

Survey of Winter and Breeding Birds

Bog of the Ring, Co. Dublin

February – July 2009

Prepared for
Fingal County Council
August 2009

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Bog of the Ring, Co. Dublin**

**Surveyed and Prepared by
Sean Pierce
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Introduction

This survey was commissioned by Fingal County Council in February 2009. The aim of the survey was to record both the wintering and breeding birds of the Bog of the Ring. The winter survey ran from February to March 2009 while the breeding bird survey ran from April to July 2009.

The purpose was to identify what areas within the Bog of the Ring were important for birds and to identify what species breed there. The priority habitats targeted in this survey were the remaining wetland, wet meadow and semi natural grassland areas. The surrounding agricultural and reclaimed lands were not surveyed though bird species were recorded during the survey moving from the survey zones onto these areas to feed or hunt and vice-versa.

1. Description of Survey Zone

Bog of the Ring, Ring Commons is located at O180600. The area stretches from the M1 motorway on its eastern boundary through the town land of Ring Commons to the town land of Curragh East some two and half kilometres northwest. The village of the Bog of the Ring lies between the town lands. (See Figure 1.)

The survey zone is located within the broader town land boundaries and is focussed on the lowland wet marshland, reed beds, sedge and unimproved wet grassland that remains in the area. The Matt River runs through the survey site close to its southern boundary from west to east and drains the entire study zone.

The local road system subdivides the areas of study and the Bog of the Ring village separates what is known locally as the Upper Bog (Section 4) from the Lower Bog (Sections 1, 2 & 3). (See Figure 2.)

Figure 1: Aerial Photo of the Study Area



The survey zone was divided into four sections that correspond closely with the natural and man made drainage pattern.

The habitats left within these four sections are what remains of the original Bog of the Ring before the entire area was drained extensively from the 1960's to the present day. The area is part of Fingal County Council's public water supply scheme and four pumping stations are linked to a water supply facility located just east of the study site.

The four sections all have low lying wetland type vegetation. There is considerable variation in the depth of the water table both between sections and within sections. All areas are grazed by either cattle or sheep.

Figure 2: Map of the Survey Zones at the Bog of the Ring



2. Site Status

Bog of the Ring is known as an important wetland and wildlife area. Goodwillie et al (1973) outlined its regional importance for its ecological, botanical and zoological interest. D.A Webb et al (1977) describe a list of important plant species recorded there. An Foras Forbartha (1981) had it listed as an area of Scientific Interest of Regional Importance. Goodwillie et al (1988) reported on the site and the threats of drainage to the area. The site was identified by the Irish Peatland Council in its Fen Inventory Survey (2000) as a Flush fen type, one of only two fen sites listed for County Dublin. In the Fingal County Development Plan (2005 – 2011), the area is proposed as a National Heritage Area under Local Objective HO34.

3. Historical Data

The Bog of the Ring has long been known locally as an important wetland and wildfowling area. Unfortunately, there are very few specific site references within the birding literature prior to the 1970's.

In compiling this report some local residents were interviewed for their knowledge of the areas past birdlife. I also spoke with some former residents and key observers who occasionally observed and recorded birds in the area.

It is clear from several sources that the current extent of the wetland areas of the Bog of the Ring is much reduced. Prior to the 1960's, an area circa 2 miles long by 1 mile wide would frequently flood over the winter months. This could run from the present L152 Balbriggan to Swords road westwards to the Bog of the Ring village and cover the floodplain in several feet of water. (J Curtis, J English pers obs)

This resulted in large areas of standing water being available to wintering duck species in particular. It is now difficult to gain a thorough understanding of what numbers of birds frequented the area in the 1950'- 60's but local people who shot duck and geese in the area gave the following confident estimates (see Table 1).

Table 1: Estimated numbers of waterfowl and waders at Bog of the Ring 1950-1960 (J Curtis, P Durnan, and J English pers obs)

Species	Estimated Number	Comments on Status
Whooper Swan	10 – 20	Occasional
Greenland White-Fronted Goose	20 – 50	Scarce only some winters
Greylag Goose	100 – 200	Regular
Wigeon	1000	Common
Teal	1000	Common
Mallard	100	Scarce
Pintail	10 – 20	Small Numbers
Shoveller	10 – 20	Small Numbers
Pochard	20 – 50	Occasional
Tufted Duck	20 – 50	Small Numbers
Goldeneye	10 Max	Very occasional
Coot	50	Regular
Lapwing	1000	Common
Curlew	300	Common

Local people commented that duck species flew from the Bog of Ring to nearby Knock Lake and vice versa when one or other area was being hunted.

Snipe and Jack Snipe were described as “common” but Woodcock as “scarce” on the bog and a summer estimate of breeding Snipe numbers was circa 200 birds “drumming” (1950’s). Other species known locally were Corncrake (Common breeder until 1960’s), Whimbrel (small numbers in Autumn), Grey Phalarope (occasional in Autumn).

Of the smaller winter passerine species, Linnet, Greenfinch, Yellowhammer and both Redwing and Fieldfare were described as common in the area. Cuckoo was regularly heard in the spring. Interestingly, Magpies were not at all common in the 1950’s – 1960’s but Hooded Crows were considered a menace! (J Curtis, P Durnan, J English pers comm.).

The numbers and diversity of the wildfowl species at the Bog of the Ring during the 1950’s would place the area by modern standards as a nationally important site for wetland birds within the IWeBS framework (Crowe 2005). Since the 1960’s the area has undergone successive drainage and land reclamation schemes (Goodwillie et al 1977).

Between the years 1960 – 1980 only occasional references are found in the literature. Hutchinson (1975) describes the Bog of the Ring as “a clayey marsh with several plant species more widely found in the Central Plain. The iris beds and water meadows are productive of insect life and thus attract large numbers of hirundines i.e. Swallows, Martins and Swifts”.

However, it is significant that although nearby Knock Lake is included in Hutchinson (1979), Sheppard (1993) and Crowe (2005); the Bog of the Ring is not documented as a wetland of even local consequence. The areas importance as a wetland bird site had ceased by the mid 1970’s and it has not been the focus of any recent wetland bird studies.

In the Irish East Coast Bird Reports 1980 – 2003, individual species and site specific counts are given and are valuable in that they allow some assessment of the relative importance of the site over those years. The species list is similar to the 1950’s but numbers recorded of the main wader and wildfowl species are small relative to the 1950’s. The counts of some key passerine species, occasional counts of Whooper Swan, Golden Plover and Hen Harrier are however significant and demonstrate the areas potential especially when the area still infrequently floods (see Appendix 4).

In general, the records show a decline in wildfowl and wader species as the site became more heavily managed and the loss of wetland continued (Goodwillie et al 1988).

The breeding birds of the Bog of the Ring have been the subject of some previous studies. It was surveyed as part of the New Atlas of Breeding Birds in Britain and Ireland: 1988 – 1991 (Gibbons et al 1993) when a total of 36 species were found to breed (see Appendix 2). Although the Atlas survey methodology was less intensive than the present study it is very useful to compare the results.

The overall list of bird species recorded at the Bog of the Ring from sources referenced in this study is given in Appendix 4.

4. Survey of Wintering Birds

This chapter describes the methodology used for the Wintering Birds survey of the Bog of the Ring, outlines the results of the survey for each section and discusses the overall findings.

4.1 Methodology

The wintering birds were monitored through a series of four two hour counts in February and March 2009. Two counts were made in February and two in March. The counts were timed so birds could be monitored in the early morning and in the late afternoon. The same route was walked on each occasion this allowed all areas to be covered and each habitat visited. All species within and flying over the study zone were recorded.

4.2 Survey Results for Section 1

This section is located on the south-eastern side of the survey site. It is a low-lying area of reeds, rushes and rough grasses. Several small wet pools can be found after periods of heavy rainfall along its eastern boundary. The area lies just west of the Ring Commons Sports Complex where a line of willow trees form a boundary edge. These are the only trees of note within the Section.

The Matt River forms its southern boundary while the public roadways form its northern and western edges. A water pumping station is located at its north western end.

A total of 24 bird species were recorded in Section 1 during the course of the winter survey (see overview in Table 2).

Table 2: Overview of most significant bird species recorded in Section 1

Species	Times Recorded per/ No. of Survey Visits	Peak Counts
Mallard	2/4	5
Teal	1/4	2
Buzzard	1/4	1
Snipe	4/4	20
Jack Snipe	1/4	1
Skylark	1/4	2
Yellowhammer	3/4	2
Stonechat	2/4	2

4.3 Survey Results for Section 2

This section is located west of Section 1. It consists of low-lying a mosaic of wetland habitats including reed bed, sedge and rough wet grassland areas. There is some willow carr in the south eastern corner and some bramble and gorse along the public road edges. Public roads form its southern, northern and western boundaries while the Matt River flows close to its southern edge.

Several low-lying wet unimproved grassland fields south of the river were included in this survey section. Several small ponds are found in the south-eastern corner after periods of heavy rainfall. The western end of this section is much drier than the eastern section and provides rough grazing for sheep and cattle. A water-pumping station is located at its north western end.

A total of 24 bird species were recorded in Section 2 during the course of the winter survey (see overview in Table 3).

Table 3: Overview of the most significant species recorded in Section 2

Species	Times Recorded per/ No. of Survey Visits	Peak Counts
Mallard	2/4	2
Teal	1/4	4
Buzzard	2/4	1
Snipe	4/4	10
Stonechat	2/4	2
Stock Dove	1/4	2

4.4 Survey Results for Section 3

This section is located north of the public roadway that links the Bog of the Ring with the R132 Balbriggan to Swords road. This roadway forms the southern boundary of this section. A second public road forms the area's western boundary. Several houses with gardens and a farmyard determined the section's northern boundary at the north western end near the village. Further east, a man made drainage channel and an adjoining semi natural grassland field mark the rest of the northern boundary. The drainage channel links with the southern boundary road at the Ring Commons Sports Complex.

Section 3 has a more diverse range of habitat types. It is bigger than either Section 1 or 2 and is much drier underfoot. The drainage channel has some standing trees along its edge as does the adjoining grassland field and farmyard areas. The core central section is flat and low lying and dominated by yellow iris. Rough grasses and sedges are found at the eastern end and small thickets of willow, blackthorn, hawthorn and furze are dominant at the western side. The area is grazed by cattle.

A total of 37 bird species were recorded in Section 3 during the course of the winter survey (see overview in Table 4).

Table 4: Overview of the significant species recorded in Section 3

Species	Times Recorded per/ No. of Survey Visits	Peak Counts
Mallard	2/4	3
Kestrel	1/4	1
Buzzard	1/4	1
Snipe	1/4	5
Golden Plover	1/4	15
Stock Dove	1/4	2
Lapwing	1/4	1
Curlew	1/4	20
Moorhen	2/4	2
Black-headed Gull	1/4	150
Skylark	2/4	2
Redwing	4/4	200
Fieldfare	3/4	150
Chaffinch	4/4	150
Goldfinch	2/4	40
Yellowhammer	2/4	2

4.5 Survey Results for Section 4

This section is the most westward of the survey zone and includes the village and its associated gardens and wooded areas. The main wetland vegetation is located west of the Bog of the Ring village and is divided by the public road linking the village with Naul further west. It is known locally as the Upper Bog. The area north of the road is low lying and dominated by rush and sedge vegetation. It can be quite wet during the winter months and is rumoured locally to be fed by a natural spring towards its eastern end. Its northern and eastern boundaries are lined by hedge and mature trees. The River Matt flows centrally through the study zone south of the road and is fed by several smaller streams that run off the higher ground to the south.

This area is dominated by extensive areas of rush and rough grazing and is not as wet as the northern side. Furze bushes line the banks of the Matt River and the areas southern boundary has mature trees and hedgerow. An attractive wet alder wood and associated wet grassland marks the northwest edge. On the western boundary, the wetland vegetation gives way to fields of semi natural grassland and hedgerows. The area is grazed by cattle. A water pumping station is located close to the village at the eastern end.

A total of 34 species were recorded in Section 4 during the course of the winter survey (see overview in Table 5).

Table 5: Overview of the significant species recorded in Section 4

Species	Times Recorded per/ No. of Survey Visits	Peak Counts
Mallard	1/4	1
Sparrowhawk	2/4	1
Buzzard	4/4	4
Snipe	4/4	15
Golden Plover	1/4	250
Woodcock	2/4	1
Stock Dove	1/4	2
Redwing	4/4	100
Grey Wagtail	3/4	2

4.6 Discussion

A total of 51 species was recorded over the four counts of the winter bird survey (see Appendix 1). Of these, 8 were wetland species, Mallard, Teal,

Moorhen, Lapwing, Curlew, Golden Plover and Snipe and Jack Snipe, 4 were species of Gull, 3 were raptor species and the remainder were land birds.

Figure 2 below shows the overall distribution of some of the key winter bird species across the survey area. Table 6 lists results for selected species recorded at Bog of the Ring in February and March 2009.

Figure 2: Distribution of some Key Winter Bird Species

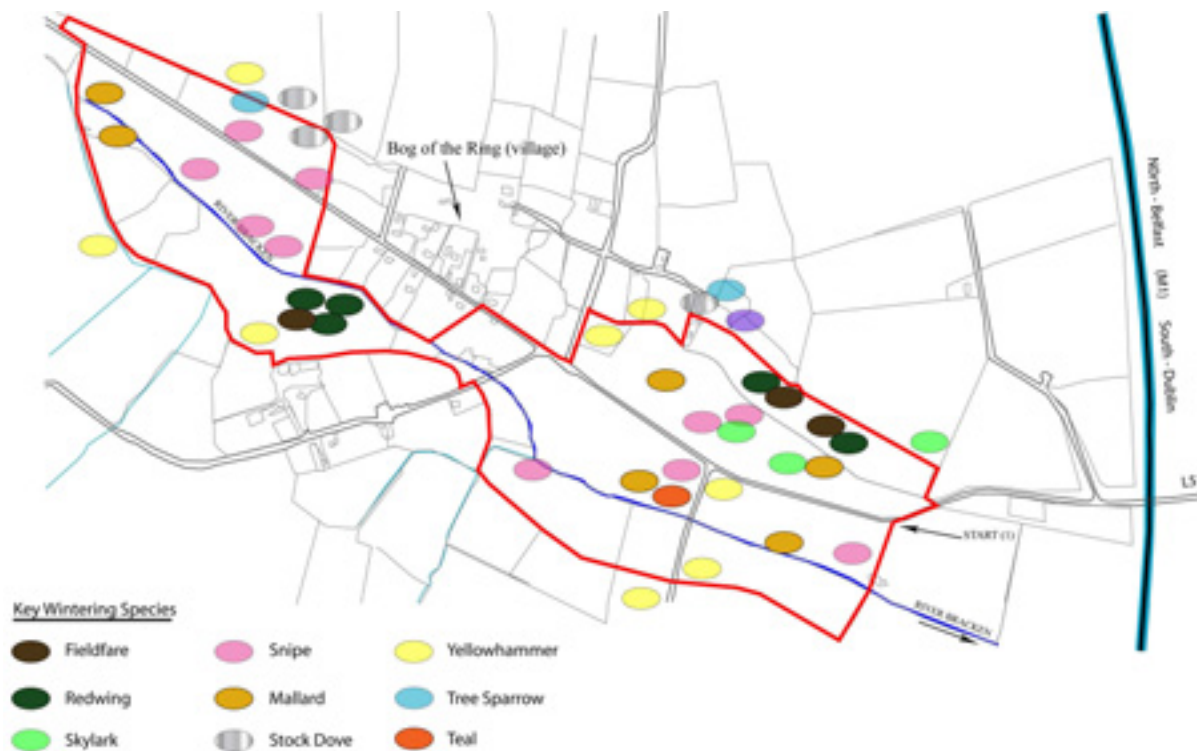


Table 6: Selected species recorded, February – March 2009

	Species	02.02.2009	20.02.2009	02.03.2009	12.03.2009
1.	Mallard	6	6	4	6
2.	Teal	2	4		
3.	Snipe	55*	33	40	10
4.	Jack Snipe	1			
5.	Curlew		20		
6.	Golden Plover		250		
7.	Moorhen		2		1
8.	Woodcock	1	1		
9.	Buzzard	2	1	1	2
10.	Kestrel			1	
11.	Sparrowhawk	1	1		
12.	Fieldfare	50	150	100	
13.	Redwing	100	250	200	10
14.	Goldfinch	40	60	10	4
15.	Chaffinch	140	50	20	10
16.	Woodpigeon	150	200	100	80
17.	Stock Dove				4
18.	Yellowhammer			3	4
19.	Skylark		2	1	2

*Species highlighted indicate number of significance within IWeBS framework

Newton et al (1999) outlined the status of birds in Ireland. In that analysis, species were assigned a Red (High), Amber (Medium) Green (Low) rating indicating the levels of conservation concern appropriate to each species. The results have been summarised as the Birds of Conservation Concern in Ireland list or BoCCI (see Appendix 3).

As highlighted, Snipe was the most important species recorded during this survey. The peak count of 55 birds makes this site regionally important under the I-WeBS framework (see Appendix 3).

Snipe are also an amber listed species in Birds of Conservation Concern in Ireland publications (Newton et al 1999). This is due to population declines with the degradation of wetland habitat in Ireland in recent years. This is especially true in Fingal where freshwater wetland habitat is particularly scarce.

The occurrence of Curlew, Golden Plover and Lapwing within the study zone is important. All three species are regularly found in winter on Fingal's

estuaries (Crowe 2005) but are also known to also feed inland often at night especially on wet semi natural grassland. The surrounding agricultural practice of mixed farming and the availability of such grassland areas are important to the biodiversity of the Ring Commons area. However, within the study zone itself, this habitat type has become very limited in extent due to on going drainage and development.

The Redwing and Fieldfare numbers recorded further underline the above point. Both are species of Thrush that breed in Iceland and Scandinavia and are winter visitors to Ireland. They feed extensively on areas of semi natural grassland. Both Sections 3 and 4 held good numbers during the study period. Both these species have traditionally been associated with this area of Fingal (Irish East Coast Bird Reports 1980 – 2003).

3 raptor species were recorded in the Survey Zone. Buzzard numbers in Fingal have increased over the last ten years and the study zone was found to hold a territorial pair. Kestrel has recently been added to the BoCCI amber list of species due to declines in its breeding success (Lynas et al 2007).

The results show substantial numbers of passerine birds within the study zone. All are species that depend on a combination of mixed agricultural practice and semi natural habitats. The presence of Stock Dove, Yellowhammer and Skylark is of particular significance. These species are of particular conservation concern due to big declines in both their wintering and breeding numbers in the national and international context. (Newton 2004, Lynas et al 2007).

5. Survey of the Breeding Birds

This chapter describes the methodology used for the Breeding Birds survey, presents the results and discusses the key breeding species.

5.1 Methodology

The breeding survey began in April 2009 and finished in July 2009. The same survey zone and sections 1– 4 were monitored as in the Winter Birds survey. A series of monthly two-hour counts were made. The monthly visits were all carried out in the early morning in good weather conditions. The same survey route was used as in the Winter Birds survey (see Figure 2). Counts were spread over the four month period so as increase the opportunities of observing and recording both early and late migrant species. The minimum duration of each morning visit was two hours. In addition one casual afternoon visit on 15th May 2009 and four dusk visits on 22nd April, 21st May, 3rd June 2009 and 19th July 2009 and were made in search of specific species.

All species present were recorded and breeding was assessed by observation of their behaviour.

5.2 Results

A total of 54 species were recorded in the breeding survey of the Bog of the Ring during the breeding season (April – July 2009). The records are listed in Table 7. Of the total number of species recorded, 41 were confirmed to breed while a further 3 species were deemed probable breeders. One species, Snipe, was suspected as a possible breeding species.

Each subsection had a varying biodiversity of breeding species. Section 1 had 20 species, Section 2 had 33 species, Section 3 had 28 species and Section 4 had 38 species.

The results of the breeding survey show that the Bog of the Ring study site has one BOCCI Red listed species, Yellowhammer and ten BOCCI Amber listed species breeding.

Figure 3 shows the location of key breeding species at the Bog of the Ring.

Table 7: Birds recorded in the breeding season April – July 2009

Species	April	May	June	July	Breeding	Pairs
Cormorant	✓	✓				
Grey Heron	✓	✓		✓		
Mallard	✓	✓	✓		Definite	5 – 7
Buzzard	✓	✓	✓	✓	Definite	1
Sparrowhawk		✓			Probable	1
Pheasant	✓	✓	✓	✓	Definite	5 – 6
Moorhen	✓	✓	✓	✓	Definite	2 – 3
Snipe *	✓				Possible	0 – 2
Herring Gull	✓	✓		✓		
Greater black backed Gull	✓	✓	✓			
Woodpigeon	✓	✓	✓	✓	Definite	20+
Stock Dove *	✓	✓	✓	✓	Definite	3 – 4
Collared Dove		✓				
Swift		✓		✓		
Skylark *	✓	✓	✓	✓	Definite	3
Sand Martin				✓		
Swallow *	✓	✓	✓	✓	Definite	5
House Martin		✓		✓		
Meadow Pipit	✓	✓	✓	✓	Definite	20+
Grey Wagtail	✓	✓	✓	✓	Probable	1
Wren	✓	✓	✓	✓	Definite	40+
Dunnock	✓	✓	✓	✓	Definite	30
Robin	✓	✓	✓	✓	Definite	25
Stonechat	✓	✓	✓	✓	Definite	3 – 4
Song Thrush	✓	✓	✓	✓	Definite	20
Mistle Thrush	✓	✓	✓	✓	Definite	3 – 4
Blackbird	✓	✓	✓	✓	Definite	30
Blackcap		✓	✓	✓	Definite	3 – 4
Whitethroat		✓	✓	✓	Definite	4
Sedge Warbler		✓	✓	✓	Definite	10+
Grasshopper Warbler *			✓	✓	Definite	3

Contd on next page

Table 7: Birds recorded in the breeding season April – July 2009, Contd.

Species	April	May	June	July	Breeding	Pairs
Willow Warbler	✓	✓	✓		Definite	4
Chiffchaff	✓	✓	✓	✓	Definite	5
Goldcrest	✓	✓	✓		Definite	3
Spotted Flycatcher *			✓		Definite	1
Great Tit	✓	✓	✓		Definite	4+
Blue Tit	✓	✓	✓	✓	Definite	6
Coal Tit	✓			✓	Definite	2+
Long-tailed Tit		✓			Definite	1
Magpie	✓		✓	✓	Definite	2+
Jackdaw	✓	✓	✓	✓	Definite	10+
Rook	✓	✓	✓	✓	Definite	40+
Hooded Crow	✓	✓			Definite	1 – 2
Raven	✓	✓				
Starling *	✓	✓	✓	✓	Definite	10
House Sparrow *	✓	✓	✓	✓	Definite	4 – 6
Tree Sparrow *	✓	✓			Probable	1-2
Chaffinch	✓	✓	✓	✓	Definite	10
Linnet*	✓	✓	✓	✓	Definite	5 – 6
Goldfinch	✓	✓	✓	✓	Definite	5 – 6
Bullfinch	✓	✓	✓	✓	Definite	4
Greenfinch	✓	✓	✓	✓	Definite	2 – 3
Reed Bunting	✓	✓	✓	✓	Definite	8
Yellowhammer**	✓	✓	✓	✓	Definite	4

Species marked are of BOCCI concern, * amber list species, ** red list species

Figure 3: Location of Key breeding species at Bog of the Ring

5.3 Key Breeding Species at Bog of the Ring

The key breeding species found at Bog of the Ring are discussed below.

High Conservation Concern

The Yellowhammer is a species of High Conservation Concern on the BoCCI Red List. This species were found to breed on the boundary between the survey zone wetland and surrounding arable farmland of Sections 1 2, 3 and 4.

The Yellowhammer has declined by an estimated 90% across Ireland over the last two decades (Donaghy 1998, Newton et al 1999, Hillis 2004) and is representative of a larger group of lowland farmland birds experiencing population and breeding range declines in Ireland and Europe (Newton 2004).

The intensification of agriculture particularly cereal production has been linked to the decline of the Yellowhammer. The mixed agricultural practice, within and around the Bog of the Ring study area, remains ideal for this very important species.

Medium Conservation Concern

Ten species of Medium Conservation Concern on the BoCCI Amber List were recorded at the Bog of the Ring.

Of these ten species Snipe was the most important species recorded during the winter survey. The species has been Amber listed by the BOCCI due to its breeding population decline associated with the degradation of wetland habitat across Ireland. Snipe have always been a scarce and localised breeding species in Fingal due to the rarity of suitable wetland habitat. However, Bog of the Ring was a traditional and important Fingal breeding site

for the species (Pierce et al in litt). It is of concern that the species was only considered a possible breeding species during this survey as it was proved to breed in 1988 – 1991 (Gibbons et al 1993) and even more recently in 1998 (Pierce pers obs).

The remaining 9 species may be broken down into two groups as shown in Table 8.

Table 8: Groups of Species of Medium Conservation Concern

Group A	Group B
Stock Dove	Swallow
House Sparrow	Grasshopper Warbler
Tree Sparrow	Spotted Flycatcher
Linnet	
Skylark	
Starling	

Group A contains six species: Stock Dove, House Sparrow, Tree Sparrow, Linnet, Skylark and Starling. These are grouped together because they represent the group of lowland farmland birds mentioned above under High Conservation Concern (Newton et al 1999). All these species are of concern because of breeding numbers declines and contraction of their breeding ranges (Gibbons 1993). Results from the Countryside Birds Survey 1998 – 2003 show a 41% decline in the breeding population for Stock Dove (Lynas et al 2007).

Stock Dove and Tree Sparrow both have a localised distributions ranges in Ireland. They are similar to Yellowhammer in that they have close associations with cereal production and market gardening type agriculture.

The total number of breeding pairs within the study area for each of the Group A species is small. However, they are significant when viewed on the basis that baseline data for any of these species is rare in the ornithological literature. They also indicate that the combination of local farming practice and the natural/semi natural habitats of the study site is favourable for the survival of these species.

Group B contains three bird species: Swallow, Grasshopper Warbler and Spotted Flycatcher. These are grouped together because they are all trans-Saharan migrants and generally arrive back in Ireland in April and May. All have decreased in breeding numbers in recent years particularly in the east of Ireland (Gibbons 1993). The Countryside Bird Survey 1998 – 2003 has shown a 47% decline in the breeding population of Grasshopper Warbler (Lynas et al 2007).

Although each of the species in Group B has different habitat requirements all are insect eaters and dependent on high density of available prey. The intensification of agricultural practices, increased insecticide use and the draining of wet ditches and marshy fields that has taken place since Ireland

has joined the EU has affected the quantity of insect life available. These species are also prone to further pressures in their African wintering areas.

The presence of 3 pairs of Grasshopper Warbler in the study zone is of significance given their present conservation status and their localised breeding within Fingal.

6. Discussion

Bog of the Ring is a valuable example of a lowland flush fen ecosystem (Irish Peatland Council 2000). It is unique in Fingal and deserves to be designated, enhanced and protected on the grounds of its habitat type, botanical interest and bird populations.

The Bog of the Ring has a rich biodiversity of both wintering and breeding bird species. It holds a regionally-important number of Snipe during the winter months. Its range of habitat types and adjacent mixed agricultural allows a high diversity and density of finches, buntings, larks and thrushes to feed during the winter months.

The numbers of many species of wintering wildfowl and waders recorded during this survey were extremely low. The narrow window of the winter survey period is partially responsible for this; but there is no doubt that the area no longer has sufficient areas of suitable habitat left to support many species in the numbers that were commonplace in the past.

The numbers of Snipe recorded during this survey are disappointing for a lowland wetland habitat. Numbers of wintering Snipe in the area in the early to mid 1990's were in the order of 100 – 150 birds. (Pierce, Quinn, Shorten, et al pers obs). The absence of species like Water Rail and Kingfisher during the survey period is further evidence of the continued decline of the wetland habitat. Wading species like Lapwing, Golden Plover and Curlew were recorded during the survey. However, numbers were relatively small and suitable feeding areas for all three species within the study zone are now very limited. Several wet field areas adjacent to the study zone are used by all three species (Irish East Coast Bird Reports 1980-2003) especially after periods of heavy rain. (Pierce pers obs).

The Bog of the Ring has been subject to extensive drainage and land reclaimed since the 1960's. The Matt River looks more like a drainage channel than a river system and has lost many niche habitats for breeding birds in the wake of the unsympathetic drainage work. Fingal County Council uses water from the area for its domestic water supply to towns in North Fingal. Both these factors have combined to lower the water table considerably over the remaining wetland areas. The result is that during the breeding season there is very little standing water, pools or wet flashes for breeding wetland bird species.

The results from the New Breeding Atlas 1988 – 1991 and the present survey are similar for many of the common species and show the change in status for Snipe and Cuckoo. It would also appear that Kingfisher (bred in 2003 Curtis pers obs) and Water Rail (bred 2005 Pierce pers obs) have recently been lost as valuable breeding species.

This study has shown that Bog of the Ring is extremely important for its breeding passerines and some key farmland bird species of conservation concern. In addition to the bird species recorded in this survey the area is also important for some migrating species as a feeding area at different times of the year.

Hutchinson's(1975) reference to large numbers of hirundines feeding over the area is still relevant as large numbers, 250 +, were seen there on the evening of 19th July 2009 and on several other dates in August 2009 (Pierce pers obs). Hirundine flocks of 2000 – 3000 birds have been recorded feeding in the area during April and September passage migration in 2007 and 2008 (Pierce in litt).

To summarise, the wetland habitats of the Bog of the Ring are in decline and require action to promote biodiversity of both the breeding and wintering wetland birds. The remaining wetland habitat in association with the adjacent farmland allow some key bird species of conservation concern to survive as breeding species within the survey zone.

7. Recommendations

The environmental importance and status of Bog of the Ring within Fingal has not been prioritised by the relevant authorities to date.

There have been several previous reports to Dublin County Council Goodwillie et al (1977) and Goodwillie et al (1988) that flagged the decline in biodiversity of the site. The recommendations at that time ranged from, at a minimum, placing a Conservation Order on the site to direct purchase of the site by Dublin County Council.

This study recommends:

1. The Bog of the Ring merits a serious and urgent conservation review and action in line with its proposed NHA status within the Fingal County Development Plan 2005 – 2011.
2. A local biodiversity action plan is necessary to maintain and develop populations of key species of lowland farmland birds still breeding in the area.
3. Active habitat management is urgently required to maintain and improve breeding densities of targeted wetland and riverine species: Snipe, Water Rail, Kingfisher, Dipper, Grey Wagtail, Mallard, and Grasshopper Warbler.

The wetland habitats of the Bog of the Ring have become unsuitable for many of its traditional wetland breeding birds. They have become too dry, fragmented and overgrown. Habitat management and control of the water table could rapidly improve the situation. For example, the water levels should be managed to provide pools, ponds and areas of permanent standing water.

The Matt River should be managed in a more environmentally sensitive way. The river banks require restoration work, re-establishment of natural meander and flood plain would attract birds. The provision of some deep pools, weirs and appropriate planting would allow increased diversity of both fish and bird species to develop. (See Appendix 4.)

4. The wetland areas within the study zone should be purchased by Fingal County Council and managed as described in point 4 above.

Adjacent low-lying farmland just east and south-east of the study site still occasionally floods and traditional wintering species of ducks, swans, geese and waders have been recorded when those conditions pertain (IECBR 1980 – 2003). It is recommended that Fingal County Council should also purchase and actively manage this area to attract these species including the use of controlled flooding.

5. It is further recommended that Fingal County Council prioritises and develops (within the current County Development Plan) as a freshwater wetland nature reserve (both areas described in point 4 above. At present no such educational facility exists within Fingal or the County Dublin area.
6. It is strongly recommended that Fingal County Council monitors and promotes future research of the birdlife of the Bog of the Ring by promoting its inclusion in all future IWeBS counts in association with Birdwatch Ireland. Fingal County Council should also continue to commission surveys of breeding birds to be updated on at least a 5 year basis.

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Appendix 1: Species Recorded at Bog of Ring Winter Survey Feb – March 2009

Species	Latin name	Peak Count
1. Grey Heron	<i>Ardea cinerea</i>	1
2. Mallard	<i>Anas platyrhynchos</i>	5
3. Teal	<i>Anas crecca</i>	5
4. Buzzard	<i>Buteo buteo</i>	4
5. Sparrowhawk	<i>Accipiter nisus</i>	1
6. Kestrel	<i>Falco tinnunculus</i>	1
7. Pheasant	<i>Phasianus colchinus</i>	6
8. Moorhen	<i>Gallinula chloropus</i>	2
9. Golden Plover	<i>Pluvialis apricaria</i>	250
10. Lapwing	<i>Vanellus vanellus</i>	1
11. Curlew	<i>Numenius arquata</i>	20
12. Woodcock	<i>Scolopax rusticola</i>	1
13. Snipe	<i>Gallinago gallinago</i>	55
14. Jack Snipe	<i>Lymnocyrtus minimus</i>	1
15. Black-headed Gull	<i>Larus ridibundus</i>	150
16. Common Gull	<i>Larus canus</i>	2
17. Herring Gull	<i>Larus argentatus</i>	2
18. Gtr Black-backed Gull	<i>Larus marinus</i>	2
19. Stock Dove	<i>Columba oenas</i>	2
20. Woodpigeon	<i>Columba palumbus</i>	200
21. Collared Dove	<i>Streptopelia decaocto</i>	1
22. Skylark	<i>Alauda arvensis</i>	8
23. Meadow Pipit	<i>Anthus pretensis</i>	40
23. Pied Wagtail	<i>Motacilla alba</i>	1
24. Grey Wagtail	<i>Motacilla cinerea</i>	2
25. Wren	<i>Troglodytes troglodytes</i>	50
26. Dunnock	<i>Prunella modularis</i>	30
27. Robin	<i>Erithacus rubecula</i>	20
28. Stonechat	<i>Saxicola torquata</i>	6
29. Song Thrush	<i>Turdus philomelos</i>	40
30. Redwing	<i>Turdus iliacus</i>	250

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Species	Latin name	Peak Count
31. Mistle Thrush	<i>Turdus viscivorus</i>	10
32. Fieldfare	<i>Turdus pilaris</i>	150
33. Blackbird	<i>Turdus merula</i>	100
34. Goldcrest	<i>Regulus regulus</i>	4
35. Great Tit	<i>Parus major</i>	6
36. Coal Tit	<i>Parus ater</i>	5
37. Blue Tit	<i>Parus caeruleus</i>	8
38. Magpie	<i>Pica pica</i>	4
39. Jackdaw	<i>Corvus monedula</i>	150
40. Rook	<i>Corvus frugilegus</i>	200
41. Hooded Crow	<i>Corvus corone cornix</i>	6
42. Raven	<i>Corvus corax</i>	2
43. Starling	<i>Sturnus vulgaris</i>	200
44. House Sparrow	<i>Passer domesticus</i>	10
45. Chaffinch	<i>Fringilla coelebs</i>	150
46. Linnet	<i>Carduelis cannabina</i>	10
47. Redpoll	<i>Carduelis flammea</i>	4
48. Goldfinch	<i>Carduelis carduelis</i>	40
49. Greenfinch	<i>Carduelis chloris</i>	10
50. Bullfinch	<i>Pyrrhula pyrrhula</i>	4
51. Reed Bunting	<i>Emberiza schoeniclus</i>	10
52. Yellowhammer	<i>Emberiza citronella</i>	8

Appendix 2: Bird Species Recorded at Bog of Ring during New Breeding Atlas 1988 – 1991

Species	Latin name	Status
1. Quail	<i>Coturnix coturnix</i>	Calling Male
2. Moorhen	<i>Gallinula chloropus</i>	Breeding
3. Snipe	<i>Gallinago gallinago</i>	Breeding
4. Stock Dove	<i>Columba oenas</i>	Breeding
5. Woodpigeon	<i>Columba palumbus</i>	Breeding
6. Cuckoo	<i>Cuculus canorus</i>	Breeding
7. Long-eared Owl	<i>Asio otus</i>	Breeding
8. Swift	<i>Apus apus</i>	
9. Skylark	<i>Alauda avensis</i>	Breeding
10. Swallow	<i>Hirundo rustica</i>	Breeding
11. Meadow Pipit	<i>Anthus pretensis</i>	Breeding
12. Wren	<i>Troglodytes troglodytes</i>	Breeding
13. Dunnock	<i>Prunella modularis</i>	Breeding
14. Robin	<i>Erithacus rubecula</i>	Breeding
15. Blackbird	<i>Turdus merula</i>	Breeding
16. Song Thrush	<i>Turdus philomelos</i>	Breeding
17. Sedge Warbler	<i>Acrocephalus schoenobaenus</i>	Breeding
18. Chiffchaff	<i>Phylloscopus collybita</i>	Breeding
19. Willow Warbler	<i>Phylloscopus trochilus</i>	Breeding
20. Goldcrest	<i>Regulus regulus</i>	Breeding
21. Blue Tit	<i>Parus caeruleus</i>	Breeding
22. Great Tit	<i>Parus major</i>	Breeding
23. Magpie	<i>Pica pica</i>	Breeding
24. Jackdaw	<i>Corvus monedula</i>	Breeding
25. Rook	<i>Corvus frugilegus</i>	Breeding
26. Hooded Crow	<i>Corvus corone cornix</i>	Breeding
27. Starling	<i>Sturnus vulgaris</i>	Breeding
28. House Sparrow	<i>Passer domesticus</i>	Breeding
29. Tree Sparrow	<i>Passer montanus</i>	Breeding
30. Chaffinch	<i>Fringilla coelebs</i>	Breeding

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Species	Latin name	Status
31. Greenfinch	<i>Carduelis chloris</i>	Breeding
32. Goldfinch	<i>Carduelis carduelis</i>	Breeding
33. Linnet	<i>Carduelis cannabina</i>	Breeding
34. Bullfinch	<i>Pyrrhula pyrrhula</i>	Breeding
35. Yellowhammer	<i>Emberiza citronella</i>	Breeding
36. Reed Bunting	<i>Emberiza schoeniclus</i>	Breeding

Appendix 3: Rationale of Conservation Surveys

Irish Winter Wetland Bird Survey (I-WeBS)

This survey along with Wetland Bird Survey (WeBS) began in Ireland and Northern Ireland respectively in 1993 and 1994. I-WeBS is a joint project of BirdWatch Ireland, The National Parks and Wildlife Service and the Wildfowl & Wetlands Trust (UK)

The survey uses a core count methodology used is compatible with existing schemes in Britain and Europe. Coordinated monthly counts of waterbirds are carried out September to March inclusive.

Sites are designated as International, National or Regional Importance on the basis of the wintering numbers of waterbirds regularly recorded on that site over a 5 year period. See Crowe (2005) for detailed description of international designations, conventions and criteria on the population thresholds relevant to the framework of I-WeBS and individual bird species).

Birds of Conservation of Concern in Ireland (BoCCI)

In 1999, (Newton et al) published the first comprehensive analysis of the population status of birds on the island and identified those species most in need of conservation. The initial review followed the publication of the Irish Red Data Book (Wilde 1993). A further review by BoCCI is given in Lynas et al (2007) which include data for the first time on an all Ireland basis.

Seven quantitative criteria have been adopted to determine population status for birds in Ireland. These include, assessments of global and European conservation status, recent population decline (both in terms of numbers and distribution), historical population decline, breeding rarity, localised distribution and international importance.

The status of 199 regularly-occurring species in Ireland was assessed against each of the chosen criteria. Of these 25 species (13%) were assigned to the Red List, A further 85 species (43%) were assigned to the Amber List. The remaining 89 species (45%) were assigned to the Green List. In terms of conservation concern the Red listed species are species of immediate conservation concern, Amber are of Medium term concern while Green listed species are currently not of conservation concern.

For a more detailed explanation of all the above see (Lynas et al 2007).

Appendix 4: Detailed Recommendations on Habitat Management at Bog of Ring

General Summary.

- To date there have been few attempts to restore freshwater wetland habitats in Ireland and none within Fingal.
- The important wetland habitats of this site should be restored and managed.
- Ideal habitats for targeted bird species can be delivered through seasonally adjusted water levels, implementing a sustainable grazing regime, enhancing the ecological value of drainage ditches and reducing disturbance.
- The project should aim to restore and manage Annex 1 fen habitat, and to create ideal conditions for Annex 1 birds.
- The project should restore and manage the fen area through removal of vegetative succession and improvement of the hydrological regime.
- The project should re flood and raise the water levels in all 4 Sections detailed in this report and an adjacent zone south east of the survey site.

Enhance the ecological value of the Matt River and other drainage ditches through re-profiling of ditch banks and removal of unwanted vegetation.

The following actions should be carried out.

River and Ditch restoration work and re-profiling can be of two types. In those areas where barriers to stock are necessary the following is appropriate.

(1). Type A. The desired profile should have a water depth of approximately 1 m at the deepest point with one vertical bank (so that the ditch acts as a wet fence for cattle). On the opposite bank to be scraped out to create a more graded profile with shallow areas and a variety in water depths.

In areas where a barrier for stock is not necessary

(2). Type 2. Ditch to be re-profiled on both banks, creating gently sloping sides for maximum ecological value. The aim is to achieve a summer depth of 0.7-1.0m which allows the majority of aquatic plant species to grow well.

- Construction of nesting banks for Kingfisher *Alcedo atthis*. The excess soil from ditch re-profiling can be used to create nesting banks for Kingfisher. Banks to be constructed to a height of 1.5m above highest water level.

Install and maintain hydrological control structures in Sections 1-4 of Survey Site.

- Construct and carry out water control structures. (Permanent sluice or right-angled twin wall pipes) at appropriate locations following an assessment of the hydrological survey of the site. The aim is to increase the efficiency of water control through adjustment to any water control structure, allowing water levels to be maintained within the site throughout the summer and winter at appropriate retention levels.
- Water levels during spring/autumn. Maintain appropriate high soil water table levels between April and August by retention of winter floodwater, these levels then lowered to allow some cattle grazing to control vegetation.
- Section 1,2 3,4 all require water levels to be raised and controlled to attract winter and breeding wildfowl and wader populations.

To enhance the improved, unimproved and wet emergent vegetation in order to provide the conditions necessary to attract wintering wildfowl and breeding Annex 1 waders.

- Graze ideally with dry stock cattle selected fields in Section 1, 2 and 4 to provide a mosaic of vegetation structure, principally for the benefit of breeding waders such as Common Snipe. Grazing ideally between mid August –October/November to achieve the desired sward height and structure.
- Graze selected fields within Section 3 and 4 to achieve a closely cropped sward, principally for the benefit of wintering wildfowl and breeding Lapwing. Grazing ideally to be carried out August to October to obtain desired sward and structure.
- Maintain appropriate high soil water table levels between April and August by retention of winter flood water. These levels then lowered to approx 60cm below grade surface to allow cattle to control vegetation. In winter, water levels to be raised to create a high soil water table with occasional flashes of surface water.
- Purchase and then manage the water levels in adjacent wet farmland areas immediately south east of the study zone to provide a valuable additional feeding and breeding zone for wildfowl and wader species.

Appendix 5: Comprehensive Species List for Bog of the Ring

	Species	Year	Status	Comments	Sources
1	Cormorant	2009		Max of 2 flying west over site.	FCC Survey 2009 (SP)
2	Grey Heron	2009	Local Breeding Resident	Formerly bred at west Commons / now breeds at Inch	J Curtis/J English
3	Whooper Swan	1950's/1980's	Winter Visitor	Small numbers < 20 (1950's) Max of 12 on 15/02/1989	J Curtis/P Durnan& IECBR (1980-2003)
4	Mute Swan	1970	Summer & Winter Visitor	Has occurred when water levels when higher 1960/70's	J English
5	Greenland White-fronted Goose	1947/1950's	Former Winter visitor	Russian race up to 50 birds Lusk-Rogerstown 7 shot at Ballough.(1947) 20-50 birds in 1950's-60's	P Durnan/Dublin & Wicklow Bird Report (1975)
6	Greylag Goose	1950's/1984	Winter Visitor	Up to 200 in 1950's 13 on 18/02/1994, 11 on 02/12/1994	J Curtis/P Durnan/ IECBR 1994
7	Wigeon	1950's	Winter Visitor	Common in winter up to 1960's up to 1000 early 1950's	J Curtis/P Durnan
8	Teal	1950-2009	Winter Visitor	Up to 1000 in 1950's.	J Curtis/P Durnan/ J English/ FCC Survey 2009 (SP)
9	Mallard	1950-2009	Breeds/Winter Visitor	100-200 (1950's)	J Curtis/ P Durnan/J English/ FCC Survey 2009 (SP)
10	Pintail	1960's	Winter Visitor	Small numbers 10-20 (1960's)	J English
11	Shoveller	1950's	Winter Visitor	Small numbers <10 (1950's)	J Curtis/P Durnan
12	Pochard	1960	Winter Visitor	Small numbers	J English
13	Tufted Duck	1950-1960	Winter Visitor	Small Numbers 20-50 Maximum	J Curtis/P Durnan/J English
14	Hen Harrier	1984-1996	Winter Visitor	Irregular. Winter Roost in Section 2 Max 3 together 1996	C Mc Gough/IECBR (1980-2003)
15	Montague's Harrier		Rare Migrant	1 record at Knock Lake but hunted over Bog of Ring	SP/ IECBR (199
16	Buzzard	1997-2009	Winter Visitor /Breeds	Pair breeding in 2009 in survey zone	IECBR (1996 2003) FCC Survey 2009 (SP)
17	Sparrowhawk	2009	Winter Visitor/ Probably Breeds		FCC Survey 2009 (SP)
18	Kestrel	2009	Winter Visitor		FCC Survey 2009 (SP)
19	Pheasant	2009	Winter Visitor/ Breeds		FCC Survey 2009 (SP)
20	Quail	1991	Summer Visitor	1 male heard calling	SP (1991)
21	Corncrake	1950-1970	Summer Visitor	Common breeder up to 1970's	J Curtis/J English
22	Water Rail		Has Bred	Almost certain present year round/breeds	
23	Moorhen	1988-2009	Winter Visitor/ Breeds		Gibbons et al (1993) FCC Survey 2009 (SP)
24	Coot	1950-1960	Winter visitor	Up to 50 recorded	P Durnan/ J Curtis
25	Golden Plover	1960-2009	Winter Visitor	Max of 250 over survey period 2009	FCC Survey 2009 (SP)
26	Lapwing	1950's -2009	Winter Visitor	Up to 1000 in 1950's. Counts of 300-400 adjacent farmland 2008	J Curtis/P Durnan/J English/FCC Survey 2009 (SP)
27	Green Sandpiper	2002	Passage Migrant	10 birds recorded on 18/09/2002	IECBR (2002)
28	Curlew	1950's-2009	Winter Visitor	Up to 300 in 1950's	J Curtis/P Durnan/ FCC Survey 2009 (SP)
29	Whimbrel	1950's	Passage Migrant	Small numbers in August and September	J Curtis/P Durnan
30	Woodcock	1950's-2009	Winter Visitor	Described as scarce in 1950's	J Curtis/P Durnan/ FCC Survey 2009 (SP)
31	Snipe	1950'-2009	Winter Visitor/ Has Bred	Formerly common as breeder. 3 drumming in May 1996	J Curtis/P Durnan/ Gibbons et al(1993) FCC Survey 2009 (SP)
32	Jack Snipe	1950's-2009	Winter Visitor	Small numbers	J Curtis/P Durnan/ FCC Survey 2009 (SP)

33	Common Sandpiper	1980's	Passage Migrant	4-5 in August-September	J Curtis
34	Grey Phalarope	1950's	Passage Migrant	Rare occasional 1 in autumn	J Curtis/P Durnan
35	Black-headed Gull	2009	Winter Visitor	Maximum of 150 recorded over survey period	FCC Survey 2009 (SP)
36	Common Gull	2009	Winter Visitor		FCC Survey 2009 (SP)
37	Herring Gull	2009	Regular Visitor		FCC Survey 2009 (SP)
38	Gtr Black-backed Gull	2009	Regular Visitor		FCC Survey 2009 (SP)
39	Woodpigeon	1988-2009	Winter Visitor/ Breeds		Gibbons et al (1993) FCC Survey 2009 (SP)
40	Stock Dove	1988-2009	Winter Visitor/Breeds		Gibbons et al (1993) FCC Survey 2009 (SP)
41	Collared Dove	2009	Winter Visitor		FCC Survey 2009 (SP)
42	Cuckoo	1988-1991	Has Bred	Common breeder up to 1980's	J Curtis/J English/ Gibbons et al (1993)
43	Long-eared Owl	1989	Has Bred		Gibbons et al (1993) SP
44	Barn Owl		Has Bred /Winter Visitor	Definitely bred at Matt, Ring Commons	J English / J Curtis
45	Swift	2009	Summer Visitor		FCC Survey 2009 (SP)
46	Kingfisher	1995	Has Bred	Bred river bank behind pitch & putt clubhouse (J Curtis)	IECBR 1995
47	Skylark	1988-2009	Winter Visitor/Breeds		Gibbons et al (1993) FCC Survey 2009 (SP)
48	Sand Martin	2009	Summer Visitor		FCC Survey 2009 (SP)
49	Swallow	2009	Summer Visitor/Breeds		Gibbons et al (1993) FCC Survey 2009 (SP)
50	House Martin	2009	Summer Visitor		FCC Survey 2009 (SP)
51	Meadow Pipit	2009	Resident Breeder	Popular host for Cuckoo up to 1980's	Gibbons et al (1993/J Curtis/FCC Survey (SP)
52	Pied Wagtail	2009	Winter Visitor		FCC Survey 2009 (SP)
53	Grey Wagtail	2009	Resident Breeder		FCC Survey 2009 (SP)
54	Wren	2009	Resident Breeder		Gibbons et al (1993) FCC Survey 2009 (SP)
55	Duncock	2009	Resident Breeder		Gibbons et al (1993) FCC Survey 2009 (SP)
56	Robin	2009	Resident Breeder		Gibbons et al (1993) FCC Survey 2009 (SP)
57	Stonechat	2009	Resident Breeder		FCC Survey 2009 (SP)
58	Song Thrush	2009	Resident Breeder		Gibbons et al (1993) FCC Survey 2009 (SP)
59	Redwing	2009	Winter Visitor		FCC Survey 2009 (SP)
60	Mistle Thrush	2009	Resident Breeder		FCC Survey 2009 (SP)
61	Fieldfare	2009	Winter Visitor		FCC Survey 2009 (SP)
62	Blackbird	2009	Resident Breeder		Gibbons et al (1993) FCC Survey 2009 (SP)
63	Blackcap	2009	Summer Visitor/Breeds		FCC Survey 2009 (SP)
64	Whitethroat	2009	Summer Visitor/Breeds		FCC Survey 2009 (SP)

65	Sedge Warbler	2009	Summer Visitor/Breeds		Gibbons et al (1993) FCC Survey 2009 (SP)
66	Grasshopper Warbler	2009	Summer Visitor/Breeds	Bred in 2006	J Curtis/ FCC Survey 2009 (SP)
67	Willow Warbler	2009	Summer Visitor/Breeds		Gibbons et al (1993) FCC Survey 2009 (SP)
68	Chiffchaff	2009	Summer Visitor/Breeds		Gibbons et al (1993) FCC Survey 2009 (SP)
69	Goldcrest	2009	Resident Breeder		Gibbons et al (1993)FCC Survey 2009 (SP)
70	Spotted Flycatcher	2009	Summer Visitor/Breeds		FCC Survey 2009 (SP)
71	Great Tit	2009	Resident Breeder		Gibbons et al (1993) FCC Survey 2009 (SP)
72	Coal Tit	2009	Resident Breeder		FCC Survey 2009 (SP)
73	Blue Tit	2009	Resident Breeder		Gibbons et al (1993) Survey 2009 (SP)
74	Long tailed Tit	2009	Resident Breeder	Breeding recorded in May 2009	FCC Survey 2009 (SP)
75	Magpie	2009	Resident Breeder	Scarce in 1950's	J Curtis/P Durnan/Gibbons et al (1993) FCC Survey 2009 (SP)
76	Jackdaw	2009	Resident Breeder		Gibbons et al (1993) FCC Survey 2009 (SP)
77	Rook	2009	Resident Breeder		Gibbons et al (1993)FCC Survey 2009 (SP)
78	Hooded Crow	2009	Resident Breeder	Bred 2006(J Curtis)	Gibbons et al (1993)FCC Survey 2009 (SP)
79	Carriion Crow	2001	Winter Visitor	There for two weeks with Hooded Crows	J Curtis
80	Raven	2009	Winter Visitor		FCC Survey 2009 (SP)
81	Starling	2009	Resident Breeder		Gibbons et al (1993)FCC Survey 2009 (SP)
82	House Sparrow	2009	Resident Breeder		Gibbons et al (1993) FCC Survey 2009 (SP)
83	Tree Sparrow	1989-1997	Resident Breeder/Winter Visitor	50 on 03/02/1989;52 on 26/01/1997	Gibbons et al (19993) IECBR (1989/1997) FCC Survey 2009 (SP)
84	Chaffinch	2009	Resident Breeder/Winter Visitor		Gibbons et al (1993 FCC Survey 2009 (SP)
85	Brambling	1987	Winter Visitor	1 seen on 15/02/1987	IECBR (1987)
86	Linnet	2009	Resident Breeder/Winter Visitor	250 on 03/02/1989	Gibbons et al (1993) FCC Survey 2009 (SP)
87	Redpoll	2009	Winter Visitor		Gibbons et al (1993 FCC Survey 2009 (SP)
88	Goldfinch	1984-2009	Resident Breeder/Winter Visitor		Gibbons et al (1993) FCC Survey 2009 (SP)
89	Greenfinch	2009	Resident Breeder/Winter Visitor		Gibbons et al (1993) FCC Survey 2009 (SP)
90	Bullfinch	2009	Resident Breeder		Gibbons et al (1993) FCC Survey 2009 (SP)
91	Reed Bunting	2009	Resident Breeder/Winter Visitor		Gibbons et al (1993) FCC Survey 2009 (SP)
92	Yellowhammer	1995-2009	Resident Breeder/Winter Visitor	50 on 03/02/1989; 50 On 23/01/1995	IECBR (1989/1995) FCC Survey 2009 (SP)

