



BTO Research Report No. 212

**Site Action Plan for
Black Redstarts
Phoenicurus ochruros
in the Deptford Creek Area,
Greenwich, London**

Authors

S. J. Holloway & D. E. Glue

Report of work carried out by the British Trust for Ornithology under contract to
Arup Environmental

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EXECUTIVE SUMMARY

1. This study, commissioned by Ove Arup Environmental, provides a site action plan for nesting Black Redstarts at Greenwich Reach East, London, with the aim of maintaining the population after site redevelopment.
2. The UK status and the breeding biology of the Black Redstart are reviewed.
3. A visit was made in October 1998 to the proposed redevelopment site and also to several sites in the immediate vicinity where Black Redstarts are currently known to breed.
4. Suggested mitigation measures include the provision of artificial nestboxes, the maintenance of existing nest sites wherever possible, and the retention and maintenance of as many of the existing foraging areas as possible. Potential new foraging areas should be created, *e.g.* by covering flat roofs with gravel.
5. The new river walls and flood defences should aim to retain as much of the existing infrastructure as possible, which currently provide important breeding and foraging habitat for Black Redstarts.
6. Disturbance levels to the Deptford Creek are likely to rise dramatically if the proposed series of footpaths and bridge across the creek are constructed. In order to ensure some undisturbed foraging areas on the creek, the proposed Thames Path should either be routed over the creek or around the creek, but not be both. Whichever option is followed, the design will need to incorporate screening in order to minimise disturbance.
7. The Thames Path should be screened from the Thames to minimise disturbance, especially in important areas for Black Redstarts, such as Dreadnought Wharf.

1. INTRODUCTION

The area around Deptford Creek at Greenwich Reach East, London, is in the process of being redeveloped. The land previously occupied by Deptford Power Station, immediately to the west of the mouth of Deptford Creek, has already been redeveloped as housing. The partially derelict land to the east of the creek mouth is also to be developed. Surveys conducted during the 1997 and 1998 breeding seasons, by local ornithologist Dusty Gedge, revealed the presence of several pairs of Black Redstart breeding in the vicinity of Deptford Creek. This species is a rare breeding bird in Britain and, therefore, fully protected by legislation through its listing in Schedule 1 of the Wildlife and Countryside Act (1981).

Black Redstarts have already been adversely affected by developments on the former Deptford Power Station site. The proposed developments on the Greenwich Reach East site, at the mouth of Deptford Creek, are also likely to affect adversely the Black Redstarts through human disturbance and destruction of habitat, feeding grounds and nest sites. This Site Action Plan provides information on the status and biology of the Black Redstart, the likely impact of the Greenwich Reach East site development as planned, and discusses the possible measures that could be taken to ensure that the site remains suitable for Black Redstarts.

2. STATUS

2.1 European Status

The Black Redstart has an extensive breeding distribution, which extends across Europe and into Asia as far as western China, with breeding also occurring in north-west Africa (Hagemeijer & Blair 1997). Within much of central and southern Europe, the species is locally common and populations are generally stable (Tucker & Heath 1994). From the 1850's, the species started to colonise north-west Europe (Hagemeijer & Blair 1997), breeding first in Britain in 1923 (Morgan & Glue 1981). Within mainland Europe, Black Redstarts breed in mainly sunny and warm climates in the mid latitudes. They favour rocky, stony, boulder-strewn, broken or craggy terrain, including cliffs right up to the snowline (Snow & Perrins 1998). The abundance of nest sites in walls and roofs of buildings, and other man-made structures, has allowed the species to develop a close commensalism with man. This, in turn, has allowed Black Redstarts to spread from montane to lowland regions, and to spread northwards across plains and valleys in Europe (Snow & Perrins 1998).

Within the UK, breeding Black Redstarts tend to occupy man-made sites, such as power stations, gas works and railway goods yards and derelict "brown field" sites within the largest cities, and to a lesser extent, coastal developments. The absence or scarcity of screes, trees, shrubs and grasslands, within the confines of many cities, are replicated by the presence of waste patches comprising primary colonist plants, notably annual and perennial weeds, bare and disturbed areas of soil, a range of tall song posts and cavities suitable for nesting.

2.2 British Status

The nationwide distribution of breeding Black Redstarts has been mapped by two BTO Atlas projects (Sharrock 1976 & Gibbons *et al.* 1993). The breeding population is monitored annually by the Rare Breeding Birds Panel. Data are currently available up to 1995 and are presented in Table 2.2.1 (from Ogilvie *et al.* 1998).

The breeding population has fluctuated in the past with a peak of 53-56 singing males between 1950 and 1952, a period which coincided with the main availability of bombed sites. This declined to 17 singing males by 1962, reflecting the redevelopment of the bombed sites. The population began to increase again in the early 1970's (Fitter 1971), with 1973 appearing to herald the start of a higher population plateau at just over 100 territory holding males (Morgan & Glue 1981). However, the population has since declined. The most recent estimate is that between 27 and 74 pairs nest in Britain (Stone *et al.* 1997). This population is concentrated in south-east England, with smaller numbers elsewhere, especially the West Midlands and coastal Suffolk. The current northern limit of breeding is Lancashire and South Yorkshire. As the breeding population is so small, the Black Redstart is listed in "Red Data Birds in Britain" (Batten *et al.* 1990) and is placed on the Amber List, *i.e.* medium conservation concern, in "Birds of Conservation Concern" (RSPB 1996).

The distribution of Black Redstarts wintering in Britain is mainly coastal and concentrated in the south and west of England. These are thought to comprise birds of UK and continental origin.

Some though remain in their UK breeding areas (Lack 1986). Other birds migrate to winter in

the Mediterranean basin or along the Atlantic coast of Portugal, Spain and France (Hagemeijer & Blair 1997).

2.3 Status in London

The Black Redstart has been established as a regular breeding species in London since the Second World War. The distribution of breeding birds was mapped by the two BTO Atlas Projects (1968-1972 and 1988-1993). During this period, there has been an apparent thinning of the population in London and the south-east (Gibbons *et al.* 1993). Despite this, London still holds a significant proportion of the UK's breeding population of this species (Table 2.3.1).

In London, as elsewhere in Britain, most breeding sites are only occupied by Black Redstarts for a short period of time, often just one year (Table 2.3.2), even though the habitat did not appear to change.

2.4 Status at Deptford Creek

The earliest record of Black Redstarts breeding at Deptford Creek was in 1971, but it is likely that they had been present for longer, as such areas are often neglected by birdwatchers (Gedge 1998). During 1998, a study by the Creekside Environment Project found a total of four pairs in the vicinity of the creek, two of which are known to have bred. On the Greenwich Reach East site, at least one pair bred successfully.

2.5 Importance of the Deptford Population

Using the latest population estimate (Stone *et al.* 1997), the population at Deptford represents around 7% of the UK's breeding population, and 40% of London's breeding population of Black Redstarts (Gedge 1998). Some pairs of Black Redstarts may well remain undetected each year, particularly those birds frequenting extremely derelict areas, which are less likely to be visited by ornithologists. However, these missed breeding pairs are not thought to seriously bias the countrywide population estimates given (David Glue *pers. comm.*).

Conservationists often consider a site to be of national significance for a species if it holds more than 1% of the national population. It seems not unreasonable to consider Deptford Creek of national significance for Black Redstarts. The site is of particular importance as Black Redstarts might have bred in the area for over 30 years (Gedge 1998). This is considerably longer than most sites in London or the UK.

3. BIOLOGY OF BLACK REDSTARTS

3.1 Food

Black Redstarts employ a wide variety of feeding methods. These include feeding directly from the ground, dropping on to prey from perches, and flying from perches to catch insects in mid-air. Invertebrates form the bulk of the diet, but plant material comprises at least 25% of the diet during the breeding season (Meadows 1969), and increases in importance during the autumn (Cramp 1988).

A wide range of invertebrates are consumed, chiefly *Diptera* (true flies), also *Hymenoptera* (ants, bees, etc.), *Coleoptera* (beetles), *Lepidoptera* (butterflies and moths), *Homoptera* (aphids) and *Lumbricus* (earthworms). A range of fruits, berries and seeds are consumed, including those of docks (*Rumex*), crucifera species, bramble (*Rubus*), elder (*Sambucus*) and hawthorn (*Crataegus*). These plant species are characteristic of the pioneer plant communities which develop on areas of frequently disturbed ground which retain some bare patches.

At Greenwich Reach East, Black Redstarts have been observed feeding along the strandline and upper shore of the Thames and Deptford Creek, on the old, vegetated creek walls, and amongst patches of low vegetation, comprising both annual and perennial plant species.

3.2 Breeding

Black Redstarts operate a socially monogamous breeding system from early April until the end of July. Territories are rigorously defended and range from $\approx 7\frac{1}{2}$ ha in size. They are usually centred on the nest site and delimited by tall song posts. A typical nest site comprises a ledge generally within a building, or holes and crevices in rocks and walls. Most nests are located 1-4 m above ground level, but can occur up to heights of 45 m. (Glue 1994). The species shows some adaptability and has been recorded nesting in underground pipes and nestboxes. If sites are limited, then different pairs may build nests close together, as close as 10 m, but this invariably leads to frequent disputes. In the UK, pairs usually have a single brood (Glue 1994).

The female takes between five and eight days to build the nest in which 4-6 eggs are usually laid (one egg each day). The eggs hatch after 13-17 days and chicks fledge after 12-19 days. After fledging, chicks seek safety amongst rocks, vegetation or other cover, where they may remain for most of the day and night. They remain dependent on their parents for a further 11 days.

Analysis of BTO nest record cards shows that at least one in four nests fail, most frequently due to desertion or loss of eggs, cases attributed to disturbance by children, builders or other workmen. Rats and cats have also been reported as problems in some areas, consuming both eggs and young birds (Glue 1994).

At the Greenwich Reach East site, Black Redstarts have utilised a number of nesting sites over the years, including old buildings, an old river barge and a scrapped vehicle (Dusty Gedge *pers. comm.*).

4. THE LIKELY IMPACT OF THE PROPOSED DEVELOPMENT

The current plans for the Greenwich Reach East development are likely to affect the quality of the available feeding and breeding habitat for Black Redstarts in a number of ways:

- loss of buildings which currently provide an abundance of suitable nest sites.
- existing large areas of sparse, pioneer vegetation will be developed; these areas currently provide excellent foraging opportunities for the Black Redstarts. It is possible that new areas, suitable for colonisation by pioneer vegetation, will be created during the early stages of the development.
- redevelopment of the creek walls will reduce foraging opportunities.
- permanently increased levels of human disturbance, with an associated increase in predation and disturbance by domestic dogs and cats, are likely to reduce nesting success.
- greatly increased disturbance levels to important foraging areas through the construction of a footbridge across Deptford Creek towards the mouth, and the provision of footpaths along either side of the creek and along the Thames frontage.
- disturbance to breeding birds, increasing the risk of nest failure. Such disturbance would constitute an offence under the Wildlife and Countryside Act (1981), as the Black Redstart is listed under Schedule 1 of the Act.

5. SUGGESTED MITIGATION MEASURES

With careful design, these potential problems could be significantly reduced, and should enable Black Redstarts to continue breeding at the site.

5.1 Timing of Building Works

To prevent disturbance to breeding birds, building activity should be avoided between March and July (inclusive), within 300 m of a suspected nest site. It should be noted that this species may occasionally raise two broods in a single season, sometimes from the same nest, but usually at a new nest site in the immediate vicinity. Therefore, during the course of a single season, more than one nest site may need to be located and avoided during construction work. Black Redstarts are especially vulnerable to disturbance during the incubation period and when with small young.

Considerable effort should be spent on locating singing males before construction work leads to irrevocable disturbance. As Black Redstarts are a Schedule 1 Species (under the 1981 Wildlife and Countryside Act), it is an offence to disturb the birds at, or near, the nest, unless a special licence has been obtained.

5.2 Provision of Nest sites

Old buildings currently on the site provide Black Redstarts with many potential nest sites. These will be destroyed when the buildings are demolished. The provision of alternative nest sites in the new buildings could mitigate against loss. The simplest way of doing this is to provide ledges high up on the inner walls, tucked underneath the roof, ideally around 15-20 m from the ground, and with a permanent exit.

A more effective, and longer term, measure is to build nestboxes directly into the wall. Several companies now produce ready-made building blocks and tiles with integral nest chambers (addresses are given in Appendix 1). ACO Ltd make a polymerised concrete box, which is exactly three brick courses high and half a brick wide. If these boxes are used, then the top section should be removed to create an open-fronted nestbox. This is the main type used by Black Redstarts. More details are given in du Feu (1993). A nestbox needs to be carefully positioned out of the reach of humans, predators such as cats and foxes, and away from doors and windows. It is also important to ensure that the box is sheltered, away from prevailing wind, rain and strong sunlight. Particular care should also be taken to avoid sites which channel water during periods of heavy rain.

Black Redstarts are selective when choosing nest sites, so a large number of boxes should be provided. At the Greenwich Reach East site, it would be appropriate to provide around 20 boxes, as long as the density does not exceed ten per hectare. Plans must also be made to remove debris from boxes at the end of each breeding season, otherwise they will not be used in the subsequent year.

The existing wooden and brick river and creek walls provide plenty of potential nesting cavities, and should be retained as far as possible. In addition, as well as incorporating boxes into the walls of new buildings, they could be usefully built into the new flood defence walls, which may be less prone to disturbance. Boxes should be roughly evenly spaced and placed in a variety of locations and at different heights.

Old decaying boats, several examples of which are currently on Dreadnought Wharf Beach, have

been used in the past as nesting sites (Dusty Gedge *pers. comm.*), and should be retained as a feature of the development, if at all possible.

5.3 Maintenance of Foraging Areas

Food availability, as well as safe nest sites, will determine the number of Black Redstarts that the site can support, their breeding success and possibly the number of years that the site is occupied (Meadows 1969). Under the current planning proposals, areas presently used for foraging will be lost to buildings, and other areas are likely to be “landscaped” and planted with trees and shrubs, a vegetation type that is unsuitable for Black Redstarts. To ensure that the site can support Black Redstarts, a pioneer vegetation community must be maintained on the site. This would ideally occupy a similar hectareage to that currently occupying the site. There are a number of measures that could be taken which, accumulatively, could closely equate to the total area lost.

The area of the site that is likely to be subjected to the “aesthetic planting” of trees and shrubs, should be reduced in extent. It is important that there is enough bare, open ground for natural pioneer communities to develop. It may well be possible to aesthetically screen the areas of natural vegetation with selected trees and shrubs.

Sections of the site could be landscaped into terraces, increasing the soil surface area, and thus the potential feeding area. This might be particularly suitable for the area around the creek edge, where a series of terraces could be constructed to lead up to the main level of the site. Some of the terraces should be topped with gravel. Plant species, such as Elder, Rosebay Willowherb (*Chamerion angustifolium*), Biting Stonecrop (*Sedum acre*), Fat Hen (*Chenodonium album*) and Black Medick (*Medicago lupulina*) are likely to colonise such areas, making them potentially attractive foraging areas for Black Redstarts.

Some of the existing dense scrubby areas, currently dominated by Buddleja (*Buddleja davidii*), should be thinned to create islands in which a pioneer plant community can develop. Buddleja is attractive to butterflies and other nectar feeding insects, and some dense patches should be retained on site.

Some of the flat roofs, of the proposed development, should be provided with a gravel covering, which would assist in the establishment of pioneer plant communities. An appreciable amount of flat roofing could greatly increase the potential foraging area for Black Redstarts. The establishment of pioneer plant communities could be limited to less visible roofs. The gravel areas would need to be periodically raked to maintain a succession of pioneer plant communities.

It is important to remember that pioneer plant communities depend on frequent physical disturbance of the substrate to prevent a denser vegetation developing, which would be less suitable for Black Redstarts. Formerly, this was created by everyday industrial operations (*e.g.* passing vehicles) but following development, this will need to be done deliberately. This is easily achieved (*e.g.* by passing a rake over the area), but needs to be incorporated into a site management plan.

5.4 River Walls

The current dilapidated state of the current river walls provides an ideal habitat for invertebrates

and also allows some pioneer plants to flourish. The re-building of the sea walls should be undertaken in a manner that will create a roughly-textured surface, which is deep enough to provide refuge to invertebrates and an opportunity for plants to grow. Wherever possible, the existing wooden structures, with their well-developed vegetation communities, should be retained and incorporated into the new wall infra-structure. This should help to ensure that the sea walls continue to provide Black Redstarts with foraging opportunities.

5.5 Reducing Future Disturbance Levels

The proposed development plans include the construction of a new pedestrian footbridge over the mouth of Deptford Creek, together with a new footpath alongside the creek. This area is currently relatively undisturbed and is used by Black Redstarts as a foraging area. Following development on the rest of the site, this area may become more important for Black Redstarts and it would be preferable to keep it as free of disturbance as possible. Increased disturbance will also have a noticeable impact on the riparian birds which currently use the area. Therefore, the aim should be to minimise disturbance by either having a footbridge over the mouth of the creek and no footpath either side, or a footpath either side of the creek, but no footbridge over the mouth. Whichever scheme is chosen, consideration should be given to the design of both bridge and footpath, with as much screening as possible to further reduce human disturbance. If a footpath is to be constructed along both sides of the creek, it should be set as far away from the edge as possible.

The beach at Dreadnought Wharf is an important foraging area, and occasional breeding area for Black Redstarts (*Dusty Gedge pers. comm.*). It is currently relatively undisturbed, but the construction of a footpath along the Thames is likely to lead to an increase in human disturbance. The footpath should be either screened from the beach/intertidal areas by a wall and/or trees and shrubs, or re-routed further inland from the “key” foraging sites.

6. FUTURE MONITORING

Survey work will be required throughout the building phase of the project to enable nest sites to be detected and disturbance avoided. Compliance with disturbance regulations will also need to be monitored. The following should be assessed for each site:

- a) the numbers of wintering individuals
- b) the numbers of singing males (from March onwards)
- c) the numbers of nesting pairs
- d) the proportion of successful nests

This could be achieved by the monthly mapping of birds by a competent, licensed ornithologist. Once the development has been completed, the effectiveness of the various mitigation measures will need to be regularly monitored. The monitoring should aim to cover the period of development work and ideally, a further 3-5 years, as annual variations in the population of this rare passerine are a feature of the species in Britain.

Some of the suggested mitigation measures will need a small degree of regular maintenance, such as the annual removal of material from nestboxes, and the maintenance of suitable habitat for annual weeds by simple soil scarification.

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	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
Number of localities	92	77	70	56	50	36	44	53	66	58
Number of confirmed pairs	81	46	54	36	28	23	14	32	32	19
Number of possible pairs	38	63	58	46	46	46	57	44	63	63
Maximum total number of pairs	119	109	118	82	74	69	71	76	95	82

Table 2.2.1 The number of breeding pairs of Black Redstart in Britain

	1988	1989	1990	1991	1992	1993	1994	1995	1996
Number of pairs that bred	10	6	9	5	2	n/a	6	11	8
Number of extra pairs present	8	2	3	2	2	n/a	1	1	4
Number of extra singing males	14	7	10	5	7	n/a	27	10	7

Table 2.3.1 The number of breeding pairs of Black Redstart in London (from London Bird Reports).

Number of years that the site was occupied	Number of sites
1	51
2	12
3-11	14
12 years or more	2

Table 2.3.2 The number of years for which all Black Redstart London sites were occupied, from 1966-1994 (from Oliver 1997).

APPENDIX 1

Addresses of Nest Box Suppliers

ACO Co., Hitchin Road, Shefford, Bedfordshire. SG17 5JS

C J Wildbird Foods, The Rea, Upton Magna, Shrewsbury, Salop. SY4 4UB

Jacobi Jayne & Co., Freepost 1155, Canterbury, Kent. CT3 4BR

Marley Building Materials Ltd., Marketing Dept., Station Road, Coleshill, Birmingham.
B46 1HP

Redland Roof Tiles, Technical Dept., Castle Court, 41 London Road, Reigate, Surrey.
RH2 9BY