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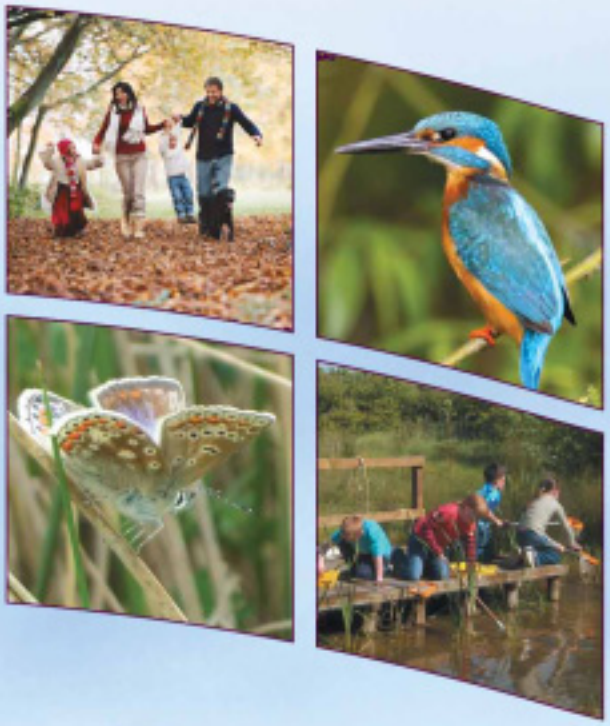

FINGAL BIODIVERSITY ACTION PLAN

2010-2015

Fingal County Council
December 2010

Creating Connections for Wildlife and People

Fingal Biodiversity Programme

ACKNOWLEDGEMENTS

Fingal County Council wishes to thank the participants on the *Biodiversity Advisary Group* for their input and contributions to the development of this plan. We also wish to thank all those who participated in the development of the plan through the provision of information or through the making of observations during the consultation process.

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For further information on the **Fingal Biodiversity Action Plan** and the Biodiversity program contact the Biodiversity officer at biodiversity@fingalcoco.ie or visit www.fingalbiodiversity.ie.

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FOREWORD

Ken Farrell
Mayor of Fingal

A MESSAGE FROM THE CATHAOIRLEACH

I am delighted to be associated with the publication of the Biodiversity Plan for Fingal. The Fingal Biodiversity Action Plan will be a key document in guiding the work of everyone involved in the conservation of nature in Fingal. Not only is this the first Biodiversity Plan for Fingal, it is also the first Plan in Ireland to include an Ecological Network. which is fully integrated within the Green Infrastructure Strategy of the new County Development Plan.

This year is the International Year of Biodiversity, so the preparation of this Plan is very timely. The County Council and local interest groups have already undertaken various nature conservation projects. It is clear that the actions included in this plan build and expand on this excellent work. The implementation of the Plan not only contributes to achieving local and national targets for the conservation of biodiversity, it also highlights the international responsibilities of Fingal.

On behalf of Fingal County Council, I wish to extend a sincere thank you to all of those who have contributed to the development of this plan through their work on the Biodiversity Advisory Group.

Implementing this Plan will require commitment from many different stakeholders, from state agencies and businesses to local community groups and landowners in Fingal. I welcome this challenge, and look forward to the realisation of this Plan over the next five years. Its successful implementation will ensure that future generations can enjoy the diverse range of habitats and species that we take for granted today.

Ken Farrell
Mayor of Fingal

David O'Connor
County Manager

A MESSAGE FROM THE COUNTY MANAGER

Fingal has a rich Biodiversity resource with its coast, countryside and urban centres. This variety is the basis of our daily lives and livelihoods and makes up the resource which our families, communities and future generations depend upon. The challenge for Fingal is to develop and grow in a way that maintains and enhances biodiversity for future generations.

The Fingal Biodiversity Action Plan will play a key role in our efforts to protect the natural environment in Fingal over the next decades. It sets out an ambitious framework for biodiversity action aimed at protecting and enhancing the wide range of habitats, plants and animals in Fingal. The ecological network and the associated planning guidelines, which are a new addition to Fingal, clearly show that sustainable development can be linked with nature conservation.

The protection of our natural resources is the responsibility of us all and this Plan provides everybody with an opportunity to get involved in protecting our natural heritage.

The Biodiversity Plan provides an excellent opportunity for Fingal County Council to examine its own work practices and lead the way by developing demonstration projects on how to manage parkland, golf courses, demesnes, dunes and floodplains for wildlife. This will help us to integrate the protection of biodiversity into the Council's day-to-day operations and will encourage others to do so too.

The Fingal Biodiversity Action Plan is the result of a participative process involving many community groups, local authority staff, government agencies, professional bodies, NGOS and the farming sectors. I would like to thank all of the members of the Biodiversity Advisory Group for their hard work in preparing the Plan.

Fingal County Council has now adopted the Plan and has undertaken to support and facilitate its implementation over the next five years. I look forward to the implementation of the plan, which will bring significant benefits for our biodiversity resource and for the people in Fingal.

David O'Connor
County Manager

Chapter 1

INTRODUCTION

1.1 BIODIVERSITY - A VITAL PART OF FINGAL

The first Fingal Biodiversity Action Plan (FBAP) is a new and far-reaching initiative to conserve and enhance Fingal's natural heritage. It is part of a global movement to safeguard the biodiversity of our planet. The term biodiversity encapsulates all that we mean by the health of our natural environment and, ultimately, the quality of our lives. The Biodiversity Action Plan puts forward an ambitious programme of actions to protect the habitats, plants and animals that can be found in our County. All of us are responsible for the health and wealth of our surroundings. The Action Plan challenges everybody to contribute to conserving biodiversity, such as state organisations, landowners and land users, planners and politicians, businesses and local communities, who are all beginning to recognise that biodiversity is a vital part of Fingal.

1.2 WHAT IS BIODIVERSITY?

Biodiversity or 'Biological Diversity' is the variety of all life. Biodiversity includes all living things from the smallest of creatures such as Ants to the mighty Basking Shark and from the tiniest Algae to the giant Oak trees. Biodiversity is not restricted to rare or threatened species, but includes the whole of the natural world from the commonplace to the critically endangered. It includes the plants and animals familiar to all of us in the places where we live or work, wherever that may be. Biodiversity also includes the range of places where plants and animals live, from the local park just around the corner to the ancient woodlands in the Liffey Valley and from the smallest pool in your back garden to the world's deepest seas and oceans.

1.3 WHY IS BIODIVERSITY IMPORTANT?

Fingal has a rich Biodiversity resource with its coast, countryside and urban centres. This variety is the basis of our daily lives and livelihoods and makes up the resources which our families, communities and future generations depend upon. Biodiversity provides many of the essentials of life such as oxygen, clean water, fertile soils, food, and places to relax. The value of biodiversity extends from the spiritual benefits to be gained from contact with nature, to the economic gains for local businesses associated with outdoor pursuits in Fingal such as angling, hiking, boating and diving.

Despite the important role Biodiversity plays in every day life, there is a growing concern for biodiversity in Ireland and throughout the world. The number of species threatened by extinction and the amount of natural habitats being destroyed globally has increased at an alarming rate the past century. Fingal contains a wealth of natural heritage, but the pattern of loss of this heritage mirrors the global pattern as our local habitats are lost and subject to degradation and species numbers have declined.

The challenge is to develop and grow in a way which maintains and enhances biodiversity for future generations. The Fingal Biodiversity Action Plan will play a key role in our efforts to protect the natural environment in Fingal for the next decades.

1.4 ROLE OF THE FINGAL BIODIVERSITY ACTION PLAN

The Fingal Biodiversity Action Plan will be a key document in guiding the work of everyone involved in the conservation of the natural environment in Fingal by providing a framework for biodiversity action for the next 5 years and setting a template of action for the next 20 years. The primary purpose of the FBAP is to focus the efforts and resources of Fingal County Council and other nature conservation groups to protect and enhance biodiversity within Fingal in the most efficient manner.

The protection of biodiversity is a relatively new, but important concern in Ireland. For some years now, Ireland has been trying to

protect and enhance her native plant and animal species and their habitats. The Fingal Biodiversity Action Plan differs from previous approaches to nature conservation in two important ways. Firstly it based on the development of an ecological network across the County and secondly, this spatial network is to be developed by a partnership of organizations and landowners.

This action plan is aimed at extending traditional nature conservation to involve a wider constituency. No longer is it simply the role of the local authority, specialist agencies and voluntary wildlife bodies: this new plan provides an opportunity for many different people and organizations to contribute. It takes nature conservation beyond the protection and management of our designated sites, by emphasizing the opportunities for action throughout the county.

The Local Biodiversity Plan, supported by the people in Fingal, will help us to protect our natural heritage and develop Fingal in a progressive and sustainable manner, enabling us to hand over a rich natural environment to the next generation!

1.5 OBJECTIVES OF LOCAL BIODIVERSITY PLAN

- To maintain, and where practicable enhance, the wildlife and habitats that give Fingal its character and natural diversity.
- To ensure that (inter)national targets for sites, species and habitats are translated into effective action at local level.
- To develop effective partnerships to ensure that programmes for biodiversity conservation are maintained in the long-term.
- To raise public awareness and encourage involvement in biodiversity action by the wider community.
- To increase our knowledge and understanding of biodiversity through ecological research.
- To ensure the full integration of biodiversity into Fingal County Council's policies and programmes as part of sustainable development in Fingal.

1.6 THE FINGAL BIODIVERSITY ACTION PLAN IN CONTEXT

The Fingal Biodiversity Action Plan is a direct result of a process initiated at the Earth Summit in Rio de Janeiro in 1992. At this summit, world leaders recognized that human activities are changing and destroying the natural environment at an ever increasing rate and action was needed to halt the loss of Biodiversity. The outcome of this summit was the UN Convention on Biological Diversity, which has now been signed by over 170 countries, including Ireland.

The Convention on Biological Diversity requires Ireland to create national strategies and action plans to protect biological diversity. In response to this summit, the Irish Government prepared the National Biodiversity Plan (NBP). The objective of the NBP is to halt, and if possible reverse, the decline of habitats and species in Ireland by 2010. This document provides the basis for the government's nature conservation programme. The NBP sets out a programme of actions that are to be implemented over a 5 year timeframe. The National Biodiversity Plan requires each Local Authority to prepare a Local Biodiversity Plan in consultation with relevant stakeholders and designate a contact officer for natural heritage conservation matters in its area.

In preparing and implementing the Fingal Biodiversity Action Plan we are responding to the challenge of the National Biodiversity Plan. The preparation of the FBAP also fulfils objective HO30 of the Development Plan and Action 42 of the Fingal Heritage Plan. The Fingal Biodiversity Action Plan complements both plans by identifying the detailed steps we need to take to protect the natural environment in Fingal.

Chapter 2

NATURE IN FINGAL

During the last 6 years, many ecological studies have been carried out to find out more about the habitats, plants and animals that occur in Fingal. Many more surveys need to be undertaken to give us the complete picture of our wildlife resource. Nonetheless, the studies carried out so far show that our coastline, countryside and urban centres harbour a surprising variety of plants and animals, including many rare and protected habitats and wildlife species.

2.1 THE FINGAL COASTLINE

The scenic coastline of Fingal is a wonderful natural amenity resource for the people in the county. The 47 kilometres long coastline is also home to thousands of plants and animals that live in the great diversity of habitats that make up our coastline such as the estuaries, dunes and beaches. Each habitat is an ecosystem on its own right, that harbours a particular set of plants and animals that are dependent on this living environment for nesting, feeding or resting. The coastline is our most important wildlife resource with most of the protected sites and protected wildlife species in the county found along our shores.

2.1.1 ESTUARIES

The coastline of Fingal is characterised by the three large estuaries of Rogerstown, Malahide and Baldoyle. These estuaries with their extensive mudflats and saltmarshes are amongst the most important nature conservation areas in Fingal. Every year, up to 40,000 migratory birds spend the winter feeding and resting at Fingal's estuaries. Wading birds such as Black-tailed Godwit, Curlew and Snipe probe in the mud in search for the millions of tiny creatures that live there. Other birds such as the Brent Goose will feed on the Eelgrass and algae growing on the mudflats, while Cormorants and Red-breasted Mergansers can be seen diving for fish. The sheltered waters of the estuaries provide nursery areas for many fish species that live out in the sea such as Herring, Seabass, Cod and Pollack. Twenty-five different species of fish have been recorded in the estuaries so far. Common and Soprano Pipistrelle bats and Leislers bats roost in old farmbuildings and trees surrounding the estuaries and make their way to the estuary to feed along the edges of the estuaries. The migratory birds also use the agricultural and amenity lands surrounding the estuaries as feeding and roosting sites during high tide. The brackish grasslands surrounding the Rogerstown and Baldoyle Estuary are home to three colonies of the rare and protected Meadow Barley (Hordeum Secalinum).

2.1.2 SANDY AND SHINGLE BEACHES

In autumn and wintertime, the long sandy beaches are important roosting sites for the large flocks of estuarine birds that appreciate the open character of the beaches. Breeding birds on our beaches have largely disappeared as a result of disturbance caused by dogs and people. However, Ringed Plover still breeds along the coast and there is hope for a return of the Little Tern at Portrane. Throughout the year, birds such as Pied Wagtail and Ringed Plover can be observed running along the shore looking for insects among the rotting plant material that has washed up on the shore.

Typical strandline vegetation includes colonizer species such as Sea Rocket *(Cakile maritima)*, Frosted Orache *(Atriplex laciniata)* and Saltwort *(Salsola kali)*. These plants are often joined by dune forming grasses such as Sea Couch *(Elytrigia juncea)* and Lyme-grass *(Leymus arenarius)*.

The very mobile shingle and gravel beaches are subject to continuous disturbance and are therefore generally sparsely vegetated. However, this habitat type does include some national or Dublin rarities such as Yellow Horned-poppy *(Glaucium flavum)*, Sea Holly *(Eryngium maritimum)* and Sea Kale *(Crambe maritima)*.

2.1.3 SAND DUNES

The extensive sand dune systems at Rush, Portrane, Donabate, Malahide, and Portmanock are some of our richest biodiversity hot-spots in the County. They are also amongst the most fragile habitats around the Fingal coast and unfortunately much of the dune habitat is covered by golf courses, holiday homes or caravan parks. The dune grassland vegetation is very similar to the species composition of Dry Calcareous and Neutral grasslands and includes Common Bird's-foot-trefoil *(Lotus corniculatus)*, Kidney Vetch *(Anthyllis vulneria)*, Common Restharrow *(Ononis repens)*, and Wild Thyme *(Thymus praecox)*. Substantial colonies of the legally protected Hairy Violet *(Viola hirta)* grow abundantly in the stable dune grassland of Portmarnock and Donabate and the Red Data Book species Spring Vetch *(Vicia lathyroides)* occurs in a few sites here too. At Corballis the dune slacks have Marsh Helleborine *(Epipactis palustris)*, Field Gentian *(Gentianella amarella)* and Black Bog-rush *(Schoenus nigricans)* all of which are now very rare plants in Dublin. The many plants attract many insects such as butterflies, moths, burrowing bees and wasps, including some nationally uncommon species such as the Small Blue butterfly and the solitary bee Osmia aurulenta.

2.1.4 CLIFFS AND ROCKY SHORES

Rocky and soft sedimentary cliffs line much of the Fingal coast. The steep rocky cliffs of Howth Head are home to numerous breeding seabirds such as Kittiwake, Fulmar, Herring Gull and Guillemot. Shag and Black Guillemot breed along the inaccessible rocky shoreline at the base of the cliffs. The exposed intertidal rocky shores at Howth show a typical zonation of kelp, mussels or barnacles and lichens in progression up the cliffs. The more moderately exposed and sheltered intertidal rocky shores further north support a much wider variety of marine plants and animals with Bladder wrack *(Fucus vesiculosus)*, Serrated wrack *(Fucus serratus)*, Barnacles, Limpets, Mussels, Starfish and Periwinkles. Rock pools are often the best place to see some marine wildlife including Hermit Crabs, Beadlet Anemone, Shore Crab, and Shrimp.

The exposed rocks are generally poor in nutrients and can be subjected to exposure of wind and wave action. Under these harsh conditions species diversity is low. However where pockets of glacial drift material have accumulated on the bare rock, sea-spray species such as Rocky Sea-spurrey *(Spergularia rupicola)*, Sea Plantain *(Plantago maritima)* and Rock Sea-lavender *(Limonium binervosum)* are characteristically found. National rarities such as Rock Samphire *(Crithmum maritimum)*, Golden-samphire *(Inula crithmoides)* and Sea Wormwood *(Seriphidium maritimum)* are also found on rocky sea cliff communities at Howth, Portmarnock, Loughshinny and Portrane.

The steep and soft sedimentary cliffs between Rush and Balbriggan hold several colonies of Fulmar and are home to Sand Martins that tunnel into these soft soils. At the edge of agricultural land, the cliff tops are covered by grassland, usually dominated by Red Fescue *(Festuca rubra)*. Tall herbs such as Common Knapweed *(Centaurea nigra)*, Alexanders *(Smyrnium olusatrum)*, and Great Willowherb *(Epilobium hirsutum)* are found growing abundantly along the sedimentary sea cliffs. The flowers along the tops of the soft cliffs are an important food source for the many bees that nest in the soft cliff faces.

2.1.5 INSHORE WATERS

The inshore area of the Irish Sea along the Fingal coast are classified as an important spawning and nursery area for several commercially important fish species such as Cod, Whiting, Place, Herring and Mackerel. These fish species spend their juvenile period in the calm waters in the estuaries and along the shore, before moving out to the choppier waters of the Irish Sea. So far 47 different species of fish have been recorded along the Fingal coast. These small fish provide the main food source for the thousands of breeding seabirds of the islands along Fingal's coast.

All Irish coastal waters within the 200-mile limit were declared a sanctuary for whales and dolphins in 1991. Whales and dolphins are regularly seen off the Fingal coast, and sometimes are found stranded on the shoreline. Six species have been observed along our coast particularly at Howth and Skerries; Harbour Porpoise, Common Dolphin, Striped Dolphin, Bottlenose Dolphin, Minke Whale and Fin Whale.

2.1.6 THE ISLANDS

There are six islands located just off the Fingal coast. These are Ireland's Eye near Howth, Lambay near Rush, and Colt, St. Patrick's, Shenick and Rockabill near Skerries. These islands are home to about 100.000 breeding seabirds during the summer months. Rockabill is home to Europe largest colony of Roseate Terns, one of Europe's rarest breeding seabirds. Lambay Island holds Ireland's largest "mixed" seabird colony and is of international importance. Ireland's Eye and Lambay island hold two out of the six colonies of Gannets in Ireland. The three large Cormorant colonies on St. Patricks Island, Lambay and Ireland's Eye collectively form a "supercolony" that comprises the largest aggregation of the species anywhere in Britain or Ireland. The most abundant sea birds are Guillemot and Kittiwake.

2.2 THE FINGAL COUNTRYSIDE

Despite its close proximity to a major growth centre like Dublin, much of County Fingal is still in agricultural use. Fingal is known for its good quality farmland and provides much of the fresh farm produce to the Dublin markets. Arable land and improved grassland make up most of the Fingal countryside. The bulk of the arable land is found in the fertile and well drained eastern part of the county, where the soils are particularly suited to market gardening, potato and cereal production. Livestock production is more common in the western part of the county. Farmers in the past planted the hedgerows to provide proper boundaries to their fields. Because of these farmers, the Fingal landscape now comprises of a rich patchwork of arable fields and grassland divided by a network of hedgerows.

Up to the last 50 years or so, farming in Ireland was less intensive, with very low inputs of chemical fertiliser or pesticides. Pressure for intensification driven by the demand for cheap food, fostered by technical progress and financed by the Common Agricultural Policy, encouraged bigger fields, less diverse farming enterprises, and high inputs of chemical fertiliser to maximise yields. The intensification of agricultural practices over the years have resulted in the loss of many semi-natural habitats such as unimproved grassland and wetlands and the decline of many typical farmland wildlife species.

2.2.1 ARABLE LAND

Fingal has been used for arable farming for many centuries. Arable land was once associated with a variety of 'weed' species, many of them introduced to Ireland by earlier farmers as areas of native woodland were cleared. Although many arable weed species have disappeared in the County, the sandy soils around Rush still constitute the national headquarters of a number of rare species such as Prickly Poppy *(Papaver argemone)*, Flixweed *(Descaurania sophia)*, Small-flowered Crane's bill *(Geranium pusillum)*, Field Bugloss *(Anchusa arvensis)* and Purple Ramping-fumitory *(Fumaria purpurea)*.

Excluding hedgerows, the main area of biodiversity value in arable lands these days are often the headland or field margins, where many of the arable weeds and rank unmanaged grassland are found. The seed-heads of the weeds and grasses provide winter feeding for farm-land birds, and animals such as hares use the long grass to rest in.

2.2.2 GRASSLAND

The grassland habitat in Fingal primarily comprises of improved agri-cultural grassland. These bright green uniform swards are generally of low conservation interest as it only supports a small number of plant species. The exception to this is where wildfowl such as geese or swans use the intensive pasture for feeding while on migration.

Grasslands which were once characterised by an abundance of wildflowers and managed traditionally by cutting or light grazing are now largely a thing of past. However, small pockets of semi-natural calcareous, neutral and acid grassland can be found in corners of field scattered around the countryside. They still support a colourful display of Cowslip *(Primula veris)*, Yarrow *(Achillea millefolium)*, Field Scabious *(Knautia arvensis)*, Pyramidal orchid *(Anacamptis pyramidalis)*, Knapweed *(Centaurea nigra)* and Restharrow *(Ononis repens)*. Wet grassland with Cuckoo flower *(Cardamine pratensis)*, Ragged Robin *(Lychnis flos-cuculi)* and Common Spotted-orchid *(Dactylorhiza fuchsii)* can occasionally be found along our rivers and seepage areas.

2.2.3 HEDGEROWS

Hedgerows provide food, shelter and nesting sites in the agricultural landscape. They also act as links or corridors, which allow wildlife to move between different habitats in search of food. Yellowhammer, Tree Sparrow, Badger and many other typical farmland creatures live in these hedgerows. There is about 2660km of hedgerow in Fingal, most of which is located in the north and west of the County. Old townland boundary hedgerows are the most diverse in tree species and associated ground flora. Adjacent land use has a major effect on the species composition of the hedge bottom and field margin flora. Hedges in intensively farmed areas have the poorest diversity, while areas next to wetland, old grassland and woodland contain many more plant species. The most dominant trees and shrubs are Hawthorn, Dog rose, Ash, Sycamore and Elm.

Some unusual plants such as Short-styled Field Rose *(Rosa stylosa)* which is a rare species in Ireland and Irish Whitebeam *(Sorbus Hibernica Irelands only endemic tree species)* was also found during the Fingal hedgerow survey. Unfortunately, much of the hedgerow resource in Fingal is in decline due to development and the lack of management. It is estimated that since 1937, we have lost 1900km of hedgerows in the county, of which 66% has been lost between 1985 and the present day.

2.2.4 WOODLAND

Woodland habitat is scarce in Fingal and mainly restricted to old demesnes and river valleys. Most of these woodlands were planted during the heyday of the 18th century fashion for wooded demesnes. Others such as the woodlands at Luttrelstown and St. Catherines in the Liffey Valley are much older and may be part of the ancient woodland cover in Dublin. The species composition of the tree and understorey layers is heavily influenced by the plantings and management regimes of the past. The woodlands are dominated by Ash, Oak, Beech, Sycamore, Horse chestnut and Lime and sometimes include rather exotic trees such as Sequoia, and Monterey Cypress. The understorey often includes Holly, Hazel, Cherry laurel and Wych Elm. The herb flora is rather poor due to the dense shade in most Fingal woodlands, but woods with a history of coppicing have a much higher species diversity. Typical woodland plants such as Wood anemone *(Anemona nemorosa)* and Bluebells *(Hyacinthoides non-scriptus)* are rather uncommon. However, the ground flora does include many other woodland flora such as Lords and Ladies *(Arum maculatum)*, Dog Voilet *(Viola reichenbachiana)*, Herb Robert *(Geranium robertianum)* and Primrose *(Primula vulgaris)* and the legally protected Hairy St. Johns Wort *(Hypericum hirsutum)*. The Liffey Valley is considered the national headquarters of the Hairy St. Johns Wort. The abundance of of dead wood and the variety of tree species is essential for the diversity of fungi in the woods. 237 species of fungi were recorded during first survey of its kind in Fingal in 2006.

The old trees and buildings in the woodlands and demesnes offer plenty of roosting sites for bats such as the Leisler's bat Nyctalus leisleri, Brown long-eared bat Plecotus auritus, Whiskered Myotis mystacinus and the Common and Soprano pipistrelles Pipistrellus pipistrellus & P. pygmaeus. The woods are also home to about 25-30 common and widespread woodland bird species such as Song Thrush, Blackbird, Woodpigeon, Blackcap and Sparrowhawk.

2.2.5 RIVERS

Fingal is fortunate to have an extensive network of rivers and streams. The most important rivers are the Delvin, Matt, Corduff, Ballyboughal, Broadmeadow, Ward, Tolka, Liffey, Santry, Sluice and the Mayne River. Most of these rivers are still in a relatively natural condition, even the ones that run through urban areas such as the Ward and Tolka rivers. The rivers in the countryside are generally 'slightly' or 'moderately polluted'. Despite their moderately polluted status, many characteristic river plants and animals can be found in and along the rivers. The Otter appears to be widespread and can be found along all rivers in Fingal. Typical riverine birds such Kingfisher, Dipper, Grey Wagtail and Grey Heron have become less common, but are still regularly seen. Most rivers hold Brown Trout while some act as spawning sites for Atlantic Salmon. Rare plants can be found along the rivers too such as Green Figwort *(Scrophularia umbrosa)* and Flowering-rush *(Butomus umbellatus)*, both of which can be found in the Liffey Valley.

2.2.6 WETLANDS

Wetlands are relatively uncommon in Fingal. They come in many sizes, from small ponds to extensive marshland. The reservoirs, lakes and ponds provide a home to many waterbirds, amphibians, dragonflies and damselflies. Knock Lake near Balbriggan is the largest freshwater lake in Fingal and is home to many waterbirds such as Little Grebe, Coot and Water Rail. The Bog of the Ring near Knock Lake used to be an extensive marshland, but has seriously degraded due to drainage works and infilling. The Bog of the Ring still contains pockets of wet and damp ground where marsh vegetation occurs, but most of the rare plant species that used to occur here in the past are gone. Typical wetlands birds do not breed there anymore, but the site is used in winter by wetland species such as Snipe, Golden Plover and Curlew.

The Sluice River Marsh and the Mayne Marsh are associated with the Baldoyle Estuary near Portmarnock. In the summer, birds such as Snipe, Warblers, Water Rail and Little Egret use the area for breeding and feeding. During the winter migratory birds such as the Brent Goose and Bar-tailed Godwits use the marshland to shelter and feed.

2.3 URBAN CENTRES

Nowhere is man's influence on the natural environment more profound that in the towns and villages. Many plant and animals species have adapted to urban life and happily co-exist with man. Many houses have a garden, there are parks, playing fields, churchyards, cemeteries and brown field sites all of which contain valuable wildlife habitats. They can be home to Robin, Blackbird, Sparrow, Wren, Thrush, Blue Tit, Great Tit, Chaffinch, Swift, House Martin, Frog, Newt, Butterflies, Damselflies, Bees and even Fox and Badger. It is surprising that only in recent years have urban habitats been recognised as valuable havens for wildlife and as important areas for interaction of people with nature.

Chapter 3

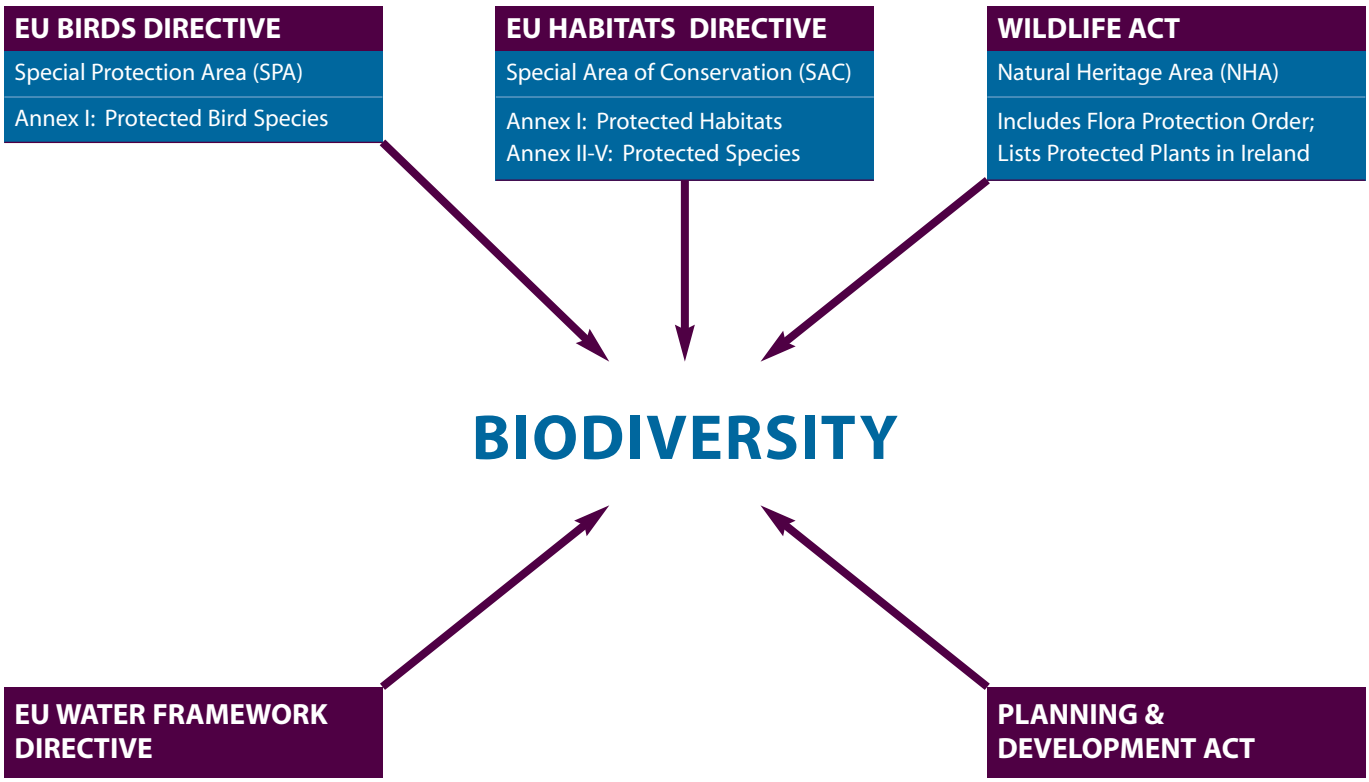
WHAT ARE OUR LEGAL RESPONSIBILITIES?

From the various ecological studies undertaken so far it has become clear that County Fingal hosts a wealth of wildlife. Although most of the wildlife species found in Fingal are common and abundant in Ireland, some species and habitats are afforded legal protection under European and National wildlife legislation. This legislation has far reaching implications for the way the County Council and other statutory bodies operate. An overview of all protected sites and species is given in Appendices III, VI, VII & VIII.

The principal legislation relating to biodiversity in Ireland are indicated below in figure 1:

1. **EU Habitats Directive**
2. **EU Birds Directive**
3. **EU Water Framework Directive**
4. **Wildlife Act, 1976 & 2000**
5. **Flora Protection Order, 1999**
6. **Planning and Development Acts, 2000-2006**

Figure 1: *Overview of primary nature conservation legislation in Ireland.*



3.1 EU HABITAT & BIRD DIRECTIVES

The EU Habitats Directive is the most important nature conservation legislation in Europe. The aim of this Directive is to maintain and restore the favourable conservation status for habitats and species that are rare and threatened throughout Europe. The Habitats Directive requires member states to designate Special Areas of Conservation (SAC) for a number of habitat types and species in need of conservation as part of a Europe-wide 'coherent ecological network' called Natura 2000. Birds are not included in the EU Habitats directive, because they are covered by a separate legislation: the EU Birds Directive. The Birds Directive requires member states to designate Special Protection Areas (SPA) to protect the most important bird areas in the country. Ten sites along the Fingal coast such as the estuaries and the islands have been designated as either SAC or SPA or both and Fingal has an international responsibility for looking after sites. Table 2 gives an overview of the various designated sites in Fingal.

The European Directives contain lists of plants and animals that are rare or declining in Europe and are listed in a range of 'Annexes'. Table 1 below gives an overview of what is included in various annexes of the Habitats Directive and how relevant these are to Fingal. The most important annexed species in Fingal are the Otter, Atlantic Salmon, several bat species and various cetaceans (see appendix VIII for more details).

The Bird Directive also has various annexes, but Annex I is the most relevant. This Annex indicates which birds require the designation of the Special Protection Areas. Eleven species listed in the Annex I can be found in Fingal, particularly in the estuaries and the islands.

Table 1: *Explanation of annexes of the EU habitats Directive.*

Annex	Status	Total No. in Fingal	Key Components of Annex
I	Habitat types whose conservation requires the designation of Special Areas of Conservation.	25	Mainly coastal habitats such as dunes, cliffs and estuaries. See **Appendix V** for more details.
II	Animals and plant species whose conservation requires the designation of Special Areas of Conservation.	10	Otter, lampreys, salmon, seals and cetaceans. See **Appendix VIII** for more details.
IV	Animals and plant species in need of strict protection.	16	All bats, otter, cetaceans.
V	Animals and plant species whose taking in the wild and exploitation may be subject to management measures.	7	Irish hare, common frog, pinemarten, salmon and seals.

It is important to note that the occurrence of protected habitats, flora and fauna species is not just confined to the protected nature conservation sites. Several habitats listed in Annex I of the Habitats Directive occur on sites outside the Special Areas of Conservation (SACs). The majority of these habitats are found along the coast and include sand-dunes, shingle and gravel banks and shores, orchid rich grasslands, petrifying springs, and vegetated sea cliffs.

The lands surrounding the designated sites are also of key importance, particularly for birds, as feeding or roosting grounds. The farmlands and amenity grasslands surrounding the estuaries are of prime importance to Brent Goose for example. However these lands are subject to pressures from development, infilling and land use changes, which in turn may affect the Brent Goose population in the estuaries. The rivers in Fingal are home to several EU priority species such as Otter, Kingfisher and Atlantic Salmon. Although these rivers have not been designated as nature conservation areas, the County Council has an obligation to make sure that the habitat for these priority species is protected. The countryside also support large numbers of the more general flora and fauna species and although these species may not be rare or protected itself, they are all part of the interrelated natural fabric of the countryside.

Article 10 of the Habitats Directive seeks to provide for the maintenance and enhancement of these natural habitats in the wider landscape. It calls for land-use planning and development policies to "encourage the management of features of the landscape which are of major importance for wild fauna and flora". Such features are defined as "those which by their linear and continuous structure (such as rivers and their banks or the traditional systems of marking field boundaries) or their function as stepping stones (such as ponds or small woods), are essential for the migration, dispersal and genetic exchange of wild species".

3.2 EU WATER FRAMEWORK DIRECTIVE

This Directive provides a framework for the protection and improvement of all of our waters - rivers, lakes, marine and ground-waters - and of our water-dependent habitats. The aim of the Water Framework Directive is to prevent any deterioration in the existing status of our waters, including the protection of good and high status where it exists, and to ensure that all waters are restored to at least good status by 2015. This Directive should have a positive impact on biodiversity in aquatic habitats by improving water quality in areas where it has deteriorated.

The Eastern River Basin Management Plan outlines all the actions required to improve the water quality and the County Council plays an important role in the implementation of this plan. A detailed programme of measures has been developed to bring the water bodies in Fingal to a good quality status as soon as possible.

3.3 WILDLIFE ACT, 1976 & 2000

The Wildlife Act of 1976 and 2000 is Ireland's primary national legislation for the protection of wild flora and fauna. Under the Wildlife Act, Natural Heritage Areas (NHAs) and Refuge for Fauna (RFF) are being designated to conserve species and habitats of national importance. In Fingal, this includes the Liffey Valley, Royal Canal, and wetland sites such as the Sluice River Marsh and the Bog of the Ring. NHA's are not only designated for wildlife, it also provides for statutory protection for important geological and geomorphological sites. Two of these geological NHA's can be found in Fingal; Feltrim quarry and the shoreline at Portrane. There are also a number of Statutory Nature Reserves and Refuges for Fauna in Fingal. These areas, established under the Wildlife Act are areas where nature conservation is the primary objective and takes precedence over all other activities. The Wildlife Act also protects natural habitats such as hedgerows, grassland and woodlands from disturbance and destruction during the bird breeding season from the 1st March until the 1st September.

3.4 FLORA PROTECTION ORDER, 1999

In accordance with Section 21 of the Wildlife Act 1976, the current list of plant species protected in Ireland is set out in the Flora Protection Order, 1999. Under the terms of the Wildlife Act it is illegal to cut, uproot or damage the listed species in any way, or to offer them for sale. This prohibition extends to the taking or sale of seed. In addition, it is illegal to alter, damage or interfere in any way with their habitats. This protection applies wherever the plants are found and is not confined to sites designated for nature conservation. The Flora protection order includes 67 vascular plants, 14 mosses, 4 liverworts and 2 stoneworts of which 7 are particularly relevant to Fingal (see appendix VII).

3.5 PLANNING AND DEVELOPMENT ACTS, 2000-2006

Local authorities have a central role and responsibility in protecting the natural environment by determining land-use policies for their administrative area through the making of a Development Plan and in applying that policy, in assessing planning applications and enforcing planning decisions. Fingal County Council has an obligation to take biodiversity into account when drawing up or considering plans or proposals for development. This includes both statutorily protected nature conservation sites and the wider countryside. Section 10 of the Planning and Development Act, 2000 requires Natura2000 sites to be protected in the Development Plan. It also recommends to protect natural features of the wider landscape and their connectivity which are of major importance for wildlife.

Table 2: *Protected areas of international and national importance.*

Location	SAC	SPA	pNHA	NHA	Ramsar	SNR	RFF
Baldoyle Bay	√	√	√		√	√	
North Bull Island		√			√	√	
Bog of the Ring			√				
Feltrim Hill			√				
Howth Head	√	√	√				
Ireland's Eye	√	√	√				
Lambay Island	√	√	√				
Knock Lake			√				
Liffey Valley			√				
Loughshinny Coast			√				
Broadmeadow/Malahide Estuary	√	√	√		√		
North Dublin Bay	√		√				
Portraine Shore			√				
Rockabill Island		√	√			√	√
Rogerstown Estuary	√	√	√		√	√	
Royal Canal			√				
Santry Demesne			√				
Skerries Islands		√		√			
Sluice River Marsh			√				

SAC = *Special Area of Conservation*
SPA = *Special Protection Area*
pNHA = *proposed Natural Heritage Area*
NHA = *Natural Heritage Area*
Ramsar = *site designated pursuant to Ramsar Convention on Wetlands*
SNR = *Statutory Nature Reserve*
RFF = *Refuge for Fauna*

Chapter 4

THREATS TO OUR NATURAL HERITAGE

We are lucky to have a great diversity of habitats and species in County Fingal. However, the biodiversity resource we see today, is only a small fraction of the resource we had here in the past. The fortunes of many habitats and species have changed over the last decades as the environment came under increasing pressure from development, changing farming practices and climate change. Table 3 gives an overview of the main threats facing the various habitats and associated species in Fingal at present. The five most important threats to wildlife are described in more detail below:

1. **Habitat Loss & Fragmentation**
2. **Lack of Habitat Management**
3. **Alien Invasive Species**
4. **Disturbance**
5. **Climate Change**

4.1 HABITAT LOSS AND FRAGMENTATION

The National Biodiversity Plan identifies habitat loss and degradation as the main factor eroding biodiversity in Ireland today. Although Ireland's landscape and habitats have been modified by human activity since the island was settled, the pace and scale of change rapidly accelerated from the latter half of the 20th century. The rapid development of houses, roads and other infrastructure in our towns and countryside, together with major changes in agricultural practices have led to a major loss of habitats and habitat fragmentation. Fragmentation happens when, for example, a motorway cuts through a patch of landscape creating two smaller landscape patches. Smaller habitat patches generally support fewer species and support lower population numbers of the species present. Increasing fragmentation leads to a loss of connection and/or increasing distance between patches, which has negative consequences for the ability of plants and animals to move through the landscape and to sustain viable populations. It is not only the protected flora and fauna species that are pushed back to the last remaining natural pockets in the landscape, also the more general species are subject to decline due to the reduction of suitable habitats.

4.2 LACK OF HABITAT MANAGEMENT

Some of the habitat types in Fingal require human intervention to maintain the diversity of plants and animals they support. Arable weed species require the soil to be disturbed in order to thrive. Grasslands need to be cut or grazed to keep the sward short enough for wildflowers to grow and set seed. Hedgerows in Fingal are turning into lines of mature trees because they are no longer managed as living stockproof field boundaries. These lines of trees provide far less cover and food for wildlife. Invasive species such as Rhododendron that were planted many decades ago, thrive in the woodlands because there is no management carried out to keep them in check. As a result the structural diversity and species richness of the woods are declining. Where arable and grasslands are no longer used for agricultural purposes and abandoned and the hedgerows and woodlands no longer maintained, it will be important to encourage local community groups and landowners to undertake active management to protect these semi-natural habitats and their associated plants and animals.

4.3 ALIEN (INVASIVE) SPECIES

Alien species are plants or animals that have been introduced in Ireland outside their natural range. Alien species can sometimes become 'invasive' when they spread rapidly and outcompete the native flora and fauna, pushing out the native species. Invasive species present one of the greatest threats to biodiversity world-wide. In Fingal, the problem with invasives is mainly limited to alien plants species that grow in and along some of our woodlands, heathland and watercourses. Japanese Knotweed *(Fallopia japonica)*, Himalayan Balsam *(Impatiens glandulifera)* and Giant Hogweed *(Heracleum mantegazzianum)* are occasionally found along watercourses, completely taking over areas of the riverbank. Rhododendron ponticum and Cherry Laurel *(Prunus laurocerasus)* cast a dense shade in some of the heathlands and woodlands, preventing ground flora to grow and new tree saplings to emerge. The County Council and local community groups are already working on the removal Rhododendron ponticum from Howth Head and Cherry Laurel from the woodlands at Abbotstown, St. Catherines and Luttrelstown.

4.4 DISTURBANCE

Some of the most important nature conservation sites in Fingal are the estuaries and the islands, because of the thousands of birds that winter and breed there. At the same time, our scenic coast is a popular amenity resource with thousands of visitors frequenting our coast and beaches every year. The wintering birds are in Ireland to recover from their long flight, spend the soft winter here while fattening up for their return journey to the Artic. If these birds are continuously disturbed by visitors and dogs they use up a lot of energy, which hampers their recovery and can affect the breeding success and mortality rates in the Artic. Similarly, disturbance to the bird colonies on the islands by leisure craft can affect the success of the breeding season of the seabirds. Controlling and guiding the flow of people along our coast to avoid disturbance to the main nesting, feeding and roosting sites will be one of the major challenges for Fingal as the County continues to grow.

4.5 CLIMATE CHANGE

Climate change can affect our habitats and species in a myriad of ways. Changes in the environmental conditions at the wintering grounds of many Irish breeding birds in sub- Saharan Africa, such as droughts or floods, could have an impact on the breeding bird population of Fingal. Similarly, the warmer weather conditions in the Artic may lead to changes in the numbers of birds wintering in Ireland. The increasingly early flowering period of trees, shrubs and plants is causing all sorts of difficulties for insects and their avian predators. Their lifecycles are fine-tuned to coincide with the standard flowering period of particular plants and shrubs and an abundance of food supply and they may not be able to deal with these changes. Sea level rise and freak weather events as a result of climate change will put extra pressure on our rivers and coastal habitats in particular. We are likely going to experience an increase in the extent, severity and recurrence of flooding and increased rates of coastal erosion. It will be important to start planning for these climatic changes and take serious steps to tackle climate change at a local level.

Table 3: *Primary threats to biodiversity in Fingal.*

Habitat	Primary Threats
Arable Land	Intensification of farming practices or abandonment.
Grasslands	Intensification of farming practices or abandonment.
Hedgerows	Removal of hedgerows and lack of proper hedgerow management.
Woodland	Lack of woodland management, invasive species.
Rivers	Nutrient enrichment, water pollution, dredging, channel straightening, river maintenance.
Wetlands	Infilling and drainage.
Beaches	Car traffic, sea level rise, disturbance by dogs and people, coastal protection works.
Dunes	Coastal erosion, coastal protection works, holiday homes and housing development, golfcourse expansion, trampling, pesticides & herbicides.
Estuaries	Disturbance, water pollution, in-appropriate development in and management of bufferzones.
Sea	Water pollution, overfishing, sea level rise, coastal protection structures.
Islands	Disturbance due to leisure crafts and invasive species.
Cliffs	Coastal erosion, coastal protection works, land drainage.

Chapter 5

WHAT HAVE WE BEEN DOING SO FAR?

Much biodiversity action is already happening in Fingal. In 2005, the Fingal Biodiversity Programme was set up by Fingal County Council to provide for nature education, practical nature conservation projects and ecological research. Many organisations and individuals across the county are currently involved in ongoing biodiversity-related projects.

Over the last 5 years much time and effort has been spend on nature studies to find out what wildlife can be found in Fingal and processing this information into an ecological database. As more information become available it became obvious that active management was required to restore important sites to their former glory. Today, Fingal County Council's Parks Division is involved in many nature conservation projects in parks and nature conservation sites throughout the County. These projects are often carried out together with the Conservation Volunteers and other environment NGO's or local community groups. The development of the 220 acres nature reserve at the Rogerstown Estuary is the flagship project of the Biodiversity Programme.

The County Council is also involved in dune conservation projects in Rush and Portrane, Heathland management on Howth Head, woodland management works at Blanchardstown and Lucan, cleaning our beaches and enhancing our parkland and demesnes for wildlife. The Council also contributes to international wildlife protection via the tropical plant conservation efforts at the Malahide Botanic Gardens and the breeding programme of rare farm animals at Newbridge Demesne.

Raising awareness of biodiversity is another pillar of the Biodiversity programme and to this end the Council organised a nature education programme in our schools together with the Irish Wildlife Trust and the Fisheries Board. Fingal Biodiversity Day traditionally held in Newbridge Demesne has been a major success three years in a row being attended by thousands of visitors. The County Council was also the lead partner in the INTERREG project Living Coast - Living Seas, which aimed to establish the most cost-effective way of raising awareness of the coastal environment.

But Fingal County Council is certainly not the only organisation working on nature conservation in Fingal. Many other statebodies, NGO's and individuals are involved in carrying out survey work, leading guided walks, hosting open days, themed events and practical work days. In the countryside, farmers are looking after our rural habitats. Volunteers from Birdwatch Ireland monitor the bird populations of our estuaries and islands on an annual basis. The Dublin Naturalist Field Club carry out site surveys in Fingal and organise guided walks. The Bat Conservation Group undertakes bat surveys throughout the County to find out more about these nocturnal creatures. The Fingal Hedgerow Society organises guided walks and training days on hedgerow wildlife and management. The various tidy towns committees in Fingal are getting involved in nature conservation as valuable points can be earned for their efforts. Community associations, schools and resident associations work on small-scale wildlife projects within their towns, schools and housing estates to brighten up their surroundings and provide an educational resource.

The Fingal Biodiversity Action Plan aims to bring together all these organisations and individuals and encourages them to work together on one countywide nature conservation programme to protect the natural heritage in Fingal.

Chapter 6

A WEALTH OF WILDLIFE FOR FINGAL... FUTURE OPPORTUNITIES?

Our coastline, countryside and urban areas harbour a great variety of habitats and wildlife species. The natural environment also provides us with scenic natural amenities and a strategic economic resource for many businesses in the county. Much of our natural heritage has been damaged and diminished as a result of unprecedented growth and land use intensification. There is an increasing realisation in Ireland and Fingal that action is needed to protect the habitats and species that we have and that we start restoring the damage done to the natural environment over the last decades. The big challenge for Fingal is to develop and grow in a way that maintains and enhances biodiversity for future generations. The Biodiversity Plan marks the beginning of a coordinated nature conservation effort to safeguard and enhance Fingal's rich natural heritage for the future.

The vision of the Biodiversity Plan for the future is a Fingal richer in wildlife than it is today. The conservation efforts will not only focus on the protected sites and species, but will aim to halt and reverse the loss of general habitats and species too. This can be achieved by integrating wildlife conservation with other land uses to create an interconnected landscape through which wildlife can move freely and habitats and species are protected.

Our countryside will remain an important food production area for the greater Dublin area with profitable farms where wildlife can thrive. It is envisaged that the arable farms will provide broad field margins and use less intensive farming methods, allowing for the Yellowhammer, Grey Partridge and arable flowers to live alongside modern agriculture. Many meadows will be ablaze again with wildflowers over the summer, and, in turn support high numbers of insects and bird life. Well-managed hedgerows will be an integral characteristic of the farmland in the County, while rivers and wetlands will be restored to their natural condition with their waters unpolluted.

All towns will manage areas of land for nature conservation, which shall be linked to the countryside to bring wildlife right into the towns and villages. It is envisaged that new developments will incorporate existing wildlife features and enhance these to become attractive amenity areas. Ponds and wetlands will become more common in our surroundings as part of the provision of Sustainable Drainage Systems. Wildlife gardening will become more popular as more people are beginning to plant flowers and putting up bird boxes, to brighten up their daily lives with the sights of butterflies and birds. Schools and businesses will pride themselves on having hay meadows, ponds and woodland and a lot more wildlife on their grounds.

It is envisaged that the people of Fingal will be surrounded by wildlife and have access to many parks and wildlife sites, thereby gaining a much higher appreciation for the natural world. Many people will give their time freely to contribute to the conservation of habitats and wildlife in their locality. Fingal residents will have a better understanding of our natural heritage and demand that sustainable development is the key over-arching principle governing all decisions made by the County Council. Nature conservation will be one of the guiding principles for the development and promotion of County Fingal. All future development and land-use planning will ensure that the County's wildlife interest is cherished and protected for future generations.

Chapter 7

THE FINGAL ECOLOGICAL NETWORK - A NEW APPROACH

Habitat loss and fragmentation are the most important factors causing the decline of habitats and flora and fauna species in Ireland and Fingal. It is vital that as County Fingal develops, we not only protect the designated sites and their surrounding lands, but that we protect and restore the habitats in the wider landscape and the connections between them. Throughout Europe and further afield the issues of habitat fragmentation and habitat & species conservation are being addressed by establishing national and regional Ecological Networks. This Biodiversity Plan is centered around the development and delivery of an Ecological Network across Fingal *(See maps 1 & 2 for details)*. The Ecological Network comprises of four elements:

1. **Core Nature Conservation Sites**
2. **Buffer Zones Around the Core Sites**
3. **Nature Development Areas**
4. **Ecological Corridors and Stepping Stones**

The purpose of the Ecological Network is to provide a framework and focus for nature conservation efforts in Fingal for the next decade. Core sites will be enlarged and protected with bufferzones to create more space for sustaining habitats and healthy populations of protected species. Nature Development Areas will provide opportunities for habitat improvement in the wider countryside and urban landscapes. The core sites and the nature development areas will be connected by means of ecological corridors and steppingstones. This will create an interconnected landscape through which wildlife can move freely and healthy populations of both rare and common species can be maintained.

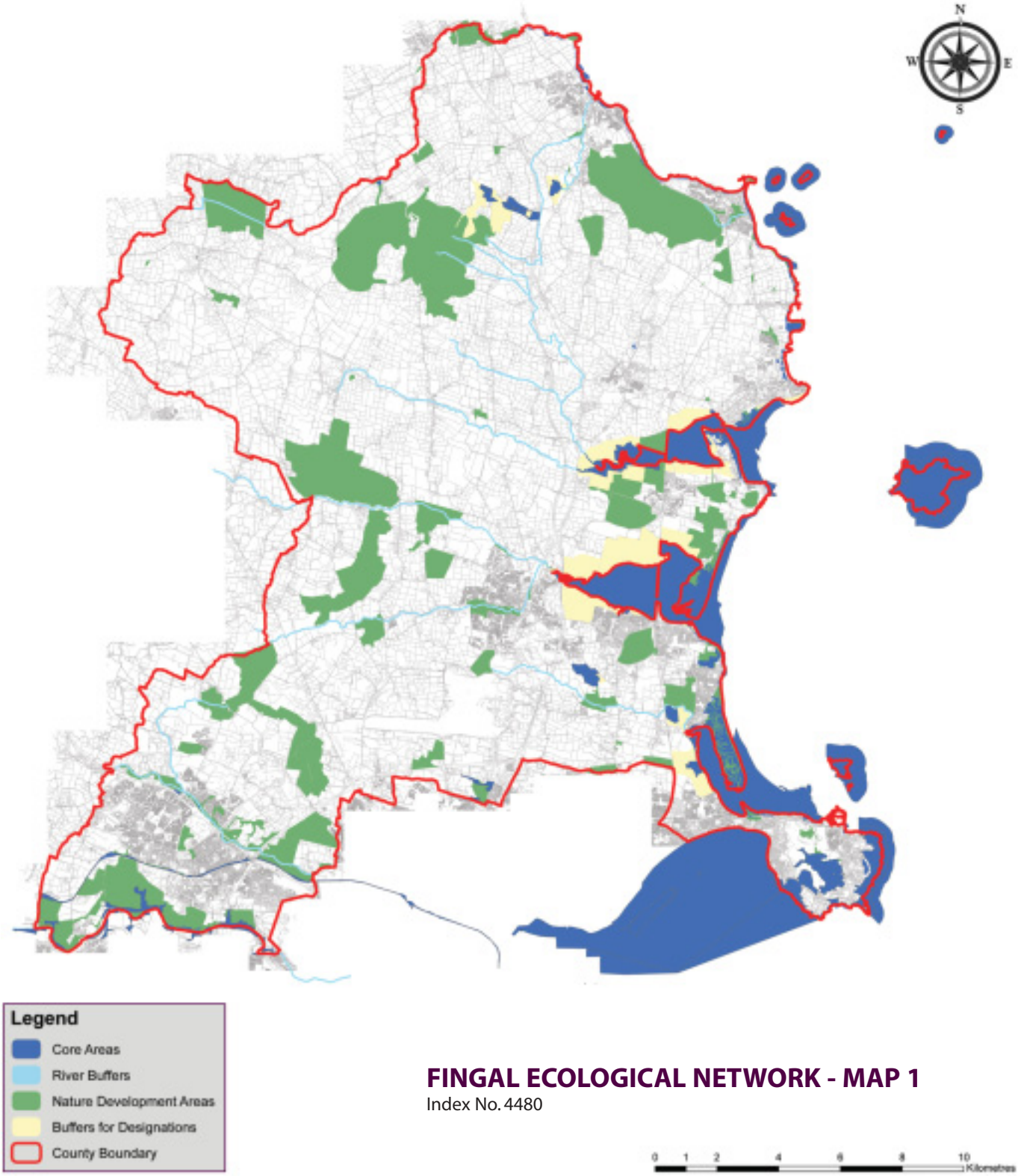
The Ecological Network covers 13120 ha, including the islands and estuaries. A breakdown of the acreage of the individual elements of the network is given in table 4. The sites included in the network are the critical natural capital of Fingal. Much of the network is located on lands in private ownership and therefore the delivery of the network will depend to a large extent on the goodwill and interest of local landowners. The County Council will seek to work together with landowners and community groups to achieve this network over the next 10-20 years. For those lands in public ownership, the local authority will seek to protect and enhance these sites for wildlife.

The selection of the sites for inclusion in the Fingal Ecological Network is based upon legislative requirements, ecological studies carried out over the last 6 years and expert opinion by various ecologists and nature conservation groups. It is likely that the network will expand and/or change over the next decades, as more ecological survey information becomes available, particularly in the countryside.

The network shall also make provisions for recreational use, flood protection, farming and contribute to the quality of the living and working environment. The ecological network will thereby assist sustainable development in the countryside and towns in Fingal. This makes the ecological network approach far more pro-active and encompassing than the traditional species or site-based approaches to biodiversity management. It does not focus solely on rare and threatened habitats and species, but it considers the whole biological resource and its integration with other land uses. The planning guidelines and principles associated with the ecological network are given in Appendix XII.

Table 4: *Acreage of Fingal Ecological network.*

Fingal Ecological Network Elements	Hectares
Core Nature Conservation Sites	2,920
Bufferzones Around the Core Sites	1,350
Nature Development Areas	7,050
Ecological Corridors	1,800 (300 km)
Total	**13,120**



FINGAL ECOLOGICAL NETWORK - MAP 1

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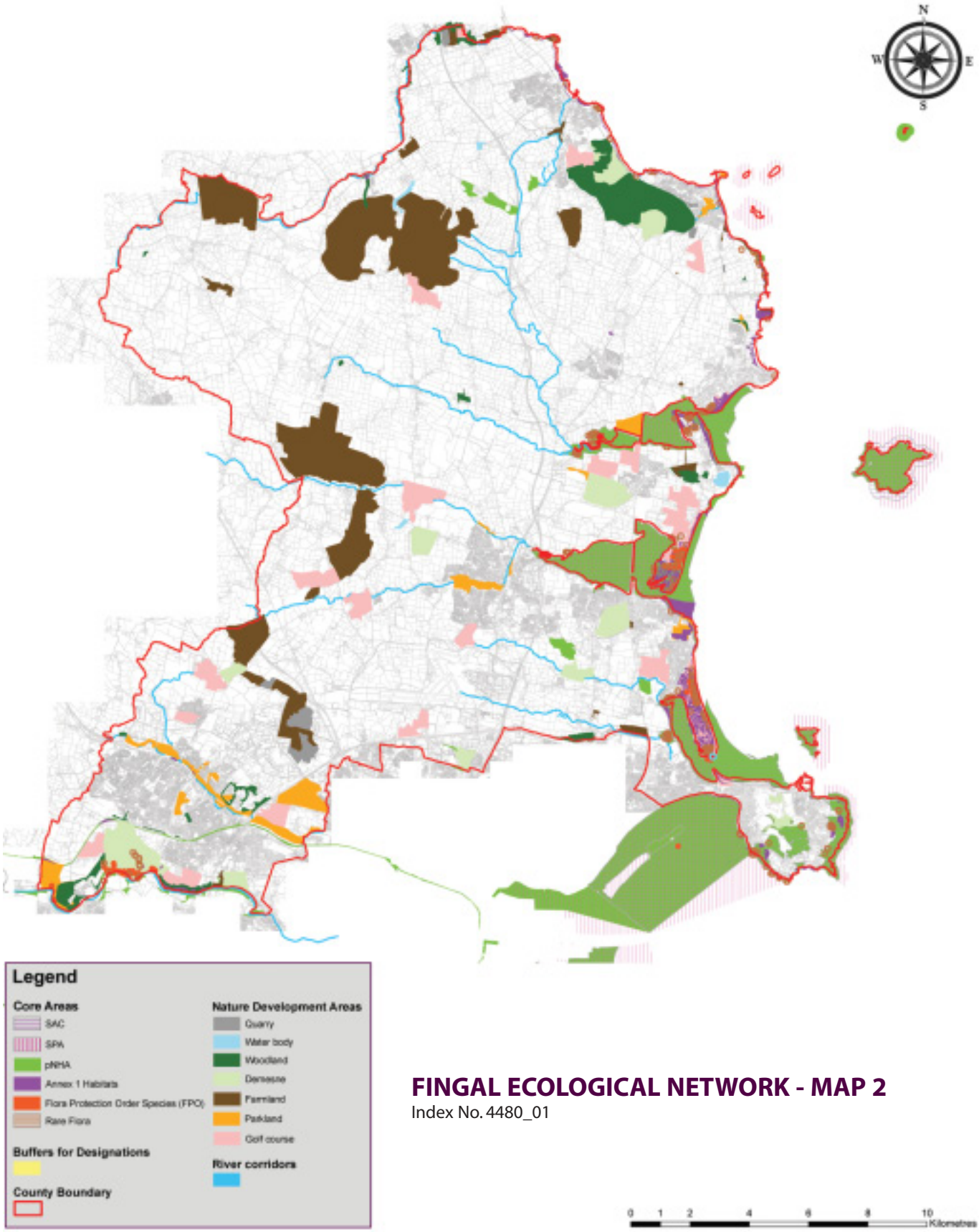

FINGAL ECOLOGICAL NETWORK - MAP 2

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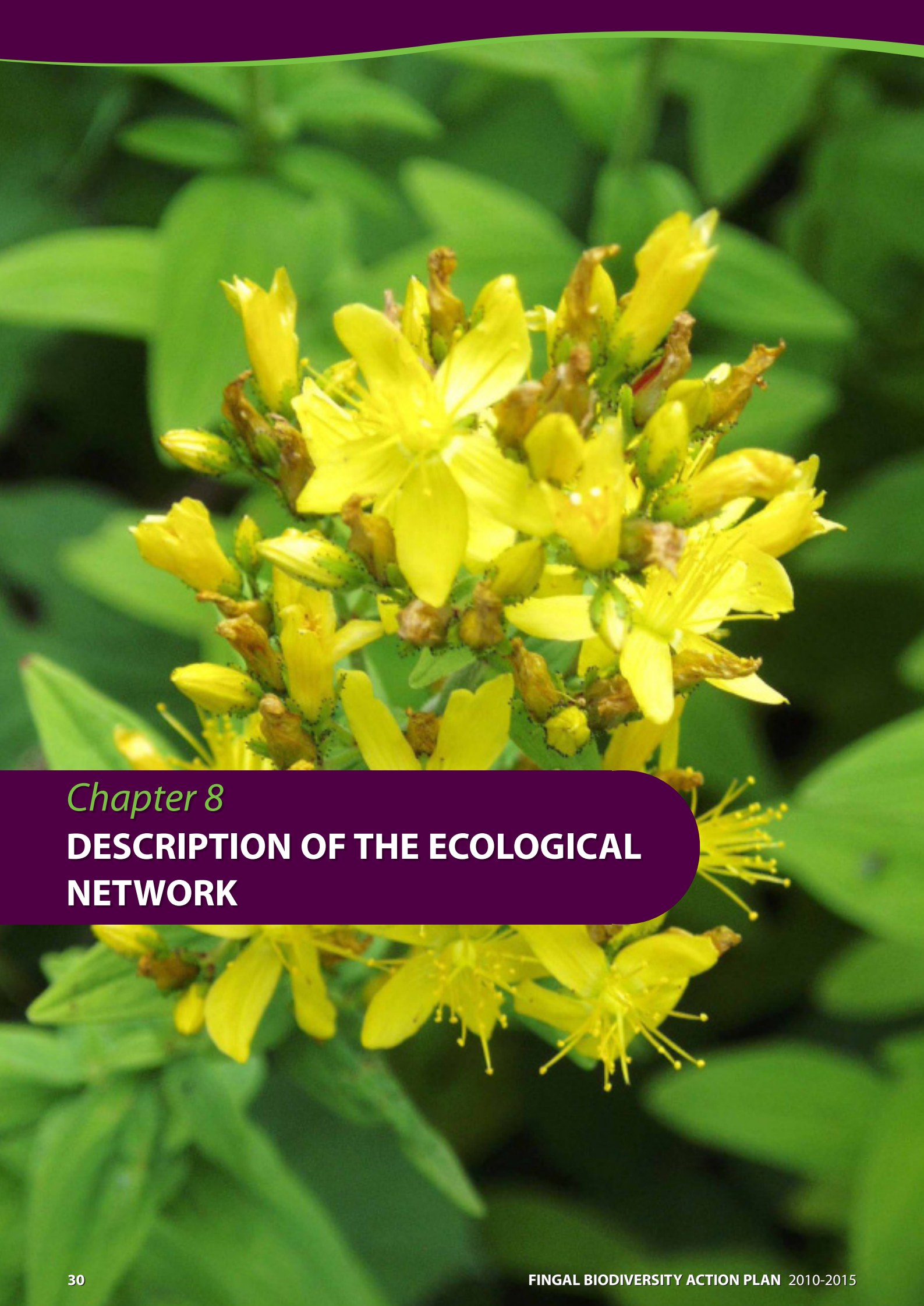


Chapter 8

DESCRIPTION OF THE ECOLOGICAL NETWORK

8.1 CORE SITES

The core areas of the network are the most important nature conservation sites in County Fingal and comprise of the following:

1. **Proposed Designated Sites Under the EU Habitats (SAC) and Birds Directives (SPA)**
2. **Proposed Designated Sites Under the Wildlife Act (NHA's)**
3. **Sites with EU Priority Habitats Listed in Annex I of the EU Habitats Directive**
4. **Sites with Nationally Legally Protected Plant Species Under the Flora Protection Order and Sites with Red Data Book and Other Nationally Rare Plant Species**
5. **Marine Habitat for EU Marine Priority Species Listed in Annex II of the EU Habitats Directive**

8.1.1 CORE SITES - DESIGNATED SITES

The finest wildlife sites in Ireland have been designated under various national and European directives. In Fingal, most of these sites can be found along the coast. In fact, most of our coastline is designated under either national or international nature legislation or both. An overview of all the designated sites is given in table 2 in chapter 3 and in appendix III.

Under the European Habitats and Birds Directives the estuaries in Fingal have been designated Special Areas of Conservation (SAC) and Special Protection Areas (SPA). The estuaries are designated because of the thousands of birds that gather here in wintertime and because the range of coastal habitats present in these sites that are important in Europe such as mudflats, dunes etc. Similarly the islands off the Fingal coast have been designated SAC and SPA because of the thousands of seabirds that breed on the islands. The rocky cliffs on Howth Head are the only mainland site in Fingal where a lot of breeding seabirds occur. The area around the Ben of Howth supports a vast extent of Atlantic Heathland, which is becoming increasing uncommon in Europe and is the only site in Fingal where this vegetation occurs. Large parts of Howth Head have therefore also been designated as SAC and SPA. The National Heritage Area designation under the Wildlife Act 1976 also covers most of the European sites and more locally important sites have been added that are of wildlife or geological interest. These are mainly wetland sites such as the Bog of the Ring and geological sites near the coast.

The European designated sites are part of a European wide Natura 2000 network. Fingal has an international responsibility to make sure that a favourable conservation status is maintained for the habitats and species of these sites, which are rare and threatened throughout Europe. These sites are our critical natural capital and their protection forms the basis of the nature conservation strategy and sustainable planning framework in Fingal.

Vision for the Future

Fingal County Council and other statutory agencies will protect the integrity of all the important sites in Fingal and improve the habitats where opportunities arise. The Fingal estuaries will continue to provide an excellent wintering habitat for the thousands of birds that spend the winter here. The lands surrounding the estuaries will be managed to provide an abundant food supply for the many wildfowl and waders. The seabirds will continue to breed in their thousands on the islands and the cliffs around Howth Head and will slowly expand their numbers. It is envisaged that disturbance by people at the core sites of the wintering birds and breeding seabirds shall be minimal as a result of a sustained public awareness campaign. Wetland sites such as the Bog of the Ring and the Sluice River Marsh will be maintained and restored to their full ecological potential, supporting a great diversity of wetland plants and animals.

Bufferzones will be developed around the land based European designated sites and nationally designated wetland sites to protect these sites from any adverse impacts as a result from adjacent land use.

Strategy

To protect the most important sites in the County individual masterplans for the designated sites and surrounding lands shall be prepared by Fingal County Council in conjunction with landowners and other stakeholders. The most appropriate land use, nature conservation goals and development of recreational infrastructure within each of the sites shall be worked out in greater detail in these plans. Particular focus shall be on the Rogerstown Estuary, the Malahide Estuary and the Bog of the Ring. The hydrology of the Bog of the Ring is to be studied in more detail to establish the full extent of the buffer required to maintain good water quality in the Bog itself. A conservation plan has already been prepared for Howth Head and the County Council's efforts will focus on the implementation of the recommended actions in the plan. Fingal County Council together with other nature conservation bodies will also seek to manage, lease or acquire the privately owned lands within the designated sites.

Where development is proposed in or near designated sites strict procedures are to be followed as set out in article 6(3) of the Habitats Directive to ensure that the conservation objectives established for each Special Area of Conservation and Special Protection Area are not compromised. More details on these procedures are given in Appendix XII. The conservation objectives for each EU designated site is given Appendix IV.

8.1.2 CORE SITES - SITES WITH ANNEX I HABITATS OUTSIDE DESIGNATED AREAS

A large selection of habitats listed in Annex I of the EU Habitats Directive are located in our designated Special Areas of Conservation such as estuaries, mudflats, saltmarsh etc. However, several Annex I habitats are found outside the designated sites such as sand-dunes, shingle and gravel banks and shores, sea caves, calcareous grasslands, petrifying springs, and vegetated sea cliffs (see appendix VI). The petrifying springs, fixed dunes and calcareous grassland are particularly important because these are listed as priority habitats in the directive. This means that the EU requires these habitats to be protected because their global distribution largely falls within the EU and they are in danger of disappearance. So although the sites with these habitats may not have been formally designated, they are very important in a European conservation context and Fingal will to make sure that the sites with these Annex I habitats are protected.

The majority of these Annex I habitats are located along the coast and can often be found in vicinity of each other. The calcareous grasslands rich in orchids are most often found in the fixed dunes in Fingal. The petrifying springs are mainly found at the base of the sedimentary sea cliffs in the northern part of the county. The beaches along the sea cliffs are often shingle and gravel banks and the sea caves are located in cliffs too. The threats these habitats face are often the same too. In Fingal, the calcareous grassland and the fixed dunes are located within golf courses or subject to trampling. The sedimentary cliffs and petrifying springs are both dependant on a relatively stable groundwater table to maintain their integrity and the cliffs and the gravel shores are both affected by coastal erosion.

Vision

It is envisaged that the Annex I Habitats listed in the Habitats Directive will be protected and managed with great care. Dune habitats inside and outside golf courses will be sympathetically managed and the orchid rich grassland will become integral parts of the golf courses. The shingle and gravel banks along our shores will remain in place and coastal dynamics forming these banks will not be interrupted by manmade marine structures. The tops of the cliffs will be managed to maintain the great variety of plant

and insect life. Drainage of the lands behind the sedimentary cliffs will be fine tuned to ensure that the stability of the cliff face is enhanced, thereby slowing coastal erosion. It is anticipated that dumping of garden and farm waste along the cliffs will cease as a result of an awareness campaign. The nutrient levels in the ground water will be reduced and there will be no drainage works near the petrifying springs to ensure a steady supply of nutrient poor and lime rich waters.

Strategy

The protection of the dune habitats, cliffs and associated petrifying springs will be the focus of the works related to Annex I species outside the designated areas. The County Council shall encourage golf course managers to protect and expand the Annex I habitats within their courses by developing management guidelines and ecological management plans for golf courses together with the golf clubs. A hydrological study is to be undertaken of all petrifying springs in the county and the surrounding landscape to gain a better understanding of the current flow of water to the spring and to identify potential threats in the future. The Council Council shall liaise with owners of lands bounded by rocky or sedimentary cliffs to to protect the vegetation at the top of the cliffs from enrichment, herbicide spraying and dumping.

Where development is proposed in or near Annex I Habitats, the development will have to demonstrate that it will have no significant adverse impact on the habitats of interest in these areas and their ecological integrity. The planning procedures to be followed in relation to these habitats are described in more detail in Appendix XII.

8.1.3 CORE SITES - SITES WITH NATIONALLY PROTECTED & RARE PLANT SPECIES

There are over 850 species of native and naturalised plants in Ireland. Most of these plants are common and regularly seen throughout Ireland. However, the distribution of some plant species is limited to particular sites or parts of the country and are these considered rare plants. Most of the rare plants, have become rare because the environmental conditions or habitats that they need have largely deteriorated or disappeared. The presence of certain 'rare' or 'uncommon' species is generally indicative of a habitat worthy of protection. It is therefore important not just to protect the plant itself, but also the surrounding habitat.

The rarest plants in Ireland are protected under the Wildlife Act and listed in the Flora Protection Order (FPO) 1999. Of the 67 plants on the list, 6 species occur in Fingal (see appendix VII). Thankfully most of the protected species in Fingal occur in stable populations such as Lesser Centaury *(Centaurium pulchellum)* and Hairy Violet *(Viola hirta)* which occurs in the fixed sand dunes along our coasts. The Wildlife Act legislation requires these species and their habitats to be protected.

Other rare plants in Ireland are included in the Red Data List of Irish Plants. The Red Data List uses an internationally established set of categories to determine the potential risk that a species could become extinct. Fifteen plant species on the 'Endangered', and 'Vulnerable' and 'Rare' lists have been recorded in the dune grasslands, woodlands and several other habitats in Fingal (see appendix VII). Most of these Red data book species are locally in decline due to the deterioration of their habitat.

There are another 10 plant species recorded from Fingal that are nationally rare. These species should be included in the FPO and red data book lists, but are not listed at present. The Curved Grass *(Parapholis incurva)* for example is one of the rarest Irish species. At present it is known from two sites in Howth and as a 19th century herbarium specimen from Cork. Appendix VII lists the other 9 species that are important for Fingal.

The ongoing plant survey effort shows that Fingal has quite a number of nationally protected and rare plant species. Many records have been added to the Council's GIS database. This will help the Council in its efforts to protect important plant species now and in the future.

Vision

The populations of legally protected and rare plants will continue to thrive and expand in Fingal. The locations of all rare and protected species in Fingal will be recorded with the help of Global Positioning Systems (GPS) in the county council's GIS database. As a result of the inclusion of rare and protection plants in the council's database, the protection of these plants shall be fully integrated in the planning process. The County Council will work together with landowners to maintain and enhance the favorable habitat conditions that allow the rare & protected plants to thrive on that site. Where rare or protected flora occur on publicly owned lands, the local authority shall take great care to protect the existing plant populations and to appropriate manage the lands for that particular species, so that this population may expand in the future.

Strategy

The County Council will continue its search for rare and protected flora in the County. The survey work shall initially focus on the FPO listed species and the Red data book species. Further studies shall be carried out on sites that are suspected to be of historic or current ecological interest, to establish the occurrence and distribution of other plants that are locally and nationally rare and threatened. Special attention will be paid to areas rich in important native habitats and flora, such as the Howth peninsula.

Comprehensive management plans will be drawn up together with landowners for sites with rare and protected species. These plans will take account of the current conservation status of the plant species and its habitat, and if practicable a list of conservation actions will be drawn-up. The County Council and its partner organizations will also encourage the general public to get involved in recording rare species in the County focusing on easy to identify iconic floral species such as the Spring Squill *(scilla verna)*, Common Toothwort *(lathraea squamaria)* and Golden Samphire *(Inula crithmoides)*.

Where rare and protected plant species are located on public lands such as the Corballis golf course and the Turvey lands, the County Council will manage these sites to enhance the populations of these key species. The County Council will also make its lands available for the collection of seed and cultivation of rare plants as part of the 'Irish Threatened Plant Species Conservation Programme' which is run by the National Botanic Gardens.

Where development is proposed on sites with legally protected or nationally rare plant species, the development will have to demonstrate that it will have no significant adverse impact on the plant species or its habitat. The planning procedures to be followed in relation to these plants are described in more detail in Appendix XII.

8.1.4 CORE SITES - MARINE ENVIRONMENT/INSHORE WATERS

The marine environment along the Fingal coast is a valuable resource in terms of tourism, recreation, employment and nature conservation. The inshore waters are an important nursery area for many commercial marine fish species that favor these sheltered waters before heading out to sea. Due to the abundance of small fish, the inshore waters also provide rich feeding grounds for the thousands of breeding seabirds on the islands off the coast. The inshore waters along the coast are also visited by Whales, Dolphins, Porpoises and Seals, which are Annex II, IV & V species under the EU Habitats Directive. At the 2nd meeting of the Biodiversity Convention in Jakarta (1995) it was recommended that special attention be given to marine and coastal biodiversity, the so-called 'Jakarta Mandate'. Therefore, to protect the habitat of the annexed species and to protect the feeding grounds for the thousands of breeding seabirds, the inshore waters have been included in the Fingal Ecological Network.

Managing marine habitats is far more complex in comparison to terrestrial or freshwater habitats. The underwater world of the sea is the least visible, least documented and least understood. It is not possible to conserve marine biodiversity by managing marine

habitats directly. Instead, the causes of marine biodiversity loss must be managed such as waste water discharges, shipping, dredging etc. Some types of fishing for example, notably bottom trawling and dredging, damage the seabed and its marine life. These issues require actions such as regulations, fishery controls, marine protected areas and pollution reduction from land based sources.

Managing the marine environment is also very complex because of the many state agencies involved, each with their own and overlapping responsibilities. Although the County Council has limited powers when it comes to dealing with the sea, it does have an important role to play regarding water pollution control. Rivers are generally the greatest source of nutrients and pollutants to coastal seas, closely followed by point sources such as sewage treatment plants. Implementation of the river basin management plans and upgrading any under-performing treatment plants will therefore go a long way to improving our coastal waters. Fingal County Council can also play a key role in developing an Integrated Coastal Zone Management Plan for its administrative area together with all the relevant stakeholders.

Carrying out ecological studies of our shores and coastal waters are important to increase our knowledge and understanding of the marine environment. One of the most important marine monitoring points in Ireland is located at Rush north beach. This site has been used for many years for tidal habitat research by various Irish Universities such as UCD, Trinity College and UCC. The monitoring site at Rush North Beach will also be the only marine site in Ireland for the Natural Geography In Shore Areas Project, which is a worldwide marine biodiversity monitoring programme.

Vision

The inshore waters along the Fingal coast will be developed as a marine or coastal park, linking all the important nature sites such as the islands, the sea, the estuaries and coastal lands into one natural amenity resource. A management plan for the coastal park shall be prepared to address all issues affecting the marine biodiversity resource in Fingal e.g fishing, beach management, marina's, boating. It is envisaged that there is great support for the development of the coastal park, because the management plan will be prepared together with many stakeholders such as nature conservation groups, the fishing industry, the leisure industry and local community groups. The Fingal Coastal Park will be marketed in Ireland and abroad as a scenic natural recreational area offering a wide range of recreational pursuits such as angling, boating, whale watching and a coastal walkway from Howth to Balbriggan.

The recreational users will adhere to an agreed code of conduct that will avoid any disturbance to the wildlife at the key nature conservation sites along the coast.

It is anticipated that the Local Authority will successfully implement the river basin management plan. As a result of this work the inshore waters will be clean as the levels of nutrients and pollutants flowing in the sea from the rivers shall decline dramatically and there will not be any further discharges of untreated sewage into the sea. Due to the healthy condition of these waters there will be plenty of small fish to feed the seabird colonies and the whales, dolphins, porpoises and seals. Commercial and recreational fishing shall exploit the rich marine resource in a sustainable manner, ensuring at all times that the nursery function of the Fingal coast is protected.

The local community will be actively involved in looking after their local stretch of coastline by participating in monitoring schemes of marine flora & fauna and undertaking beach clean ups.

Strategy

A feasibility study is to be undertaken to see how a Fingal coastal park could be developed. This study would look into the legal basis/ precedence of a coastal park, which stakeholders are to be involved and what key issues should be addressed in a management plan for the coastal park. An impact study of the existing recreational and commercial use of the inshore marine resource along the Fingal coast is also to be undertaken to assess the current level of impact upon the designated sites and species and the marine environment in general.

To increase our knowledge on the state of the marine and coastal environment a marine benthic flora & fauna monitoring programme is to be set up along the entire Fingal Coast. The most important international marine flora & fauna monitoring site at Rush North Beach shall be protected from any adverse development in the area. Local community groups and local residents will be encouraged to participate in these monitoring schemes. Other local community efforts toward the protection of our shorelines such as beach clean ups will be stimulated and supported by the local authority.

8.2 BUFFERZONES AROUND CORE SITES

Bufferzones cover the lands surrounding the designated nature conservation areas, particularly the three estuaries and the NHA wetlands. They mainly comprise of farmland and amenity grassland that are used by the estuarine birds around the estuaries. The purpose of these bufferzones is to protect the integrity of the nationally and internationally designated sites and enhance the surrounding lands for the key flora & fauna species. The bufferzones around the estuaries aim to protect existing land uses and may provide opportunities for flood protection, erosion control and amenity use. The bufferzones around the NHA wetlands primarily act as hydrological buffers, ensuring a steady supply of clean ground and surface water to these wet and boggy sites.

Vision

The Fingal estuaries and wetland and their surrounding bufferzones will continue to provide an excellent wintering habitat for the thousands of birds that spend the winter here. The bufferzones around the designated sites shall be developed as multi-functional landscapes. The agricultural land-use shall be maintained and where appropriate combined with nature conservation targets and low-intensity recreational use.

New development and land-uses that may have a lasting negative impact on the designated site and the associated bufferzone or the visual amenity of the area shall be located outside the bufferzones. Lands in ownership of the County Council shall be maintained in such a manner as to provide suitable roosting, feeding and breeding habitat for the flora & fauna associated with the estuaries.

The local community and visitors will be able to enjoy the estuarine sites and the thousands of wintering birds by providing access to the bufferzones by means of walking and cycling routes. Disturbance to migratory birds at their feeding and roosting sites will be kept to a minimum by guiding visitors away from the most sensitive sites.

Strategy

The most appropriate land use, nature conservation goals and development of recreational infrastructure within each of the bufferzones shall be worked out in greater detail in individual masterplans prepared by Fingal County Council in conjunction with landowners and other stakeholders. Particular focus shall be on the Rogerstown Estuary, the Malahide Estuary and the Bog of the Ring, because these sites are most threatened. The hydrology of the Bog of the Ring is to be studied in more detail to establish the full extent of the buffer required to maintain good water quality in the Bog itself.

Fingal County Council together with other nature conservation bodies will seek to lease or acquire the most strategic nature conservation lands within the bufferzones and work with private landowners in looking after the remainder of the lands in the bufferzones.

8.3 NATURE DEVELOPMENT AREAS

Nature Development Areas are areas where nature conservation can be combined with existing land use such as farming, quarries, golf courses, forestry etc. These areas have been selected based upon existing wildlife values or potential wildlife values related to habitats and species present on the site. The nature development sites will act as additional areas for nature in the countryside and/or will act as stepping stones along ecological corridors.

In Ireland, the populations of many typical land plants and animals are particularly under pressure as a result of the loss of hedgerows, flower rich grassland, arable margins and wetland habitat. The loss of these wildlife friendly features has led to a severe depletion of countryside wildlife. Accordingly, the nature development areas focus on providing suitable habitat for a range species associated with farmland such as Yellowhammer, Corncrake and Grey Patridge, because the countryside in Fingal is particularly suited for these purposes. Seven habitat types and land use functions covering a range of habitat types have been identified at various location in the county for inclusion in the ecological network:

1. **Farmland**
2. **Demesnes**
3. **Golf Courses**
4. **Parkland**
5. **Quarries**
6. **Waterbodies**
7. **New Forestry**

It is important to note that the County Council will not seek any national or international nature conservation designations for land holdings included in the Nature Development Areas, where landowners are participating in nature conservation projects that aim to re-establish rare and/or protected plant and animals species.

8.3.1 NATURE DEVELOPMENT AREAS - FARMLAND

With approx 60% of Fingal covered by farmland, it is clear that farmers have an important role to play in the conservation of habitat and species in the countryside. Many semi-natural habitats and associated plants and animals have been lost from the countryside due to the intensification of farming. Although much of the farmland is of low biodiversity value, the remaining network of hedgerows, pockets of woodland, unimproved grassland and wetlands in the county provide important habitats for many species. The farming profession is facing challenging times and it is important that farming continues to thrive in Fingal. This is not only for employment and economic reasons, many wildlife species in the countryside are dependant on farmland and certain farming practices. The best opportunities for wildlife enhancement on farms are in the corners and along the edges of the fields, without impacting upon food production and farm incomes. The network of hedgerows provide important corridors for wildlife and will require particular attention to prevent further loss and deterioration.

Vision

The vision for farmland within the ecological network is that the countryside will be much richer in wildlife then it is today. The edges and corners of fields will be managed less intensively to provide space for wildlife. The least productive parts of the farm would

be set aside for wildflower meadows, pockets of woodland, ponds and wetlands. The latter two habitats could be incorporated in the waste water system on the farm and would provide a habitat for amphibians and bats. The hedgerow network will be expanded by planting new hedgerows. The existing hedgerows will be maintained and restored by landowners to provide living stock proof barriers. As a result of these measures, populations of typical farmland species such as Barn Owl, Yellowhammer, Tree Sparrow and Cornflower will recover and expand. Rare farmland species such as Grey Partridge, Corncrake, Lapwing, Prickly Poppy and Small-flowered Crane's bill will return to Fingal as a result of habitat improvement measures. Farmers in Fingal will be recognized for their efforts to protect native wildlife and this will be part of a marketing strategy to promote and sell their produce.

Strategy

A demonstration farm or groups of farms is to be set up in Fingal to promote wildlife enhancement works in the countryside. The purpose behind this farm is to explore the range of habitat improvement measures possible on a farm, explore the costs associated with these measures, study the wildlife effects and provide a cost-benefit analysis.

To improve the hedgerow resource in the county, the County Council will encourage farmers to plant new hedgerows. Training courses will be provided by Fingal County Council and the Fingal Hedgerow Society to showcase best practice to landowners, contractors and Council staff. The County Council will also assist with sourcing volunteers via the Conservation Volunteers Fingal and Business in the Community to help farmers with carrying out habitat improvement works such as hedgerow management. The County Council will also seek to establish a small grants scheme to help landowners improve their lands for wildlife.

A Grey Partridge release and conservation project will be explored in more detail as Fingal could provide substantial habitat for this typical arable land bird, which is now restricted to one site in Ireland. This project will also benefit other farmland species.

Where new development is proposed within the farmland, the local authority will request the applicants to retain existing natural features as much as possible and to provide new habitats such as outlined in Appendix XIIe and XIIf. This will protect the existing wildlife on the site and would enhance the nature conservation role of the lands within the ecological network.

8.3.2 NATURE DEVELOPMENT AREAS - DEMESNES

There are 14 demesnes or estates in Fingal of which Ardgillan, Newbridge, Malahide, Santry and St. Catherine's Demesne are in public ownership. These demesnes comprise of various habitat types such as mature woodland, hedgerows, amenity grassland, wildflower meadows and are home to many flora & fauna species including some protected species.

The demesnes are particularly important in relation to the woodland habitat in the County. Most of the woodland resource in Fingal is located in the demesnes and date from the 1800's. The woodland habitat in the demesnes is often linear and narrow, making these woodlands susceptible to external influences from adjacent land use and to disturbance as a result of recreational use. Management of many woodlands has been limited for the last decades, resulting in the spread of invasive species and not achieving the full ecological potential. Economic use of woodlands such as the production of wood, firewood, forest fruits etc is almost non-existent in Fingal, while amenity use of woodlands is limited to walking in the publicly owned Demesnes.

Vision

The demesnes in Fingal shall be managed and developed with wildlife in mind, thereby turning these areas into biodiversity hotspots. The mature woodlands shall be widened and more varied in both species composition and structure with plenty of old & dead trees for Bats and Pine Marten. Grey Squirrel will be eliminated from the demesnes and Red squirrel will return to these

woodlands. Amenity grassland and species poor grassland shall be turned into wildflower meadows and managed with the help of local farmers. The use of cattle for maintaining the meadows shall be more common, particularly in the public demesnes, to make grassland management more sustainable and to provide an additional visitor attraction.

The wettest sites within the demesnes shall be set aside for ponds and wetland features. Rivers and streams within the demesnes are restored and other wetland features developed along side them such as reedbed, wet grassland and marsh. The walled gardens can be used for food production and contribute to preservation of Irish vegetables and fruit varieties. The local community shall be actively involved in helping out with the day to day management of their local demesnes such as the maintenance of the walled garden, woodland management, guided tours etc. The products from the demesnes could be marketed as local produce and the demesnes can be marketed as a wildlife and tourist resource in Fingal and abroad.

Strategy

Fingal County Council will assess the demesnes that it manages for opportunities for habitat enhancement and habitat creation, with respect for the historical landscape character. The initial works are most likely to focus on the recommendations made in the Fingal woodland study (McCourt & Kelly 2008) e.g. the removal of invasive species (incl. Grey Squirrel), thinning out of dense stands of non-native stands of conifers, Beech and Sycamore and planting native shrub species to widen the woodlands and create a more gradual woodland edge. The woodland management works shall be carried out in small-scale operations, to allow for natural processes and succession to take place. This will result in diverse and structured woodlands that are attractive to wildlife and to the visitor. The County Council will also explore the possibilities of grazing in the public demesnes and facilitate farmers to take hay from these parks.

On private estates Fingal County Council will approach estate owners and see what habitat improvement works could be carried out and establish if there are opportunities for public access, working with the local community or local food production for example. The landowner shall decide what is possible and what is not. Where development is proposed within the private demesnes, the county council shall require the applicant to carry out small scale habitat improvement works as outlined in Appendix XIIe & XIIf.

8.3.3 NATURE DEVELOPMENT AREAS - GOLF COURSES

Golfcourses are important elements of the ecological network in Fingal. With some 28 courses in Fingal, golf can make an important contribution to the development of the Fingal Ecological Network. Golf courses are often associated with intensive management practices, but large areas within the course are not used for playing golf. These out-of-play areas often contain pockets of woodland, hedgerows, rough grassland, ponds, wetlands and rivers. These areas can provide valuable habitats for many wildlife species, particularly within an intensively farmed or urban landscape. Ecological studies on the Links courses in the dunes of Fingal have shown that they harbor many rare and legally protected flora & fauna species. This abundance of rare and protected species make the Links courses key elements of the Ecological Network. No ecological studies have been undertaken on golfcourses in the rural hinterland of Fingal, but a UK study on the their effects on local biodiversity found that they can enhance the diversity of birds, beetles and bumblebees of an area by providing a greater variety of habitats than intensively managed agricultural areas in their surroundings (Tanner R. A. & A. C. Gange, 2004).

Vision

The vision for golf courses within the ecological network is that they will be much richer in wildlife then they are today. They will be managed to provide wildlife habitats, while preserving the aesthetics and golfing opportunities that the courses currently

provide. Golfcourses can have hay meadows full of wildflowers, ponds and wetlands with amphibians and dragonflies, pockets of mixed woodland and hedgerows for birds and bats.

Existing rare and legally protected species will be protected within the golfcourse. Invasive plant species such as Seabuckthorn will be removed from the golfcourses in the dunes where possible. The input of herbicide and pesticides shall be reduced from today's levels and biological control measures are mainly used to tackle pest & diseases. Turf and water management shall be adapted to reduce the requirement for watering and fertilizers. Importantly, golf courses will be recognized for their efforts to protect native wildlife.

Strategy

The County Council wishes to encourage golf course managers to protect, improve and expand natural habitats within their courses by developing management guidelines and ecological management plans for golf courses together with te management teams and members of the golf clubs. The golf courses owned and managed by Fingal County Council such as Elm Green in Blanchardstown and Corballis in Donabate shall be managed in accordance with best ecological practice to provide demonstration sites for other golf courses in Fingal. Where new or existing golf courses are developed or re-developed, the County Council will request the applicants to retain existing hedgerows, ponds, grasslands and wetlandss as much as possible and to provide new natural habitats such as outlined in Appendix XIIf. This will protect the existing wildlife on the site and would enhance the nature conservation role of the golf course within the ecological network.

8.3.4 NATURE DEVELOPMENT AREAS - PARKLAND AND OPEN SPACE

Fingal County Council manages and maintains approx 2000ha of parks and open space. Parkland in the ecological network mainly relates to regional parks that are not demesnes. It includes the Ward River Valley in Swords, Tolka River Valley Park in Dublin 15, the Millenium Park in Blanchardtown, Robswalls Park in Malahide and the Millenium Park in Baldoyle. All these parks are important havens for wildlife in the urban areas. They include large areas of natural habitats such as woodland, grassland and wetlands and the focus of the development of these parks is to protect and improve these habitats. The other smaller open spaces in the county are not included in the Ecological Network, but they are part of the overall Green Infrastructure of Fingal and the vision and strategy for parkland can therefore also apply to other open spaces.

Regional parks and local open spaces are important amenity resources for the local communities, but can also provide habitats for many native species of flora and fauna. Parks that originate as old demesnes or as agricultural land tend to have a higher diversity of plants and animals compared to green spaces set aside following urban development. While new open spaces are often considered to require manicured lawns, playing fields and some standard trees, there is a growing proportion of the community who appreciate a more natural setting with a rural feel. Some of the more recently established parks have taken this change into account and have been designed to cater for amenity use, while at the same time enhancing the wildlife value by maximising the number of habitat types.

Vision

The regional parks outside the demesnes and other open spaces will offer a lot more wildlife habitat than they currently do. The parks have a maximum diversity of natural habitats and more colour that will be pleasing to the eye, while also catering for a variety of recreational uses. The range of habitats that can be found in the parks include amenity grassland, wildflower meadows, copses of trees, single hedgerows, arable flower mixes, low maintenance herbaceous planting and water features. All these habitats will be developed taking into account maintenance constraints and anti-social activities.

The overall approach to managing the open spaces shall be modified to save money and provide more opportunities for wildlife, but not at the expense of the aesthetics or functionality of the park or open space. Some of the intensively maintained amenity grassland and species poor grassland shall be turned into wildflower meadows and cut once a year. Birds such as Skylark and Meadow pipit and many insects will benefit from these ranker grasslands. Where parkland and open space is located near the coast, shorter amenity grassland will be maintained as feeding sites for Brent Goose.

The use of livestock for maintaining the meadows within the larger parks shall be more common. Grazing would help to make grassland management more sustainable and to provide an additional visitor attraction. The wettest sites within the parks shall be set aside for ponds and other SUDS features to provide a habitat for amphibians.

The local community will play an active role in their local park or open space, either by providing ideas and suggestions at public consultation meetings or by being actively involved in the management and development of the area.

Strategy

Fingal County Council will assess the various regional parks and other open spaces for opportunities for habitat enhancement and habitat creation. The focus in the management strategies for these parks will be on the development of wildflower meadows, copses of trees, arable flower mixtures and low maintenance herbaceous planting schemes. Pond and other wetland features can be added to the wettest parts of the open spaces and/or where SUDS are required.

Public consultation with local communities will play an important role in the change of management of the parks and open spaces. This will ensure that local people can express their ideas and concerns for the parks in their locality and will keep them informed of upcoming developments.

Where park development or other infrastructural works are planned to take place in the regional parks by the County Council or third parties, the natural habitats of good ecological quality shall be avoided.

8.3.5 NATURE DEVELOPMENT AREAS - RESERVOIRS AND OPEN WATER BODIES

Standing open waterbodies come in a wide range of types and sizes. Almost all of the standing waters in Co. Dublin being usually reservoirs, quarry ponds, golf hazards or ornamental features owe their origins to human activity. The oldest are probably the farmland ponds for watering cattle, irrigating fields, duck shooting, supplying 'marl' (a traditional fertiliser) or providing water power for mills and threshing machines.

Ornamental ponds and curling ponds were also a popular addition to many estates in previous centuries, often doubling as a water supply in case of fire. While many former quarry and estate ponds have disappeared or are no longer maintained, those that remain make a valuable contribution to the maintenance of the diversity of aquatic life in the county.

Reservoirs such as at Toberburr, Knocksedan and Hynestown can be of considerable wildlife importance, particularly for breeding and wintering wildfowl and waders. In most water bodies the margins are the most important areas for wildlife. Fluctuations in water level along the margins create special inundation communities containing species such as Amphibious Bistort *(Persicaria amphibia)*, Redshank *(P. Maculosa)* and Water pepper *(P. hydropiper)*. Open waterbodies are also important for invertebrates such as dragonflies and diving beetles, amphibians and a wide range of aquatic plant species which prefer more sheltered waters than the lowland rivers such as Pondweeds and Duckweeds.

Vision

The existing reservoirs and ponds will be developed to their full ecological potential and old overgrown ponds and reservoirs will be restored where possible. The water quality will be improved where necessary and the margins of the waterbodies will be structurally varied. Reedbed and other tall fringing swamp, marshy grassland, bare ground, inundation areas & draw down zones and scrub and woodland will be surrounding the open water which will attract a great diversity of terrestrial and aquatic plants and animal species. Small rafts may be introduced in water bodies to provide safe resting and nesting sites for water birds.

Strategy

The primary action required is to undertake an ecological study of the reservoirs and large open water bodies to assess their ecological importance in Fingal and identify the measures required to improve these sites for wildlife. The County Council shall undertake the required habitat improvement works where the reservoir and the surrounding lands are in public ownership. Where the waterbody is located on private lands the County Council shall liase with the landowner to see what habitat improvement works could be carried out.

Where lands are developed that include standing waters or reservoirs the County Council will request the applicants to retain existing natural features as much as possible and enhance the water body and its surroundings for wildlife as outlined in Appendix XIIf.

8.3.6 NATURE DEVELOPMENT AREAS - QUARRIES (INCL SAND & GRAVEL PITS)

Quarries have tremendous scope for making positive contributions to biodiversity conservation. Quarries can be of importance for a wide variety of wildlife during the active extraction phase and after extraction has finished. Various habitats can be found in active and restored quarries such as wetlands, calcareous and neutral grasslands, rocky, sandy or gravelly cliff faces and small pockets of scrub and woodland. Many species are able to adapt to the quarry environment and associated human activity and take advantage of the temporary habitats that can result from the extraction processes. A variety of bird species breeds in quarries including Sand Martin, Ring Plover, Peregrine Falcon, Kestrel and Raven. South-facing banks provide nesting habitat for solitary bees and wasps. Sand and gravel pits often have a rich diversity of plants including many rarities such as Orchids and Helleborines. Ponds and other wetland features provide a suitable habitat for wetland birds, amphibians and Dragonflies. Quarries can also contribute to the protection of our geological heritage by uncovering and protected previously unknown or unrecorded geological features and exposures.

Vision

The vision for the quarries within the ecological network is that they will be managed to provide a wide range of habitats and species, without conflicting with quarry operations. Quarry operators will be fully aware of the wildlife on their site and are keen to manage the quarry for wildlife. The biodiversity benefits will be maximized both during the extraction operations and the restoration of the site. Natural habitats will be left in place as much as possible, particularly those that form linear connections that allow wildlife to disperse. These undisturbed habitats act as refuges for wildlife and will be the source of flora & fauna species for re-colonisation of the site once extraction is finished.

Strategy

To protect and enhance the biodiversity value of the quarries in Fingal, the County Council will request quarry operators to compile and implement a site specific Biodiversity Management Plan (BMP) for their quarry as part of the licensing process. The principal objective of a BMP is to provide the site manager with a clear understanding of how contributions to national and local biodiversity can be achieved through the management of the site and environmental awareness within the company.

The BMP audits the habitat and species present in and around the quarry, identifies local and national priority habitats and species, and provides a framework to maximise site biodiversity. The plan covers the entire lifespan of the quarry and manages habitats and species during the extraction phase and plan for restoration afterwards. The plan shall be subject to 3-5 year reviews to give it the flexibility to reflect changes in work practices and/or the appearance of new wildlife species on the site.

8.3.7 NATURE DEVELOPMENT AREAS - NEW WOODLAND

Fingal has never been a really wooded county, with much of the woodland resource cut away over the last thousand years. However, the National Forestry Strategy for Ireland aims to increase the woodland cover in Ireland from 10% to 17% by 2030. The expansion of the woodland cover in Ireland shall provide new habitats for woodland wildlife, provide new jobs and is also a key element of Irelands Climate Change Strategy. In Fingal, the woodland habitat currently covers approx. 500ha. The hedgerows in the County make up for another 1200ha, of "linear woodland" cover. Together they cover 1700ha or 3.7% of the County. The national forestry strategy aspires to increase the woodland coverage in Fingal to 7650ha by 2030.

The most effective way of protecting and developing our woodland resource is by expanding and connecting existing woodlands. This will create larger woodland units which allow existing woodland flora & fauna to expand their range, provide for sustainable amenity use causing less disturbance to wildlife and improves the logistics associated with wood production and harvesting. The two key areas proposed for extensive woodland development are located in the Liffey Valley (85ha) and the area surrounding the Ardgillan, Hampton and Milverton Demesnes (550ha).

The reason for selecting these areas for woodland expansion is because these woodlands are located in the close proximity to each other and they can be connected forming one large woodland. They are also situated close to a large population and can therefore provide valuable amenity space. The river corridors will provide further opportunities for woodland development. Alluvial woodland is an EU Annex I habitat that is associated with rivers and floodplains. Currently, it occurs only in very small pockets in the river valley parks and is rare elsewhere in Ireland. Alluvial woodland can be developed on the wet marginal lands along the rivers to provide stepping stones for wood-land flora & fauna.

Vision

By 2030 two new major woodlands totaling 635ha will be created in the County. These woodlands will be multi-functional, catering for nature conservation, timber and forestry production and recreational use. One is located between Skerries and Balbriggan and the other in the Liffey Valley connecting St. Catherines park with Luttrelstown and Knockmaroon demesnes. Native Oak, Ash, Hazel and Scots Pine will be the dominant species in these mixed woodlands. It will take at least 50 years or more before the newly planted woodlands will start resemble a mature woodland, with a semi-closed tree canopy, diverse shrub and herbaceous vegetation and plenty of dead wood. Mature standing dead trees, particularly in the original demesnes, will provide suitable nesting and resting sites for Pine Marten, Bats and various woodland bird species.

Many more smaller woodland copses of 2-4ha will be created in the wider countryside to provide stepping stones for woodland fauna to connect the various demesne woodlands in the county. These smaller woodlands will be located at strategic locations in the landscape (e.g. along river corridors and adjacent to existing woodlands) to provide the maximum ecological benefit.

Strategy

More detailed landscape masterplans are to be developed for the two proposed woodland sites at near Ardgillan and in the Liffey Valley. These plans will explore in more detail how to develop the woodlands and will address issues such as funding sources, species composition, community involvement, landowner consultation etc.

During the course of the plan, the county council shall seek more sites for woodland to increase the woodland coverage in Fingal. This search shall particularly focus on finding sites along our rivers suitable for alluvial woodland.

8.4 ECOLOGICAL CORRIDORS & STEPPING STONES

Ecological corridors are usually linear landscape features such as rivers, hedgerows, road verges that connect various nature conservation areas. These corridors can also comprise of a series of smaller landscape features such as small woodlands, scrub, grassland, pools and freshwater marshland. They are to be developed in such way that plants and animals can move from one nature conservation site to the other. (Please note that the terrestrial corridors with hedgerows and grasslands are included in the farmland nature development areas and are not described in this section).

The key corridors through Fingal are the rivers, their floodplains and the adjacent farm- or parkland. The general width of the river corridors is 30m on either side of the river. This width is based on the habitat range of the Otter, the top predator in the river habitat. The distance is wider where extensive floodplains occur along the river corridor as identified under the FEMFRAMS project and these areas are included in the corridor too.

This wider corridor allows many other typical species associated with rivers such as the Atlantic Salmon, Brown & Sea Trout, Brook, Sea & River Lamprey, Kingfisher and Dipper to thrive. Many of these species are internationally or nationally protected or endangered species and the robust river corridors provide an important breeding and feeding habitat for these species. By including the adjacent farm and parkland along the rivers within the corridors, these corridors act as linear distribution lines for terrestrial plants and animals too. This means that the corridors not only function as an aquatic/wetland corridor, but they also link important countryside areas rich in wildlife species.

The river corridors play an important role in flood attenuation & protection, erosion control and water quality improvement. Riperian habitat along the river can absorb a lot of nutrients from the adjacent farmland and will protect the riverbanks from erosion which will help to achieve the targets of the EU Water Framework Directive, while at the same time providing a suitable habitat for river related wildlife species. The floodplains with the wet grassland, scrub and marshland can hold water during heavy rainfall, thereby avoiding flooding in more sensitive urban areas.

Vision

The river corridors in the future shall comprise of a natural meandering river or stream with a mosaic of typical riverside and floodplain habitats on either side of the river such as marshland, alluvial woodland, scrub and wet grassland with pools. Stepping stones of approx. 3-5ha comprising of alluvial woodland, marshland and wet grassland with ponds shall be developed at 2-5km intervals to provide resting and feeding sites for target species such as Otter, Kingfisher and Common Frog.

Straightened river channels will be restored to meandering courses and the water quality will be improved to Good Ecological Status. Where the river is cut off from the adjacent floodplain, the connection will be restored to increase the floodplain capacity of the catchment. The corridors will be free of obstacles such as impassible culverts, weirs or bridges to allow for free movement of wildlife through the countryside and urban areas. The ecological corridors within the urban areas shall also provide space for amenity & educational use and flood attenuation. Where access is provided for amenity purposes, it will be planned in such a manner that the ecological qualities are not impacted upon or improved where possible.

Strategy

The first priority for the development of the ecological corridors is to undertake detailed ecological studies of the Corduff, Ballyboughal, Broadmeadow, Ward, Sluice and Mayne rivers. These studies shall identify the current habitat quality, potential stepping stone sites and the range of measures required to improve the river habitat, the corridor function and water quality of

these rivers. The actual improvement works to the river and the corridor is likely to take several decades and is tied in closely with the implementation of the Eastern River Basin Management Plan.

Lands within or adjacent to the corridors in ownership of the County Council shall be maintained and developed to provide a mosaic of typical river valley habitats for all target species associated with the ecological corridors. Fingal County Council together with other nature conservation organisations will seek to lease or acquire the most strategic nature conservation lands within the corridors and work with private landowners to develop and manage the remainder of the lands within the ecological corridors.

The Tolka River Valley, Royal Canal and the Liffey Valley shall be developed as a multi-functional amenity corridor, forming a "GREEN Z" in the Dublin 15 area. Similarly the Ward River Valley and the lower reaches of the Broadmeadow river will be developed for nature conservation and amenity purposes for the community in Swords. Detailed masterplans are to be prepared within the plan period for each of these linear parks. The development of the ecological corridors in the countryside shall focus on flood protection, sustainable farming practices and nature conservation.

A 30m wide bufferzone on either side of the river will extend the length of the river corridor of the Liffey, Tolka, Pinkeen, Mayne, Sluice, Ward, Broadmeadow, Ballyboghil, Corduff, Matt and the Delvin. Previously impacted areas within this setback zone will be restored to a natural state where possible. New development and land-uses that may have a lasting negative impact on the corridor function and movement of flora & fauna shall be located outside the ecological corridors.

Chapter 9

BIODIVERSITY ACTIONS

The 100 actions in this plan have been drawn up in consultation with the Biodiversity Advisory group (See Appendix I) and were mostly based upon recommendations made during ecological studies carried out to date. The actions in this plan are centred around three topics;

Delivery of the Ecological Network Across Fingal
About half of the actions relate to the management of individual sites that collectively make up the Fingal Ecological Network.

Research & Monitoring
All the ecological data collected over the last years is to be stored and made accessible via a Local Biological Record Centre. New studies are to be undertaken to gather new data on important sites, flora and fauna, particularly in the countryside and to look at further opportunities for wildlife enhancement on sites included in the ecological network.

Raising Awareness
Educating people of all ages and backgrounds about biodiversity in Fingal and the essential role it plays in our society and economy is fundamental to the success of the Biodiversity Plan.

Most actions have one or more target habitat or species associated with them. These target habitats and species are locally, nationally or internationally rare and protected or serve as indicator species for the quality of a particular habitat. When biodiversity conservation works are carried out at particular sites, the habitat requirements of the target species will determine what habitat improvement measures are required. Most actions have more than one target species to ensure multiple wildlife benefits, greater diversity and better value for money.

Appendix X shows the most of the actions in relation to the ecological network. Please note that these are the site specific actions only. The generic actions have not been included for clarity reasons.

DEVELOPING THE ECOLOGICAL NETWORK:

Please note: *Numbers with # symbol are priority actions for 2010-2015.*

No.	Action	Objective	Targets Species & Habitats	Partner Organisations
1#	Implement masterplan for Rogerstown Inner Estuary and develop and implement masterplan for Rogerstown Outer Estuary.	To develop and implement the masterplan for the Rogerstown Estuary and surrounding lands with the aim of protecting and enhancing the nature conservation and recreational values of this area.	Pale-bellied Brent Goose, Little Egret, Little Tern, Kingfisher, Black-tailed Godwit, Curlew, Lapwing, Redshank, Ringed Plover, Short-eared Owl, Barn Owl, Skylark, Snipe, Yellow-hammer, Tree Sparrow, Linnet, Otter, Bats, Common Frog, Meadow Barley, Green-winged Orchid, Hairy Violet and Rough Poppy.	FCC, Birdwatch, CVF, Coastwatch, NPWS, DNFC, local community groups and landowners.
2#	Undertake bird conservation project at the tip of Portrane.	To re-instate Little Tern Colony at the Burrow, Portrane.	Little Tern and Ringed Plover.	FCC, Birdwatch, CV and local community groups.
3#	Establish areas for bait digging and no-baitdigging areas within the estuaries together with key stakeholders.	To protect the key roosting and feeding grounds from disturbance by bait diggers.	All estuarine birds.	FCC, Birdwatch, NPWS and local stakeholders.
4#	Gradually remove Seabuckthorn from dunes systems at Rush, Portrane and Portmarnock.	80% of current Seabuckthorn cover in Fingal dunes removed.	Embryonic Shifting dunes, Marram Dunes, Fixed Dunes, Skylark, Common Lizard, Small Blue & Grayling, Colletes floralis, Andrena barbilabris, Osmia aurulenta, Lesser Centaury, Hairy Violet, Spring Vetch, Green-winged Orchid and Sea Bindweed.	FCC, NPWS, CVF and golf course owners.
5#	Get landowner agreement or acquire lands at the Burrow, Portrane for Green-winged orchid.	Protect key Green winged Orchid site at the Burrow, Portrane.	Green-winged Orchid.	FCC and landowner.
6#	Manage lands at the Burrow, Portrane with landowner for Papaver hybridum.	Re-establish a population of Papaver hybridum at the Burrow, Portrane.	Rough Poppy and other rare arable weeds.	FCC, DNFC and landowner.
7#	Manage lands at the tip of the Burrow, Portrane for Skylark, wildfowl & waders.	Develop and enhance roosting site for Brent Goose and other wildfowl and waders and breeding habitat for Skylark.	Pale-bellied Brent Goose, Black-tailed Godwit, Redshank, Grey Plover, Shelduck, Knot, Dunlin, Bar-tailed Godwit, Lapwing, Curlew and Oystercatcher.	FCC, Birdwatch and landowner.
8#	Carry out habitat improvement works for Small Blue and bees on 3 sites in Portrane.	To enhance the dune habitat at specific sites in Portrane for Small Blue and other invertebrates.	Small Blue, Bombus Lapidarius, Bombus Muscorum, Andrena Barbilabris and Andrena Nigroaenea.	FCC, DNFC and landowner.
9#	Prepare ecological management plan for the Corballis golf club and other links courses in the dunes in Fingal.	To develop an ecological management plan the golf courses and develop the Corballis golf course as a demonstration site for best practice management of golf courses in dunes.	Hairy Violet, Lesser Centaury, Green-winged Orchid, Bee Orchid, Green Flowered Helle-borine, Spring Vetch, Sea Bindweed, Brackish Water-crowfoot, Skylark, Shelduck, Common Lizard, Small Blue, Dark Green Fritillary and Grayling, Colletes Floralis, Colletes Similis, Osmia Aurulenta, Andrena Barbilabris, Bombus Lapidarius and B. Muscorum.	FCC, DNFC and golf course owners.
10#	Close off all beaches in Fingal to vehicle traffic.	To stop compaction of beach habitat to facilitate develop-ment of embryo dunes and slow down rate of dune erosion.	Embryonic Shifting dunes, Marram Dunes and annual vegetation of drift lines.	FCC.

DEVELOPING THE ECOLOGICAL NETWORK (CONT.):

Please note: *Numbers with # symbol are priority actions for 2010-2015.*

No.	Action	Objective	Targets Species & Habitats	Partner Organisations
11#	Introduce grazing management and restore wetland at Liffey floodplain at St. Catherines park to serve as demonstration site for floodplain management along the Liffey.	To establish natural grazing regime and restore old stream on Liffey Valley floodplain.	Alluvial Woodland, Green Figwort, Otter, Common Frog, Common Pipistrelle, Soprano Pipistrelle, Leislers Bat, Natterer's Bat, Wiskered Bat, Brown Long-eared Bat and Daubentons Bat.	FCC, CVF and landowners.
12#	Control alien/invasive species in Liffey Valley woodlands, particularly at St. Catherines, Luttrellstown and Knock-maroon Demesnes.	To reduce presence of invasive species by at least 80%.	Cherry Laurel, Rhododendron Ponticum, Silver Fir Seedlings, Spurge Laurel, Himalayan Honeysuckle, Bamboo and Snowberry.	FCC, CVF and landowners.
13#	Upgrade fish passage at the weir near the Wren's Nest.	To improve this structure for the migration of Salmonids along the river Liffey.	Atlantic Salmon, Lamprey and Brown Trout.	FCC, ERFB and OPW.
14#	Seek to establish a wetland and amenity corridor between the Royal Canal and the Tolka River and the Liffey Valley.	To develop a network of wet-land habitats and pathways linking the Liffey Valley with the Royal Canal and Tolka Valley.	Otter, Common Frog, Kingfisher, Green Figwort and Bats.	FCC.
15#	Prepare and implement master-plan for the Tolka Valley Park.	To develop a masterplan that will combine recreational and nature conservation require-ments in such a way, that allows both functions to be developed to their full potential.	Orchid Rich Dry Calcareous Grassland, Alluvial Woodland, Badger, Otter, Common Frog, Kingfisher, Dipper, Soprano and Common Pipistrelle, Leisler's Bat, Daubenton's Bat, Brown Long-eared Bat, River & Brook Lamprey, Brown Trout and Bee Orchid.	FCC and local community groups.
16#	Prepare and implement a management plan for the Bog of the Ring pNHA and surrounding area.	To restore the wetland and associated flora and fauna community of the Bog of the Ring wetland.	Otter, Common Frog, Snipe, Grasshopper Warbler and Water Rail.	FCC, DNFC, Birdwatch, NPWS and local landowners.
17#	Develop Barn Owl Conservation project with local farmers in Fingal.	Establish whereabouts of Barn Owl in the County and protect existing population by means of nest box scheme.	Barn Owl.	Birdwatch and FCC.
18#	Control and Remove invasive plant species from Howth Head.	To remove at least 80% of the invasive plant species from all the islands.	Hottentot Fig, Rhododendron Ponticum and others.	FCC, CVF and Howth Pathways.
19#	Develop detailed management plan for the Atlantic Heathland on Howth Head.	To protect and manage the current extent of heath vegetation.	European Dry Heath, Colletes Succinctus, Andrena Fuscipes, Bombus Jonellus and Nomada Rufipes.	FCC, DNFC and NPWS.
20#	Develop and implement Nature Conservation Plan for Howth Head SAAO.	To prepare and implement a plan of action for important nature conservation sites on Howth Head.	Curved Hard-grass, Wild Clary and Dioecious Sedge.	FCC and DNFC.
21#	Develop ecological management plan for the public Regional Parks in Fingal.	To enhance the nature con-servation value of the Fingal parks.	Target species dependant on particular site.	FCC, DNFC, Birdwatch, BCI and ERFB.
22#	Maintain the verge along the coast Road between Portmar-nock and Malahide as a wild-flower meadow.	To continue the wildflower management project along the coast road.	Orchid Rich Calcareous Grassland and Bee Orchid.	FCC, CVF and local community groups.

DEVELOPING THE ECOLOGICAL NETWORK (CONT.):

No.	Action	Objective	Targets Species & Habitats	Partner Organisations
23	Remove invasive plant species from the Islands off the Fingal coast.	To remove at least 80% of the invasive plant species from all the islands.	Lyme Grass, Common Cordgrass, White Stonecrop and Hottentot Fig.	FCC, CVF, DNFC and NPWS.
24	Lobby the Department of the Environment to amend the statutory instruments for the protection of SPA's (the Skerries Islands and Irelands Eye) to make non-commercial and commercial harvesting of shellfish a notifiable action.	To protect the breeding sea-bird on the islands from disturbance and to protect food supply for seabirds from shellfish harvesting.	Roseate Tern, Common Tern, Arctic Tern, Manx Shearwater, Eider, Cormorant, Black Guillemot, Great Black-backed Gull, Herring Gull, Lesser Black-backed Gull, Common Gull, Guillemot, Gannet, Kittiwake, Puffin, Razorbill and Shag.	FCC, Birdwatch and NPWS.
25	Lobby the Department of the Environment to amend the statutory instruments for the protection of estuarine SPA's and SAC's to make non-commercial and commercial harvesting of shellfish a notifiable action.	To protect the migratory birds in the estuaries from regular disturbance and to protect food supply for certain wader species from shellfish harvesting.	Dunlin, Little Egret, Golden Plover, Pale-bellied Brent Goose, Greylag Goose, Bar-tailed Godwit, Black-tailed Godwit, Pochard, Goldeneye, Pintail, Shoveler, Teal, Wigeon, Grey Plover, Knot, Curlew, Greenshank, Redshank, Shelduck, Lapwing, Snipe and Red-breasted Merganser.	FCC, Birdwatch and NPWS.
26	Prepare and implement masterplan for Malahide Estuary SAC and SPA.	To develop and implement the masterplan for the Malahide Estuary and surrounding lands with the aim of protecting and enhancing the nature conservation and recreational values of this area.	Pale-bellied Brent Goose, Little Egret, Golden Plover, Black-tailed Godwit, Curlew, Kingfisher, Lapwing, Redshank, Short-eared Owl, Skylark, Snipe, Yellowhammer, Tree Sparrow, Otter, Soprano and Common Pipistrelle Bats, Common Frog and Nomada Goodeniana.	FCC, Birdwatch, CVF, Coastwatch, NPWS, DNFC, local community groups and landowners.
27	Develop boardwalk as part of Fingal Coastal Walkway at Cave's Marsh in Malahide subject to Appropriate Assessment.	Construct boardwalk to control disturbance caused by pedestrians to important bird roosting site.	Light-bellied Brent Goose, Little Egret, Kingfisher, Snipe, Bar-tailed Godwit, Black-tailed Godwit and Saltmarsh.	FCC.
28	Re-instate and enhance the Meadow Barley population at the Rogerstown Estuary.	Restore Meadow Barley population at damaged site and enhance at existing site in Turvey.	Meadow Barley.	FCC, NPWS and DNFC.
29	Develop artificial roosting/ nesting platforms in the Fingal estuaries.	To develop small floating platforms in the estuaries that will serve as secure nesting sites for seabirds.	Common Tern and Arctic Tern.	FCC, Birdwatch and NPWS.
30	Carry out annual beach clean up.	At least 3 annual clean ups organised of entire Fingal coastline.	N/A.	FCC, CVF, NPWS and local community groups.
31	Liaise with landowners to explore possibilities of introducing grazing management in Liffey floodplain at Strawberry beds.	To establish natural grazing regime on Liffey Valley flood-plain.	Alluvial Woodland, Wet Grassland, Fresh-water Marsh, Ponds, Otter, Badger, Common Frog, Common Newt, Kingfisher, Dipper, Green Figwort and Various Bat Species.	FCC and landowners.
32	Seek to expand and connect existing woodlands in the Liffey Valley through new policy initiatives.	To expand and protect the old woodlands in the Liffey Valley by planting new woodland and developing woodland bufferzones.	Hairy St. Johns Wort, Yellow Archangel, Common Toothwort, Common Pipistrelle, Soprano Pipistrelle, Leislers Bat, Natterer's Bat, Wiskered bat, Brown Long-eared bat, Red Squirrel, Badger, Pine Marten and Spotted Fycatcher.	FCC, CVF and landowners.

DEVELOPING THE ECOLOGICAL NETWORK (CONT.):

No.	Action	Objective	Targets Species & Habitats	Partner Organisations
33	Seek to establish two wetland corridors between the river Liffey and the Royal Canal at St. Catherines park and Westmanstown.	To develop a corridor of wet-land habitats linking the Liffey Valley with the Royal Canal.	Alluvial Woodland, Otter, Common Frog, Kingfisher, Dipper, Green Figwort and Daubenton's Bat.	FCC and landowners.
34	Protect and enhance the four calcareous grassland sites in the Liffey Valley.	To manage these calcareous grassland sites to protect existing flora.	Calcareous Grassland with Orchid Species such as Pyramidal and Common Spotted Orchid.	FCC and landowners.
35	Provide directional and interpretative signage along the Royal Canal.	To develop a marked route with interpretative signage on the wildlife of the Royal Canal.	N/A.	FCC and Waterways Ireland.
36	Manage linear calcareous grassland strip along the Canal at Clonsilla.	To restore this calcareous grassland to a flower-rich meadow.	Calcareous Grassland with Orchid Species such as Pyramidal and Common Spotted Orchid.	FCC and landowners.
37	Prepare and implement masterplan for the Ward River Valley Park.	To develop a masterplan that will combine recreational and nature conservation require-ments in such a way, that allows both functions to be developed to their full potential.	Alluvial Woodland, Calcareous Grassland, Badger, Otter, Soprano & Common Pipistrelle, Leisler's Bat, Daubenton's Bat, Brown Long-eared Bat, Common Frog, Kingfisher, Dipper, Atlantic Salmon and Brown Trout.	FCC and local community groups.
38	Implement habitat improvement recommendations made in Delvin ecological study.	To restore the habitat quality of the Delvin river.	Otter, Soprano and Common Pipistrelle, Leisler's Bat, Daubenton's Bat, Kingfisher, Dipper, Common Frog and Brown Trout.	FCC and landowners.
39	Seek to establish a wetland corridor between the Tolka and Ward rivers via the Pinkeen stream.	To develop a network of wetland habitats and pathways linking the Tolka River Valley and the Ward River Valley.	Alluvial Woodland, Otter, Common Frog, Kingfisher, Dipper and Bats.	FCC, CVF and landowners.
40	Develop wildlife corridors along the rivers in Fingal.	To develop good quality ecological corridors along the Fingal rivers of typical habitats associated with rivers e.g. wet grasslands, marsh, haymeadows, alluvial woodland etc.	Alluvial Woodland, Otter, Common Frog, Kingfisher, Dipper, Daubentons Bat, Atlantic Salmon and Brown Trout.	FCC and landowners.
41	Control and remove invasive species along the Fingal rivers on a catchment basis.	To eradicate at least 80% of invasive species by 2015 along our waterways.	Himalayan Balsam, Japanese Knotweed and Giant Hogweed.	FCC, CVF and landowners.
42	Prepare and implement masterplan for the Linear Park along the Mayne River together with Dublin City Council.	To develop a masterplan that will combine recreational and nature conservation requirements in such a way, that allows both functions to be developed to their full potential.	Alluvial Woodland, Calcareous Grassland, Otter, Soprano and Common Pipistrelle, Leisler's Bat, Daubenton's Bat, Brown Long-eared Bat, Common Frog, Kingfisher, Dipper and Brown Trout.	FCC, DCC and local community groups.
43	Seek to establish wetland corridor between Knock Lake, Bog of the Ring, Haynestown reservoir and Delvin River.	To develop a network of wetland habitats linking Knock Lake with the Delvin River.	Alluvial Woodland, Otter, Common Frog, Common Newt, Kingfisher, Dipper, Little Grebe, Coot, Tufted Duck, Water Rail, Grasshopper Warbler and Bats.	FCC, CVF and landowners.

DEVELOPING THE ECOLOGICAL NETWORK (CONT.):

No.	Action	Objective	Targets Species & Habitats	Partner Organisations
44	Manage lands at the Sluice River Marsh for wildlife.	To protect and manage the Sluice River Marsh NHA and its surrounding lands for protected plant species and migratory birds.	Meadow Barley, Curved Hard-grass, Brackish Water-crowfoot, Stock Dove, Skylark, Grasshopper Warbler, Snipe, Water Rail, Pale-bellied Brent Goose, Otter, Soprano and Common Pipistrelle and Leisler's Bat.	FCC and landowner.
45	Develop management plans for 4 water reservoirs and Knock Lake.	To enhance the ecological value of the water reservoirs and Knock Lake NHA.	Otter, Little Grebe, Great Crested Grebe, Pochard, Coot, Tufted Duck and Common Frog.	FCC.
46	Develop Grey Patridge Conservation project with local farmers in Fingal.	Undertake demonstration project to establish a population of Grey partridge in Fingal.	Yellowhammer, Stock Dove, Linnet, Tree Sparrow, Corncrake, Grey Partridge, Lapwing, Snipe, Irish Hare, Bats, Badger, Andrena and Nomada Ground Nesting Bee Species.	FCC, local gun clubs, NPWS, CVF and local farmers.
47	Carry out woodland enhancement works (including nestbox schemes) in Demesnes such as Ardgillan, Newbridge, Malahide, Santry and Hampton Demesne.	To enhance the nature conservation value of the woodlands in Fingal.	Hairy St. Johns Wort, Yellow Archangel, Common Toothwort, Common Pipistrelle, Soprano Pipistrelle, Leislers Bat, Natterer's Bat, Wiskered Bat, Brown Long-eared Bat, Red Squirrel, Badger, Pine Marten and Spotted Flycatcher.	FCC and CVF.
48	Seek to expand existing woodlands and develop woodland corridors between the various Demesne woodlands in Fingal.	To link the existing woodlands at Hampton, Ardgillan and Milverton forming one large woodland habitat.	Hairy St. Johns Wort, Yellow Archangel, Common Toothwort, Common and Soprano Pipistrelle, Leislers Bat, Natterer's Bat, Wiskered Bat, Brown Long-eared Bat, Red Squirrel, Badger, Pine Marten and Spotted Flycatcher.	FCC and landowners.
49	Develop Town Biodiversity plans for Howth, Malahide, Lusk, Rush and Blanchardstown.	To develop a nature conservation plan for each town, that will focus the efforts of the county Council and the Tidy Towns committee regarding nature conservation.	Wildflower Meadows, Ponds, Hedgerows, Flower Rich Herbaceous Planting and Associated Flora and Fauna Species.	FCC and Tidy Towns committees.
50	Implement Town Biodiversity plans for Swords, Donabate and Skerries.	To implement the nature conservation plan for each town thereby reducing energy input and benefiting wildlife.	Wildflower Meadows, Ponds, Hedgerows, Flower Rich Herbaceous Planting and Associated Flora and Fauna Species.	FCC and Tidy Towns committees.
51	Adapt where feasible, the management of Graveyards and churchgrounds in Fingal for Biodiversity.	To assess the existing management practices and see where a more wildlife friendly management regime can be implemented.	Wildflowers and Invertebrates.	FCC, CVF, local churches and local community groups.
52	Liaise with quarry owners to protect and enhance wildlife habitats within the quarry sites.	To protect and restore remaining pockets of natural vegetation.	Orchid Rich Calcareous Grassland, Peregrine Falcon, Sand Martin, Orchid Species, Smooth Newt and Common Frog.	FCC and quarry owners.
53	Work together with local businesses to enhance company grounds for Biodiversity.	To encourage the business sector to manage their land holdings for Wildlife.	Wildflowers, Ponds, Hedgerows and Associated Flora and Fauna Species.	FCC and local businesses.
54	Set up a small-grant support scheme for habitat improvement works in the countryside.	To provide small amounts of funding to private landowners to carry out habitat improvement or creation works for target flora and fauna species on lands located within the Ecological network. REPS farmers to be excluded.	Yellowhammer, Stock Dove, Linnet, Tree Sparrow, Corncrake, Grey Partridge, Lapwing, Snipe, Barn Owl, Bats, Badger, Common Frog and Common Newt.	FCC.

RESEARCH & MONITORING:

Please note: *Numbers with # symbol are priority actions for 2010-2015.*

No.	Action	Objective	Targets Species & Habitats	Partner Organisations
55#	Develop a Fingal Biological Record Centre.	To set up and run a Biological Record Centre for County Fingal that can be accessed by County Council staff and the general public.	N/A.	FCC, Birdwatch, DNFC, BCI, CVF, IWDG, Seal Sanctuary, NPWS, ERFB and CFB.
56#	Establish a monitoring programme on coastal dynamics along the Fingal Coast.	To gain a better understanding of the natural sedimentation and erosion processes that occur along the Fingal coastline.	Dunes, Beaches and Marine Habitats.	FCC, local community groups and specialists.
57#	Review the beach management practices of Fingal County Council.	To assess impact of beach cleaning operations on the ecology of the beach and dunes habitats and associated flora and fauna species and amend if necessary.	Embryonic Shifting Dunes, Marram Dunes, Annual Vegetation of Drift Lines, Ringed Plover, Colletes Floralis and Osmia Aurulenta (Dune Bee Species).	FCC, DNFC and NPWS.
58#	Carry out fisheries survey of Malahide and Rogerstown estuaries every 3 years and make results available to the public.	To find out which fish species can be found in the Baldoyle estuary.	Sea Bass, Mullet, Flounder and Others.	CFB.
59#	Carry out detailed bat survey of Baldoyle, Malahide and Rogerstown Estuaries.	To find out which bat species can be found in the 3 estuaries.	Leisler's Bat, Soprano and Common Pipistrelle and Other Bat Species.	BCI and FCC.
60#	Carry out an ecological study and habitat assessment of the Ward, Broadmeadow, Corduff, Ballyboughal, Mayne, Sluice and Matt rivers.	To find out what flora and fauna species can be found along our rivers, what the conservation status is of our rivers and what works are required to restore the rivers to their full health.	Otter, Common Frog, Kingfisher, Dipper, Bats, Atlantic Salmon, Lamprey and Brown Trout.	FCC and ERFB.
61#	Carry out site inventory of lesser known ecological sites focusing on rare and protected species, wetlands, woodlands and unimproved grassland.	Locate important flora sites in Fingal and assess their potential for restoration.	All Flora Species Listed in the Flora Protection Order, Rare Data Book and Other Nationally Rare Plant Species.	FCC and DNFC.
62#	Carry out ecological survey of the wet grassland at St. Ita's in Portrane.	To find out what flora and fauna species can be found here and to assess the potential for habitat improvement works for species associated with wet grassland.	Snipe, Redshank, Lapwing and Black-tailed Godwit.	FCC, DNFC, Birdwatch and Donabate Tidy Towns.
63	Carry out impact study of commercial fishing, boating (incl Jet Ski's, sailing boats, powerboats) and razorshell fishing on the ecology of the inshore area and seabird populations.	To assess what impact commercial and recreational operations have on the marine habitats and associated flora and fauna species of the inshore area.	Marine Environment and Associated Species.	FCC.

RESEARCH & MONITORING (CONT.):

No.	Action	Objective	Targets Species & Habitats	Partner Organisations
64	Carry out a feasibility on the development of a coastal nature reserve linking all designated coastal sites off the coast of Fingal.	To assess the possiblities of a coastal park linking all designated sites along the coast for nature conservation, amenity and commercial fishing purposes.	All Designated Coastal Sites and Marine Species.	FCC, Birdwatch, IWDG, Seal Sanctuary and NPWS.
65	Carry out impact study of shooting in the Baldoyle Estuary and Malahide Estuary.	To assess the disturbance impact of shooting on birdlife in the estuaries.	Dunlin, Little Egret, Golden Plover, Pale-bellied Brent Goose, Greylag Goose, Bar-tailed Godwit, Black-tailed Godwit, Pintail, Shoveler, Teal, Wigeon, Grey plover, Knot, Curlew, Greenshank, Redshank, Shelduck, Lapwing and Snipe.	FCC, Birdwatch, NPWS and local gun clubs.
66	Carry out feasibility study on the establishment of a network of designated waterkeepers.	To find out if it is possible to set up a network of water keepers to keep an eye on coastal waters.	N/A.	FCC, ERFB and CFB.
67	Carry out feasibility study for bird conservation projects at the tips of the Donabate and Portmarnock peninsulas.	To assess the potential for the re-instatement of a Little Tern and Ringed Plover colony at Donabate and Portmarnock.	Little Tern and Ringed Plover.	FCC, Birdwatch and golf clubs.
68	Carry out groundwater assess-ment (annual water levels and chemistry) at the Island and Portmarnock golfcourses in dunes, with particular focus on dune slacks.	Ground water assessment carried out to establish status of dune slacks and potential for restoration of dune slacks.	Humid Dune Slacks.	FCC and golf course owners.
69	Carry out hydrological study of petrifying springs and their surroundings.	To establish water quality status of these springs and protect these springs from any hydrological changes in the area.	Petrifying Springs.	FCC.
70	Carry out feasiblity study to turn wet grasslands along the Delvin at Garristown into suitable habitat for breeding waders.	To find out if it is possible to restore some of the wet grass-lands along the Delvin river as a habitat for breeding waders.	Snipe, Redshank, Lapwing and Black-tailed Godwit.	FCC and Birdwatch.
71	Carry out flora study of the Skerries Islands, Rockabill and Ireland's Eye.	To find out what flora species can be found on the islands thereby gaining a better understanding of the ecology of these designated islands.	Island Flora.	DNFC.
72	Carry out invertebrates study of the Skerries Islands, Rockabill and Ireland's Eye.	To find out what invertebrates live on the islands thereby gaining a better understanding of the ecology of these designated islands.	Island Invertebrates.	DNFC.
73	Carry out ecological study of Lambay Island similar to Praeger study in 1905/1906.	To find out what flora and fauna species can be found on Lambay Island and to see if and what changes have occurred since the Praeger study.	Island Flora and Fauna.	Botanic Gardens and DNFC.

RESEARCH & MONITORING (CONT.):

No.	Action	Objective	Targets Species & Habitats	Partner Organisations
74	Re-appraise work of Colgan and others regarding marine molluscs along the Fingal coast.	To find out what marine molluscs can be found along the coast and see if and what changes have occurred since the Colgan study.	Marine Molluscs.	DNFC and FCC.
75	Carry out detailed study on winter bird use of lands adjacent to the three estuaries.	Identify and protect roosting and feeding sites for wintering wildfowl and waders.	Light-bellied Brent Goose, Greylag Goose, Snipe, Black-tailed Godwit, Curlew, Redshank and Golden Plover.	FCC and Birdwatch.
76	Assess lands adjacent to estuaries for breeding potential for Redshank, Snipe and Lapwing.	Identify and protect potential breeding sites for Redshank, Snipe and Lapwing.	Breeding Waders: Redshank, Snipe and Lapwing.	FCC and Birdwatch.
77	Carry out ecological study of the large open water bodies and reservoirs in Fingal.	To find out what flora & fauna species can be found in the large standing water bodies.	Otter, Little Grebe, Coot, Tufted Duck and Common Frog.	FCC.
78	Monitor presence of Cuckoo Bee.	To find out if and where the Cuckoo Bee occurs in the vicinity of the estuaries.	Andrea Nigroaenea and Nomada Goodeniana.	DNFC, FCC.
79	Carry out invertebrate assessment of grassland at Turvey, Donabate.	To find out what invertebrate species can be found in Turvey as part of a long-term monitoring programme.	Ground & Water Beetles, Spiders, Butterflies and Bees.	DNFC, FCC.
80	Carry out Countryside Breeding Bird survey.	To locate the most important sites and potentially important sites for birds in the countryside.	Yellowhammer, Stock Dove, Linnet, Tree Sparrow, Corncrake, Redshank, Snipe, Lapwing, Barn Owl and Skylark.	FCC and Birdwatch.
81	Carry out Countryside Mammal survey.	To locate the most important sites and potentially important sites for mammals in the countryside.	All Bats, Otter, Badger, Irish Hare, Red Squirrel and Pine Marten.	FCC, BCI.
82	Carry out Countryside Invertebrate survey.	To locate the most important sites and potentially important sites for invertebrates in the countryside.	Butterflies and Bees.	FCC and DNFC.
83	Carry out Fungi survey in Luttrelstown, Knockmaroon, Santry and Malahide Demesnes.	To locate the most important locations for fungi in these woodland.	Fungi.	FCC, DNFC and Botanic Gardens.
84	Expand and regularly monitor the network of Permanent quadrants for flora.	To assess long term impacts of management operations and climate change.	Protected and Rare Plant Species.	FCC and DNFC.
85	Establish a long-term monitoring programme for bentic flora and fauna together with NGO's, local communities and universities.	To find out what marine bentic flora and fauna can be found along the Fingal coast and how these communities are developing and changing.	Marine Environment and Intertidal Zone.	FCC, UCC and Coastwatch.
86	Carry out feasibility study on local marketing of the produce from lands included in the ecological network.	To develop a regional market between landscape managers and consumers for local wood, fruit & veg etc.	Woodland and Hedgerows.	FCC.

RAISING AWARENESS:

Please note: *Numbers with # symbol are priority actions for 2010-2015.*

No.	Action	Objective	Targets Species & Habitats	Partner Organisations
87#	Develop a Fingal Biodiversity Website.	Develop a website to promote latest research, projects volunteering work and up-coming events.	N/A.	FCC.
88#	Develop a quarterly Fingal Biodiversity newsletter.	Develop a quarterly Biodiversity newsletter to promote latest research, projects volunteering work and upcoming events.	N/A.	FCC.
89#	Develop a demonstration farm for nature conservation e.g. hedgerow management, ponds, field margins, hay meadows, nest boxes etc.	To set up, a demonstration farm with a local farmer that will showcase best practice regarding hedgerow management, ponds, field margins etc.	Yellowhammer, Linnet, Tree Sparrow, Corncrake, Grey Partridge, Lapwing, Snipe, Barn Owl, Bats, Badger, Irish Hare, Andrena and Nomada Ground Nesting Bee Species.	FCC, Birdwatch, DNFC, BCI, Hedgelaying Association, CVF and local farmers.
90#	Provide information and training on good practice in the establishment and manage-ment of hedgerows to farmers, land-owners, contractors and County Council staff.	To set up a training scheme on hedgerow management to showcase best practice in order to halt the neglect of many hedgerows in Fingal.	Yellowhammer, Stock Dove, Linnet, Tree Sparrow, Bats, Badger and Pine Marten.	FCC, Ballyboughal Hedgerow Society, Hedgelaying Association and CVF.
91#	Promote the planting of new hedges on land in public ownership and privately owned farmland.	To expand and restore the hedgerow network in Fingal.	Yellowhammer, Linnet, Tree Sparrow, Bats and Badger.	FCC.
92	Develop ecological management guidelines for golf courses and example sites at public golf courses.	To enhance the nature conser-vation value of the golf courses within the Ecological network.	Target Species Dependant on Site.	FCC and golf course owners.
93	Develop a promotional programme on what people can do for wildlife in their garden.	Set up a demonstration garden in one of Fingal Co. Co. demesnes, run a structured set of work-shops and develop promotional leaflets on gardening for biodiversity e.g. ponds, wildflowers, hedgerows.	Starling, Swallow, Swift, House Martin, House Sparrow, Common Frog, Common Newt, Bees and Butterflies.	FCC.
94	Develop information leaflet/ awareness campaign for leisure crafts users regarding the effects of disturbance to breeding seabird colonies and required distances.	To protect breeding seabird colonies from disturbance.	Roseate Tern, Common Tern, Arctic Tern, Eider, Cormorant, Black Guillemot, Great Black-backed Gull, Herring Gull, Lesser Black-backed Gull, Common Gull, Guillemot, Black Guillemot, Gannet, Kittiwake, Puffin, Razorbill and Shag.	FCC, Birdwatch and NPWS.
95	Develop an awareness campaign asking people to stop dumping general, garden and farm waste on and over cliff tops.	To protect the rare flora along the top of the cliffs and halt the spread of garden invasives.	Sedimentary and Rocky Cliffs, Spring Squill and Strawberry Clover.	FCC.
96	Promote the integration of habitat requirements for characteristic riverine species such as Otter, Salmon and Kingfisher in the ERBM management plans.	To ensure that habitat require-ments of key riverine species are taken into account when planning actions for and along Fingal rivers as part of the ERBM management plans.	Otter, Kingfisher, Atlantic Salmon, Lamprey Species and Brown Trout.	FCC.

RAISING AWARENESS (CONT.):

No.	Action	Objective	Targets Species & Habitats	Partner Organisations
97	Organise practical conservation outings.	Organise at least 20 practical nature conservation outings with the Conservation Volunteers Fingal.	N/A.	FCC and CVF.
99	Run a nature education programme in local parks and schools.	Employ nature education officer to promote parks and provide nature education to schools.	N/A.	FCC.
100	Organise training days for County Council staff and councillors regarding biodiversity protection, the development and management of the Ecological Network and Integrated Coastal Zone management.	To educate county council staff and politicians about biodiversity and how we can protect it.	N/A.	FCC.

Chapter 10

PRIORITISING ACTIONS

The Biodiversity Plan sets out a 100 actions to develop the ecological network and protect the most important habitats and associated plant and animal species in the County.

Limited resources means that efforts must the targeted at priority issues, sites and species.

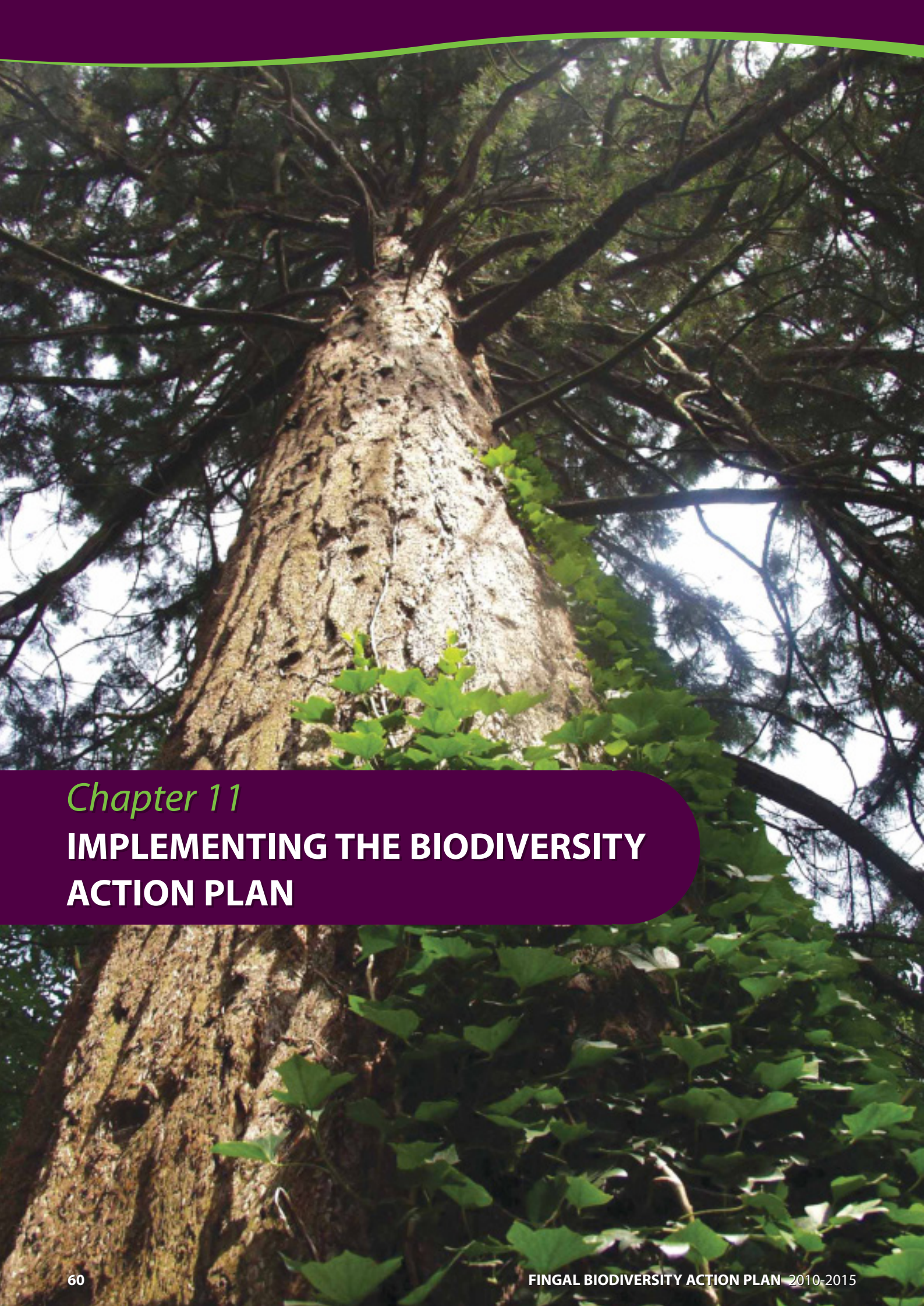
Out of the 100 actions, 35 actions have been selected by members of the biodiversity forum as priority actions for implementation in the 2010-2015 period. The selection of these priority actions was determined by:

- the greatest need for action for a threatened habitat or species,
- the willingness and capability of the key partners for implementing an action,
- the likelihood of success given known constraints and opportunities,
- the resources available at a given time.

These 35 priority actions focus on the following:

- Masterplanning and habitat improvement works at the Rogerstown Estuary, Howth Head, Bog of the Ring and the Green Z in Dublin 15: Tolka Valley, Royal Canal and the Liffey Valley.
- Developing demonstration & best practice projects on farmland management, parkland and golfcourse management, beach management and floodplain management.
- Undertaking ecological studies of the River corridors, establish a coastal monitoring programme and the processing of all data of previous ecological studies in a Fingal Biological Record Centre.
- Developing a Fingal Biodiversity Website and Newsletter to disseminate information on ecological research, biodiversity projects and educational events.

These 35 actions will provide the focus of biodiversity conservation in Fingal over the next 5 years, but many of the other actions are equally important. These other actions will be carried whenever opportunities arise to develop or protect a part of the ecological network.



Chapter 11

IMPLEMENTING THE BIODIVERSITY ACTION PLAN

The future success of the Fingal Biodiversity Plan depends upon the input from all organisations and groups involved in looking after our natural heritage. Joint action is the foundation of the biodiversity plan initiative. The Fingal BAP and the establishment of the Fingal Ecological Network by 2020 will provide the focus for all groups involved. The development of a strong working partnership between the local authority and the voluntary sector, community groups, state agencies, businesses and landowners is essential for successful implementation of the action plan. To ensure the implementation of an action, a lead organisation has been identified for each action, which will be responsible for the implementation of the particular action and reporting on its progress and results. Most of the times the County Council is the lead organisation, but other organisations have selected actions that they wish to implement.

Fingal County Council will be the main coordinating body that will oversee the implementation of the biodiversity actions and conserve the ecological network through the planning process. The local authority will also provide support for other lead organisations to help implement the actions selected by them and approach private landowners to see where they may be able to contribute towards the implementation of the actions and the establishment of the ecological network.

Fingal County Council shall lead by example by managing public land for wildlife by providing demonstration sites for golf course management in Corballis and Elm Green, floodplain management and demesne management. These demonstration sites can be used to showcase to private landowners, what opportunities exist to enhance their lands for wildlife and what the results in terms of ecological and financial gain are likely to be.

The Biodiversity Officer shall be the main coordinator within the County Council and act as the contact person for issues related to the ecological network and the Biodiversity Action Plan.

Chapter 12

FINANCING THE PLAN AND THE ECOLOGICAL NETWORK

The Biodiversity Plan and the associated Ecological Network are ambitious objectives that will require significant resources to be fully completed. The Ecological Network covers 13120 hectares including privately owned land. The development of ecological networks elsewhere in Europe has shown that to buy all these lands is not possible or desired and therefore the emphasis should be on working with private landowners managing their lands for wildlife. To encourage private landowners to protect and develop natural habitats on their lands, the County Council will explore the possibilities of setting up a small grant scheme for Fingal and will also assist landowners with seeking wildlife grants from national funding sources.

To provide further economic incentives, the County Council will explore the possibilities of developing local markets for products arising from the lands in the ecological network. If a Dublin market could be developed for firewood for example, whereby residents are encouraged to get woodstoves and use local firewood, then that may provide extra income and incentive for landowners to manage hedgerows and woodlands on their lands.

The necessary funding for the biodiversity programme is estimated at €150.000 annually for the period 2010-2015. The government envisages that the local authorities are to finance the preparation and implementation of a Local Biodiversity Plan with financial (biodiversity) support from the Dept. of Environment and Local Government. To date however, only limited funding has been allocated to the National Biodiversity Programme.

Therefore, to finance the implementation of the Biodiversity Plan, other sources of funding will be explored such as the Forestry schemes, Tourism grants, Heritage Grants, REPS, Fingal LEADER, LIFE + and INTERREG and various other community grants.

In Northern Ireland and the UK, a substantial part of the required funding is obtained via sponsorship programmes with the business sector. This approach seems to be very successful there and this approach will be also examined in relation to the Fingal Biodiversity Plan.

Chapter 13

MONITORING SUCCESS

Monitoring is an important aspect of the Fingal Biodiversity Action Plan. Monitoring the success of the Biodiversity Plan shall primarily focus on three issues:

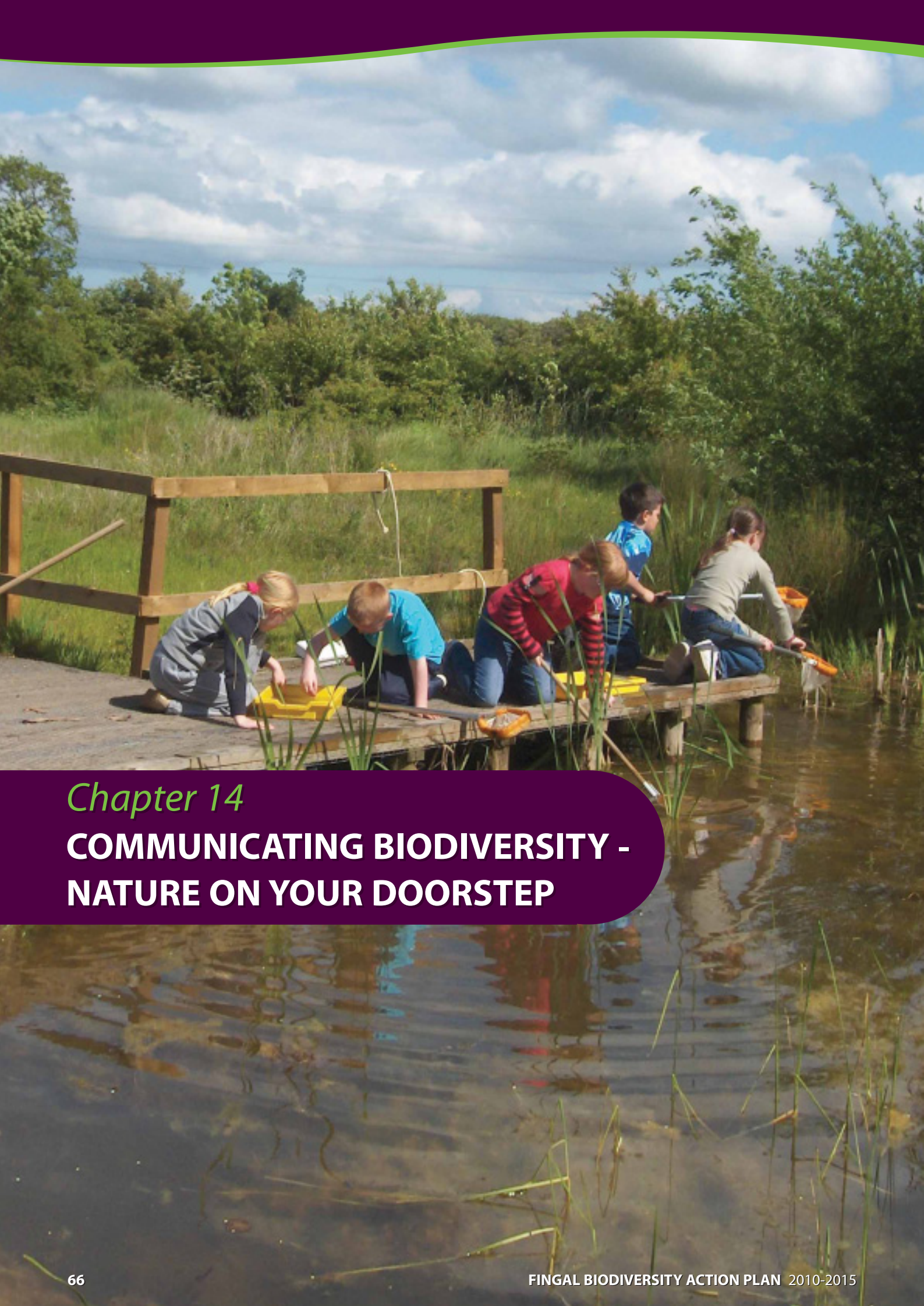
1. **The number of actions achieved, to ensure work is happening on the ground.**
2. **The acreage of Ecological Network achieved, to see what area is managed for nature in the County.**
3. **The effects of the actions on target habitats & species, to evaluate the direct results.**

The third type of monitoring is particularly important to see if the actions and the money spend are achieving the desired results. Site monitoring focused on the presence and populations of target species listed for each action needs to be done over a number of years to see if the results of the measures are successful in the long term. This is particularly important where the target species is not present on the site prior to carry out site management works, because it may take a number of years for the species to arrive at the site depending on the proximity of the nearest population and its modes and distance of dispersal.

Annual reports will be submitted by the Biodiversity Officer to the County Council and the Biodiversity Forum reporting on progress in relation to implementing the Biodiversity Action Plan and achieving the targets set out in the plan. In 2015 a review will be carried out to assess the overall progress to date, and to make any amendments to the plan deemed necessary taking into account any new developments in the county in terms of changes in legislation, policies or priorities.

The annual progress on implementing the plan will be monitored by checking against the indicators listed below:

- Total number of actions from the plan that are implemented.
- Number of actions from the plan implemented by Fingal County Council.
- Number of actions from the plan implemented by partner organisations.
- Acreage of ecological network achieved on publicly owned land.
- Acreage of ecological network achieved on privately owned land.
- Percentage of total ecological network achieved.
- Funding sourced for implementation of the plan, from both the Local Authority and other sources.
- Number of successful projects where target species population have increased or returned.
- Number of events organized.
- Percentage of Fingal County Council staff and Elected Members receiving biodiversity training and contributing to biodiversity actions.



Chapter 14

COMMUNICATING BIODIVERSITY - NATURE ON YOUR DOORSTEP

Many people value wildlife, but most of us are only vaguely aware of the natural world around us. Our population has become increasingly urbanised and detached from the natural environment. Most children and their parents are not able to identify trees, plants or birds anymore and their knowledge of environmental issues is often linked to what they have seen on television. As a consequence many people know about the melting of the ice caps or the decline of the rainforest, but do not know what is happening to the nature on their doorstep.

Research undertaken by Fingal County Council on people's appreciation and awareness of the natural environment in Fingal made some interesting observations:

- In terms of **awareness** of Fingal's natural environment, the majority of people are not familiar with the most important wildlife species for Fingal; the national and international importance of certain species and habitats; European designations and their implications and how sites of significant conservation and ecological value are managed.
- Many people demonstrated a pride of place and a clear desire to know more about **what is special about their local area** and **what makes their local area so unique**.
- A **website**, **local newsletter**, and **interpretation panels** are the preferred methods for circulating information on Fingal's natural environment.
- Using the right **language and terminology** when interacting with the public is very important. Members of the public and scientists/ conservationists differ in their interpretation and understanding of certain terms/phrases (e.g. protection - physical or legal; habitat - local environment versus global examples; rare species - rarely seen or rare because of reduced/threatened population).

Raising awareness of the natural environment is an essential element of the Fingal Biodiversity Plan. This plan includes 13 actions related to awareness raising and nature education. The audience research has provided us with many useful lessons and tips on how to go about making people more aware and care about the diversity of plants and animals and the many important sites Fingal has to offer.

The best way to learn about nature is through direct involvement in biodiversity projects such as conducting site surveys, participate in the preparation of a management plan or taking part in practical conservation activities. For this reason the Biodiversity Programme has always focussed on getting people involved in their local parks and nature sites. Community involvement also lies at the basis of the Fingal Biodiversity Action Plan by getting local community groups and landowners involved in looking after our local wildlife. It does not matter where the project is taking place, somewhere along the coast, in the local park or the school grounds. All of these projects can teach people about the natural environment and what they can do to preserve it.

The FBAP also provides the opportunity for all nature conservation bodies, both NGO's and state organisations, to work together on raising awareness with one overall goal of establishing the ecological network combined with a small number of key environmental messages. This would lead to a better coordination of the awareness raising and nature education efforts in the county, which could save a lot of time and money.

Purpose of Biodiversity Communication Strategy
Raise awareness of term biodiversity and why it is important to our daily lives.
Raise awareness of the protected sites in Fingal and what makes them unique.
Build awareness that Fingal's biodiversity is threatened but that we can all do something about it.
Achieve better coordination in biodiversity promotion work across stakeholders.
Consistent use of the key messages, biodiversity logo and visual recognition (same colour, lay-out, design in signage, promotional leaflets etc.).
Encourage individuals, community groups and businesses to take practical action to support, protect and enhance biodiversity in their locality.
Raise awareness of biodiversity information sources and provide access to them.

Chapter 15

WHAT CAN YOU DO TO HELP?

To achieve the Ecological Network in the County and make our surroundings more wildlife friendly, there is much work to be done. The motto for biodiversity action is to ***"Think globally, act locally"***. Everybody can do something to help nature along in their locality. Here are a few ideas you might like try:

AT HOME:

- Make your garden more interesting for wildlife by planting flowers to attract bees and butterflies, fruit-bearing trees and shrubs to attract birds, a garden pond to attract amphibians and damselflies. Even in the heart of the city, a window-ledge bird table or a birdbox will attract a surprising range of birds or you could build a batbox to invite bats into your garden.
- Become a member of one of Ireland's nature conservation organizations.
- Join the Conservation Volunteers Fingal on one of their practical conservation days for a bit of fun and exercising.
- Participate in community based nature studies such as the Garden Birdsurvey (see www.birdwatchireland.ie) Spring Alive (www.springalive.net), and the Seashore Survey (www.coastwatch.org). You don't need to be an experienced ecologist to participate in these surveys, so go and give it a try!

AT WORK:

- Manage your grounds for wildlife - plant trees, hedgerows, colourful plants and build bird & bat boxes as these will attract a range of wildlife species.
- Sponsor Fingal's Nature Education Programme for primary and secondary schools.
- Organise a company nature conservation activity day or donate staff time to participate in practical nature conservation activities in association with the Conservation Volunteers Fingal.

AT SCHOOL:

- Go and explore wildlife in the schools grounds and nearby parks.
- Make school grounds more wildife friendly by making a compost heap, bird boxes, a small meadow, an organic garden or planting trees.

Visit the Fingal Biodiversity website (www.fingalbiodiversity.ie) for many more ideas on how to get involved in protecting nature in your area. And remember, the biodiversity officer in the County council is there to help, so if you would like some advice or assistance with a local biodiversity project, do get in touch!

APPENDICES

APPENDIX I: MEMBERS BIODIVERSITY ADVISORY GROUP

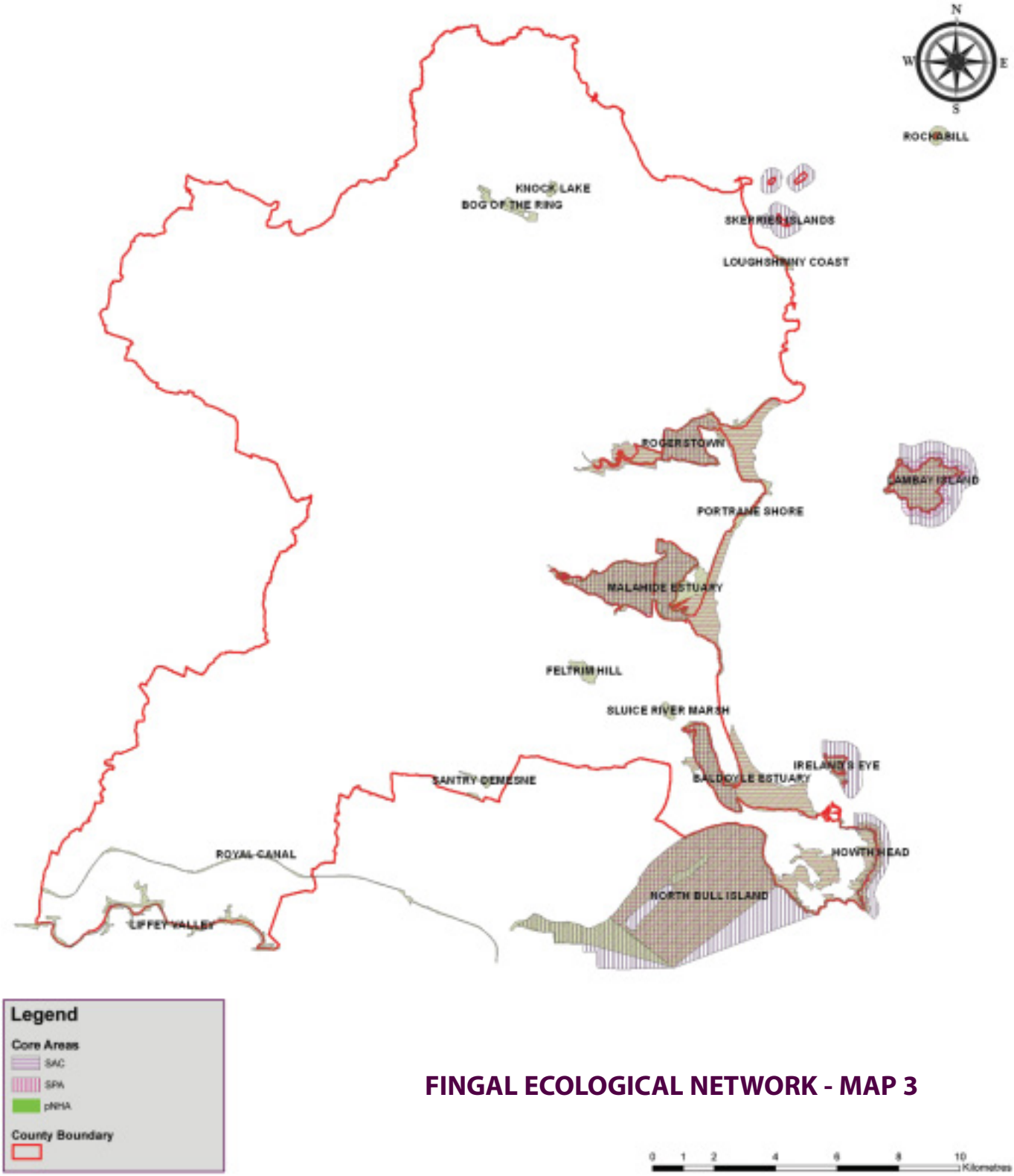
Sector	Organisation	Member
Local Authority	FCC Water Services Dept. FCC Planning Dept. FCC Parks Dept. FCC Parks Dept. FCC Heritage Officer FCC Biodiversity Officer FCC Assistant Biodiversity Officer	Janice Butler Nicholas O'Kane Fergus O'Carroll Kevin Halpenny Dr Gerry Clabby Hans Visser Deborah Tiernan
State Agency	Central Fisheries Board	Dr. James King
	Eastern Regional Fisheries Board	Josie Mahon Des Chew
	DEHLG (NPWS)	Dr. Maurice Eakin Niall Harmey
	Waterways Ireland	Cormac McCarthy
NGO	Birdwatch Ireland	Julie Roe Sean Pierce
	Dublin Naturalists Field Club	Dr. Declan Doogue Colm Ronayne David Nash
	Bat Conservation Ireland	Brian Keeley
	Fingal Hedgerow Society	Ann Lynch
	Irish Hedgelaying Association	Neil Foulkes
	Coastwatch	Karin Dubsky
	Irish Seal Sanctuary	Brendan Price Pauline Beades
	Conservation Volunteers Fingal	Michelle Wilson
	Fingal Regional Game Council	Derek O'Brien
Local Community	Donabate Tidy Towns	Blaithin O'Donnell Tom Burke
	Swords Tidy Towns	Des Becton
	Skerries Tidy Towns	Maeve McGann Ann Doyle

APPENDIX II: PUBLIC CONSULTATION

Submissions were received from the following:

- **Department of the Environment, Heritage and Local Government**
- **IFA**
- **Arup Consulting**
- **Termon Property Holdings**
- **Malahide Community Forum**
- **Margie McCloone**

APPENDIX III: LOCATIONS DESIGNATED SITES



FINGAL ECOLOGICAL NETWORK - MAP 3

APPENDIX IV: CONSERVATION OBJECTIVES - SPECIAL AREAS OF CONSERVATION

European and national legislation places a collective obligation on Ireland and its citizens to maintain at favourable conservation status areas designated as candidate Special Areas of Conservation. The Government and its agencies are responsible for the implementation and enforcement of regulations that will ensure the ecological integrity of these sites.

According to the EU Habitats Directive, favourable conservation status of a habitat is achieved when:

- its natural range, and area it covers within that range, is stable or increasing, and
- the ecological factors that are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future, and
- the conservation status of its typical species is favourable as defined below.

The favourable conservation status of a species is achieved when:

- population data on the species concerned indicate that it is maintaining itself, and
- the natural range of the species is neither being reduced or likely to be reduced for the foreseeable future, and
- there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.

APPENDIX IVa: CONSERVATION OBJECTIVES - ROGERSTOWN ESTUARY SAC

Rogerstown Estuary Special Area of Conservation (0208)	
Conservation Objectives	**Objective 1:** To maintain the Annex I habitats for which the cSAC has been selected at favourable conservation status: Estuaries; Mudflats and sandflats not covered by seawater at low tide; Salicornia and other annuals colonizing mud and sand; Atlantic salt meadows *(Glauco-Puccinellietalia Maritimae)*; Mediterranean salt meadows *(Juncetalia Maritimi)*; Shifting dunes along the shoreline with Ammophila arenaria (white dunes); Fixed coastal dunes with herbaceous vegetation (grey dunes). **Objective 2:** To maintain the extent, species richness and biodiversity of the entire site. **Objective 3:** To establish effective liaison and co-operation with landowners, legal users and relevant authorities.
Proposed Special Conservation Interests for Rogerstown Estuary SPA (4015)	
Bird and plant species listed in for this Natura 2000 site (Qualifying interests).	• Light-bellied Brent Goose • Shelduck • Oystercatcher • Ringed Plover • Knot **Additional Special Conservation Interests:** • Greylag Goose • Shoveler • Grey Plover • Dunlin • Black-tailed Godwit • Redshank • Wetland & Waterbirds
Main Conservation Objective SPA	
To maintain the special conservation interests for this SPA at favourable conservation status: Light-bellied Brent Goose, Shelduck, Oystercatcher, Ringed Plover, Knot, Greylag Goose, Shoveler, Grey Plover, Dunlin, Black-tailed Godwit, Redshank, Wetland & Waterbirds.	

Draft Conservation Objectives as per National Parks & Wildlife Service, 2010.

APPENDIX IVb: CONSERVATION OBJECTIVES - MALAHIDE ESTUARY SAC

Malahide Estuary Special Area of Conservation (0205)	
Conservation Objectives	**Objective 1:** To maintain the Annex I habitats for which Malahide Estuary cSAC has been selected at favourable conservation status: Fixed coastal dunes with herbaceous vegetation (grey dunes); Shifting dunes along the shoreline with Ammophila arenaria (white dunes); Mudflats and sandflats not covered by seawater at low tide; Salicornia and other annuals colonising mud and sand, Atlantic salt meadows *(Glauco-Puccinellietalia maritimae)*; Mediterranean salt meadows *(Juncetalia maritimi)* and Spartina swards *(Spartinion maritimae)*. **Objective 2:** To maintain the extent, species richness and biodiversity of the entire site. **Objective 3:** To establish effective liaison and co-operation with landowners, legal users and relevant authorities.
Proposed Special Conservation Interests for Malahide Estuary SPA (4025)	
Bird and plant species listed in for this Natura 2000 site (Qualifying interests).	• Light-bellied Brent Goose • Goldeneye • Black-tailed Godwit **Additional Special Conservation Interests:** • Great Crested Grebe • Shelduck • Pintail • Red-breasted Merganser • Oystercatcher • Golden Plover • Grey Plover • Knot • Dunlin • Bar-tailed Godwit • Redshank • Wetland & Waterbirds
Main Conservation Objective SPA	
To maintain the special conservation interests for this SPA at favourable conservation status: Light-bellied Brent Goose, Goldeneye, Black-tailed Godwit, Great Crested Grebe, Shelduck, Pintail, Red-breasted Merganser, Oystercatcher, Golden Plover, Grey Plover, Knot, Dunlin, Bar-tailed Godwit, Redshank, Wetland & Waterbirds.	

Draft Conservation Objectives as per National Parks & Wildlife Service, 2010.

APPENDIX IVc: CONSERVATION OBJECTIVES - BALDOYLE ESTUARY SAC

Baldoyle Estuary Special Area of Conservation	
Conservation Objectives	**Objective 1:** To maintain the Annex I habitats for which the cSAC has been selected at favourable conservation status: Mudflats and sandflats not covered by seawater at low tide; Salicornia and other annuals colonising mud and sand; Atlantic salt meadows *(Glauco-Puccinellietalia Maritimae)*; Mediterranean salt meadows *(Juncetalia maritimi)*. **Objective 2:** To maintain the extent, species richness and biodiversity of the entire site. **Objective 3:** To establish effective liaison and co-operation with landowners, legal users and relevant authorities.
Proposed Special Conservation Interests for Baldoyle Bay SPA (4016)	
Bird and plant species listed in for this Natura 2000 site (Qualifying interests).	• Light-bellied Brent Goose • Goldeneye • Black-tailed Godwit **Additional Special Conservation Interests:** • Great Crested Grebe • Shelduck • Pintail • Red-breasted Merganser • Oystercatcher • Golden Plover • Grey Plover • Knot • Dunlin • Bar-tailed Godwit • Redshank • Wetland & Waterbirds
Main Conservation Objective SPA	
To maintain the special conservation interests for this SPA at favourable conservation status: Light-bellied Brent Goose, Ringed Plover, Bar-tailed Godwit, Shelduck, Golden Plover, Grey Plover, Wetland & Waterbirds.	

Draft Conservation Objectives as per National Parks & Wildlife Service, 2010.

APPENDIX IVd: CONSERVATION OBJECTIVES - HOWTH HEAD SAC

Howth Head Special Area of Conservation	
Conservation Objectives	**Objective 1:** To maintain the Annex I habitats for which the cSAC has been selected at favourable conservation status: Mudflats and sandflats not covered by seawater at low tide; Salicornia and other annuals colonising mud and sand; Atlantic salt meadows *(Glauco-Puccinellietalia Maritimae)*; Mediterranean salt meadows *(Juncetalia maritimi)*. **Objective 2:** To maintain the extent, species richness and biodiversity of the entire site. **Objective 3:** To establish effective liaison and co-operation with landowners, legal users and relevant authorities.
Proposed Special Conservation Interests for Howth Head SPA (4113)	
Bird and plant species listed in for this Natura 2000 site (Qualifying interests).	• Kittiwake
Main Conservation Objective SPA	
To maintain the special conservation interests for this SPA at favourable conservation status: Kittiwake.	

Draft Conservation Objectives as per National Parks & Wildlife Service, 2010.

APPENDIX IVe: SITE SPECIFIC CONSERVATION OBJECTIVES IRELAND'S EYE SAC

Ireland's Eye Special Area of Conservation	
Conservation Objectives	**Objective 1:** To maintain the Annex I habitats for which the cSAC has been selected at favourable conservation status: Perennial vegetation of stony banks; Vegetated sea cliffs of the Atlantic and Baltic coasts. **Objective 2:** To maintain the extent, species richness and biodiversity of the entire site. **Objective 3:** To establish effective liaison and co-operation with landowners, legal users and relevant authorities.
Proposed Special Conservation Interests for Ireland's Eye SPA (4117)	
Bird and plant species listed in for this Natura 2000 site (Qualifying interests).	• Cormorant **Additional Special Conservation Interests:** • Herring Gull • Kittiwake • Guillemot • Razorbill
Main Conservation Objective SPA	
To maintain the special conservation interests for this SPA at favourable conservation status: Cormorant. Herring Gull, Kittiwake, Guillemot, Razorbill.	

Draft Conservation Objectives as per National Parks & Wildlife Service, 2010.

APPENDIX IVf: SITE SPECIFIC CONSERVATION OBJECTIVES LAMBAY ISLAND SAC

Lambay Island Special Area of Conservation	
Conservation Objectives	**Objective 1:** To maintain the Annex I habitat for which the cSAC has been selected at favourable conservation status: Vegetated sea cliffs of the Atlantic and Baltic coasts. **Objective 2:** To maintain the Annex II species for which the cSAC has been selected at favourable conservation status: Halichoerus grypus. **Objective 3:** To maintain the extent, species richness and biodiversity of the entire site. **Objective 4:** To establish effective liaison and co-operation with landowners, legal users and relevant authorities.
Proposed Special Conservation Interests for Lambay Island SPA (4069)	
Bird and plant species listed in for this Natura 2000 site (Qualifying interests).	• Cormorant • Shag • Lesser Black-backed Gull • Herring Gull • Kittiwake • Guillemot • Razorbill **Additional Special Conservation Interests:** • Fulmar • Greylag Goose • Puffin
Main Conservation Objective SPA	
To maintain the special conservation interests for this SPA at favourable conservation status: Cormorant, Shag, Lesser Black-backed Gull, Herring Gull, Herring Gull, Kittiwake, Guillemot, Razorbill.	

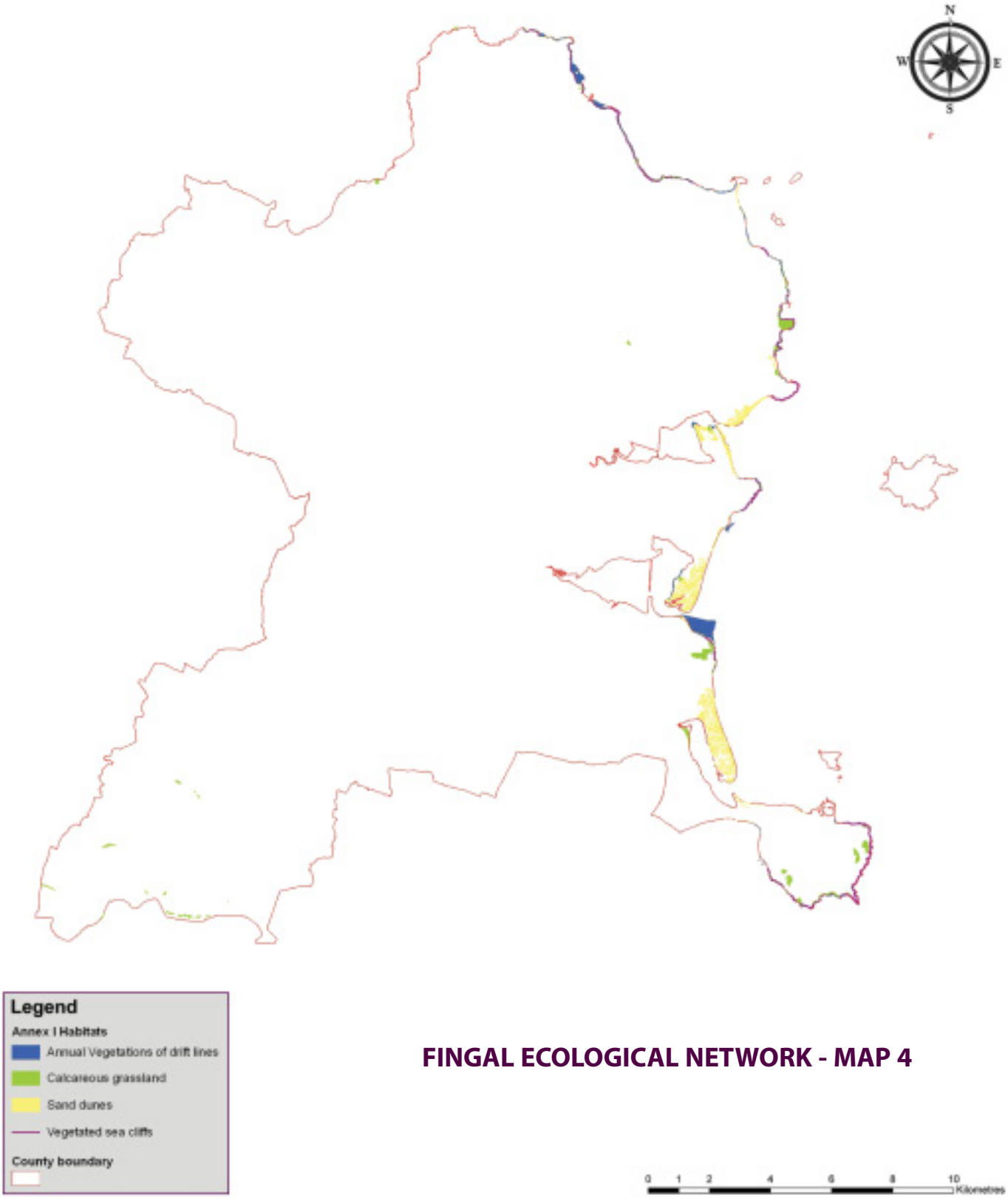
Draft Conservation Objectives as per National Parks & Wildlife Service, 2010.

APPENDIX V: ANNEX I HABITATS IN FINGAL

Code	Habitat Name
1110	Sandbanks
1130	Estuaries
1140	Tidal Mudflats and Sandflats
1150	Coastal Lagoons*
1160	Large Shallow Inlets and Bays
1170	Reefs
1210	Annual Vegetation of Drift Lines
1220	Perennial Vegetation of Stony Banks
1230	Vegetated Sea Cliffs
1310	Salicornia Mud
1320	Spartina Sward
1330	Atlantic Salt Meadows
1410	Mediterranean Salt Meadows
2110	Embryonic Shifting Dunes
2120	Marram Dunes
2130	Fixed Dunes (Grey Dunes)*
2170	Dunes with Creeping Willow
2190	Humid Dune Slacks
3110	Lowland Oligotrophic Lakes
3140	Hard Water Lakes
3260	Floating River Vegetation
4030	Dry Heath
6210	Orchid Rich Grassland/Calcareous Grassland*
7220	Petrifying Springs*
8330	Sea Caves

** indicates a Priority Habitat.*

APPENDIX VI: UNDESIGNATED ANNEX I HABITAT SITES



FINGAL ECOLOGICAL NETWORK - MAP 4

APPENDIX VII: PROTECTED AND IMPORTANT FLORA SPECIES IN FINGAL

English Name	Latin Name	Flora Protection Order	Red Data Book	Nationally Important Presence in Fingal	Habitat	Relevant Actions in Biodiversity Plan
Lesser Centaury	*Centaurium Pulchellum*	√	V		Sand Dunes	4, 9, 61, 84
Meadow Barley	*Hordeum Secalinum*	√	V		Damp Ground Brackish Grassland	1, 28, 44, 61, 84
Hairy St. Johnswort	*Hypericum Hirsutum*	√	V		Woodland	32, 47, 48, 61, 84
Rough Poppy	*Papaver Hybridum*	√	E		Sandy Till	1, 6, 61, 84
Borrer's Saltmarsh-grass	*Puccinellia Fasciculata*		R		Drains, Estuaries	61, 84
Hairy Violet	*Viola Hirta*	√	V		Sand Dunes	1, 4, 9, 61, 84
Wild Clary	*Salvia Horminoides*		R		Grass Verges	20, 61, 84
Green-flowered Helleborine	*Epipactis Phyllanthes*		V		Former Wetland, Dune Slacks	9, 61, 84
Bird's-foot	*Ornithopus Perpusillus*		R		Shallow Soil over Rock by the Coast	61, 84
Henbane	*Hyoscyamus Niger*		R		Shingle Shores	61, 84
Spring Vetch	*Vicia Lathyroides*		R		Sand Dunes	4, 9, 61, 84
Blue Fleabane	*Erigeron Acer*		V		Walls	61, 84
Green Figwort	*Scrophularia Umbrosa*		V		River Banks	11, 14, 31, 33, 61, 84
Yellow Archangel	*Lamiastrum Galeobdolon*		R		Woodland	32, 47, 48, 61, 84
Green-winged Orchid	*Orchis Morio*		V		Dune Grassland	1, 4, 5, 9, 61, 84
Saltmarsh Flat Sedge	*Blysmus Rufus*			√	Saltmarsh	61, 84
Sea Bindweed	*Calystegia Soldanella*			√	Sand Dunes	4, 9, 61, 84
Dioecious Sedge	*Carex Dioica*			√	Wetland	20, 61, 84
Golden Samphire	*Inula Crithmoides*			√	Sea Cliffs	61, 84
Common Toothwort	*Lathraea Squamaria*			√	Woodland	12, 32, 47, 48, 61, 84
Curved Hard-grass	*Parapholis Incurva*			√	Coastal Grassland	20, 61, 84
Bee Orchid	*Ophrys Apifera*			√	Dune Grassland	9, 15, 22, 61, 84
Brackish Water-crowfoot	*Ranunculus Baudotii*			√	Brackish Ponds	9, 44, 61, 84
Spring Squill	*Scilla Verna*			√	Coastal Grassland	61, 84, 95
Strawberry Clover	*Trifolium Fragiferum*			√	Coastal Grassland	61, 84, 95

Red Data Book abbreviations:

E	=	*Endangered*
V	=	*Vulnerable*
R	=	*Rare*

APPENDIX VIIIa: PROTECTED AND IMPORTANT FAUNA SPECIES IN FINGAL

English Name	Latin Name	EU Habitats Directive	Wildlife Act 1976 & 2000	Red Data Book	Habitat	Relevant Actions in Biodiversity Plan
Whiskered Bat	*Myotis Mystacinus*	IV	√	I	Woodland, Parks, Hedgerows	11, 14, 31, 32, 46, 47, 48, 54, 59, 81, 89, 90, 91
Natterer's Bat	*Myotis Natteri*	IV	√	I	Woodland, Pasture	11, 14, 31, 32, 46, 47, 48, 54, 59, 81, 89, 90, 91
Daubenton's Bat	*Myotis Daubentoni*	IV	√	II	Canal, River, Pond	1, 11, 14, 15, 31, 33, 37, 38, 39, 40, 43, 46, 54, 59, 81, 89, 90, 91
Brandt's Bat	*Myotis Brandtii*	IV	√		Woodland, Waterbodies	59, 81, 89, 90, 91
Leisler's Bat	*Nyctalus Leisleri*	IV	√	II	Woodland, Parks, Hedgerow	1, 11, 14, 15, 31, 32, 37, 38, 39, 43, 44, 46, 47, 48, 54, 59, 81, 89, 90, 91
Common Pipistrelle	*Pipistrellus Pipistrellus*	IV	√	II	Farmland, Wood-land, Gardens, Hedgerows	1, 11, 14, 15, 26, 31, 32, 37, 38, 39, 43, 44, 46, 47, 48, 54, 59, 81, 89, 90, 91
Soprano Pipistrelle	*Pipistrellus Pygmaeus*	IV	√		Woodland, Parkland, Hedgerows	1, 11, 14, 5, 26, 31, 32, 37, 38, 39, 43, 44, 46, 47, 48, 54, 59, 81, 89, 90, 91
Nathusius Pipistrelle	*Pipistrellus Nathusii*	IV	√		Woodland, Mature Hedgerow	59, 81, 89, 90, 91
Brown Long-eared Bat	*Plecetus Auritus*	IV	√	II	Woodland, Parkland	1, 11, 14, 15, 31, 32, 37, 39, 43, 46, 47, 48, 54, 59, 81, 89, 90, 91
Irish Hare	*Lepus Timidus*	V	√	II	Grassland	46, 81, 89
Red Squirrel	*Scurius Vulgaris*		√		Woodland	32, 47, 48, 81
Otter	*Lutra Lutra*	II, IV	√	II	Rivers, Wetlands	1, 11, 14, 15, 16, 26, 31, 33, 37, 38, 39, 40, 43, 44, 45, 60, 77, 81, 96
Pine Marten	*Martes Martes*	V	√	II	Woodland	32, 47, 48, 81, 90
Badger	*Meles Meles*		√	II	Woodland, Hedgerows, Grassland	15, 31, 32, 37, 46, 47, 48, 54, 81, 89, 90, 91
Grey Seal	*Halichoerus Grypus*	II, IV	√		Sea & Islands	63, 64
Harbour Seal	*Phoca Vitulina*	II, IV	√		Sea & Islands	63, 64
Bottle-nose Dolphin	*Tursiops Truncatus*	II, IV	√		Sea	63, 64
Common Dolphin	*Delphinus Delphis*	IV			Sea	63, 64
Harbour Porpoise	*Phocoena Phocoena*	II, IV	√		Sea	63, 64
Striped Dolphin	*Stenella Coeruleoalba*	IV			Sea	63, 64
Minke Whale	*Balaenoptera Acutorostrata*	IV			Sea	63, 64
Fin Whale	*Balaenoptera Physalus*	IV			Sea	63, 64
Common Frog	*Rana Temporaria*	V	√		Ponds & Drains	1, 11, 14, 15, 16, 26, 31, 33, 37, 38, 39, 40, 43, 45, 52, 54, 60, 77, 93
Common Newt	*Triturus Vulgaris*		√		Ponds	31, 43, 52, 54, 93

APPENDIX VIIIa: PROTECTED AND IMPORTANT FAUNA SPECIES IN FINGAL (CONT.):

English Name	Latin Name	EU Habitats Directive	Wildlife Act 1976 & 2000	Red Data Book	Habitat	Relevant Actions in Biodiversity Plan
Common Lizard	*Lacerta Vivipara*		√		Dunes	4, 9
River Lamprey	*Lampetra Fluviatilis*	II, V		I	River	13, 15, 60, 96
Brook Lamprey	*Lampetra Planeri*	II		I	River	13, 15, 60, 96
Sea Lamprey	*Petromyzon Marinus*	II		I	River	13, 60, 96
Atlantic Salmon	*Salmo Salar*	II, IV		II	River	13, 37, 40, 60, 96
Brown Trout	*Salmo Trutta*				River	13, 15, 37, 38, 40, 60, 96

Red Data Book abbreviations:

Ex	=	*Extinct*
V	=	*Vulnerable*
R	=	*Rare*
I	=	*Indeterminate (Ex,V or R, but not enough information available to say which)*
II	=	*Internationally important*

APPENDIX VIIIb: PROTECTED AND IMPORTANT FAUNA SPECIES IN FINGAL

English Name	Latin Name	National Status IUCN Category	Suggested Local Status in Fingal	Habitat	Relevant Actions in Biodiversity Plan
Northern Colletes	*Colletes Floralis*	NT	EN	Sand Dunes	4, 9, 57
Heath Colletes	*C. Succinctus*	LC	VU	Heathland	19, 20
Sand Mining Bee	*Andrena Barbilabris*	NT	NT	Sand Dunes, Bare Sand	4, 8, 9
Heath Mining Bee	*A. Fuscipes*	VU	VU	Heathland	19, 20
Mining Bee	*A. Nigroaenea*	VU	NT	Clay Banks	46, 78, 82, 89
Small Mining Bee	*A. Semilaevis*	VU	VU	Heathland	19, 20
Mining Bee	*A. Wilkella*	VU	VU	Sandy Soils	82
Mining Bee	*Lasioglossum Nitidiusculum*	EN	VU	Sandy Soils	82
Cuckoo Bee	*Nomada Goodeniana*	EN	EN	Clay Soils	26, 46, 78, 82, 89
Cuckoo Bee	*N. Rufipes*	LC	VU	Heathland	19, 20
Golden Osmia	*Osmia Aurulenta*	NT	VU	Sand Dunes, Shingle Beaches	4, 9, 57
Garden Bumblebee	*Bombus Hortorum*	LC	NT	Grassland	82, 89
Heath Bumblebee	*B. Jonellus*	LC	NT	Heathland	19, 20
Red-tailed Bumblebee	*B. Lapidarius*	NT	NT	Dunes & Unimproved Grasslands	8, 9, 82
Large Carder Bee	*B. Muscorum*	NT	NT	Dunes & Unimproved Grasslands	8, 9, 82

IUCN & Fingal Categories:

LC = *Least Concern*
NT = *Near Threatened*
VU = *Vulnerable*
EN = *Endangered (Suggested local status based on Ronayne C, Ecological Study of the Coastal Habitats in Fingal Phase IV - Bees, 2006)*

APPENDIX IX: PROTECTED AND IMPORTANT BIRD SPECIES IN FINGAL

English Name	Latin Name	EU Birds Directive	Birds of Conservation Concern	Breeding in Fingal	Wintering in Fingal	Habitat	Relevant Actions in Biodiversity Plan
Kingfisher	*Alcedo Atthis*	I	Amber	√	√	Rivers	1, 14, 15, 26, 27, 31, 33, 37, 38, 39, 40, 43, 60, 96
Little Egret	*Egretta Garzetta*	I		√	√	Estuary, Woodland	1, 3, 25, 26, 27, 65
Peregrine	*Falco Peregrinus*	I		√	√	Cliffs, Islands, Quarry	52
Corncrake	*Crex Crex*	I	Red	√		Farmland	46, 54, 80, 89
Little Tern	*Sterna Albifrons*	I	Amber	√		Beach	1, 2, 67
Roseate Tern	*Sterna Dougalii*	I	Amber	√		Island	24, 63, 64, 94
Common Tern	*Sterna Hirundo*	I	Amber	√		Island	24, 63, 64, 94
Arctic Tern	*Sterna Paradisaea*	I	Amber	√		Island	24, 29, 63, 64, 94
Hen Harrier	*Circus Cyaneus*	I	Red		√	Farmland	
Short-eared Owl	*Asio Flammeus*	I	Amber		√	Grassland, Farmland, Islands	1, 26
Ruff	*Philomachus Pugnax*	I	Amber		√	Estuary	3, 25, 65
Golden Plover	*Pluvialis Apricaria*	I	Red		√	Estuary, Farmland	3, 25, 26, 65, 75
Dunlin	*Calidris Alpina*	I	Amber		√	Estuary, Beach	3, 7, 25, 65
Merlin	*Falco Columbarius*	I	Amber		√	Estuary, Islands	
Gannet	*Morus Bassanus*		Amber	√		Islands	24, 63, 64, 94
Razorbill	*Alca Torda*		Amber	√	√	Islands	24, 63, 64, 94
Black Guillemot	*Cepphus Grylle*		Amber	√	√	Islands, Harbour Wall	24, 63, 64, 94
Puffin	*Fratercula Arctica*		Amber	√	√	Islands	24, 63, 64, 94
Guillemot	*Uria Aalge*		Amber	√	√	Islands	24, 63, 64, 94
Eider	*Somateria Mollissima*		Amber	√		Islands	24, 63, 64, 94
Cormorant	*Phalacrocorax Carbo*		Amber	√	√	Islands, Wetlands	24, 63, 64, 94
Shag	*Phalacrocorax Aristotelis*		Amber	√	√	Islands	24, 63, 64, 94
Manx Shearwater	*Puffinus Puffinus*		Amber	√	√	Islands	63, 64, 94
Kittiwake	*Rissa Tridactyla*		Amber	√	√	Islands	24, 63, 64, 94
Great Black-backed Gull	*Larus Marinus*		Amber	√	√	Islands, Estuary	24, 63, 64, 94
Lesser Black-backed Gull	*Larus Fuscus*		Amber	√	√	Islands, Estuary	24, 63, 64, 94
Common Gull	*Larus Canus*		Amber	√	√	Islands, Beach, Estuary	24, 63, 64, 94
Herring Gull	*Larus Argentatus*		Red	√	√	Islands, Urban, Estuary	24, 63, 64, 94

APPENDIX IX: PROTECTED AND IMPORTANT BIRD SPECIES IN FINGAL (CONT.):

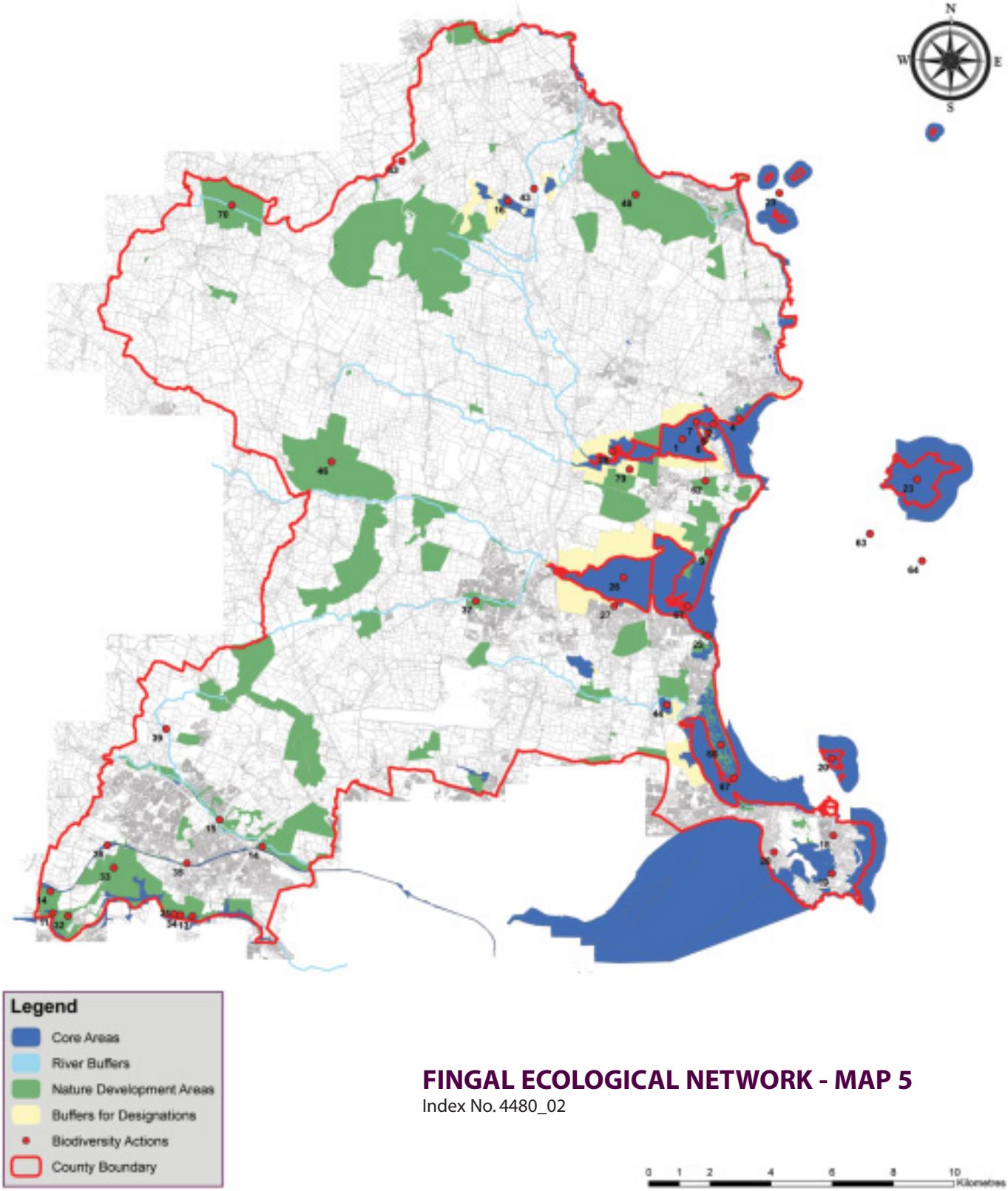
English Name	Latin Name	EU Birds Directive	Birds of Conservation Concern	Breeding in Fingal	Wintering in Fingal	Habitat	Relevant Actions in Biodiversity Plan
Black-headed Gull	*Larus Ridibundus*		Red		√	Islands, Beach, Estuary	24, 63, 64, 94
Ringed Plover	*Charadrius Hiaticula*		Amber	√	√	Islands, Beach	1, 2, 57, 63, 64, 94
Common Scoter	*Malanitta Nigra*		Red		√	Sea	63, 64
Great Northern Diver	*Gavia Immer*				√	Sea	63, 64
Red-throated Diver	*Gavia Stellata*		Amber		√	Sea	63, 64
Great-crested Grebe	*Podiceps Cristatus*		Amber		√	Sea, Wetlands	45, 63, 64
Pintail	*Anas Acuta*		Red		√	Estuary	3, 25, 65
Shoveler	*Anas Clypeata*		Red		√	Estuary	3, 25, 65
Teal	*Anas Crecca*		Amber		√	Estuary	3, 25, 65
Wigeon	*Anas Penelope*		Amber		√	Estuary	3, 25, 65
Pochard	*Aythya Ferina*		Amber		√	Estuary	3, 25, 65
Goldeneye	*Bucephala Clangula*		Amber		√	Estuary	3, 25, 65
Red-breasted Merganser	*Mergus Serrator*				√	Estuary	3, 25, 65
Grey Plover	*Pluvialis Squatarola*		Amber		√	Estuary	3, 7, 25, 65
Greenshank	*Tringa Nebularia*		Amber		√	Estuary	3, 25, 65
Redshank	*Tringa Totanus*		Red		√	Estuary	1, 3, 25, 26, 62, 65, 70, 75, 76
Bar-tailed Godwit	*Limosa Lapponica*		Amber		√	Estuary, Beach	3, 7, 25, 27, 65
Black-tailed Godwit	*Limosa Limosa*		Amber		√	Estuary, Beach, Farmland	1, 3, 7, 25, 26, 27, 62, 65, 70
Knot	*Calidris Canutus*		Red		√	Estuary, Beach	3, 7, 25, 65
Curlew	*Numenius Arquata*		Red		√	Estuary, Farmland	1, 3, 7, 25, 26, 65, 75
Shelduck	*Tadorna Tadorna*		Amber	√	√	Estuary, Dunes	3, 7, 9, 25, 15
Greylage Goose	*Anser Anser*		Amber		√	Estuary, Farmland, Islands	3, 25, 65, 75
Brent Goose	*Branta Bernicla***		Amber		√	Estuary, Farmland, Islands, Grassland	1, 3, 7, 25, 26, 27, 44, 65, 75
Lapwing	*Vanellus Vanellus*		Red	√	√	Estuary, Grassland	1, 3, 7, 25, 26, 46, 62, 65, 70, 76, 80, 89
Snipe	*Gallinago Gallinago*		Amber	√	√	Estuary, Wetland	1, 3, 16, 25, 26, 27, 44, 46, 62, 65, 70, 75, 76, 80, 89
Oystercatcher	*Haematopus Ostralegus*		Amber	√	√	Beach, Grassland	
Sand Martin	*Riparia Riparia*		Amber	√	√	Cliff, River, Quarry	52

APPENDIX IX: PROTECTED AND IMPORTANT BIRD SPECIES IN FINGAL (CONT.):

English Name	Latin Name	EU Birds Directive	Birds of Conservation Concern	Breeding in Fingal	Wintering in Fingal	Habitat	Relevant Actions in Biodiversity Plan
Tufted Duck	*Aythya Fuligula*		Amber	√	√	Lakes and Ponds	43, 45, 77
Little Grebe	*Podiceps Ruficollis*		Amber	√	√	Lakes and Ponds	43, 45, 77
Coot	*Fulica Atra*		Amber	√	√	Lakes and Ponds	43, 45, 77
Grasshopper Warbler	*Locustella Naevia*		Amber	√		Wetlands	16, 43, 44
Water Rail	*Rallus Aquaticus*		Amber	√	√	Wetlands	16, 43, 44
Woodcock	*Scolopax Rusticola*		Amber	√	√	Woodland, Wetlands	
Spotted Flycatcher	*Muscicapa Striata*		Amber	√	√	Woodland, Hedgerows	32, 47, 48
Skylark	*Alauda Arvensis*		Amber	√	√	Grassland, Farmland	1, 4, 9, 44, 80
Stock Dove	*Columba Oenas*		Amber	√	√	Farmland	44, 46, 54, 80, 89, 90
Yellowhammer	*Emberiza Citrinella*		Red	√	√	Farmland, Hedgerows	1, 26, 46, 54, 80, 89, 90
Linnet	*Carduelis Cannabina*		Amber	√	√	Farmland	1, 46, 54, 80, 89, 90, 91
Tree Sparrow	*Passer Montanus*		Amber	√	√	Farmland, Hedgerows	1, 26, 46, 54, 80, 89, 90, 91
Barn Owl	*Tyto Alba*		Red	√	√	Farmland	1, 17, 54, 80
Grey Partridge	*Perdix Perdix*		Red			Farmland	46, 54, 89
Starling	*Sturnus Vulgaris*		Amber	√	√	Urban Farmland	93
Swallow	*Hirundo Rustica*		Amber	√	√	Urban Farmland	93
Swift	*Apus Apus*		Amber	√	√	Urban Farmland, Estuary	93
House Martin	*Delichon Urbica*		Amber	√	√	Urban	93
House Sparrow	*Passer Domesticus*		Amber	√	√	Urban	93

*** Fingal holds internationally important numbers of the wintering population of Pale-bellied Brent Geese and Black-tailed Godwits.*

APPENDIX X: MAP FINGAL ECOLOGICAL NETWORK WITH ACTION PLAN NUMBERING



FINGAL ECOLOGICAL NETWORK - MAP 5
Index No. 4480_02

APPENDIX XI: ECOLOGICAL NETWORK CATEGORIES AND TARGET HABITATS & SPECIES

Categories		Habitats	Target Species
Core Areas - Designated Sites	*Estuaries*	■ Tidal Mudflats and Sandflats ■ Coastal Lagoons* ■ Salicornia Mud ■ Spartina Swards ■ Atlantic Salt Meadows ■ Mediterranean Saltmeadows ■ Large Shallow Inlets and Bays	Dunlin, Little Egret, Little Tern, Kingfisher, Golden Plover, Pale-bellied Brent Goose, Greylag Goose, Bar-tailed Godwit, Black-tailed Godwit, Pintail, Shoveler, Teal, Wigeon, Grey Plover, Ringed Plover, Knot, Curlew, Greenshank, Redshank, Snipe, Shelduck, Lapwing, Oystercatcher Salt-marsh Flat Sedge, Otter
	Islands	■ Vegetated Seacliffs ■ Shingle Beach	Roseate Tern, Common Tern, Arctic Tern, Manx Shearwater, Eider, Cormorant, Black Guillemot, Great Black-backed Gull, Herring Gull, Lesser Black-backed Gull, Common Gull, Guillemot, Gannet, Kittiwake, Puffin, Razorbill, Shag, Ringed Plover
	Sand Dunes	■ Embryonic Shifting Dunes ■ Marram Dunes ■ Fixed Dunes* ■ Dunes with Creeping Willow ■ Humid Dune Slacks	Hairy Violet, Lesser Centaury, Greenwinged Orchid, Bee Orchid, Green-flowered Helleborine, Spring Vetch, Sea Bindweed, Skylark, Shelduck, Small Blue, Dark Green Fritillary and Grayling, Colletes Floralis, Colletes Similis, Osmia Aurulenta, Andrena Barbilabris, Bombus Lapidarius, B. Muscorum, Common Lizard
	Freshwater & Brackish Marsh	■ Lowland Oligotrophic Lakes ■ Hard Water Lakes	Otter, Snipe, Kingfisher, Grasshopper Warbler, Water Rail, Woodcock, Common Frog, Borrer's Saltmarsh Grass, Meadow Barley
Core Areas - Inshore Waters		■ Sandbanks ■ Sea	Grey Seal, Harbour Seal, Bottle-nose Dolphin, Common Dolphin, Harbour Porpoise, Striped Dolphin, Minke Whale, Fin Whale, Common Scoter, Great-crested Grebe, Great Northern Diver, Red-throated Diver.
Core Areas - Undesignated Annex I Habitats		■ Annual Vegetation of Drift Lines ■ Perennial Vegetation of Stone Banks ■ Petrifying Springs* ■ Vegetated Seacliffs ■ Calcareous Grassland*	Henbane, Golden Samphire, Spring Squill, Strawberry Clover
Core Areas - Protected and Rare Plant Species			Lesser Centaury, Meadow Barley, Hairy St. Johnswort, Rough Poppy, Borrer's Saltmarsh-grass, Hairy Violet, Wild Clary, Green-flowered Helleborine, Bird's-foot, Henbane, Spring Vetch, Blue Fleabane, Green Figwort, Yellow Archangel, Green-winged Orchid, Saltmarsh Flat Sedge, Sea Bindweed, Dioecious Sedge, Golden Samphire, Common Toothwort, Curved Hard-grass, Bee Orchid, Brackish Water-crowfoot, Spring Squill, Strawberry Clover
Bufferzones		■ Dry Calcareous Grassland ■ Wet Grassland ■ Hedgerows ■ Ponds ■ Embryonic Shifting Dunes ■ Marram Dunes ■ Fixed Dunes*	Pale-bellied Brent Goose, Greylag Goose, Golden Plover, Black-tailed Godwit, Curlew, Lapwing, Oystercatcher, Redshank, Snipe, Short-eared Owl, Skylark, Yellowhammer, Tree Sparrow, Woodcock, Otter, all Bats, Common Frog, Meadow Barley, Green winged Orchid, Hairy Violet, Rough Poppy, Borrer's Saltmarsh Grass

APPENDIX XI: ECOLOGICAL NETWORK CATEGORIES AND TARGET HABITATS & SPECIES (CONT.):

Categories		Habitats	Target Species
Nature Development Areas	*Farmland*	■ Field margins ■ Hedgerows ■ Dry Calcareous, Neutral or Acid Grassland ■ Wet Grassland ■ Ponds	Yellowhammer, Stock Dove, Linnet, Tree Sparrow, Skylark, Grey Partridge, Barn Owl, Corncrake, Lapwing, Common Frog, Common Newt, Badger, All bats, Pine Marten, Irish Hare, Andrina and Nomada Ground Nesting Bee Species
	Demesnes	■ Woodland ■ Dry Neutral & Calcareous Grassland ■ Hedgerows ■ Ponds	Hairy St. Johns Wort, Yellow Archangel, Common Tootworth, Common Pipistrelle, Soprano Pipistrelle, Leislers Bat, Natterer's Bat, Wiskered Bat, Brown Long-eared Bat, Red Squirrel, Badger, Pine Marten, Irish Hare, Spotted Flycatcher, Skylark, Little Egret, Common Frog, Common Newt
	Quarries	■ Dry Calcareous Grassland ■ Dry Acid Grassland ■ Ponds ■ Freshwater Marsh	Peregrine Falcon, Sand Martin, Common Frog, Common Newt
	Parkland	■ Dry Calcareous Grassland ■ Dry Neutral Grassland ■ Woodland ■ Hedgerows ■ Freshwater Marsh	Otter, Common Pipistrelle, Soprano Pipistrelle, Leislers Bat, Natterer's Bat, Wiskered Bat, Brown Long-eared Bat, , Badger, Irish Hare, Skylark, Kingfisher, Common Frog, Common Newt
	Golfcourses	■ Dry Calcareous Grassland ■ Dry Neutral Grassland ■ Woodland ■ Hedgerows ■ Ponds ■ Freshwater Marsh	Common Pipistrelle, Soprano Pipistrelle, Leislers Bat, Natterer's Bat, Wiskered Bat, Brown Long-eared Bat, Badger, Irish Hare, Skylark, Common Frog, Common Newt
	Waterbodies	■ Open Water ■ Reedbeds ■ Freshwater Marsh ■ Ponds ■ Wet Grassland ■ Scrub	Otter, Little Grebe, Coot, Water Rail, Snipe, Tufted Duck, Common Frog, Common Newt
	New Woodland	■ Native Woodland ■ Alluvial Woodland	Hairy St. Johns Wort, Yellow Archangel, Common Tootworth, Common Pipistrelle, Soprano Pipistrelle, Leislers Bat, Natterer's Bat, Wiskered Bat, Brown Long-eared Bat, Red Squirrel, Badger, Pine Marten, Spotted Flycatcher
Ecological Corridors	*River & Floodplains*	■ Alluvial Woodland ■ Wet Grassland ■ Freshwater Marsh ■ Willow Scrub ■ Floating River Vegetation	Otter, All Bats, Kingfisher, Dipper, Sand Martin, Woodcock Atlantic Salmon, Brown Trout, River or Brook Lampreys, Common Frog, Common Newt, Green Figwort

APPENDIX XIIa: PLANNING PRINCIPLES ECOLOGICAL NETWORK - CORE SITES

SPECIAL AREA OF CONSERVATION (SAC'S) AND SPECIAL PROTECTION AREA (SPA)

The Habitats Directive requires that the impacts of any plans or projects likely to affect Natura 2000 sites are assessed by the planning authority. This process is known as Appropriate Assessment. Appropriate Assessment means an assessment, based on best scientific knowledge, of the potential impacts of a plan or project, wherever located, on the conservation objectives of any Natura 2000 site and the development, where necessary, of mitigation or avoidance measures to preclude negative effects. An overview of the Conservation Objectives for each SAC is given in Appendix IV. The impacts assessed must include the indirect and cumulative impacts of approving the plan or project. While the responsibility for carrying out appropriate assessment lies with the planning authority, applicants for planning permission must provide sufficient information with a planning application to enable the authority to complete the screening process and full appropriate assessment if screening cannot exclude significant effects on Natura 2000 sites. For projects requiring full appropriate assessment it is the responsibility of the project proponents to have a Statement for Appropriate Assessment prepared for submission to the planning authority as part of the planning application. To ensure that Appropriate Assessments are based on best scientific knowledge, those preparing Statements for Appropriate Assessment must have sufficient expertise and experience in relation to the ecological or other (e.g. hydrological) issues concerned and disclose an appropriate regard for the latest and most appropriate scientific methodology and assessment procedures. Those preparing Statements for Appropriate Assessments should consult the Guidance issued by the Department of the Environment, Heritage and Local Government (Appropriate Assessment of Plans and Projects in Ireland - Guidance for Planning Authorities, December 2009) and relevant EU Guidance documents. Where full Appropriate Assessment is required for a project the need for an EIS must also be formally considered by the planning authority. For plans (including local area plans and variations to the development plan) which require a full Appropriate Assessment, Strategic Environmental Assessment (SEA) must also be carried out.

The County Council will consult with the Prescribed Bodies, and other Government agencies where appropriate, when considering plans or projects which are likely to affect Natura 2000 sites (or those sites proposed to be designated as Natura 2000 sites). In accordance with Article 6(3) of the Habitats Directive the Council will normally only grant permission in cases where it is clearly demonstrated that, a proposed development either individually, or in combination with other plans and projects, will not adversely affect the ecological integrity of a Natura 2000 site or sites. Following a finding that a proposed development will adversely affect the integrity of a Natura 2000 site planning permission may only be granted in exceptional cases, in the absence of any alternatives, for imperative reasons of over-riding public interest subject to the strict requirements of Article 6(4) of the Habitats Directive.

APPENDIX XIIb: PLANNING PRINCIPLES ECOLOGICAL NETWORK - CORE SITES

NATURAL HERITAGE AREAS AND SITES WITH ANNEX I HABITATS

Fingal has 13 sites within the county that are proposed Natural Heritage Areas under the Wildlife Act 1976. Most of these are wetland sites or geologically important areas, which are very important in a national context. Many of these sites also overlap with the EU Habitat and Bird Directive designations described in the previous appendix.

There are several sites outside the Special Areas of Conservation with habitats that are listed in Annex I of the Habitats Directive such as Embryonic shifting dunes, Marram dunes, fixed dunes*, shingle and gravel banks and shores, orchid rich grasslands*, petryfing springs*, and vegetated sea cliffs. These habitats are threatened in the EU and some of them are in danger of disappearing completely from the EU and elsewhere in the world.

Fingal is fortunate to have some of these unique habitats within the county, but it also means that we have an international responsibility to make sure that these habitats are protected.

Because of the national and international importance of these sites, the planning process seeks to protect these sites from adverse developments and improve the nature conservation status of the site where possible. Accordingly, where development (incl. waste permits) is proposed within pNHA's or Annex I habitats, the applicant is required to submit an ecological assessment to establish if the proposed development is likely to have a detrimental impact on the integrity of the site, habitat and any protected species within the Natural Heritage Area or Annex I habitat. To ensure that Ecological Assessments are based on best scientific knowledge, those preparing the Ecological Assessment must have sufficient expertise and experience in relation to the ecological or other (e.g. hydrological) issues concerned and disclose an appropriate regard for the latest and most appropriate scientific methodology and assessment procedures.

The County Council will consult with the Prescribed Bodies, and other Government agencies where appropriate, when considering plans or projects which are likely to affect the Natural Heritage Areas and habitats listed in the Annex I of the EU Habitats Directive.

Planning permission will normally only be granted where it is clearly demonstrated that a proposal will have no significant adverse impact on the ecological integrity of the Annexed habitats or pNHA's. Where development is permitted, the development proposer may be asked by the planning authority to undertake habitat protection or improvement works to enhance the conservation status of the NHA or Annexed habitat.

** priority habitats because their global distribution largely falls within the EU and they are in danger of disappearance.*

APPENDIX XIIc: PLANNING PRINCIPLES ECOLOGICAL NETWORK - PROTECTED PLANT & ANIMALS

Certain plant, animal and bird species are protected by law. This includes plants listed in the Flora Protection Order, 1999 (or other such Orders) and their habitats, birds listed in Annex 1 of the Birds Directive and animals and birds listed in the Wildlife Act, 1976 and subsequent statutory instruments. In addition, strict protection under the Habitats Directive applies to the species listed in Annex IV of that Directive, including all bat species, the otter, and all cetaceans. Where Annex IV species are present all possible measures to avoid damage and disturbance to them must be taken in the formulation of proposals for development. Where the risk of damage or disturbance is unavoidable an application for a derogation license may be made to the Minister for the Environment, Heritage and Local Government under Regulation 23 of the Habitats Regulations 1997 (S.I. 94/1997). This should take place in advance of seeking planning permission for the proposed development.

The planning process will seek to protect and enhance species protected by law and their habitats. Applicants must demonstrate that proposals will not have a significant adverse impact on protected species and their habitats. This can often be done by avoiding adverse impacts - for example, by redesigning the proposed development to exclude impacts on protected species and their habitats or by ensuring that development takes place outside the breeding season. In some cases, it may be appropriate to provide alternative roosts (for bats, for example), or to provide suitable habitat elsewhere. In some cases it may be necessary to re-locate the proposed development.

Consultation with the Prescribed Bodies, and appropriate Government agencies, will take place when considering undertaking, approving or authorising development which is likely to affect species listed in Annex IV of the Habitats Directive, Annex I of the Birds Directive or the Flora Protection Order. In the case of species listed in Annex IV of the Habitats Directive applications for planning permission must be accompanied by a copy of the application for a derogation license made to the Minister for the Environment, Heritage and Local Government. The Planning Authority shall take account of the views of the Prescribed Bodies and any licensing requirements in relation to protected species. An ecological impact assessment shall be required for any proposed development likely to have a significant impact on species protected by law and their habitats. The Council will normally only grant permission where it is clearly demonstrated that a proposal will have no significant adverse impact, incapable of satisfactory avoidance or mitigation, on the species of interest and associated habitat(s).

APPENDIX XIId: PLANNING REQUIREMENTS ECOLOGICAL NETWORK - BUFFERZONES

To ensure the protection of our nationally and internationally designated sites and the associated flora and fauna species and to comply with Habitat Directive regulations the following requirements apply where development is proposed within the bufferzones:

- Within the bufferzones of the three EU designated estuaries, all proposed developments shall be subject to an Appropriate Assessment Screening procedure. A full AA assessment is required where a potential impact on the designated site has been identified (see appendix XIIa for more details on the appropriate assessment).
- All proposed developments within the buffer of the Bog of the Ring and Sluice River Marsh pNHA's shall be subject to a hydrological impact assessment to establish whether the development may have an impact on the hydrology and chemical composition of the surface and groundwater that feeds these wetlands. This hydrological assessment is particularly important around the Bog of the Ring to protect the supply of drinking water extracted from the area.

The County Council will consult with the Prescribed Bodies, and other Government agencies where appropriate, when considering plans or projects which are likely to affect the designated sites. In accordance with Article 6(3) of the Habitats Directive the Council will normally only grant permission in cases where it is clearly demonstrated that, a proposed development either individually, or in combination with other plans and projects, will not adversely affect the ecological integrity of a Natura 2000 site or sites. Following a finding that a proposed development will adversely affect the integrity of a Natura 2000 site planning permission may only be granted in exceptional cases, in the absence of any alternatives, for imperative reasons of over-riding public interest subject to the strict requirements of Article 6(4) of the Habitats Directive. Where planning permission is granted, the applicant may be requested by the planning authority to provide land for actions or implement management measures that are outlined in the masterplans that shall be prepared for the Special Areas of Conservation and their surrounding buffers.

If a proposed development is found to have a hydrological impact on the Bog of the Ring or Sluice River, the applicant will be requested to amend the proposal to ensure that no impacts occur. The Council will normally only grant permission in cases where it is clearly demonstrated that, a proposed development will not adversely affect the ecological integrity of these wetland sites. It is particularly important that sewage from the proposed development is adequately treated before allowed seeping into the ground and that nutrient flows on the farm holdings are balanced to protect the surface and groundwater quality of the pNHA's.

APPENDIX XIIe: PLANNING GUIDELINES ECOLOGICAL NETWORK - NATURE DEVELOPMENT AREAS AND CORRIDORS

Where landowners within the ecological network wish to develop or re-develop their property, the County Council will request the applicants to retain existing natural features as much as possible and provide new natural habitats. This will protect the existing wildlife on the site and enhance the nature conservation interest of the lands within the ecological network. The following planning guidelines apply:

1. **Identify most important wildlife features and incorporate these features as part of the development.** The aim should be to avoid an overall loss in acreage of natural habitats and maintain the existing wildlife corridors. This will conserve the existing wildlife value of the area and will provide a basis for improving the nature conservation interest of the site.
2. **Design the footprint of the development to avoid impacts on areas of biodiversity value.** Locate developments in areas of low biodiversity interest. Brownfield sites, improved agricultural grassland and arable lands often have a low biodiversity value and are generally most suitable for development.
3. **Cluster development elements (e.g., buildings, sheds, parking areas) to leave larger natural areas.** Locating structures close together can save time and money on development and maintenance and helps to keep large areas of the property in a natural state. Avoid bi-secting habitat patches with roads, fairways, or paths. Instead, place these features along the perimeter of a habitat patch where possible.
4. **Avoid developments within the 30m buffer of the river corridor or in a floodplain of the Liffey, Tolka, Pinkeen, Mayne, Sluice, Ward, Broadmeadow, Ballyboghil, Corduff, Matt and Delvin.** This will ensure that the corridor function of the river and adjacent lands is protected and that movement of flora and fauna is not compromised. Any developments near a river but outside the 30m bufferzone should include some habitat improvement works to the bufferzone where appropriate.
5. **Use wetland features for water treatment.** Reedbeds and ponds are natural filter systems and can be located at outfalls of drainage systems and septic tanks to intercept any fertilizers, pesticides and nutrients that have been washed out of the soil. Where reedbed systems are used to treat the effluent of septic tanks it is important to use a liner to prevent polluted water draining into the soil before it is fully treated in the reedbed.
5. **Assess potential for habitat improvement as part of development.** New developments can provide an opportunity for creating ecological valuable habitats that can replace existing low quality habitats. The next appendix gives an overview of the range of habitat creation measures that can be undertaken as part of a development.

APPENDIX XIIf: PLANNING REQUIREMENTS - NATURE DEVELOPMENT AREAS & CORRIDORS

There is a range of habitat creation and management options that can be implemented to improve the wildlife value of the nature development areas and ecological corridors. It is recommended that all applicants consult with the Biodiversity Officer to assess which options are most appropriate at their site. New habitats should be located in areas where they improve the connectivity between natural habitats and the surrounding countryside. The footprint and intensity of the proposed development dictates the nature of the compensatory habitat requirement conditions.

1. **Develop or expand a pond.** Ponds can be valuable and cheap additions to the drainage system of the farm. They can be developed near dwellings, sheds and access roads to receive the rainwater from these structures. Not only can costs be saved on the drainage system, they will also help to improve the water quality of the rivers and groundwater in rural Fingal. The pond should be at least 50m^2 with a minimum depth of 50cm and a maximum depth of 1.5m. The edge habitat around the water is of key importance. An extended drawdown zone between the water surface and the land, caters for a lot of wetland plants, which increases the wildlife value and the water filtering function of the wetland.

2. **Plant 250 trees that produce berries and seeds, such as Hawthorn, Blackthorn, Cherry, Oak and Hazel.** Using trees that are native to the soils and climate of Ireland will usually require less water, less fertilizer, and less effort to maintain. Ideally these trees and shrubs are planted in copses of at least 500m^2, with 3 tree species in the core of the planting area and the 3-4 shrub species along the edges. Natural looking sinuous edges to the planting provide more opportunities for wildlife than straight lines.

3. **Plant 250m of a new hedgerow and/or maintain 250m of existing hedgerow where required.** A connecting linear habitat can be developed by planting a new hawthorn hedgerow. Some other fruit and nut bearing species such as Hazel, Dog Rose and Blackthorn can be mixed into the planting. The aim is to develop these into a dense, 3m high hedge with a 2-8m wide woody base, combined with a 3m wide grassy verge that is only cut once a year. Where older hedgerows have escaped and turned into "lollipop" trees, hedgerow management measures should be taken to restore the hedge. This can be done by hedge-laying or coppicing, depending on the structure and age of the hedge. Where old hedges are being maintained the focus should be on old townland boundary hedgerows as these tend to be the oldest and most species rich. Ideally, any hedgerow management works are combined with exclusion fencing where livestock has direct access to the hedge to prevent the base of the hedgerows being eaten away.

4. **Enhance streams and rivers.** Where streams and rivers are located in the land holding that is to be developed these habitats may benefit from wildlife enhancement works. Alder and Willow trees can be planted in pockets or individuals along the river-bank (at least one tree for every 5m of linear riverbank) to provide cover for wildlife. Engineered bank protection measures should be avoided and soft engineering solutions such as Willow revetments should be used.

   Not only do they look more natural, they are also a lot cheaper to build and maintain. Exclusion fencing should be installed where livestock is poaching the riverbanks to prevent the loss of land and bank erosion. Species specific actions can be taken too such as building an Otter holt, King fisher bank, or adding a 100m of gravel and pool areas in the stream for Trout and Salmon.

5. **Develop 250m of 3-5m wide linear strips or beetlebank with tussocky grasses along the headlands for 3 years.** These strips would not be cut for at least 2 years or sprayed with pesticide or herbicides unless noxious weeds or pests are present within this strip. These rank grassland strips provide suitable nesting habitat for many arable birds and a good wintering habitat for many insects. It is therefore important not allow for a build up of dead grass material (essential for successful nesting).

   Please note that other types of 3-5m wide linear strips along the headlands and hedgerows are also acceptable such as arable flower mixtures, just cultivated strips (no seeding), no spray strips (in crop, but no spraying), open cereal and linseed mix (Tritikale for brood rearing) and spring sown fodder crops such as Kale (wintercover for wildlife) or a mixture of tussocky grasses and cereals within the 3-5m strip particular where land is managed for Grey Partridge.

6. **Develop or enhance 1000m^2 of wildflower hay meadow (golf courses only).** Haymeadows can be created by reducing the existing grass cutting regime in the rough. Ideally, these areas would be cut once or twice a year, depending on the maximum height of grass permitted and the levels of growth during the year. These meadows would be cut in Late March-early April and September and all the clippings are to be collected. It is important that these areas are not sprayed with pesticides or herbicides.

7. **Develop and implement a pesticide and herbicide management plan aimed at reduce the input of these chemicals on the farm.** Pesticides and herbicides can harm wildlife either directly by killing them or indirectly by poisoning their plant and animal food sources. Chemical exclusion strips approximately 3-5m wide along the edges of fields increase the abundance of birds, small mammals, and butterflies on farmland. Encourage natural control agents such as ladybirds, beetles, some wasps, and birds by sowing a wildflower mix along the edges of the field. Bird boxes could be provided to encourage natural pest control by songbirds and birds of prey.

8 **Develop and implement nutrient management plan.** A nutrient management plan can be prepared where development is proposed within agricultural land holdings that are located in the bufferzone near the Bog of the Ring or located along the river corridors. A nutrient management plan helps the farmer to make the most efficient use of the available nutrients on the farm and helps to minimize the loss of nutrients into the groundwater and nearby rivers and streams.

9 **Develop and implement Biodiversity Management Plan for Quarry.** This audits the habitat and species present in and around the quarry, identifies local and national priority habitats and species, and provides a framework to maximise site biodiversity during the extraction phase and restoration afterwards.

10 **Prepare and implement an ecological management plan for the golf course.** This plan would guide any nature conservation and environmental efforts on the golf course. It would give an overview of the existing wildlife and habitat resource within the golf course and outline a serious of actions on how the golfcourse could be improved for wildlife and how the various habitats can be connected.

APPENDIX XIIg: PLANNING PROCEDURE FOR NATURE DEVELOPMENT AREAS

The Draft Fingal Development Plan 2011-2017 states that applications for planning permission within Nature Development Areas must demonstrate how the proposed development will maintain and enhance the Biodiversity value of the Nature Development Area. The following four steps give an overview of the recommended procedure to be followed by landowners intending to undertake development works on their lands within the Nature Development Areas.

STEP 1: DOES YOUR PROPOSED DEVELOPMENT REQUIRE PLANNING PERMISSION?

The applicant should refer to the Planning & Development Regulations 2001 as amended and the Planning & Development Act 2000-2009 to establish if the proposed development requires planning permission.

The planning guidelines and requirements for Nature Development Areas and Corridors outlined in Appendix XIIe & XIIf of this Biodiversity Plan only apply to developments that require planning permission.

STEP 2: WHERE PLANNING PERMISSION IS REQUIRED - CONTACT THE BIODIVERSITY OFFICER

Before designing your development proposal, you are advised to contact the Biodiversity Officer to discuss how impact on the natural environment can be minimised and avoided. At this stage the applicant and the Biodiversity Officer can discuss which habitat creation and management option(s) described in the previous appendix are appropriate and feasible for this development to improve the wildlife value of the nature development area and/or ecological corridor. These biodiversity enhancement measures (including details of the works, methodology, timing of the works etc) are to be incorporated in the planning proposal.

STEP 3: WHEN A GRANT OF PLANNING PERMISSION IS OBTAINED

Where permission is granted, a condition may be attached that requires the biodiversity enhancement works to be undertaken.

STEP 4: INITIATE DEVELOPMENT AND CARRY OUT BIODIVERSITY ENHANCEMENT WORKS

The biodiversity enhancement measures should take place prior or during the development, unless the most suitable timing falls after the construction phase. These enhancement works can be supervised or assisted by the Biodiversity Officer. Please note that there are restrictions on the timing of some of the enhancement measures due to the Wildlife Act. Hedgerow management can only be undertaken between the 1st September and the 1st March. Tree planting is best carried out between January and the end of March. The other measures are not bound to particular times of the year.

The County Council can also approach the Conservation Volunteers on behalf of the applicant to see if any volunteer assistance is available to implement the enhancement works particularly in relation to tree planting and hedgerow management.

For any information or clarification regarding the above you can contact the Biodiversity Officer on 890 5605 or via e-mail: biodiversity@fingalcoco.ie.

For all other activities and developments that are exempt from planning permission it is recommended that the land-owner applicant contacts the Biodiversity Officer to discuss how impact on the natural environment can be minimised and what opportunities there are for enhancing the site for wildlife and potential costs savings e.g. pond that collects rainwater from sheds is good for wildlife and would reduce the need for the installation of drainage pipes.

APPENDIX XIIIa: TOWN BIODIVERSITY PLANS - SKERRIES

No.	Action	Objective	Organisations Involved
1*	Replace annual bedding schemes with perennial planting or cornfield annuals, comprising of species that will flower throughout the summer and early autumn, will attract bees and butterflies and have a low maintenance requirements. These bedding schemes are located at: ■ Roundabout at railway bridge ■ The monument ■ New street ■ The square ■ Florafill next to library ■ Entrance to Skerries from Rush ■ Entrance to Skerries from Balbriggan ■ Toilet blocks	To provide flower rich planting schemes that will benefit wildlife and the town aesthetics. Permanent planting is more environmentally sustainable and reduces the labour input.	FCC and Skerries Tidy Towns.
2*	Develop a wildflower meadow on either side of the stream east of the Mill complex in the Town Park.	To develop an attractive flower rich wet grassland meadow by reducing the grass cutting frequency to once or twice a year.	FCC.
3*	Develop a demonstration site in one of the estates for wildflower meadow development at a location identified in County Council's grassland management programme as Grade 7.	To develop an attractive flower rich meadows by reducing the grass cutting frequency to once or twice a year.	FCC.
4*	Install interpretation panels in the Town Park with information on the wildlife of the park.	To inform visitors about the wildlife of the Town Park.	FCC, Skerries Tidy Towns and Skerries Community Council.
5	Organise a tree planting day in the Town Park.	To make the Town Park more interesting to wildlife.	FCC, Skerries Tidy Towns and Skerries Community Council.
6	Re-grade edges of small pond at the entrance to enlarge the reedbed zone.	To make the Town Park more interesting to wildlife.	FCC.
7	Expand reedbed next to the big pond to provide a habitat for reedbed birds.	To make the Town Park more interesting to wildlife.	FCC.
8	Carry out ecological study of the Ballast Pit.	To find out what plants and animals live in the Ballast Pit.	FCC, DNFC and Birdwatch.
9	Organise annual wildlife walk(s) for schools and the general public.	To educate local pupils and the general public about the wildlife Town Park and the coastline at Skerries.	FCC, Skerries Tidy Towns, DNFC and Birdwatch.
10	Initiate a campaign of bird, bat and insect box making for gardens and schools throughout Skerries.	To encourage people to enhance their gardens and open spaces for wildlife.	FCC, Skerries Tidy Towns and Local Schools.

** Priority Actions for Town Biodiversity Plan.*

APPENDIX XIIIb: TOWN BIODIVERSITY PLANS - SWORDS

No.	Action	Objective	Organisations Involved
1*	Develop a demonstration site in one of the estates for wildflower meadow development at a location identified in County Council's grassland management programme as Grade 7.	To develop an attractive flower rich meadows by reducing the grass cutting frequency to once or twice a year.	FCC and Swords Tidy Towns.
2*	Organise annual tree planting day in Swords.	To increase the tree cover in Swords.	FCC and Swords Tidy Towns.
3*	Develop a demonstration round-about with lots of colour and minimum maintenance requirement with native wildflowers.	To provide flower rich planting schemes that will benefit wildlife and the town aesthetics.	FCC.
4*	Excavate 2 pond areas at the outfalls of the surface water drains that discharge into the Ward River within the Ward River Valley Park.	To improve the water quality of the Ward, protect the Salmon spawning grounds and will provide a new habitat for amphibians and other wildlife.	FCC.
5*	Implement grassland management regime in the Ward River Valley that benefits wildlife. Local schools to develop small signs for wildflower meadows.	To develop an attractive flower rich wet grassland meadow and improve the grassland habitat in the Park for wildlife.	FCC and Local Schools.
6*	Carry out river enhancement works for Salmon and Brown Trout in the lower reaches of the Ward River.	To improve and protect the Salmon spawning grounds in the Ward River.	FCC and Fisheries Board.
7	Control invasive species (Japanese Knotweed and Giant Hogweed) along the Ward River.	To eliminate invasive species along the Ward River.	FCC.
8	Organise an annual wildlife walk in the Ward River Valley Park.	To inform visitors about the wildlife of the Ward River Valley Park.	Swords Tidy Towns.
9	Organise an annual clean up of the Ward River.	To keep the river clean from rubbish.	FCC, Swords Tidy Towns and IWT.

** Priority Actions for Town Biodiversity Plan.*

APPENDIX XIIIc: TOWN BIODIVERSITY PLANS - DONABATE

No.	Action	Objective	Organisations Involved
1*	Replace annual bedding schemes with perennial planting, comprising of species that will flower throughout the summer and early autumn, will attract bees and butterflies and have a low maintenance requirements. These bedding schemes are located at: ■ Entrance to Donabate next to Petrol station ■ Entrance to Donabate via Turvey Avenue ■ Village Green ■ The hand corner	To provide flower rich planting schemes that will benefit wildlife and the town aesthetics. Permanent planting is more environmentally sustainable and reduces the labour input.	FCC and Donabate Tidy Towns.
2*	Create a new low maintenance perennial plantings schemes at the village pump in the main street.	To provide flower rich planting schemes that will benefit wildlife and the town aesthetics.	FCC and Donabate Tidy Towns.
3*	Develop a demonstration site in one of the estates for wildflower meadow development at a location identified in County Council's grassland management programme as Grade 7.	To develop an attractive flower rich meadows by reducing the grass cutting frequency to once or twice a year.	FCC.
4*	Plant a variety of climbers such as Honeysuckle, Ivy and range of Clematis on side walls of open spaces at Beverton and Cois Inbher.	To provide a range of colours during the year, prevent graffiti and provide a feeding and nesting site for wildlife within the housing estates.	FCC and Donabate Tidy Towns.
5	Carry out ecological study of the wetland near St. Ita's together with local primary school.	To find out what plants and animals live in the wetland at St. Ita's.	FCC, Donabate Tidy Towns and Local Schools.
6	Develop a conservation plan for the wetland near St. Ita's.	To identify the actions required to protect the wetland and promote practical conservation action.	FCC, Local Schools, Tidy Towns and Donabate Community Council.
7	Protect woodland in St. Itas and prepare a conservation plan for these woods.	To identify the actions required to protect the woodland and promote practical conservation action.	FCC, HSE, Tidy Towns and Donabate Community Council.
8	Collect tree seed from local hedgerows and woodlands and grow these on in schools and Turvey park.	To promote the protection and replanting of hedgerows in Donabate.	Donabate Tidy Towns, Resident Associations and Local Schools.
9	Carry out a hedgerow survey in Donabate.	To assess the status of remaining hedgerows within Donabate and prepare a list of conservation actions for the individual hedgerows.	Donabate Tidy Towns and Trinity College.
10	Initiate a campaign of bird, bat and insect box making for gardens throughout Donabate.	To encourage people to enhance their gardens and open spaces for wildlife.	Donabate Tidy Towns and Donabate Community Council.

** Priority Actions for Town Biodiversity Plan.*

FINGAL BIODIVERSITY ACTION PLAN

2010-2015

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Fingal Biodiversity Programme