

URS

Ecology Framework

Breeding Bird Survey

October 2012

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Prepared for:
Low Level Waste
Repository Ltd

UNITED
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IRELAND



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1. INTRODUCTION

1.1 Background and Scope

URS Infrastructure and Environment Ltd (URS) was commissioned by Low Level Waste Repository Ltd (LLWR) to undertake a Breeding Bird Survey (BBS) on the LLWR operational site, Cumbria. The surveys were designed in part to update an on-going programme of wildlife management but also to inform future site development plans, such as the recapping of the trench cap.

It is our understanding that the trench cap, located to the north of the LLWR Site, is to be recapped as part of necessary Site maintenance works. These operations would also require the land surrounding Pond 1 (see Figure 1) to be used for the storage of materials. The current study sought to record the current baseline conditions and to determine how such a development could affect breeding birds.

1.2 Study Site

The LLWR site (hereafter referred to as the 'Site') is situated adjacent to the village of Drigg, Cumbria (Ordnance Survey reference SD 055 992). The Site measures approximately 100ha in size and includes a range of habitats capable of supporting a diverse assemblage of native birds. The Site included areas of unmanaged grassland, woodland, open water and scattered scrub.

The current survey only included the existing trench cap and the land surrounding Pond 1, hereafter referred to as the Study Site (see Figure 1). These discrete areas were purposely selected as both are likely to be impacted upon by the recapping operation. Where possible, birds seen or heard in the immediately surrounding land were recorded. The Study Site included areas of unmanaged grassland, woodland, open water and scattered scrub.

1.3 Legislation and Policy

Breeding birds are protected under Section 1 of the *Wildlife and Countryside Act 1981* (as amended). This protection extends to intentionally killing and injuring of wild birds, and to the destruction of nests, eggs and dependent young. The only exceptions are with certain game species (listed in Schedule 2 of the Act), which can be killed during specific seasons, and to certain pest species, which can be controlled under licence.

Additional protection is afforded to bird species listed on Schedule 1 of the *Wildlife and Countryside Act 1981* (as amended), which are protected for example, from disturbance whilst nesting or attempting to make a nest. The Countryside and Rights of Way Act 2000 added reckless disturbance to intentional disturbance of Schedule 1 species as an offence. The above is a summary of the legislation and the original Acts and Schedules should be referred to for the precise wording.

The Conservation of Habitats and Species Regulations (2010) were recently amended to place a greater focus on the conservation of wild bird populations. The amendment places a duty of care on public bodies to take measures to preserve, maintain and re-establish habitat for wild birds.

The Natural Environment and Rural Communities (NERC) Act (2006) lists 50 species of bird under Section 41 as 'Species of Principal Importance for Conservation in England'; the complete list is presented in Appendix A. Section 40 of the same Act places a duty of care on the competent authority to consider biodiversity as a 'material consideration' when discharging its normal functions.

Local Biodiversity Action Plans (LBAP) identify priorities for biodiversity conservation at the local level and set out actions and targets for specific habitats and species. The Cumbria LBAP includes the following species of bird:

- Barn Owl (*Tyto alba*); and
- Song thrush (*Turdus philomelos*).

2. METHODS

2.1 Field Survey

Breeding Bird Surveys (BBS) were completed during spring 2012 using a methodology based upon a combination of Common Bird Census methodology, devised by the British Trust for Ornithology (BTO), and the national Breeding Bird Survey (BBS) techniques, jointly devised by the BTO, Royal Society for the Protection of Birds (RSPB) and the Joint Nature Conservation Committee (JNCC).

A suitably experienced surveyor slowly walked a predetermined transect immediately following sunrise (to incorporate the dawn chorus). All birds seen or heard during the transect were transcribed on to maps using BTO standardised codes and symbols representing species present and activity respectively (see Section 3.2.2).

The survey focused on the trench cap area and habitat adjacent to Pond 1 (i.e. the Study Site; see Figure 1). The site was surveyed once a month in each of April, May and June and July 2012 under appropriate environmental conditions (refer to Table 2).

2.2 Limitations

No significant limitations to the survey were identified.

2.3 Criteria for Evaluation

A number of criteria are available to determine the conservation status of those bird species recorded. These criteria aid in evaluating the value of the breeding bird assemblage. The most appropriate of these are:

- *Birds of Conservation Concern 3* (Eaton *et al.*, 2009): Under this approach, UK bird populations are assessed using a quantitative criteria to determine the population status of each species, which can then be placed on one of three lists; Red, Amber or Green (see below).
 - Red list species are of high conservation concern, being either globally threatened, having historical UK population declines between 1800 and 1995 or a rapid population decline or breeding range contraction by 50% or more in the last 25 years.
 - Amber list species are of medium conservation concern due to a number of factors, for example having suffered between 25% and 49% contraction of UK breeding range or a 25-49% reduction in breeding or non-breeding populations over the last 25 years. Species which have a five year mean of 1-300 breeding pairs (bp) in the UK or an unfavourable European conservation status or for which the breeding population in the UK represents 20% or more of the European breeding populations are also listed on the Amber list.
 - Green list species have a favourable conservation status.

- *Schedule 1 of the Wildlife and Countryside Act (1981)* – The Wildlife and Countryside Act affords greater protection to certain breeding species that are considered appropriately at risk nationally and are as such listed as specially protected under Schedule 1.
- *Local and National Biodiversity Action Plans (BAP)* – The Cumbria Biodiversity Action Plan lists species two species (barn owl and song thrush) for which conservation targets exist within the local area.

2.4 Interpretation of Survey Results

2.4.1 General

The data were compiled into summary tables giving information on species recorded, conservation status and breeding status. Conservation status is defined with special emphasis on species on Schedule 1, Birds of Conservation Concern and UKBAP/Local BAP species. Breeding status was defined using criteria devised by the European Ornithological Atlas Committee (EOAC) and is presented below.

2.4.2 EOAC Criteria for Categorisation of Breeding Status

The results of the breeding bird surveys were assessed against the EOAC criteria for breeding bird status; presented below:

Confirmed Breeding

- Distraction-display or injury feigning
- Used nest or eggshells found (occupied or laid within period of survey)
- Recently fledged young (nidicolous species) or downy young (nidifugous species)
- Adults entering or leaving nest-site in circumstances indicating occupied nest (including high nest or nest-holes, the contents of which cannot be seen) or adult seen incubating
- Adult carrying faecal sac or food for young
- Nest containing eggs
- Nest with young seen or heard

Probable breeding

- Pair observed in suitable nesting habitat in breeding season
- Permanent territory presumed through registration of territorial behaviour (song, etc.) on at least two different days a week or more apart at the same place
- Courtship and display
- Visiting a probable nest site
- Agitated behaviour or anxiety calls from adults
- Brood patch on adult examined in the hand
- Nest building or excavating nest-hole

Possible breeding

- Species observed in breeding season in possible nesting habitat
- Singing male(s) present (or breeding calls heard) in breeding season

2.5 Assessment Methodology

To assess the overall breeding bird assemblage, Fuller (1980) described a method for assessing the ornithological interest of sites, whereby the importance was defined by the number of breeding species present as shown in the centre column of Table 1 below:

Table 1: Assessment Methodology

Level of Importance	Number of Breeding Species	
	Fuller (1980) Criteria	Adapted Criteria
Local	25-49 species	< 25 species
District	-	25 – 49 species
County	50 – 69 species	50 – 69 species
Regional	70 – 84 species	70 – 84 species
National	85+ species	85+ species

For the purposes of this assessment, Fuller’s (1980) geographical levels have been adapted, so that Fuller’s “Local” importance is assumed to correspond to District importance as described in the IEEM (2006) guidelines. An assemblage comprising fewer than 25 species is therefore considered to be of local importance or less. Since the publication of the criteria in 1980, declines have occurred in many bird populations, and for this reason it is considered appropriate to recalibrate the categories in this way.

3. RESULTS

3.1 Field Survey

Table 2: Environmental Conditions

Date	Survey Times	Air Temperature (°C)	Wind Speed (Beaufort)	Cloud Cover (%)
18.04.2012	07:00 – 08:10	7.6	2	50
15.05.2012	07:00 – 08:10	7.5	2	100
12.06.2012	07:50 – 09:10	13.5	2	60
10.07.2012	07:30 – 09:00	10.3	2	35

Twenty species of bird were recorded using the Site (for both breeding and non-breeding purposes, such as foraging), which included two Red List and six Amber List species. No Schedule 1 species were recorded during the surveys. One species, the skylark, is included

with the Red List species recorded but is also listed as a Priority Species for Conservation Concern under Section 41 of the NERC Act (2006).

The species recorded and their status recorded at the LLWR Site (trench cap and Pond 1 area only) are presented below in Table 3. Species listed in bold type were considered possibly or probably breeding within the Site boundary.

Table 3: Bird Species Recorded and BoCC Status

Species	Site Status	Conservation Status
Barn Swallow	Recorded foraging over the trench cap; no breeding behaviours observed	Amber List
Black-billed Magpie	Small numbers of individuals recorded foraging on the trench cap; no breeding behaviours observed	-
Blue Tit	A male was recorded singing from the dense scrub/tree line, situated at the eastern perimeter. One pair was considered to be 'probable breeders' on the eastern boundary.	-
Carrion Crow	Recorded on three occasions, possibly breeders within the vegetation located at the eastern perimeter.	-
Chaffinch	Chaffinches were recorded singing on all four occasions. Two pairs of chaffinch within the vegetation to the east of the trench cap and one pair adjacent to Pond 1 are considered to be probable breeders	-
Common Blackbird	A single individual was recorded alarm calling on one occasion; no breeding behaviours were observed	-
Common Buzzard	Buzzards were recorded flying over the Site on three occasions and were frequently harassed by mew gulls. No breeding behaviours were observed	-
Common Chiffchaff	Chiffchaffs were recorded on three occasions from the vegetation situated to the east of the trench cap and twice from adjacent to Pond 1. Two pairs are considered to be possible breeders	-
Common Starling	A starling was observed flying over the Site on one occasion only; no breeding behaviours were observed	Red List
Common Whitethroat	A whitethroat was recorded singing from scrub located adjacent to Pond 1; it was considered to be a possible breeder (i.e. one pair)	Amber List
Common Wood Pigeon	One woodpigeon was recorded flying over the Site on one occasion; no breeding behaviours were observed	-
Eurasian Curlew	One curlew was recorded flying over the Site on one occasion; no breeding behaviours were observed	Amber List

Species	Site Status	Conservation Status
Eurasian Oystercatcher	One oystercatcher was recorded flying over the Site on one occasion; no breeding behaviours were observed	Amber List
European Goldfinch	One goldfinch was recorded flying over the Site on one occasion; no breeding behaviours were observed	-
European Robin	Robins were recorded singing on all four occasions. Two pairs are considered to be probable breeders, one pair in the vegetation to the east of the trench cap and one pair adjacent to Pond 1	-
Great Tit	Great tits were recorded singing on three of the four visits; they are thought to be probable breeders within the vegetation to the east of the trench cap (one or two pairs) and adjacent to Pond 1 (one pair)	-
Mew (Common) Gull	Common gulls were observed resting on the containers within the active Vault 8. No young or nests were observed during the surveys; no breeding behaviours were observed	Amber List
Sky Lark	Skylarks were frequently observed song-flighting over the trench cap. It is estimated that between four and eight pairs were present and probably breeding	Red List & Priority Species (NERC Act)
Willow Warbler	Willow warblers were recorded singing from vegetation to the east of the trench cap and from adjacent to Pond 1; both areas are suspected of supporting one possibly breeding pair	Amber List
Winter Wren	Wrens were recorded singing adjacent to Pond 1, where one pair of possible breeders are considered to be present	-

4. DISCUSSION

4.1 Bird Distribution and Status

The BBS identified a total of 20 species of bird, of which ten were either probable or possible breeders within or adjacent to the Study Site (as depicted on Figure 1). Of these ten species, only one, the sky lark, was recorded (probably) breeding on the trench cap; much of the remaining bird interest was restricted to the vegetation along the Site's eastern perimeter.

Seven species of bird were considered to be either probably or possibly breeding adjacent to Pond 1 (refer to Figure 2). No Schedule 1 (Wildlife and Countryside Act, 1981) species were recorded during the surveys. The Study Site's bird assemblage was considered to be typical for the habitat types present (rough grassland, scrub and trees). Using the criteria described in Section 2.4, the assemblage is considered to be of local (site) importance. Impacts, associated with the recapping project, are relatively low in magnitude, will only affect habitats

for widespread and common species that are also present in the wider locality and are likely to be reversible in the medium term. As such, the recapping project is unlikely to adversely affect the conservation status of local bird populations. However, ground nesting birds were recorded from within the existing trench cap area (sky lark) and seven species of bird were considered to be breeding within the vegetation surrounding Pond 1. All wild birds and their nests are protected from harm under the Wildlife and Countryside Act (1981).

The sky lark is listed under Section 41 of the NERC Act (2006) as a 'Species of Principal Importance for Conservation in England'; it is also listed as a UK BAP species and is included within the BoCC Red List. The sky lark is a ground nesting bird that favours rough grassland, a habitat which is abundant within the local area. The LLWR Site includes extensive areas of rough grassland, scattered and dense scrub along with woodland and open water. The temporary loss of the trench cap, which would be allowed to regenerate following the recapping work, is unlikely to adversely affect the local conservation status of the sky lark. However, vegetation clearance should be restricted to outside of the breeding season (March to August inclusive). Areas of scrub (predominantly gorse) within the LLWR Site are becoming particularly dense, notably in the southwest. Compensatory sky lark habitat could be created through the selective removal scrub.

Two BoCC Amber Listed species (common whitethroat and willow warbler) were thought to be breeding within or adjacent to the Study Site. As habitat for both species (scrub and trees) is abundant throughout the LLWR Site and in the wider landscape, the temporary loss of habitat associated with the recapping project is unlikely to adversely affect the species.

4.2 Site Management and Legal Compliance

Birds are present throughout the Study Site and in the wider LLWR Site as a whole. Nesting birds should be considered when carrying out potentially damaging operations including habitat management, development (construction and land-use change) and materials storage. In line with the current Site operations manual (OI 162), all work should cease if an active birds nest is located and not recommence until the birds have fledged and the nest is no longer in use.

5. REFERENCES

Eaton, M.A., Brown, A.F., Noble, D.G., Musgrove, A.J., Hearn, R., Aebischer, N.J., Gibbons, D.W., Evans, A. & Gregory, R.D. (2009) Birds of conservation concern 3: the population status of birds in the United Kingdom, Channel Islands and the Isle of Man. *British Birds*: **102**, 296-341

Fuller, R.J. (1980) *A Method for Assessing the Ornithological Importance of Sites for Nature Conservation* Biological Conservation 17:229-239

IEEM (2006) Guidelines for Ecological Impact Assessment. IEEM, Winchester

Appendix A

Species of Principal Importance

Latin Name	Common Name
<i>Acrocephalus paludicola</i>	Aquatic Warbler
<i>Acrocephalus palustris</i>	Marsh Warbler
<i>Alauda arvensis subsp. arvensis</i>	Sky Lark
<i>Anser albifrons subsp. albifrons</i>	European Greater White-fronted Goose
<i>Anthus trivialis</i>	Tree Pipit
<i>Aythya marila</i>	Greater Scaup
<i>Botaurus stellaris</i>	Bittern
<i>Branta bernicla subsp. bernicla</i>	Dark-bellied Brent Goose
<i>Burhinus oedicnemus</i>	Stone-curlew
<i>Caprimulgus europaeus</i>	Nightjar
<i>Carduelis cabaret</i>	Lesser Redpoll
<i>Carduelis cannabina</i>	Linnet
<i>Carduelis flavirostris</i>	Twite
<i>Circus cyaneus</i>	Hen Harrier
<i>Coccothraustes coccothraustes</i>	Hawfinch
<i>Crex crex</i>	Corn Crake
<i>Cuculus canorus</i>	Common Cuckoo
<i>Cygnus columbianus subsp. bewickii</i>	Bewick's Swan (Tundra Swan)
<i>Dendrocopos minor subsp. comminutus</i>	Lesser Spotted Woodpecker
<i>Emberiza calandra subsp. calandra</i>	Corn Bunting

Latin Name	Common Name
<i>Emberiza cirrus</i>	Chiffchaff
<i>Emberiza citrinella</i>	Yellowhammer
<i>Emberiza schoeniclus</i>	Reed Bunting
<i>Lagopus lagopus subsp. Scotica</i>	Red Grouse
<i>Larus argentatus subsp. argenteus</i>	Herring Gull
<i>Limosa limosa subsp. limosa</i>	Black-tailed Godwit
<i>Locustella luscinioides</i>	Savi's Warbler
<i>Locustella naevia</i>	Grasshopper Warbler
<i>Lullula arborea</i>	Wood Lark
<i>Melanitta nigra</i>	Common Scoter
<i>Motacilla flava subsp. flavissima</i>	Yellow Wagtail
<i>Muscicapa striata</i>	Spotted Flycatcher
<i>Numenius arquata</i>	Curlew
<i>Passer domesticus</i>	House Sparrow
<i>Passer montanus</i>	Tree Sparrow
<i>Perdix perdix</i>	Grey Partridge
<i>Phylloscopus sibilatrix</i>	Wood Warbler
<i>Poecile montanus subsp. kleinschmidti</i>	Willow Tit
<i>Poecile palustris subsp. palustris/dresseri</i>	Marsh Tit
<i>Prunella modularis subsp. occidentalis</i>	Dunnock (Hedge Accentor)
<i>Puffinus mauretanicus</i>	Balearic Shearwater
<i>Pyrrhula pyrrhula subsp. pileata</i>	Bullfinch

Latin Name	Common Name
<i>Sterna dougallii</i>	Roseate Tern
<i>Streptopelia turtur</i>	Turtle Dove
<i>Sturnus vulgaris subsp. vulgaris</i>	Starling
<i>Tetrao tetrix subsp. britannicus</i>	Black Grouse
<i>Turdus philomelos subsp. clarkei</i>	Song Thrush
<i>Turdus torquatus</i>	Ring Ouzel
<i>Vanellus vanellus</i>	Lapwing
<i>Acrocephalus paludicola</i>	Aquatic Warbler



Legend

-  Surveyed Area
-  Pond 1

URS Infrastructure and Environment
 12 Regan Way
 Chetwynd Business Park
 Chilwell
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LLWR Breeding Bird Survey

**Figure 1
 Bird Study Site Location
 Plan**

Scale 1:10,000 @ A4; Ponds Not to Scale

Drawn by: DJN	Checked by: RM	Date: 19.10.2012
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Legend

Species	
BT – blue tit	R. – European Robin
C. – carrion crow	GT – great tit
CH – chaffinch	S. – sky lark
CC – chiffchaff	WW – willow warbler
WH – common whitethroat	WR – winter wren

- Red List Birds
- Amber List Birds
- Green List Birds

URS Infrastructure and Environment
 12 Regan Way
 Chetwynd Business Park
 Chilwell
 Nottingham
 NG9 6RZ



LLWR Breeding Bird Survey

Figure 2
Breeding Bird Survey
Results

Scale 1:10,000 @ A4

Drawn by:
DUN

Checked by:
RM

Date:
19.10.2012