of Athboy Tidy Towns plans, policies and strategy, which included a review of the following documents:
  - Athboy Tidy Towns All-Ireland Pollinator Plan: Local Authority Pollinator Award 2022 Entry Form
  - Athboy Tidy Towns SuperValu Tidy Towns Entry Form 2022
  - Athboy River Survey (Bat Eco Services, 2021)
  - Wildlife and Natural Amenities Preliminary Management Plan Cow Park, Athboy, County Meath (Bat Eco Services, 2019)
- Biodiversity Survey of Athboy, with focus on particular areas
- Assessment of Athboy Tidy Towns plans, policies and strategy in the context of National and County Biodiversity Action Plans, and best practice in habitat and species conservation
- Provision of recommendations for best practice in habitat management and biodiversity in Athboy

## 1.4 Biodiversity Conservation and Policy

### 1.4.1 What is Biodiversity?

Biodiversity or biological diversity is the variety of life on Earth. It includes all living things from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part. Ecosystems provide a series of services for human well-being both directly (as food and fibre) and indirectly by providing clean air and water, for example. Biodiversity plays an essential role in the functioning of ecosystems and their ability to provide these “ecosystem services”. Humans rely on biodiversity for our health and well-being and to support many of our economic activities. Biodiversity and ecosystems have intrinsic value also. Biodiversity is everywhere, within our gardens, hedgerows, woodlands, bogs, wetlands, rivers, and coasts. Every day we interact with biodiversity.

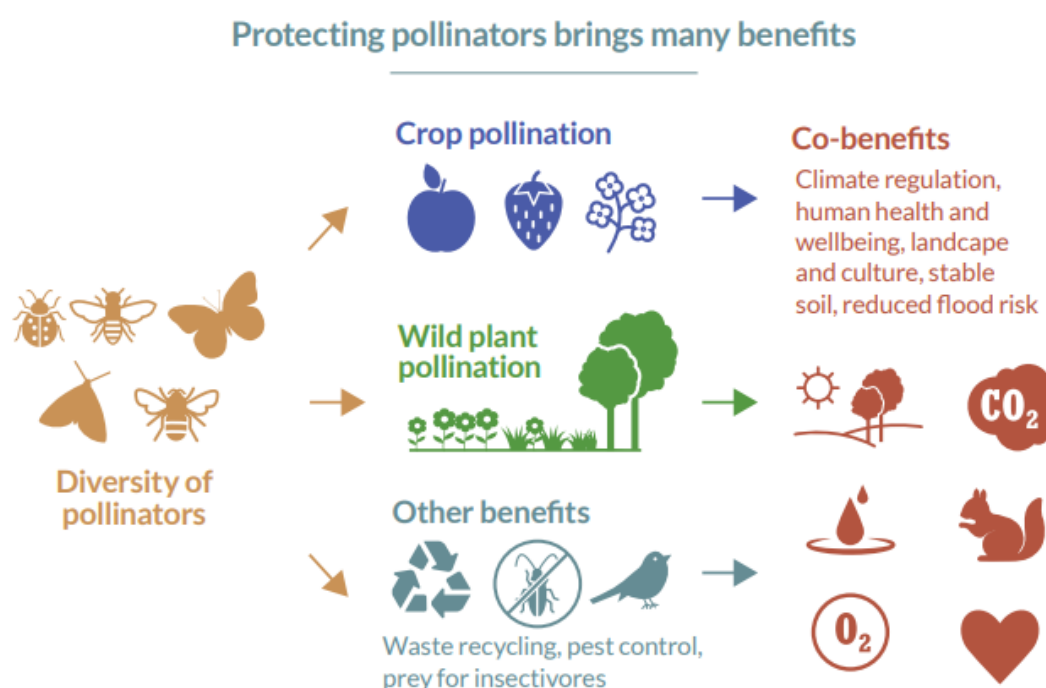


Figure 1. Benefits of protecting pollinators. Extracted from the All-Ireland Pollinator Plan 2021-2025.

### 1.4.2 Protection of Biodiversity

Biodiversity is protected in Ireland under international (EU) and national law. National legislation and policy regarding the protection of biodiversity in Ireland has been shaped by European Directives.

The Habitats Directive (92/43/EEC) seeks to conserve natural habitats and wild fauna and flora by the designation of Special Areas of Conservation (SACs) and the Birds Directive (2009/147/EC) seeks to protect birds of special importance by the designation of Special Protection Areas (SPAs). SACs and SPAs are collectively known as Natura 2000 or European Sites. SACs are selected for the conservation of Annex I habitats (including priority types which are in danger of disappearance) and Annex II species (other than birds). SPAs are

selected for the conservation of Annex I birds and other regularly occurring migratory birds and their habitats. These designated sites provide protection for important areas that contain the best examples of Irish habitats and important populations of certain species.

The EU Water Framework Directive (WFD) 2000/60/EC is an important piece of environmental legislation which aims to protect and improve water quality. It applies to rivers, lakes, groundwater, estuaries, and coastal waters. The aim of the WFD is to prevent any deterioration in the existing status of water quality, including the protection of good and high-water quality status where it exists. The WFD requires member states to manage their water resources on an integrated basis to achieve at least 'good' ecological status, through River Basin Management Plans (RBMP), by 2027.

At a national level, a key piece of legislation for the protection of wildlife is the Wildlife Act 1976 (as amended). The Wildlife Act 1976 (as amended) was enacted to provide protection to birds, animals, and plants in Ireland and to control activities which may have an adverse impact on the conservation of wildlife.

### **1.4.3 Threats to Biodiversity**

Biodiversity is declining globally at rates unprecedented in human history. The rate of species extinctions is accelerating, and the evidence suggests that the current rates of extinctions vastly exceed the estimated background extinction rate. The major difference with the previous mass extinctions is that humans are simultaneously responsible for it, threatened by it, and able to stop it (Bellard et al., 2022). The direct drivers of change in nature with the largest global impact have been changes in land and sea use; direct exploitation of organisms; climate change; pollution; and invasion of alien species (IPBES, 2019). Local stressors are also important (Bellard et al., 2022). The five main global threats, as identified by IPBES (the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services) are described below:

- **Changes in land and sea use** - changes in land and sea use to provide for human shelter, food, fuel and material goods has resulted in loss of land that previously provided habitats for wildlife. According to IPBES (2019) *"agricultural expansion is the most widespread form of land-use change, with over one third of the terrestrial land surface being used for cropping or animal husbandry. This expansion, alongside a doubling of urban area since 1992 and an unprecedented expansion of infrastructure linked to growing population and consumption, has come mostly at the expense of forests (largely old-growth tropical forests), wetlands and grasslands. In freshwater ecosystems, a series of combined threats that include land-use change, including water extraction, exploitation, pollution, climate change and invasive species, are prevalent"*.
- **Direct exploitation of organisms** – *"Human activities have had a large and widespread impact on the world's oceans. These include direct exploitation, in particular overexploitation, of fish, shellfish and other organisms"* (IPBES, 2019).
- **Climate Change** - Climate change arising predominantly as a result of burning fossil fuels to produce energy and deforestation has caused changes in climate that has an effect on the survival of other species. According to IPBES (2019) *"Humans are estimated to have caused an observed warming of approximately 1.0°C by 2017"*



*relative to pre-industrial levels, with average temperatures over the past 30 years rising by 0.2°C per decade.” The results of this observed warming include increases in the frequency and intensity of extreme weather events and increases in global average sea level. These changes have contributed to widespread impacts on many aspects of biodiversity.*

- **Pollution** – deterioration in air, soil and water quality. *“Greenhouse gas emissions, untreated urban and rural waste, pollutants from industrial, mining and agricultural activities, oil spills and toxic dumping have had strong negative effects on soil, freshwater and marine water quality and on the global atmosphere” (IPBES, 2019).*
- **Invasive alien species** – non-native plant and animal species accidentally or deliberately introduced into Ireland by human activities that displace our native wildlife. Invasive alien species can impact native species, ecosystem functions and nature’s contributions to people, as well as economies and human health (IPBES, 2019).

#### **1.4.4 County Meath Development Plan (2021 – 2027)**

With regards to cultural and natural heritage, the vision of the County Meath Development Plan (2021-2027) is to identify, protect, conserve and manage the cultural and natural heritage of the County and to encourage its sensitive integration into the sustainable development of the County for the benefit of present and future generations. The Plan acknowledges that the protection and wise use of the county’s natural resources is vital to achieving sustainable development. The following policies and objectives of the County Meath Development Plan (2021 – 2027) are of relevance to this review:

**HER POL 27:** To protect, conserve and enhance the County’s biodiversity where appropriate.

**HER POL 29:** To raise public awareness and understanding of the County’s natural heritage and biodiversity.

**HER POL 30:** To promote increased public participation in biodiversity conservation by supporting and encouraging community-led initiatives.

**HER OBJ 30:** To implement, in partnership with the Department of Culture, Heritage and the Gaeltacht, relevant stakeholders and the community, the objectives and actions of Ireland’s National Biodiversity Action Plan 2017 - 2021 which relate to the remit and functions of Meath County Council.

**HER OBJ 31:** To implement, in partnership with the Department of Culture, Heritage and the Gaeltacht, relevant stakeholders and the community, the objectives and actions of the County Meath Biodiversity Plan 2015-2020 and any revisions thereof.

**HER OBJ 32:** To actively support the implementation of the All-Ireland Pollinator Plan 2021-2025 and any revisions thereof.

**HER OBJ 34:** To protect and conserve the conservation value of candidate Special Areas of Conservation, Special Protection Areas, Natural Heritage Areas and proposed Natural Heritage Areas as identified by the Minister for the Department of Culture, Heritage and the Gaeltacht and any other sites that may be proposed for designation during the lifetime of this Plan in accordance with the provisions of the Habitats and Birds Directives and to permit



development in or affecting same only in accordance with the provisions of those Directives as transposed into Irish Law.

**HER OBJ 36:** To promote awareness, understanding and best practice in the management of the County's woodland, tree and hedgerow resource.

#### ***1.4.5 County Meath Heritage Plan (2015-2020)***

The aim of the County Meath Heritage Plan (2015-2020) 'is to increase awareness, understanding and appreciation of Meath's heritage and promote best practice in its management for enjoyment by all'. The plan sets out a number of actions to increase the understanding of Meath's heritage. The actions have been agreed by the Heritage Forum and arranged under six strategic themes:

**Strategic Theme 1:** Increase our understanding of Meath's heritage through awareness, education and training.

**Strategic Theme 2:** Disseminate existing heritage data and information to a wide audience and undertake surveys/research where information gaps exist.

**Strategic Theme 3:** Promote best practice in the conservation and management of Meath's heritage assets.

**Strategic Theme 4:** Work in partnership with local communities and other key stakeholders to actively engage with, enjoy and care for our heritage.

**Strategic Theme 5:** Promote heritage as a resource to contribute to quality of life, and cultural and economic development in Meath.

**Strategic Theme 6:** To mainstream heritage within the Local Authority and seek the appointment of heritage professionals to support the delivery of an integrated heritage service.

#### ***1.4.6 County Meath Biodiversity Action Plan (2015 – 2020)***

The main function of the Meath Biodiversity Action Plan is to provide a framework and series of actions to conserve, enhance and raise awareness of Meath's rich biodiversity and to maximise the contribution that it makes to the social, economic and environmental well-being of the county, taking into account local, national and international, including European priorities. The objectives of the County Meath Biodiversity Action Plan 2015-2020 are set out below:

**Objective 1:** To raise awareness of biodiversity in Meath, its value and the issues facing it

**Objective 2:** To better understand the biodiversity of Meath

**Objective 3:** To conserve and enhance habitats and species in Meath, taking account of national and local priorities

**Objective 4:** To foster active participation to help biodiversity in Meath, encouraging a partnership approach to help our species and habitats.

#### **1.4.7 National Biodiversity Action Plan 2017 - 2021**

The National Biodiversity Action Plan 2017-2021 sets out actions through which a range of government, civil and private sectors will undertake to achieve Ireland's 'Vision for Biodiversity' and follows on from the work of the first and second National Biodiversity Action Plans. Ireland's Vision for Biodiversity is: "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".

The National Biodiversity Action Plan has been developed in line with the EU and International Biodiversity strategies and policies.

119 targeted actions are contained in the Plan, underpinned by seven strategic objectives. The objectives lay out a clear framework for Ireland's national approach to biodiversity, ensuring that efforts and achievements of the past are built upon, while looking ahead to what can be achieved over the next five years and beyond.

They include:

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

The National Biodiversity Action Plan recognises the importance of locally-led action in protecting biodiversity and ecosystem services and raising awareness at national, regional and grassroots level the importance of conserving habitats and species.

#### **1.4.8 All-Ireland Pollinator Plan (2021- 2025)**

The All-Ireland Pollinator Plan for 2021-2025 is a new five-year road map that aims to help bees, other pollinating insects and our wider biodiversity. The All-Ireland Pollinator Plan 2021-2025 has 186 actions spread across six objectives. It was developed by a 16-member steering group who provide oversight, with implementation coordinated by the National Biodiversity Data Centre. Responsibility for delivering the actions contained in this new Plan is shared out between the main partner organisations (AIPP, 2021). The six objectives are outlined below:

**Objective 1:** Making farmland pollinator friendly. By working together with the farming community, we want to achieve an increased awareness of pollinators and the resources they need in order to survive on farmland.

**Objective 2:** Making public land pollinator friendly. By working together with Councils, Transport Authorities, Local Communities and others, we want to better coexist with biodiversity and help return food and shelter for pollinators to our island.

**Objective 3:** Making private land pollinator friendly. From gardens, to businesses, faith communities and sports clubs, we want to work together to create networks of biodiversity-friendly habitat across our landscape.

**Objective 4:** All-Ireland Honeybee Strategy. By supporting beekeepers, we want to achieve healthy, sustainable populations, and for honeybees to be part of a cohesive pollinator message that balances managed and wild pollinator populations.

**Objective 5:** Conserving rare pollinators. By improving our knowledge on rare pollinators, and by raising awareness through dedicated initiatives, we want to achieve a Plan that protects as much wild pollinator diversity as possible.

**Objective 6:** Strategic coordination of the Plan. By continually raising awareness; addressing gaps in our knowledge through research; and by tracking where pollinators occur and how populations are changing, we want to work from an evidence base that enables us to coordinate a dynamic plan that is targeted and effective.

#### *1.4.8.1 Local Communities: actions to help pollinators*

Guidelines for local communities, aimed for groups who are interested in making their local community more pollinator friendly have been prepared by the National Biodiversity Data Centre (2016) and are of relevance to this report.

These guidelines list 24 actions that can be undertaken to protect and enhance local areas for pollinators, and are outlined below:

**Action 1:** Protect existing sources of food and shelter for pollinators.

**Action 2:** Reduce mowing and aim to create a wildflower meadow.

**Action 3:** Create a short flowering '6-week meadow'.

**Action 4:** Let the Dandelions bloom!

**Action 5:** Clover lawn.

**Action 6:** Flowering trees and shrubs.

**Action 7:** Perennial flowers for pollinators.

**Action 8:** Annual flowers for pollinators.

**Action 9:** Pollinator friendly urban planters.

**Action 10:** Pollinator friendly roundabouts.

**Action 11:** Create new hedgerows.

**Action 12:** Hedgerows for pollinators.

**Action 13:** Earthbanks and drystone walls for pollinators.

**Action 14:** Holes in wood for pollinators.

**Action 15:** Bee hotels for pollinators.

**Action 16:** Eliminate the use of pesticides.

**Action 17:** Ensure best practise where the use of pesticides cannot be avoided.

**Action 18:** Promote the Junior Pollinator Plan.

**Action 19:** Raise awareness within local businesses.

**Action 20:** Put up signage.

**Action 21:** Facilitate or deliver training.

**Action 22:** Log your 'Actions for Pollinators' on the mapping system.

**Action 23:** Take part in the Bumblebee Monitoring Scheme.

**Action 24:** Enter the Tidy Towns Pollinator award.

## **2 Methodology**

### **2.1 Desk Study**

A desktop study was carried out to collate and review available information, datasets and documentation sources pertaining to Athboy's natural environment. The desktop study relied on the following sources:

- Information on waterbodies and catchment areas obtained from the Environmental Protection Agency (EPA) at [www.gis.epa.ie](http://www.gis.epa.ie);
- Information on the network of designated conservation sites, boundaries, qualifying interests and conservation objectives, obtained from the National Parks and Wildlife Service (NPWS) at [www.npws.ie](http://www.npws.ie);
- Satellite imagery and mapping obtained from various sources and dates including Google, Digital Globe and Ordnance Survey Ireland;
- The current conservation status of birds in Ireland taken from Gilbert et al. (2021);
- The pollinator friendly planting code provided by The All-Ireland Pollinator Plan (2015-2020 and 2021-2025) available at [www.pollinators.ie](http://www.pollinators.ie)
- Athboy River Survey (Bat Eco Services, 2021).

### **2.2 Multidisciplinary Walkover Survey**

A walkover field survey was carried out in Athboy town on the 15<sup>th</sup> July 2022 by Senior Ecologist Siobhán Atkinson. The field survey focused on five key areas within Athboy, namely Cow Park, Barrack Lane, Community Allotments, The Fair Green and Spiral Beds. Habitats within each location were recorded. A detailed habitat map of Cow Park was prepared. All bird encounters within Athboy and mammal signs were noted. In addition, if invasive flora were recorded during the field survey these were mapped. Habitats were categorised according to the Heritage Council's 'A Guide to Habitats in Ireland' (Fossitt, 2000) to level 3. The habitat mapping exercise had regard to the 'Best Practice Guidance for Habitat Survey and Mapping' (Smith *et al.*, 2010) published by the Heritage Council. An android mobile device enabled with built-in GPS and mobile data connectivity and loaded with QField GIS software was used to record data and to navigate Cow Park.

## 2.3 Athboy Tidy Towns Policy Review

In order to review the Athboy Tidy Towns plans, policy and strategy, an assessment of how the various actions carried out by Athboy Tidy Towns align with local and national objectives was carried out. The assessment was informed by the following:

- Wildlife and Natural Amenities Preliminary Management Plan for Cow Park prepared by Bat Eco Services (2019) (hereafter referred to as the “Cow Park Management Plan”),
- the Athboy Tidy Towns All-Ireland Pollinator Plan: Local Authority Pollinator Award 2022 Entry Form,
- the Athboy Tidy Towns SuperValu Tidy Towns Entry Form 2022,
- Personal communication with Athboy Tidy Towns members,
- Results of the field survey.

## 3 Results

### 3.1 Desk Study

#### 3.1.1 Location

Athboy is a small town located within the Kells Municipal District in the northwest of County Meath, situated near the border with County Westmeath.

The Athboy River flows through the town in a south-east direction, before discharging into the River Boyne west of Trim. Water quality surveys of the Athboy River, undertaken by the EPA in 2020 (station code: RS07A010300, located c. 2km downstream of the town) have assessed the river as having “Moderate Status” (Q-value of 3-4). The Athboy River is at risk of not meeting its Water Framework Directive status objectives (EPA, 2022). The Athboy River was designated as an “Area for Action” in 2020.

Two designated “Natura 2000” or “European” sites, namely the River Boyne and River Blackwater SAC and the River Boyne and River Blackwater SPA occur within and along the banks of the Athboy River (Figure 2). The River Boyne and River Blackwater SAC is designated for the following species and habitats:

- Alkaline fens
- Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (Alno-Padion, Alnion incanae, Salicion albae)
- River Lamprey *Lampetra fluviatilis*
- Atlantic Salmon *Salmo salar*
- Otter *Lutra lutra*

The River Boyne and River Blackwater SPA is designated for the following bird species:

- Kingfisher *Alcedo atthis*

Land cover in the surrounding environs is typically comprised of agricultural land.

#### 3.1.2 Previous Biodiversity Surveys

Dr Tina Aughney of Bat Eco Services was commissioned in 2021 to undertake a survey of the Athboy River by Athboy Tidy Towns. A range of surveys were undertaken as follows:

- Passive bat detector static surveillance to document the bat species foraging and commuting along the Athboy River;
- Survey of the 1km stretch of Athboy River as part of the All Ireland Daubenton's Bat Waterway Survey;
- Daytime Survey of Athboy Bridge;
- Thermal Imagery Filming (Dusk) of the Athboy River;
- Trail Camera Surveillance;
- Aquatic Invertebrate Kick Sampling;
- Daytime Mammal Sign Survey;
- Daytime Invasive & Problematic Plant Species Survey.

Six terrestrial mammal species (excluding bats) were recorded as part of the survey. These were all recorded as live or dead sightings or via specific signs (e.g., scat or prints). No mammals (apart from two domestic cats) were captured on the trail cameras.

A total of five bat species were recorded during the static surveillance for bats, which represents five of the potential eight bat species known to be resident in County Meath. The Athboy Bridge was inspected, and a small number of crevices are present that may provide roosting sites for single bats. However, no bats were recorded during the survey. It is noted by Bat Eco Services (2021) that the Athboy River is an important habitat for both foraging and commuting bats. According to Bat Eco Services (2021) the degree of native tree planting within the Cow Park greatly adds to the biodiversity of Athboy town environs. As this area matures into a woodland, the biodiversity importance of the Cow Park will increase potentially providing roosting sites within individuals trees as well as foraging and commuting habitat for bats.

Problematic plant species were recorded within the survey area, but further surveying has been recommended to determine the extent of these and to ensure that no high risk and medium risk invasive plant species are present.

The aquatic macroinvertebrate assessment of the Athboy River indicates that there is some organic pollution in the river but that this is localised. According to Bat Eco Services (2021), overall, there is a range of macroinvertebrate species that indicate good oxygen content (e.g., presence of stonefly larva).

Table 1 below summarises the mammals recorded by Bat Eco Services in Athboy.

*Table 1. Summary of mammals recorded by Bat Eco Services (2021).*

Mammal Species	Record Type	Location
Pine Marten	Scat (x2)	Cow Park area
Otter	Tracks	Cow Park area
Pygmy Shrew	Dead individual	Cow Park area
Hedgehog	Scat	Cow Park area
Rabbit	Sighting	Recorded in general area during walk-about surveys
Brown rat	Sighting	Recorded in general area during walk-about surveys
Daubenton's Bat	Static surveillance survey	Treeline adjacent to river north of Athboy Town and tree
<i>Myotis</i> spp.		
Leisler's Bat		

Mammal Species	Record Type	Location
Common Pipistrelle		adjacent to river south of metal pedestrian bridge
Soprano Pipistrelle		
Brown Long-eared Bat		
Daubenton's Bat	All Ireland Daubenton's Bat Waterways Survey (bat passes using a heterodyne bat detector and torchlight)	1km stretch of Athboy River
Common Pipistrelle	Thermal imagery filming	Between metal bridge and Athboy bridge
Soprano Pipistrelle		Between metal bridge and Athboy bridge

Aquatic macroinvertebrate species recorded by Bat Eco Services in the Athboy River included cased caddis flies, freshwater shrimp *Gammarus* sp., freshwater snails, white-clawed crayfish *Austropotamobius pallipes*, chironomids, a single mayfly species and two stonefly species.

A number of problematic plant species were identified by Bat Eco Services (2021) within the survey area including Snowberry *Symphoricarpos alba*, Bindweed *Calystegia sepium* and Winter Heliotrope *Petasites fragrans*. Due to the timing of the survey (September), it was recommended by Bat Eco Services that this survey is repeated in early summer 2022 to ensure correct species identification of other potential problematic plant species. It was deemed that a more intensive survey is required in relation to invasive plant species to provide a more comprehensive list.





Figure 2. Map showing Athboy town, designated sites and key survey locations within it.

## 3.2 Field Survey

### 3.2.1 Habitats and Flora

The field survey undertaken on the 15<sup>th</sup> of July focused on the “Key Location” areas indicated in Figure 2, namely Cow Park, Barrack Lane, the Community Allotments, The Fair Green and the Spiral Bed. Habitats and flora recorded in these areas are outlined below.

#### 3.2.1.1 Cow Park

The Cow Park is a community amenity of c. 29 acres owned by Meath County Council. A detailed habitat survey of Cow Park was undertaken. A range of man-made and semi-natural habitats was recorded within the park.

The dominant habitat type within Cow Park is “dry meadows and grassy verges” habitat (GS2), as per Fossitt (2000). This dry meadow habitat transitions into “wet grassland” (GS4) or mosaics of “wet grassland” and “scrub” (GS4/WS1) along the western and north-eastern margins of the park. A slightly fragmented corridor of “(mixed) broadleaved woodland” habitat (WD1) occurs along the Athboy River. Habitats along the river where scrub and wet grassland dominated were mapped separately as indicated in Figure 5. The areas where recent tree planting has occurred are indicated as mosaics of “immature woodland” habitat (WS2) with dry meadow and wet grassland habitat. A newly planted “treeline” (WL2) was also mapped near the entrance of the park (yellow dashed line in Figure 5). Some areas of “amenity grassland” (GA2) and “buildings and artificial surfaces” (BL3) habitat, in the form of pitches and a lawn associated with the local football club and the playground were recorded within the park also. A newly planted “hedgerow” (WL1) was recorded towards the east of the park. “Ornamental/non-native shrub” (WS3) habitat occurred towards the south of the park at the carpark. A formal resin-bound looped pathway meanders through the southern half of Cow Park. Informal pathways (flattened grass) were recorded in the north of the park.

The grassland within the park was cut on the day of survey. As such, a species list for the dry meadows and grassy verges habitat could not be made. However, species lists for the grass and herb species recorded growing within the immature woodland/dry meadows and grassy verges habitat were generated and are likely to be indicative of the grasses and herbs found within the dry meadows and grassy verges habitat. The following grasses were recorded within the immature woodland/dry meadows and grassy verges habitat: Meadow Foxtail *Alopecurus pratensis*, Sweet Vernal *Anthoxanthum odoratum*, False Oat Grass *Arrhenatherum elatius*, Yorkshire Fog *Holcus lanatus*, *Agrostis* sp. and Cock’s Foot *Dactylis glomerata*. Herb species recorded within this habitat included Red Clover *Trifolium pratense*, White Clover *Trifolium repens*, Ragwort *Jacobaea vulgaris*, Ribwort Plantain *Plantago lanceolata*, Black Medick *Medicago lupulina*, Bush Vetch *Vicia sepium*, Creeping Cinquefoil *Potentilla reptans*, Rough Hawkbit *Leontodon hispidus*, Self-Heal *Prunella vulgaris*, Greater Stitchwort *Stellaria holostea*, Greater Knapweed *Centaurea scabiosa*, Common Knapweed *Centaurea nigra*, Cat’s Ear *Hypochaeris radicata*, Creeping Thistle *Cirsium arvense* and Meadow Buttercup *Ranunculus acris*.

Grass species recorded within the wet grassland and mosaics of same included Yorkshire Fog, Cock’s Foot and Sweet-grass *Glyceria* sp. Soft Rush *Juncus effusus* was also recorded. Herb species recorded within the wet grassland and mosaics of same included Great Willowherb *Epilobium hirsutum*, Silverweed *Potentilla anserina*, Hedge Woundwort *Stachys sylvatica* and Meadow Sweet *Filipendula ulmaria*.

A slightly fragmented corridor of (mixed) broadleaved woodland was recorded adjacent to the Athboy River. A mixture of native and non-native tree species was recorded within this woodland including Yew *Taxus baccata*, Hawthorn *Crataegus monogyna*, Elm *Ulmus* sp., Beech *Fagus sylvatica*, White Poplar *Populus alba*, Oak *Quercus* sp., Ash *Fraxinus excelsior*, Sycamore *Acer pseudoplatanus*, Horse Chestnut *Aesculus hippocastanum*, Alder *Alnus glutinosa*, Elder *Sambucus nigra* and Lime *Tilia* sp. The understorey was comprised of Hogweed *Heracleum sphondylium*, tree saplings, Ivy *Hedera helix*, Dock *Rumex* sp., Bramble *Rubus fruticosus*, Rose *Rosa* sp., Wood Avens *Geum urbanum*, Bush Vetch, Horsetails *Equisetum* sp., Cleavers *Galium aparine*, Herb Robert *Geranium robertianum* and ferns.

Newly planted trees within Cow Park included a mix of native and non-native species including Larch *Larix* sp., Lime *Tilia* sp., Birch *Betula* sp., Hawthorn, Rowan *Sorbus aucuparia*, Pine *Pinus* sp., White Poplar and Oak *Quercus* sp.

The hedgerow within the park was comprised of Hawthorn. Hawthorn, Elder, Ash and Sycamore were recorded within the treeline at the north-eastern boundary.

The Athboy River is best described as a “lowland/depositing river” (FW2) within Cow Park. Yellow Iris *Iris pseudacorus* and Water Starwort *Callitriche* sp. were noted within the river. Evidence of poaching was noted along the riverbanks, both within the park and within adjacent agricultural land, where people (in the case of Cow Park - Figure 4) and machinery and cattle (in the case of the adjacent agricultural land - Figure 3) have accessed the river.





*Figure 3. Poaching of the banks of the Athboy River on agricultural land adjacent to Cow Park. Photograph taken 15th July 2022.*



*Figure 4. Poaching of the banks of the Athboy River within Cow Park. Photograph taken 15th July 2022.*





*Plate 1 Images of Cow Park showing (a) newly planted trees, (b) dry meadows and grassy verges habitat and mosaic of immature woodland and dry meadows and grassy verges habitat, (c) (mixed) broadleaved woodland along the Athboy River, (d) informal path through wet grassland habitat and € strip of wet grassland adjacent to mature treeline along north-eastern park boundary. Photographs taken on the 15<sup>th</sup> July 2022.*



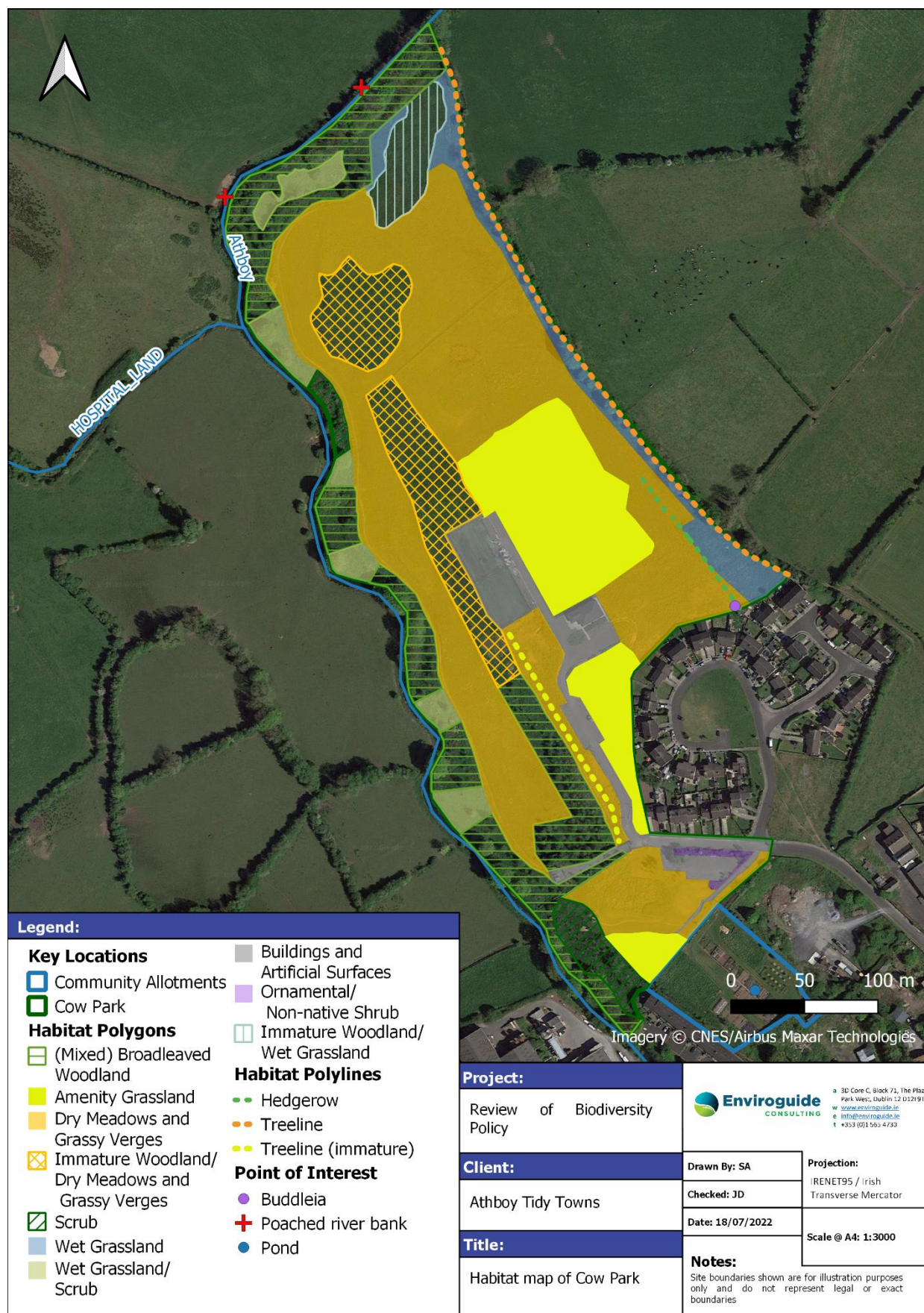


Figure 5. Cow Park Habitat Map.



### 3.2.1.2 Community Allotments

The Community Allotments are located to the south of Cow Park and occupy an area of c. 1.5 acres. Key habitats within the allotments include “horticultural land” (BC2), “stone walls and other stonework” (BL1), “treeline” (WL2), “other artificial lakes and ponds” (FL8) and “scrub” (WS1) as per Fossitt (2000).

Fruit trees and shrubs, as well as native trees (e.g., Alder) have been planted within the allotment area. The grassy areas have been left uncut apart from areas within the functional part of the allotment (i.e., around the polytunnel, rainwater harvesting system and pathways around the allotments). A small pond is located within the centre of the area. The grass around the pond has been kept long, and old logs have been placed around it. The south-eastern boundary is comprised of a high stone wall. Dense Ivy and Red Valerian *Centranthus ruber* were recorded growing on this wall. A native treeline forms the north-western boundary of the allotment and is comprised of Hawthorn, Oak, Ash and Hazel *Corylus avellana*.



Figure 6. Community Allotments. Photograph taken 15th July 2022.

### 3.2.1.3 Barrack Lane

Barrack Lane is a walkway that links the centre of town with the Fair Green via a metal bridge. The habitats along the lane include “flower beds and borders” (BC4), “stone walls and other stonework” (BL1), “treelines” (WL2) and “ornamental/non-native shrub” (WS3) as per Fossitt (2000). The first part of the lane (closest to the main street in the town) has stone wall habitat on both sides with flowerbeds at the base. Flowering plants recorded here included Lady’s Mantle *Alchemilla* sp., Catmint *Nepeta*, Ornamental Geraniums *Geranium* sp., Comfrey *Symphytum officinale*, Borage *Borago officinalis*, Shasta Daisy *Leucanthemum x superbum*, Dandelion *Taraxacum vulgaria*, Roses *Rosa* sp., and Buddleia *Buddleja davidii*, as well as other unidentified ornamental flowers. The second part of the lane (closed to the Athboy River) is lined with a Cherry Laurel *Prunus laurocerasus* hedge to the north, and a treeline to the south. Tree species within the treeline include Ash, Hawthorn, Horse Chestnut, Elder and Cypress *Cupressus* sp. Ivy, Herb Robert, Hogweed, roses *Rosa* sp. and cleavers were recorded in the understorey.



Planting of a mixture of native (e.g., Rowan) and non-native trees (e.g., *Cordyline* sp. and Copper Beech *Fagus sylvatica* f. *purpurea*) has taken place on the western bank of the Athboy River at the metal bridge. The invasive Snowberry *Symphoricarpos albus* was noted on the western bank of the Athboy River upstream of the metal bridge, and native Butterbur *Petasites hybridus* was recorded on the eastern bank (Figure 8).

The Athboy River at the metal bridge was slightly turbid, and silt was visible on the riverbed. The banks of the Athboy River within the town are highly modified.



Figure 7. Barrack Lane. Photograph taken 15th July 2022.

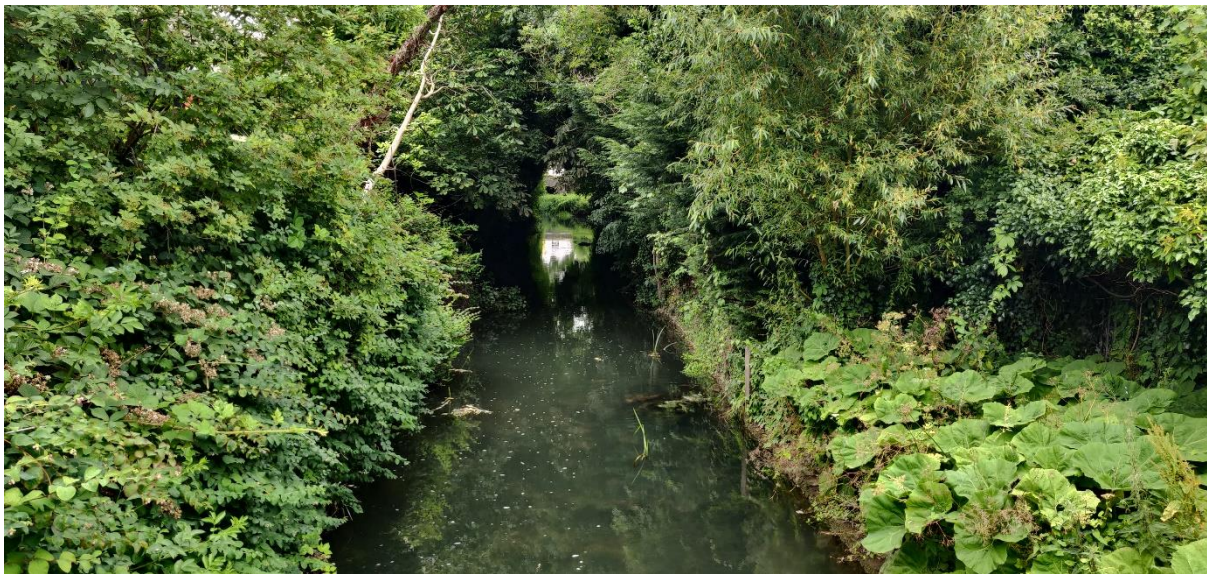


Figure 8. The Athboy River at the metal bridge showing Brambles and Snowberry on the western bank (left) and butterbur on the eastern bank (right). Photograph taken on the 15th July 2022.

#### 3.2.1.4 The Fair Green

The Fair Green is a large public park within Athboy town (Figure 2). The park is comprised of regularly mown “amenity grassland” (GA2). Mature “treelines” (WL2) occur along the boundaries of the park, and include species such as Ash, Horse Chestnut, Sycamore, Beech,



Oak, Scots Pine *Pinus sylvestris*, Spanish Chestnut *Castanea sativa* and Copper Beech. Some new tree planting of Birch, Oak and Rowan has been undertaken within the park.



Figure 9. The Fair Green. Photograph taken 15th July 2022.

#### 3.2.1.5 Spiral Bed

The spiral bed is a small green space located on the Delvin Road. It is comprised of “amenity grassland” (GA2) and “flowerbeds and borders” (BC4) habitat. Planting within this area includes Lavender *Lavandula* sp., *Calendula* sp., Buddleia, Lady’s Mantle, California Poppy *Eschscholzia californica* and Comfrey, as well as various ornamental shrubs and other unidentified ornamental flowers.



Figure 10. The Spiral Bed. Photograph taken 15th July 2022.

#### 3.2.2 Invasive Flora

The location of invasive flora recorded during the field surveys was noted. Invasive flora recorded within the study areas included Sycamore, Buddleia, Cherry Laurel and Snowberry.



### 3.2.3 Fauna

Mammal sightings and signs, as well as visual and aural bird observations were noted during the field survey carried out in Athboy.

Otter prints and a potential Otter slide were noted along the Athboy River within Cow Park. In addition, live and dead Pygmy Shrews were observed along Barrack Lane and Cow Park respectively. Live Brown Trout (Figure 11) and White-clawed Crayfish were observed within the Athboy River from the metal bridge.



Figure 11. Brown trout within the Athboy River. Photograph taken on the 15th July 2022.

Numerous bird species were recorded throughout the town. These are listed in Table 2 along with their conservation status. The conservation status is based on their “Birds of Irish Conservation Concern” or “BoCCI” status. BoCCI is an assessment of the conservation status of all regularly occurring birds on the island of Ireland. The criteria on which the assessment is based include conservation status at global and European levels and within Ireland, include historical decline, trends in population and range, rarity, localised distribution and international importance<sup>1</sup>.

Table 2. Bird species recorded throughout Athboy town.

Species	Birds of Irish Conservation Concern Status
Swift <i>Apus apus</i>	Red
Grey Wagtail <i>Motacilla cinerea</i>	Red
Kingfisher <i>Alcedo atthis</i>	Amber
Swallow <i>Hirundo rustica</i>	Amber
House Martin <i>Delichon urbicum</i>	Amber
Starling <i>Sturnus vulgaris</i>	Amber
Rook <i>Corvus frugilegus</i>	Green

<sup>1</sup> <https://birdwatchireland.ie/birds-of-conservation-concern-in-ireland/>

Species	Birds of Irish Conservation Concern Status
Hooded Crow <i>Corvus corone</i>	Green
Jackdaw <i>Corvus monedula</i>	Green
Robin <i>Erithacus rubecula</i>	Green
Wren <i>Troglodytes troglodytes</i>	Green
Goldfinch <i>Carduelis carduelis</i>	Green
Magpie <i>Pica pica</i>	Green
Dunnock <i>Prunella modularis</i>	Green
Pied Wagtail <i>Motacilla alba yarrelli</i>	Green
Blackbird <i>Turdus merula</i>	Green
Song Thrush <i>Turdus philomelos</i>	Green
Woodpigeon <i>Columba palumbus</i>	Green
Bullfinch <i>Pyrrhula pyrrhula</i>	Green



Figure 12. Swallow recorded within the Community Allotments. Photograph taken on the 15th July 2022.

### 3.3 Biodiversity Management and Enhancement in Athboy

This section outlines the current actions being undertaken by Athboy Tidy Towns to enhance biodiversity in Athboy and is based on information within the Cow Park Management Plan prepared by Bat Eco Services (2019), relevant sections of the Athboy Tidy Towns All-Ireland Pollinator Plan: Local Authority Pollinator Award 2022 Entry Form, Athboy Tidy Towns SuperValu Tidy Towns Entry Form 2022 and personal communication with members of Athboy Tidy Towns.

### **3.3.1 Protection and Management of Existing Habitat**

The Cow Park is a community amenity of 29 acres owned by Meath County Council. The site is managed by Athboy Tidy Towns supported by community workers and volunteers.

According to Bat Eco Services (2019), a Management Plan was first prepared for the Cow Park in 2005. Athboy Tidy Towns managed the site according to this plan over the years. A new plan was requested by the group and as a result a new plan was prepared by Bat Eco Services in 2019 to build upon the achievements to-date and make recommendations for activities between the years 2019 and 2022. Particular focus of the plan was made in relation to the management of the Cow Park to improve local biodiversity and the enjoyment of Athboy, Co. Meath.

The management objectives for Cow Park in the context of its ecological value are as follows:

**Objective 1** To maintain and, where appropriate, increase the ecological value of habitats in Cow Park.

**Objective 2** To maintain and, where appropriate, increase the flora and fauna present within Cow Park.

**Objective 3** To increase, where appropriate, the aesthetic quality of Cow Park without damaging its ecological value.

**Objective 4** To provide educational awareness of the biodiversity value of Cow Park.

**Objective 5** To provide information on the ecological value of Cow Park.

Considerable effort to protect and manage existing habitat within Cow Park has been undertaken. The existing grassland habitats within Cow Park (with the exception of the football pitches) have been retained and are either managed as per a wildlife and pollinator friendly cutting regime (annual cut-and-collect) or are left untouched. Mature boundary treelines/hedgerows have been retained. It is understood by Enviroguide Consulting that pesticides and fertilisers are not used within the park, and that Athboy Tidy Towns have liaised with the NPWS and Meath Co. Co. Heritage Officer regarding any planned works within or in close proximity to the River Boyne and River Blackwater SAC.





Figure 13. Ringlet *Aphantopus hyperantus* foraging on Greater Knapweed within meadow habitat in Cow Park. Photograph taken on the 15th July 2022.

Barrack Lane is a walkway that links the centre of town with the Fair Green via a metal bridge. According to the Athboy Tidy Towns All-Ireland Pollinator Plan: Local Authority Pollinator Award 2022 Entry Form, apart from some cutting back in spring after the dandelions have seeded, this area needs and receives limited management. The treeline linking Barack Lane to the Athboy River (described above) is left alone.

There are areas of long grass, grass where clovers, daisies and buttercups are allowed bloom and short grass for humans within the Community Allotments. The boundary treeline and stonewall are likely to provide foraging, nesting and commuting habitat for a range of local fauna, including bats, birds and insects and have been retained within the Community Allotments.

### **3.3.2 Biodiversity Enhancement**

Efforts to enhance local biodiversity have been made via the alteration of mowing regimes in some areas (e.g., the Spiral bed and some local estates and entrance roads to the town). Furthermore, grass management signs have been placed in areas maintained by Athboy Tidy Towns in an attempt to raise public awareness on the biodiversity benefits of not mowing.

Biodiversity enhancement has also been achieved via pollinator friendly and wildlife friendly planting. According to the *Athboy Tidy Towns All-Ireland Pollinator Plan: Local Authority Pollinator Award 2022 Entry Form*, planting undertaken by Athboy Tidy Towns aims to provide food for pollinators for 10 to 11 months of the year. Planting is typically guided by the All-

Ireland Pollinator Plan (Athboy Tidy Towns, pers. comm), and Athboy Tidy Towns also tries to have pollinator friendly plants in the planters and containers in the town. Athboy Tidy Towns avoids major 'tidying -up' in autumn to allow insects and solitary bees overwinter safely.



*Figure 14. Small tortoiseshell Aglais urticae foraging on lavender planted within the Spiral Beds. Lavender is listed on the Pollinator Friendly Planting Code produced as part of the All-Ireland Pollinator Plan 2015-2020. Photograph taken 15th July 2022.*

Extensive tree planting has occurred within Cow Park, although not all of the planting is of native tree species (e.g., Larch). Tree planting has also occurred within the town, however some of these trees are also not native to Ireland (e.g., Cordyline, Copper Beech).

The pond within the Community Allotments is an excellent example of a biodiversity enhancement measure.

It is understood by Enviroguide Consulting that it has not been possible to achieve some of the Cow Park Management Plan objectives/tasks. These objectives/tasks mainly relate to the planting of a "Heritage Orchard", creating a "Solitary Bee Bank", introducing a "Composting Zone" and the objectives regarding the "Eco Walk- River Walkway" within the park. The inability to achieve these objectives are mainly due to issues regarding siting of the above areas (e.g., the Heritage Orchard) and the planting of trees and/or hedgerows within the Athboy River flood plain (Athboy Tidy Towns, pers comm).

Some of the actions to achieve Objective 2 (To maintain and, where appropriate, increase the flora and fauna present within the Cow Park) of the Cow Park Management Plan are yet to be



implemented. These include erecting bat and bird boxes, incorporation of bug hotels and mammal homes and planting of night-scented shrubs and herbs.

### **3.3.3 Pesticide Use**

According to the *Athboy Tidy Towns All-Ireland Pollinator Plan: Local Authority Pollinator Award 2022 Entry Form*, Athboy Tidy Towns are campaigning to make Athboy a herbicide/pesticide-free town. Athboy Tidy Towns purchased a Foamstream Machine in November 2020. Foamstream is a method of controlling unwanted plants without toxic products. The foam itself is 100% environmentally friendly and biodegradable, made from natural plant oils and sugar. It is applied via hose and a hand-held lance from a vehicle mounted power unit<sup>2</sup>. According to Athboy Tidy Towns, Meath County Council are storing the machine and using it on public areas. Due to lockdowns and limited resource availability at Meath County Council, the roll out of Foamstream in Athboy has been quite slow. Nevertheless, Athboy Tidy Towns plans to train people from interested community groups in its use.

### **3.3.4 Public Awareness and Community Engagement**

It is clear that Athboy Tidy Towns members are continually educating themselves regarding biodiversity conservation and best practice measures regarding biodiversity as evidenced in the commissioning of this report, the commissioning of the Athboy River Survey, the commissioning of the Cow Park Management Plan and the attendance of Athboy Tidy Towns members at events such as the online public meeting on the Draft River Basin Management held by the Local Authority Waters Programme, sustainable online gardening courses, a “Leave no Trace Garden Butterfly Monitoring Scheme” and a biodiversity workshop ran by Meath Co. Co.

The efforts of Athboy Tidy Towns to engage with the local community and promote public awareness regarding the protection of biodiversity (in particular pollinators) is evidenced in the signage located throughout the town (Figure 15). In addition, the following has been undertaken:

- Leaflets have been created by Athboy Tidy Towns regarding local biodiversity (bats) and actions the community can undertake to make their gardens more pollinator friendly;
- The organisation of a biodiversity gardening competition (which encouraged individuals and groups to adopt and display some of Juanita Browne’s suggestions contained in her book “Gardening for Biodiversity” and also to apply the actions detailed in the All-Ireland Pollinator Plan),
- Sharing of posts by Biodiversity Ireland on the Athboy Tidy Towns social media sites,
- Athboy Tidy Towns member Mary Flood was invited to write a piece for a booklet by Biodiversity Ireland reviewing and sharing the experience of adopting the biodiversity plan,
- The Athboy Tidy Towns calendar, social media, website and the local press are all used as platforms to raise public awareness,

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<sup>2</sup> <https://www.foamstream.ie/>

- In May 2022, with the help of funding from the Department of Rural and Community Development, SuperValu Tidy Towns and Pobal, Athboy Tidy Towns worked with a local graphic design business to create a video of the prominent projects that have been established and maintained by Athboy Tidy Towns in the town. The video highlights the pollinator & biodiversity friendly actions applied. The video was shared through all social media platforms.



Figure 15. Educational biodiversity signage within Athboy. Photographs taken on the 15th July 2022.



### **3.4 Assessment of Athboy Tidy Towns Biodiversity Policy, Strategy and Plans**

An assessment of Athboy Tidy Towns Biodiversity Policy, Strategy and Plans is outlined in Table 3 below. To review the Athboy Tidy Towns plans, policy and strategy an assessment of how the various actions carried out by Athboy Tidy Towns align with local and national objectives was carried out. The assessment was informed by the following:

- Cow Park Management Plan prepared by Bat Eco Services (2019),
- the Athboy Tidy Towns All-Ireland Pollinator Plan: Local Authority Pollinator Award 2022 Entry Form,
- the Athboy Tidy Towns SuperValu Tidy Towns Entry Form 2022,
- Personal communication with Athboy Tidy Towns members,
- Results of the field survey.

The Key Biodiversity Conservation Principle/Actions outlined in the first column are based on the relevant policies and objectives of the County Meath Biodiversity Action Plan (2015-2020), National Biodiversity Action Plan (2011-2021), All-Ireland Pollinator Plan (2021-2025), actions specified in “Local Communities: actions to help pollinators” and the County Meath Development Plan (2021-2027).

Table 3. Assessment of Athboy Tidy Towns Biodiversity Policy, Strategy and Plans

Key Biodiversity Conservation Principle/Action <sup>3</sup>	Demonstrated by Athboy Tidy Towns?	Details	Additional suggestions <sup>4</sup>
Protection of existing habitats within the town	Yes.	<p>A management plan for Cow Park has been prepared by Bat Eco Services (2019) and implemented by Athboy Tidy Towns in part.</p> <p>Limited management of Barrack Lane is undertaken.</p> <p>Retention of grassland, treelines and stone wall within the community allotments</p>	<p>The Cow Park Management Plan should be implemented in so far as possible. However, it is recommended that the current plan, and any future iteration of the management plan for Cow Park is submitted for discussion and agreement with Meath Co. Co. (in particular the Heritage Officer) in advance of being implemented to ensure effective use of resources and to avoid disappointment if certain actions etc. are not deemed feasible by the Council.</p> <p>The protection of the Athboy River is essential and any works to encourage access to the river by the public should be guided by the National Parks and Wildlife Service (NPWS), Inland Fisheries Ireland (IFI) and Meath Co. Co. To this end, the protection of areas where public access to the Athboy River is encouraged within Cow Park should be central to any such plans, and it is strongly recommended by Enviroguide Consulting that the NPWS, IFI and the Meath Co. Co. Heritage Officer are consulted in advance. <b>Importantly, any project or work that is carried out within a SAC, SPA or NHA may be “An Activity Requiring Consent”. As such it</b></p>

<sup>3</sup> Based on the County Meath Biodiversity Action Plan (2015-2020), National Biodiversity Action Plan (2011-2021), All-Ireland Pollinator Plan (2021-2025), Local Communities: actions to help pollinators. All-Ireland Pollinator Plan, Guidelines 1 and relevant policies and objectives from the County Meath Development Plan (2021-2027).

<sup>4</sup> See section 4 below for further details

Key Biodiversity Conservation Principle/Action <sup>3</sup>	Demonstrated by Athboy Tidy Towns?	Details	Additional suggestions <sup>4</sup>
			<b>is essential that the local NPWS Conservation Ranger is consulted in advance of commencing any project.</b>
Enhancement of existing habitats within the town	Yes.	Alteration of mowing regimes within the town, tree planting, creation of a pond in the community allotments.	Future tree planting should comprise native species and/or pollinator friendly species as appropriate. Pollinator Friendly Planting Code should guide future planting. Avoid planting of invasive flora (e.g., Buddleia).
Creation of new habitats (e.g., nesting, roosting habitats) for fauna	No. Actions regarding the creation of habitats for fauna within Athboy are yet to be implemented.	n/a	It is recommended that the actions regarding the erection of bat and bird boxes and incorporation of mammal homes as specified in the Cow Park Management Plan are implemented.  Swift bricks should be erected within the town where possible.
Implementation of the All-Ireland Pollinator Plan 2021-2025	Yes.	Athboy Tidy Towns are campaigning to make Athboy a herbicide/pesticide-free town.  Efforts to enhance local biodiversity have been made via the alteration of mowing regimes in some areas (e.g., the Spiral bed and some local estates). Grass management signs have been placed in areas maintained by Athboy Tidy Towns in an attempt to raise public awareness on the biodiversity benefits of not mowing.  Dandelions are allowed to bloom.	Future tree planting should comprise native species and/or pollinator friendly species as appropriate. Pollinator Friendly Planting Code should guide future planting. Avoid planting of invasive flora (e.g., Buddleia).

Key Biodiversity Conservation Principle/Action <sup>3</sup>	Demonstrated by Athboy Tidy Towns?	Details	Additional suggestions <sup>4</sup>
		<p>Pollinator friendly planting in places throughout the town.</p> <p>Erection of signage.</p> <p>Awareness raising within the community.</p> <p>A management plan for Cow Park has been prepared by Bat Eco Services (2019) and implemented by Athboy Tidy Towns in part.</p> <p>Tree and hedgerow planting has been undertaken.</p>	
Protection of designated sites such as SACs, SPA, pNHAs and NHAs	Yes.	It is understood by Enviroguide Consulting that any works within the River Boyne and River Blackwater SAC are only undertaken following agreement with the NPWS.	<p>The protection of the Athboy River is essential and any works to encourage access to the river by the public should be guided by the National Parks and Wildlife Service (NPWS), Inland Fisheries Ireland (IFI) and Meath Co. Co. To this end, the protection of areas where public access to the Athboy River is encouraged within Cow Park should be central to any such plans, and it is strongly recommended by Enviroguide Consulting that the NPWS, IFI and the Meath Co. Co. Heritage Officer are consulted in advance.</p> <p><b>Importantly, any project or work that is carried out within a SAC, SPA or NHA may be “An Activity Requiring Consent”. As such it is essential that the local NPWS Conservation</b></p>



Key Biodiversity Conservation Principle/Action <sup>3</sup>	Demonstrated by Athboy Tidy Towns?	Details	Additional suggestions <sup>4</sup>
			<b>Ranger is consulted in advance of commencing any project.</b>
To increase and promote awareness, understanding and best practice in the management of semi natural habitats	Yes	<p>Athboy Tidy Towns are campaigning to make Athboy a herbicide/pesticide-free town.</p> <p>Erection of signage.</p> <p>Awareness raising within the community.</p> <p>A management plan for Cow Park has been prepared by Bat Eco Services (2019) and implemented by Athboy Tidy Towns in part.</p> <p>Athboy Tidy Towns members are continually educating themselves regarding biodiversity conservation and best practice measures</p>	<p>The Cow Park Management Plan should be implemented in so far as possible. However, it is recommended that the current plan, and any future iteration of the management plan for Cow Park is submitted for discussion and agreement with Meath Co. Co. (in particular the Heritage Officer) in advance of being implemented to ensure effective use of resources and to avoid disappointment if certain actions etc. are not deemed feasible by the council.</p> <p>Engagement with IFI, the Meath Co. Co. Heritage Officer and the LAWPRO Community Water Officer regarding management and protection of the riparian corridor within Cow Park and Athboy town.</p>
To raise awareness of biodiversity, its value and the issues facing it	Yes	<p>Athboy Tidy Towns are campaigning to make Athboy a herbicide/pesticide-free town.</p> <p>Erection of signage.</p> <p>Awareness raising within the community.</p>	n/a

## 4 Conclusions and Recommendations

It is clear from Table 3 that Athboy Tidy Towns have taken an informed and proactive approach to biodiversity conservation in Athboy. The approach to biodiversity conservation is largely in-line with the policies and objectives regarding protecting and enhancing biodiversity in the County Meath Development Plan, County Meath Heritage Plan, County Meath Biodiversity Action Plan, National Biodiversity Action Plan and All-Ireland Pollinator Plan.

In particular, the efforts that have been made to manage Cow Park in a wildlife friendly manner, based on a management plan prepared by a suitably qualified specialist is commendable.

There is room for improvement, however, and as such the following sections outline some recommended measures that should be considered going forward.

### 4.1 Planting

It is strongly recommended that future tree planting within the town consists of native tree species only (list available at the tree council website: <https://www.treecouncil.ie/native-irish-trees>), and ideally those of Irish provenance, where possible. Planting of native tree species is particularly important in semi-natural areas, such as those areas adjacent to the Athboy River and Cow Park. Ornamental tree planting is discouraged - however, where ornamental tree planting is undertaken the species should ideally be listed on the Pollinator Friendly Planting Code<sup>5</sup>.

According to the Pollinator Friendly Planting Code, traditional annual bedding plants like Geraniums, Begonias, Busy Lizzy, Petunias, *Polyanthus* or *Salvia splendens* have virtually no pollen and nectar and are of little value to pollinators. These bedding plants should be avoided in so far as possible. If not done so already, it is recommended that the Pollinator Friendly Planting Code is distributed to members of the Athboy Tidy Towns. Ideally, it should be agreed by all members that future planting will be guided by the species on this list. However, it should be noted that the Pollinator Friendly Planting Code is not an exhaustive list. There are other species that are also pollinator friendly and could be incorporated where appropriate. The best guide is to observe what the bees themselves are feeding on in parks/gardens and to increase the amount of these plants. However, it is important that the planting of invasive flora (e.g., Buddleia) is avoided. Lists of invasive and non-native flora are available from the National Biodiversity Data Centre: <https://species.biodiversityireland.ie/?taxonDesignationGroupId>. Please note that ornamental plants and trees should not be planted in natural or semi-natural habitats. They should also not be planted in farmland (outside of farm gardens).

It is also recommended that Athboy Tidy Towns works with the Athboy community in relation to the plants that are gifted to Athboy Tidy Towns for use in their projects. Any plants gifted should ideally be native or non-invasive pollinator friendly ornamental plants.

### 4.2 The Athboy River

It is understood by Enviroguide Consulting that a balance regarding public amenity and biodiversity conservation must be struck in public green spaces such as Cow Park. Nevertheless, caution must be exercised in the selection of areas where public use is

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<sup>5</sup> Pollinator Friendly Planting Code. All-Ireland Pollinator Plan 2015-2020. Available here: <https://pollinators.ie/wordpress/wp-content/uploads/2018/04/Planting-Code-2018-WEB.pdf>

encouraged. For example, evidence of riverbank poaching as a result of human access to the Athboy River was noted within Cow Park, and the Cow Park Management Plan has indicated areas where entry to the Athboy River Management Zone should be provided. Given the already perturbed status of the Athboy River, and its designation as a Special Area of Conservation within Cow Park, the protection of this river is essential and any works to encourage access to the river by the public should be guided by the National Parks and Wildlife Service (NPWS), Inland Fisheries Ireland (IFI) and Meath Co. Co. To this end, the protection of areas where public access to the Athboy River is encouraged within Cow Park should be central to any such plans, and it is strongly recommended by Enviroguide Consulting that the NPWS, IFI and the Meath Co. Co. Heritage Officer are consulted in advance. **Importantly, any project or work that is carried out within a SAC, SPA or NHA may be “An Activity Requiring Consent”. As such it is essential that the local NPWS Conservation Ranger is consulted in advance of commencing any project.**

The woodland corridor along the Athboy river is slightly fragmented. Local cuttings of native Irish trees such as willow could be used to create a more continuous woodland along the river. Trees are important along rivers as they provide shade for fish, help to stabilise riverbanks, help regulate floods and their leaves provide food for aquatic fauna. Too many trees can however reduce sunlight which can reduce fish numbers by affecting instream algae and the food chain<sup>6</sup>. As such, it is recommended that any tree planting within the riparian zone of the Athboy River is undertaken following consultation with the NPWS, IFI and the Meath Co. Co. Heritage Officer.

If planting of hedgerows along the river to restrict human access to it (in places, as recommended in the Cow Park Management Plan) is not possible, alternative options should be explored. For example, live willow fencing (Figure 16) may provide a wildlife friendly alternative to a hedgerow.

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<sup>6</sup> <https://lawaters.ie/app/uploads/2021/06/LEADER-A-guide-for-community-groups-working-with-Water-Biodiversity-and-Climate.pdf>



*Figure 16. Example of a live willow fence, at the Organic Centre in County Leitrim.*

#### **4.3 Hedgerow Planting and Management**

The relatively newly planted hedgerow located towards the south-east of the park is gappy and thin in places and could be improved by supplementary planting. Furthermore, additional hedgerow planting could be undertaken with the park to improve the ecological networks within it. Suggested locations for new hedgerows (red dashed lines) are indicated in Figure 18. The proposed hedgerow towards the north of the park is located along a stretch where some planting has already been undertaken (Figure 17).





Figure 17. Sparse tree/shrub planting at proposed hedgerow location. Photograph taken on the 15th July 2022.

This hedgerow would link the treeline boarding the east of the park with the newly planted woodland area. A gap would need to be retained in this hedgerow to allow a tractor to cut grass within the grassland to the south of it, however. The other suggested hedgerow location is adjacent to the brick wall located along the southern boundary of the park. This hedgerow would serve to create an ecological corridor between the newly planted treeline and existing broadleaved woodland in Cow Park to the mature treeline along the eastern boundary of the park. Whereas this corridor would be fragmented by the entrance road to the club house in the park, it would nevertheless enhance ecological connectivity within the park. The height of this hedgerow could be managed in such a way to prevent it overshadowing neighbouring properties.

The best hedgerows for wildlife are those comprised of a good mix of different native trees and shrubs. A good rule of thumb when selecting species for planting is to choose those species that already occur in hedgerows in the area. These are more likely to flourish in the local climate and soils will be in keeping with the character of the landscape. Young plants should be closely spaced (50 cm maximum) and should be planted on a **herringbone/zigzag line, not a straight line**. New hedgerows planted in a double staggered row are better for wildlife than single rows as they provide more shelter and habitat. The wider the hedgerow the better. It is important to leave sufficient width for the established hedge (2 m). New growth must be protected from weed competition until it is established.

Careful management of new and existing hedgerows is important. All hedge cutting must be carried out outside the main breeding bird season, i.e., 1<sup>st</sup> March to 31<sup>st</sup> August, in compliance with the Wildlife Act 1976 (as amended).

The following approach to hedgerow management, extracted from “Farmland Actions to Help Pollinators”<sup>7</sup> is advised:

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<sup>7</sup> Farmland: actions to help pollinators. All-Ireland Pollinator Plan, Guidelines 5. National Biodiversity Data Centre Series No.14, Waterford. September 2017

- If present within the hedgerow, at least one Whitethorn/Hawthorn in each hedgerow should be allowed to grow into a mature flowering tree.
- Hedgerows should be cut on a minimum 3-year cycle. Cutting annually stops the hedgerow flowering and fruiting.
- Cutting should be carried in rotation rather than all at once. This will ensure some areas of hedgerow will always flower
- Hedges managed for pollinators should ideally be cut between Nov-Jan. If they must be cut outside this, cutting should be carried out in rotation so some areas remain undisturbed.
- Some Bramble and Ivy should be retained in hedgerows, as they are key nectar and pollen sources in summer and autumn.
- The hedgerow should be retained as high as possible, but at least 2.5m above ground level or above the bank, where possible.
- The hedgerows should be trimmed in an A-shape, but where feasible they should be side trimmed only.

Further guidance on hedgerow maintenance and planting is available in “*Conserving Hedgerows*” published by the Heritage Council<sup>8</sup> and “Farmland Actions to Help Pollinators”.

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<sup>8</sup> [https://www.heritagecouncil.ie/content/files/conserving\\_hedgerows\\_2mb.pdf](https://www.heritagecouncil.ie/content/files/conserving_hedgerows_2mb.pdf)



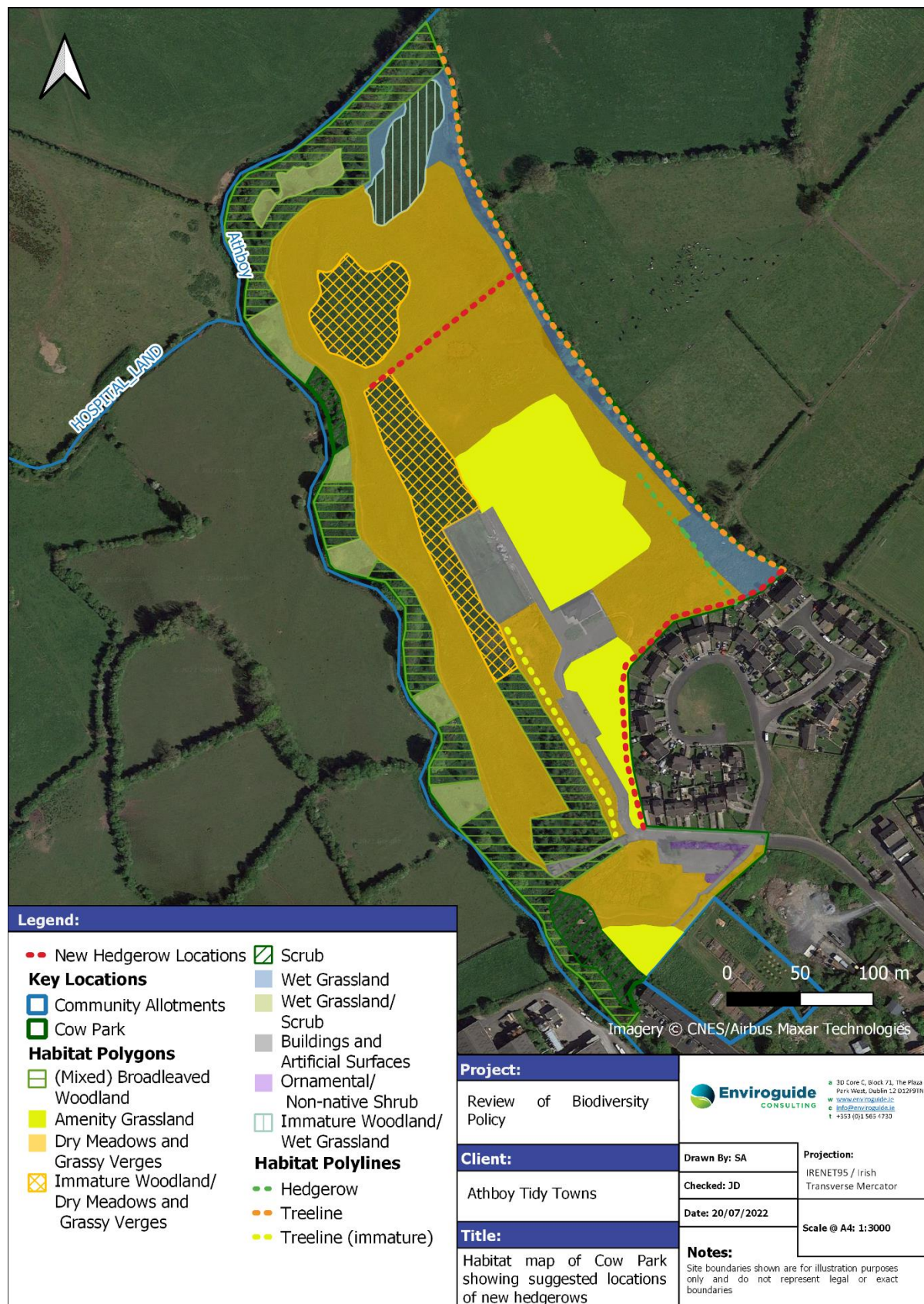


Figure 18. Suggested location of new hedgerows in Cow Park.



#### 4.4 Pathways within Cow Park

It is recommended that pathways in the north of the park are retained as informal pathways. However, way-markers to encourage the public to stick to this path could be introduced. Importantly, introducing artificial surfaces into this part of the park (e.g., hardcore or resin bound pathways) should be avoided if possible.

#### 4.5 The Fair Green

There is opportunity to improve the biodiversity value of the Fair Green by altering the mowing regime within the park. This does not preclude the retention of shorter swards within the park for amenity purposes. Sections of longer grass, which are subject to a pollinator friendly mowing regime could be tastefully integrated into the large green area within the centre of the park.

#### 4.6 Habitats for Fauna

It is understood by Enviroguide Consulting that actions regarding the creation of habitats for fauna within Athboy are yet to be implemented. As such, it is recommended that mammal homes, bat boxes and bird boxes are installed within Cow Park as recommended in the Cow Park Management Plan where possible (Bat Eco Services, 2019). It is recommended that a bat specialist is consulted regarding the siting and installation of bat boxes. Rather than installing large bug hotels, alternative pollinator/insect habitat should ideally be created such as creating an earth bank, scraping back some bare earth, leaving some areas to grow wild, or by drilling holes 10cm deep in unvarnished wood for solitary bees. Guidance from the All - Ireland Pollinator Plan states *“Don’t install a large bee or insect hotel. Large bee hotels are attractive to humans, but not great for pollinators. They can encourage the spread of disease and attract predators. Avoid anything bigger than an average-sized bird box. There are many other ways to provide nesting habitats for pollinators, such as providing wild areas of undisturbed long grass, and scraping back some bare earth. If you want to make a bee hotel, make sure it is small, and position it away from bird feeders so the insects aren’t easy targets.”*<sup>9</sup> A link to a “How-to-guide Creating wild pollinator nesting habitat” is provided in section 6 below.

There are various standard bird box options, and it is recommended that a mixture of the following box types<sup>10</sup> are installed:

- ‘Hole type’ bird boxes (28 mm hole)
- Open fronted bird boxes for blackbirds
- Open fronted bird boxes for wrens and robins

The bird boxes should be firm and secure to their support, and only paced on trees or structures that are robust and large enough to support them. Hole type bird boxes should be positioned 2-4m off the ground, with good-visibility, a clear flight line, and away from the prevailing wind direction. The open-fronted boxes for Robins, Wrens and Blackbirds should be installed lower than 2m but amongst dense vegetation and somewhere cats and other

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<sup>9</sup> [Top Ten Ways to Help Pollinators » All-Ireland Pollinator Plan](#)

<sup>10</sup> <https://birdwatchireland.ie/irelands-birds-birdwatch-ireland/garden-birds/nestboxes/#:~:text=Many%20people%20put%20their%20nestboxes,cats%20to%20get%20near%20it.>

predators won't easily see or access them. Boxes should not be drilled or nailed to trees, but instead should be attached via a wire strap wrapped around the tree. Unless the sites are very sheltered, bird boxes should be fixed facing between north and south-east to avoid the hot sun and the wettest winds. Guidance from Bird Watch Ireland regarding bird box construction and installation can be found at the following link: <https://birdwatchireland.ie/app/uploads/2019/09/Nestboxes-factsheet.pdf>.

It is recommended that Swift Boxes are retrofitted onto buildings throughout the town where possible. Swifts were recorded within Athboy during the field survey undertaken in July 2022. The incorporation of Swift boxes would help recover the declining Swift population, which are now Red Listed in Ireland (Gilbert et al., 2021). The Common Swift is a small migratory bird (larger than a Swallow, smaller than a Starling) which arrives in Ireland to breed from southern Africa in May and departs by late August. Swifts typically nest in cavities in walls or in spaces in eaves of houses and old buildings. They are colonial, which means they nest in groups, or colonies. Swifts are also site-faithful, meaning they will return to the same nest site for many years.

In addition to installing Swift boxes there are various actions communities can take to protect Swifts, which are outlined in the "Saving Swifts" published by Bird Watch Ireland<sup>11</sup>.

It is recommended that advice is sought from Swift Conservation Ireland<sup>12</sup> or Bird Watch Ireland<sup>13</sup> prior to undertaking a Swift box installation project. Proper siting of boxes is essential (refer to the aforementioned Saving Swifts guide) and an attraction call system is required to help the Swifts locate the nest boxes and to ensure that the project is a success. Call systems and advice on how and where to locate them can be obtained from Swift Conservation Ireland. A lure licence from the NPWS is required to play attraction calls.

An informative video about Swifts in Ireland, produced by Bird Watch Ireland is available at the following link: <https://www.youtube.com/watch?v=Z5YzYJcJWfM>

#### 4.7 Invasive Flora

The only "high risk" invasive plant recorded during the field survey undertaken was Cherry Laurel<sup>14</sup> which was recorded along Barrack Lane. The Cherry Laurel hedge is in an isolated location, remote from any woodland and is therefore not of significant concern. Buddleia<sup>15</sup> *Buddleia davidii* is a "medium risk" invasive species. Buddleia within flower beds and borders should ideally be replaced with a non-invasive (and ideally native) alternative (e.g., Guelder rose *Viburnum opulus*). If this is not possible, the shrubs should be pruned severely as soon as the flowers have faded<sup>16</sup>. This will prevent the spread seeds. All cuttings must be disposed of with care. Sycamore<sup>17</sup> is a "medium risk" invasive species. Whilst this is a naturalised

<sup>11</sup> <https://birdwatchireland.ie/publications/saving-swifts-guide/>

<sup>12</sup> <https://www.swiftconservation.ie/>

<sup>13</sup> <https://birdwatchireland.ie/contact/>

<sup>14</sup> <https://species.biodiversityireland.ie/profile.php?taxonId=28940>

<sup>15</sup> <https://species.biodiversityireland.ie/profile.php?taxonId=40247#:~:text=Species%20Biology&text=Deciduous%20shrub%20up%20to%205m,over%2090%20cultivars%20of%20B>

<sup>16</sup> <https://www.rspb.org.uk/birds-and-wildlife/advice/gardening-for-wildlife/plants-for-wildlife/shrubs-for-gardens/invasive-shrubs/>

<sup>17</sup> <https://species.biodiversityireland.ie/profile.php?taxonId=28773>

invasive species, it does bring ecological benefits, being a potentially good ecological replacement for ash (in anticipation of ash die-back reducing the ash population)<sup>18</sup>, hence removal of mature or semi-mature sycamore trees is potentially undesirable. However, sycamore saplings can be removed from flower beds etc. Snowberry is a “low risk” invasive plant. Given its risk assessment and proximity to a sensitive habitat (the Athboy River), management of this plant is not a priority. If management is desirable this should be guided by the local NPWS ranger.

#### **4.8 Consultation**

The Cow Park Management Plan should be implemented in so far as possible. However, it is recommended that the current plan, and any future iteration of the management plan for Cow Park is submitted for discussion and agreement with Meath Co. Co. (in particular the Heritage Officer) in advance of being implemented to ensure effective use of resources and to avoid disappointment if certain actions etc. are not deemed feasible by the council.

Engagement with IFI, the Meath Co. Co. Heritage Officer and the LAWPRO Community Water Officer regarding management and protection of the riparian corridor within Cow Park and Athboy town is also strongly recommended.

If hedgerow or tree planting is to be undertaken in Cow Park, this should also be discussed in advance with Meath Co. Co.

#### **4.9 General Recommendations for the Wider Community**

There are many ways individuals can enhance biodiversity in their gardens and local area. Some general recommendations for the wider community, based on Top Ten Ways to Help Pollinators<sup>19</sup> and Gardening for Biodiversity by Juanita Browne<sup>20</sup>, are outlined below:

- Reduce lawn mowing. This is easy to implement and can be implemented everywhere (e.g. roadside verges, lawns, schools, parks, field margins, farm lanes).
- If you have a native hedgerow in your garden or on your land, manage the hedgerow for biodiversity (see section 4.3 above)
- Plant native, pollinator friendly trees (e.g. Willow, Hawthorn, Rowan, Crab Apple, and Holly)
- As noted in “Top Ten Ways to Help Pollinators”, think twice about getting a hive of honeybees. Having too many honeybee hives in the landscape can result in competition for food between honeybees and our struggling wild pollinators. You should only get a honeybee hive if you want to start a new hobby, but it is not the best thing to do for biodiversity.
- Avoid using insecticides, fungicides and herbicides
- Create nesting habitat for pollinators but avoid large bug hotels (large bug hotels can encourage the spread of disease and attract predators). To make nesting habitat for pollinators, you can scrape back some bare earth, leave some areas to grow wild, or drill holes 10cm deep in unvarnished wood for solitary bees. A link to guidance on creating wild pollinator nesting habitat is provided in section 6 below.

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<sup>18</sup> <https://www.devonashdieback.org.uk/take-action/replacing-trees/>

<sup>19</sup> [Top Ten Ways to Help Pollinators » All-Ireland Pollinator Plan](#)

<sup>20</sup> <https://www.fingal.ie/sites/default/files/2020-04/gardening-for-biodiversity-booklet.pdf>



- Plant nectar rich plants in your garden. If possible plant native species, but where ornamental planting is desired, the species should ideally be listed on the Pollinator Friendly Planting Code. Please note that ornamental plants should not be planted in natural or semi-natural habitats. They should also not be planted in farmland (outside of farm gardens). It should be noted that the Pollinator Friendly Planting Code is not an exhaustive list. As stated in the Pollinator Friendly Planting Code, there are other species that are also pollinator friendly and could be incorporated where appropriate. The best guide is to observe what the bees themselves are feeding on in parks/gardens and to increase the amount of these plants. However, it is important that the planting of invasive flora (e.g., Buddleia) is avoided. Lists of invasive and non-native flora are available from the National Biodiversity Data Centre: <https://species.biodiversityireland.ie/?taxonDesignationGroupId>.
- Avoid wildflower seed mixes and reduce mowing regimes instead to allow native local wildflowers to grow (e.g., Dandelion, Clovers, Self-heal and Bird's-foot-trefoil)
- Feed garden birds and provide a source of water – importantly, keep food fresh (don't offer damp or mouldy food), keep feeders out of reach of cats, regularly clean feeders and water baths.
- Encourage birds to nest in your garden by offering suitable nesting sites, which include dense ivy, trees and hedges as well as bird boxes. For advice on bird box installation see section 4.6 above.
- Allow parts of your garden to be untidy/wild. Leaving an untidy/wild corner for leaf litter, nettles, brambles and ivy can encourage invertebrate biodiversity.
- If you have space, build a pond, bog garden, rain garden or log pile (see Gardening for Biodiversity for detailed instructions – link provided in section 6)
- Build a mini-pond (instructions available here: <https://www.rspb.org.uk/fun-and-learning/for-families/family-wild-challenge/activities/make-a-mini-pond/>)
- Protect bats by avoiding illuminating your garden at night. Bats are very light sensitive so they will generally avoid bright lights.
- Allow mammals to access your garden. This can be achieved by cutting a small hole at the base of garden fences (you may need to discuss this with neighbours first)<sup>21</sup>.
- Make your own compost, leaf mould and only buy peat-free compost
- Harvest rainwater in water butts for use in the garden
- Become a citizen scientist<sup>22</sup>. Record biodiversity on the National Biodiversity Data Centre App: <https://docs.biodiversityireland.ie/biodiversity-data-capture>. There are many more citizen scientist initiatives in Ireland also, such as river water quality monitoring: <https://lawaters.ie/citizen-science/>. If you would like to get involved, please contact [info@lawaters.ie](mailto:info@lawaters.ie)

## 5 References

**All-Ireland Pollinator Plan 2021-2025.** National Biodiversity Data Centre Series No. 25, Waterford. March 2021.

<sup>21</sup> <https://www.hedgehogstreet.org/help-hedgehogs/link-your-garden/>

<sup>22</sup> [Citizen Science - National Biodiversity Data Centre \(biodiversityireland.ie\)](https://docs.biodiversityireland.ie/biodiversity-data-capture)

**Bat Eco Services (2019)** Wildlife and Natural Amenities Preliminary Management Plan for Cow Park, Athboy, County Meath. Unpublished report prepared for Athboy Tidy Towns, Athboy. Co. Meath.

**Bat Eco Services (2021)** Athboy River Survey. Unpublished report prepared for Athboy Tidy Towns, Athboy. Co. Meath.

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**National Biodiversity Data Centre (2016).** Local Communities: actions to help pollinators. All-Ireland Pollinator Plan, Guidelines 1. National Biodiversity Data Centre Series No.4, Waterford. April, 2016.

## 6 Links to Useful Information Sources

- Pollinator Friendly Planting Code (<https://pollinators.ie/wordpress/wp-content/uploads/2018/04/Planting-Code-2018-WEB.pdf>)
- How-to-guide: Creating wild pollinator nesting habitat. [How-to-guide-Nesting-2018-WEB.pdf \(pollinators.ie\)](#)
- Top Tens Ways to Help Pollinators. [Top Ten Ways to Help Pollinators » All-Ireland Pollinator Plan](#)
- Gardening for Biodiversity: <https://www.fingal.ie/sites/default/files/2020-04/gardening-for-biodiversity-booklet.pdf>
- Build a Mini-pond (<https://www.rspb.org.uk/fun-and-learning/for-families/family-wild-challenge/activities/make-a-mini-pond/>)
- Farmland: Actions to Help Pollinators ([Farmland » All-Ireland Pollinator Plan \(pollinators.ie\)](#))
- Conserving Hedgerows Guidance ([Layout 1 \(heritagecouncil.ie\)](#))
- Nest Boxes for Garden Birds ([Nestboxes for Garden Birds - BirdWatch Ireland](#))
- Saving Swifts Guide ([Saving Swifts Guide - BirdWatch Ireland](#))
- Link your Garden: Hedgehog Highways (<https://www.hedgehogstreet.org/help-hedgehogs/link-your-garden/>)
- A Guide for Community Groups, Working with Water, Biodiversity and Climate: <https://lawaters.ie/app/uploads/2021/06/LEADER-A-guide-for-community-groups-working-with-Water-Biodiversity-and-Climate.pdf>
- Information on Citizen Science ([Citizen Science - National Biodiversity Data Centre \(biodiversityireland.ie\)](#))