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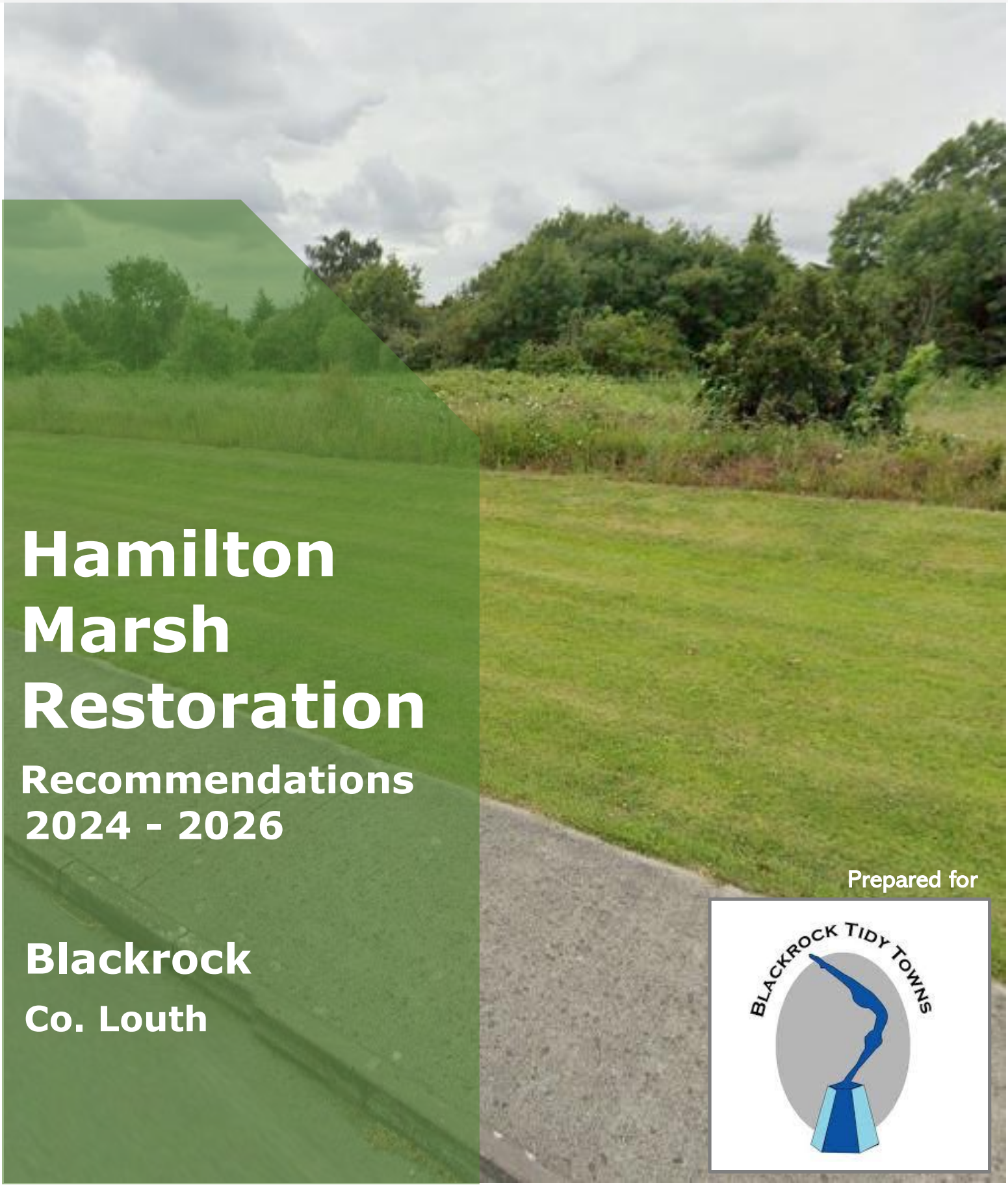


# Hamilton Marsh Restoration

## Recommendations 2024 - 2026

Prepared for

BLACKROCK TIDY TOWNS

## Blackrock

## Co. Louth

| Project Title: | Draft Hamilton Marsh Restoration Project 2024 - 2026 | | |
|---|---|---|---|
| Issue Date: | Authors: | Reviewed by: | Approved by: |
| 29/10/2024 | NB & AH | PH | NB |

# Table of Contents

# 1 Introduction

This report was commissioned by Blackrock Tidy Towns.

A description of the ecological condition of the Hamilton Marsh area has been provided.

Actions to improve the ecological status of the wetlands have been proposed.

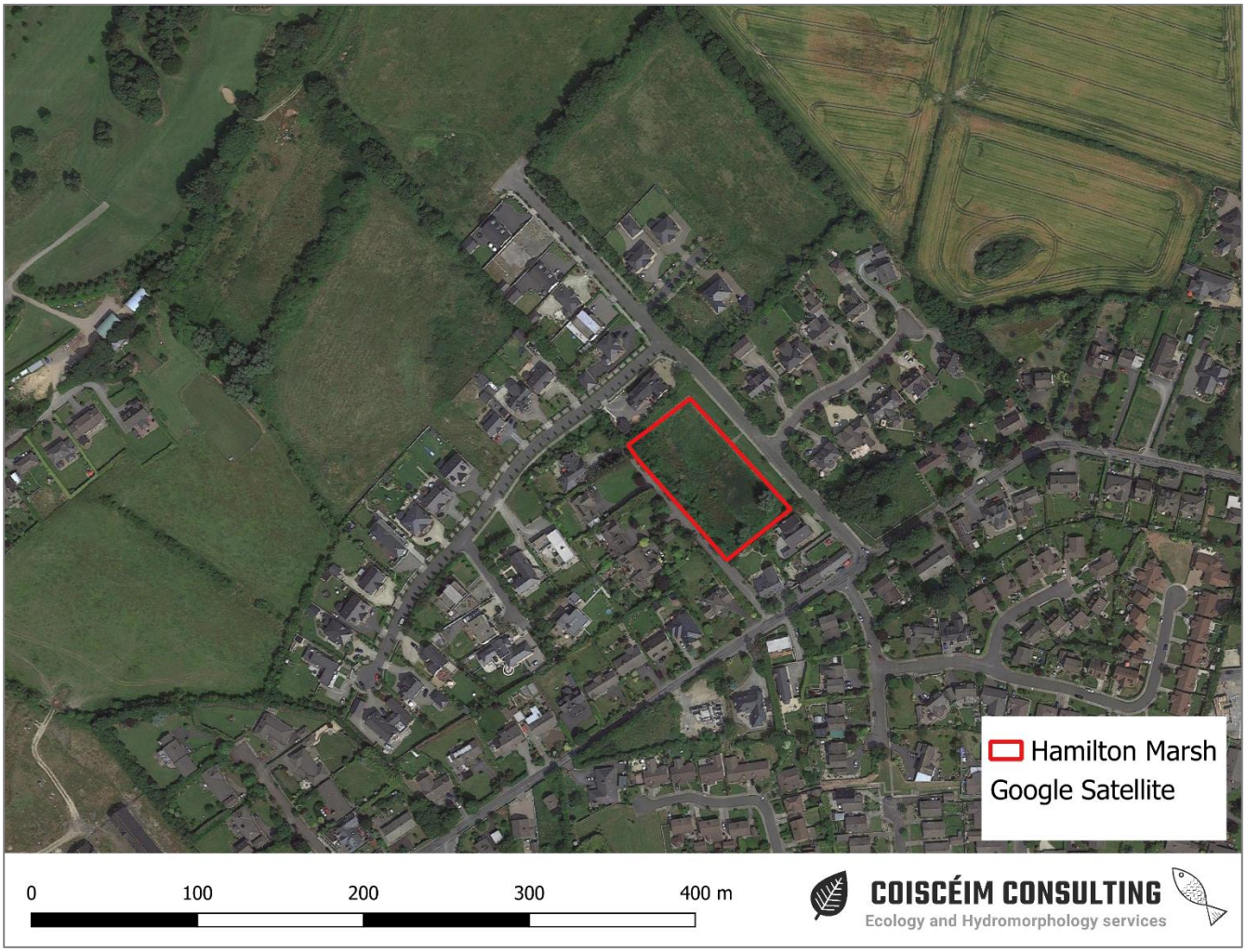
Suggested actions for future monitoring have also been proposed.

# 2 Project Background and Aims

An ecological study of Hamilton Marsh was commissioned by Blackrock Tidy Towns to collect data on the baseline condition of the wetlands and to propose actions for its restoration.

The wetlands are located in the north of Blackrock between Hamilton Avenue and McGahon's Lane with an extent of approximately 0.5 hectares.

***Figure 2.1 Hamilton Marsh Location***



The desktop study aimed to assess the extent of the marsh in the past and to understand the status of the wetlands. This helped in pinpointing potential actions for the development of the restoration plan.

Site surveys were undertaken to further inform the study and from this, selected actions were chosen based on the species and features of note identified.

This study aims to guide Blackrock Tidy Towns in their efforts to protect and restore Hamilton Marsh and maximise the benefits that nature can provide for the wildlife and people of Blackrock.

The Restoration Plan consists of a list of proposed actions to roll out between 2024 and 2026. The report includes an overview of the key wetland features within the area, and some detailed actions with an outlined scope for each.

There is existing potential for the involvement of other parties with this Plan; for example, NGO's including (but not limited to) the Irish Wildlife Trust, Birdwatch Ireland, Bat Conservation Ireland, as well as local residents' groups such as schools and sports clubs.

**Wetlands are our natural safeguards against climate change that store and purify water, purify our air and provide habitat and breeding grounds for over 40% of the world's species.**

# 3 Statement of Competency

This study and report was completed by Dr Niamh Burke and Aoife Hillman of Coiscéim Consulting.

Niamh Burke is Principal Ecologist with Coiscéim Consulting and has 15 years' experience of environmental and ecological assessment and biodiversity initiatives within both consultancy and academia. With a specialism in aquatic habitats, she also has experience of terrestrial species' surveys and mitigation, and has authored numerous EIAR, EcIA, AA / NIS reports. Niamh delivers training in Biodiversity and Hydromorphology for a range of clients in private and public sectors.

Aoife Hillman is a Graduate Ecologist holding a First-Class Honours BSc (Hons) in Environmental Science with Ecology and was awarded the Environmental Sciences Association of Ireland Undergraduate of the Year Award (2023/2024) for Atlantic Technological University Sligo. Aoife has completed extensive coursework on terrestrial and aquatic ecology, conservation and natural resource management under her degree. Aoife has authored and contributed to several EcIA, Biodiversity Action Plans and AA / NIS reports.

For this restoration project, Niamh visited Hamilton Marsh twice to carry out site surveys as outlined in the project scope and to liaise with members of Blackrock Tidy Towns in order to devise the actions set out in this report.

Niamh assimilated all feedback on preferred actions for restoration to arrive at those presented within this report.

# 4 Status of Hamilton Marsh

Hamilton Marsh is an open area of wetland habitat on the periphery of Blackrock, County Louth which historically occupied a wider area named for John Hamilton, Viscount of Limerick, who was made Governor of County Louth and Earl of Clanbrassil in 1746.

The Hamilton marsh currently occupies a small rectangular area of wetland. It is surrounded on all sides by residential housing, though the area opens into fields, hedgerows and a golf course to the north. The rectangular wetland is approximately 50 metres by 200 metres. The *County Louth Wetland Survey* (Foss et al. 2012) described the site as freshwater marsh with *Typha latifolia*, *Equisetum fluviatile* and *Iris pseudacorus* to its east, grading into wet grassland to the west.

Currently, the marsh - which would be classified as a 'Reed and large sedge swamp' habitat also contains areas of scrub and sapling trees, and appears to have undergone prolonged periods of drying, which enabled the establishment of more terrestrial plant species.

## 4.1 History of Research and Enhancement Plans

*The Ecology of Blackrock* (Roe and Merne 2006) identified Hamilton Marsh as a valuable location for wildlife conservation and biodiversity. In particular, the marsh was noted to provide habitat opportunities for amphibians and was found to be a site for the spawning of Common Frog *Rana temporaria*.

A *Biodiversity Action Plan for Blackrock* (Convery 2009) was built on the findings of *The Ecology of Blackrock* for Louth County Council and Blackrock Tidy Towns and included recommendations for the appropriate management of Hamilton Marsh. This Plan recommended the undertaking of bird and bat surveys at the marsh, which were conducted by Aughney (2010) and Martin (2010).

The *Ecology and Biodiversity Enhancement Plan for Blackrock, Co. Louth* (Barron 2019) recommended the removal of Dogwood, Bramble and Ash from Hamilton Marsh after Bramble and Ash were noted encroaching through the central section of the site and Dogwood invading the western section. The removal efforts were undertaken but

appear that effective removal has not as yet been achieved, as extensive areas of scrub and sapling trees remain within the wetland area.

In 2023, and in the context of further residential development and drainage works within the immediate vicinity of the marsh, the Residents Committee of the Hamiltons, in conjunction with Blackrock Tidy Towns acquired funding from the Local Authority Waters Programme focussed on the recovery and restoration of the Hamilton Marsh wetland.

Additionally, in the context of the residential developments, a series of flooding events on the roads within the estate, had been occurring in recent years.

In this context, CBA Consulting Engineers were retained by the developer, McGahon Partnership to do remedial works on the drainage of the area, which was required as part of the *Taking In Charge* process, whereby Louth County Council would takeover the maintenance of the roads and common areas within the estate. New drainage pipes were laid and redirected to the wetland area.

***Figure 4.1 New drainage pipes being installed (September 2023)***

## 4.2 Marsh Extent and Influence of Urban Development

The area surrounding and within Hamilton Marsh has a variety of valuable habitats of local importance from reed beds, ditches, hedgerows, treelines and to the north agricultural grasslands. However these habitats, their ecological value and range, are at risk from urbanisation.

Blackrock and Haggardstown have experienced significant population increases in recent years, with new residential developments appearing and continuing to appear along the outskirts of the towns.

Urban development has threatened the existence of Hamilton Marsh. New housing developments, private and council ownership, and drainage redirection have all had impacts on the natural hydrology and water levels in the marsh, resulting in a change in vegetation type and an increasing presence of scrub habitat. These include bramble, gorse and more terrestrial species, particularly in the eastern side of the marsh.

The rate of development in the vicinity of the marsh over the past 30-odd years is clearly exhibited in Figures 4.2.1 and 4.2.2 below.

***Figures 4.2.1 Development in Proximity to Hamilton Marsh 1996-2024***


Figures 4.2.2 display how the marsh has reduced in range since 1996, losing its southern end to urbanisation and with its western boundary receding to amenity grassland.

***Figure 4.2.2 Habitat Loss of Hamilton Marsh 1996 - 2024***

# 5 Methodology

## 5.1 Site Surveys

Walkover surveys were carried out in August 2023 and in October 2024 whereby the grounds of the marsh were walked, and species and habitat present, identified.

Each identified discrete habitat type was mapped according to *A Guide to Habitats in Ireland* (Fossitt, 2000) classification system. Broadly, the habitats present were Reed and large sedge swamp, amenity grassland with treelines, and scrub vegetation, as described in further detail in section 7 below.

## 5.2 Desktop Study

The following sources were referenced during the Desk-top study to inform the restoration measures proposed:

- Online data available on European protected habitats/species as held by the National Parks and Wildlife Service (NPWS) from www.npws.ie, including conservation objectives documents
- Online data available on protected species as held by the National Biodiversity Data Centre (NBDC) from www.biodiversityireland.ie
- Gilbert, Andrew Stanbury & Lesley Lewis (2021) Birds of Conservation Concern in Ireland 4: 2020–2026. Irish Birds 43: 1-22
- Information on the surface water network and surface water quality in the area available from www.epa.ie
- Information on groundwater resources and groundwater quality in the area available from www.epa.ie and www.gsi.ie
- Ordnance Survey of Ireland mapping and aerial photography available from www.osi.ie
- Information on the location and nature of the site as supplied by Blackrock Tidy Towns
- Louth County Development Plan *2021 – 2027*
- The National Planning Application database from www.myplan.ie
- An Board Pleanála database from www.pleanala.ie

# 6 Desktop Study

## 6.1 Hydrology and Hydrogeology

Hamilton Marsh is located above a Poor Aquifer with generally unproductive bedrock except for local zones. The bedrock consists of a deep marine turbidite sequence of mudstone, greywacke and conglomerate.

Groundwater in this area has natural characteristics that make it highly vulnerable to contamination by human activities. It's WFD status is currently 'Good' and it is considered to be 'Not at Risk'.

The Quaternary Period spans the last 2.6 million years of Earth's history to present day. The Quaternary sediment beneath the marsh is till derived from Lower Palaeozoic sandstones and shales while subsoils consist of clayey diamicton till.

The word diamicton refers to marine deposits from land-eroded materials characterised by poorly sorted particles ranging in size from clay to boulders, all suspended in an unconsolidated matrix of mud or sand.

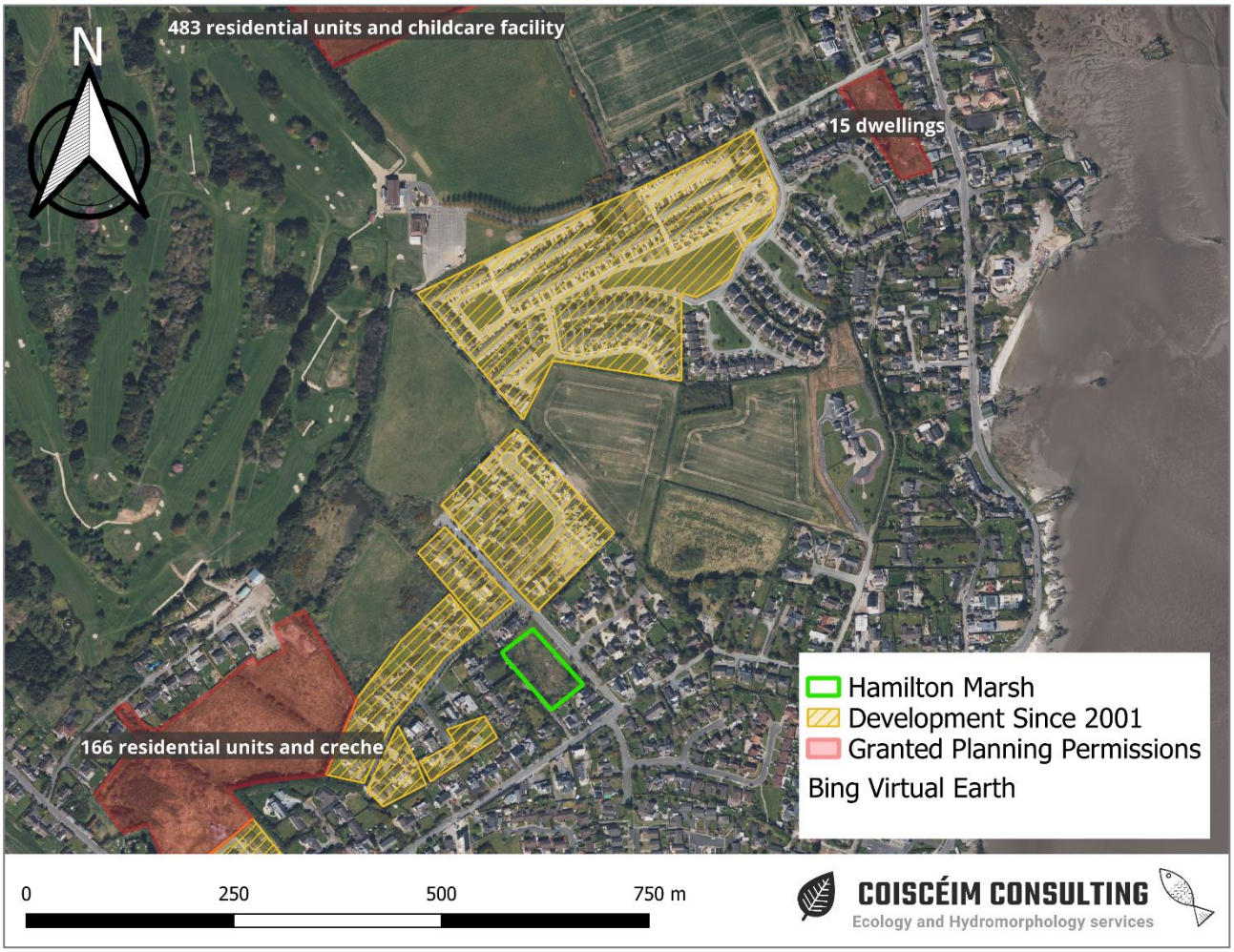
## 6.2 Development In the Vicinity of Hamilton Marsh

Since the early 2000s, many residential developments have popped up in close proximity and directly adjacent to Hamilton Marsh.

The southern extent of the marsh has been reduced to make way for private dwellings.

Agricultural land use has been changed to residential in the case of the construction of residential areas such as Hamilton Mews and Hamilton Green estate. Additional Planning Applications requiring land take have also been granted planning permission that are yet to be constructed, including the development of 166 residential units to the west of the marsh.

***Figure 6.2: Development of Blackrock in Proximity to Hamilton Marsh Since 2001 and Sites Where New Planning Applications have been Granted Permission for Development***




## 6.3 Protected Flora and Fauna

### *6.3.1 Flora*

The NBDC have no records of protected plant species in the vicinity of Hamilton Marsh.

### *6.3.2 Birds*

All bird species that occur naturally in Ireland, their nests and eggs are fully protected at all times by the Wildlife Act 1976 and relevant amending legislation.

Some species are afforded additional protection under the EU Birds Directive. Annex I species of the Birds Directive are subject to special conservation measures concerning their habitat in order to ensure their survival and reproduction in their area of distribution.

Under the "Birds of Conservation Concern in Ireland 4: 2020 to 2026" (Gilbert et al 2021), statues have been assigned to all regularly occurring species in Ireland:

- Red list species are of high conservation concern
- Amber list species are of medium conservation concern
- Green list species are of least conservation concern

The criteria on which species have been assessed is based on their international conservation status, historical breeding declines, recent population declines, European conservation status, breeding rarity, localised distribution and the international importance of populations.

Table 6.3.2 below lists species recently recorded in the vicinity of Blackrock that are either protected under Annex I of the Birds Directive or are of high conservation concern. This includes 5 red-listed species and 4 species listed under Annex I.

***Table 6.3.2: Bird Species Reported to the NBDC in the vicinity of Hamilton Marsh that are protected under Annex I of the Habitats Directive and/or are of High Conservation Concern***

| Species | BoCCI Status | Annex I of the Birds Directive | Location(s) | Date of Last Record |
|---|---|---|---|---|
| **Sandwich Tern** ***Sterna sandvicensis*** | Amber | Listed | Mudflats of Blackrock | 18/06/2016 |
| **Little Egret** ***Egretta garzetta*** | Green | Listed | Rathmount | 26/06/2017 |
| **Common Tern** ***Sterna hirundo*** | Amber | Listed | Mudflats of Blackrock | 10/05/2018 |
| **Curlew sandpiper** ***Calidris ferruginea*** | Red | - | Mariner's Court | 24/06/2019 |
| **Black-headed gull** ***Larus ridibundus*** | Red | - | Sandy Lane, Dundalk Golf Club, Seafield Road | 13/07/2019 |
| **Kingfisher** | Amber | Listed | Rockmount | 14/12/2022 |

| Species | BoCCI Status | Annex I of the Birds Directive | Location(s) | Date of Last Record |
|---|---|---|---|---|
| ***Alcedo atthis*** | | | | |
| **Redshank** ***Tringa totanus*** | Red | - | Rockmount | 28/02/2023 |
| **Oystercatcher** ***Haematopus ostralegus*** | Red | - | Rockmount, Blackrock Park, Blackrock Beach | 28/02/2023 |
| **Swift** ***Apus apus*** | Red | - | Dundalk Golf Club, Coast Road, Sandymount | 09/08/2023 |

### *6.3.3 Amphibians*

In 2005, spawn, tadpoles and froglets of the Common frog *Rana temporaria* were recorded across the season during the ecological surveys that informed *The Ecology of Blackrock* (Roe and Merne 2006). The species was confirmed at Hamilton Marsh including a number of other locations nearby including the marshes of Springfield, Fairways Hotel and The Loakers private lands.

More recently, in 2018, another record was submitted to the NBDC for an adult frog at Dundalk Golf Club.

Common frogs *Rana temporaria* are protected nationally under the Wildlife Act 1976 (as amended) and are also listed on Annex V of the EU Habitats Directive.

### *6.3.4 Bats*

All Irish bat species are European Protected Species listed under Annex V of the Habitats Directive, protected under the Wildlife Act (as amended) and the Conservation of Habitat and Species Regulations 2017 (as amended).

Table 6.3.4 lists the 5 bat species recorded in the vicinity of Hamilton Marsh.

***Table 6.3.4: Bat Species Reported to the NBDC in the vicinity of Hamilton Marsh***

| Species | Red List Status | Location(s) | Date of Last Record |
|---|---|---|---|
| **Brown long-eared bat** ***Plecotus auritus*** | Least Concern | Undisclosed (Northern Extent of Blackrock) | 11/08/2006 |
| **Daubenton's Bat** ***Myotis daubentonii*** | Least Concern | Undisclosed (Northern Extent of Blackrock) | 11/08/2006 |
| **Soprano pipistrelle** ***Pipistrellus pygmaeus*** | Least Concern | Undisclosed (Northern Extent of Blackrock) | 11/08/2006 |
| **Common pipistrelle** ***Pipistrellus pipistrellus*** | Least Concern | Undisclosed (Northern Extent of Blackrock), The Saltings estate | 25/08/2017 |
| **Lesser noctule** ***Nyctalus leisleri*** | Least Concern | Undisclosed (Northern Extent of Blackrock), The Saltings estate | 25/08/2017 |

### *6.3.5 Other Mammals*

There are 3 protected mammal species, other than bats, that have been reported to the NBDC in the vicinity of Hamilton Marsh and in the area of Blackrock.

Table 6.3.5 below lists these species along with the associated legislation affording them protection.

***Table 6.3.5: Other Protected Mammal Species Reported to the NBDC in the vicinity of Hamilton Marsh***

| Species | Red List Status | Legislation | Location(s) | Date of Last Record |
|---|---|---|---|---|
| **West European hedgehog** ***Erinaceus europaeus*** | Least Concern | The Wildlife Act (as amended) | Gort na Glaise | 11/08/2006 |
| **European otter** ***Lutra lutra*** | Least Concern | The Habitats Directive: Annex II, Annex IV<br>The Wildlife Act (as amended) | The Ladies' Beach | 13/01/2017 |

| Species | Red List Status | Legislation | Location(s) | Date of Last Record |
|---|---|---|---|---|
| **Irish hare** ***Lepus timidus subsp. hibernicus*** | Least Concern | The Habitats Directive: Annex V<br>The Wildlife Act (as amended) | Dundalk Golf Club, Loft House private land | 13/09/2018 |

## 6.4 Invasive Species

There have been very few records of invasive species submitted to the NBDC in the vicinity of Hamilton Marsh and the Blackrock area.

Table 6.4 below lists these species along with any associated legislation. Species listed on the Third Schedule of the EU Birds and Habitats Regulations 2011 (as amended) are subject to restrictions and it is an offence to cause these species to spread.

***Table 6.4: Invasive Species Reported to the NBDC in the vicinity of Hamilton Marsh***

| Species | Designations | Location(s) | Date of Last Record |
|---|---|---|---|
| **Japanese knotweed** ***Fallopia japonica*** | EU Birds and Habitats Regulations 2011: Third Schedule<br>Invasive species: High impact | Main Street opposite Ferns Grove | 11/05/2017 |
| **Eastern grey squirrel** ***Sciurus carolinensis*** | EU Birds and Habitats Regulations 2011: Third Schedule<br>Invasive species: High impact | Old Golf Links Road opposite Stamanaran, Dundalk Golf Club, | 12/05/2018 |
| **European rabbit** ***Oryctolagus cuniculus*** | Invasive species: Medium impact | Dundalk Golf Club | 12/05/2018 |

# 7 Site Surveys Results

## 7.1 Habitat Survey

A survey was carried out on 1st October 2024 to assess the species and habitats currently present at the site. The issue of drying was evident in the area to north-east of the marsh now occupied by scrub habitat – including bramble, dog rose, sapling ash trees, gorse, grasses, and broadleaved terrestrial plant species such as vetches and nettles. Figure 7.1 presents the habitats recorded in and around the marsh during October 2024.

***Figure 7.1 Habitat Map of Hamilton Marsh***

***Table 7.1: Habitats Recorded at Hamilton Marsh***

| Fossitt Habitat | Habitat Code |
|---|---|
| Reed and Large Sedge Swamp | FS1 |
| Amenity Grassland | GA2 |
| Dry Meadow and Grassy Verges | GS2 |
| Treelines | WL2 |
| Scrub | WS1 |

### *Reed and Large sedge swamp (FS1)*

This area consists of tall herbs - presently dominated by Willowherbs *Epilobium* spp., both Hoary Willowherb *Epilobium parviflorum* and Great Willowherb *Epilobium hirsutum*. Some stands of Bulrush *Typha latifolia* are present along the eastern side, south of the midpoint, and more profusely in the extreme north of the marsh. Other species recorded include Yellow flag iris *Iris pseudacorus* and Water horsetail *Equisetum fluviatile*, with Meadowsweet *Filipendula ulmaria* along the edges and a strong presence of the climbing plant Hedge bindweed *Calystegia sepium* throughout.

In the northern section, the vegetation is more diverse and includes other wetland species such as Water mint *Mentha aquatica*, Fool's watercress A*pium nodiflorum* and Floating sweet-grass *Glyceria fluitans*.

The presence of the larger grasses – like Bulrush, are diagnostic of this habitat type, and monitoring of the seed heads may be a useful indicator of the status of the wetland for gauging inundation and /or desiccation states.

***Dry Meadow and Grassy Verges (GS2)***

The areas of grassland bordering Hamilton Marsh may be classified as dry meadows and grassy verges being rarely fertilized or mown, and containing a good variety of grassland species including broad and narrow dock *Rumex* spp., Nettle *Urtica dioica*, Common vetch *Vicia sativa*, Bush vetch *Vicia sepium*, Meadow vetchling *Lathyrus pratensis* , Bird's-foot-trefoil *Lotus corniculatus,* Creeping cinquefoil *Potentilla reptans*, Scarlet pimpernel *Anagallis arvensis* and Clovers *Trifolium Spp*., as well as a variety of grasses such as False oat grass *Arrhenatherum elatius*, Yorkshire fog *Holcus lanatus* and Cock's foot *Dactylus glomerata*.

These areas provide good foraging for pollinators, birds and bats and potential habitat for small mammals such as pygmy shrew and field mouse. The lower areas grading into the wetland itself provide good cover and habitat for amphibians also.

***Amenity Grassland (GA2)***

These areas are regularly monitored and maintained. The amenity grassland is generally species poor with common grass species and few broadleaved herbs noted such as White and Red clover *Trifolium spp*. Some species of Dandelion *Taraxacum* spp., and Plantain *Plantago* spp., were recorded but largely since the species are not allowed to come to maturity and flower they are of limited value for wildlife.

**Treelines (WL2)**

The tree line to the west of the wetland is dominated by Ash *Fraxinus excelsior* with some Birch *Betula pendula* and Willows *Salix spp*. Sycamore *Acer pseudoplatanus* also occur at the southern end.

The northern end of the site has a heavily pollarded tree line of Ash *Fraxinus excelsior* and Sycamore *Acer pseudoplatanus* which is set back some 10 - 15m from the wetland.

***Scrub (WS1)***

Scrub vegetation occupies a large portion of the northeast side of the wetland area in a raised swathe which indicates that the progression to terrestrial habitat has been occurring over some years. The dominant species present here are Bramble *Rubus fruticosus*, Gorse *Ulex europaeus,* Dog rose *Rosa canina*, Creeping thistle *Cirsium arvense,* Hedge bindweed *Calystegia sepium*, Nettle *Urtica dioica*, Vetches *Vicia* spp., and sapling Ash trees *Fraxinus excelsior*.

## 7.2 Bird Species Noted

Bird species noted at the time of survey were Blackbird *Turdus merula*, Wood Pigeon Columba palumbus, Song Thrush *Turdus philomelos*, Wren *Troglodytes troglodytes*, Robin *Erithacus rubecula*, Dunnock *Prunella modularis*, Pied Wagtail *Motacilla alba* and a Buzzard *Buteo buteo* overhead.

These species are all Green-listed under the "Birds of Conservation Concern in Ireland 4: 2020 to 2026" (Gilbert et al 2021) and therefore are of least conservation concern in the country.

# 8 Proposed Actions – Wetland and Biodiversity Restoration

This targeted report for Hamilton Marsh aims to take forward the works already achieved in the area and suggest ways to enhance the wetlands and increase biodiversity potential.

This section will propose a number of key measures developed and proposed for the marsh and present a comprehensive list of all measures proposed for each habitat. The measures will build on those already achieved by the groups and provide a framework from which to prioritize actions. This will add value and insight to the project and provide Blackrock Tidy Towns with a clearer vision of the current and future conservation goals for these species and their habitats.

***Table 8.1: Proposed Restoration Actions***

| Action | Description | Timeframe |
|---|---|---|
| **1. Removal of Scrub Vegetation including Bramble, Gorse, Dogwood and Ash** | Persistent areas of Bramble on the northeastern side and in the southeastern corner should be removed to ensure the risk of terrestrial succession is reduced.<br>Removal of scrub bramble, gorse, dogwood and ash where it persists, should be done **outside of the bird-breeding period** (March to August inclusive) to avoid accidental damage to nesting birds.<br>Some removal of undergrowth and humic material may be required as there is significant growth in this area and the topology has changed due to the growth of the scrub vegetation. | 2024/2025 |
| **2. Water Quality Testing and Biological Monitoring** | Water quality testing is recommended to ensure that the quality of water in the wetland is of a good (EQA) standard that will support and wide variety of species and ensure the wetland is a healthy ecosystem. | From 2024 on an ongoing monthly / bimonthly basis |

| Action | Description | Timeframe |
|---|---|---|
| | Standard water quality tests could be for typical contaminants such as phosphates, nitrates and **should include metals, suspended solids and hydrocarbons**.<br><br>Other bio-indicators of ecological health and water quality may be shown through **macro-invertebrate testing** (sweep netting or kick sampling) during the spring and autumn windows, and **simple observations for amphibian activity** such as for frog spawn in the springtime can provide valuable indicators of ecological quality.<br><br>Additionally, **Bulrush are an indicator species** so monitoring of the seed heads annually may be a useful indicator of the status of the wetland for gauging inundation and /or desiccation states. | |
| **3. Water Level Monitoring** | **Surface water monitoring**<br><br>Water level monitoring is recommended due to the recent periods of drying that the wetland has undergone. Surface water levels can just be monitored fairly simply with gauges at either end of the wetland.<br><br>**Piezometers**<br><br>The influence of upwelling groundwater may be measured with pressure transducers or piezometers installed at shallow depths within the wetland substrate. | Monthly from late 2024 onwards |
| **4. Introduction of Native Semi-aquatic and Hydrophilous Plants** | Once the scrub removal works have been completed, the **introduction of further wetland species** to create species diversity within the vegetation is an option. Local species from the Black Rock vicinity could be | 2026<br><br>Once vegetation clearance works are complete |

| Action | Description | Timeframe |
|---|---|---|
| | translocated to the marsh, and may include species such as Yellow iris, Branched bur-reed, Watermint and Watercress. | |
| **5. Allow Re-Wilding of Amenity Grassland Strip to the Eastern Border of the Marsh** | There is a significant difference between the species-poor amenity grassland species and the grassy verge sloping down to the wetland. The amenity grassland area could be narrowed slightly to **accommodate more of the rich grassy verge species** and so provide more habitat for animal species such as pollinators, birds and bats.<br>This action could be agreed with Louth County Council and included in their **mowing regime** and timetable. | 2025 |
| **6. Install Bat Boxes** | The installation of bat boxes will encourage more bat activity in the Hamilton Marsh area. Several linear features (treelines hedgerows) provide good foraging and commuting corridors for bats, and the wetland itself provides a rich feeding ground. The installation of bat boxes will increase the habitat opportunities for this group. | 2025/2026 |

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