LAOIS – KILKENNY REINFORCEMENT PROJECT: 400/110KV SUBSTATION INCLUDING ASSOCIATED LINE AND STATION WORKS

WINTER BIRD SURVEYS

RESULTS OF WINTER BIRD SURVEYS 2010 (MAR – APR 2010)

FINAL REPORT

Prepared for

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1 INTRODUCTION AND BACKGROUND

Dr Patrick Crushell was commissioned by AOS Planning to assess the abundance and distribution of wintering wader and wildfowl birds in the study area of two proposed substations (at Ballyragget Co Kilkenny and South East of Portlaoise, Co Laois) and an interconnecting 110 kV powerline (23km straight line).

An ecological constraints study has previously been undertaken for the project by Dr Mark McCorry on behalf of AOS Planning. As part of the constraints study the National Parks and Wildlife Service (NPWS) were consulted. NPWS highlighted the potential for adverse impacts on water birds (waders and wildfowl) that use and move around the various wetland sites in Co. Laois during winter.

Each winter large numbers of waders and wildfowl arrive in Ireland from their northern breeding grounds. There are four species of wader and wildfowl associated (or have been) with inland areas in Ireland that are listed on Annex 1 of the EU Birds Directive (EU 79/409/EEC) (see Table 1). There are a further two species that are listed on the red list of Birds of Conservation Concern in Ireland (BoCCI) (see Table 1). All of these species are regarded as being of high conservation importance and require protection across their range.

Table 1: Water bird species associated with inland areas in Ireland that are listed on Annex 1 of the EU Habitats Directive and or on the BoCCI Red List. The threshold for nationally importance numbers is also presented (1% of national population).

	EU Birds Directive	BoCCI (Lynas et al. 2007)	1% National Population (Boland and Crowe 2007)
Bewick's Swan (Cygnus bewickii)	Annex 1	Red List	20
Whooper Swan (Cygnus cygnus)	Annex 1	Amber List	130
Greenland White-fronted Goose (*Anser albifrons flavirostris*)	Annex 1	Amber List	110
Golden Plover (Pluvialis apricaria)	Annex 1	Red List	1,700
Curlew (*Numenius arquata*)		Red List	550
Lapwing (*Vanellus vanellus*)		Red List	2,100

Collision with powerlines is known to contribute significantly to bird mortality amongst a number of susceptible species especially the larger birds that lack agile flight. Species most at risk include those species that fly at night, birds flying in flocks, large and heavy birds with high wing loading and poor maneuverability, and birds that fly low and fast. (APLIC 1994). Collision with powerlines is a well known cause of mortality among swans, and in the UK has been the highest reported cause of swan mortality (Birkhead and Perrins 1986; Brazil 2003). Collision risk is highest in those areas where powerlines occur nearby areas used by high numbers of these birds and across regularly used flight paths.

This study aims to determine those areas within the study area where collision risk would be greatest and to inform appropriate mitigation measures to reduce any risk of collision.

The study involved both a desktop review of existing data on the occurrence of wintering waders and wildfowl in the study area together with frequent surveys of known waterbird sites between March and April 2010. The objective of the study was to determine the distribution of waterbirds within the study area and if possible, establish any regularly used flight lines.

1.1 STUDY AREA

The proposed 110 kV power line will potentially originate near Timahoe, Co Laois (ca 8km South East of Portlaoise) and potentially terminate approximately 23 km to the South West, near Ballyragget, Co Kilkenny (see Figure 1). The entire area is dominated by a sparsely populated rural landscape.

The Northern part of the study area lies within the catchment of the River Barrow. This area is characterised by a low-lying intensively farmed agricultural landscape. Further South the study area lies within the River Nore catchment. Part of the Castlecomer Plateau occurs in the eastern portion of the study area. This area has an undulating hilly landscape with some low peaks and intervening valleys, drained in a South-westerly direction by tributaries of the Nore. This geology and environment means that soils are less fertile with impeded drainage and wet pasture is a prominent habitat of these hillsides. Conifer plantations are a feature of this area while heath and bog habitats occur on the higher ground to the east of the study area. The River Nore flows southwards through the western part of the study areas and is situated close by the proposed substation site at Ballyragget. The western part of the study area is dominated by a low-lying intensively farmed agricultural landscape.

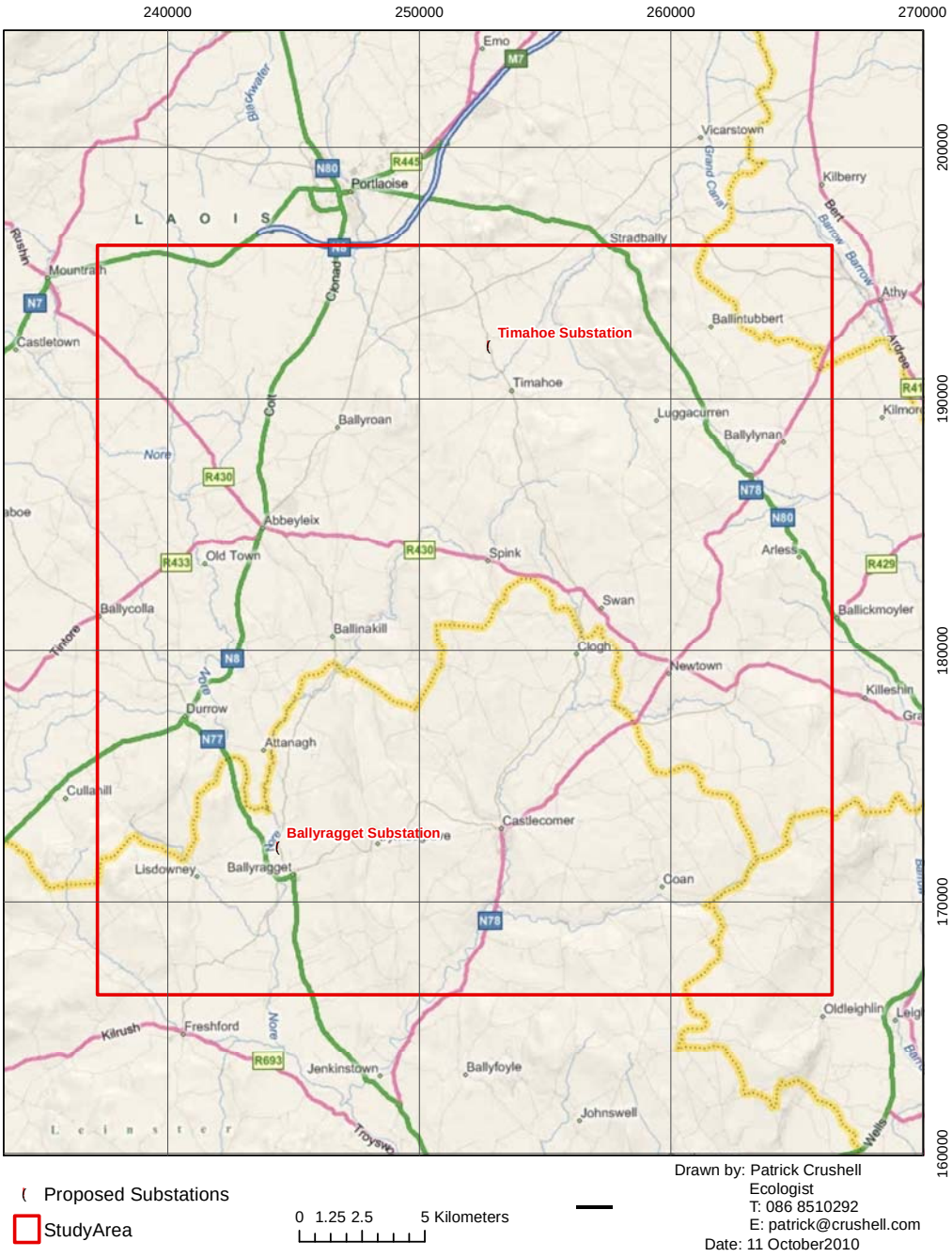

Figure 1: Map showing the location of the study area and the proposed substations.

2 METHODOLOGY

2.1 DESKTOP STUDY

2.1.1 Literature review and consultation

A literature review was carried out to identify previous records of water birds (waders and wildfowl) within the study area and surrounding region. Literature sources consulted are included in the text and listed at the rear of the document. Summary I-WeBS (Irish Wetland Birds Survey) data for sites within the study area was purchased from BirdWatch Ireland. In addition, consultation was undertaken with BirdWatch Ireland, the Irish Whooper Swan Study Group and the National Parks and Wildlife Service. Following the collation of background data, wetland bird sites identified as occurring within the study area were surveyed during the field study.

2.2 FIELD SURVEYS

At the commencement of the field surveys, the study area was confined to the central area between the two proposed sub-stations and therefore much of the survey effort was concentrated in this region. Regular counts were carried out at bird sites identified in the literature review in the surrounding area.

2.2.1 Surveys of central part of study area

Surveys of the central study area were undertaken during the period March / April 2010. Initially habitats encountered throughout this area were assessed with regards to their suitability as potential feeding or roost sites. Following this, efforts were concentrated on those parts that were deemed potentially suitable. Those areas deemed unsuitable included conifer plantations, woodlands, and farmland comprising small fields enclosed by tall hedgerows.

Survey methodology included counts of any wader and wildfowl species encountered. During daylight hours potentially suitable habitat was scanned using binoculars (or telescope) from vantage points at various locations during daylight hours.

Records were made of numbers of wildfowl or wader species, presence of marked birds (leg-ringed or neck-collared), weather conditions and habitat types. During the course of the study no marked birds were recorded. Survey dates and prevailing weather conditions on each date are presented in Table 2.

2.2.2 Counts at known water bird sites

Those sites identified during the literature review as being of known value to water birds were visited regularly during the survey period. Counts were conducted during daylight hours from suitable vantage points using binoculars and / or telescope as required. Records were made of numbers of wildfowl or wader species, presence of marked birds (leg-ringed or neck-collared), weather conditions and habitat types. During the course of the study no marked birds were recorded.

2.2.3 Dawn and dusk flights

Dawn and dusk watches were conducted at various sites where significant numbers of water birds were recorded in order to establish flight lines (and flight behavior) of birds flying between feeding and roost sites.

The location of dusk watches was determined by the presence of feeding birds prior to dusk. Watches were carried out at those sites where the largest flocks were present as dusk approached. Similarly, the location of dawn watches were determined by the presence of roosting birds on the previous evening. Dawn watches commenced approximately one hour before sun-rise and dusk watches continued until an hour following sunset.

Table 2: Survey dates, sites visited and weather conditions.

Date	Sites visited	Weather Conditions
4th & 5th Mar 2010	Central part of study area; Avonmore Ponds	No Cloud Cover; Dry / Cold; Light Breeze; Good Visibility
8th & 9th Mar 2010	Avonmore Ponds; Inchbeg; Ballycolla; Curragh Durrow; Foxburrow (Shanahoe Marsh)	No Cloud Cover; Dry; Calm; Good Visibility
18th & 19th Mar 2010	; Avonmore Ponds; Inchbeg; Ballycolla; Curragh Durrow	Overcast with sunny periods; Occasional rain/hail showers; Calm; Good visibility between showers
25th & 26th Mar 2010	Central part of study area; Avonmore Ponds; Inchbeg; Ballycolla; Curragh Durrow	Overcast; Light Drizzle; Calm; Moderate Visibility
2nd & 4th Apr 2010	Central part of study area; ; Avonmore Ponds; Inchbeg; Ballycolla; Curragh Durrow; Foxburrow (Shanahoe Marsh)	Overcast with sunny periods; Occasional heavy showers; Light NW breeze; Good visibility.
12th & 13th Apr 2010	Central part of study area; Avonmore Ponds; Inchbeg; Ballycolla; Curragh Durrow; Foxburrow (Shanahoe Marsh)	Minimal Cloud Cover; Dry; Calm; Good Visibility

3 RESULTS

3.1 DESKTOP STUDY

The desktop study identified five sites within the study area where significant numbers of waterbirds have been recorded in the past (see Figure 2; Table 3).. The closest site to the proposed substations is Avonmore ponds, located ca 1km to the West of the proposed substation at Ballyragget. A brief description of each site is presented below.

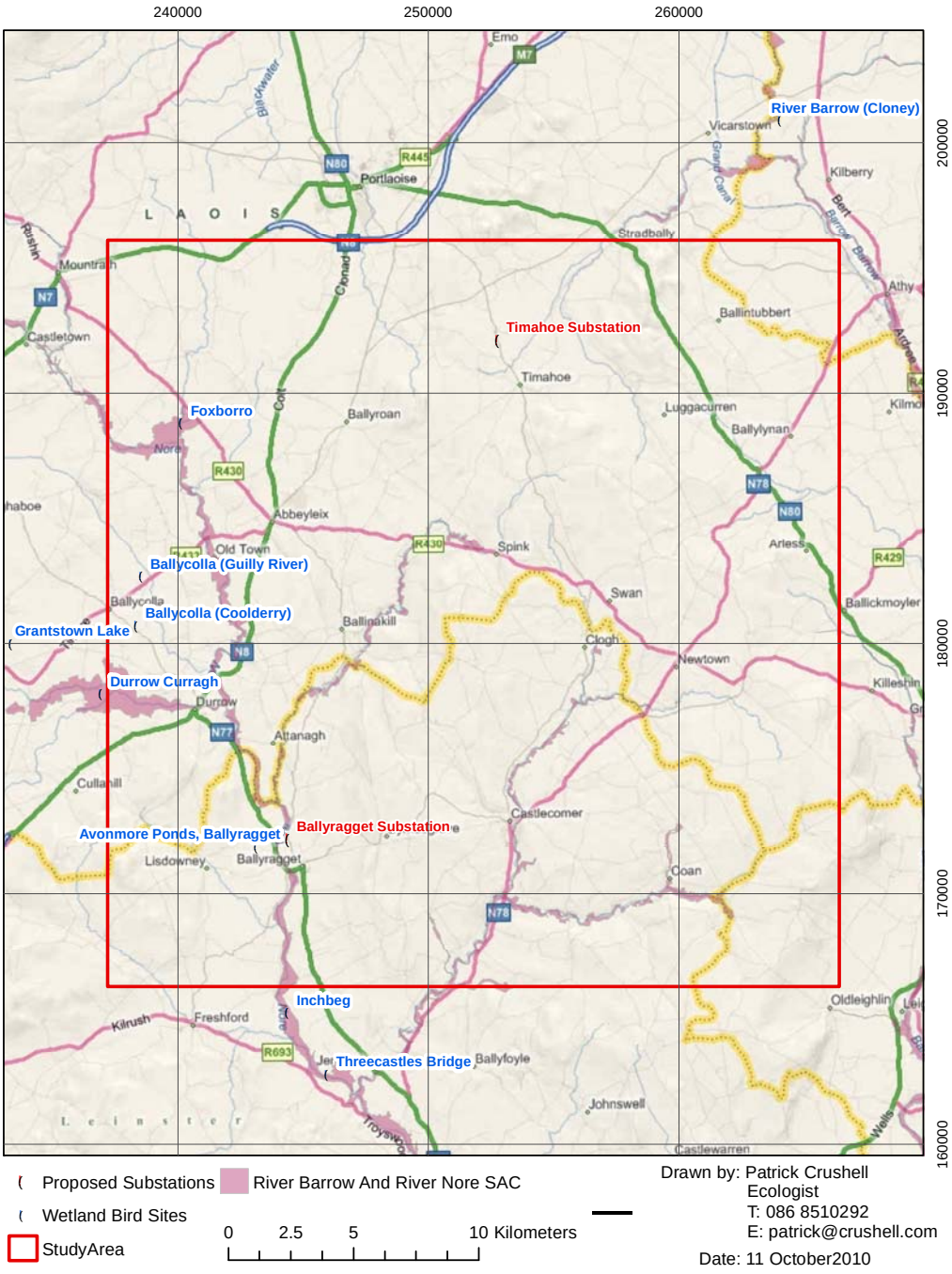

Figure 2: Map showing the location of study area of the proposed 110kV powerline and the proposed substations in relation to identified wetland bird sites.

Table 3: Waterbird sites that occur within the study area identified during the desktop study (see Figure 2 for site locations in relation to study area).

Site Name (Main Site)	Sub-sites	Conservation Status	National Grid Reference
Avonmore Ponds, Ballyragget	N/A	N/A	S 432 719
Durrow Curragh	N/A	pNHA / SAC	S 370 780
Ballycolla	N/A	N/A	S 386 827
River Nore	Inchbeg	pNHA / SAC	S 440 658
River Nore	Foxburrow (Shanahoe Marsh)	pNHA / SAC	S 402 888

3.1.1 Avonmore Ponds, Ballyragget

This site comprises artificial ponds associated with a dairy processing plant (formerly Avonmore, currently Glanbia) located ca. 2km North of Ballyragget, and approximately 1km to the west of the proposed substation site at Ballyragget. Open grassland habitat occurs in the area surrounding the ponds. The site was formerly renowned for consistently supporting nationally important numbers of Golden Plover and Lapwing during the 1980's, however numbers have since declined considerably (Crowe 2005; Sheppard 1993). Peak numbers of each species recorded during I-WeBS counts undertaken over the past decade are presented in Table 4. This data confirms the reduced value of the site to wintering birds in recent years.

Table 4: Peak counts of species in each I-WeBS season (when counts were done) at Avonmore Ponds, Co. Kilkenny. The number of counts conducted during each season is also indicated (source: BirdWatch Ireland, IWeBS data).

	Winter Season			
Species	1998-1999 (2 Counts)	1999-00 (7 Counts)	2006-07 (7 Counts)	2007-08 (7 Counts)
Mute Swan	14	16		
Whooper Swan	1			
Wigeon		7		
Teal		6		
Mallard		6		
Little Grebe		2		
Moorhen		1		
Coot		4		
Golden Plover	700	1400		
Lapwing	100	260		2
Snipe	2	5	1	
Black-tailed Godwit		48		
Curlew	9	8	18	
Common Sandpiper		1		
Black-headed Gull	4	53	12	
Lesser Black-backed Gull			1	

3.1.2 Durrow Curragh

This site is located ca 3km west of Durrow, County Laois,. The site comprises a low-lying grassland area, through which the Erkina and River Goul flow. The area is prone to prolonged flooding during winter.

Crowe (2005) deemed the site to be of national importance to water birds due mainly to its importance for Bewick's Swan. In the past, Greenland White-fronted Goose were recorded at the site (NPWS, site description; Crowe 2005). Few counts have been conducted on the site in recent years (see Table 5), recent counts indicate that the population of Bewick's Swans no longer utilise the site. The site is included within the River Barrow and River Nore Special Area of Conservation (site code: 2162) and is listed as a proposed Natural Heritage Area (The Curragh and Goul River Marsh, site code: 420).

Table 5: Peak counts of species in each I-WeBS season (when counts were done) at Durrow Curragh, Co. Laois. The number of counts conducted during each season is also indicated (source: BirdWatch Ireland, IWeBS data).

	Winter Season				
Species	1994-1995 (4 Counts)	1995-96 (6 Counts)	1996-97 (1 Counts)	1999-00 (1 Swan Count)	2004-05 (1 Swan Count)
Mute Swan	11	11	5		
Bewick's Swan		47	15		
Whooper Swan	6	108	43	5	73
Wigeon		1000			
Mallard	2	50			
Grey Heron	4	2			
Moorhen	1	1			
Golden Plover	3000	500			
Lapwing	500	500			
Snipe	2				
Curlew	50	50	100		
Green Sandpiper	1				
Black-headed Gull	10	50			
Herring Gull	1				

3.1.3 Ballycolla (Guilly River)

The site is located along the floodplain of the Guilly River at Ballycolla and comprises improved pasture. The site is used by Whooper Swan during winter as a feeding and roost site. A count of 32 birds was made during the swan census in 2000, while no birds were recorded at the site during the 2005 swan census (I-WeBS data, Birdwatch Ireland 2010). The site is not designated for nature conservation or under consideration for designation.

During the course of the current study, a further site near Ballycolla at Coolderry was identified (see Figure 2). This site comprises a small agricultural pond with surrounding improved pasture. The site at Coolderry was used throughout the study period (2010) by Whooper Swans and other wetland birds (see below).

3.1.4 River Nore – Inchbeg

There are a number of places along the River Nore that are of known value to waterbirds including Shanahoe Marsh (also known as Foxburrow), Inchbeg and Threecastle Bridge. Inchbeg is the only one of these sites located within 10 km of the study area, being situated approximately 5 km South of Ballyragget. The site includes wet grassland, marsh and ponds in the floodplain of the River Nore. The site is listed as a proposed Natural Heritage Area (site code: 836) and is located within the River Barrow and River Nore Special Area of Conservation (site code: 2162). The National Parks and Wildlife Service site synopsis describes the site as being of value to a number of waterbirds including Golden Plover, Lapwing, Whooper Swan, Bewick's Swan, Curlew, Snipe, Mallard, Wigeon and Teal during winter.

3.1.5 River Nore –Foxburrow (Shanahoe Marsh)

The site at Foxburrow is also known as Shanahoe Marsh. The site comprises an area of wet grassland, freshwater marsh and fen within the River Nore floodplain. The site is listed as a proposed Natural Heritage Area (site code: 1923) and is located within the River Barrow and River Nore Special Area of Conservation (site code: 2162). According to the NPWS site synopsis for the site, it's main ecological interest of this site is that it is a major roost and feeding ground for a small flock of Greenland White-fronted Geese during the winter, a species listed on Annex I of the EU Birds Directive.

3.1.6 Other sites surrounding study area

River Barrow – Cloney: This site lies along the River Barrow between Athy and Monasterevin, north-east of the study area (see Figure 2). It has only been sporadically surveyed in the past and baseline data is lacking to adequately assess its value to water birds. Nationally important numbers (141 peak count) of Whooper Swans have been recorded at the site in the past (Crowe 2005). The site forms part of the Upper Barrow Flood-plain IBA (Important Bird Area), listed by BirdWatch Ireland as being of importance to presence of both Whooper Swan and Bewick's Swan (record of 180 birds from 1987) (Birdlife International 2001).

Grantstown Lake: This nature reserve is located just to the West of the study area (see Figure 2). The lake is relatively inaccessible and surrounded by woodland. It has only been sporadically surveyed in the past and baseline data is lacking to adequately assess its value to water birds. Large numbers of both Widgeon (1000) and Teal (400) were recorded at the site in December 1995 (Crowe 2005).

3.2 FIELD STUDY

3.2.1 Surveys of central part of study area

During each site visit, the central part of the study area was surveyed for the presence of waders and wildfowl from suitable vantage points. Particular attention was paid to those areas that were deemed to be of highest potential value to waders and wildfowl based on habitats and topography.

Counts were undertaken at sites in close proximity to the central area that were likely to be of value to waders and wildfowl, the results of these counts are presented in Table 6.

Table 6: Results of counts at potential waterbird sites near central area during study period March to April 2010.

Site	Grid Reference	Date	Observation
Owenbeg River	S500850	4/3/2010	Golden Plover (50)
	S496 841	25/3/2010	Mallard (2)
Mass Lough and Ballinakill Lake	S 473 808	4/3/2010	Mute Swan (1)
	S 467 810		
		8/3/2010	Mute Swan (4); Moorhen (3); Coot (1)
		25/ 3/2010	Mute Swan (3); Moorhen (2)
		13/4/2010	Mute Swan (4); Mallard (3)
Lisbigney Pond	S 447 799	5/3/2010	Mallard (18); Wigeon (6)
		8/3/2010	Mallard (6)
		25/3/2010	Mallard (5); Moorhen (5); Wigeon (1)
River Nore (Ballyragget Bridge)	S 444 709	5/3/2010	Mallard (6)
River Nore (Tallyho Bridge)	S 423 762	19/3/2010	Mute Swan (2)
River Nore Floodplain at Grange	S 442 698	8/3/2010	Little Egret (2)
		9/3/2010	Cormorant (3); Little Egret (1)
		2/4/2010	Lesser Black-backed Gull (65); Common Gull (30)

3.2.2 Avonmore Ponds, Ballyragget

Counts were conducted at this site on six occasions during the study period. Whooper Swans were regularly recorded at the site during the study period with a peak count of 13 birds recorded on March 8th (See Table 7). Whooper Swans use the grassland habitat at the site for foraging. On 2nd April, the swans were recorded flying to the site from the North-west soon after dawn. Similarly on 8th of March all birds were recorded departing the site at dusk and flew in a North-west direction. The roost site of these birds was not determined although it is possible that they roost at the Durrow Curragh wetland or Ballycolla, located to the North-west. Curlew were recorded feeding at the site on one occasion, and were observed arriving at the site from the West.

Table 7: Summary of count data recorded at Avonmore Ponds, Ballyragget, Co Kilkenny during the period March – April 2010.

	5th Mar 2010	8th Mar 2010	19th Mar 2010	25th Mar 2010	2nd Apr 2010	13th Apr 2010
Curlew			9			
Whooper Swan		13	2	2	3	

3.2.3 Durrow Curragh

Counts were conducted at Durrow Curragh wetland on six occasions during the study period. Whooper Swans were recorded at the site on two occasions during March, with a peak count of 120 individuals recorded on the 9th of March (see Table 8). The grassland at the site was utilised by Whooper Swans for foraging. In addition, the site is likely to be used as a roost suite for some birds as indicated by the presence of ca. 30 Whooper Swans before sun-rise on the 9th March. On the same date, a large number of Whooper Swans (ca 80 individuals) were recorded flying from this site in a northerly direction to another feeding /

roost site at Ballycolla ca 3km to the North. Other waterbirds of conservation interest recorded at the site included Golden Plover, although they were recorded on only one occasion and at relatively low numbers.

Table 8: Summary of count data recorded at Durrow Curragh, Co Laois during the period March – April 2010.

	5th Mar 2010	9th Mar 2010	19th Mar 2010	25th Mar 2010	2nd Apr 2010	12th Apr 2010
Black-headed Gull					2	
Golden Plover				50		
Grey Heron				1		
Kingfisher		1			1	
Lesser Black-backed Gull					58	
Little Egret					1	
Mallard		3			2	
Mute Swan		2	5	2	5	1
Snipe		1				
Whooper Swan		120	20			

3.2.4 Ballycolla

Counts were conducted at Ballycolla on five occasions. No birds were recorded along the floodplain of the River Guilly, however significant numbers of wetland birds were encountered at Coolderry, approximately 2km to the South.

On each of the three visits to the site (Ballycolla (Coolderry)) in March Whooper Swans were observed with a peak count of 126 birds recorded on the 18th March (see Table 9). The site was found to be used as both a feeding and roost site during the survey period with the 126 birds confirmed roosting there on 18th March. Birds were frequently recorded flying to and from grassland areas in the surroundings. In addition, birds were observed flying from and to the Curragh feeding site ca. 3 km to the South. Other waterbirds of conservation importance recorded at the site included Golden Plover and Lapwing.

Table 9: Summary of count data recorded at Ballycolla (Coolderry), Co Laois during the period March – April 2010.

	9th Mar 2010	18th Mar 2010	25th Mar 2010	2nd Apr 2010	13th Apr 2010
Curlew		8			
Golden Plover			250		17
Lapwing		1	5		
Mallard		6			
Teal		32	5?		
Whooper Swan	72	126	75		
Wigeon		28	25		

3.2.5 River Nore – Inchbeg

Counts were conducted at Inchbeg on five occasions. Few waterbirds were observed at this location throughout the study period (see Table 10). Those species that were recorded occurred in low numbers and are not deemed to be of high conservation concern.

Table 10: Summary of count data recorded at Inchbeg, Co Kilkenny during the period March – April 2010.

	9th Mar 2010	18th Mar 2010	25th Mar 2010	2nd Apr 2010	13th Apr 2010
Coot					1
Grey Heron	1				
Little Egret		2			1
Mallard		2			

3.2.6 River Nore – Foxburrow (Shanahoe Marsh)

Counts were conducted three times at Shanahoe during the study period. Whooper Swans were recorded feeding and roosting at the site on two occasions, during April 2010.

Table 11: Summary of count data recorded at Foxburrow (Shanahoe Marsh), Co Laois during the period March – April 2010.

	9th Mar 2010	4th Apr 2010	13th Apr 2010
Whooper Swan		20	11
Lapwing			1
Mallard			2

4 DISCUSSION

The results of surveys carried out during March - April 2010 indicates that the central part of the study area is of low value to wintering waders and wildfowl. In general the topography and habitats have little potential to support wildfowl or waders. The hilly topography and enclosed grassland landscape that dominates the central and eastern part of the study area is unlikely to support significant numbers of wintering water birds.

Two areas within the central part of the study area were identified as being of potential value to waders and wildfowl. Firstly, the wide open valley of the Owenbeg River (a tributary of the River Nore) presents a feature in the landscape where wintering birds may direct their flight lines. Secondly, the lowlands adjacent to the Nore River between Tallyho Bridge and Ballyragget Bridge contain habitats that may occasionally be used by water birds during winter.

However, during the current study low numbers of water birds were recorded in this part of the study area and at either of these two sites (see Section 3.2.1).

Results of the desktop study identified five discrete sites within the study area that have supported significant numbers of water birds in the past. However, recent data suggests that the importance of each of

these sites has diminished somewhat in recent years, although due to insufficient data, it is not possible to confirm this for most sites.

During the current study, it has been shown that Avonmore Ponds, a site located approximately 1 km to the west of the proposed sub-station at Ballyragget was regularly used by a small number of Whooper Swans. Observations of dawn and dusk flights indicate that these birds roost somewhere to the North-west, possibly at Durrow Curragh or Ballycolla. The flight line taken by these birds is a direct route from Avonmore ponds northwards towards Durrow.

The most significant numbers of water birds observed during the study were recorded at Durrow Curragh and Ballycolla (Coolderry), in the western part of the study area, where up to 128 Whooper Swans were recorded. For a site to be considered as nationally important for Whooper Swans it would need to regularly support in excess of 130 individuals (1% of the national population) (Boland and Crowe 2007). Based on observations of flight lines during the current study, it appears that this is a single population of Whooper Swans that alternate between the two sites. These sites are located in the far western part of the study area (see Figure 2).

The low numbers of water birds recorded throughout the study period may have been influenced by the relatively dry winter of 2009-2010. According to Met Eireann, Rainfall totals (including snowfall) for the season were below normal almost everywhere, with only around half of the seasonal totals recorded in some places. Therefore, lands that would typically flood (and become attractive to larger numbers of water birds) during a normal winter remained relatively dry throughout most of the duration of the current study. In addition, it should be noted that the study period only covered March to April, which represents the end of the wintering bird season, with peak numbers normally occurring during earlier months.

5 RECOMMENDATIONS

Based on the results of the current study, the most important water bird sites occur in the western part of the study area where significant concentrations of important wintering birds were recorded and have been reported in the past. It is recommended that the proposed powerline avoid this area so as to reduce any potential impacts on sensitive bird populations.

The current study was carried out during the period March to April 2010, which represented the later part of the winter season. It is recommended that further surveys be undertaken over an entire winter season (October to April) in order to better inform the impact assessment process and to confirm the findings of the current study. Surveys should follow the methodology used in this study and be undertaken at monthly intervals between October and April. The eastern and northern parts of the study area should be surveyed in greater detail as these areas were largely excluded from the current study. In addition, two further sites that lie just outside of the study area (Grantstown Lake to the west and River Barrow – Cloney to the northeast) should be included in future survey work.

This will better determine the abundance and distribution of wintering water birds within and surrounding the study area throughout an entire winter season.

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