The Ecology of Blackrock

An Ecological Survey of Blackrock, Co. Louth

Blackrock Tidy Towns Committee

2006

An Chomhairle Oidhreachta

The Heritage Council

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Prepared by

Julie Roe and Oscar J. Merne

November 2006

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We especially want to acknowledge the dedication and hard work of Julie Roe and Oscar Merne who spent many long hours in the field and at their desks surveying, sourcing and studying information and photographs, and putting it all together in such a comprehensive, coherent and readable report.

Blackrock Tidy Towns Committee

November 2006

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1. INTRODUCTION

In 2005 Blackrock Tidy Towns Committee decided to investigate the feasibility of commissioning a professional ecological study of the village of Blackrock, Co. Louth. This decision was prompted by the Committee's desire to raise and improve local awareness of the rich and varied ecology of Blackrock, and by the possible threat to this ecology posed by the rapid and unprecedented growth in the built environment in the village. In 2006 the Committee secured Heritage Council funding towards a general ecological survey of Blackrock, and commissioned Julie Roe and Oscar J. Merne to undertake the survey and prepare a report. The survey was to be carried out in the spring, summer and autumn of 2006, and a comprehensive report was to be completed by November 2006.

Blackrock Tidy Towns Committee set up a Steering Committee for the project. This comprised Mr. Larry Magnier, representing Blackrock Tidy Towns Committee, Mr. Brendan McSherry, Heritage Officer, Louth County Council and Dr. Maurice Eakin, District Conservation Officer, National Parks & Wildlife Service (Department of the Environment, Heritage and Local Government). The Steering Committee communicated with the authors of this report at various stages of the project, between March and November 2006, and met with the authors in Dundalk on two occasions. Following one of these meetings, the authors made a public presentation on progress with the ecological survey in Blackrock Community Centre. To enhance the range of ecological expertise available for the survey, the authors engaged Faith Wilson to carry out a survey of terrestrial mammals (particularly bats) and terrestrial flora. The findings of the field survey work carried out in the Blackrock area in 2006 were integrated with information on the ecology, habitats, flora and fauna of the area obtained from other sources – published literature, reports, data sets, maps, photographs, etc. – covering Blackrock and the wider area of Dundalk Bay. The combined information gathered forms the basis of this report.

2. LOCATION AND STUDY AREA

The small seaside settlement that would eventually become Blackrock was first noted in the "Book of Dundalk" in 1752. Blackrock developed as a fishing village in the early 19th century, and in 1841 the population of the village had reached 507 with 95 houses, mostly small thatched fishermen's cottages. By 1845, visitors to the area complained of the lack of hostelries and stabling, prompting a local landlord to undertake the construction of a wall along the main beach and the building of several lodgings and hotels. This was the beginning of Blackrock's rapid development as a popular holiday resort, attracting visitors from all neighbouring counties as well as Belfast and Scotland, and which continued well into the 1960s. Today Blackrock is a vibrant, expanding, and mainly residential small town with over 3,000 inhabitants.

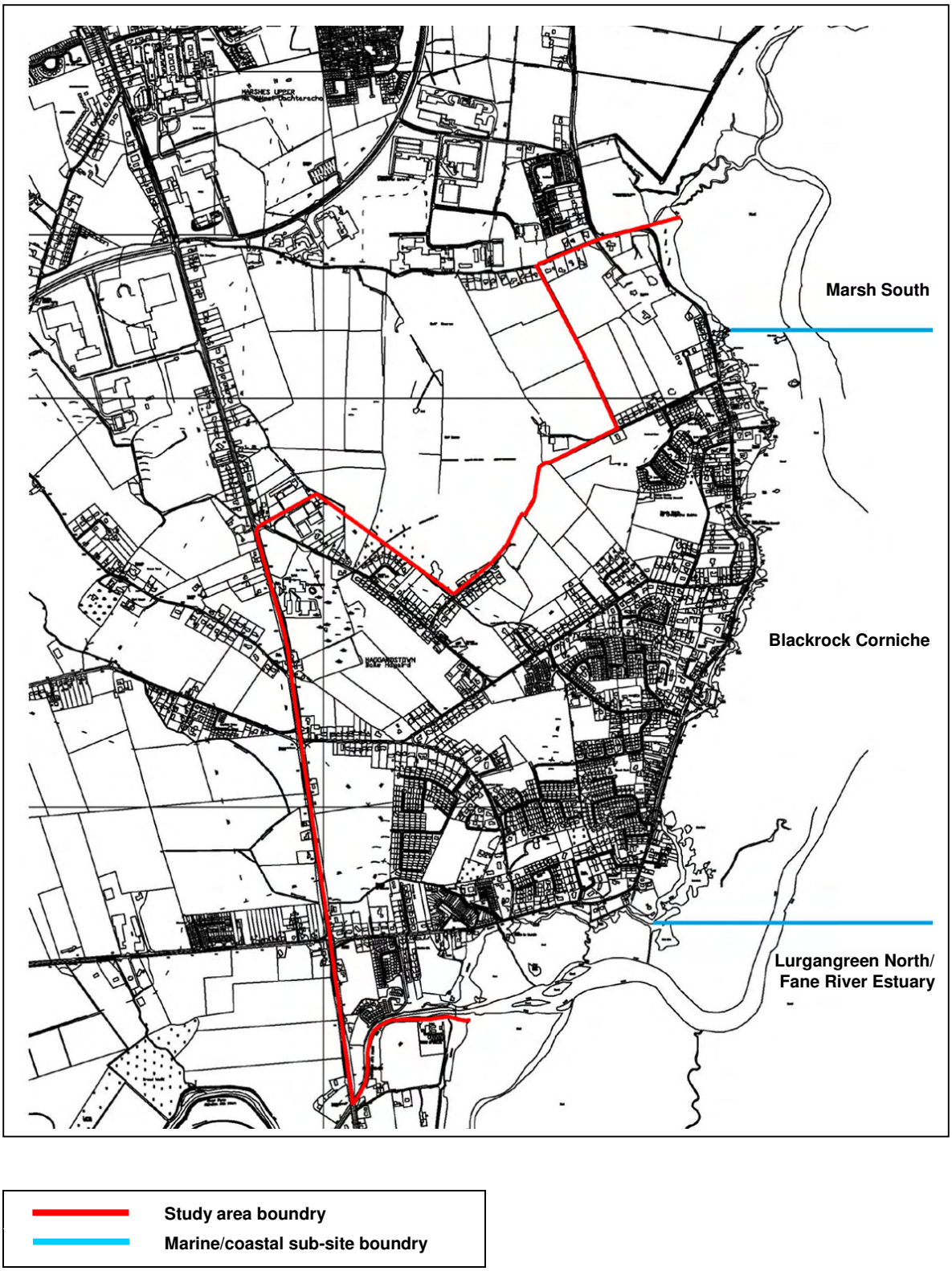
Blackrock is situated on the shore of Dundalk Bay, seven kilometres south-east of Dundalk, in Co. Louth. The centre of Blackrock is at Irish National Grid reference J 073.025, and its Latitude and Longitude are 53°58'N 06°22'W. The area is covered by the Ordnance Survey of Ireland 1:50,000 map in the Discovery Series, and the O.S.I. 6" Louth Sheets 007 and 012.

The study area for this ecological survey was defined by Blackrock Tidy Towns Committee as an area of approximately three square kilometres, bounded by the Fane River estuary in the south, the R132 road to the west, the shoreline on the east side (as far north as The Loakers, where the coast road turns inland), and on the north by Dundalk Golf Course. The boundary is shown on the study area map (see Figure 1) as a red line. Because of the great ecological importance of the intertidal mudflats, sandflats and saltmarshes of Dundalk Bay adjacent to the terrestrial study area, it was decided to include this marine habitat in the study area also. This marine habitat is highlighted on the map and the survey areas correspond to count units as defined by the Irish Wetland Bird Survey (I-WeBS)[1].

Roads and landmarks referred to in this report can be found on the map of Blackrock (Figure 2).

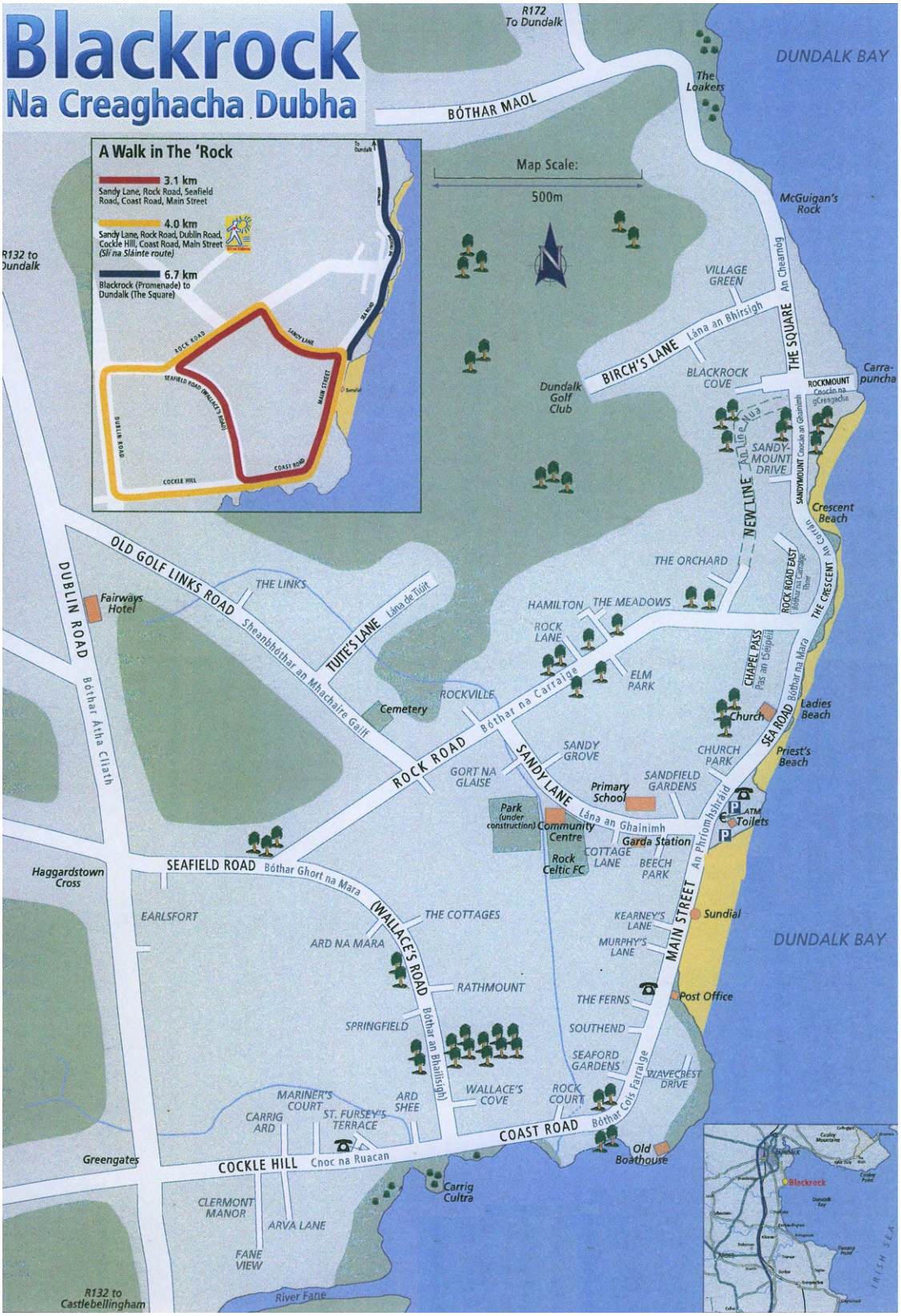
[1] I-WeBS is the national monitoring project for non-breeding waterbirds, wintering in Ireland, organised by BirdWatch Ireland, National Parks & Wildlife of the Department of the Environment, Heritage & Local Government and the Wildfowl and Wetlands Trust, and supported by The Heritage Council.

Figure 1. Map of the Blackrock ecological survey study area[2]



[2] Base map reproduced by kind permission of Louth County Council. © Ordnance Survey Ireland.

Figure 2. Map of Blackrock



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3. METHODS

The methods employed in this study were as follows:

(a) During the preparation of the *Proposals and Costings for 2006 Survey*, before the field survey work commenced, during the fieldwork period, and at the report writing stage, the authors carried out a desk study of available data and material on the habitats, flora, fauna, etc. of the Blackrock study area and Dundalk Bay. This involved searches of the relevant published literature, unpublished reports and data sets, oblique and vertical aerial photographs, large-scale maps, and other sources of information relevant to the study.

(b) The field survey work involved a series of visits to the study area between late May and mid-September 2006.

In the marine, estuarine, intertidal and shoreline zones the emphasis was on censusing non-breeding summering waterfowl, sampling the macrobenthic fauna (annelid worms, crustaceans and shellfish) which provide food for these birds, surveying saltmarsh and other maritime vegetation, and the salt-tolerant flora of the coastal fringe. Coastal and estuarine fish were also covered.

In the terrestrial parts of the study area, general surveys were carried out of the main habitats present (urban and suburban gardens, individual large mature gardens, fields, hedgerows, stands of trees, small streams, ponds, marshes, etc.)

Here the flora and vegetation (mainly flowering plants and trees) were covered, along with mammals, terrestrial bird species, reptiles, amphibians, and butterflies. Some observations of "lower" plants and invertebrate groups such as dragonflies and bumblebees were also made, but time and resources did not allow for detailed surveys of these.

The authors engaged Faith Wilson for two days to carry out additional specialist survey work on bats and other mammals, and on flora.

Particular attention was paid to a number of individual sites of conservation interest:

- the low-lying area of marsh, reedbed and scrub at the northern edge of the study area, which is included in the Special Area of Conservation (The Loakers area);
- the rough grassland and maritime vegetation in the south-east corner of the study area, around the Old Boathouse;
- the River Fane estuary area;
- several small areas of freshwater marsh in the study area;
- stands of mature trees (mixed deciduous/coniferous).

(c) A public presentation on the preliminary findings of the study was made in Blackrock on 28th August 2006, at which members of the public provided additional useful information - particularly on mammals observed in the study area.

(d) Using all the data and information assembled from the above we prepared this report in September and November 2006.

4. BACKGROUND

4.1 Geology and Soils of the Blackrock area

The underlying geology of the Blackrock area is composed of Silurian rocks and shales from the Lower Palaeozoic Era (Holland 1981; Anon 1979(a)). These are exposed along the shore as rocky outcrops, and they also form small islets at Carrig Cultra (Fane River estuary), Sandymount, and between Carrapunta and McGuigan's Rock. Two of these islets are high enough above the splash zone to have a cover of vegetation, and these are also major high tide roosting sites for waders. The lower rocks also provide roosting for small numbers of waders, especially at high neap tides. On land there is an exposure of bedrock at a small disused quarry at McGuigan's Rock, and on the landward side of the road at Sea Road and The Crescent. The Blackrock area is at the edge of a drumlin zone, comprising material of Scottish origin (Holland 1981). The soils are mainly dry mineral soils, with acid brown earths (Anon 1979(a)). The saltmarshes at the Fane River estuary and at Marsh South are founded on estuarine and marine silts and sands.

Ariel view of north Blackrock © NPWS

4.2 Climate of the Blackrock area

The following, taken largely from Rohan (1986), the Royal Irish Academy *Atlas of Ireland* (Anon 1979 (a)), and Holland (1981), summarises the climate, weather and hydrology of the Blackrock area.

Being on the east coast, Blackrock is relatively dry and temperate. Annual rainfall (including sleet, snow and hail), measured at Dundalk, is 800-1,000 mm (967 mm in the period 1951 to 1980), with a total of about 150 rain-days per annum. The driest months are April to June, with 60-65 mm of precipitation per month, while the wettest period is October to January, with 92-102 mm per month. The Fane River drains much of the land to the west and north-west of Blackrock, and discharges an average flow rate of 3.7 m per second. Otherwise, drainage at Blackrock is effected by a few small streams and ditches, surface run-off, and evapotranspiration.

Daily sunshine ranges from 1.5 hours in January to 6.5 hours in May and June, with an annual mean of 4.0 hours. This equates to a total of 1,400 to 1,500 hours of sunshine per annum, which is exceeded in Ireland only by narrow coastal bands in Co. Wicklow and south-east Co. Wexford.

The annual mean daily air temperature is 9.5 to 10.0 degrees Celsius, with a January average of 5.0 degrees, and a July average of 15.0 degrees. These relatively benign temperatures give rise to a grass growing season commencing in mid-March and continuing until the end of November.

The sea temperature is 6.9 degrees in January and this rises slowly to a peak of 14.5 degrees in July.

Atmospheric pressure averages 1010 hectopascals in December and 1016 hectopascals in June and July. Most low pressure systems originate in the North Atlantic and are responsible for the predominant westerly and south-westerly winds in the Co. Louth area. The mean annual wind speed is 5-6 m per second, compared with 7-8 (or more) m per second on exposed southern, western and northern coasts.

Climate and weather have a major bearing on the ecology, fauna and flora of Blackrock. The relatively long, mild and damp growing season results in an abundance of grasses, herbs and other plants, while the lack of freezing conditions on the coast make the area very attractive to large numbers of migratory birds which have fled much more severe conditions to the north and east.

4.3 Habitats

The main habitats (classified according to Fossitt 2000)[3] identified in the Blackrock study area are as follows. The habitats are divided into *Marine and coastal* (A), and *Terrestrial* (B), and each habitat described is given the classification reference from Fossitt. Where appropriate, the area or linear measurement of the habitat is also given.

A. Marine and coastal

1. Intertidal mudflats and sandflats, and associated low water channels, creeks and runnels (LS2-5 – Sand, Muddy sand, Mud, Mixed sediment)

In Dundalk Bay over 4,000 ha of intertidal mudflats and sandflats are exposed at low tide. These flats are composed of sediments originating from the Irish Sea, and brought down by the inflowing streams and rivers. In the Blackrock area the flats extend up to 3.5 km from the shore at low spring tides. Most of the flats are sandy, but at Lurgangreen North/River Fane Estuary and at Marsh South the sediments are increasingly muddy.

The mudflats, channels and creeks at Marsh South. © NPWS

[3] Fossitt, J. 2000. *A Guide to Habitats in Ireland*. The Heritage Council of Ireland, Kilkenny.

2. The River Fane estuary (CW2 –Tidal rivers; LS4 – Mud shores; MW4 – Estuaries)

In the Blackrock area the only significant estuarine habitat is where the River Fane enters Dundalk Bay at the south edge of the study area. The estuary here is bordered on the north by *Spartina* marsh, and on the south by the spreading saltmarsh at Lurgangreen North. This latter protects much of the estuary from wave action in Dundalk Bay, resulting in very little disturbance to the fine sediments within the estuary, and the invertebrate fauna that live in them.

The River Fane estuary © NPWS

3. Saltmarshes (CM – Saltmarshes)

Two of the four main saltmarsh habitats in Dundalk Bay occur in the Blackrock area, at Lurgangreen North (on the south side of the River Fane estuary) and at Marsh South (at the north end of Blackrock). These two saltmarshes are relatively natural and undisturbed, with a minimum of stock fencing in parts, and very low intensity seasonal grazing by sheep. Both saltmarshes are growing slowly, as newly accreting sediments are colonised by saltmarsh plants such as *Spartina* and *Salicornia*.

Saltmarsh habitat at Blackrock

4. **Mats of marine green algae.** (Not listed by Fossitt)

   Nutrients brought into Dundalk Bay by the sea and from the inflowing streams and rivers, combined with elevated temperatures and sunlight during the summer months, promote the growth of extensive green algal mats of *Enteromorpha* and *Ulva*. The growth of these algae is particularly rich at point sources of nutrient inflow. The green algae are grazed by Pale-bellied Brent Geese and Wigeon during the winter, and there is also natural die-back so that little remains by late winter.

5. **Rocky outcrops (islets and along the shore) (LR2, 3 – Moderately exposed, Sheltered rocky shores)**

   In the context of Dundalk Bay, the outcropping of Silurian rocks and shales in the Blackrock area form the great majority of this habitat present. The rocks provide a holdfast for seaweeds (particularly Fucoid brown seaweeds), and also provide a habitat for marine invertebrates such as limpets, barnacles, periwinkles and mussels. Above the tide line various maritime lichens encrust the rocks, while higher up typical maritime flowering plants such as Sea Campion, Mayweed and Thrift are found. The few small islets which lie just offshore provide safe and undisturbed high-tide roosting sites for large numbers of waders.

Rock outcrops at The Crescent

6. **Salt-tolerant maritime vegetation (flora and lichens) on higher islets and along the shore.** (Not listed by Fossitt)

   See no. 5 above. This salt-tolerant maritime vegetation is found at Blackrock in a narrow band along the shore from McGuigan's Rock to the Old Boathouse, wherever the soils are uncultivated or unoccupied by built structures, and also on the rocky outcrops and higher islets.

B. Terrestrial

1. Urban and suburban buildings, structures and associated gardens [c.160 ha] (WD5 – Scattered trees and parkland; BC4 – Flower beds and borders; BL3 – Buildings and artificial surfaces)

This very diverse and complex habitat occupies more that half of the Blackrock study area, and is growing rapidly as new housing estates and individual houses and gardens are developed. From a wildlife point of view the buildings are mainly important as nesting places for certain bird species (e.g. Swifts, House Martins, Swallows, Jackdaws, Starlings, House Sparrows), and perhaps as summer/nursery roosts for bats such as Common Pipistrelles. Rooftops, chimneys and television aerials also provide prominent song-posts for birds such as Collared Doves, Blackbirds and Starlings.

The combined individual gardens, together with common open spaces in housing estates, form a mosaic of treelines, hedges, shrubs and bushes, walls and banks, fruit trees, vegetable plots, flower beds and borders, lawns and recreational grassland, garden ponds, etc., which nowadays provide many species of wildlife with much more attractive and diverse habitats than are found in the rural landscape of intensive agriculture. Many of the landbird species that have been recorded in the Blackrock study area occur in high density in the urban and suburban habitats, in some cases assisted by the provision of peanuts, seeds and other food at garden feeders. Many of the butterflies observed were also in gardens, attracted by plants such as the Butterfly Bush (*Buddeja davidii*). A number of the mammal species in the Blackrock area also occur in gardens, albeit often at night, when they are seldom observed.

2. Large mature individual gardens [c.10 ha] (BL1, 3 – Stone walls and other stonework, Buildings and artificial surfaces; BC4 – Flower beds and borders; WD2 – Mixed broadleaved/conifer woodland; WL2 – Treelines; FL8 – other artificial lakes and ponds

In the Blackrock study area there are several large old houses standing on extensive mature grounds, away from the old urban part of Blackrock (e.g. Mountain View at The Loakers, Mount Gerard at Sandymount, Field House at The Crescent, and Fairy Mount and Seafield House on Seafield Road). The extent and maturity of the grounds and gardens of such houses makes them particularly attractive for wildlife. For example, the mature trees have colonies of Rooks, and one such site at the north end of the study area has a small colony of Grey Herons. Sparrowhawks and Wood Pigeons also nest in the mature trees, while Jackdaws often nest in tree-holes. Bats also roost in such sites, and in the roofs of old buildings which have insect-rich foraging habitat around them.

Mature gardens: a haven for wildlife

3. Fields (mainly pastures) [c.100 ha] (GA1, 2 – Improved agricultural grassland, Amenity grassland (improved)

With the relatively recent development and spread of housing in the Blackrock area, lands which were farmed into the late 20th century are now covered by houses and gardens. This trend appears to be continuing apace. Most of the remaining farmland in the study area, totalling about 100 ha, lies in a band along the northern and north-western side, with a few individual fields remaining in the south. Most of these fields are in grass, managed in varying degrees of intensity. Those which are least intensively managed are most important from a wildlife perspective, having diverse plant communities and associated invertebrate communities

4. Hedgerows [c.9 km] (WL1 – Hedgerows)

Most of the remaining fields in the study area are separated by hedgerows, and we estimate that about nine kilometres of this linear habitat remains. Besides providing wildlife with nesting/breeding habitat, food resources, shelter, etc., hedgerows function as corridors which assist the movement of animals and plants through otherwise open country. The great majority of the hedgerows in the Blackrock area are mature, diverse and well-developed, and therefore are much more valuable as a wildlife habitat than low, tightly cropped hedgerows found in nearby parts of Co. Louth.

Mature hedgerow

5. Lands undergoing building development [c.20 ha] (ED2, 3 – Spoil and bare ground, Recolonising bare ground)

Habitats of this kind are transitory by nature, and their value to wildlife depends very much on the intensity and duration of the development activity. If spoil or bare ground is left undisturbed for some months, annual plants can quickly colonise (especially in spring and summer). These, in turn, can provide a useful food resource for invertebrates, while seed crops are useful to sparrows, finches and buntings.

In the Blackrock area there are currently three main development areas: (a) large housing estate development in the block between Rock Road and Seafield (Wallace's) Road; (b) housing development south of Birch's Lane, west of The Square; (c) large housing estate development along the Dublin Road, between Seafield Road and Cockle Hill. Additional building development is likely in the future, depending on local authority development plans and individual planning applications.

6. Small stands of trees [<5 ha] (WD1, 2, 5 – Mixed broadleaved woodland, Mixed broadleaved/conifer woodland, Scattered trees and parkland; WL2 – Treelines)

Blackrock, though on the coast, is relatively sheltered from the prevailing westerly and south-west winds. However, strong, salt-laden easterlies also occur, so it is not surprising that mature trees along the coastal fringe are very much dominated by Sycamores, which are quite salt-tolerant. These trees are particularly in evidence at Priest's Beach and around Rockmount. The main stands (too small to be classified as woodland) of trees are in the large, mature gardens at Mountain View (The Loakers), Mount Gerard (Sandymount), Field House (The Crescent), Fairy Mount and Seafield House (Seafield Road). Here the mature trees are in groups/clusters and treelines, of mixed species (broadleaved and coniferous), and also of native and non-native mix. Many of the individual trees are fine specimens. Elsewhere, we noted good treelines of willows and alders along Coast Road and on the Old Boathouse peninsula, and some fine Yews at the ancient cemetery on the Old Golf Links Road. Although perhaps best described as a mature hedgerow, there are some fine trees (dominated by Ash) on Bóthar Maol, at the northern edge of the study area. There is also a good stand of tall willows in a wet hollow close to Tuite's Lane.

7. Scrublands [<5 ha] (WS1, 3 – Scrub, Ornamental/non-native shrub)

Scrubland is a habitat where shrubs, stunted trees, bramble, gorse, etc, usually not more than 5 m high, are dominant. It is usually found on poor soils or abandoned farmland, and if left undisturbed may eventually develop into woodland. It can also be invasive, spreading out into adjacent lands. Ornamental/non-native shrubs are found in Blackrock almost entirely in gardens.

Rather little scrub was found in the study area. Small areas of Blackthorn-dominated scrub occur on the Old Boathouse peninsula, while Gorse-dominated scrub was found at McGuigan's Rock, in lowland areas at The Loakers, and on rocky outcrops in pastures immediately south of The Loakers. There was also some scrub between the Dublin Road and the marsh south of the Fairways Hotel.

8. Small streams. (FW2 – Depositing/lowland rivers)

The River Fane, whose estuary is within the Blackrock study area (see no. 2 in section A above), is the only sizeable inflow of freshwater. Elsewhere there is a small stream skirting around the north side of Cockle Hill and joining the Fane estuary near Carrig Cultra, and a smaller one flowing south behind the Community Centre and into the estuary close to Rock Court. At the north end of the study area a small stream drains into Marsh South from marshy ground at The Loakers. Otherwise there are ditches aiding seasonal run-off from the lands. These small streams and flows support aquatic fauna (mainly frogs and invertebrates, but also Three-spined Sticklebacks) and flora. In general they are too small to support freshwater bird species, though Moorhens were observed at the stream north of Cockle Hill.

9. Freshwater marshes [<4 ha] (GM1 – Marsh; FS1, 2 – Reed and large sedge swamps, Tall-herb swamps)

In the Blackrock study area one area of *Phragmites* marsh has been lost recently to the industrial/commercial development beside the Dublin Road north of Cockle Hill. Four small marshes remain: (a) a marsh (dominated by *Phragmites* and Yellow Iris) situated between the Dublin Road and the Old Golf Links Road, south-east of the Fairways Hotel; (b) a small rectangular marsh (dominated by *Typha*) between Hamilton and The Meadows, off Rock Road, (c) an area of freshwater *Phragmites* marsh grading into upper saltmarsh, straddling the R172 road to Dundalk, at The Loakers; (d) a small, degraded (partly infilled) marsh north of Mariner's Court, St. Fursey's Terrace and Ard Shee, and west of the southern end of Seafield Road near Springfield.

Some of the marsh in The Loakers area (c above) is included in the Special Area of Conservation, and is protected. The marshes at (a) and (d) above appear vulnerable to building development, while the one at (b) seems less so.

Even very small freshwater marshes make a valuable contribution to wildlife conservation and biodiversity, as they support a wide variety of aquatic and semi-aquatic plants and animals. More information on the flora of these marshes is given later in this report.

Typha marsh between Hamilton and The Meadows

10. Rocky outcrops (inland) [<1 ha] (ER1 – Exposed siliceous rock)

Most of the outcropping rock in the Blackrock area is on the coast. However, small areas of this habitat were also noted on the landward side of Sea Road, at McGuigan's Rock, and in fields between Birch's Lane and The Loakers. At the first site the rock formed a low cliff; at the second there was evidence of quarrying; at the third site little rock was exposed and most was covered by Gorse. Such outcrops often have lichens, ferns, mosses (if damp), stonecrops and Navelworts growing on the exposed rock, with other flowering plants on soils that have accumulated in crevices.

4.4 The European Union's Habitats Directive – Listed habitats and species

The National Parks & Wildlife Service (Department of the Environment, Heritage and Local Government) has prepared Site Synopses in relation to the Special Area of Conservation (SAC) and Special Protection Area (SPA) designations (see Sections 4.4.1 & 4.4.2 below) covering Dundalk Bay. These synopses contain outline descriptions of the designated areas, and in the case of the SAC synopsis, emphasis is on habitats which are included in Annexes to the EU Habitats Directive. In Dundalk Bay these listed habitats are: perennial vegetation of stony banks, tidal mudflats, saltmarshes, *Salicornia* mudflats, and estuaries. The first of these listed habitats is absent from the Blackrock study area, while there is only a very small area of *Salicornia* mudflats in the River Fane estuary, at the southern edge of the study area. The remaining three listed habitats – tidal mudflats, saltmarshes and estuaries – are well-represented in the Blackrock study area.

The Flora Protection Order, under the 1976/2000 Wildlife Act, lists plant species which are specially protected in Ireland. None of these species are known to occur in the Blackrock study area (National Parks & Wildlife Service and 2006 survey).

4.4.1 Special Areas of Conservation (SACs)

Special Areas of Conservation (SACs) are prime habitat conservation areas in the country, considered to be important on a European as well as Irish level. Most SACs are in the countryside, although a few sites such as Dundalk Bay are primarily marine habitats.

The legal basis on which SACs are selected and designated is the EU Habitats Directive (92/43/EEC), transposed into Irish law in the European Union (Natural Habitats) Regulations, 1997.

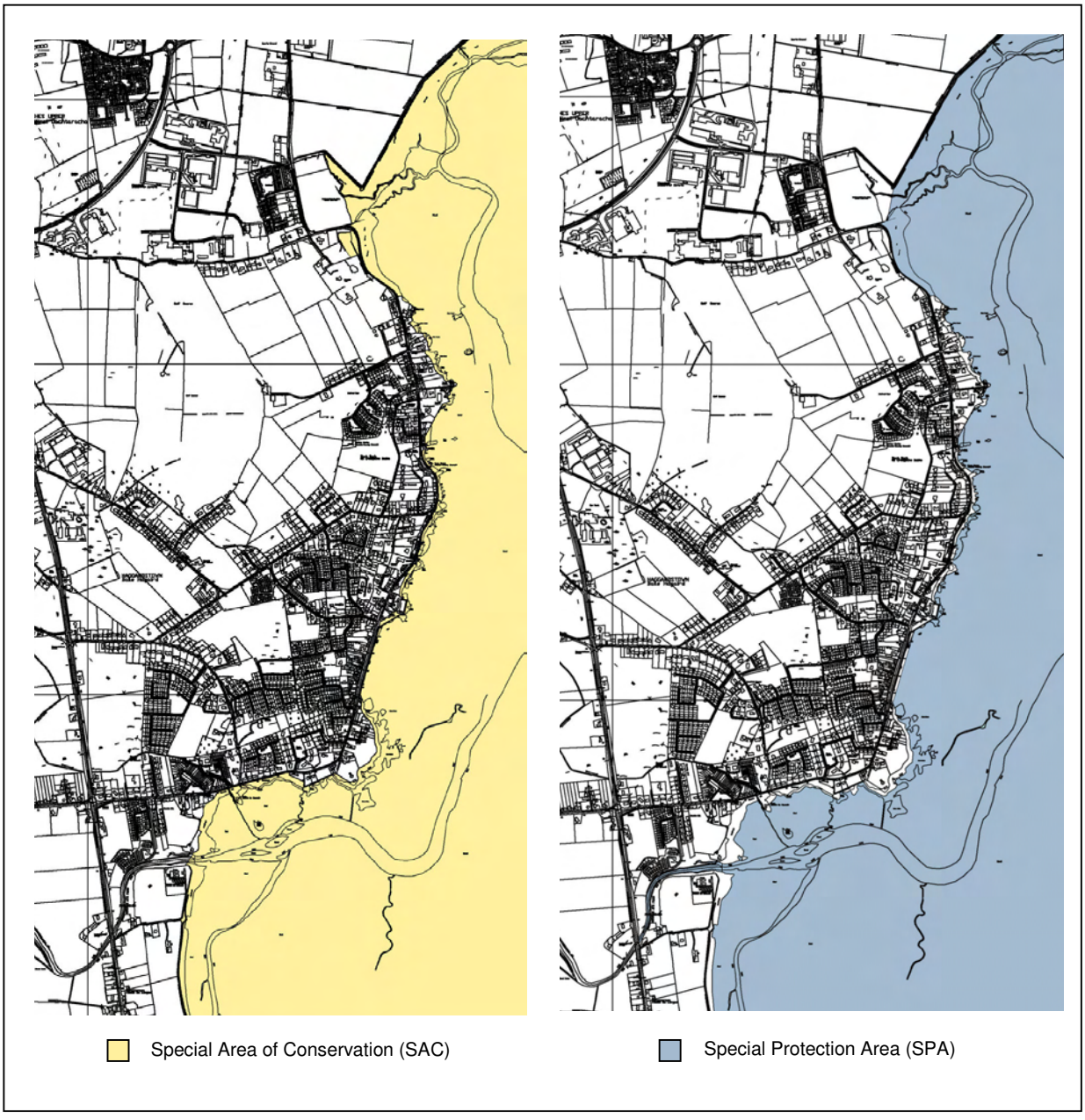
The Habitats Directive lists (Annex I) certain habitats that must be protected within SACs. Irish habitats include saltmarshes, raised bogs, blanket bogs, turloughs, sand dunes, heaths, lakes, rivers, woodlands, estuaries and sea inlets. Together Special Protection Areas and SACs form "Natura 2000", a network of protected areas throughout the European Community. Sites are legally protected once they are publicly advertised.

To date, Ireland has transmitted 413 sites to the European Commission as candidate Special Areas of Conservation. These cover an area of approximately 10,600 sq. km - a little over 30% of which is marine.

4.4.2 Special Protection Areas (SPAs)

In 1979 the European Union adopted a directive on the conservation of wild birds (Directive 79/409/EEC), which is commonly referred to as the "Birds Directive". The primary purpose of this directive is to give protection to Europe's birds and their habitats, especially to vulnerable species which are listed in Annex I of the directive. About 28 of such species regularly occur in Ireland. In relation to bird habitats, there is emphasis on wetlands, which are vital for many migratory waterbirds, some of which are listed in Annex I. The primary means for bird habitat protection is the establishment of a comprehensive network of Special Protection Areas (SPAs), under Article 4 of the directive. The SPAs are usually chosen on the basis that the sites are internationally important for birds, particularly Annex I species. Within the SPAs the authorities are obliged to prevent significant pollution or deterioration of the habitat, and significant disturbance to the birds for which the SPAs have been designated.

Figure 3. Special Area of Conservation and Special Protection Area designations covering Blackrock[4]



Further information on conservation sites is available on the National Parks & Wildlife Service website: www.npws.ie/Conservationsites/

[4] Base maps reproduced by kind permission of Louth County Council. © Ordnance Survey Ireland.

5. SECTION 1. MARINE AREAS

5.1 Marine Mammals

During the field survey for the present project only one marine mammal was recorded: a Grey Seal was seen in the Fane Estuary at high tide on 28th August. However, casual observations during the previous fifteen years indicate that one or two Grey Seals occasionally appear at or near high tide in the sea off Blackrock.

The Grey Seal is widespread around the Irish coast, with the largest numbers found on the south and west coasts. The species is included in Annex II of the European Union Habitats Directive, being of conservation concern in Europe.

No cetaceans (whales, dolphins, porpoises) have been recorded in the Blackrock area.

5.2 Waterbirds – Dundalk Bay

The intertidal mudflats, sandflats and the estuary of the River Fane are an integral part of Dundalk Bay. In order to place the Blackrock intertidal zone in the wider context of the whole bay, we give here an outline description of the bay and indicate its importance for waterbirds.

Dundalk Bay is a very large complex, which extends from Cooley Point to Dunany Point, and comprises nearly 120 square kilometres of shallow sea, c.4,000 ha of intertidal sand and mudflats, extensive saltmarshes (at Lurgangreen, Marsh South, Dundalk Harbour and Bellurgan), raised shingle beaches, Ballymascanlan Bay, and the estuaries of the Dee/Glyde, Fane, Castletown and Flurry Rivers. The seashore at Blackrock is part of this complex and extends from the mouth of the River Fane in the south to the saltmarshes at Marsh South in the north.

Dundalk Bay has been designated a Special Protection Area for birds, under Article 4 of the European Union Birds Directive (Directive No. 79/409/EEC), because of its great importance as a feeding and roosting site for migratory and wintering waterfowl. A long series of monthly counts (mainly July/August - March/April) of waterfowl since January 1994 has established that Dundalk Bay is the most important site in Ireland for migratory waders, consistently supporting 40,000-50,000 birds through the autumn, winter and spring. In addition, it supports significant numbers of wildfowl (ducks, geese and swans), and also gulls (third most important site in Ireland), grebes and divers.

Five species of waterbirds occur in Dundalk Bay in internationally important numbers, i.e. 1% or more of the total flyway population of these species regularly occurs in the area (Ramsar Convention criterion). The five species are the Light-bellied Brent Goose *Branta bernicla hrota* (309-382, 1.6% of the flyway population), Knot *Calidris canutus* (9,710-11,616, 2.2%), Black-tailed Godwit *Limosa limosa* (1,100-1,441, 4.1%), Bar-tailed Godwit *Limosa lapponica* (1,950-2,274, 1.9%), and Redshank *Tringa totanus* (1,561-1,927, 1.0%).

The waterbird counts have been carried out during the daylight hours and therefore have missed the dusk arrivals and dawn departures of large numbers of Whooper Swans *Cygnus cygnus* which feed during the day on open farmland several kilometres from the shore. It is quite likely that internationally important numbers of this species roost at night on the Lurgangreen saltmarshes.

Fourteen additional waterbird species occur in Dundalk Bay in nationally important numbers, i.e. 1% or more of the Irish population of these species regularly occurs in the area. The species concerned are the Great Crested Grebe *Podiceps cristatus*, Greylag Goose *Anser anser*, Shelduck *Tadorna tadorna*, Teal *Anas crecca*, Mallard *Anas platyrhynchos*, Pintail *Anas acuta*, Red-breasted Merganser *Mergus serrator*, Oystercatcher *Haematopus ostralegus*, Ringed Plover *Charadrius hiaticula*, Golden Plover *Pluvialis apricaria*, Grey Plover *Pluvialis squatarola*, Lapwing *Vanellus vanellus*, Dunlin *Calidris alpina* and Curlew *Numenius arquata*.

Three gull species also occur in Dundalk Bay in significant numbers.

The Ramsar Convention also recognises wetlands as internationally important if they regularly support more than 20,000 waterbirds, irrespective of species. Clearly, Dundalk Bay qualifies as internationally important under this criterion, as it regularly supports 40,000-50,000 waterbirds.

Table 1: Waterbirds occurring in significant concentrations at Dundalk Bay, based on Irish Wetland Bird Survey data (Crowe 2005)

Species	No.*	% of flyway pop.	% of Irish pop.
Light-bellied Brent Goose	309	1.6	1.6
Knot	9,914	2.2	29.2
Black-tailed Godwit	1,441	4.1	8.0
Bar-tailed Godwit	2,274	1.9	12.6
Redshank	1,927	1.0	5.8
Great Crested Grebe	410	0.1	5.9
Greylag Goose	451	0.5	11.3
Shelduck	526	0.2	3.5
Teal	632	0.2	1.1
Mallard	853	-	1.0
Pintail	122	0.2	7.1
Red-breasted Merganser	169	0.1	4.0
Oystercatcher	9,726	<1.0	13.9
Ringed Plover	172	0.2	1.1
Golden Plover	5,159	0.6	3.4
Grey Plover	173	0.1	2.3
Lapwing	4,983	0.3	2.5
Dunlin	12,149	0.9	8.7
Curlew	1,446	0.3	2.2
Black-headed Gull	6,533	0.1	?
Common Gull	426	-	?
Herring Gull	708	0.1	?

* *Average of annual peaks, 1996/97 – 2000/01.*

In total, including the above internationally and nationally important species, over fifty waterbird species have been recorded in Dundalk Bay during the past decade. The above summary is taken from Crowe (2005) and from our own data.

There is very rich feeding in Dundalk Bay for all these birds. Most of the waders probe in the sand and mud for the abundant macrobenthic fauna that live in and on the sediments – various species of marine and estuarine worms, bivalve and single-shelled molluscs, and crustaceans. Some of the wildfowl also feed on these organisms, but also on the green mats of algae, and on saltmarsh plants. Diving birds such as Red-throated and Great Northern Divers, Great Crested Grebes, Cormorants, Red-breasted Mergansers and Sandwich Terns feed mainly on fish. Gulls also feed on the invertebrates and fish, while they also scavenge on dead animals on the tideline. More information on these bird food resources is given later in this report.

5.2.1 The conservation status of Dundalk Bay and Blackrock

In addition to the Special Protection Area status of Dundalk Bay, the area has also been designated an internationally import wetland under the Ramsar Convention, a Special Area of Conservation under the European Union Habitats Directive (Directive No. 92/43/EEC), a Natural Heritage Area (proposed) under the Irish Wildlife Act 2000, and two parts – Lurgangreen and Ballymascanlan Bay – are statutory wildfowl sanctuaries.

The coastal parts of the study area at Blackrock are included in the SPA, the SAC, the Ramsar Site, and the NHA. The statutory wildfowl sanctuary areas lie outside the study area.

5.2.2 Waterbirds at Blackrock

As stated at the beginning of this Section, the seashore at Blackrock is part of the Dundalk Bay complex. The waterbird counts carried out since 1994 included the Blackrock area, which, for survey and census purposes, was divided into three distinct sections:

(a) The River Fane estuary between the north end of the Lurgangreen saltmarsh and the Old Boathouse at the south end of Blackrock (Lurgangreen North/Fane Estuary).

(b) The mainly rocky and sandy shore of Blackrock, between the Old Boathouse in the south and McGuigan's Rock to the north (Blackrock Corniche).

(c) The mudflats, channels and saltmarsh at the south side of Marsh South, i.e. The Loakers area (Marsh South (S)).

The results of the waterfowl counts in these three sub-divisions are tabulated in Appendix II. It is clear from these data that the Blackrock shore is a very important part of the Dundalk Bay complex as a feeding and roosting area for migratory and wintering waterbirds.

5.2.3 Wintering waterbirds at Blackrock

The variety of waterbirds recorded in the Blackrock area during the autumn, winter and spring months is remarkable, and is equalled in very few other Irish wetlands. Combining the species recorded in Blackrock's three census sections (see above) it can be seen that 50 waterbird species have been recorded since 1994. This diversity reflected the importance of Dundalk Bay as a whole, and the range of habitats found within the bay. The areas of estuary, saltmarsh, intertidal mudflats and sandflats around Blackrock are a microcosm of the bay.

However, quite a number of the species recorded in the study area are rare or irregular visitors, or are present in relatively insignificant numbers. It is not intended to give details of such species in this report, but simply to record their occurrence in Appendix II. Those fifteen species which occur regularly, and in significant numbers are commented upon as follows. Information on numbers and distribution in Ireland is taken mainly from Crowe (2005), while that on origins and migrations is mainly from Wernham *et al.* (2002).

Cormorant: The nearest breeding colonies are on islands off the Cos. Dublin and Down coasts, and the Irish breeding population is about 4,800 pairs (Mitchell *et al.* 2004). In the Blackrock area, most birds are found far out on the sandbanks at low tide.

Greylag Goose: The Irish wintering Greylags come from their breeding grounds in Iceland and up to 5,634 have been recorded here in recent years. Up to 1,300 of these occur regularly in Co. Louth, mainly in the Stabannan/Braganstown area (although this area appears to be abandoned recently (M. Eakin. Pers. Comm.), and many of these visit the saltmarshes at Lurgangreen to feed in the day or roost at night. The River Fane estuary is regularly used by flocks, sometimes of up to 500 birds.

Light-bellied Brent Goose: Almost all the Light-bellied Brent Geese that overwinter around the Irish coast come from breeding grounds in the tundra of north-eastern high Arctic Canada. Breeding success at these unhospitable latitudes varies greatly and affects the overall population. In recent years numbers have varied between 20,000 and 34,000 birds, but there is a long-term upward trend in population size. Dundalk Bay generally supports about 300 of these small geese, which feed on the saltmarshes and algal mats on the flats. At Blackrock, up to 260 (most of the Dundalk Bay flock) are recorded at the three sections of shore.

Light-bellied Brent Goose

Mallard: Most of the Irish Mallard population is resident (with very little immigration or emigration), and numbers up to 27,000. Dundalk Bay is one of the top ten sites in Ireland, where these ducks congregate outside the breeding season. Sometimes up to 1,200 are present. In the Blackrock area the River Fane estuary and Marsh South are favoured (up to 535 birds), although at low tide hundreds may be seen resting or feeding at the water's edge far out from Blackrock.

Pintail: Although abundant across the northern hemisphere, this handsome duck occurs in Ireland in quite small numbers (1,200 to 1,900 individuals), coming here from both Iceland and the east. Dundalk Bay, with an average of 122 birds, is the fifth most important wintering site in Ireland. The most important site is Tacumshin Lake, Co. Wexford, which has an average of 293. In the Blackrock area the favoured site is the River Fane estuary, where up to 350 have been recorded.

Oystercatcher: This large, conspicuous and noisy black-and-white wader is both an Irish resident and a common migrant from Iceland, Faeroes, Scotland and Scandinavia. The wintering population is about 40,000, and Dundalk Bay, with an average of nearly 10,000, is the most important Irish site. The mudflats and sandflats off Blackrock are a very important feeding area for Oystercatchers at low tide, with between 2,000 and 5,000 birds found in each of the three sections of shore. At high tide thousands of birds roost on the edges of the saltmarshes at Marsh South and Lurgangreen North, and also on the rocky islets at Blackrock Corniche.

Golden Plover: While a few pairs nest on the moorlands of the Irish west and north-west, most of our Golden Plover are winter visitors from Iceland, arriving mainly in October and departing in April. Because the species often feeds in inland areas away from wetlands, it is difficult to estimate the total Irish population, but it could be as high as 200,000 birds. Dundalk Bay, with an average population of over 5,000, is nationally important for Golden Plovers. However, much higher numbers have been recorded in recent winters, including 8,550 at the River Fane estuary in November 2006.

Lapwing: This species, once a common Irish breeder in lowland damp pastures, has declined drastically due to arterial and field drainage and agricultural intensification. Declines have occurred in many other parts of the European breeding range as well. In severe winters, hundreds of thousands of Lapwing move west to the relatively temperate conditions on the Atlantic fringe of the Continent, but in recent times such winters have been quite rare. A consequence of these two factors is that fewer Lapwings now occur here in winter. Nevertheless, up to 245,000 have been recorded in Ireland in recent years, with about 5,000 in Dundalk Bay. The saltmarshes at Marsh South and Lurgangreen North are favoured areas, and 2,500 have been counted at the latter.

Knot: Most of our wintering Knot come from breeding grounds in the high Arctic of Canada and Greenland, and the numbers reaching Ireland are estimated at 25,000-38,000. The great majority spend the winter in bays and estuaries on the north-east coast, of which Dundalk Bay is the most important for this species. Average numbers in recent years have been almost 10,000. When not feeding in dense flocks on the sandflats of Dundalk Bay, the birds form into huge flocks which wheel and twist and turn in the air, looking, in the distance, like clouds of smoke. Off Blackrock the flocks feed at low tide mainly on the sandier flats, where their favourite food – the small bivalve Baltic Tellin – is abundant. Numbers here reach peaks of 13,500 birds.

Dunlin: This very small wader breeds in Ireland in small numbers, but in winter 85,000-125,000 come here from their northern breeding areas. Dundalk Bay is their second most important site, after the much larger Shannon and Fergus Estuary in the south-west. The average number in the latter is 13,174, while at Dundalk Bay it is 12,149. Flocks of Dunlin are often seen feeding with Knot, though Dunlins often forage on muddy areas where they consume small marine worms. Up to 7,850 birds have been recorded in the Blackrock area.

Black-tailed Godwit: Very similar to the Bar-tailed Godwit when on the ground, this species shows black and white on its wings and tail in flight. Most of the Black-tailed Godwits occurring in Ireland as passage migrants and winter visitors come from the Icelandic breeding population. Our wintering birds number between 9,600 and 10,900, and Dundalk Bay is the fourth most important site, with an average of 1,441 birds. While Ballymascanlan Bay and the Castletown River estuary is the favourite site, the species also occurs in the River Fane estuary in significant numbers. Up to 760 have been recorded there.

Bar-tailed Godwit: The Bar-tailed Godwits which occur in Ireland in winter and on spring and autumn passage migration come from breeding grounds in the Siberian tundra. Between 13,700 and 20,300 overwinter here, and Dundalk Bay – with an average of 2,274 – is the most important Irish site. Up to 2,795 have been counted in the Blackrock area, feeding on the sandflats off Marsh South, Blackrock Corniche and Lurgangreen North.

Curlew: This large brown wader with a long curved bill breeds in Ireland, though numbers have declined in recent decades due to loss of nesting habitat in damp grassland and peatlands. This population is augmented for the winter months by large numbers of migrants from northern Britain, Sweden and Finland. Recent censuses indicate a wintering population of 34,000-41,000 birds, but the total may be significantly higher as the species often feeds in fields away from the surveyed wetlands. Dundalk Bay, with an average of 1,446, is the seventh most important site in Ireland, somewhat below the top three sites which support 2,350-2,550 birds. Within Dundalk Bay the Blackrock area is greatly favoured, with 500-700 birds occurring in each of the three count sections.

Redshank: Redshanks are Irish breeding birds (declining), passage migrants and winter visitors, and Iceland is the main source of our wintering birds. Between 19,650 and 20,900 are found here. Strangford Lough, Co. Down, is the most important site for Redshanks, with an average of 3,975 birds, but Dundalk Bay, with 1,927 is Ireland's fifth most important site. Of these, 500-800 are recorded in each of the three Blackrock count sections.

Black-headed Gull: This species is a common Irish breeding bird, with over 6,000 pairs nesting mainly on inland lakes and marshes. This population is joined in winter by large numbers of migrants from Scandinavia and countries around the Baltic Sea. The best estimate of the wintering population is 44,000-50,000, but this is likely to be on the low side as the species is often not counted by field observers. On available information, Dundalk Bay is the most important site in Ireland, with an average of 6,500 birds. The Blackrock area supports about one-third of the total in the bay.

5.2.4 Summering waterbirds at Blackrock

The great majority of the waterbirds recorded in Dundalk Bay (including the Blackrock area) are winter visitors from breeding grounds in more northerly area, ranging from the high Arctic tundra in north-east Canada to central Siberia in the east. The numbers of these birds have been monitored in Dundalk Bay by means of monthly counts carried out in autumn, winter and spring since 1994 (see Section 5.2 above). However, little was known about waterbird species occurring in Dundalk Bay during the summer months, other than occasional observations (usually non-quantitative) of significant flocks of some species (e.g. Mallard, Oystercatchers, gulls) during this period. The field survey work in summer 2006 addressed this lack of information, with a series of six counts carried out in the three coastal sections of the Blackrock study area (Lurgangreen North/Fane Estuary, Blackrock Corniche, Marsh South (S)) between late May and late August. The data from these counts are included in Appendix II.

A total of 29 waterbird species was recorded in the Blackrock area during this summer period. Almost all were non-breeding individuals of species which do not breed in Ireland and/or which do not reach breeding age until they are two or more years old. It is quite normal for such birds to "hang-around" in coastal bays and estuaries during the summer months.

Of particular interest were the following observations:

Little Egret: This species, originally from Mediterranean areas, was first recorded in Ireland in 1940, and began to breed here in 1997. Since then increasing numbers have been spreading northwards along the coast from East Cork as far as the Boyne Estuary. Their presence at Blackrock in summer suggests that they may start breeding in the area soon.

Little Egret

Mallard: This is a common, mainly resident duck species in Ireland, but the concentration of up to 264 individuals (mainly drakes) on the Fane Estuary in summer is an unusually large number.

Ruddy Shelduck: This is a very rare vagrant to Ireland and the occurrence of one on the Fane Estuary in summer 2006 is a notable record. There is the possibility that the bird was an escapee from a waterfowl collection, but a prolonged southerly airstream may have aided its passage from the small population resident in Morocco.

Oystercatcher: This species breeds in small numbers around the Irish coast, and is a passage migrant and winter visitor in much larger numbers. Oystercatchers do not breed until they are two years old, so it is commonplace to find non-breeding summering flocks in some of our coastal bays and estuaries. However, the high numbers (over 3,250) found in the Blackrock area in summer 2006 are exceptional. Cockles are a favourite food for this species and the abundance of these shellfish in Dundalk Bay can sustain large numbers of Oystercatchers.

Knot: Irish wintering Knot breed in the high Arctic tundra regions of north-east Canada and Greenland, and it is very unusual for the species to remain on our shores during the summer months. However, in 2006 up to 1,000 Knot are known to have summered on the Irish north-east coast (Dublin to Louth), and up to 450 were recorded on the sandflats off Blackrock.

Black-headed Gull: This species is a common resident in Ireland, breeding mainly on inland lakes. In winter very large numbers of migrants arrive here, mainly from the north-east and east (e.g. Finland, Sweden, Poland). Immature birds, non-breeders and failed breeders tend to flock in coastal areas in the summer, but the finding of as many as 2,500 in July and August at Blackrock in summer 2006 was notable.

Common Gull: This species is not as common in Ireland as the name suggests, with only about 1,000 pairs breeding here, mainly in the west and north-west. The presence of about 500-600 immature birds (mainly at the Fane Estuary) in late May and early June 2006 is unprecedented. It is not clear where these birds spent the remainder of the summer: later counts produced only small numbers of Common Gulls.

Some of the summer records - especially those in May and August - probably referred to migrants on late spring passage to breeding grounds further north, or to early autumn migrants moving south again. In the case of the Grey Herons, it is likely that most of the birds seen during the summer were from the small heronry (breeding colony) at Mountain View (at the northern edge of the study area). The large concentrations of Mallard, mainly at the Fane Estuary, were largely drakes in post-breeding moult, whose mates were looking after their broods of ducklings in freshwater wetlands inland.

5.3 Fish

5.3.1 Fish recorded in the River Fane estuary and adjacent parts of Dundalk Bay

Valuable additional information provided by Patrick Greene of the Eastern Regional Fisheries Board complemented our observations of fish species in the survey area. Fish recorded so far are listed in Table 9 in Appendix 1. At this stage there is little information available on numbers, frequency or seasonality of the fish species in this area.

A number of the species recorded are marine species, that normally do not occur in estuaries or freshwater, but it should be noted that the tidal range at Blackrock is usually about five metres, so that at high tide marine fish species can move close to shore in a fully marine environment.

On several occasions during the 2006 field survey shoals of large Grey Mullet were seen feeding at the surface of the Fane River, usually in the main channel as the tide was rising.

On a number of occasions, fish-eating birds (e.g. Cormorants and Grey Herons) were seen catching and swallowing small (and not-so-small) flatfish in the River Fane estuary and in the main channels coursing through the tidal flats. A few gobies and immature flatfish were found in tidal pools, while Three-spined Sticklebacks were found near the outlets of some of the small streams.

5.4 Intertidal invertebrates

The waterbirds which feed on the shore at Blackrock exploit the rich invertebrate fauna which inhabits the mudflats and sandflats of the intertidal zone. This richness is not immediately evident when the flats are exposed at low tide. However, a closer look reveals the presence of some of the organisms, notably the casts of Lugworms which are to be seen at varying density in the sandier substrates. On closer examination other traces can be seen, for example the tiny trails of the gastropod *Hydrobia* (Spire Shell) snails, which occur in soft muddy areas at high density – up to 20,000 per square metre. Also in the muddier areas can be seen the characteristic radial pattern of where the long siphons of *Scrobicularia plana* (Peppery Furrow Shell) have foraged around from their vertical burrows. Other bivalves such as cockles and banded carpet shells also reveal their presence in the sandflats with their siphon openings visible at the surface.

Shells on the beach at Blackrock

Some sheltered beaches and coves along the Blackrock shore have accumulated large deposits of intact and broken shells of bivalve and gastropod molluscs, which give an indication of richness and abundance of the living shellfish fauna of Dundalk Bay. However, it must be borne in mind that some shells may have been moved some distance by tides and currents.

There is a major commercial cockle fishery in Dundalk Bay, with several boats operating out of Annagassan around high tide. It is believed that up to 250 tonnes of cockles are harvested each year.

For this survey, sampling of the larger invertebrates living in the mudflats and sandflats of the study area was carried out in June. This was done in the three sub-sections mentioned in Section 5.2.2 Waterbirds at Blackrock. At the north side of the Fane River estuary a series of ten holes, 25 x 25 cm and 20 cm deep, covering the gradient from soft mud to sandier substrates, was dug in the middle shore zone. The sediments were then searched for worms, molluscs and crustaceans. The same was done on the open mudflats at the south side of Marsh South, while the sandier substrate between these two locations was sampled by digging three to five holes at four locations spread along the shore.

The in-fauna of the muddier substrates of the Fane estuary and Marsh South sub-sections was dominated by high densities of Ragworms and *Scrobicularia plana*, with Lugworms occurring on a drier raised sandy bank at the east side of the Fane estuary. Sand Gapers (some with shells up to 10 cm long) were also quite numerous in the mud. Small clusters of the crustacean *Corophium volutator* were found in the sloping muddy banks of the river and stream channels and runnels.

The in-fauna of the sandier shore between the above sites was dominated by Common Cockles, Banded Carpet Shells, Baltic Tellin, Lugworms and Sand Masons.

The rocky outcrops and small rocky islets (see section on geology and soils) have a depauperate rocky shore fauna, probably because the rocks occur only on the upper shore. The most numerous species found here are three species of Periwinkles, Dogwhelks, and Acorn Barnacles. Surprisingly uncommon were Common Limpets, Common Mussels, Common Shore Crabs.

A list of the common marine and estuarine invertebrates, with their scientific names, found in the Blackrock intertidal area is given in Appendix I.

5.5 Plants of the shore

5.5.1 Marine algae – Seaweeds

During the summer months particularly, extensive mats of green algae are noticeable on the mudflats and sandflats off Blackrock. These are growths of *Enteromorpha*, a group comprising over a dozen species, many of which can be identified only by specialist experts using microscopic examination. It is thought that *Enteromorpha intestinalis* and *E. compressa* are the main species on the flats at Blackrock. The latter is particularly common where the water is brackish, where streams and seepages dilute the seawater.

These green algae are a major source of food for some wildfowl species, such as Pale-bellied Brent Geese and Wigeon. They are also grazed by tiny *Hydrobia* snails, which, in turn, provide food for Shelduck and Teal.

Another green alga found on the Blackrock shore is *Ulva lactuca* (sea-lettuce). This is much less widespread at Blackrock, being confined to runnels, shallow pools left at low tide, and in the few small rock pools that exist in the area.

The intertidal rocks outcropping on the shore at Blackrock have been colonised by brown fucoid seaweeds. Four common species have been identified – Bladder, Knotted, Channeled and Spiral Wracks.

5.5.2 Lichens of the splash zone

Three common species of encrusting lichen which are tolerant of salt spray in the splash zone were found on the outcropping rocks on the shore at Blackrock. These were Black Tar Lichen, Orange Lichen, and Orange Leafy Lichen. This last species was particularly evident where faeces from roosting waders had provided nutrients.

Orange Lichen

5.5.3 Flowering plants

While the marine flowering plant Eelgrass (which grows on mudflats and is much sought after by Pale-bellied Brent Geese and Wigeon) has been recorded in Dundalk Bay, no trace of it could be found at Blackrock in June.

Three main plant communities exist on the shore at Blackrock:

- The saltmarsh plant community.
- Plants typical of rocky shores.
- Annual plants which occur on shingle above the high water mark.

These plant communities are dealt with later in this report.

Hedgehog

6. SECTION 2. TERRESTRIAL AREAS

6.1 Mammals

Hayden and Harrington (2000) show the following Irish mammals as recorded in the 10-kilometre square which encompasses the Blackrock area (ING J00). During the 2006 field survey we recorded most of these species in the Blackrock study area, and/or received reports from local residents (at the public presentation and elsewhere). However, one species - Badger - recorded in J00 by Hayden and Harrington, was not found in the Blackrock area. The species identified here are present throughout the study area unless otherwise stated below. There is very suitable habitat for these mammals in the study area and the lack of records may be simply due to oversight. However, Badgers, though nocturnal, are well-known and conspicuous (and also have large and obvious setts) and may be genuinely absent.

Hedgehog: Reported as present, and found dead on Blackrock roads. The species is common and widespread in Ireland.

Pygmy Shrew: Reported as brought in by a domestic cat, and also heard squeaking in long grass. The species is common and widespread in Ireland.

Rabbit: Surprisingly scarce in very suitable areas, possibly due to a recent occurrence of Myxomatosis reducing the population from normal, healthy levels. The species is common and widespread in Ireland, but numbers vary enormously in relation to outbreaks of Myxomatosis.

Mountain (Irish) Hare: Several animals inhabit the rough grasslands near the golf course. The species is widespread in Ireland, but scarce in many areas.

Mountain (Irish) Hare

Red Squirrel: Reported as present in Blackrock about twenty years ago. This species may have been ousted by the arrival of Grey Squirrels. In Ireland generally, the Red Squirrel is fairly widespread, but appears to be scarcer where Grey Squirrels have become established.

Grey Squirrel: This North American alien (and destructive) species was introduced to Ireland early in the 20th century and is spreading throughout the eastern and northern lowland parts of the country. It was encountered a number of times in wooded areas during the field survey period in 2006.

Wood Mouse: Recorded in August 2006. The species is common and widespread in Ireland.

House Mouse: Reported by several local residents as common in the Blackrock area. The species is common and widespread in Ireland.

Brown Rat: Another unwelcome and destructive alien, found to be common in the Blackrock area. The species is abundant and widespread in Ireland.

Red Fox: Traces of Red Foxes ("scats") were found in 2006, and local residents reported seeing the species from time to time. The species is common and widespread in Ireland, and is increasingly encountered in urban and suburban areas.

Irish Stoat: None seen during the 2006 survey, but two reports of the species were received from local residents. The species is common and widespread in Ireland.

American Mink: None seen during the 2006 survey, but one local resident informed us that this alien introduced species (mainly escapees from fur farms) has been seen on the Fane River. In Ireland it is now established in all regions.

Badger: Not recorded (see above). Common and widespread in Ireland.

Eurasian Otter: We received one report of Otters on the stream that flows south into the Fane Estuary near Rock Court. Quite common and widespread in Ireland.

Otter

Bats: The only bat species shown as recorded in the 10-kilometre square covering the Blackrock area is the Leisler's Bat. It is quite common and widespread in Ireland, and, indeed, the Irish population is believed to be the largest in Europe and therefore internationally important.

In 2006 we engaged Faith Wilson, who has considerable experience with Irish bats, to carry out a search for bats in the Blackrock study area, using a "bat detector". This instrument differentiates the frequency of the ultrasound emitted by the different bat species. The survey confirmed the presence of Leisler's Bat in Blackrock, and also found four other bat species – Daubenton's Bat, Common Pipistrelle, Soprano Pipistrelle and Brown Long-eared Bat. Finding five species of bats in one area, out of an Irish total of nine species, is notable, and indicates the presence of suitable habitat, summer and winter roosting sites (usually in old trees and buildings), and a spring, summer and autumn abundance of insect food. Leisler's, Brown Long-eared and Daubenton's bats are known to roost in trees, the Pipistrelles mostly in buildings.

Brown Long-eared Bat

The Irish bat populations are important in a European context, and they are listed in the European Union Habitats Directive and the Bern Convention as species requiring special protection measures. They are legally protected in Ireland.

Further information on bats and their conservation may be obtained at the following website: www.batconservationireland.org

6.2 Birds – terrestrial and breeding aquatic species

The marine and coastal species (divers, grebes, cormorants, herons, swans, geese, ducks, waders, gulls, terns, etc.) are dealt with in Section 5.2 of the report.

Bird species which have been recorded in the Dundalk/Blackrock area during past breeding and wintering bird surveys, along with those found in the Blackrock study area in summer 2006, are presented in Table 2, indicating their status as possible, probable or proved breeders. In the case of wintering species, their presence is indicated.

Table 2: Breeding Atlases (J00), Winter Atlas (J00), 2006 Blackrock Survey

Species	Breeding 1968-72	Breeding 1988-91	Winter Atlas 1981-84	Summer 2006
Grey Heron	■	■	?	■
Mallard	■	■	+	◇
Teal	■	-	+	-
Shelduck	■	■	+	○
Mute Swan	■	■	?	-
Sparrowhawk	■	○	+	◇
Kestrel	■	○	?	○
Grey Partridge	■	○	?	-
Quail	◇	○	-	-
Pheasant	■	■	?	■
Water Rail	○	○	?	-
Corncrake*	◇	-	-	-
Moorhen	■	■	?	○
Coot	■	■	?	-
Oystercatcher	-	○	+	○
Ringed Plover	■	■	+	○
Lapwing	◇	■	+	-
Snipe	■	○	+	-
Woodcock	○	-	?	?
Curlew	■	○	+	-
Common Sandpiper	○	○	-	-
Redshank	○	○	+	-
Black-headed Gull	■	■	+	-
Stock Dove	■	■	?	◇
Rock Dove/Feral Pigeon	■	-	?	■
Wood Pigeon	■	■	?	■
Collared Dove	■	■	?	■
Cuckoo	◇	-	-	-
Barn Owl	■	■	?	○
Long-eared Owl	-	■	?	?
Short-eared Owl*	-	-	+	-
Swift	■	■	-	○
Kingfisher	■	■	?	-
Skylark	■	■	?	○
Sand Martin	■	○	-	-
Swallow	■	■	-	■
House Martin	■	■	-	■
Meadow Pipit	■	■	?	■
Rock Pipit	-	■	?	■
Grey Wagtail	■	■	?	○
Pied Wagtail	■	■	?	■

(Table 2. continued overleaf)

- ○ *indicates possible breeding;* ◇ *indicates probable breeding;* ■ *indicates proven breeding.*
- *The Winter Atlas survey was incomplete in square J00, so species thought likely to have been present are indicated with a question mark. (+ indicates presence; - indicates absence).*

* *Species marked with an asterisk are included in Annex I of the EU Birds Directive.*

Table 2 *(contd.)*: Breeding Atlases (J00), Winter Atlas (J00), Blackrock Survey 2006

Species	Breeding 1968-72	Breeding 1988-91	Winter Atlas 1981-84	Summer 2006
Dipper	■	■	?	-
Wren	■	■	?	■
Dunnock	■	■	?	■
Robin	■	■	?	■
Stonechat	■	○	?	■
Wheatear	■	■	-	-
Blackbird	■	■	?	■
Song Thrush	■	■	?	■
Mistle Thrush	■	■	?	■
Grasshopper Warbler	◇	○	-	-
Sedge Warbler	■	■	-	○
Whitethroat	■	■	-	◇
Blackcap	○	■	?	○
Chiffchaff	■	■	-	■
Willow Warbler	■	■	-	■
Goldcrest	■	■	?	■
Spotted Flycatcher	■	■	-	-
Long-tailed Tit	■	-	?	◇
Coal Tit	■	■	?	■
Blue Tit	■	■	?	■
Great Tit	■	■	?	■
Treecreeper	■	■	?	◇
Jay	■	-	?	-
Magpie	■	■	?	■
Jackdaw	■	■	?	■
Rook	■	■	?	■
Hooded Crow	■	■	?	■
Raven	-	■	?	-
Starling	■	■	?	■
House Sparrow	■	■	?	■
Tree Sparrow	■	■	?	-
Chaffinch	■	■	?	■
Greenfinch	■	■	?	■
Goldfinch	■	■	?	■
Siskin	○	-	?	○
Linnet	■	■	+	■
Lesser Redpoll	■	-	?	◇
Bullfinch	■	■	?	◇
Yellowhammer	■	■	?	-
Reed Bunting	■	■	?	■

- ○ *indicates possible breeding;* ◇ *indicates probable breeding;* ■ *indicates proven breeding.*
- *The Winter Atlas survey was incomplete in square J00, so species thought likely to have been present are indicated with a question mark. (+ indicates presence; - indicates absence).*

This Table is compiled from data published in Sharrock (1976), Gibbons *et al.* (1993) and Lack (1986), with 2006 data added for comparison.

As can be seen from Table 2, a total of 81 bird species were recorded in Irish National Grid (ING) 10-kilometre square J00, which covers Blackrock, Dundalk and surrounding areas. Breeding surveys in 1968-72 (Sharrock 1976) and 1988-91 (Gibbons *et al.* 1993) revealed all but one of these (Short-eared Owl) to be possibly, probably or proved breeding in this area during one or both of these survey periods. The one-season 2006 survey carried out for this project revealed 54 species possibly, probably or proved breeding in the Blackrock study area's c.3 square kilometres – a relatively small part of the 100 square kilometres that make up a 10-kilometre square on the ING. Two additional species (Woodcock and Long-eared Owl) were considered to be possible breeders in the study area on account of there being suitable habitat there, but they are nocturnal/crepuscular species and were not searched for.

Suggested reasons for the absence of 24 species from the Blackrock study area are given in Table 3 below. It is also possible, in a few cases, that species simply did not breed in the area in 2006, or that they were overlooked.

Table 3: Species recorded breeding in ING J00 in 1968-72/1988-91, but not found breeding in Blackrock 2006.

Species	Breeding 1968-72	Breeding 1988-91	Probable reason for absence in 2006
Teal	■	-	No suitable habitat in Blackrock
Mute Swan	■	■	No suitable habitat in Blackrock
Grey Partridge	■	○	Extinct locally
Quail	◇	○	Rare/local/irregular
Water Rail	○	○	Possible in remaining small wetlands
Corncrake*	◇	-	Extinct locally
Coot	■	■	Freshwater wetlands too small
Lapwing	◇	■	No suitable habitat remaining in Blackrock
Snipe	■	○	Doubtful that remaining marshes in Blackrock capable of supporting breeding birds
Woodcock	○	-	Possible breeder – see above; possible on migration/winter
Curlew	■	○	No suitable habitat in Blackrock
Common Sandpiper	○	○	No suitable habitat in Blackrock
Redshank	○	○	Doubtful if any suitable habitat exists in Blackrock
Black-headed Gull	■	■	No suitable habitat in Blackrock
Cuckoo	◇	-	Possible on spring passage
Long-eared Owl	-	■	Possible in tall conifers, etc. – see above
Kingfisher	■	■	Possible on spring passage
Sand Martin	■	○	No suitable sand banks or quarries for colonial nesting in Blackrock
Dipper	■	■	Possible on lower Fane
Wheatear	■	■	Minimal suitable breeding habitat in Blackrock
Grasshopper Warbler	◇	○	Possible on spring passage
Spotted Flycatcher	■	■	Declining, but still possible on passage/breeding
Jay	■	-	Possible, but oaks scarce
Raven	-	■	Tree-nesting a possibility but no birds seen or heard in Blackrock
Tree Sparrow	■	■	Found just south of study area
Yellowhammer	■	■	Now very scarce in Co. Louth

○ *indicates possible breeding;* ◇ *indicates probable breeding;* ■ *indicates proven breeding.*

* *Species marked with an asterisk are included in Annex I of the EU Birds Directive.*

No bird species was found breeding in the Blackrock study area in 2006 which had not been recorded already in ING J00.

The breeding bird community of the Blackrock study area presented no real surprises. Most of the passerine or songbird species (Skylark to Reed Bunting in Table 2) are common and widespread in Ireland, and suitable breeding habitat exists in the Blackrock area. The most numerous birds found during the 2006 survey were Wood Pigeons (non-passerine), Swallows, House Martins, Wrens, Dunnocks, Robins, Blackbirds, Goldcrests, Blue Tits, Great Tits, Magpies, Jackdaws, Rooks, Starlings, Chaffinches, and Greenfinches.

Stonechat

The scarcest species found were Skylark (one apparently occupied territory (AOT)), Stonechat (one pair with young), Sedge Warbler (one AOT), Whitethroat (one AOT), Blackcap (one AOT), Treecreeper (one AOT).

A number of species recorded are migrants (mainly from Africa) which come to Ireland to breed in the summer. These are Common Sandpiper, Cuckoo, Sand Martin, Swallow, House Martin, Wheatear, Grasshopper Warbler, Sedge Warbler, Whitethroat, Blackcap, Chiffchaff, Willow Warbler and Spotted Flycatcher. The remainder are resident in Ireland throughout the year.

Barn Owl

Notable among the non-passerine species were Grey Herons (a small colony, or heronry, at a site at the north end of the study area), Sparrowhawk (one or two pairs), Kestrel (possibly one pair), and Barn Owl (perhaps hunting in the study area from known breeding sites to the north and south).

The survey of breeding birds carried out in 2006 was semi-quantitative; to quantify all breeding species in the entire study area would require a much greater input of resources than were available for this project.

Unfortunately, the fieldwork period for this project commenced too late for most of the landbird species which come to Ireland only during the winter months (e.g. Waxwing, Fieldfare, Redwing, Brambling, Snow Bunting). However, a flock of late Fieldfares was seen feeding on berries in Blackrock in March 2006, while during the previous winter a flock of c.100 Waxwings was seen very close to the northern boundary of the study area.

Unfortunately, also, the Winter Atlas survey of 1981-84 (Lack 1986) was very inadequately carried out in the ING J00 square encompassing the Blackrock area, but species that were recorded are indicated in Table 2 above.

Robin

Additional species recorded in J00, in the Winter Atlas:

Great Northern Diver (further out), Whooper Swan (roosting further south), Pochard (freshwater), Tufted Duck (freshwater), Guillemot (further out), Short-eared Owl (possible at Lurgangreen North, Marsh South).

6.3 Reptiles

During the present survey, one Common or Viviparous Lizard *Lacerta vivipara* was seen, basking in a dry sandy area near the Old Boathouse. The species is tolerant of cold conditions and in Europe is found north of the Arctic Circle and on high mountains. In Ireland it is widespread, but is fairly secretive and therefore probably under-recorded.

Viviparous Lizard

While there have been attempts to introduce the Green Lizard *Lacerta viridis* and the Slow Worm *Anguis fragilis* (a legless lizard) to Ireland in the 20th century, the Viviparous Lizard is the only native species of lizard in Ireland.

Several species of marine turtles have been recorded in Ireland's seas, but no other reptiles occur here.

6.4 Amphibians

During the present survey, spawn and tadpoles of the Common Frog *Rana temporaria* were found early in the season in the small marshes at Springfield and The Meadows/Hamilton. In July and August large numbers of froglets were found in these locations, and also behind the Fairways Hotel and on private lands at The Loakers.

Common Frog

The only other widespread species of amphibian found in Ireland is the Common or Smooth Newt *Triturus vulgaris*. No specimens (spawn, tadpoles or adults) were found in the Blackrock study area, although the few remaining small marshy areas appeared suitable for this species.

The Natterjack Toad *Bufo calamita* is Ireland's only toad species and is confined to a few coastal sites in Co. Kerry, although it has been introduced recently to the Raven Nature Reserve in Co. Wexford.

6.5 Invertebrates

6.5.1 Lepidoptera (Butterflies and Moths)

Butterflies

In Ireland a total of thirty-three species of butterflies occur regularly, the majority of which are resident here. Three species (Clouded Yellow, Red Admiral and Painted Lady) are regular summer migrants, sometimes in large numbers, while a couple of additional species are rare vagrants (e.g. Monarch, Camberwell Beauty). Not all of the regular resident and migratory species are found throughout the country. Indeed some are very localised in their distribution – for example, the Pearl-bordered Fritillary is confined to The Burren in Co. Clare.

The most recent survey of the distribution of butterflies in Ireland was organised by the Dublin Naturalists' Field Club, as a contribution to the *Millennium Atlas of Butterflies in Britain and Ireland* (Asher *et al*. 2001). This survey showed that 16 butterfly species occur in the Dundalk and Blackrock area (Irish National Grid 10-km square J 00). These species are listed in Table 4 below.

Table 4: Butterfly species recorded in the Blackrock area (ING J00) for the *Millennium Atlas of Butterflies in Britain and Ireland* (Asher *et al.* 2001)

Species	Scientific name
Real's Wood White	*Leptidea reali*
Large White	*Pieris brassicae*
Small White	*Pieris rapae*
Green-veined White	*Pieris napi*
Orange-tip	*Anthocharis cardamines*
Small Copper	*Lycaena phlaeas*
Common Blue	*Polyommatus icarus*
Red Admiral	*Vanessa atalanta*
Painted Lady	*Vanessa cardui*
Small Tortoiseshell	*Aglais urticae*
Peacock	*Inachis io*
Speckled Wood	*Pararge aegeria*
Wall	*Lasiommata megera*
Meadow Brown	*Maniola jurtina*
Ringlet	*Aphantopus hyperantus*
Small Heath	*Coenonympha pamphilus*

All of the above butterfly species are resident in Ireland, with the exception of the Red Admiral and Painted Lady. The populations of these two species present in Ireland during the summer and autumn months generally depend on the arrival of migrants from the south in spring. Numbers can vary greatly from year to year. However, in recent years there are growing indications that some adults are now surviving winter hibernation in Ireland, perhaps due to the relatively mild conditions of the last decade or so.

During the field survey period in 2006, all the above species were recorded, with the exception of Real's Wood White. It is a somewhat localised species, and, while recorded in square J00, it may be absent from the Blackrock study area. Two additional species were recorded in Blackrock, the Holly Blue *Celastrina argiolus* and Clouded Yellow *Colias croceus*, a summer migrant which appears to have reached Ireland in good numbers in 2006.

Holly Blue

These attractive insects have declined greatly in Ireland, as elsewhere in Europe, especially during the last fifty years or so. Much of this is attributable to habitat destruction, agricultural intensification and pollution. In Blackrock a considerable proportion of the area has been built on in recent decades, and building continues apace. However, it was noted that the great majority of the residential properties in Blackrock (even quite recently-built ones) have well-developed and varied gardens, which provide compensatory habitat for some butterfly species. In particular, there is an abundance of flowering plants and shrubs which provide nectar for the butterflies and leaves on which their larvae feed. The Butterfly Bush *Buddleja davidii* is grown in many gardens (and had also colonised uncultivated lands), and this prolific flowering shrub is favoured by many Irish butterflies. Some so-called "weeds" (wild flowers in the wrong place) are vital food-plants for a number of species, so it is important that they are not completely eliminated by herbicides or grubbing-up (the clearing of roots and stumps by digging).

An international organisation known as *Butterfly Conservation* has many members and groups throughout much of Europe, and information on butterflies and their conservation may be obtained from their website: www.butterfly-conservation.org

Moths

A systematic search was not carried out for moths during the study, and these species merit further study. Undoubtedly, with the various habitats present, a wide range of species occur in Blackrock, but to find a significant proportion of those that occur would require a series of nocturnal visits spread through the entire field survey period, and the use of a special mercury-vapour moth trap. The mercury-vapour light in this type of trap emits ultra-violet light, which is a strong attractant to moths.

Cinnabar Moth

The very distinctive black and orange banded larvae of the day-flying Cinnabar Moth were commonly found feeding on their food plant, Ragwort, in many parts of the Blackrock study area.

6.5.2 Other insects

Hymenoptera – bees and wasps

While no systematic search for bees and wasps was made during the 2006 field survey, the following species were noted in the Blackrock study area.

(White-tailed Bumble Bee) *Bombus lucorum*

(Red-tailed Bumble Bee) *Bombus lapidaries*

Honey Bee *Apis mellifera*

Common Wasp *Vespula vulgaris*

Dragonflies and damselflies

There are twenty-two species of resident dragonflies and damselflies in Ireland, compared with thirty-eight found in Britain. Seventeen of these have been recorded in the Blackrock/Dundalk area, of which nine are damselflies and eight are dragonflies. Only two species, Common Blue Damselfly *Enallagama cyathigerum* and Ruddy Darter *Sympetrum sanguineum*, were found in the Blackrock study area in 2006. However, the presence of several small freshwater marshes, with good quality water, suggests that more species may be present. A dedicated search for both flying adults and aquatic larvae in the freshwater marshes and ponds by a damselfly/dragonfly specialist might well yield several more species.

Common Blue Damselfly

Other invertebrates

Marine, intertidal and estuarine invertebrates were dealt with in Section 5 of this report.

6.6 Terrestrial Flora and Vegetation

During the field survey period in 2006 we concentrated our efforts on the flora and vegetation of the natural and semi-natural habitats of the Blackrock study area. A large (and growing) proportion (c.60%) of the study area is occupied by buildings, houses and gardens. In general, these were not examined for their flora and vegetation, because the vast majority of garden plants are non-native and ornamental species and cultivars, which are obviously intensively (and usually lovingly!) managed by the gardens' owners. They are of limited *ecological* value, but that is not to dismiss garden flowers and vegetation as worthless. On the contrary, the great diversity of species and the structure of the vegetation, make gardens particularly useful and attractive to a wide range of birds, mammals and invertebrates.

All species of vascular plants ("higher", mainly flowering plants) found in the Blackrock study area are listed in Appendix I, along with their scientific names. In all, some 140 species were noted.

This section concentrates on describing the more interesting flora and vegetation found in the Blackrock study area in 2006.

6.6.1 Flora of saltmarshes in the Blackrock area

There are two main saltmarshes in the Blackrock study area, that at Marsh South and that at Lurgangreen North/River Fane estuary. The former stretches south from the mouth of the Castletown River and extends to the Loakers area. The latter stretches north from Lurgangreen South (near Lurgan White House) to the River Fane estuary, and occurs on both sides of the estuary. In addition, there are a few small patches of saltmarsh in sheltered spots along the shore at Blackrock Corniche, the one at the Old Boathouse area showing signs of erosion.

The following briefly describes the flora of the two main saltmarshes:

Marsh South:

This extensive saltmarsh has large areas dominated by *Spartina* and has a good creek and pan system. Plants present include Red Fescue, Sea Aster, Common Saltmarsh Grass, Marsh Arrowgrass, Rock Sea-lavender, Sea Rush, Annual Sea-blite and Sea-milkwort. At the upper edge of the saltmarsh the sward is dominated by Creeping Bent, Red Fescue, Sea Couch, Silverweed and Hedge Bindweed.

Marsh South

As the saltmarsh narrows towards McGuigan's Rock there are increasing outcrops of lichen-covered rocks, where Red Fescue dominates. Other species present here include Buckshorn Plantain, Ribwort Plantain, Sea Beet, Cocksfoot Grass, Common Scurveygrass, Thrift, Sea-purslane and Sea Mayweed. On the seaward side of the road near The Loakers the upper saltmarsh grades into freshwater marsh and has a stand of *Phragmites* reed, with Creeping Bent and Red Fescue.

Lurgangreen North/River Fane estuary:

The main saltmarsh here (the northern end of Lurgangreen) is similar to the one at Marsh South, while the upper marsh is dominated by Sea Aster, Sea Plantain, Marsh Arrowgrass, Sea Mayweed, Orache, Creeping Bent, Red Fescue, Hedge Bindweed, and Sea Beet. The saltmarsh is growing steadily, with *Spartina* and *Salicornia* colonising the spit on the south side of the estuary. On the northern side of the estuary *Spartina* is colonising seawards and growing vigorously. Behind this area of saltmarsh, up to Coast Road, is rank grassland with Tall Fescue, False Oat-grass, Cocksfoot Grass, patches of Stinging Nettle, Wild Oat, Knotgrass and Sea Radish.

Lurgangreen North/River Fane estuary

6.6.2 Flora of the freshwater marshes in the Blackrock area

[B. Terrestrial. 9 (a)]

The marsh south of the Fairways Hotel, between the Dublin Road and the Old Golf Links Road has been partly infilled from the north, but a significant amount of intact marsh remains.

This marsh is dominated by Common Reed, with occasional Bulrush, Water Mint, Lesser Spearwort, Hedge Bindweed, Lesser Spearwort and Willowherb. Wet grassy areas adjoining the marsh have stands of Yellow Iris, while the marsh is bounded on three sides by a variety of willows

The infilled area has been recolonised with a variety of opportunistic and pioneer plant species. These include Creeping Thistle, Common Knapweed, Wild Carrot, Cocksfoot Grass, Great Willowherb, Bulrush, Creeping Cinquefoil, Burdock, Willow saplings, Tufted Vetch, Gorse, Silverweed, Barren Strawberry, Stinging Nettle, Ribwort Plantain, Meadow Vetchling, Teasel and Black Medick. The presence of Bulrush here indicates that the marsh was previously much greater in extent.

[B. Terrestrial. 9 (b)]

The small rectangular marsh between Hamilton and The Meadows (off Rock Road) is surrounded by hedgerows and earthen banks, which are rapidly becoming recolonised with species such as Gorse, Burdock, Perennial Rye-Grass, Meadow Fescue, Broad-leaved Dock, Clustered Dock, Creeping Buttercup, Marsh Thistle, Meadow Buttercup, Tufted Vetch. There are large stands of Great Willowherb, with frequent Hedge Bindweed and Field Horsetail. Species such as Water Mint, Yellow Iris and Great Horsetail indicate the previously wetter nature of the area. There is a small overgrown ditch which feeds the main marsh from the infilled area. This ditch is vegetated with Duckweed, Yellow Iris, Forget-me-not and Water Cress. The main marsh is very much dominated by Bulrush, with Meadowsweet, Meadow Vetchling, Silverweed, Soft Rush and Toad Rush also present.

[B. Terrestrial. 9 (c)]

Wet grassland and marsh on the southern side of the R172 at The Loakers.

Part of this marshy area is included in the Dundalk Bay Special Area of Conservation.

On the inland side of the R172 road to Dundalk it is dominated by Yellow Iris and Meadowsweet, with occasional patches of Meadow Vetchling, Marsh Thistle, Meadow Buttercup, Creeping Buttercup, Water Mint, Marsh Cinquefoil, Marsh Foxtail, Silverweed, Purple Loosestrife, Common Marsh Bedstraw, Creeping Bent, Red Fescue, Yorkshire Fog, various Sedges, Soft Rush, Hard Rush and *Polygonum* species. Common Reed is present at the pond at Mountain View, and there is a large stand of this across the road in the upper saltmarsh. A small stream runs from this marsh and has Sea Rush on its margins.

On drier ground adjacent to the marshy area there is frequent Common Knapweed, Cocksfoot Grass, Meadow Vetchling and Perrennial Rye-grass.

[B. Terrestrial. 9 (d)]

The low-lying marshy area close to Springfield off Seafield Road was surveyed in mid-August 2006 and the following describes the plant communities of this area:

Much of the marsh has been infilled with topsoil, hardcore and other materials, to a depth of one or two metres. This infill is becoming recolonised by Field Horsetail, Creeping Thistle, Red Clover, Wild Carrot, Ragwort, Groundsel, Creeping Buttercup, Buddleja, Gorse, willow saplings, Yorkshire Fog, Perennial Rye-grass, Coltsfoot, Greater Plantain, Ribwort Plantain, Red Deadnettle, Meadow Vetchling, Redleg, and patches of Great Willowherb. There were also several specimens of Pampas Grass which had escaped from local gardens. Remnants of Common Reed are present along the margins of the marsh and are indicative or former more extensive marshland. There are three clumps of Bulrush surviving within the infilled area.

While much degraded by infilling, this marsh is still ecologically diverse and supports interesting marshland plants and animals. Tadpoles of Common Frogs were numerous, and damselflies were also noted.

The field on the east side of the marsh is semi-improved and was cut for silage in 2006. The dominant grasses are Cocksfoot, False Oat-grass, Creeping Bent, Yorkshire Fog and Meadow Foxtail. Herb species present include Broad-leaved Dock, Stinging Nettle, Creeping Buttercup, Red Clover, Marsh Horsetail, Ragwort and Soft Rush.

To the east of the field is a small plantation of young Noble Firs, while most of the hedging separating the area from the houses and gardens is composed of common non-native shrubs such as Privet, Lonicera, Escallonia and Cotoneaster.

Low-lying marshy area close to Spingfield off Seafield Road

6.6.3 Flora of the Old Boathouse area

This headland, seawards of Coast Road, has a number of old and new buildings on it, including the Old Boathouse, dating from 1900. It is low-lying on Silurian bed-rock, which outcrops on the shore around most of the peninsula. Sheltered areas among the rocks have small patches of saltmarsh vegetation, including Thrift, some *Spartina*, Sea Plantain, Marsh Arrowgrass, Rock Sea-lavender, Sea Aster, Sea-purslane, and Red Fescue. There are signs of erosion here and it was noted that some large boulders had been put in place as coastal defences. At the upper tidal limit some small shingle/shell beaches have developed, and typical shingle beach vegetation was present. This included Common Orache, Curled Dock, Birdsfoot Trefoil, Sea Aster, Sea Beet, Sea Mayweed, Sea Radish, Silverweed, and Buckshorn Plantain.

Thrift

Inland from the peninsula shore there is quite a large area of rough grassland, with a good variety of grass species, and scattered thistles, docks, speedwells, Red and White Clovers, Groundsel, Common Vetch, Hogweed, Stinging Nettle, Birdsfoot Trefoil, Daisy, plantains, sow-thistles and dandelions. An area of thin poor soil had Scarlet Pimpernel and Common Poppies. There are also small treelines and stands of Willow, Ash, Hawthorn, Gorse etc., with Ivy on walls and the older trees.

Birdsfoot Trefoil

6.6.4 Flora of fields and hedgerows at north side of Blackrock study area

As stated in the Habitats section above, most of the hedgerows in the Blackrock study area form boundaries in the extensive area of (mainly) pasture fields on the northern side of Blackrock. We estimated that these hedgerows extend about nine kilometres, and we found that most of them are mature and left untrimmed. Throughout, these hedgerows were very much dominated by Hawthorn and/or Gorse, with Blackthorn and Elder sub-dominant. Bramble was very common as an understorey to the main hedgerow species, though there were several stretches where bramble dominated. Some hedgerows had sapling, medium-sized or large trees growing in them. These were mainly Ash and Sycamore, though in damper areas Alder and willow species were also prominent. Some hedgerows had Beeches (singles or a few) in them. Ivy was common on many of the older trees in the hedgerows. Several of the hedges were established on top of the distinctive local “Louth Bank Wall”, faced with vertically-laid flat siliceous stones. This was particularly evident along stretches of Rock Road, while Louth Bank Walls had been restored by the owners of Fairy Mount on Seafield Road.

A beautiful example of a Louth Bank Wall

The mainly grass fields enclosed by these hedgerows were generally not managed very intensively, and none appeared to have been reseeded and heavily fertilised in recent years. Cattle and sheep grazing was taking place in some of the fields in 2006, but this appeared to be of relatively low intensity. The result of this level of management was that most of the fields examined had a variety of grasses and herbaceous plants (“wild flowers”). The vegetation was typical of reasonably well-drained mineral soils of eastern lowlands in Ireland. Most of the fields were reasonably free of “agricultural weeds”, such as docks, thistle, Ragwort and Stinging Nettles, but they also lacked the great diversity of herb-rich hay meadows which were commonplace in such areas forty or fifty years ago.

One field beside the ancient church and cemetery on the Old Golf Links Road had a temporary rainwater pool in 2006, but no aquatic or semi-aquatic plants were found in and around it, suggesting the water accumulation there is a temporary phenomenon.

No plants specially protected under the 1976/2000 Wildlife Acts were found in these fields.

6.6.5 Flora of spoil and bare ground at Carrig Cultra

This site appears to have been formed quite recently by dumping and bulldozing spoil onto the upper saltmarsh south of the Cockle Hill/Coast Road/Seafield Road junction, at Carrig Cultra and just east of a small stream inflow to the River Fane estuary. There is also an old concrete structure here, which apparently is a disused sewage outfall. This area of bare ground is recolonising with an interesting variety of weedy/seedy plant species. These include Ribwort Plantain, Common Scurvygrass, Wild Carrot, White and Red Clover, Stinging Nettle, Red Deadnettle, Daisy, Perennial Rye-grass, Creeping Buttercup, Black Medic, Lesser Trefoil, Curly-leaved Dock, thistles, forget-me-nots, Field Pansy, Common Poppy, Scarlet Pimpernel, Hedge Bindweed, Sea Mayweed, Ragwort, Lesser Burdock, Weld, Sea Radish, Wood Sage, Bush Vetch, Bent Grass, small Brambles, Buddleja, willows, Dog Rose, Gorse, and an “escaped” Cotoneaster.

Carrig Cultra

6.6.6 Flora from Priest’s Beach to The Crescent

The middle stretch of coastal habitat in Blackrock, from the Priest's Beach north to Sandymount, has an interesting mix of small-scale coastal habitats and vegetation. The beach area below the retaining sea wall has fine shingle/shell deposits, and above normal high water mark there was a line of annual vegetation in summer 2006. This comprised Sea Radish, Ragwort, Sea Mayweed, Sea Sandwort, Corn Sow-thistle and Dandelion. Such vegetation often depends on the annual accumulation of seeds on the tideline and therefore can vary considerably from year to year.

This fine shingle and shelly habitat gives way to a stretch of rocky outcrops toward The Crescent and then the small sandy bay of the Crescent Beach (with a little shingle and shell in the upper reaches, the latter composed mainly of Cockle shell fragments). The rocky shore around The Crescent has some good examples of coastal lichens in the splash zone, while higher up, where humic soils have built up, there are good swards of Red Fescue, with patches of Birdsfoot Trefoil, some Sea Campion, Sea Mayweed and Thrift.

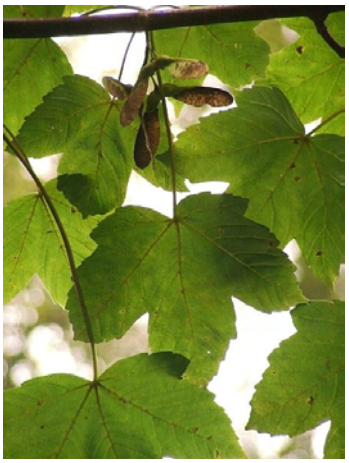
Some of the sea wall along this stretch supports abundant purple, red, pink and white Valerian growing in the cracks.

6.7 Trees and Shrubs of the Blackrock area

A total of 36 species of trees and shrubs were identified in the Blackrock study area, the majority of which are native Irish species. These are listed, with their scientific names, in Appendix I of this report.

The very large number of gardens, recently and long-established, in the urban and suburban areas of Blackrock, have a great diversity of ornamental and exotic shrubs, bushes and hedges. These were not surveyed in 2006 as such a survey was outside the project brief.

As indicated in the hedgerow section above, a number of tree species were prominent in some of the hedgerows in the Blackrock study area. In particular, Ash and Sycamore are often present, with Willows and Alders in damp areas, and occasional Beeches. The main shrubs making up the hedgerows are Hawthorn, Gorse, Blackthorn and Elder. The "hedgerow" along the north side of Bóthar Maol, at the north edge of the study area, is really more of a treeline than a hedgerow, and has a good mix of deciduous trees. It was noted that some recent tree planting of native trees had been done on the north side of this treeline, which may result in a nice area of woodland in future. Treelines of pines and spruces were also noted near the mouth of the River Fane, while Lawson Cypress (*Chaemaecyparis lawsoniana*) has been planted as a boundary or shelterbelt in a number of places.



Leaves and keys of the Sycamore

There is no woodland in the Blackrock study area, but rather a number of stands of mature trees and treelines. Notable among the former were trees in the grounds of some of the larger and older houses, such as Mountain View (The Loakers), Mount Gerard (Sandymount), Field House (The Crescent), Fairy Mount and Seafield House (Seafield Road). These properties date from the 19th century, and most of the trees were probably planted at that time. Beech appears to have been particularly popular, with the result that now there are some very fine specimens. In the grounds of Mountain View there is one particular Beech (or perhaps two!), where two trunks have fused into one, forming an arch through which a person can walk. Also of interest in these grounds were South American *Araucaria* (Chile Pine or Monkey-puzzle), Australian *Eucalyptus* (Gum Tree), and Japanese Maple. Ash was also popular, but somewhat surprisingly, not many oaks were planted. Of the conifers, Scots Pine was popular, and now there are some fine stands at Fairy Mount and on the opposite side of the road around The Saltings apartments. Exotic conifers were also planted at Fairy Mount, including Coast Redwood and Western Red Cedar. At Mountain View are several very large Monterey Pines, some of which have been carefully tended by tree surgery.

The only conifer plantation found in the Blackrock study area is the small Noble Fir plantation close to Springfield, off Seafield Road.

Between Coast Road and the River Fane estuary, along the roadside, is a line of large trees – a mixture of Ash, Crack Willow, Alder and White Poplar. At the outer edge of the Old Boathouse peninsula are some medium-sized Crack Willows. Further along the coast, just above Priest's Beach, is a fine stand of mature, salt-tolerant Sycamores, with Sessile Oak. The coastal area between The Crescent and McGuigan's Rock has a number of large properties with mature trees. Probably because of the proximity to the coast, Sycamores dominate, but there is a good variety of other mature trees here, mostly deciduous, and including Beech, Ash, Sessile Oak, Lime, Horse Chestnut and Wych Elm.

Irish Yews are scarce in the Blackrock area, and the only significant stand we found was at the ancient church and cemetery beside the Old Golf Links Road. Nearby, at the end of Tuite's Lane and beside the golf course, is a fine stand of old Crack Willows, in a damp depression. There is also a fine stand of Crack Willow beside the marsh at Hamilton. Ivy is common and widespread in Blackrock, climbing on old walls and on trees. Holly is also widespread, but we did not find any particularly large individual trees - just a scattering in hedges, scrub and under mature trees.

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APPENDIX 1: FLORA AND FAUNA SPECIES IDENTIFIED IN THE BLACKROCK STUDY AREA

FAUNA

Table 5: Bird species identified in the Blackrock study area

Birds		
	Species	**Scientific Name**
1.	Red-throated Diver	*Gavia stellata*
2.	Great Northern Diver	*Gavia immer*
3.	Great Crested Grebe	*Podiceps cristatus*
4.	Slavonian Grebe	*Podiceps auritus*
5.	Gannet	*Morus bassanus*
6.	Cormorant	*Phalacrocorax carbo*
7.	Little Egret	*Egretta garzetta*
8.	Grey Heron	*Ardea cinerea*
9.	Mute Swan	*Cygnus olor*
10.	Pink-footed Goose	*Anser brachyrhynchus*
11.	Greenland White-fronted Goose	*Anser albifrons flavirostris*
12.	Greylag Goose	*Anser anser*
13.	Light-bellied Brent Goose	*Branta bernicla hrota*
14.	Ruddy Shelduck	*Tadorna ferruginea*
15.	Shelduck	*Tadorna tadorna*
16.	Wigeon	*Anas penelope*
17.	Teal	*Anas crecca*
18.	Mallard	*Anas platyrhynchos*
19.	Pintail	*Anas acuta*
20.	Shoveler	*Anas clypeata*
21.	Pochard	*Aythya ferina*
22.	Tufted Duck	*Aythya fuligula*
23.	Common Eider	*Somateria mollissima*
24.	Long-tailed Duck	*Clangula hyemalis*
25.	Common Scoter	*Melanitta nigra*
26.	Goldeneye	*Bucephala clangula*
27.	Red-breasted Merganser	*Mergus serrator*
28.	Sparrowhawk	*Accipiter nisus*
29.	Common Buzzard	*Buteo buteo*
30.	Kestrel	*Falco tinnunculus*
31.	Merlin	*Falco columbarius*
32.	Peregrine	*Falco peregrinus*
33.	Grey Partridge	*Perdix perdix*
34.	Quail	*Coturnix coturnix*
35.	Pheasant	*Phasianus colchicus*
36.	Moorhen	*Gallinula chloropus*
37.	Coot	*Fulica atra*
38.	Water Rail	*Rallus aquaticus*
39.	Corncrake	*Crex crex*

(contd. overleaf)

Birds (contd.)

	Species	Scientific Name
40.	Oystercatcher	*Haematopus ostralegus*
41.	Ringed Plover	*Charadrius hiaticula*
42.	Golden Plover	*Pluvialis apricaria*
43.	Grey Plover	*Pluvialis squatarola*
44.	Lapwing	*Vanellus vanellus*
45.	Knot	*Calidris canutus*
46.	Sanderling	*Calidris alba*
47.	Curlew Sandpiper	*Calidris ferruginea*
48.	Dunlin	*Calidris alpina*
49.	Snipe	*Gallinago gallinago*
50.	Woodcock	*Scolopax rusticola*
51.	Black-tailed Godwit	*Limosa limosa*
52.	Bar-tailed Godwit	*Limosa lapponica*
53.	Whimbrel	*Numenius phaeopus*
54.	Curlew	*Numenius arquata*
55.	Spotted Redshank	*Tringa erythropus*
56.	Redshank	*Tringa totanus*
57.	Greenshank	*Tringa nebularia*
58.	Common Sandpiper	*Actitis hypoleucos*
59.	Turnstone	*Arenaria interpres*
60.	Mediterranean Gull	*Larus melanocephalus*
61.	Black-headed Gull	*Larus ridibundus*
62.	Common Gull	*Larus canus*
63.	Lesser Black-backed Gull	*Larus fuscus*
64.	Herring Gull	*Larus argentatus*
65.	Glaucous Gull	*Larus hyperboreus*
66.	Great Black-backed Gull	*Larus marinus*
67.	Sandwich Tern	*Sterna sandvicensis*
68.	Guillemot	*Uria aalge*
69.	Razorbill	*Alca torda*
70.	Feral Pigeon/Rock Dove	*Columba livia*
71.	Stock Dove	*Columba oenas*
72.	Wood Pigeon	*Columba palumbus*
73.	Collared Dove	*Streptopelia decaocto*
74.	Cuckoo	*Cuculus canorus*
75.	Barn Owl	*Tyto alba*
76.	Long-eared Owl	*Asio otus*
77.	Short-eared Owl	*Asio flammeus*
78.	Swift	*Apus apus*
79.	Kingfisher	*Alcedo atthis*
80.	Skylark	*Alauda arvensis*
81.	Sand Martin	*Riparia riparia*
82.	Swallow	*Hirundo rustica*
83.	House Martin	*Delichon urbica*
84.	Meadow Pipit	*Anthus pratensis*
85.	Rock Pipit	*Anthus petrosus*

(contd. overleaf)

Birds (contd.)

	Species	Scientific Name
86.	Grey Wagtail	*Motacilla cinerea*
87.	Pied Wagtail	*Motacilla alba yarrellii*
88.	Dipper	*Cinclus cinclus*
89.	Wren	*Troglodytes troglodytes*
90.	Dunnock	*Prunella modularis*
91.	Robin	*Erithacus rubecula*
92.	Stonechat	*Saxicola torquata*
93.	Wheatear	*Oenanthe oenanthe*
94.	Blackbird	*Turdus merula*
95.	Fieldfare	*Turdus pilaris*
96.	Song Thrush	*Turdus philomelos*
97.	Redwing	*Turdus iliacus*
98.	Mistle Thrush	*Turdus viscivorous*
99.	Grasshopper Warbler	*Locustella naevia*
100.	Sedge Warbler	*Acrocephalus schoenobaenus*
101.	Whitethroat	*Sylvia borin*
102.	Blackcap	*Sylvia atricapilla*
103.	Chiffchaff	*Phylloscopus collybita*
104.	Willow Warbler	*Phylloscopus trochilus*
105.	Goldcrest	*Regulus regulus*
106.	Spotted Flycatcher	*Muscicapa striata*
107.	Long-tailed Tit	*Aegithalus caudatus*
108.	Coal Tit	*Parus ater*
109.	Blue Tit	*Parus caeruleus*
110.	Great Tit	*Parus major*
111.	Jay	*Garrulus glandarius*
112.	Treecreeper	*Certhia familiaris*
113.	Magpie	*Pica pica*
114.	Jackdaw	*Corvus monedula*
115.	Rook	*Corvus frugilegus*
116.	Hooded Crow	*Corvus cornix*
117.	Raven	*Corvus corax*
118.	Starling	*Sturnus vulgaris*
119.	House Sparrow	*Passer domesticus*
120.	Tree Sparrow	*Passer montanus*
121.	Chaffinch	*Fringilla coelebs*
122.	Greenfinch	*Carduelis chloris*
123.	Goldfinch	*Carduelis carduelis*
124.	Siskin	*Carduelis spinus*
125.	Linnet	*Carduelis cannabina*
126.	Lesser Redpoll	*Carduelis flammea*
127.	Bullfinch	*Pyrrhula pyrrhula*
128.	Yellowhammer	*Emberiza citrinella*
129.	Reed Bunting	*Emberiza schoeniclus*

Table 6: Mammal species identified in the Blackrock study area

Mammals		
	Species	**Scientific Name**
1.	Hedgehog	*Erinaceus europaeus*
2.	Pygmy Shrew	*Sorex minutus*
3.	Daubenton's Bat	*Myotis daubentoni*
4.	Leisler's Bat	*Nyctalus leisleri*
5.	Common Pipistrelle	*Pipistrellus pipistrellus*
6.	Soprano Pipistrelle	*Pipistrellus pygmaeus*
7.	Brown Long-eared Bat	*Plecotus auritus*
8.	Rabbit	*Oryctolagus cuniculus*
9.	Irish Mountain Hare	*Lepus timidus hibernicus*
10.	Red Squirrel	*Sciurus vulgaris*
11.	Grey Squirrel	*Sciurus carolinensis*
12.	Wood Mouse	*Apodemus sylvaticus*
13.	House Mouse	*Mus musculus*
14.	Brown Rat	*Rattus norvegicus*
15.	Red Fox	*Vulpes vulpes*
16.	Irish Stoat	*Mustela erminea hibernica*
17.	American Mink	*Mustela vison*
18.	Badger	*Meles meles*
19.	Eurasian Otter	*Lutra lutra*
20.	Grey Seal	*Halichoerus grypus*

Table 7: Reptile species identified in the Blackrock study area

Reptiles		
	Species	**Scientific Name**
1.	Viviparous Lizard	*Lacerta vivipara*

Table 8: Amphibian species identified in the Blackrock study area

Amphibians		
	Species	**Scientific Name**
1.	Common Frog	*Rana temporaria*

Table 9: Fish species identified in the Blackrock study area (and adjacent parts of Dundalk Bay)

Fish		
	Species	**Scientific Name**
1.	Spotted Dogfish	*Scyliorhinus* spp.
2.	Sprat	*Sprattus sprattus*
3.	Herring	*Clupea harengus*
4.	Atlantic Salmon	*Salmo salar*
5.	Sea Trout	*Salmo trutta*
6.	Brown Trout	*Salmo trutta*
7.	Spur-dog	*Squalus acanthias*
8.	European Eel	*Anguilla anguilla*
9.	Conger Eel	*Conger conger*
10.	River Lamprey	*Lampetra fluviatilis*
11.	Garfish	*Belone belone*
12.	Pollack	*Pollachius pollachius*
13.	Cod	*Gadus morhua*
14.	Ling	*Molva molva*
15.	Hake	*Merluccius merluccius*
16.	Five-bearded Rockling	*Ciliata mustela*
17.	Whiting	*Merlangius merlangus*
18.	Pipefish	*Syngnathus* spp.
19.	John Dory	*Zeus faber*
20.	Grey Mullet	*Crenimugil labrosus*
21.	Smelt	*Osmerus eperlanus*
22.	Sand Smelt	*Atherina prssbyter*
23.	Sea Bass	*Dicentrarchus labrax*
24.	Mackerel	*Scomber scombrus*
25.	Wrasse	*Labrus* spp.
26.	sand-eel	*Ammodytes tobianus*
27.	Black Goby	*Gobius jozo*
28.	Rock Goby	*Gobius paganellus*
29.	Sand Goby	*Gobius minutus*
30.	Two-spot Goby	*Gobiusculus flavenscens*
31.	Grey Gurnard	*Eutrigla gurnards*
32.	Short-spined Sea-scorpion	*Myoxocephalus scorpius*
33.	Three-spined Stickleback	*Gasterosteus aculeatus*
34.	Fifteen-spined Stickleback	*Spinachia spinachia*
35.	Dab	*Pleuronectes limanda*
36.	Flounder	*Platichthys flesus*
37.	Black Sole	*Solea solea*
38.	Lemon Sole	*Microstomus kitt*
39.	Plaice	*Pleuronectes platessa*

TERRESTRIAL INVERTEBRATES

Table 10: Butterfly species identified in the Blackrock study area

Butterflies		
	Species	**Scientific Name**
1.	Real's Wood White	*Leptidea reali*
2.	Large White	*Pieris brassicae*
3.	Small White	*Pieris rapae*
4.	Green-veined White	*Pieris napi*
5.	Orange-tip	*Anthocharis cardamines*
6.	Small Copper	*Lycaena phlaeas*
7.	Common Blue	*Polyommatus icarus*
8.	Red Admiral	*Vanessa atalanta*
9.	Painted Lady	*Vanessa cardui*
10.	Small Tortoiseshell	*Aglais urticae*
11.	Peacock	*Inachis io*
12.	Speckled Wood	*Pararge aegeria*
13.	Wall	*Lasiommata megera*
14.	Meadow Brown	*Maniola jurtina*
15.	Ringlet	*Aphantopus hyperantus*
16.	Clouded Yellow	*Colias croceus*
17.	Holly Blue	*Celastrina argiolus*

Table 11: Moth species identified in the Blackrock study area

Moths		
	Species	**Scientific Name**
1.	Cinnabar Moth	*Tyria jacobaeae*

Table 12: Damselflies/Dragonflies species identified in the Blackrock study area

Damselflies and Dragonflies		
	Species	**Scientific Name**
1.	Common Blue Damselfly	*Enallagama cyathigerum*
2.	Ruddy Darter	*Sympetrum sanguineum*

Table 13: Bee and Wasp species identified in the Blackrock study area

Bees and Wasps		
	Species	**Scientific Name**
1.	Bumblebee	*Bombus leucorum*
2.	Bumblebee	*Bombus lapidaries*
3.	Honeybee	*Apis mellifera*
4.	Common Wasp	*Vespula vulgaris*

Table 14: Beetle species identified in the Blackrock study area

Beetles		
	Species	**Scientific Name**
1.	Seven-spot Ladybird	*Coccinella 7-punctata*

MARINE INVERTEBRATES

Table 15: Jellyfish species identified in the Blackrock study area

Jellyfish		
	Species	**Scientific Name**
1.	Compass Jellyfish	*Chrysaora hysocella*

Table 16: Worm species identified in the Blackrock study area

Worms		
	Species	**Scientific Name**
1.	Sand Mason	*Lanice conchilega*
2.	Lugworm	*Arenicola marina*
3.	Ragworm	*Hediste diversicolor*

Table 17: Mollusc species identified in the Blackrock study area

Molluscs		
	Species	**Scientific Name**
1.	Spire Shell	*Hydrobia* spp.
2.	Common Limpet	*Patella vulgate*
3.	Edible Periwinkle	*Littorina littorea*
4.	Flat Periwinkle	*Littorina obtusata*
5.	Rough Periwinkle	*Littorina saxatilis*
6.	Dog Whelk	*Nucella lapillus*
7.	Common Mussel	*Mytilus edulis*
8.	Edible Cockle	*Cerastoderma edule*
9.	Banded Carpet Shell	*Tapes rhomboides*
10.	Common Razor Shell	*Ensis ensis*
11.	Great Scallop	*Pecten maximus*
12.	Sand Gaper	*Mya arenaria*
13.	Peppery Furrow Shell	*Scrobicularia plana*
14.	Baltic Tellin	*Macoma balthica*

Table 18: Crustacean species identified in the Blackrock study area

Crustaceans		
	Species	**Scientific Name**
1.	Common Shore Crab	*Cancer maenas*
2.	Common Shrimp	*Crangon crangon*
3.	Sandhopper	*Talitrus saltator*
4.	Common Acorn Barnacle	*Semibalanus balanoides*
5.	Common Sea Slater	*Ligia oceanica*
6.	A colonial sandhopper	*Corophium volutator*

FLORA

Table 19: Tree and Shrub species identified in the Blackrock study area

Trees and Shrubs		
	Species	**Scientific Name**
1.	Hazel	*Corylus avellana*
2.	Alder	*Alnus glutinosa*
3.	Silver Birch	*Betula pendula*
4.	Aspen	*Populus tremula*
5.	White Poplar	*Populus alba*
6.	Common Lime	*Tilia x europaea*
7.	Beech	*Fagus sylvatica*
8.	Wild Cherry	*Prunus avium*
9.	Fuchsia	*Fuchsia magellanica*
10.	Escallonia	*Escallonia macrantha*
11.	Downy Birch	*Betula pubescens*
12.	Crack Willow	*Salix fragilis*
13.	White Willow	*Salix alba*
14.	Goat Willow	*Salix caprea*
15.	Gray Willow	*Salix cinerea*
16.	Wych Elm	*Ulmus glabra*
17.	Wild Privet	*Ligustrum vulgare*
18.	Butterfly Bush	*Buddleja davidii*
19.	Ash	*Fraxinus excelsior*
20.	Rowan	*Sorbus aucuparia*
21.	Elder	*Sambucus nigra*
22.	Sessile Oak	*Quercus petraea*
23.	Hawthorn	*Crataegus monogyna*
24.	Guelder-rose	*Viburnum opulus*
25.	Broom	*Cytisus scoparius*
26.	Horse Chestnut	*Aesculus hippocastanum*
27.	Sycamore	*Acer pseudoplatanus*
28.	Ivy	*Hedera helix*
29.	Holly	*Ilex aquifolium*
30.	Gorse	*Ulex europaeus*
31.	Scots Pine	*Pinus sylvestris*
32.	Yew	*Taxus baccata*
33.	Noble Fir	*Abies procera (noblis)*
34.	Monterey Pine	*Pinus radiata*
35.	Coast Redwood	*Sequoia semperivirens*
36.	Western Red Cedar	*Thuja plicata*

Table 20: Flowering plant species identified in the Blackrock study area

Flowering Plants *Nomenclature follows that in Blamey et al. 2003*		
	Species	**Scientific Name**
1.	Meadow Buttercup	*Ranunculus acris*
2.	Creeping Buttercup	*Ranunculus repens*
3.	Lesser Spearwort	*Rannunculus flammula*
4.	Common Poppy	*Papaver rhoeas*
5.	Common Fumitory	*Fumaria officinalis*
6.	Stinging Nettle	*Urtica dioica*
7.	Fat Hen	*Chenopodium album*
8.	Common Orache	*Atriplex patula*
9.	Sea Purslane	*Atriplex portulacoides*
10.	Sea Beet	*Beta vulgaris maritima*
11.	Annual Seablite	*Suaeda maritima*
12.	Sea Campion	*Silene uniflora*
13.	Ragged Robin	*Lychnis flos-cuculi*
14.	Common Chickweed	*Stellaria media*
15.	Sea Sandwort	*Honkenya peploides*
16.	Greater Sea-spurrey	*Spergularia media*
17.	Broad-leaved Dock	*Rumex obtusifolius*
18.	Curled Dock	*Rumex crispus*
19.	Clustered Dock	*Rumex conglomeratus*
20.	Common Sorrel	*Rumex acetosa*
21.	Redleg	*Persicaria maculosa*
22.	Knotgrass	*Polygonum aviculare*
23.	Thrift	*Armeria maritima*
24.	Rock Sea-lavender	*Limonium binervosum*
25.	Common Mallow	*Malva sylvestris*
26.	Common Dog Violet	*Viola riviniana*
27.	Field Pansy	*Viola arvensis*
28.	Wild Turnip	*Brassica rapa*
29.	Sea Radish	*Raphanus raphanistrum maritimus*
30.	Watercress	*Rorippa nasturtium-aquaticum*
31.	Shepherd's Purse	*Capella bursa-pastoris*
32.	Common Scurvygrass	*Cochlearia officinalis*
33.	Cuckooflower	*Cardamine pratensis*
34.	Weld	*Reseda luteola*
35.	Primrose	*Primula vulgaris*
36.	Cowslip	*Primula veris*
37.	Sea Milkwort	*Glaux maritima*
38.	Scarlet Pimpernel	*Anagallis arvensis*
39.	Purple Loosestrife	*Lythrum salicaria*
40.	English Stonecrop	*Sedum anglicum*
41.	Dog Rose	*Rosa canina*
42.	Bramble	*Rubus fruticosus* agg.
43.	Meadowsweet	*Filipendula ulmaria*
44.	Silverweed	*Potentilla anserina*

(contd. overleaf)

Flowering Plants (contd.)

	Species	Scientific Name
45.	Marsh Cinquefoil	*Potentilla palustris*
46.	Creeping Cinquefoil	*Potentilla reptans*
47.	Barren Strawberry	*Potentilla sterilis*
48.	Common Vetch	*Vicia sativa*
49.	Hairy Vetch	*Vicia hirsuta*
50.	Tufted Vetch	*Vicia cracca*
51.	Birdsfoot Trefoil	*Lotus corniculatus*
52.	Meadow Vetchling	*Lathyrus pratensis*
53.	Black Medick	*Medicago lupulina*
54.	Lesser Trefoil	*Trifolium dubium*
55.	Red Clover	*Trifolium pratense*
56.	White Clover	*Trifolium repens*
57.	Tree Lupin	*Lupinus arboreus*
58.	Great Willowherb	*Epilobium hirsutum*
59.	Rosebay	*Chamerion angustifolium*
60.	Sun Spurge	*Euphorbia helioscopia*
61.	Herb Robert	*Geranium robertianum*
62.	Common Storksbill	*Erodium cicutarium*
63.	Hogweed	*Heracleum sphondylium*
64.	Cow Parsley	*Anthriscus sylvestris*
65.	Wild Carrot	*Daucus carota*
66.	Bittersweet	*Solanum dulcamara*
67.	Field Bindweed	*Convolvulus arvensis*
68.	Hedge Bindweed	*Calystegia sepium*
69.	Large Bindweed	*Calystegia sylvatica*
70.	Common Comfrey	*Symphytum officinale*
71.	Field Forgetmenot	*Myosotis arvensis*
72.	Red Dead-nettle	*Lamium purpureum*
73.	Wood Sage	*Teucrium scorodonia*
74.	Water Mint	*Mentha aquatica*
75.	Foxglove	*Digitalis purpurea*
76.	Eyebright	*Euphrasia arctica*
77.	Common Field Speedwell	*Veronica persica*
78.	Ribwort Plantain	*Plantago lanceolata*
79.	Greater Plantain	*Plantago major*
80.	Buckshorn Plantain	*Plantago coronopus*
81.	Sea Plantain	*Plantago maritima*
82.	Marsh Arrow-grass	*Triglochin palustris*
83.	Lady's Bedstraw	*Galium verum*
84.	Marsh Bedstraw	*Galium palustre*
85.	Honeysuckle	*Lonicera periclymenum*
86.	Red Valerian	*Centranthus ruber*
87.	Wild Teasel	*Dipsacus fullonum*
88.	Devilsbit Scabious	*Succisa pratensis*
89.	Daisy	*Bellis perennis*
90.	Ox-eye Daisy	*Leucanthemum vulgare*
91.	Sea Mayweed	*Tripleurospermum maritimum*

(contd. overleaf)

Flowering Plants (contd.)

	Species	Scientific Name
92.	Sea Aster	*Aster tripolium*
93.	Common Ragwort	*Senecio jacobaea*
94.	Groundsel	*Senecio vulgaris*
95.	Coltsfoot	*Tussilago farfara*
96.	Common Knapweed	*Centaurea nigra*
97.	Lesser Burdock	*Arctium minus*
98.	Creeping Thistle	*Circium arvense*
99.	Spear Thistle	*Cirsium vulgare*
100.	Marsh Thistle	*Circium palustre*
101.	Dandelion	*Taraxacum officinale*
102.	Smooth Sow-thistle	*Sonchus oleracius*
103.	Corn Sow-thistle	*Sonchus arvensis*
104.	Catsear	*Hypochaeris radicata*
105.	Mouse-ear Hawkweed	*Pilosella officinarum*
106.	Bluebell	*Hyacinthoides non-scriptus*
107.	Ramsons	*Allium ursinum*
108.	Yellow Iris	*Iris pseudacorus*
109.	Common Spotted Orchid	*Dactylorhiza fuchsia*
110.	Lords-and-Ladies	*Arum maculatum*
111.	Bulrush	*Typha latifolia*
112.	Common Duckweed	*Lemna minor*
113.	Annual Meadow-grass	*Poa annua*
114.	Meadow Fescue	*Festuca pratensis*
115.	Tall Fescue	*Festuca arundinacea*
116.	Red Fescue	*Festuca rubra*
117.	Creeping Bent	*Agrostis stolonifera*
118.	False Oat-grass	*Arrhenatherum elatius*
119.	Common Reed	*Phragmites australis*
120.	Common Saltmarsh Grass	*Puccinellia maritima*
121.	Soft Brome	*Bromus hordeaceus*
122.	Yorkshire Fog	*Holcus lanatus*
123.	Wild Oat	*Avena fatua*
124.	Toad Rush	*Juncus bufonius*
125.	Hard Rush	*Juncus inflexus*
126.	Soft Rush	*Juncus effusus*
127.	Sea Rush	*Juncus maritimus*
128.	Meadow Foxtail	*Alopecurus pratensis*
129.	Marsh Foxtail	*Alopecurus geniculatus*
130.	Perennial Ryegrass	*Lolium perenne*
131.	Sea Couch	*Elytrigia atherica*
132.	Common Cord-grass	*Spartina anglica*
133.	Common Sedge	*Carex nigra*
134.	Cocksfoot	*Dactylis glomerata*
135.	Bracken	*Pteridium aquilinum*
136.	Great Horsetail	*Equisetum telmateia*
137.	Field Horsetail	*Equisetum arvense*
138.	Water Horsetail	*Equisetum fluviatile*
139.	Marsh Horsetail	*Equisetum palustre*

Table 21: Lichen species identified in the Blackrock study area

Lichens *Only lichens on the rocky shore were examined*		
	Species	**Scientific Name**
1.	Black Tar Lichen	*Verrucaria* spp.
2.	Orange Leafy Lichen	*Xanthoria* spp.
3.	Orange Lichen	*Caloplaca marina*

Table 22: Seaweed species identified in the Blackrock study area

Seaweeds		
	Species	**Scientific Name**
1.	Gut Weed	*Enteromorpha* spp.
2.	Sea Lettuce	*Ulva lactuca*
3.	Channelled Wrack	*Pelvetia canaliculata*
4.	Bladder Wrack	*Fucus vesiculosus*
5.	Spiral Wrack	*Fucus spiralis*

APPENDIX 2: WATERBIRD COUNTS OF THE BLACKROCK AREA

MARSH SOUTH - Waterbird counts, January 1994 - November 2006

MARSH SOUTH Waterbird counts, January 1994 - November 2006 (77 counts undertaken, 39 species recorded)		
	Species	**Maximum number recorded**
1.	Slavonian Grebe	2
2.	Great Crested Grebe	35
3.	Cormorant	31
4.	Little Egret	4
5.	Grey Heron	7
6.	Gannet	1
7.	Mute Swan	3
8.	Greylag Goose	3
9.	Brent Goose	325
10.	Shelduck	95
11.	Wigeon	220
12.	Teal	215
13.	Mallard	535
14.	Pintail	16
15.	Long-tailed Duck	4
16.	Goldeneye	13
17.	Red-breasted Merganser	15
18.	Oystercatcher	2290
19.	Ringed Plover	1
20.	Golden Plover	3200
21.	Grey Plover	250
22.	Lapwing	740
23.	Knot	5500
24.	Dunlin	7850
25.	Snipe	6
26.	Black-tailed Godwit	75
27.	Bar-tailed Godwit	1925
28.	Curlew	513
29.	Spotted Redshank	19
30.	Redshank	680
31.	Greenshank	4
32.	Turnstone	2
33.	Mediterranean Gull	1
34.	Black-headed Gull	1100
35.	Common Gull	825
36.	Lesser Black-backed Gull	30
37.	Herring Gull	83
38.	Great Black-backed Gull	20
39.	Sandwich Tern	5

MARSH SOUTH
Waterbird counts, January 1994 - December 1995

Species	24.1.94	13.9.94	21.11.94	20.1.95	15.12.95
Great Crested Grebe			3	3	
Grey Heron		2	5		
Brent Goose			235	19	
Shelduck	10		34	14	3
Wigeon	25		187	11	
Teal			4	6	
Mallard	8		95	18	2
Goldeneye			2	10	
Oystercatcher	300	333	1027	60	775
Golden Plover			1550		
Grey Plover	10		85	24	1
Lapwing	50		720	25	2
Knot			710	255	
Dunlin	100		145	495	
Snipe			2	6	
Bar-tailed Godwit	150		850		
Curlew	150	48	341	25	35
Redshank	100	15	170	24	2
Black-headed Gull	nc	nc	nc	nc	nc
Common Gull	nc	nc	nc	nc	nc
Lesser Black-backed Gull	nc	nc	nc	nc	nc
Herring Gull	nc	nc	nc	nc	nc
Great Black-backed Gull	nc	nc	nc	nc	nc

nc = not counted

MARSH SOUTH
Waterbird counts, January 1996 - October 1997

Species	25.1.96	13.9.96	8.10.96	15.1.97	19.3.97	17.9.97	14.10.97
Great Crested Grebe							5
Grey Heron		5	2			2	5
Shelduck				4	52		
Wigeon		7	50	11			28
Teal				2			
Mallard		70	40		25	235	15
Red-breasted Merganser		15					
Oystercatcher	15	1070	2039	1505	430	65	320
Golden Plover	6						
Grey Plover	90	1		106		250	
Lapwing	235	1	12	40		25	12
Knot	46			1600		150	
Dunlin	155	955	95	4010		200	
Black-tailed Godwit							12
Bar-tailed Godwit	12		400			220	
Curlew	3	72	513	40	335	250	66
Spotted Redshank							
Redshank	2			2		265	243
Greenshank							4
Black-headed Gull	nc	nc	215			35	170
Common Gull	nc	nc				350	20
Lesser Black-backed Gull	nc	nc					
Herring Gull	nc	nc	25				30
Great Black-backed Gull	nc	nc	3			10	20

nc = not counted

MARSH SOUTH - Waterbird counts, January 1998 - December 1999

Species	16.1.98	15.3.98	14.10.98	15.11.98	20.12.98	17.1.99	10.2.99	16.3.99	26.9.99	15.10.99	20.12.99
Great Crested Grebe					2				35		
Cormorant			16					2		31	
Grey Heron	1	3			1	1		1	6	4	1
Brent Goose		75			197	2		260		6	1
Shelduck	6	61		4	16	28	2	27			29
Wigeon	17	13		52	6	32	8	45	22	20	
Teal						3					9
Mallard	16		14	14	87	74			535	32	62
Pintail		2									
Goldeneye	3	2			6			3			
Oystercatcher	1490	1013	240	1035	630	472	143	672	1426	1755	880
Golden Plover	65						11		1		10
Grey Plover	83	10			43	41		1	25	3	7
Lapwing	230		192	70	165	35	167	1		1	
Knot				3800		200		150	1125		
Dunlin	4150	17		1400	505	840	14	898	85		275
Snipe						1					
Black-tailed Godwit								45	12		
Bar-tailed Godwit	85				260	245					230
Curlew	65	92	62	21	113	411	14	109	101	30	34
Redshank		135		33	65	75	11	141	243	36	26
Greenshank		2									1
Black-headed Gull		2	330	175	33	20	1	158	45	570	
Common Gull		18			12	8			95		25
Herring Gull									6		
Great Black-backed Gull			1								

MARSH SOUTH

Waterbird counts, January 2000 - December 2000

Species	15.1.00	2.2.00	15.3.00	20.8.00	22.9.00	26.10.00	15.11.00	11.12.00
Great Crested Grebe							2	8
Cormorant				12				
Grey Heron						3		3
Brent Goose					4	14	18	46
Shelduck		9	5			11	8	25
Wigeon						14	121	212
Teal								25
Mallard				55	4	18	290	233
Pintail								3
Goldeneye								3
Oystercatcher	355	610	835	205	350	550	1128	
Golden Plover	30							3200
Grey Plover						7	2	42
Lapwing	40	510			4	16	190	110
Knot						15	1750	3200
Dunlin	240	2250				7850	550	70
Bar-tailed Godwit					100			
Curlew	46	10	25	1	17	36	14	310
Redshank		140				65	90	30
Greenshank							1	4
Black-headed Gull	1100	215	260	85	504	12		10
Common Gull						2		4
Herring Gull					12	12		
Great Black-backed Gull					6	6		

MARSH SOUTH
Waterbird counts, January 2001 - December 2001

Species	7.1.01	19.2.01	16.8.01	19.9.01	21.10.01	11.11.01	18.12.01
Great Crested Grebe					5		3
Cormorant				1			
Grey Heron		3	5	1	3	1	
Brent Goose	7				3	68	116
Shelduck	25	35			95	32	5
Wigeon	27	18			72	31	8
Teal						22	
Mallard	77			15	176	4	97
Oystercatcher	210	1238	1080	2250	820	1824	795
Golden Plover						6	
Grey Plover	10	24		1	65		83
Lapwing	115	157	3	6	15	155	135
Knot		450				150	14
Dunlin	1015	252			2950	250	67
Bar-tailed Godwit		3					
Curlew	87	11	120	125	145	31	45
Redshank	29	10	38	363	180	9	25
Greenshank	2	1	2		2	1	3
Turnstone							2
Black-headed Gull			850	725		450	
Common Gull	16		35				1
Herring Gull			25	17			
Great Black-backed Gull			15				2

MARSH SOUTH - Waterbird counts, January 2002 – April 2003

Species	13.1.02	14.2.02	9.3.02	18.4.02	20.9.02	16.10.02	17.11.02	10.1.03	9.2.03	21.3.03	22.4.03
Great Crested Grebe	6	1				7	4				
Cormorant				4							
Grey Heron						2	3	2			
Greylag Goose						3					
Brent Goose	81	30					172			52	325
Shelduck	26	11	6	1		36	11			4	
Wigeon	45	16				220	160		2	5	
Teal	75								4		
Mallard	160				295	100	160			2	
Goldeneye	6	1					4				
Red-breasted Merganser										2	
Oystercatcher	270	325		301	1480	2290	1380	45	130	555	
Grey Plover	21	55		8	7	5	22	3	18		
Lapwing	110	280			69	26	36	110	135		
Knot	18	1630	40			320	2675	5500			
Dunlin	1570	1150			25	280	935	550	90		
Snipe	1										
Bar-tailed Godwit			75				560				
Curlew	18	98	95	70	305	59	7	56	76	15	
Spotted Redshank											
Redshank		34	65	7	155	395	61		12	260	1
Greenshank			1				1				
Black-headed Gull	35	15			650	85	325		200		
Common Gull	6	8			20	16					
Herring Gull	4				50	15	12				
Great Black-backed Gull						3	1				
Sandwich Tern					5						

MARSH SOUTH
Waterbird counts, January 2004 - December 2004

Species	16.1.04	12.2.04	17.3.04	17.8.04	16.9.04	9.10.04	29.12.04
Great Crested Grebe					2		3
Grey Heron	2	1		1		1	
Brent Goose		18	7			12	28
Shelduck	10	14	14			53	34
Wigeon	17	92	21		12		39
Teal	32	12					44
Mallard	4	155	3	2	100	54	22
Pintail		1					
Goldeneye		3	1				1
Oystercatcher	655	1800	1010	738	30	45	210
Golden Plover			180		311		
Grey Plover			3		66	1	
Lapwing	75	20		5	23	37	136
Knot		1225	210		455		320
Dunlin	1780	390	30		420		30
Bar-tailed Godwit		450			1		500
Curlew	6	65	75	67	6		12
Spotted Redshank							
Redshank		180	45	7	680		20
Greenshank					1	1	
Mediterranean Gull				1			
Black-headed Gull	36	1	125	21	665	200	
Common Gull	3		1	825	320	121	
Great Black-backed Gull					5	3	1

MARSH SOUTH - Waterbird counts, January 2005 – December 2005

Species	13.1.05	13.2.05	18.3.05	8.4.05	14.8.05	11.9.05	16.10.05	14.11.05	16.12.05
Great Crested Grebe	1			1					
Little Egret	1					1	1		1
Grey Heron			1		2	2	4		
Brent Goose	46	35		51			18		20
Shelduck	43	1	6	8			17	13	19
Wigeon	67	24	5	8			77		84
Teal	79								215
Mallard	37	17			1		53	45	15
Goldeneye	9	1							
Oystercatcher	140	18	345		10	1440	232	46	320
Ringed Plover							1		
Golden Plover	110								
Grey Plover	31	1		14			8		27
Lapwing	480						35	70	64
Knot	340			295					5000
Dunlin	445	412	805	4		3	54		388
Snipe	1								
Black-tailed Godwit	75			2			1		
Bar-tailed Godwit		196		97					1925
Curlew	104	6	65	104		17	42	3	84
Spotted Redshank								19	
Redshank	108	7	4	611			41		40
Greenshank							1		1
Black-headed Gull	12	62	15		765	700	41	nc	45
Common Gull	3	18			1		9	nc	1
Lesser Black-backed Gull							1		
Herring Gull			12					nc	
Great Black-backed Gull								nc	

nc = not counted

MARSH SOUTH - Waterbird counts, January 2006 - November 2006

Species	14.1.06	18.2.06	14.3.06	12.4.06	29.5.06	2.6.06	26.6.06	13.7.06	16.8.06	28.8.06	16.9.06	12.11.06
Slavonian Grebe				2								
Great Crested Grebe				2								
Cormorant							2					12
Little Egret		1	4							1	2	2
Grey Heron	1				1	7	3	5	3	4	1	1
Gannet				1				1				
Mute Swan											3	
Brent Goose	31	83	80	7								
Shelduck	12	52	58	70	2	12						37
Wigeon	85	7	24									78
Teal		121	12	11								3
Mallard	95	22		1						2	11	
Pintail	16		6									
Long-tailed Duck		4										
Goldeneye	13	2	3									
Red-breasted Merganser				3								
Oystercatcher	760	189	73			11	295	2	735	480		1953
Golden Plover	470											
Grey Plover		36	14	9	3							2
Lapwing	740	143					8		5	3	5	79
Knot	550	15							280			410
Dunlin	230	210										380
Snipe	1	2										
Black-tailed Godwit		5										
Bar-tailed Godwit	820	300		98								
Curlew	12	101	73	28	37		53	10	11	15	16	41
Redshank		53	31	24			4					
Greenshank		4							1			
Black-headed Gull		2	155			2	451	648	195	627	1002	122
Common Gull		4					112	45			2	
Lesser Black-backed Gull					12	30	30	7		2	2	
Herring Gull				1	10	20	83	40		2		
Great Black-backed Gull	4				2		1	14	3	2		1

BLACKROCK CORNICHE - Waterbird counts, January 1994 - November 2006

Blackrock Corniche Waterbird counts, January 1994 - November 2006 (76 counts undertaken, 35 species recorded)		
	Species	**Maximum number recorded**
1.	Red-throated Diver	2
2.	Great Crested Grebe	95
3.	Cormorant	83
4.	Little Egret	1
5.	Grey Heron	9
6.	Greylag	7
7.	Brent Goose	134
8.	Shelduck	94
9.	Wigeon	287
10.	Teal	45
11.	Mallard	440
12.	Pintail	8
13.	Goldeneye	26
14.	Red-breasted Merganser	10
15.	Oystercatcher	4490
16.	Ringed Plover	141
17.	Golden Plover	2600
18.	Grey Plover	230
19.	Lapwing	430
20.	Knot	2970
21.	Dunlin	2100
22.	Snipe	19
23.	Black-tailed Godwit	214
24.	Bar-tailed Godwit	680
25.	Curlew	698
26.	Redshank	503
27.	Greenshank	3
28.	Turnstone	88
29.	Black-headed Gull	1593
30.	Common Gull	713
31.	Lesser Black-backed Gull	30
32.	Herring Gull	110
33.	Glaucous Gull	1
34.	Great Black-backed Gull	135
35.	Sandwich Tern	4

BLACKROCK CORNICHE

Waterbird counts, January 1994 - October 1996

Species	24.1.94	13.9.94	21.11.94	20.1.95	15.12.95	25.1.96	16.2.96	13.9.96	8.10.96
Great Crested Grebe			95						
Cormorant		69			3	1			16
Grey Heron		2							
Shelduck	9				2		2		
Wigeon			34	4	31		28		5
Teal				1					
Mallard		10	25	5	12	21		6	70
Goldeneye				26					
Red-breasted Merganser		4	4		2	1			
Oystercatcher	785	1665		702	567	210	734	5	2861
Ringed Plover								1	10
Grey Plover	5	185	32	41	4	63	9	2	8
Lapwing				430	63				
Knot			900	297	1980	1300	1690		1270
Dunlin		150	19	777	40	480	740	20	2100
Snipe				19					
Bar-tailed Godwit	50	250		15		5	139		
Curlew	50	698		3	12		20		190
Redshank	50	90		11	15	2	17	70	58
Greenshank	2	1		1		1			1
Turnstone	3		51	6					6
Black-headed Gull	nc	nc	nc	nc	nc				
Common Gull	nc	nc	nc	nc	nc		28		
Lesser Black-backed Gull	nc	nc	nc	nc	nc	30	5		
Herring Gull	nc	nc	nc	nc	nc				
Glaucous Gull						1			
Great Black-backed Gull	nc	nc	nc	nc	nc		1		

nc = not counted

BLACKROCK CORNICHE

Waterbird counts, January 1997 – December 1998

Species	15.1.97	9.3.97	17.9.97	14.10.97	16.1.98	15.3.98	14.10.98	15.11.98	20.12.98
Red-throated Diver				2					
Great Crested Grebe			46	35		2			3
Cormorant	1	1	1			1	73		
Grey Heron							1		1
Brent Goose	89				8		2	15	10
Shelduck	3	94				2			
Wigeon	85						90		
Teal		2							
Mallard	135			5	82	4	85	12	
Pintail								3	
Goldeneye	8	3			2	5			
Red-breasted Merganser			2						
Oystercatcher	135	389	210	55	247	118	1880	215	105
Ringed Plover	31			40	31		1	12	
Grey Plover	15		19	2		1	52	25	37
Lapwing								1	
Knot			125	100			60	540	
Dunlin				7	6		70	460	31
Bar-tailed Godwit	200	110			12		440	680	65
Curlew	20	165		1	2	5		3	
Redshank	120		60	5	46	122	12	95	14
Greenshank								1	
Turnstone				8					11
Black-headed Gull			45	14	35	13	765	385	20
Common Gull			2	6	30	5		10	713
Herring Gull			10	5	40			25	3
Great Black-backed Gull				1		2		4	

BLACKROCK CORNICHE
Waterbird counts, January 1999 – December 1999

Species	17.1.99	10.2.99	16.3.99	26.9.99	15.10.99	20.12.99
Great Crested Grebe			4	85		2
Cormorant				3	28	1
Grey Heron					1	
Brent Goose		4	22		51	8
Shelduck		14				
Wigeon					143	
Mallard					195	
Goldeneye			2		9	
Oystercatcher	230	710	53	621	1770	195
Ringed Plover					78	3
Grey Plover	12	3	24	40	8	6
Knot	80	320	95	2250	1750	425
Dunlin	40	95	79		156	755
Bar-tailed Godwit		45			255	465
Curlew		40			55	
Redshank	1	50	102	6	85	9
Turnstone	1	1				
Black-headed Gull	18	332	15	37	655	17
Common Gull	2	2		1		7
Lesser Black-backed Gull					1	
Herring Gull		2		1	110	7
Glaucous Gull						
Great Black-backed Gull					12	6
Sandwich Tern				3		

BLACKROCK CORNICHE
Waterbird counts, January 2000 – December 2000

Species	15.1.00	2.2.00	15.3.00	20.8.00	22.9.00	26.10.00	15.11.00	11.12.00
Great Crested Grebe						1		6
Cormorant			6	19	40			
Grey Heron								1
Brent Goose		10	5				72	2
Shelduck		6	8				3	
Wigeon			7					
Mallard				4	75			
Goldeneye			7				1	
Red-breasted Merganser							1	
Oystercatcher	815	270	475	1430	2965	105	235	285
Ringed Plover		29					20	
Grey Plover			230		50	8	1	
Lapwing		1						
Knot	1700	180	1630		940	130		
Dunlin	1054	540	230			385	25	
Bar-tailed Godwit	479	210			41		7	75
Curlew	80	11	80		12		7	
Redshank	11	34	150	26	96		41	
Greenshank							1	
Turnstone						10		
Black-headed Gull	885		220	28	476	59	12	3
Common Gull	5					1		
Herring Gull	25			20				
Great Black-backed Gull			4	9				

BLACKROCK CORNICHE

Waterbird counts, January 2001 – December 2001

Species	7.1.01	19.2.01	16.8.01	19.9.01	21.10.01	11.11.01	18.12.01
Great Crested Grebe							2
Cormorant			4	7		2	
Grey Heron			1	2			
Brent Goose	6	18					3
Mallard		2		20	95		
Goldeneye							9
Oystercatcher	153	165	51	825	9	660	137
Ringed Plover	126	8		45	26		9
Golden Plover					1		
Grey Plover	47				25		33
Knot	70	350		107			13
Dunlin	945	335		1	8	10	135
Bar-tailed Godwit	55	60					
Curlew		10		12		10	1
Redshank	45	110	1	31	56	30	41
Greenshank		2					1
Turnstone	1						
Black-headed Gull	31	15	104	180	23	50	10
Common Gull	2				1		5
Herring Gull			20	10			
Great Black-backed Gull			10	40			

BLACKROCK CORNICHE

Waterbird counts, January 2002 – April 2003

Species	13.1.02	14.2.02	9.3.02	18.4.02	20.9.02	16.10.02	17.11.02	10.1.03	9.2.03	21.3.03	22.4.03
Great Crested Grebe							1				
Cormorant			1		1						
Grey Heron				1	1		1				1
Brent Goose	3	17	22	8			2		2	49	
Shelduck			15	2				8		4	1
Wigeon								145	113		
Mallard		24						240			14
Pintail		8						5			
Red-breasted Merganser				1							
Oystercatcher	90	217	610	387	30	323	140	4450	4490	1415	85
Ringed Plover						8	20				
Golden Plover						40					
Grey Plover		3		6			51		3		3
Lapwing						10	1				
Knot			1080	180			305	850	350	16	90
Dunlin	160	44	350	15		24	315	8	105	12	
Black-tailed Godwit			35								14
Bar-tailed Godwit			12			1		280	25		
Curlew			105	36		2	11	126	56	46	10
Redshank		73	65	67	40	70	1	35	38	150	9
Greenshank			2						1		
Black-headed Gull	45	11			74	6	12	112	444	16	520
Common Gull	5	14	1	1	7			13	5	1	
Herring Gull					7	1				5	
Great Black-backed Gull				16							

BLACKROCK CORNICHE
Waterbird counts, January 2004 – December 2004

Species	16.1.04	12.2.04	17.3.04	17.8.04	16.9.04	9.10.04	29.12.04
Cormorant	2					40	
Grey Heron						4	
Brent Goose	10	16	8			19	2
Shelduck		26				1	
Wigeon	73					43	
Teal	45						
Mallard	253	38				440	
Red-breasted Merganser						10	
Oystercatcher	440	280	685	171	265	1830	324
Ringed Plover						2	2
Grey Plover				1			39
Lapwing							13
Knot	995		120		80	1325	126
Dunlin	530		60	9	8	430	710
Black-tailed Godwit			50				
Bar-tailed Godwit		34					
Curlew	24	18	6			41	
Redshank	36	113	120	22	6	146	20
Greenshank				1			1
Turnstone				1			22
Black-headed Gull	180	8	16	40	4	70	16
Common Gull	2	4		12		12	
Lesser Black-backed Gull				1	1	1	
Herring Gull			8			35	
Great Black-backed Gull	2		2				

BLACKROCK CORNICHE
Waterbird counts, January 2005 – November 2005

Species	13.1.05	13.2.05	18.3.05	8.4.05	14.8.05	11.9.05	16.10.05	14.11.05
Great Crested Grebe	5							
Cormorant			6		23	46	2	
Grey Heron			2		1	9	1	
Brent Goose		32	6			1	86	4
Shelduck			89				2	
Wigeon			11			42	287	
Mallard		3	12			80	30	4
Pintail		4						
Goldeneye	6							
Red-breasted Merganser			1					
Oystercatcher	445	113	425	275	1236	2440	775	912
Ringed Plover	43	8					1	
Grey Plover	39	6	1					
Lapwing	1						4	
Knot	127	280	1130				2970	
Dunlin	197	282	1014				948	45
Black-tailed Godwit			1			22	20	214
Bar-tailed Godwit				28			68	
Curlew			59			6	55	83
Redshank	2	41	146	122	4	205	503	
Greenshank			2			1		
Turnstone	6							
Black-headed Gull	16	8	28		51	635	24	
Common Gull	6	16	50		1			
Herring Gull				6		1		
Great Black-backed Gull					3	17		

BLACKROCK CORNICHE

Waterbird counts, January 2006 – November 2006

Species	14.1.06	18.2.06	14.3.06	12.4.06	29.5.06	13.7.07	16.8.06	28.8.06	16.9.06	12.11.06
Great Crested Grebe				1	3					
Cormorant							27		83	33
Little Egret										1
Grey Heron					2	4	1		4	2
Brent Goose	3	3								134
Shelduck					3					4
Wigeon										186
Mallard	4								141	155
Goldeneye										8
Red-breasted Merganser				3	8					
Oystercatcher	90	113	185	92	126	760	2020	5	3079	4195
Ringed Plover	141	7					5			103
Golden Plover			2600							
Grey Plover	6	81	48			1				8
Lapwing		6								4
Knot		24	4							2250
Dunlin	64	249	14		53			1	4	
Black-tailed Godwit		67								14
Bar-tailed Godwit	565	125	230	16					390	40
Curlew						13	23		16	55
Redshank	13	11	6	4			154	10	101	95
Greenshank		1	1							3
Turnstone	9	5	17							
Black-headed Gull	15	3	1	1	1	238	1593	54	900	265
Common Gull	4	17	2		88	36	11	34	4	2
Lesser Black-backed Gull					5	6	2	7		
Herring Gull	1		2	2	12			2	2	
Great Black-backed Gull						135	1		2	
Sandwich Tern				4	1	1				

LURGANGREEN NORTH/FANE RIVER ESTUARY- Waterbird counts, January 1994 - November 2006

Waterbird counts, Lurgangreen North/ Fane River Estuary January 1994 – November 2006 (79 counts undertaken, 44 species recorded)		
	Species	**Maximum number recorded**
1.	Great Crested Grebe	266
2.	Cormorant	24
3.	Little Egret	4
4.	Grey Heron	1
5.	Mute Swan	16
6.	Pink-footed Goose	1
7.	White-fronted Goose	29
8.	Greylag Goose	505
9.	Brent Goose	261
10.	Ruddy Shelduck	1
11.	Shelduck	159
12.	Wigeon	366
13.	Teal	190
14.	Mallard	385
15.	Pintail	350
16.	Shoveler	6
17.	Goldeneye	30
18.	Eider	1
19.	Red-breasted Merganser	14
20.	Oystercatcher	4895
21.	Ringed Plover	2
22.	Golden Plover	8550
23.	Grey Plover	1060
24.	Lapwing	2530
25.	Knot	13500
26.	Curlew Sandpiper	1
27.	Dunlin	6725
28.	Snipe	12
29.	Black-tailed Godwit	760
30.	Bar-tailed Godwit	2795
31.	Whimbrel	2
32.	Curlew	782
33.	Spotted Redshank	1
34.	Redshank	811
35.	Greenshank	12
36.	Common Sandpiper	2
37.	Turnstone	3
38.	Black-headed Gull	1968
39.	Common Gull	525
40.	Lesser Black-backed Gull	46
41.	Herring Gull	215
42.	Glaucous Gull	1
43.	Great Black-backed Gull	64
44.	Sandwich Tern	2

LURGANGREEN NORTH/FANE RIVER ESTUARY
Waterbird counts, January 1994 – September 1996

Species	24.1.94	13.9.94	21.11.94	20.1.95	15.12.95	25.1.96	16.2.96	13.9.96
Cormorant	3	12	1					20
Grey Heron		6						2
Mute Swan	2		6		2			
Greylag Goose	1							
Brent Goose	17	10	30	65	75	255	90	
Shelduck	61			35	26	25	2	
Wigeon	1	24	350	45		35	26	40
Teal	1			5				
Mallard	8	4	350	14				190
Pintail	12		15	4			14	
Shoveler		3						
Goldeneye			22	2				
Oystercatcher	375	379	1015	22	395	350	711	3813
Ringed Plover	2							
Golden Plover	3550	117	1570	95	6450		725	
Grey Plover	19		10				91	
Lapwing	2530	31	1565	405	720	40	170	2
Knot	17		13500	425	1150	230	64	
Curlew Sandpiper		1						
Dunlin	705		350	145	30		1600	110
Snipe	2		1	1	1			
Black-tailed Godwit	52	1						
Bar-tailed Godwit		7	160		185		95	
Curlew	205	782		180	65		32	66
Redshank	115	400	270	17	40		40	520
Greenshank	2	6						2
Turnstone	2						2	
Black-headed Gull	nc	nc	nc	nc	nc	nc	84	nc
Common Gull	nc	nc	nc	nc	nc	nc	80	nc
Herring Gull	nc	nc	nc	nc	nc	nc		nc
Glaucous Gull	1							
Great Black-backed Gull	nc	nc	nc	nc	nc	nc	2	nc

nc = not counted

LURGANGREEN NORTH/FANE RIVER ESTUARY
Waterbird counts, January 1997 – December 1998

Species	15.1.97	19.3.97	17.9.97	14.10.97	16.1.98	15.3.98	14.10.98	15.11.98	20.12.98
Great Crested Grebe			1	9	2				
Cormorant				7	5			3	
Grey Heron			4	1					
Mute Swan	6		3	3			1	2	
Pink-footed Goose						1			
White-fronted Goose						29			
Greylag Goose		249				194			75
Brent Goose	65	8			261	118		59	63
Shelduck	128	63			141	60	1	16	24
Wigeon	180				26	6	68	133	26
Teal	35							6	4
Mallard	52		185	69	3	21	180	210	194
Pintail	74				115	104		95	114
Shoveler	4				6	2			
Goldeneye	17				2	14		3	10
Eider	1								
Red-breasted Merganser				14		2		4	
Oystercatcher	800	261	4895	1835	625	820	565	1153	940
Golden Plover	1650	900		120	2150	33	260		3155
Grey Plover	1			6					1060
Lapwing	1850		30		1125		90	270	
Knot	3750	280		120			850		
Curlew Sandpiper									
Dunlin	5700	435		30				52	1135
Snipe									5
Black-tailed Godwit		2				40		137	37
Bar-tailed Godwit	1410	290	417	95	165		75		1445
Curlew		265	88	47	100	42	155	107	35
Spotted Redshank		1							
Redshank		360	135	61	240	351	142	84	15
Greenshank	2	4				2			
Turnstone		4							
Black-headed Gull	nc	nc	600	190	75	308	1370	785	35
Common Gull	nc	nc		35	45	80		70	10
Lesser Black-backed Gull	4		45	1					1
Herring Gull	nc	nc	20	30	95	120	85	10	20
Great Black-backed Gull	nc	nc		41	3	3	10	18	4

nc = not counted

LURGANGREEN NORTH/FANE RIVER ESTUARY
Waterbird counts, January 1999 – December 1999

Species	17.1.99	10.2.99	16.3.99	26.9.99	15.10.99	20.12.99
Great Crested Grebe	3			266		
Cormorant		10	4	17		2
Grey Heron	1				2	
Mute Swan	1			5	5	6
Greylag Goose		5	285		395	182
Brent Goose	66		90			7
Shelduck	32	24	7	9	27	81
Wigeon	140	32	37		105	85
Teal		8			35	35
Mallard	25		8	385	70	15
Pintail	55		78			117
Goldeneye	30		21			
Red-breasted Merganser			2			
Oystercatcher	1095	775	1166	1191	2135	1070
Golden Plover		180	265	180	1350	1050
Lapwing	1235	508	3	145	51	170
Knot	1450	55	4250		700	2750
Dunlin		420		5		1135
Snipe	1					
Black-tailed Godwit		185	640	21	195	302
Bar-tailed Godwit		53	285		300	120
Curlew	45	106	67	155	47	53
Redshank	38	68	317	325	127	125
Greenshank		1	3	2		
Black-headed Gull	75	44	275	660	1450	15
Common Gull		1	12	144	160	70
Lesser Black-backed Gull	3			5	1	1
Herring Gull	7		3	215	85	25
Glaucous Gull						
Great Black-backed Gull	36	1		19	50	36
Sandwich Tern				2		

LURGANGREEN NORTH/FANE RIVER ESTUARY
Waterbird counts, January 2000 – December 2000

Species	15.1.00	2.2.00	15.3.00	20.8.00	22.9.00	26.10.00	15.11.00	11.12.00
Great Crested Grebe						2		8
Cormorant						7	17	2
Grey Heron				1	1		2	
Mute Swan			4					
Greylag Goose			505			67		6
Brent Goose	13	22	5				20	121
Shelduck	29	36	38				5	6
Wigeon		27	4			56	8	
Teal	21	11			22			
Mallard	2	5	22	185	50	105	45	2
Pintail	17	28						125
Goldeneye								12
Oystercatcher	430	440	260	220	1050	1945	115	1625
Golden Plover	420	4400						
Lapwing	755	845		115		125		505
Knot	210	3750				650		440
Dunlin	320	6725			170		85	
Black-tailed Godwit	556	120	90					
Bar-tailed Godwit		775				91		
Curlew	89	35	160	57	80	30	85	85
Redshank	51	72	335	176	175	59		115
Greenshank						6		3
Turnstone	2							
Black-headed Gull	25	220		345	495	600	60	
Common Gull		45			6			10
Herring Gull	14				10	22		
Great Black-backed Gull	8		7		30	46	6	19

LURGANGREEN NORTH/FANE RIVER ESTUARY
Waterbird counts, January 2001 – December 2001

Species	7.1.01	19.2.01	16.8.01	19.9.01	21.10.01	11.11.01	18.12.01
Great Crested Grebe					3		1
Cormorant			11	2	4	3	
Grey Heron			9	2	1	1	
Greylag Goose		34				28	
Brent Goose	163	7				11	141
Shelduck	30	76		1		3	43
Wigeon	4				105	30	120
Teal			6	6		12	91
Mallard	35		97	26	195	12	160
Pintail	80	108			2	97	105
Goldeneye		8			1	21	4
Oystercatcher	987	385	1005	235	1965	1240	1650
Ringed Plover							1
Golden Plover	935	2585			6375	3940	4750
Grey Plover		2			1		
Lapwing	235	550			56	760	920
Knot	1025	450			270		
Dunlin	420	666				550	825
Snipe			1				
Black-tailed Godwit	120	8		7	347		235
Bar-tailed Godwit	190	220	4			80	
Curlew	70	195	145	84	281	70	35
Redshank	25	811	1	190	97	284	35
Greenshank		1		2	3		
Black-headed Gull		115	850	360	885	520	70
Common Gull					60	35	30
Herring Gull	130		20	10	25	13	12
Great Black-backed Gull	25		35	3	15	16	4

LURGANGREEN NORTH/FANE RIVER ESTUARY
Waterbird counts, January 2002 – April 2003

Species	13.1.02	14.2.02	19.3.02	18.4.02	20.9.02	16.10.02	17.11.02	10.1.03	9.2.03	21.3.03	22.4.03
Great Crested Grebe						2	2				
Cormorant				4	5	9					
Grey Heron					1						3
Mute Swan				2	3	6	7	3			
Greylag Goose		170	165	55				1	118	178	1
Brent Goose	205	183	7	73					11	28	23
Shelduck		53	46	36		9	52	15	20	85	19
Wigeon	45	58			366	130	204		8		
Teal					15		10	10	10	4	
Mallard	20		1		182	125	220				12
Pintail	12	66	14		17	9	21			34	
Shoveler											
Goldeneye		13	22				12				
Oystercatcher	485	865	280	328	2830	1375	1230	1155	330	160	125
Golden Plover	1250	850	5250	20	12	2150		2550	1525		
Grey Plover			7					6			
Lapwing	140	410			78	375	320	200	1195		
Knot		55	160		970		520	8		1100	
Dunlin		715		35		120	75	15	205	130	7
Snipe					1	2	2				
Black-tailed Godwit			169	176	168	2	65	47	29	151	362
Bar-tailed Godwit	1030	620	115	50		15		630			210
Curlew	45	325	233	60	699	40	12	155	34	68	
Redshank		90	135	133	80	200	24	36	50	10	77
Greenshank		2				1					3
Black-headed Gull	65	175	22		1968	1390	50	45	70	525	320
Common Gull		20	1		14		80	7	6		
Lesser Black-backed Gull					4						
Herring Gull					25		30	8	6	45	
Great Black-backed Gull			4	7		13					

LURGANGREEN NORTH/FANE RIVER ESTUARY
Waterbird counts, January 2004 – December 2004

Species	16.1.04	12.2.04	17.3.04	17.8.04	16.9.04	9.10.04	29.12.04
Great Crested Grebe					2		1
Cormorant			2	16	14	6	3
Grey Heron				11	1	1	1
Mute Swan						16	
Greylag Goose		45	387			126	
Brent Goose		8	2				91
Shelduck	37	89	77		4	12	159
Wigeon		160	35		38	47	245
Teal	2	35	12			30	20
Mallard	6	6	38	164	23	225	138
Pintail	25	135	110		4		210
Goldeneye		9	12				8
Oystercatcher	810	1795	26	1001	920	217	636
Golden Plover	6750	5350	830			149	8180
Grey Plover			15	1	10		
Lapwing	1200	370		72		167	1150
Knot	3180	9730	3950		77	550	132
Dunlin	3815	1620	460	110	9	182	745
Black-tailed Godwit	110	680	671	16		35	495
Bar-tailed Godwit		2795	3		307		1040
Curlew	150	100	142	140	50	469	230
Redshank	65	185	55	365		498	209
Greenshank		2		3	1	4	6
Turnstone	3						
Black-headed Gull	25	20	60	1021	125	1260	9
Common Gull	60	345	4		47	120	44
Lesser Black-backed Gull					1		
Herring Gull	70		18	95	35	7	
Great Black-backed Gull	10	2	3	13	42	7	

LURGANGREEN NORTH/FANE RIVER ESTUARY
Waterbird counts, January 2005 – December 2005

Species	13.1.05	13.2.05	18.3.05	8.4.05	14.8.05	11.9.05	16.10.05	14.11.05	16.12.05
Great Crested Grebe	2						2		
Cormorant	1	1			6		4		3
Little Egret					4	1	1	1	
Grey Heron					7				
Mute Swan				1				6	
Greylag Goose		104	122	477				98	
Brent Goose	46	112		34			24	37	6
Shelduck	66	110	45	42				55	82
Wigeon	40	87	14				35	98	
Teal	55	17	19			2		190	70
Mallard	85	52	8	8	58	5	10	64	22
Pintail	270	271	35	24			5	37	14
Goldeneye	11	3		2					
Oystercatcher	416	347	161	92	189	9	826	312	1420
Golden Plover	55		400				495	600	700
Grey Plover		1							
Lapwing	557	100			37	45	93		1285
Knot	4030	540		165	1850			1782	800
Dunlin	320	2040			13	18	6	101	70
Snipe	1								
Black-tailed Godwit	86	210	760	60	24	65	8	113	250
Bar-tailed Godwit	951								245
Curlew	26	324	129	65	8	44	7	42	16
Redshank	195	255	65	275	336	272	44	113	51
Greenshank	8	1			7				5
Black-headed Gull	23	63		2	232	491	469	nc	21
Common Gull		45					15	nc	1
Lesser Black-backed Gull		2			1	2	1		
Herring Gull				2	20			nc	16
Great Black-backed Gull		2		2	4		6	nc	3

LURGANGREEN NORTH/FANE RIVER ESTUARY

Waterbird counts, January 2006 – November 2006

Species	14.1.06	18.2.06	14.3.06	12.4.06	29.5.06	2.6.06	14.6.06	26.6.06	13.7.06	16.8.06	28.8.06	16.9.06	12.11.06
Great Crested Grebe	1							1					
Cormorant	3		16	2	1	2		1	4		24		
Little Egret	1								1	2			3
Grey Heron	3		1			5	7	8	6	9	3	2	
Mute Swan			2		5	4	14	4					13
Greylag Goose		45	26	91									115
Brent Goose	6	238	170	193				1	1				13
Ruddy Shelduck							1						
Shelduck	87	76	16	10	15	15	17	22	12	1		6	66
Wigeon	36	31	18	6				1	3		17	32	115
Teal	24	61	4	4			1					13	81
Mallard	16	59	4	38	215	264	240	119	55	70	127	283	22
Pintail	13	350	68	72									
Goldeneye		13	5	11									
Red-breated Merganser	1												
Oystercatcher	1405	1405	815	321			1	3	175	498	1855	128	2510
Ringed Plover							1						
Golden Plover	460	1850	53									15	8550
Lapwing	835	510				2	22	34	63	43		218	810
Knot		2700	8300	187					450		52		
Dunlin	80	2350	15		6	52	1		1			6	
Snipe		12	1	1									3
Black-tailed Godwit	120		35	344					60	11	3		516
Bar-tailed Godwit	460	2555	38	120					2		243		
Whimbrel					1	2			1				
Curlew	103	240	7	2		76		28	188	47		255	140
Redshank	36	50	80	210				48	77	171	24	279	103
Greenshank	4	12	6						4		2	3	1
Common Sandpiper										2			
Black-headed Gull	40	21	12	30	40	36	200	810	1600		357	214	360
Common Gull		45		14	525	494	12	90	25			8	75
Lesser Black-backed Gull					4	6		46	2		2	1	1
Herring Gull	3	3	5	1	6	4	3	3	4		12	15	8
Great Black-backed Gull			2	1	64	58	6	34	3		2	5	2
Sandwich Tern						2							

BLACKROCK TIDY TOWNS COMMITTEE