



Ecological Assessment and Management Recommendations for Bremore Park

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Introduction

This ecological assessment was undertaken by Eibhlín Ní Chaithnia, Ecological Consultant: (BSc (Hons) Class II, Division I Honours Programme in Countryside Management, Ecology and Ecosystems awarded by John Moore's University and (BSc Level VII, Environmental Resources Management and Planning, Dublin Institute of Technology).

Bremore Regional Park Development Project

Bremore Regional Park is located on the coastline, north of Balbriggan, Co. Dublin. The site consists of a series of habitats including improved agricultural grassland, cultivated land, amenity grassland, scrub, hedgerow and freshwater stream. The habitats adjacent to the Park, outside the project boundary include coastal cliffs, beaches and improved agricultural grassland and tillage. The site has been highly modified over time and is utilised by various user groups, walkers, sports clubs etc.

The aim of the initial assessment is to establish the extent and quality of existing semi-natural habitat. Following on from that, habitat management recommendations will be made to maximise the existing biodiversity potential. Further recommendations regarding proposed habitat creation and management will form part of the overall framework for the future planning of Bremore Park.



Fig 1.0 Bremore Regional Park Development Project

Soils, Geology, Landscape and Topography

The land in the study area can broadly be described as flat to undulating lowlands that slope down towards the sea to the east and to the Delvin River to the north. Balbriggan is derived from Baile Brigh meaning the town of the small hills and is indeed surrounded by small hills such as Clonard Hill (Cluain Aird meaning High Meadow) and Bremore (Brigh Mor) meaning High Hill.

The predominant soils in the study area are gleys (80%) with associated grey brown podzolics ((20%) trending towards neutral pH. The choices made in order to choose various species which will succeed in the Park is based on soil type and pH.

Habitat Survey

This survey was carried out during April 2019. Habitats were classified according to Fossitt (From 'A Guide to Habitats in Ireland' by Julie A. Fossitt 2000).

Amenity grassland is the dominant habitat in terms of area. There is also a large tract of cultivated tillage land in the north of the site.

Semi-natural habitats at present are restricted to field margins and include some good quality mature hedgerows and some quite diverse grassy verges. Currently, these areas are where the majority of the biodiversity interest lies.



Fig 2.0 Habitat Map of Bremore Park Balbriggan

Flora and Fauna

Bird species recorded during the site survey included Skylark, Blackbird, Robin, Starling, Wren, Sparrow and Herring gull. A dedicated winter bird survey has been carried out by Birdwatch Ireland and is included with the Part 8 submission for the Bremore Regional Park Development Project.

A Bat assessment (with recommendations) was carried out by Brian Keely BSc in November 2018, October/November 2019 and September 2020. Three species of bat were recorded : Leisler's Bat, Soprano Pipistrelle and Common Pipistrelle. Bat activity was noted around the Castle yard, along the hedgerows and in the grassland around the sports pitches.

- Leislars Bat
- Soprano Pipistrelle
- Comon Pipistrelle

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Project Description

The Park Development Project proposals, covering an area of 15.07 ha to the west of the rail line, and south-east of the Bremore Park are grouped under their respective zones within the site: **The Balbriggan Sports & Recreational Hub**, **The Central Zone** and **The Coastal Park**. The detailed project development works proposed in each zone are as follows:

The **Balbriggan Sports & Recreational Hub** and main ancillary infrastructure

(Section 4.2.1 pg.30 Part 8 Report and associated Drawings 19FG02-DR200 and 19FG02-DR212)

- 8 Lane Athletics Track (All weather surface)
- 1 no. All Weather (3g Surface) Pitch, 100m x 60m
- 1no. 5-a-side side All Weather (3g Surface) Pitch 40m x 25m
- 2no. 9-a-side football pitches, 70m x 50m
- 3no. Basketball courts 28m x 16m
- 2no. Tennis Courts 24m x 11m
- 1 no. GAA Pitch 145m x 90m
- Bleacher seating structures
- Sports enclosure fencing
- Primary Circulation Network

Main ancillary infrastructure:

- Changing & Toilets Building (341 sqm)
- Vehicular Access from R132
- Bicycle Parking:
 - 57 no. 'Sheffield' type Bicycle Stands

Landscaped Car Park and Associated Car Parking:

- 50no. Standard Car Spaces
- 3no. Universally Accessible Spaces
- 1no. Coach Set Down
- Associated Foul/ Fresh Water & ESB Connections and Fibre Optic Communications Connections

Proposed Sports & Recreational Hub Lighting:

- Public lighting of primary circulation network
- Public lighting of car park
- Sports lighting
 - 8m & 12m high columns to sports courts
 - 18m & 20m high columns to athletics track & all weather pitch

The Central Zone

Open Spaces

(Section 4.2.2 pg.35 Part 8 Report and associated Drawings 19FG02-DR200, DR211, DR210)

- Natural play elements
- Outdoor gym equipment and other park furniture elements
- Resurfacing and landscaping works
- Provision of over flow parking:
 - 50no. spaces on reinforced grass surface
- Signage, seating
- Bicycle Parking:
 - 13 no. 'Sheffield' type Bicycle Stands
- Public Lighting of select, primary circulation routes including associated ducting and ducting for future fibre optic connections

The Coastal Park

(Section 4.2.3 pg.38 Part 8 Report and associated Drawings 19FG02-DR200 & DR210)

- Basketball Half Court
- Skate Bowl
- Structural Planting (Trees & Shrubs)
- Amenity planting and grass mounds
- Paving surface treatments
- Terraced steps/ seating
- Bicycle Parking:
 - 25 no. 'Sheffield' type Bicycle Stands

Landscaped Car Park and Associated Car Parking (*Section 4.2.3 pg.38 Part 8 Report and associated Drawings 19FG02-DR200, DR210 & DR211*)

- 98no. Standard Car Spaces
- 6no. Universally Accessible Spaces
- Resurfacing and landscaping works
- SuDS Installation
- Removal of private car access to coastal car park area & relocation of 19 no. existing car parking spaces
- Bicycle Parking:
 - 18 no. 'Sheffield' type Bicycle Stands

Park boundaries (1220 lin.m)

(*See Drawing 19FG02- DR250*)

- 1.8m High Steel Railing: 925m
- 1.8m High Stone Wall and Railing; 295m



Fig 3.0 Bremeare Regional Park Development Project

Management recommendations for existing habitats

Grassy verges

The grassy verge habitat is currently well managed in ecological terms. A critical factor here is that these areas have not been continuously mowed down to a short sward, which historically has often been the case in public Parks but have been allowed to grow tall, flower and set seed. This type of low intervention management has allowed plant species to flower (which encourages pollinator activity). It also further facilitates pollinators and other invertebrate species as it allows different strata (layers) of vegetation height to develop. Whether this management type has happened deliberately or not isn't clear. It is strongly recommended that this type of management continue into the future. Flowering plants and grasses should be allowed to flower and set seed; no cutting should take place until early Autumn when natural pollination and seed dispersal has taken place.

This situation also provides a clear example of why it is critical in future that park management inform the public and all user groups that certain areas are being managed in a particular way to maximise biodiversity (signage etc). If the public are not informed as to why areas such as grassy verges are being "left alone" people can wrongly assume these areas are simply being neglected, are untidy and are full of "weeds".

Hedgerows

Hedgerows are often important "remnants" of woodland which would have predominated in the past. Hedgerows are very important wildlife habitats providing food, shelter, corridors of movement, nest sites and hibernation sites for many of our native species. Mature trees within a hedge provide roosts for bats, while saplings are important perching posts for birds. 35 species of bird nest in hedgerows and hedgerows with a dense base provides cover for small birds and mammals, such as the Hedgehog and Field Mouse. The wide variety of plants can be found in hedgerows which provide food sources which help also support associated species of invertebrates. They are important in terms of structure as they provide a "wildlife corridor" along which animals can safely travel and also help avoid habitat fragmentation. These hedgerows are also important in terms of the bat populations currently utilising the site as they provide habitat niches for invertebrate populations (winged invertebrates being the only food source for bats).

The hedgerows are well developed and relatively species diverse. Some areas of hedgerow will require management to further increase biodiversity potential. Hedgerows cannot be trimmed between March 1st and August 31st each year under the Wildlife Act. Hedgerows with a dense base should be trimmed to form a wide base with sloping sides to a triangular shape leaving mature trees and new saplings at irregular intervals. Hedgerow management should take place in late winter/early spring in order to allow overwintering species to avail of the food resource the hedgerows provide. Appropriate management on a phased basis encourages flowering and seed production in many species. A 1.5-2m border at the base should be protected from fertiliser and pesticides as this allows wildflowers to grow and provide food for invertebrate species. This form of management may also facilitate nesting habitats for bumblebees. These areas should be strimmed/mowed instead. It will be important, however, to manage the base of the hedgerow where they interface with pathways or wildflower meadows and strips. These areas should be lightly trimmed each year along the lower parts of the hedge allowing the high sides and the top to remain.

Where possible, cut hedgerows on a minimum 3-year cycle, maximum 5. Cutting annually stops the hedgerow flowering and fruiting. Where possible, cut in rotation rather than all at once as this will ensure some areas of hedgerows will always flower (Blackthorn is white in March. Whitethorn flowers in May). Hedges managed for pollinators should ideally be cut from November on.

- Note Small scale dumping has occurred in places along the hedges and this will require initial removal and regular monitoring so that it does not recur.

Habitat Creation and Habitat Management

Proposals include the creation of several new habitats for the site including some native woodlands and species rich meadows.

Native Woodland Copses

The plan proposes the creation of several pockets of native woodland. Proposed species list for planting is based on those described in 'A Guide to Habitats in Ireland' (Fossitt 2000) and taking into account woodland types described in the Native Woodland Scheme planting manual.

Given the soil type it would be normal practice to plant an Ash (*Fraxinus excelsior*) dominated small woodland. However, due to current spread of the ash die back disease which is now widespread throughout the country Ash will not be considered.

It is recommended that Pedunculate Oak/Hazel (*Quercus robur*/*Corylus avellana*) woodland be planted.

Planting mixture and ratio

Pedunculate Oak (45%), Hazel (30%) and Hawthorn (*Crataegus monogyna*) (5%) scattered throughout. Minor species (20%) to comprise at least three of the following, positioned alongside edges: Downy Birch (*Betula pubescens*), Holly (*Ilex aquifolium*), Spindle (*Euonymus europaeus*), Rowan (*Sorbus aucuparia*), Wild Cherry (*Prunus avium*) and Crab Apple (*Malus sylvestris*).

Native Woodland Ground flora

Woodland is not only comprised of trees and it is recommended that some consideration is also given to the establishment of a native field layer of flowering plants. The following species composition relates to fully established native woodland with a closed canopy affording shade and shelter. It may not be feasible to expect a fully formed woodland flora to flourish in a newly established woodland. It is recommended that the plan follows a phased introduction of suitable species over time as developing conditions allow.

Woodland Ground Flora (Oak/Ash Woodland)

Honeysuckle (*Lonicera japonica*), Ivy (*Hedera hibernica*), Wood Avens (*Geum urbanum*), Wood Sorrel (*Oxalis acetosella*), Wood Speedwell (*Veronica montana*), Wild Strawberry (*Fragaria vesca*), Wild Arum/Lords and Ladies (*Arum maculatum*), Wood Sanicle (*Sanicula europaea*), Bluebell (*Hyacinthoides non-scripta*), Violet (*Viola reichenbachiana*), Wood Brome (*Cytisus scoparius*), Enchanter's Nightshade (*Circaea lutetiana*).

All trees, seeds and associated plant species will be sourced from native Irish stock.

Keep soil around newly planted species clear of competing grassy species in the months after planting, until they become established

Adhere to 'closest to nature' management. Minimise the use of herbicides, no pesticide usage unless absolutely necessary. Any control of grassy species to be done by hand wherever possible.

The trees should not be planted in "rows" but rather in groups or clusters; the woodland needs to be structured in a non-uniform manner, replicating the natural dispersal pattern of native woodland.

Appropriate care to be taken that small grazing mammals such as rabbits and hares cannot access trees. Consideration should be given to fencing the woodland plots in the initial years to allow trees to grow beyond the reach of small grazers. Sheep fencing or similar mesh type fencing would be suitable.

Allow micro habitats to form by some providing dead wood piles (using on-site material) and continue to allow dead wood to accumulate on the forest floor over time.

Bramble will quickly colonise any new woodland if it is not effectively managed. With high light levels in newly established woodlands Bramble will quickly out-compete all other ground flora, creating a dense thicket in the field layer. The new woodlands should be regularly checked for the emergence of Bramble; this should be removed and the woodland should be strimmed around the edges once a year.

Wildflower Meadow

Wildflower meadows are a suitable method of increasing biodiversity within community green spaces such as parks. The loss of diversity in plant and invertebrate species has been well documented. The decreased populations of pollinating invertebrates such as bees, moths, hoverflies and butterflies is now a serious challenge being addressed by various agencies and recommendations made in this section will closely reference the All Ireland Pollinator Plan.

Pollination occurs when pollen is moved between flowers, leading to fertilisation and successful seed and fruit production for plants. Most insect pollination on the island of Ireland is carried out by bees, and in fact, most is provided by wild bees. We have one species of managed honeybee and 97 different species of wild bees. That includes 20 bumblebees and 77 solitary bee species. A diverse and plant-rich landscape that is wildlife friendly can be achieved through the creation of wildflower meadows.

To have a healthy balanced diet, bees need to be able to feed on a range of different flowers from March right through to October. Spring is when bees are most at risk of starvation.

When developing a wildflower area, the best guidance is always to remove all cuttings. This helps to keep soil fertility at a minimum which encourages wildflower growth (leaving cut grass or mulching adds fertility to the soil and will only encourages grasses to grow which out-compete the wildflowers in the seed bank).

The soil at Bremore park is very nutrient rich so it may take several seasons of management before the meadow begins to resemble what most people would recognize – a grassland full of wildflowers colour and pollinators. Ground preparation and weed elimination is vital. The area selected for planting the wildflower meadow will contain its own “seed bank” and these plants such as rye grass and dock will compete vigorously for resources. They will need management. A suitable seed bed needs to be prepared before sowing wildflower seed. This can be completed using organic or non-organic methods. Ground preparation should be done as early as possible (March/April for spring sowing and July/August for autumn sowing).

The most effective method for preparation is the removal of the top 5 inches of soil. Cut existing vegetation to ground level (as low as possible) using a strimmer or lawnmower. Remove turves by hand (with appropriate health and safety) or using a turf-stripping machine. Fork over or rotovate area to loosen soil to a depth of 10cm and then rake and remove stones greater than 5cm to achieve a fine tilth. Rake to break up the soil particles and open up the soil so it will accept seed. Sow the seed mixture immediately afterwards.

In terms of sowing it is recommended that a mix of annual and perennial species be used. The annuals in the seed mix will provide the striking colour some people look for in a wildflower meadow in year one. The perennials will come back year upon year, extending the lifespan of the wildflower meadow and providing more pollen and nectar for pollinators than an annual seed mix.

Proper management of an annual and perennial wildflower mix varies from year to year.

First year: After the first year’s flowers fade, cutting should be carried out (no later than mid- October). This provides light and helps the germination of slower growing perennial seedlings in the second year. Cut to a height of 30 mm, and remove all cut vegetation immediately. After cutting, treat perennial weeds (mechanically remove or carefully spot spray). Annuals act as a nurse crop and provide first year colour e.g. Field Poppy, Annual Mayweed, Corncockle and Corn Marigold,

Second and third years: In the second and third year, cut when seed has set (no later than mid-November) to a height of 30 mm. This time, leave cut vegetation for 3 days, then remove. Continue to treat for perennial weeds after cutting each year. Perennial species such as Bluebell, Cowslip, and Field Scabious, are long lived and will succeed over time provided that the meadow is managed according to the advice provided.

Fourth year: Cutting is exactly the same in the fourth year (cut to a height of 30 mm no later than mid-November, leave for 3 days then remove vegetation). At the end of year 4 there are several possible options:-

- At all stages allow for the growth of plants such as clover, selfheal, cuckooflower and Bird’s foot-trefoil. When they flower, Clovers and other legumes (such as peas and beans) are excellent food sources for pollinators.

- Yellow-rattle (*Rhinanthus minor*) is a useful management tool, it parasitises the roots of a wide range of meadow plants especially grasses thus allowing for the successful establishment of other wild flowers. Sow in autumn.

Sowing seed: There is a wide variation in the quality and suitability of wildflower seeds available in Ireland. Ideally only Irish seed companies who can provide native species should be contacted for advice. Wildflower mixtures can be sown in the Autumn or Spring. The grid method of sowing helps prevent uneven growth. Light rolling can help the seeds to “take”.

- *Autumn:* The latest date for autumn sowing is usually the end of October. The first flowering of annuals will take place in the spring/early summer after sowing. Perennials will not usually flower in the first year.

- *Spring:* The latest date for spring sowing is early June. The first flowering of annuals will be the same year as sowing. Perennials will not usually flower in the first year

Keep the paths and meadow borders (along footpaths and roads) clear and tidy; mow these areas at least every 10 days.

- Control noxious weeds before they go to seed.
- Ensure minimal dog fouling on meadows.
- Always remove cuttings from the meadow to reduce fertility (wildflowers grow best in less fertile soil).

Wildflower Species Mix

It is suggested a mix containing some of the following species be used.

- Poppy (*Papaver rhoeas*)
- Yellow Rattle (*Rhinanthus minor*)
- Annual Mayweed (*Maticaria chamomilla*)
- Corn Marigold (*Glebionis segetum*)
- Purple Loosestrife (*Lyrthrum salicaria*)
- Ragged Robin (*Lychnis flos-cuculi*)
- Red Clover (*Trifolium pratense*)
- White Clover (*Trifolium repens*)
- Corn Marigold (*Glebionis segetum*)
- Cowslip (*Primula veris*)
- Kidney Vetch (*Anthyllis vulneraria*)
- Lady's Bedstraw (*Galium verum*)
- Buttercup (*Ranunculus acris*)

- Meadowsweet (*Filipendula ulmaria*)
- Ribwort Plantain (*Plantago lanceolata*)
- Rough Hawksbit (*Leontodon hispidus*)
- Smooth Hawksbit (*Leontodon taraxacoides*)
- Common Vetch (*Vicia sativa*)
- Wild Angelica (*Angelica sylvestris*)
- Wild Carrot (*Daucus carota*)
- Yarrow (*Achillea millefolium*)
- Yellow Agrimony (*Agrimonia eupatoria*)
- Fleabane (Erigeron spp)
- Knapweed (*Centaurea nigra*)
- Devil's-Bit Scabious (*Succisa pratensis*)
- Field Scabious (*Knautia arvensis*)
- Bird's foot trefoil (*Lotus corniculatus*)
- Meadow Vetchling (*Lathyrus pratensis*)
- Tufted Vetch (*Vicia cracca*)
- Selfheal (*Prunella vulgaris*)
- Woundwort (*Stachys* spp)
- Oxeye Daisy/ Dog Daisy (*Leucanthemum vulgare*)
- Red Bartsia (*Odontites vernus*)

Conclusion

Bremore Park is of substantial local and regional value for its coastal and parkland habitats. The creation of additional habitats which form part of the proposals for the Part 8 application for the Bremore Regional Park Development Plan will require a holistic management plan to ensure the protection of existing habitats and the sustainable management of future habitats within the park.

A future Management and Maintenance Plan for Bremore Regional Park should be agreed in advance of construction works by the relevant departments of Fingal County Council, in consultation with Birdwatch Ireland and a consultant ecologist, to ensure the lands are managed and maintained for biodiversity enhancement.

In terms of the existing bat population, the provision of additional habitats such as grassy verges, wildflower meadows, hedgerows and trees within the landscape design of the park proposals will

increase biodiversity of the site. Proposed lighting within the park design has considered the impact on local habitats, especially the bat community. Crucial to the maintenance and enhancement of the bat and nesting bird populations at Bremore Park is the strict adherence to existing and future hedgerow management.