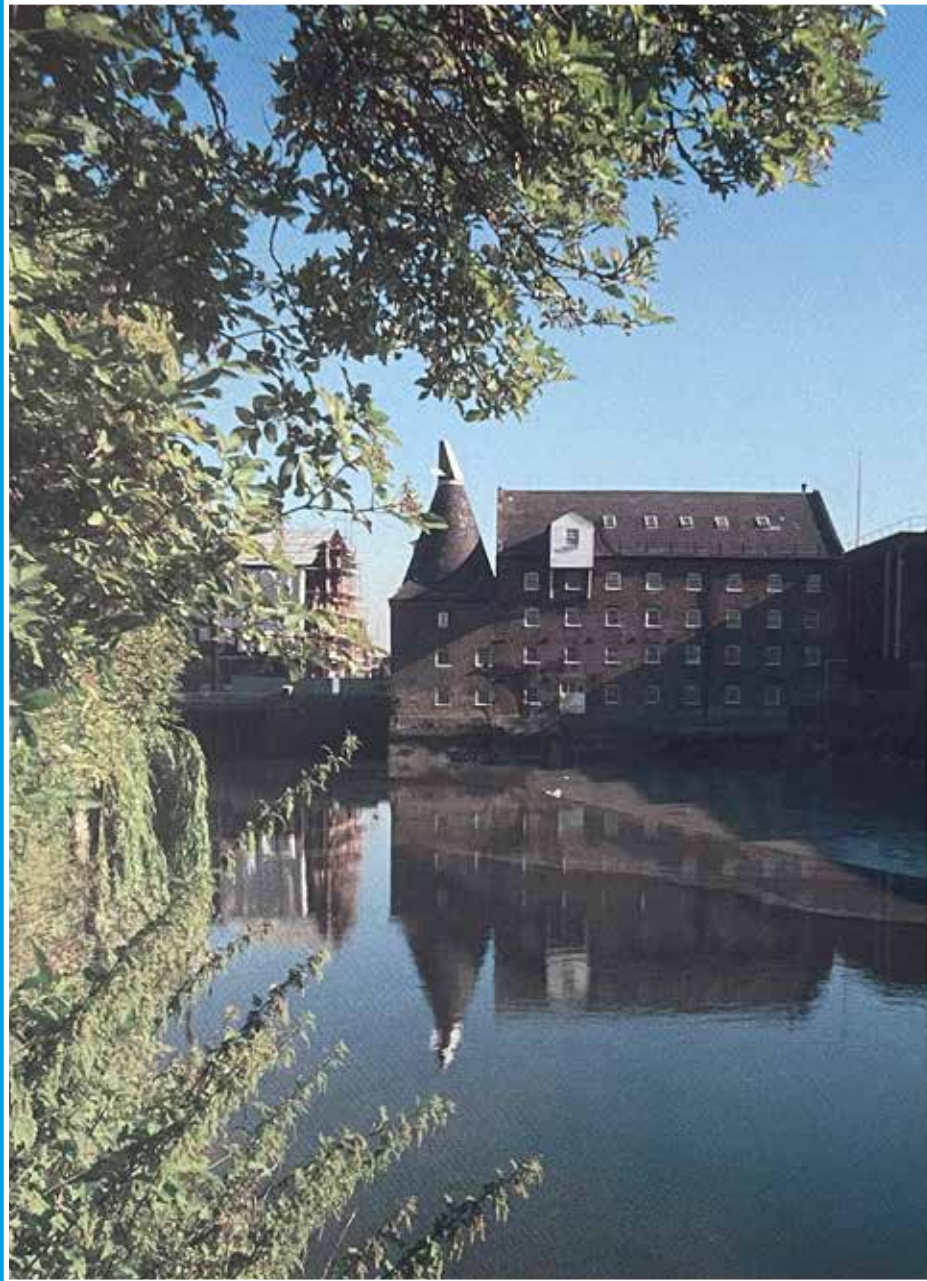


Nature Conservation in Newham



Ecology Handbook 17

London Ecology Unit

Nature Conservation in Newham

John Archer and Ian Yarham

Ecology Handbook 17



Map not shown due to copyright restrictions

First published in Great Britain by the London Ecology Unit, Bedford House,
125 Camden High Street, London NW1 7JR.
Phone (071) 267 7944

© 1991 London Ecology Unit
**British Library Cataloguing
in Publication Data**
Archer, John
Nature Conservation in Newham
I Title
II Yarham, Ian
III London Ecology Unit
639.90942176

ISBN 1-871045-14-2

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, without the prior permission of the copyright holder.

Maps reproduced from the Ordnance Survey
1:50,000 Landranger Outline Edition and the
1:25,000 Pathfinder Outline Editions with the
permission of the Controller of Her Majesty's
Stationery Office © Crown Copyright

Printed by Lithosphere on Sylvancoat paper,
containing: 45% Grade B waste paper (chemically-
pulped paper, unprinted) and 45% Grade C waste
paper (chemically-pulped paper, printed) plus
10% new wood fibre.

Front cover Bow Creek and the historic
Clock Mill in the Three Mills Conservation Area
LEU / Ian Yarham

Back cover The blue-tailed damselfly is
one of several species of damselflies which
breed in Newham's waterways
LEU / John Archer

The London Ecology Unit thanks
English Nature for their financial
assistance towards the publication of
*Nature Conservation
in Newham.*



Acknowledgements

Nature Conservation in Newham has been written using information from many sources, including visits made by staff of the London Ecology Unit, data from the London Wildlife Habitat Survey, carried out by the London Wildlife Trust for the Greater London Council in 1984-5, data supplied by the Essex Biological Records Centre at the Passmore Edwards Museum and by the London Natural History Society, and various sources of historical information held at the Local Studies Library at Stratford.

Considerable help has been received from officers of the London Borough of Newham. Particular thanks are due to Colin Plant and Teresa Wild of the Passmore Edwards Museum, Tony Cox and Vivienne Mitchell of the Planning Department, Peter Aylmer and Rajinder Johal of the Education Department, Terry Staples, Julie Gilligan and David Oelman of the Technical Services Department and the Local Studies Librarians Howard Bloch and Jill Davies. Thanks are also due to Valerie Bott, Director of the Passmore Edwards Museum, for giving permission to use material from the Museum at Stratford in the chapter on Land Use History.

A large number of other people and organisations have provided information and commented on the text, and we are grateful for their assistance. They include Sheila Beskine of Allotments for the Future, Charlie Broadbridge, Eddie Richards and Nigel Sturt of British Gas plc (North Thames), Kath Hewitt of the British Trust for Conservation Volunteers, Michael Render of British Waterways, David Jones of the Corporation of London, Margaret Wainwright of Dersingham Infants School, Mary Mills of the Docklands Forum, Mark Brearley and Glynis Carpenter of Friends of the Earth, A Wade of the Friends of Woodgrange Park Cemetery, Robert Burley of the Lee Valley Regional Park Authority, Jill Blenkinsop of the London Borough of Barking & Dagenham, Marie Fallon of the London Borough of Waltham Forest, Bill Martin of London City Airport, Stephen Peart and David Samuel of the London Docklands Development Corporation, Stephen Brooks and Rodney Burton of the London Natural History Society, Donald Ritchie of the London Wildlife Trust, Bob Aspinall of the Museum in Docklands Project, Nicholas Squirrell of English Nature, Paul Mercer of Newham Health Authority, Frank Sainsbury of the Newham History Society, John Skinner of the Ridley Road Project, Martin Marais of RPS Clouston, Tony Saunders of St Bonaventure's School, Trowers and Hamlins, The Reverend Dr Julian Scharf of West Ham Parish Church, Paul Ferris, Douglas Kent, John Plant and Dominic Rooney.

Other staff of the London Ecology Unit also assisted greatly in the compilation of this handbook, particularly Dave Dawson, Niall Machin, Sue Lovemore, Daniel Keech, Barbara Morris (typography) and Meg Game (series editor). The staff of the London Ecology Unit must remain responsible for any errors or omissions.

About the London Ecology Unit

The London Ecology Unit works to develop new ways of creating a greener and pleasanter urban environment. It advises planners, developers and local people on how to protect wildlife areas in towns and how to create new habitats for plants and animals. The Unit has carried out extensive surveys of London's wildlife, ecology and landscape history. Funded by most of the London Borough Councils, the Unit has the support of the Countryside Commission and English Nature (the Nature Conservancy Council for England).

The Unit provides information and advice to local authorities and other agencies on all aspects of nature conservation and applied ecology. Its work includes the development of ecological policies for local planning, the assessment of the nature conservation value of specific sites, and advising on the appropriate management and development of sites to encourage wildlife and to provide new habitats.

The Unit maintains a database of London's wildlife habitats, with information on what is found in each place. These data are in constant use by the Unit and by many other organisations and individuals.

New work by the Unit includes guidance on developing nature conservation areas in towns, and how new wildlife habitats can be provided within urban development, including habitats on and around buildings.

This book is one of a series of publications produced by the London Ecology Unit. Other titles in the series are:

- 1 **Ecology and Nature Conservation in London**
- 2 **A Guide to Habitat Creation**
- 3 **Nature Conservation Guidelines for London**
- 4 **Woodland, Wasteland, the Tidal Thames and two London Boroughs**
- 5 **Nature Conservation in Brent**
- 7 **Nature Conservation in Hillingdon**
- 8 **London's Meadows and Pastures**
- 9 **Nature Conservation in Croydon**
- 10 **Nature Conservation in Greenwich**
- 11 **Nature Conservation in Waltham Forest**
- 12 **Nature Conservation in Southwark**
- 13 **Nature Conservation in Harrow**
- 14 **Nature Areas for City People**
- 15 **Nature Conservation in Hounslow**
- 16 **Nature Conservation in Ealing**

Our books are available from bookshops and from some libraries in London. They can also be obtained by post from the London Ecology Unit. For more details, please send an SAE to:

**Booklist requests,
London Ecology Unit,
125 Camden High Street,
London NW1 7JR.**

Contents

List of maps and diagrams	vi	Ne.BI 8	Beckton District Park and Newham City Farm	43
Introduction	1	Ne40.BI 9	City of London Cemetery and Alders Brook	44
PART ONE		Ne.BI 10	The Royal Docks and London City Airport	45
1 The landscape and geology of Newham	2	Ne.BI 11	East Ham Nature Reserve	46
		Ne.BI 12	River Roding at Little Ilford	48
		Ne.BI 13	Beckton Triangle and Cuckold's Haven	49
2 The history behind the landscape	4	Ne.BI 14	Beckton Gas Works	51
		Ne.BI 15	Beckton Sewage Treatment Works	52
3 Newham's wildlife habitats	11	9 Sites of Borough Importance: Grade II	53	
Woodland and scrub	11	Ne.BII 1	Former Stratford Railway Works	53
Grassland	13	Ne.BII 2	Stratford Gas Holder Station Rough	53
Wetlands	14	Ne.BII 3	East London Cemetery	53
Other habitats	15	Ne.BII 4	Northern Outfall Sewer	54
4 The role of the Borough Council	16	Ne.BII 5	Thames Barrier Prospect Park and Rough	56
Planning	16	Ne.BII 6	Newham General Hospital Rough	56
Parks and land management	16	Ne.BII 7	Silvertown Tramway Sidings	57
Educational initiatives	18	Ne.BII 8	Beckton Alps	57
Other initiatives	22	Ne.BII 9	North Woolwich Old Goods Yard	59
5 The role of voluntary organisations	22	Ne.BII 10	Lady Trower Trust Playing Fields	60
		Ne.BII 11	Railside Land	60
PART TWO		10 Sites of Local Importance	62	
6 Deciding which sites are important	25	Ne.L1	Channelsea River, Stratford	62
7 Sites of Metropolitan Importance	28	Ne.L2	All Saints Churchyard, West Ham	62
M31 The River Thames and tidal creeks	28	Ne.L3	West Ham Cemetery	62
M109 Wanstead Flats	30	Ne.L4	Forest Gate Hospital Site	63
8 Sites of Borough Importance: Grade I	32	Ne.L5	West Ham Park	63
Ne.BI 1 Eastway Cycle Track and Bully Point Nature Reserve	32	Ne.L6	Royal Albert and Victoria Docks Cut	64
Ne.BI 2 Lea Junction Railway Triangle	34	Ne.L7	Priory Park	65
Ne.BI 3 River Lea system, Stratford Marsh and Mill Meads	34	Ne.L8	Plashet Park	65
Ne.BI 4 Bromley-by-Bow Gas Works	39	Ne.L9	Central Park	66
Ne.BI 5 Thames Wharf	39	Ne.L10	Langdon School Rough	66
Ne.BI 6 Manor Park Cemetery	41	11 Sites nearby in adjacent London boroughs important to Newham	66	
Ne.BI 7 Woodgrange Park Cemetery	42			

References and further reading	68
Appendices	
1 Addresses of some relevant organisations	70
2a English and Latin plant names used in the text	72
2b Alternative English names for plants	73
Index to sites and key to figure 8	76

List of maps and diagrams

Figure 1	The landscape of Newham	
		<i>inside front cover</i>
Figure 2	Underlying geological strata in Newham	3
Figure 3	Wildlife habitat in Newham	12
Figure 4	Extent of habitats in Newham surveyed during the GLC Wildlife Habitat Survey	13
Figure 5	Land designations shown in Newham Borough Council's adopted Local Plans	17
Figure 6	Green corridors through Newham	27
Figure 7	Important railway land with known nature conservation value	61
Figure 8	Nature conservation sites important to the London Borough of Newham, and Areas of Deficiency	
		<i>inside back cover</i>

Introduction

This handbook documents the wildlife of the London Borough of Newham, and the initiatives of the Borough Council and others to protect and enhance habitats for wild plants and animals. While most of the Borough is built-up, Newham is fortunate in having some fine areas of wildlife habitat, particularly near its edges: in the Lea and Roding valleys, around Beckton in the south, and on the southern edge of Epping Forest to the north.

The Borough Council recognises the importance of wildlife and green spaces to people living in cities, and pursues policies to defend sites of interest from development and to manage its open spaces with nature conservation in mind. It also supports initiatives in the field of environmental education, including the establishment of nature areas in schools and the provision of teaching centres on nature reserves in the Borough.

In parts of the south of the Borough, where tremendous changes have been taking place in the 1980s and early 1990s, the role of planning authority is temporarily filled by the London Docklands Development Corporation. Large areas of vacant former industrial land, on which interesting communities of plants and animals had developed, are being lost to building development. The LDDC is trying to redress this loss to some extent by the creation of new wildlife habitats in parks and along roadsides.

This is one of a series of ecology handbooks produced by the London Ecology Unit on nature conservation in London boroughs. These are intended as a guide to planners and land managers on how best to further nature conservation in the capital, for example through policies in Unitary Development Plans, development control and the way in which open spaces are managed.

Nature Conservation in Newham was written using data from site visits supplemented by information from many other people, such as Borough officers and local naturalists. In 1990-91 extensive consultation on the text was carried out with interested parties, including Councillors and officers of the Borough, land owners and managers, relevant voluntary groups and local naturalists.

We hope this handbook will be of interest to residents and visitors to Newham who want to find out more about the green spaces, animals and plants of the Borough.

1 The landscape and geology of Newham

The London Borough of Newham (figure 1, inside front cover) covers approximately 3,637 hectares of east London. It is bounded on three sides by rivers: the Thames to the south, the Lea to the west and the Roding to the east. The Borough extends northwards as far as Forest Gate and Manor Park, on the southern edge of Epping Forest, and from Stratford and Canning Town in the west to Little Ilford, East Ham and Beckton in the east. It has a population of about 207,000.

Several major roads cross the Borough; the A13, A124 and A118 all run east-west, while the North Circular Road (A406) and the A117 are the main north-south routes. A number of new roads have recently been or are being constructed in the south of the Borough and it is also proposed to extend the A406 over the Thames, via the East London River Crossing, to link up with the A2 south of the river. A network of railways crosses Newham; these include sections of the District and Central lines, the Fenchurch Street to Tilbury and Southend line which runs alongside the District line, the North London Link, the main line from Liverpool Street to Ipswich and the local line from Gospel Oak to Barking. The Docklands Light Railway reaches Stratford in the west of the Borough and a branch from Poplar to Beckton is under construction at the time of writing.

Flowing water in Newham is restricted to the three rivers already mentioned. One of these, the River Lea (or Lee), is divided into several channels, forming a network of waterways in the west of the Borough. The River Roding has one small tributary, the Alders Brook, at the northern end of its Newham section. Both the Lea and Roding have substantial tidal sections, known as Bow Creek and Barking Creek respectively. The Lea is actually tidal, via the Waterworks River, as far north as Lea Bridge Road, while the Roding has a tidal influence throughout its length in the Borough. The other major water feature in Newham is the Royal Docks, three enormous artificial water bodies lying between Canning Town and Beckton, in the south of the Borough.

Extensive areas of open land are restricted to the edges of the Borough, particularly the City of London Cemetery and Wanstead Flats in the north, and around Beckton in the southeast. Wanstead Flats has long been protected as part of Epping Forest, while parts of Beckton have resisted development due to the danger of flooding from the River Thames. The Roding Valley holds a more or less unbroken strip of open

Map not shown due to copyright restrictions

space, now protected as Metropolitan Open Land, but the Newham part of the Lea Valley is largely built-up; the broad belt of undeveloped land which makes the Lea Valley one of London's most important green corridors ends in the extreme north-west of the Borough, although the Lee Valley Regional Park has an outlier further south in the area around Three Mills.

Lying almost entirely within the Thames flood plain, Newham is very flat, with little land above the ten metre contour. Indeed, two of the most prominent topographical features are artificial; Beckton Alps, with its dry ski slope, rises to 36 metres, the highest point in the Borough, while the bank of the Northern Outfall Sewer runs across the Borough from Stratford to Beckton.

Its geology (figure 2) is consequently rather simple. The underlying stratum is London Clay, laid down in shallow seas which covered southern Britain during the Eocene period, 65

to 38 million years ago. This occurs at the surface only as one tiny outcrop in the extreme north-east, beside the River Roding and running westwards, across the middle of the City of London Cemetery, to Alexandra Lake on Wanstead Flats.

Elsewhere, the London Clay has been overlain by younger deposits, laid down in Recent times by the rivers which surround the Borough. Over most of Newham, these are River Terrace Gravels, deposited by the Thames and the Roding. Two terraces occur: an older one (formerly known as Taplow Gravel) in the north and a younger one (previously called Flood Plain Gravel) over the centre and south of the Borough. More recent Alluvium overlies the River Terraces alongside all three of Newham's rivers: from the Thames as far north as East Ham and Plaistow, and extending in a narrow belt up the Roding Valley and a rather broader one up the Lea Valley.

2 The history behind the landscape

Pre-Roman times

Newham was quite probably inhabited from the early Stone Age, although only on a nomadic basis. Large numbers of hand axes were found when the Docks were under construction but these do not relate to any fixed site. The earliest definitely known site is in Plaistow and is probably Bronze Age in origin. From then to the Roman period it is believed there were farming settlements on the well-drained gravels north of the Thames-side marshes and south of Epping Forest, which stretched away to the north. Unfortunately, much of the evidence for these periods in Newham was destroyed by industrial development in the 19th century and by housing for the expanding population.

In pre-Roman times "Hame" had a boundary which was markedly similar to that of modern Newham. This was partly because the boundaries to the south, east and west generally followed natural features both then and now, namely the River Thames, Roding and Lea respectively. In one or two places, for example the eastern boundary near Barking and also near the City of London Cemetery, the modern boundary strays from the river centre because, in these cases, the original course of the Roding flowed further west and the boundary still follows this old pattern.

The Romans and afterwards

Evidence for Roman occupation in Newham is sparse. The chief find was of an important cemetery in East Ham in 1863 during the construction of the Northern Outfall Sewer in the area of what is now Roman Road. A drawing of two coffins indicates that wealthy people were among those buried in the cemetery. No major settlement has been identified but Roman pottery from the 1st century AD was discovered during gravel workings near Prince Regents Lane, and more was recovered from a large enclosure ditch near Tollgate Lane. This latter site was probably a farmstead.

The Romans used the Thames and its inlets – a dugout canoe dating from the 3rd century AD was found during construction of the Royal Albert Dock. The most important Roman road to cross the area was the one which, coming from London, crossed the Lea at Old Ford, continuing through the marshes to Stratford and onto Ilford, Romford, the settlement at Chelmsford and ultimately to the Roman city of Colchester. From Stratford eastwards the line is today marked by Romford Road. This road was built soon after AD43 and was of gravel,

30 metres wide, with drainage ditches on each side. Near what is now Stratford Broadway the road to Dunmow branched off. Two other important roads came up from the marshes to the south into the forest on the higher land to the north. The line of these is today marked by East Ham High Street and Green Street with their extensions to the south.

There were clearings on the slightly rising ground between the forest, which extended south of the Old Ford to Ilford road at what is now Stratford and East Ham, and the Thames-side marshes. Apart from the Roding to the east and the Lea in the west there was also the Ham Creek, an inlet of the Thames, which split the marshes into two.

Little change took place during the centuries after the Romans departed. For most of the Saxon period the major settlement in the area was at Barking. A few pieces of Viking military equipment were found in the Lea where King Alfred had trapped the invaders.

Domesday

At Domesday, Newham is called "Hame", which means "low-lying pasture". In 1066 the land was owned by two freemen, Alstan and Leofric, and a small portion by Edwin, a free priest. By 1086 most of the land was owned by two Normans, Robert Gernon and Ralph Peverel (both of whose names are perpetuated in Essex village names today). The manor of Hammarsh, in the area of what is today the Royal Victoria Gardens, belonged to Westminster Abbey.

Because it was closer to London, West Ham was always more populous than East Ham, this becoming more pronounced from the 14th century. The separation of East Ham and West Ham is not documented until the 12th century and for this reason it is difficult to define what each contained in the Domesday survey. The following figures are therefore approximate. In 1086, West Ham contained 48 villagers, 79 small holders and three slaves. There were 16 ploughs of various sizes, nine cattle, 12 sheep and 11 pigs with woodland for 100 pigs and 60 acres of meadow. There were also eight tidal watermills on the River Lea and its branches - more than anywhere else in the country. At Domesday East Ham, which at the Conquest was the area owned by Leofric and Edwin, had 38 villagers, 30 small-holders and three slaves. It had 17 ploughs, 15 cattle, 180 sheep, 44 pigs with woodland for 700 and 59 acres of meadow. It also had three beehives.

Medieval Newham

Stratford Langthorne Abbey was founded in 1135 as a daughter house of the Cistercian monastery of Savigny on land given by William de Montfichet, the manorial lord of West Ham. The endowment was 11 acres of meadow and two mills in West Ham and a wood at Buckhurst. Later on, a majority of West Ham and extensive lands in Essex came into the possession of the Abbey, which became one of the richest Cistercian houses in the country. Most of the Abbey was destroyed soon after the Dissolution but excavations in 1974-75 and 1983 gave important new evidence about the layout of the site. The main gate of the Abbey stood in Bakers Row until c.1825 and the Abbey church stood on what is now British Rail land north of Abbey Road. During the 1983 excavation, 120 skeletons were recovered from the monks' cemetery. The lines of the moat and perimeter walls changed during the medieval period as a result of frequent flood damage.

During this period, nine manors are recorded in West Ham and three in East Ham. Part of West Ham village was excavated in 1973, near to the 12th century church of All Saints, and traces of a timber-framed house were recovered. Only the Norman church of St Mary Magdalene remains to indicate the general location of the medieval settlement at East Ham. The third of the old church sites of Newham is St. Mary's Church, Little Ilford, which was shown by excavation to have originally been a Saxon-Norman timber church, later becoming a 12th century stone church before being remodelled in post-medieval times. Little Ilford was so called to distinguish it from the much more populous Great Ilford across the Roding.

A manor was the land holding of a knight or tenant lord and covered part of a village or several villages. The village community consisted of the lord and a number of free or unfree tenants. The general pattern of the village consisted of a manor house, the church, and the houses of the peasants each with a small garden and field for growing vegetables and herbs. The rest of the land was divided into two or three large open fields which were used for the main corn crop. The fields were worked in long strips for ease of ploughing, with one field lying fallow each year. In addition there were areas of meadow for sheep and cattle and woodland for timber, game and swine. The village was usually self-sufficient. The lord retained part of the estate for his own use. This was the demesne and was cultivated by the tenants in return for their own land. The unfree tenants, known as villeins, were tied to a specific plot of land, working for the lord for part of each week. The free tenants, the freemen, usually paid money rents or performed light duties in lieu of this work.

As noted above, the parishes of East and West Ham at the time of Domesday were mainly arable land and woodland. The whole area was relatively intensively farmed and this probably accounts for the disappearance of most of the woodland by the

late 13th century. The last vestige of the extensive woodland that existed at Domesday was Hamfrith Wood, the remains of which were located between Romford Road and what is now Manor Park Cemetery. Hamfrith Wood was felled by 1700.

The pattern of rivers in the Stratford area seems also to go back at least to the 11th century. The various branches of the Lea were mill streams, and generally originated as such, and the eight mills recorded at Domesday were mostly, if not all, on the branches rather than the main channel of the Lea. At least five of the sites of the mills are identifiable. Pudding Mill, City Mill and Waterworks Mill were to the north of the main east-west causeway across the marshes, while Abbey Mill and Three Mills were to the south. They were not given these names until later. The earliest mill recorded by name was Wiggen Mill, which later became the Abbey Mill. It stood on a small island in the Channel Sea River within the precincts of Stratford Abbey. This was a water mill bought by Maud (died 1118), queen of Henry I, and given by her as an endowment to Barking Abbey. It was later bought by Stratford Abbey, which retained it until the Dissolution. (It was rebuilt in 1768 and again in the 1860s. During the Second World War it was burnt down and most of the ruins were removed in 1967.)

Between the 14th and 19th centuries the pattern of land use in East Ham remained relatively unchanged, the northern half of the parish being tilled as arable land and the coastal marshes being used for grazing. Both East and West Ham suffered from serious flooding in the 14th and 15th centuries but by the 16th century reclamation of the marshland was well under way.

Early industries

Up to and including the 17th century in Newham as a whole, the land was used particularly for grazing cattle, or for raising pigs in the forested areas of East Ham, and also for growing potatoes. Market gardening became important during the 18th century. In the 17th century industry also started to develop, with gravel pits and brickfields recorded along what is now Romford Road. In 1722 Daniel Defoe described a growing hamlet in Stratford, facing the road to Ilford and named the "Gravel-Pits".

Silk weaving flourished in West Ham during much of the 17th century, but following widespread riots in 1675 against the introduction of new looms, the trade ended and was succeeded by a rival trade, calico-printing. The first calico-printer in England may have been William Sherwin of West Ham, who took out a 14 year patent in 1676 and then had a virtual monopoly. Calico-printing soon became one of West Ham's main industries. In 1747 the "calico-grounds" of 81 acres formed a separate section of the marshes located between Stratford and the Abbey Mill. By 1811 the numbers employed reached 360 and it was soon after this that the local

calico-printers started to switch to silk-printing. The latter continued until 1862.

The most famous of all the industries associated with the area was the Bow Porcelain factory, which flourished in the mid 18th century. It was located on the north side of Stratford High Street near the corner of Marshgate Lane and at its height was the largest porcelain factory in England and possibly in Europe. The factory ceased production in the mid 1770s, following the running down of the business and the sale by the last surviving partner. The new owner closed the factory and transferred the contents to Derby.

The 18th century

From the 16th century, the area of Newham became popular with wealthy merchants and professional men from London for building residences. The main settlements were at Church Street, Stratford and Plaistow. In 1670 one third of the houses in the parish of West Ham had five or more hearths. West Ham's pinnacle as a prosperous suburb of London with a high proportion of large houses was reached in the 18th century. Few of these large houses survive today.

Perhaps East Ham's main claim to fame in the 18th century was that Dick Turpin was at one time a resident, living in a house which stood at the corner of Market Street. He was apprenticed to a butcher in Whitechapel. After the termination of his apprenticeship he took to stealing cattle. The stolen cattle would be driven to his house in East Ham and there cut up for sale. After having served a term of imprisonment, he became a highwayman and was eventually hanged in 1739 for horse-stealing.

A picture of the Borough in the late 18th century is given by a map of 1777 produced by Chapman & Andre. Most of Newham was still rural at the time, the main centres of population being at Stratford, West Ham village, Plaistow and East Ham. At least a third of the area was marshland, which had been drained to a limited extent, and used, where it was used, mainly for grazing. The main roads still followed the route of the Roman roads from London through Ilford to Romford, with the road to Woodford and Dunmow branching off at Stratford and the main north-south route in the area being what is now East Ham High Street. Stratford lay along the main road and was almost continually developed from Bow Bridge to The Grove. West Ham village grew around All Saints Church, with a small settlement also on the site of Stratford Langthorne Abbey. Plaistow was a settlement of some 150 houses. The derivation of Plaistow is "play place".

In 1777 the settlement at East Ham was split. All the houses lay north of St Mary Magdalene Church, the marshes starting immediately beyond to the south - a pattern still recognisable today. High Street South was shown as "Church End" and High Street North, near Plashet, was called "North

End" and detached from Church End. A number of large houses are shown set in their grounds and important residents are named. The largest estate in Newham at this time was Aldersbrook, which is now occupied by the City of London Cemetery. Ham House, which is now West Ham Park, was also shown. The Stratford Back Rivers, along with a number of windmills north of the main road and further ones at Three Mills, and Abbey Mills, were all clearly marked.

Stratford Common stretched along the Romford Road, east of what is now Water Lane. Wanstead Flats were shown as "The Lower Forest". The boundary between the parishes of East and West Ham ran from Ham Creek along what is now Boundary Road and Green Street. (In the 17th century Ham Creek was used as a naval dockyard - the creek silted up in the late 19th century.) The south-eastern part of the marshes from Ham Creek north-eastwards was "Part of Kent", except for a tongue of East Ham which separated the two parts of Kent by running down to the Thames at what is today the Royal Victoria Gardens. The anomaly of "Kent in Essex" dated from the late 11th century and was not finally removed until the formation of the London Borough of Newham in 1965. In 1777 the marshes stretched along the whole of the area south of what is now the A13, with Plaistow Level to the west and East Ham Level to the east. In the east they stretched northwards as far as Barking Mill while, in the west, Abbey Marsh extended up to Three Mills and the Channelsea River. The marshes were noted for their cattle and the largest ox ever bred in England was raised there in the 18th century.

Through the 18th century, the farmers of both East and West Ham started to grow potatoes, turnips and other garden produce on a more commercial scale. Apart from small-scale trades like ropemaking, starchmaking and pewtering, which were common to all villages, the primary land use in East Ham remained agricultural until the 19th century. On the other hand, West Ham started to develop an industrial base, which led in the mid-19th century to it becoming a large manufacturing town. The marshes by the River Lea gave plenty of room for industry, and the river was navigable as well as giving power for a group of tidal mills which were already important by 1066 and during the next seven centuries encouraged industries as diverse as calico-printing, papermaking, distilling and gunpowder manufacture.

The 19th century

At the turn of the 19th century the present-day Newham still consisted of three independent civil parishes – Little Ilford, East Ham and West Ham – together with the detached part of Woolwich north of the Thames. The total population was less than 8,000 which compared with 201 at Domesday but 360,000 at the turn of the 20th century and a peak of 450,000 between the two World Wars. In 1800 West Ham and East

Ham were separated by fields and farms, with scattered hamlets and villages such as North End, South End, Plashet, Stratford, Plaistow and Upton. On the higher ground several square miles were given over to market gardening for the London market while, to the south of the later line of the Barking Road, over 2,000 acres of marshy pasture land extended to the Thames. The Barking Road was actually built across the area between 1807 and 1810 to link the river port of Barking with the newly opened India Docks at Poplar.

The coming of the railways

Even before the railways, Stratford was well served by public transport. In 1839 omnibuses and coaches ran to London four times an hour during the day, and coaches to and from Essex, Suffolk and Norfolk passed through once per hour. Plaistow was served by three coaches, each making three journeys per day.

The first railway through the area was the Eastern Counties line from London to Romford, which opened in 1839; by 1843 the line had been extended to Brentwood and Colchester. Stratford was one of the original stations on the line and by 1841 there was also a small station at Forest Gate. The Eastern Counties Railway was taken over by the Great Eastern Railway Company. The North Woolwich branch originated in 1846, initially reaching as far as Barking Road, Canning Town, but it was then used for coal traffic only. In 1847 it was extended to North Woolwich and opened for passengers. North Woolwich was a very remote spot at this time. R Ruegg in *Summer Evening Rambles Round Woolwich* wrote in that year that the only buildings at North Woolwich were "a public house...a small house occupied by the family of a shepherd, and the terminus of the North Woolwich Railway. It is singular to hear the whistle of a locomotive and the clatter of the iron wheels where, twelve months since, the heron, the plover and the bittern roamed in undisturbed solitude." A pier was built opposite the station at North Woolwich from which there was a steam ferry to Woolwich in Kent.

The next main line through the district was the London, Tilbury & Southend line, which opened in 1854 from Forest Gate to Tilbury with a station at Barking. In 1858 the L.T.S. opened a cut off between Bow and Barking through the centre of East Ham with a station at North End. Extra stations were added at West Ham, Plaistow and Upton Park.

Victorian industries

The fact that West Ham was the first area to be reached across the Lea when travelling eastwards from London was

very significant as it was just outside the jurisdiction of the Metropolitan Buildings Act and of the Metropolis Local Managing Act. The former meant that it was chosen as a place of refuge for "bad neighbour" trades which were not allowed within town – oil-boilers, gut-spinners and varnish makers for example – which paved the way for the large chemical plant in the area today. The latter gave rise to new "towns" without drains, roads, gas or pavements such as Hallsville and Canning Town, of which a graphic description, published by Charles Dickens, no less, is given below.

During the 19th century, many large industries came to the Borough. These included C J Mare's Shipbuilding & Ironworks Company (later the Thames Ironworks) which, opening in 1846, brought development and wealth to the Canning Town area. In the area near the Lea between Stratford and Canning Town industries forced out of London by restrictive legislation, especially the manufacture of chemicals, developed. Further south, near the Thames, S W Silver's rubber manufacturing company was opened in 1852. The opening of the Victoria Dock in 1855 also stimulated associated industries, such as the marine engineering industry and the manufacture of paints and glues. Henry Tate & Sons built their Thames Refinery at Silvertown in 1878 to produce "cube" sugar. Abram Lyle & Sons built their works at Plaistow Wharf in 1881, mainly for the manufacture of golden syrup. (The two firms amalgamated in 1921.)

In the south of the Borough, the main spur to development was certainly the construction of the series of Royal Docks. As the other docks nearer to the City proved too small for the increasingly large ships, new sites further down river were sought. The flat marshes in Newham were ideal, especially as they were reasonably easy to excavate, being three metres below high water mark. The new docks, the railways and other good communications brought many industrial and commercial concerns to the area. Before the end of the 19th century, the entire Thames waterfront was lined by wharves, warehouses and factories and the Thames and the Docks continued to provide much employment well into the 20th century.

During the period 1860-1919, 290 permanent manufacturing firms were formed in the Borough, of which nearly half were chemical firms. By the early 1900s West Ham was described as second only to Birmingham for the concentration of industry within its boundaries. Two of the largest employers in Newham were the Stratford Railway Works and the Beckton Gas Works. The Eastern Counties Railway transferred its construction works to Stratford in 1847 and, by 1848, the works already employed 1,000, rising steadily to a peak of 6,000 some 60 years later. Beckton Gas Works was built on isolated marshland by the Thames and first produced gas in 1870. At its peak it employed over 5,000 people and was the largest gas works in the world.

The new townships

All of these developments needed workers, and together they brought thousands of people from all parts of the country and from overseas to supplement local labour. Apart from the need for a larger labour force, sometimes the locals were not used to the new working conditions and, for example, workers had to be brought in from the traditional industrial areas of the Midlands, North, Scotland and Wales to work in the heat of the retort houses at the Beckton Gas Works.

New townships sprang up to house all these people. Canning Town and Hallsville grew up near to the Royal Victoria Dock and the Thames Iron and Shipbuilding Works. Hudson Town, named after the Chairman of the Eastern Counties Railway (and renamed Stratford New Town after George Hudson's disgrace following the discovery of financial malpractices) was built alongside Stratford Railway Works. Silvertown was developed around the vast rubber works of S W Silver and the Tate Sugar Refinery. Beckton grew to the west of the huge gas works and, apart from the terrace houses for the workers, and higher class houses for the engineers rather further away from the works and its pollution, there were also shops, a post office, two public houses and two churches. Beckton even had its own branch line and railway passenger station. Soon after the Royal Albert Dock was opened in 1880 a small group of streets was built between the dock and the Beckton Gas Works and called Cyprus to commemorate the fact that, two years earlier, Great Britain had taken over administration of that island from the Turks.

An account published by Charles Dickens...

Many of these new townships were built very quickly and the streets of small houses were cramped in the extreme. As stated earlier they had neither drains, roads, gas or pavements. Poverty was everywhere and the rate of child deaths was appalling. A graphic account of Canning Town and Hallsville was given in an article entitled "Londoners over the Border" in Charles Dickens' periodical *Household Words*; the article was written by Henry Morley. On a hot summer's day in 1857:-

"But let us go down into either townlet. It does not, in the smallest degree, matter which. Our visit was paid on one of Nature's baking days...We come to a row of houses built with their backs to a stagnant ditch. We turn aside to see the ditch, and find that it is a cesspool, so charged with corruption, that not a trace of vegetable matter grows upon its surface – bubbling and seething with the constant rise of the foul products of decomposition, that the pool pours up into the air. The filth of each house passes through a short pipe straight into this ditch and stays there. Upon its surface, to our great wonder, a few consumptive-looking ducks are swimming,

very dirty; very much like the human dwellers in fould alleys as to their depressed and haggard physiognomy, and to be weighed by ounces, not by pounds. Some of them may be ducklings; but they look as old as the most ancient raven."

There was obviously not much to choose between summer and winter..."in wet weather, or in winter, the district is most safely to be explored on stilts...In winter time, the flood cleans the ditches, lifting all their filth into itself, and spreading it over the land. No wonder that the stench of the marsh in Hallsville and Canning Town of nights is horrible. A fetid mist covers the ground."

From a distance though the scene could almost appear pleasant. On his first arrival Morley described the view from what is now Canning Town station:-

"The wide plain of valuable pasturage – for the marshes that give ague to men, give grass to beasts – is dry to the foot and green to the eye. There are pleasant belts of trees, with here a spire, there a church tower, upon the horizon; and in the foreground, groups of cattle feed as Cuyp used to paint them feeding. There are a good many tall smokeing chimneys that mark out the line of the creek, and there is a forest of masts to tell of the adjacent Thames and of the docks; but to the eye, the broad, green Essex plain is master of the situation. Such a plain suggests a feeling of repose. Hallsville and Canning Town seem to be enviable townlets..." It was only when Morley ventured into them that he found otherwise.

...and a view by Thomas Burke

The picture was much the same in many of the new townships, and improvements were slow in coming. Thomas Burke writing in 1922 had little better to say about Cyprus:-

"It faces the edge of Albert Dock, and is fretted with cold side streets, which lead nowhere. Each of these side streets drops into a waste of ash-heap and half-made road. The houses back onto a wide but dismal prospect. It is spacious and airy, but the space is the space of desolation, and the air is laden with odours...The prospect fades into bald corner-lots, broken fences, gasometers, and the embankments of a main sewer...and the people seem to be of their surroundings."

19th century housing elsewhere in Newham

In the northern half of Newham, housing development was rather more civilised and followed a more standard pattern. By the 18th century, West Ham had become a prosperous suburb of London. Later development, in the late 18th and early 19th centuries, included some rather more modest

houses than the earlier large ones. Terraced houses were built alongside the main roads, particularly in Stratford. These filled the needs of the professional and business classes who did not keep their own carriages but were able to use the improving coach and bus services to London. Between 1840 and 1914, over 40,000 houses were built in West Ham, chiefly for working class tenants. They were generally of two storeys in yellow or grey brick with a slate roof and contained four to six rooms. After 1860 such cottages in long terraces with front doors opening onto pavements were to be found mainly in the poorest areas. Most houses built between 1875 and 1890 had bay windows, and these tended to fetch higher rents than those without. They predominated on the majority of the new estates built between 1880 and 1914, and they are still the commonest type seen in the Borough.

Some of the estates built in West Ham in the later 19th century, apart from the ones already described which were slums from the start, became slums quite quickly. High land values and the great demand for cheap houses made the building of quality houses unprofitable. Until the 1890s very few flats were built in the Borough and, as workers frequently could not afford to rent a whole house, houses built for a single family were more often occupied by two or more.

The development in East Ham was totally different. As already mentioned, at the time of Chapman & Andre's map of 1777, East Ham was little more than a linear village with a few large houses belonging to wealthy business people. A few other small hamlets were scattered across the northern half of the parish but the picture was basically agricultural until well into the 19th century. In 1863 White's Gazetteer of the County of Essex describes East Ham thus: "of its 2,600 acres, 1,100 acres form rich pastures and marshes, on which great numbers of cattle are fed and in different parts of the parish are several large houses with pleasant grounds, commanding fine prospects, and some of them occupied by merchants and others, who have their places of business in London".

By 1860 the opening of the railway lines by the Eastern Counties and the London, Tilbury & Southend Companies had paved the way for rapid suburban development in the central and northern parts of East Ham, as well as in the north-eastern part of West Ham. Houses started to go up in earnest around 1880. The Boleyn Estate north of Barking Road and the Woodgrange Estate at Forest Gate were among the first to appear, being largely completed by 1883. South of Woodgrange, at Plashet, development began in 1883 with the sale of the Plashet House Estate. This estate with adjoining parts of East and West Ham became known as Upton Park. By 1890 building was well under way in the whole of the Upton Park and Plashet areas as far as High Street North. Around 1890 the Burges family began to develop their estate, which was mainly in the centre and east of the parish (Burges Road was one of the roads built). These new estates were

generally very similar – long terraces of small but well-built dwellings for clerks and skilled workers.

The earliest Council dwellings were constructed in 1899 in West Ham and in 1902 in East Ham and were better adapted to the needs of working-class tenants.

As West Ham and East Ham grew to become part of suburban London, many trades and industries were also established to serve the new residents. At the same time the old village centres expanded to provide suburban shops and markets.

Transport continues to expand

Transport continued to expand too, to meet the demand for cheap and easy travel, and the huge growth of East Ham, especially between 1880 and 1914, was only made possible by a good transport system. When the Victoria Dock was built in 1855, its entrance cut across the original North Woolwich line and so a new line was built to the north of the dock, and rejoined the original line at Silvertown. Two new stations were built on the diverted line, at Custom House and Tidal Basin. When the Royal Albert Dock was built in 1880, the railway was diverted through a tunnel under the cut between the two docks. (The Royal Docks also had its own very extensive railway system, as did Beckton Gas Works, the latter totalling some 130 kilometres.) A station was opened at Maryland in 1874, following the opening of a station at Manor Park in 1872 - both these stations adding to the existing Eastern Counties line from Stratford to Romford. The Tottenham & Forest Gate railway opened in 1894 and included new stations at Woodgrange Park and Wanstead Park.

Newham's first link with the underground system came in 1902 when the District line was extended from Whitechapel to join the London, Tilbury & Southend at Bow. The line was electrified to East Ham in 1905 and to Barking in 1908. The North Metropolitan Tramways Company opened a horse tramway from Aldgate to Leytonstone Road via Stratford Broadway in 1870-71, along Barking Road to East Ham c.1884-87, and along Romford Road to Forest Gate and Manor Park in 1886. In 1903-5, West Ham Corporation took over and extended and electrified all the Company's lines within the area. East Ham commenced an electric tramway in 1901. (In 1937-40 the trams were replaced by trolley buses which remained in use until 1960. Newham's buses and trams were taken over by the London Passenger Transport Board in 1933.)

Newham to date

By the time of the First World War, the pattern of what later became Newham was shaped – the docks and heavy indus-

try in the south and west, residential areas with some light industry to the north and east. At that time East Ham had 133,000 inhabitants and West Ham had 289,000. West Ham and East Ham had gained some self-government in 1856 and 1879 respectively, and they gained more independence when they became County Boroughs in 1889 and 1915 respectively. They remained, however, geographically if not administratively, part of Essex until 1965 when they were united to become the London Borough of Newham.

From 1900 the growth in the number of new industries in the area slowed down because of economic depression and the fact that there was little room left. Newham's industry came briefly to national attention in 1917 with the Silvertown munitions factory explosion on the 19th January of that year, which killed 73 people and seriously injured 94. Nine hundred houses were damaged by the blast and the sound of the explosion was heard over a hundred miles away. In both East and West Ham, comparatively little building development took place between 1914 and 1939, but the East Ham/Barking By Pass (now Newham Way) was opened in 1928 and Silvertown Way in 1934. During the 1930s extensive work was undertaken to the River Lea and its associated waterways in the Stratford area.

During the Second World War, Newham suffered heavily in the Blitz, especially in the south, and the destruction of houses, shops and factories was severe. The population fell dramatically as tens of thousands of people moved out or were bombed out. West Ham's population, which had reached a peak of 265,500 in 1936, was down to 11,000 by 1941, while East Ham's population, 143,000 in 1931, fell back to 75,000 in 1941. After the war, people returned but the pre-war population was never again reached – replanning, changes in the size of households and a decline in industry and the docks has made sure of that.

In place of many streets of houses, which were demolished as substandard or as a consequence of the Blitz, new estates incorporating high rise flats were built. These were prominent in the North Woolwich, Upton Park and Stratford areas and particularly so in south Canning Town where the large Keir Hardie Estate included a considerable number of tower blocks. One of these, the notorious Ronan Point, has since been demolished, and two have been removed in Stratford. At the end of 1991 a further eight of the south Canning Town blocks were dismantled, to be replaced by low-cost housing, while another block was the subject of a structural survey to decide its fate.

An extension of the Central line was opened from Liverpool Street to Stratford in 1946, from Stratford to Leytonstone and Woodford in 1947, and on to Hainault, Loughton and Epping in 1948-9. Bow Bridge had been rebuilt in 1906 but this became inadequate for the growing road traffic and was replaced in 1967 by the Bow flyover. The Canning Town flyover and the extension of the A13 to meet it were opened in 1973.

At the time of the formation of the London Borough of Newham in 1965, its population was 260,070, but this dropped to 205,200 by 1986. Many of the riverside wharves and factories have gone, the Royal Docks stand empty, and Beckton Gas Works is a shadow of its former self. All these changes have released land for industrial and commercial development.

Stratford, although still a major railway interchange, has lost its railway works, although in 1987 it gained an extension of the Docklands Light Railway and it also has the very busy London International Freight Terminal. At the time of writing, however, there are proposals to extend the Jubilee line to Stratford and also a possibility of Stratford becoming the second London terminal for the Channel Tunnel rail link.

Much of central Stratford was replaced by a covered shopping complex which was completed in 1976, but East Ham's long main street remains as a traditional shopping centre. There are several other shopping centres and markets scattered around the Borough, particularly busy ones being at Green Street, Upton Park and Barking Road, Canning Town. More recently a superstore and a number of large retail warehouses have opened in the Beckton area. In the 1980s the South Woodford to Barking Relief Road was built along the Roding valley at the eastern edge of the Borough to link the M11 and the North Circular Road with the A13.

The most dramatic changes in the last ten years have occurred in the Custom House and Beckton area with extensive new housing and commercial development on former Port of London Authority and gas works land. The London City Airport opened in the area between the Royal Albert and King George V Docks in the 1980s and the Docklands Light Railway will be extended from Poplar to Beckton in the 1990s.

3 Newham's wildlife habitats

Most of the habitat of value for nature conservation in Newham is situated around the edges of the Borough: wetland and industrial "wasteland" in the Lea and Roding Valleys, and extensive grasslands around Beckton and on the southern edge of Epping Forest. In the middle of the Borough, apart from narrow strips of vegetation on railsides and on the banks of the Northern Outfall Sewer, open spaces are restricted to formally-managed parks and cemeteries, which offer limited habitats for wild plants and animals.

In 1984-85, the Greater London Council commissioned the London Wildlife Trust to carry out a survey of wildlife habitats throughout London. In Newham, 579 hectares were documented in the survey (figure 3), or just under 16% of the total area of the Borough. This compares favourably with the adjacent Boroughs of Tower Hamlets and Barking & Dagenham (11% and 14% respectively), but is less than Waltham Forest and Redbridge (both around 23%).

A breakdown of this area by habitat is shown in figure 4. This shows that Newham is comparatively well off for grassland and wetland habitats; indeed, Newham's 18 or so hectares of reed swamp was the largest area recorded for any London borough. In contrast, Newham is severely deficient in woodland; less than eight hectares, or 0.2% of the area of the Borough, was found by the Wildlife Habitat Survey to be woodland. This is much less than the 3.5% in Redbridge and 6% in Waltham Forest, both of which contain sizeable parts of Epping Forest, and is even less than the 0.4% in Tower Hamlets (most of which is made up by Tower Hamlets Cemetery); of Newham's neighbours, only Barking & Dagenham, also with about 0.2% woodland, is similar, and of all London boroughs, the only one with significantly less than Newham is the City of London, which was found by the survey to have no woodland at all!

Woodland and scrub

Deciduous woodland once covered almost all of lowland Britain. Clearance of forests for agriculture and settlements began in Neolithic times and little of the original woodland remains. That which survives does so in a much altered state, in terms of its structure and species composition, due to centuries of forest management. Nevertheless, woodland, and especially ancient woodland, with a history of tree cover extending back many centuries, is one of the richest and most important of Britain's wildlife habitats, supporting many plants and animals which cannot survive elsewhere. Even recently

established, secondary woodland, while lacking some of the plants and animals found in ancient woods, is of considerable value to a wide range of plants, birds and invertebrates.

As mentioned above, Newham has very little woodland, and all of this is of comparatively recent origin. Most of Newham's woods, such as the small areas in East Ham Nature Reserve, Manor Park Cemetery and Bromley-by-Bow Gas Works and tiny fragments by Stratford Gas Holder Station and beside the North London Link at Silvertown, are dominated by sycamore. This now-widespread tree was introduced to Britain from Europe in the 15th or 16th century and has become perhaps the commonest tree in London and many other urban areas. Its ability to spread rapidly (due to its large number of winged seeds), rapid growth rate and the dense shade it casts enable sycamore to out-compete native tree species in many situations. This has made it unpopular with conservationists and other people who prefer to see native species, many of which support a wider variety of invertebrates. However, sycamore's notoriety is greater than it deserves, as the vast number of aphids which feed on its leaves in summer make it an excellent tree for insectivorous birds. It has also become an established part of London's landscape and ecology. Attempts are being made to diversify the woodland at East Ham Nature Reserve by controlling the sycamores.

Other woods in the Borough, in the City of London Cemetery and on the islands in Alexandra Lake, contain a greater mix of trees, both native and non-native, including oak, ash, willows and poplars, in addition to the ubiquitous sycamore. Stands of young birch on wasteland at Beckton Gas Works and Bromley-by-Bow Gas Works will rapidly become woodland if they remain undisturbed, but this is unlikely as both sites are scheduled for development. A tiny area of older birch wood can be seen on an island in the Channel-sea River, just south of the Northern Outfall Sewer.

These fragments of woodland, though small, support a great variety of birds; even woodland specialists such as woodpeckers and treecreeper can be seen in the City of London and Manor Park Cemeteries. Other essentially woodland birds, such as tits, thrushes and jays, are more widespread in the Borough; these more adaptable species find gardens and parks with mature trees acceptable substitutes for their natural habitat.

While birds are often able to make use of fragmented habitats in this way, other animals which are less mobile may be less able to do so. The grey squirrel, for example, is common in the cemeteries in the north of the Borough, but is absent from the south of the Borough, even where suitable habitats exist, such as at East Ham Nature Reserve and

Map not shown due to copyright restrictions

Figure 3 Wildlife habitat in Newham
Areas of wildlife habitat in Newham and nearby in neighbouring boroughs which were documented in the 1984 GLC Wildlife Habitat Survey

Reproduced from the Ordnance Survey 1:50,000 map with the permission of the Controller of Her Majesty's Stationery Office © Crown copyright

Central Park, because the gaps between suitable sites are too large for squirrels to cross. The same must be true of many other, less easily observed animals.

Both the Borough and the London Docklands Development Corporation (LDDC) are taking steps to remedy Newham's shortage of woodland by planting trees on land under their control. In East Ham Nature Reserve, for example, a large number of young trees of native species were planted in late 1990, with the intention of increasing the amount of woodland on the site. Other extensive plantings of mixed native and exotic trees and shrubs can be seen in Beckton District Park and on the slopes of Beckton Alps. The LDDC has also funded planting of trees of mostly native types on the verges of the

major new roads in the south of the Borough: some compensation for the habitat lost when these roads were built.

Scrub, with a dense canopy of shrubs, is an intermediate stage in the natural succession to woodland. Bramble is usually the first shrub to dominate, to be followed by hawthorn, often with elder and blackthorn. These prickly and berry-bearing shrubs form an ideal habitat for many birds, providing autumn food and safe nest sites for a range of familiar resident species, and for migrant warblers such as whitethroat and lesser whitethroat. Such habitat is more widespread in Newham than woodland; thickets of bramble occur most extensively at Mill Meads (see site Ne.BI 3), while more mature

scrub, containing a variety of shrubs, covers most of Woodgrange Park Cemetery and the banks of the Eastway Cycle Track. Smaller patches of scrub can be found on many sites in the Borough.

Grassland

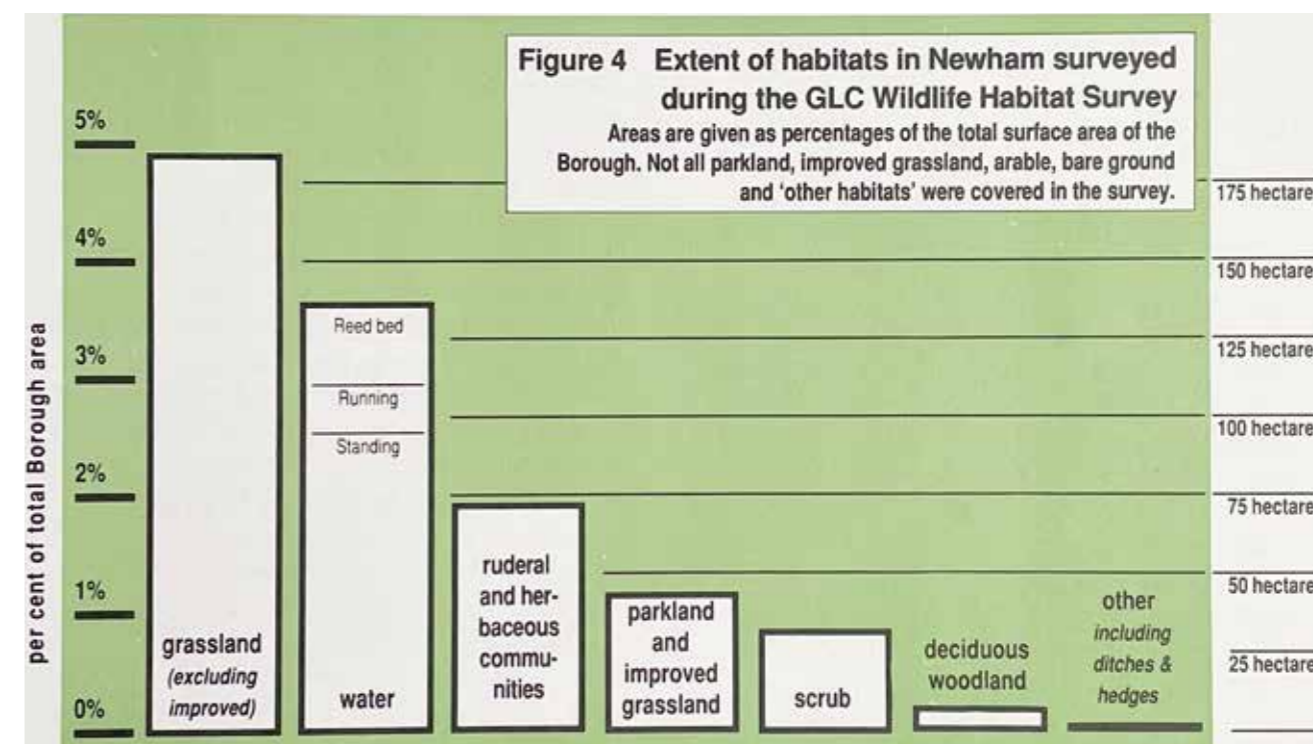
The term "grassland" can conjure up a wide variety of images, from the blaze of colour of an orchid-covered downland slope in spring or a flower-rich hay meadow in summer, to the flat monotony of a bowling green or cricket pitch. The former are among the richest habitats found in Britain, supporting a great diversity of plants and animals; the latter are almost as ecologically sterile as a concrete pavement.

The wildlife value of an area of grassland depends on two major factors: the underlying soil and past and present management. The type of soil, and in particular its pH (acidity), affects which plants (and therefore to some extent which animals) will occur on a site; some plants, for example most orchids, prefer alkaline conditions such as are found over chalk and limestone, while others, like heather, grow only on acidic soils. The nutrient status of the soil is also important; if it is too rich in nutrients, fast-growing grasses will tend to exclude other plants.

The value of a grassland site will greatly depend on its current management, and on the history of management practices carried out there. The best grasslands are those with a long history of little disturbance; ploughing, drainage, reseeding and treatment with herbicides or fertilizers, collectively termed "improvement" by farmers, all have precisely the opposite

effect in nature conservation terms. Past and present mowing or grazing regimes are also important; too frequent mowing or overgrazing prevents most plants from flowering, and produces the short, species-poor turf characteristic of parks and sports pitches. Too little mowing or grazing allows coarse grasses such as oat grass and couch grass to dominate, leading to the establishment of an equally species-poor, though longer, sward. This will support a greater range of invertebrates than very short turf, especially those, such as grasshoppers, which feed on grass, but will not be suitable for many species of butterflies and other insects which feed on nectar as adults, and require specific food plants as larvae. The ideal compromise between these two extremes is usually one or two cuts per year, with the cuttings removed to prevent a build up of nutrient levels, or moderate levels of grazing.

Most of Newham's grassland, in common with the rest of London, is on soil of neutral pH. Much of it is improved and cut very short, in parks, cemeteries and sports pitches, and is of little ecological interest. There are, however, considerable areas of "semi-improved" neutral grassland, for example around Beckton, surrounding the runway of London City Airport, at East Ham Nature Reserve and at Eastway Cycle Track. These contain a reasonable diversity of wild flowers, and support many invertebrates, including the nationally scarce Roesel's bush-cricket, which is found in almost all suitable grasslands in the Borough, and a range of common butterflies, such as small, large and Essex skippers, meadow brown, wall and common blue. Birds breeding in these areas include skylark, meadow pipit, yellow wagtail and lapwing, all of which find some of their closest breeding sites to central London in Newham.



Wanstead Flats, in the north of the Borough, contains some patches of fairly undisturbed acidic grassland; these are some of the best examples in London of this scarce habitat. Although not as species-rich as neutral or basic grasslands of a similar quality, acidic grassland has many characteristic species, which will not grow on neutral or alkaline soils. Such “calcifuges” found on Wanstead Flats include heather, heath rush, petty whin and several grasses, such as heath grass, mat-grass and purple moor-grass. Wanstead Flats is the only grassland in the Borough which is regularly grazed by cattle, although some of the open land around Beckton is often illegally grazed by horses.

Wetlands

Newham is favoured in containing a considerable area of wetland habitats of several different types. Three rivers, the Thames, Lea and Roding, run along three edges of the Borough; all three are of value to wildlife, yet each is very different in character from the others. The Thames is a very large river with a wide tidal range, leaving extensive areas of mud exposed at low tide, especially near the mouth of Barking Creek. This intertidal mud is of great importance for wintering waders and waterfowl, especially teal. Throughout the whole of its length in Newham, the high tide limit of the Thames is bounded by vertical concrete or steel walls, preventing the establishment of marginal vegetation, and hence it is of very limited botanical interest.

A considerable length of the River Roding is also tidal; this is known as Barking Creek. It has more natural banks, allowing the establishment of the most extensive tidal reed beds in London. These support breeding reed and sedge warblers. Around the edges of the reed beds, and elsewhere in the margins, several estuarine plants occur which are rare in London; these include sea club-rush, sea aster, glaucous bulrush and wild celery. The intertidal mud of Barking Creek is also important to birds, and a nationally rare snail, *Pseudamnicola confusa*, is found in the mud at Cuckold's Haven.

In 1904, Bacon's map marked where the River Roding and the Alders Brook diverged near the City of London Cemetery with the words “Ordinary Tides flow to this point”. Although the tidal limit now shown on Ordnance Survey maps is at the Mill Pool in Barking, a tidal influence is apparent upstream of this throughout the length of the River Roding in Newham; this may be affected by the London Borough of Barking and Dagenham's plans to construct a half tide barrier in the river near the Mill Pool. A few plants of sea aster occur at least as far upstream as the extensive reed beds in two flood alleviation lagoons

near the East Ham Gas Holder Station, and a range of other marginal and emergent plants can be found. A greater diversity of vegetation grows in the Alders Brook, a small branch of the Roding in the north of the Borough. Kingfishers are frequently seen along the Roding and the Alders Brook, and several species of fish are present; the fish population was more or less wiped out by accidental insecticide pollution in 1985, but is recovering well (Raven 1988).

The River Lea has been diverted into several artificial channels, which form a complex system of interlinked waterways. Its lower tidal reaches, known as Bow Creek, have vertical banks allowing little vegetation to establish, although a reed bed is present near Bromley-by-Bow Gas Works. The intertidal mud supports wildfowl and waders in winter, and Bow Creek is a popular feeding area for herons. Above Bow Creek, the Channelsea River as far as Abbey Road, the Prescott Channel, the Three Mills Wall River and its continuation northwards via the Waterworks River and the River Lea as far as Lea Bridge Road are all tidal. The remainder of the Lea south of Carpenters Road, the City Mill River and the Bow Back River are semi-tidal, while the Channelsea River north of Abbey Road and the Pudding Mill River are non-tidal. Most of the channels flow between similar vertical banks, limiting marginal vegetation; submerged and emergent vegetation, however, is very lush in some areas, particularly the River Lea, the Pudding Mill River and the Channelsea River. The Lea system holds good numbers of a wide variety of fish and is popular with anglers.

Most of the very large area of standing water shown in figure 4 refers to the Royal Docks. These huge, artificial water bodies are too deep and have too steep sides to support much aquatic flora, and this and their brackish water renders them unsuitable for amphibians. They are, however, of some importance for wintering waterfowl, especially great crested grebes. Apart from the Royal Docks, Newham has rather little still water. The largest pond is Alexandra Lake on Wanstead Flats, which is home to small numbers of breeding mallard, coot and moorhen, and is visited by other waterfowl from time to time. It has a fair range of wetland plants, especially on the edges of the two islands, where trampling does not occur. Capel Road Pond, also on Wanstead Flats, is rather smaller, and has dried out during recent dry summers. It does, however, support a small population of common spike-rush in its margins, a plant which is rare in London. Other ponds can be found at Beckton Sewage Treatment Works and in Beckton District Park; a recently created lake in the latter already supports several species of breeding waterfowl, and could mature into a very valuable asset to the Borough. Another, smaller pond has recently been created by the London Docklands Development Corporation nearby in the Beckton Corridor Public Open Space, and a further one by the Borough at Priory Park.

Garden ponds help to compensate for this lack of other ponds in the Borough. Numerous residents of Newham have ponds in their gardens, and, while each pond is small, together they add up to a considerable area of wetland habitat. The Passmore Edwards Museum carried out a detailed survey of Newham's garden ponds in 1980-83 (Essex Biological Records Centres 1983). This discovered thriving populations of amphibians in many ponds; as well as frogs and toads and the common newt, several ponds contained breeding populations of the great crested newt, which is specially protected under the Wildlife & Countryside Act, 1981.

A number of ditches can be found in the Beckton area. These often contain stands of reed and reedmace, while some hold rarer plants; the best is by Beckton Sewage Treatment Works, and contains sea club-rush and glaucous bulrush. Another waterway in the south of the Borough, the Royal Albert and Victoria Docks Cut, has recently all but disappeared under building development, but a small section remains at Custom House, and contains a lush growth of sea club-rush and yellow flag.

Reed swamp once covered much of the Lea and Thames valleys. Little of this now remains, although, as previously stated, Newham holds more of this habitat than any other London borough. In addition to the reed beds in Barking and Bow Creeks, an extensive stand of reeds and sedges can be seen from trains at the Lea Junction Railway Triangle. Reed and sedge warblers and reed buntings are among the characteristic birds of reed beds in the Borough.

Other habitats

One of Newham's most widespread habitats is the mix of ruderal communities, rank grassland, tall herbaceous vegetation and scattered scrub which is typical of abandoned industrial land, and which is frequently referred to as roughland or “wasteland”. In ecological terms it is far from a waste and frequently contains a very diverse community of plants and animals. The plants characteristically include a high proportion of non-native species; among these are the familiar and colourful Canadian golden rod, everlasting pea, Michaelmas daisy and buddleia, the latter two being particularly important nectar sources for butterflies. Among the wasteland aliens in Newham are a number of rare species of particular interest. Sumatran fleabane, closely resembling the more widespread Canadian fleabane, was first identified in Britain in 1984 on the towpath of the River Lea near Bromley-by-Bow by local naturalist Brian Wurzell (Wurzell 1988); nearby on the towpath is a colony of Mexican tea, one of very few naturalised colonies of this semi-tropical plant in Britain.

Among the animals, too, rarity is often a theme on wastelands. A beetle new to Britain was discovered at Beckton Gas Works by Passmore Edwards Museum staff (Hyman 1987), and several other nationally rare invertebrates are known to inhabit Newham's wasteland. The black redstart is a characteristic bird of urban wasteland, breeding in abandoned or little-used buildings and feeding on insects in undisturbed herbaceous vegetation nearby. The black redstart was only known as a scarce migrant in Britain until after the Second World War, when it began breeding on London bomb sites; it has since spread from the capital, but is still a nationally rare bird. Black redstarts breed at Beckton Gas Works and at several sites around the Royal Docks.

Wasteland as a habitat tends to be ephemeral in nature, with sites being redeveloped and new ones becoming derelict. The overall trend in recent years, however, both in Newham and in London as a whole, has been a substantial decrease in vacant sites. In Newham, this is especially true around the Royal Docks, where the London Docklands Development Corporation has co-ordinated urban regeneration during the late 1980s and early 1990s. A large area of wasteland at Thames Wharf and the Limmo Peninsula, which was one of the most diverse in London and considered a Site of Metropolitan Importance for nature conservation, was largely cleared in 1990 to build a road and an extension of the Docklands Light Railway; the remaining area can no longer be considered as being of Metropolitan Importance. Wastelands at Bromley-by-Bow Gas Works and Beckton Gas Works are also threatened by development. Other wasteland sites included in this handbook are at Stratford Gas Holder Station, by the Thames Barrier, beside Newham General Hospital, Silvertown Tramway Sidings and a small but particularly diverse area by North Woolwich station. Newham's wasteland flora was surveyed in the early 1980s by St. Bonaventure's School.

Also of importance, especially to birds, are parks and gardens. Mature trees and dense shrubberies, especially if the latter include berry-bearing species, make these areas the best substitute for woodland available over most of the Borough. They are particularly important in the densely built-up centre of the Borough, where they offer the only green space for wildlife and people alike.

Newham also contains a considerable area of allotment land. This can be of value to wildlife, especially sites where some plots are untended; these rapidly become overgrown with rank grassland, tall “weed” communities and scrub, and can support a wealth of birds, amphibians and invertebrates. Even heavily-used allotment sites can be important for wildlife if unused corners are allowed to grow wild and hedges are planted around the edges.

4 The role of the Borough Council

The Borough Council has a very important three-fold role to play in furthering nature conservation within the Borough. As a Local Planning Authority, the Council can seek to protect sites of nature conservation importance from building or other development, and to promote, through planning agreements, enhancement of existing habitats and creation of new ones. As a land manager, it can protect and improve wildlife habitats in its parks and open spaces, including temporary open space on vacant land. As an Education Authority, the Borough has a responsibility to provide environmental education in its schools; it can also provide education in the broader sense for the community, through guided walks, talks and other events. The educational aspects of the Borough's activities are considered in the next chapter.

Planning

As a Local Planning Authority, the Council decides on planning policies, which are then implemented in the determination of individual planning applications. Planning policy is set out in local plans, published by councils after consultation with borough residents and interested organisations. Newham is currently divided into five areas, each with its own local plan: the South Docklands Local Plan (1985), Stratford & Canning Town District Plan (1983), East Ham Local Plan (1985), Beckton Local Plan (1986) and Central Newham Local Plan (1986). All of these contain policies giving protection to sites of ecological importance, and the Beckton Local Plan designates a site on the southern edge of Beckton Gas Works as an Ecological Area.

Several statutory land designations in local plans also help to protect green spaces (figure 5). Green Belt is strategically important open land around the fringes of urban London; Wanstead Flats and the City of London Cemetery are included in the Green Belt. Within the urban fabric, Metropolitan Open Land (MOL) fulfills a similar role; MOL in Newham includes all open space in the Roding Valley, and the Eastway Cycle Track. Conservation Areas are chiefly designed to give protection to interesting parts of the built environment, but also give a degree of added protection to open spaces and trees within them. In Newham, this is of particular significance at Mill Meads, which lies within the Three Mills Conservation Area. Borough Councils, in consultation with the Nature Conservancy Council, can declare sites they own or manage as statutory Local Nature Reserves (LNRs) under Section 21 of the National Parks and Access

to the Countryside Act, 1949. Newham plans to declare East Ham Nature Reserve as its first LNR in the near future.

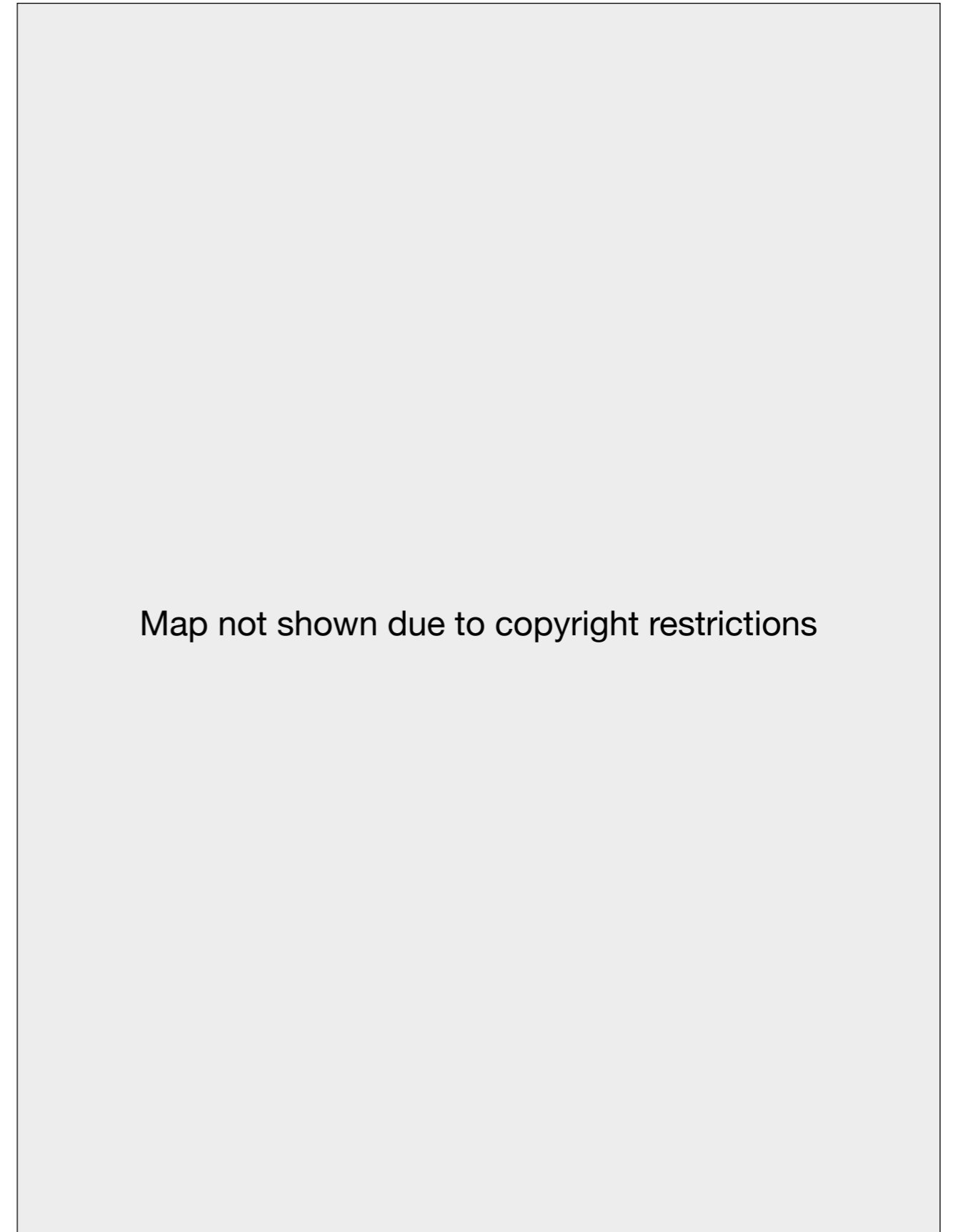
The five local plans in Newham are soon to be replaced by a single Unitary Development Plan, due to be published as a consultation draft in 1991. This will reaffirm and strengthen the Borough's commitment to nature conservation, and will include a map of sites of nature conservation importance, which should be protected. These sites will largely correspond to the sites described in this handbook, except where other considerations outweigh the nature conservation value of particular sites.

There are many pressures for commercial development in Newham, especially in the extreme south of the Borough, around the Royal Docks. Development in this area is encouraged by the London Docklands Development Corporation (LDDC), which is the statutory planning authority for the Royal Docks area; the Council's role in development control here is an advisory one only. The LDDC has a temporary lifespan, however, and planning powers in the Royal Docks area will pass back to the Borough in the future.

Parks and land management

There has been a welcome trend in parks management in recent years away from the traditional flat "green desert with lollipops", towards a more innovative and ecological approach. An excellent example of this in Newham is Beckton District Park; designed by the Borough's Landscape Architects and Engineers, it combines an interesting topography with dense plantings of mostly native trees and shrubs, and some valuable wetland habitats. Other innovative uses of parks are the important educational facilities of Newham City Farm and Plashet Park Zoo. The Leisure Services Department, which is responsible for parks management, intends to increase the ecological interest of its older parks after conducting research into current practice.

The Passmore Edwards Museum Service is administered by a governing body which includes representatives from the London Borough of Newham, and receives substantial funding from the Leisure Services Department. It is responsible for the management of East Ham Nature Reserve, an active churchyard which is managed as an educational nature reserve. Recent improvements on this site include tree planting and the provision of easier access for people with disabilities. In 1990 Newham Leisure was a runner up for the Inner City



Map not shown due to copyright restrictions

Reproduced from the Ordnance Survey 1:50,000 map with the permission of the Controller of Her Majesty's Stationery Office © Crown copyright

Figure 5 Green Belt, Metropolitan Open Land and Conservation Areas defined in Newham Borough Council's adopted Local Plans

Improvement Trophy in the London Tourist Board's *London in Bloom* competition, for the lake in Beckton District Park, East Ham Nature Reserve and the imaginative design of the new Priory Park.

Away from parks, there is also a welcome move in the planting of street trees from London plane, which has little wildlife value, towards native species. In Newham, rowans are now the most commonly planted street tree; their berries are an important winter food source for birds. The LDDC also has a good policy of roadside planting within its area, frequently planting dense stands of trees and shrubs, mostly of native species; the best example of this is the Eastern Gateway Access Road, where the highway has been constructed with substantial bunds and embankments which have been planted with some 61,000 young trees and shrubs, with a further 50,000 to be added as the road is completed.

Newham's rivers are also the subject of considerable attention. The Road and Water Safety Group of the Technical Services Department, in partnership with British Waterways, local industry and volunteer groups, launched the Newham River Clearance Project, part of the East London Rivers Initiative, in 1989, to clean up the waterways of the River Lea system and to improve the riverside environment. A pilot scheme began in August 1990 to remove rubbish from a section of the Waterworks River in Stratford, where it crosses the factory of Kesslers International Ltd. Volunteers, including pupils from local schools, helped to remove shopping trolleys, bicycles and other debris from the river, and to plant bulbs along the river banks. In the first year of the project, over two kilometres of river were cleared of rubbish. Considerable public and media interest has been generated, and Kesslers won a *Times* newspaper "Dragon Award" (given to companies for environmental projects) for their part in the scheme. It is hoped that the project will spread its good work to other sites in the Stratford area in the near future.

Educational initiatives

The growing interest in ecology and related subjects over recent years has led to an increasing importance being placed on environmental education, both within the school curriculum and for the community at large. As an Education Authority, the Borough of Newham has a responsibility to ensure that the requirements for teaching environmental subjects in its schools are met. In the wider sphere of community education, the Leisure Department runs a variety of events based around the Borough's museums and open spaces.

In schools, the environment is receiving an increasingly high profile. The new National Curriculum includes provision for environmental education at all ages and in a wide range of

subjects. Most GCSE syllabi in biology and geography require children to undertake fieldwork. A recent report by H.M. Inspectorate, *Environmental education from 5 to 16*, is strongly supportive of initiatives in this field at all levels. The provision and development of environmental education in London has been reviewed by the London Ecology Unit (Swales 1988).

Much of the environmental work in Newham's schools is co-ordinated by the Passmore Edwards Museum, particularly at East Ham Nature Reserve. Almost 40% of the Borough's schools have visited this site at some time over the last six years, including primary, comprehensive and special schools. Three quarters of the educational work at East Ham Nature Reserve concerns the ecology and natural history of the site, while geology and social history are also taught. Demand for local history courses is expected to increase when the National Curriculum for history is published. Local history is also taught at the Passmore Edwards Museum's other centres, its headquarters in Stratford and North Woolwich Old Station Museum. In total, over three quarters of the schools in the Borough make some use of the Museum's services.

East Ham Nature Reserve is always fully booked with school visits throughout term time, and there is an urgent need for another educational nature reserve in the Borough. Proposals for Cuckold's Haven to fulfill this role have unfortunately had to be set aside for the time being due to lack of finances.

The Passmore Edwards Museum is also the main provider of out-of-school education for children and adults in Newham. Activities for all age groups are run in school holidays, including guided walks, both at East Ham Nature Reserve and around the Borough, looking at local history. Other events have included tree planting days at the nature reserve in November 1990. The museum also runs evening classes in local history; similar classes in natural history proved less popular and have been temporarily discontinued.

The Borough owns an Outdoor Education Centre at Fairplay House, near Maldon in Essex. This is heavily used by comprehensive schools for biology and geography field courses, while a second centre at the nearby Hay Barge is used for canoeing and sailing.

Other sites in the Borough frequently used by schools for environmental education are Newham City Farm and Plashet Park Zoo, both of which offer opportunities for children to have close contact with animals. Many comprehensive schools visit Epping Forest to carry out their fieldwork at either of two environmental studies centres. Other schools make use of their local park or school grounds.

At least eleven schools in Newham have their own nature areas within the school grounds, or are in the process of establishing such sites. There are many advantages in having nature areas within schools. The transport costs and insurance

problems involved in taking children outside school are avoided. There is greater flexibility; lessons can be switched around in the event of bad weather, and work can more easily be fitted within scheduled lesson time, preventing the necessity for rearrangement of the timetable and staff cover. Long-term experiments can more easily be carried out and regularly monitored. Altogether, a nature area can be a very valuable asset to a school.

However, it is important to realise the limitations of school nature areas. They require a considerable amount of voluntary input from teachers and/or parents. Often the bulk of maintenance is carried out by a single enthusiastic teacher, and sites may fall into neglect if this person moves to another school. School nature areas are inevitably small and such areas can only give a limited understanding of the diversity of the natural environment. They should complement field trips to larger, more diverse sites, and not be seen as a substitute for such visits.

Schools wishing to set up nature areas can look to a variety of sources for assistance. Grants for school nature areas are available from the Nature Conservancy Council for England (English Nature), and the London Docklands Development Corporation has also funded nature gardens in Newham schools. Free advice on design and management is available to Newham schools from the London Ecology Unit.

School nature areas vary from elaborately designed gardens to tiny patches of rough grass and "weeds" tucked away in a corner. All are of value to staff and pupils, and all present different problems to those responsible for maintaining them. Two examples of Newham schools with nature areas are described below.

Dersingham Infants School, Dersingham Avenue, London E12

Dersingham Infants School has a small nature garden, which was created in 1987 on an unattractive concreted area which seemed to collect rubbish; now that the nature garden is established, the litter problem has more or less disappeared. Three existing trees – two ornamental cherries and a hawthorn – have been retained, as has a privet hedge along one side. Gaps in this hedge were filled with old man's beard, and hedges of mixed native species and buddleia were planted around the other edges, with money from a Nature Conservancy Council grant. The rest of the nature garden is occupied by a meadow and a small marshy area; the Education Department regrettably would not permit a pond on safety grounds. Unfortunately, successive dry summers in 1989 and 1990 have made it impossible to maintain water levels in the marshy area, which has been overrun by tall herbaceous vegetation; it is hoped to reinstate the marsh in the future, if rainfall allows.

The garden is very popular with staff and children and is widely used for nature study (minibeast hunts are a favourite activity) and also for art classes, which make rubbings of bark and stones, mathematics classes, and as a pleasant place for reading stories in summer. The grass is cut by Parks Department staff, but the rest of the maintenance is carried out by teachers, with occasional help from sixth formers from nearby Little Ilford School. A "Baker Day" was used to hold in-house training in maintenance and use of the nature garden, and staff and children have also attended courses at East Ham Nature Reserve. It is hoped that, when the nature garden is fully established, other schools will be able to visit to make use of it.

St Bonaventure's School, Boleyn Road, London E7

St Bonaventure's Ecological Gardens Nature Reserve was acquired in 1980 when the school expanded. After two years raising money from the London Docklands Development Corporation and other sources, the site, measuring about 20x15 metres, was fenced and work to establish the gardens commenced. A pond was dug and lined with concrete; this has become well established, and provides a home for frogs, toads and newts. Ponds are a frequent source of problems in school nature areas, due to failure to retain water and vandalism, but St Bonaventure's has been lucky in this respect. The rest of the area is a meadow which, when first established from seed, contained over 60 species of plants; this number has since declined due to competitive species taking over. Screening plants have been planted around the boundaries, and a wide range of native and exotic shrubs is scattered through the grassland. A wood pile in one corner is much favoured by local hedgehogs as a foraging site and for hibernating.

The garden is used by both geography and biology departments, and by children from local primary schools. Maintenance of the garden is the responsibility of the school's Environmental Education Co-ordinator, and management work is carried out by pupils studying for GCSE in Outdoor Education. The environment has a high profile in the school, with classes regularly visiting Epping Forest for fieldwork and practical conservation work. Pupils also visit the Borough's field centres at Maldon in Essex for activities such as bird-watching weekends. A cup is presented annually in the school for conservation work, and a Green Week was held in May 1990, with events and displays on a variety of environmental themes. In the early 1980s, pupils and teachers from the school carried out a detailed survey of the wasteland flora of the Borough (St Bonaventure's School, undated).



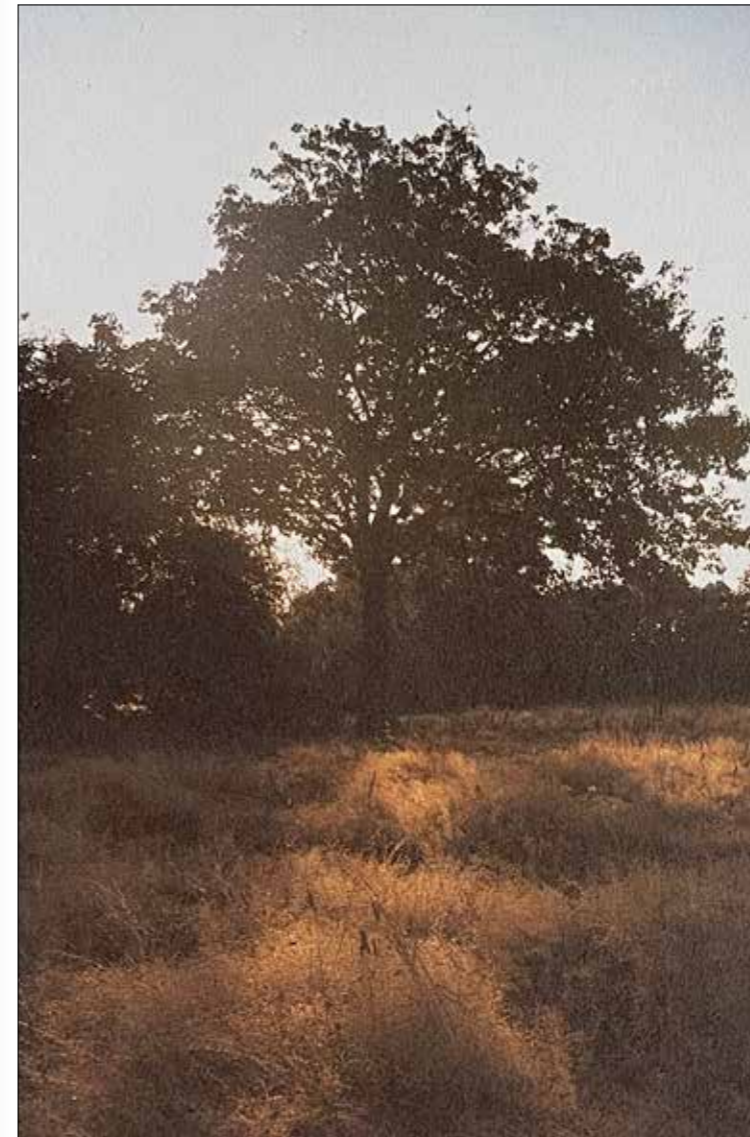
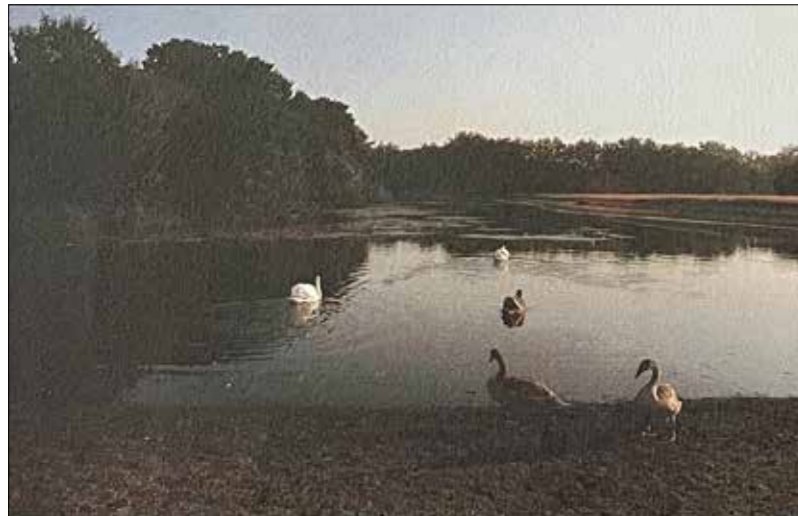
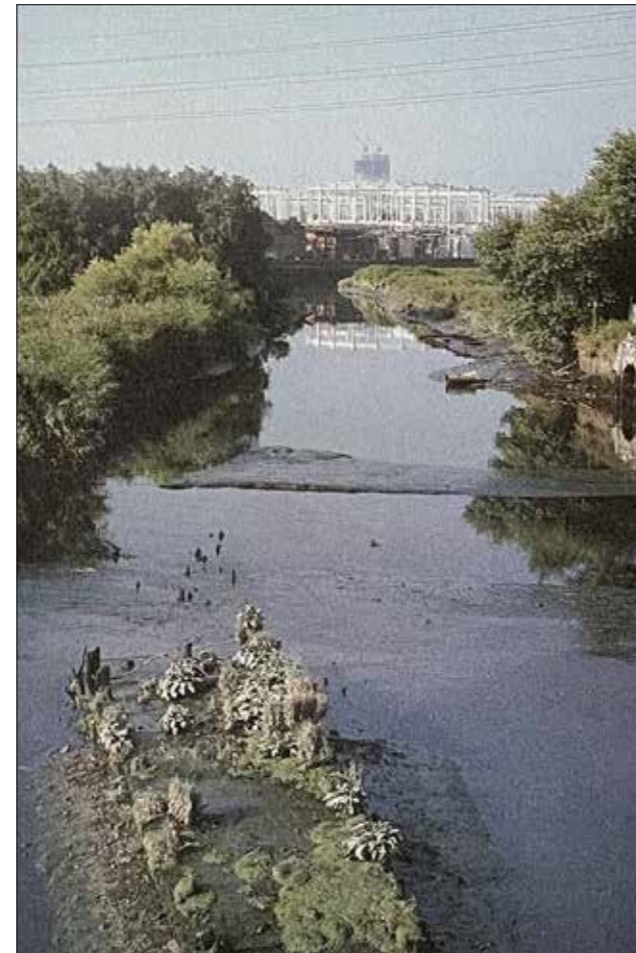
Cockold's Haven on Barking Creek (page 29) *LEU/Ian Yarham*

The River Thames (page 28) *LEU/Ian Yarham*
immediately upstream of the Thames Barrier



Early morning at Alexandra Lake on Wanstead Flats (page 30) *LEU/Ian Yarham*

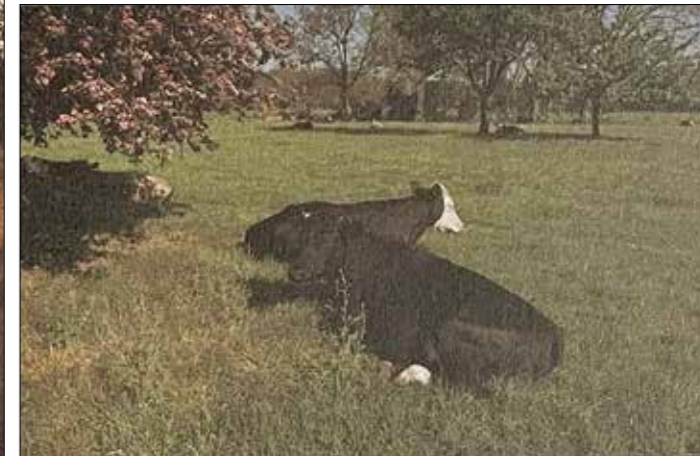
Abbey Creek Island in the Channelsea River (page 30)
from the Northern Outfall Sewer Bank *LEU/Ian Yarham*



September sunrise over Wanstead Flats *LEU/Ian Yarham*



LEU/Ian Yarham
Gorse in flower on Wanstead Flats
(page 30)



LEU/Ian Yarham
Cattle are a reminder that
Wanstead Flats are a part of
Epping Forest

The harebell is
just one of several
uncommon plants
to be found on
Wanstead Flats
John Archer



Early morning in autumn on Wanstead Flats *LEU/Ian Yarham*



Other initiatives

The Borough can achieve a lot in other environmental fields, besides nature conservation. Borough-wide initiatives on waste recycling are planned, and many pilot projects have been established in schools. All Council departments have a policy of using environmentally-friendly products, such as recycled paper and ozone-friendly aerosols, wherever possible.

An interdirectorate Environmental Working Party of Borough officers, chaired by the Planning Department,

co-ordinates the Council's environmental initiatives. "Grey to Green" is a major scheme for environmental improvements funded through the Urban Programme. Phase I started in 1990/91 and Phase II is presently being considered by the Department of the Environment for grant approval. In addition, a major campaign to raise public awareness on environmental issues was launched in January 1991 with the publication of an Environmental Supplement to the Council's newspaper

5 The role of the voluntary organisations

Voluntary organisations are usually formed to meet a perceived need not fulfilled by the statutory or private sectors. This need may concern a global issue, such as pollution or water quality, or a very local issue such as the protection of a single site. Hence voluntary bodies may vary from international organisations like Greenpeace to regional ones, such as the county wildlife trusts, and very local ones concerned with saving a specific site; the latter may often be temporary in nature, disappearing when the particular matter of their concern is resolved.

Their advantage over statutory authorities and private business concerns is their freedom to express views and carry out campaigns on sensitive matters without the need to take account of an official statutory or corporate position. This enables them to raise public awareness of issues, put pressure on local and national government and to offer

advice to the statutory and private sectors.

In Newham, several voluntary organisations take an interest in nature conservation and the environment. The most active is the **Wren Conservation Group**. Formed in 1973 with the primary aim of interesting children in practical conservation work, the Wren Conservation Group now has mainly adult members, who carry out management work on sites throughout Newham and southern Epping Forest. This included co-ordinating large scale tree planting at East Ham Nature Reserve in November 1990. The group also publishes an Annual Report documenting birds and other wildlife in southern Epping Forest.

A smaller, but very active local group is **Allotments for the Future (AFF)**, founded in 1976 to promote the use of allotments in the Borough. AFF was instrumental in setting up the Newham Allotment Holders Federation to safeguard

the interests of plot holders on traditional allotments, and itself went on to address more innovative community uses of vacant land. These included the establishment of a butterfly garden on a temporarily vacant site in Stratford (the site has now been redeveloped) and, more recently, Beckton Meadows Community Smallholding, an educational farm. Beckton Meadows is currently being wound up due to a variety of problems; AFF will no doubt find other environmental issues to address in the future.

The **Friends of Woodgrange Park Cemetery** was formed in 1980 and has nearly 400 members, mostly people with relatives buried in the cemetery. Its main objectives are to protect and preserve the character of the cemetery and it has strongly opposed plans for housing and other development there. Another small group concerning itself with a single site is the **Ridley Road Project**, which seeks to establish an ecological community garden on a vacant site in Ridley Road, Forest Gate, and has campaigned successfully against several past applications to build houses on the site.

The **British Trust for Conservation Volunteers (BTCV)** is a national organisation which carries out practical conservation management work. In Newham, BTCV's major activity is the Newham Community Trees Project, funded by the Council through the Urban Programme. A Project Officer is employed full-time to help and advise community groups, schools and individuals on tree planting and aftercare throughout the Borough. Naturalistic planting of native species is encouraged, and trees are provided, along with small grants to help with costs. The project was launched at Roman Road Primary School during National Tree Week in November 1990, when the Mayor planted the first of 150 saplings in the school's ecology area.

The **London Wildlife Trust (LWT)** is the county wildlife trust for Greater London, affiliated to the Royal Society for Nature Conservation. It campaigns on issues relating to wildlife in London and manages several nature reserves.

However, LWT has no sites in Newham, and has only a small membership in the Borough. A Newham Group of the Trust existed for a short time in the 1980s, but no longer meets. LWT plans to establish an East London Group, covering Newham, Tower Hamlets, Redbridge and Havering in the near future.

In contrast, **Friends of the Earth (FOE)** has a large and active group in the Borough. FOE is concerned with environmental issues of all kinds, and in Newham has played an important role in the Borough's recycling initiatives. The local group is also campaigning for the establishment of Green Chain Walks across the Borough to be included in the Council's Unitary Development Plan.

The **London Natural History Society (LNHS)** collates records of animals and plants within 20 miles of St.Paul's Cathedral. It publishes an annual journal, *The London Naturalist*, and an annual *London Bird Report*, as well as distribution atlases for various floral and faunal groups in the London area (e.g. Burton 1983, Plant 1987, Montier 1977). LNHS is currently working on an atlas of moths and, in conjunction with the British Trust for Ornithology, a new atlas of breeding birds.

The **Royal Society for the Protection of Birds**, with its junior wing the **Young Ornithologists Club**, is the largest nature conservation charity in the country. It has a network of local members groups, the nearest to Newham being in Redbridge.

In the Docklands area, an umbrella group of voluntary organisations, the **Docklands Forum**, meets regularly to exchange information and to co-ordinate voluntary sector campaigns and responses to the actions of the London Docklands Development Corporation. The Forum established an Environmental Working Party in 1989 to look at ways to improve the environment in docklands. Also in Docklands, the **People's Plan Centre** advises local residents on planning matters, including the protection of green spaces.



Bully Point Nature Reserve
from the Eastway
Cycle Track (page 32)
LEU/Ian Yarham

Viper's bugloss is an uncommon plant which
can be found at Bully Point *John Archer*



Roesel's bush cricket, though
nationally rather scarce, is
abundant in rough grassland
habitats throughout Newham
Dave Dawson

6 Deciding which sites are important

The decisions leading to the selection of sites of nature conservation importance in Newham were based on criteria outlined in Ecology Handbook 3 (Greater London Council 1985), as subsequently revised in *Sites of Metropolitan Importance for Nature Conservation* (London Ecology Unit 1989). Sites have been graded into Metropolitan, Borough and Local sites and are shown in figure 8 (inside rear cover). More detailed information on site boundaries is available from London Ecology Unit. An index of the sites in Newham described in this handbook is given on page 74. In addition several linear features have been identified as Green Corridors (figure 6).

Sites of Metropolitan Importance

Sites of Metropolitan Importance for nature conservation are those sites which contain the best examples of London's habitats, sites which contain rare species, rare assemblages of species, or which are of particular significance within large areas of otherwise heavily built-up London.

They have the highest priority for protection. The identification and protection of Metropolitan sites is necessary not only to support a significant proportion of London's wildlife, but also to provide opportunities for people to have contact with the natural environment.

Newham contains two Sites of Metropolitan Importance. The River Thames and its two tidal tributaries, Bow Creek and Barking Creek, contain a very valuable range of wetland habitats. In the north of the Borough, Wanstead Flats contains some of the finest acidic grassland in London.

In the text, Metropolitan sites are identified by the prefix M, followed by a number taken from a list of sites identified over the whole of the Greater London area. Sites of Metropolitan Importance are not therefore numbered consecutively within the Borough.

Part Two

Sites of Borough Importance

These are sites which are important in a Borough perspective; damage to these sites would mean a significant loss to the Borough. Borough sites are divided, on the basis of their quality, into two grades, but it must be stressed that they are all important on a Borough-wide view. In Newham, 15 sites of Borough Grade I quality have been identified and eleven of Borough Grade II status.

Sites of Borough Importance are identified by a Ne. (for Newham) and B (for Borough) prefix, followed by their grade (I or II), and then a number taken from a list of sites for the Borough.

Sites of Local Importance

A Site of Local Importance is one which is or may be of particular value to nearby residents or schools. These sites may already be used by schools for nature study or be run by management committees mainly composed of local people.

Local sites are particularly important in areas otherwise deficient in nearby wildlife sites. Built-up areas more than one kilometre from an *accessible* Metropolitan or Borough site are defined as Areas of Deficiency. Further Local sites are chosen as the best available to alleviate this deficiency. Where no such sites are available, opportunities should be taken to provide them by habitat enhancement or creation, by negotiating access and management agreements, or by direct acquisition.

There is a large Area of Deficiency across the centre of the Borough, including much of Forest Gate, West Ham, Upton Park, Plashet and East Ham. This is partly alleviated by West Ham, Plashet, Priory and Central Parks and West Ham Parish Churchyard. Another Area of Deficiency around Canning Town in the south-west of the Borough has no Local sites to alleviate the deficiency. In theory, a third small Area of Deficiency exists in the south-east of the Borough, but no people actually live in this area, which covers much of Beckton Gas Works and Beckton Sewage Treatment Works. In total, ten Sites of Local Importance have been identified in Newham.

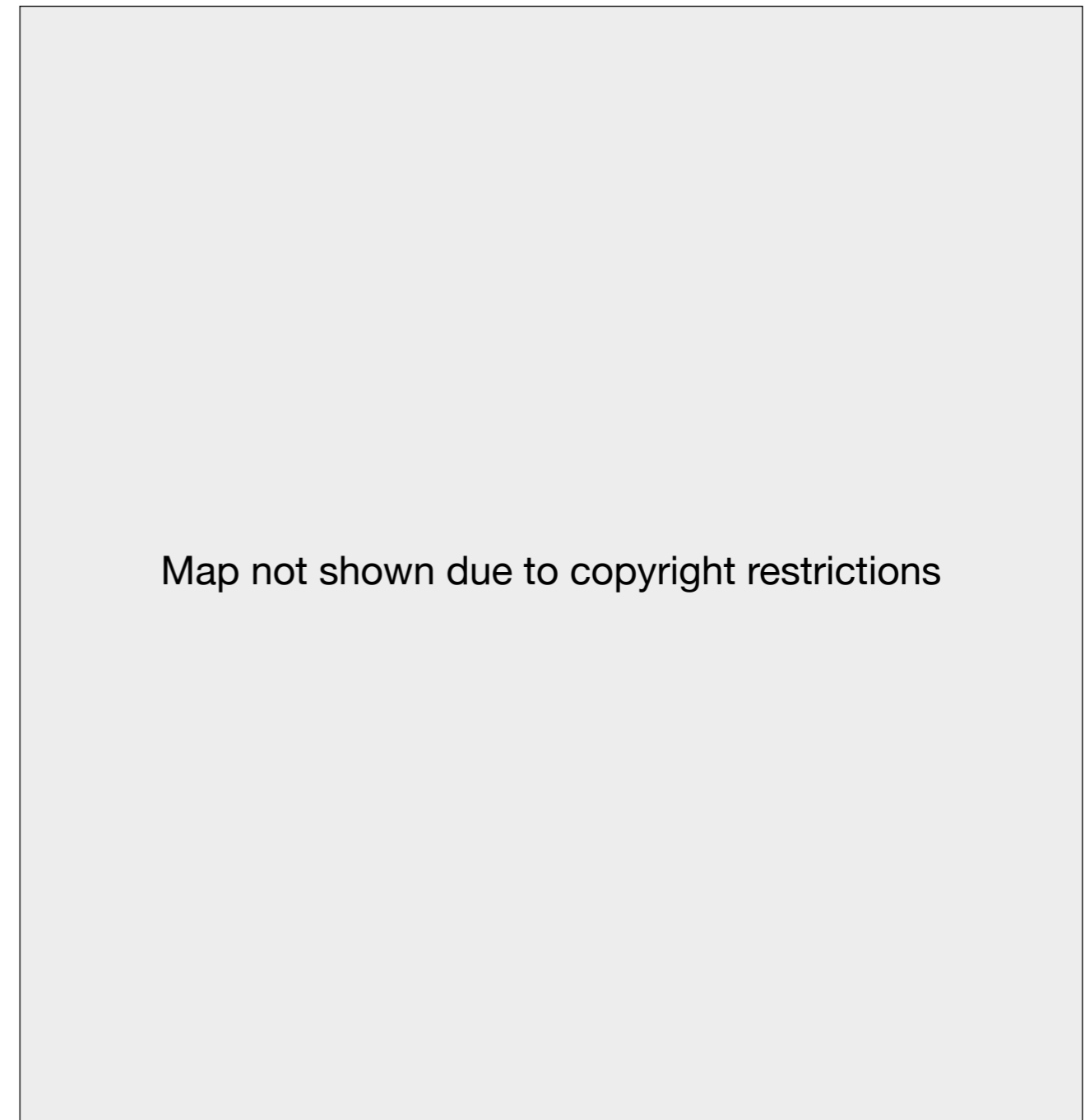
Green Corridors

Green corridors are relatively continuous areas of open space leading through the built environment and which may link sites to each other and to the Green Belt. They often consist of railway embankments and cuttings, roadside verges, canals, parks, playing fields and rivers. They may allow animals and plants to penetrate further into the built-up area than would otherwise be the case and provide an extension to the habitats of the sites they link.

In Newham, many of the important green corridors are associated with watercourses: the River Thames in the south of the Borough, the Roding in the east and the Lea and its associated waterways in the west. Other major corridors are the Northern Outfall Sewer bank, which runs from Stratford to Beckton, connecting the Lea and Roding valleys, and the network of railways, especially the Liverpool Street to Colchester main line, which connects many sites in the north of the Borough to the Essex countryside. The London Docklands Development Corporation has endeavoured to create green corridors through its new housing developments in the south of the Borough; these include the Beckton Corridor Public Open Space, the Mid-Beckton Embankment and the Beckton pedestrian/cycle routes, the first two of which incorporate native plantings. Green corridors in and around Newham are mapped in figure 6.

Sites in neighbouring boroughs

Sites within the Borough of Newham are of value to people in neighbouring boroughs. In turn, as shown in figure 8, inside the back cover, and listed on page 66, there are several sites in the adjacent areas of neighbouring London boroughs which are important to Newham.



Map not shown due to copyright restrictions

Reproduced from the Ordnance Survey 1:50,000 map with the permission of the Controller of Her Majesty's Stationery Office © Crown copyright

Figure 6 Green corridors through Newham

7 Sites of Metropolitan Importance

M31 The River Thames and tidal creeks

Grid ref TQ 425 797
Area 240 ha (in Newham)

A 7.5 kilometre stretch of the River Thames forms the southern boundary of Newham. Large tidal tributaries meet the Thames from the north at each end of the Borough: the River Lea, known as Bow Creek in its tidal reaches, to the west and the River Roding, or Barking Creek, to the east. The whole of the tidal section of the Thames and its tributaries was identified in Ecology Handbook 4 as being of Metropolitan Importance for nature conservation, and the length in Newham is of considerable value for birds, as well as being home to a nationally-rare snail.

By the 1850s the Thames in central London was appallingly polluted, most of the city's sewage and other waste going straight into the river. In the 1860s the building of the Northern and Southern Outfall Sewers led to an improvement

in the quality of the river in central London at the expense of the Beckton/Crossness area. No treatment of sewage took place until 1889, and it was not until 1967 that all sewage received primary and secondary treatment at Beckton Sewage Works before discharge into the river.

Before 1960 the Thames was too polluted to support much life but, during the 1960s, initiatives by the Greater London Council and the Port of London Authority, including the modernisation of Beckton Sewage Works, led to an enormous improvement in water quality, a population explosion of *Tubifex* worms (inhabitants of the river mud) and a consequent dramatic increase in the numbers of birds using the estuary (Harrison & Grant 1976). Numbers of waterfowl and waders reached a peak in the late 1970s and have since declined slightly. The reasons for this decline are unknown, but it could be related to the belt of *Tubifex* abundance moving upstream, where there is less available mud, or possibly due to greater competition for food with an increased fish population.

Map not shown due to copyright restrictions

The inner Thames is of national importance (as defined by the Nature Conservancy Council as containing over 1% of the United Kingdom winter population) for four species of waterfowl (mute swan, shelduck, pintail and pochard) and three species of wader (grey plover, dunlin and ruff). Two additional species, teal and redshank, reach the 1% level irregularly (Prater 1981). The bulk of these birds winter downstream of Newham, between Barking Bay and Cliffe Marshes, but large numbers of waterfowl can nevertheless be found in the Borough, especially in Barking Creek.

The entire Newham bank of the Thames is lined with a vertical concrete wall, offering little or no opportunity for waterside vegetation. However, considerable areas of mud are exposed at low tide, especially in the east of the Borough, adjacent to Beckton Sewage Treatment Works and Beckton Gas Works. These provide feeding areas for wildfowl, such as mallard, teal and mute swan, waders, including lapwing, redshank and ringed plover, and several species of gull.

Other birds make use of the open water to feed on the river's abundant fish population, which comprises over one hundred species. Cormorants were a rare sight even on the lower Thames until the middle of the 20th century, when winter populations became established on the London reservoirs. They are now commonly seen feeding on the river right into central London. In Newham, cormorants are particularly abundant near the mouth of Barking Creek, where the outflow from Beckton Sewage Treatment Works attracts large quantities of eels and other fish. Up to sixty at a time can be seen fishing in this area. Migrating common terns regularly use the River Thames as a flyway, and in the autumn sizeable flocks of these agile "sea-swallows" build up in Woolwich Reach, where they can be watched diving for small fish churned up by the wake of the Woolwich Ferry boats.

The Thames is accessible in Newham only between Royal Victoria Gardens and the Woolwich Ferry, from the Thames Barrier Prospect Park and from Lyle Park. The mud to the west of Barking Creek can be viewed from across the mouth of the creek, in the Borough of Barking and Dagenham.

The two creeks have natural banks in several places, allowing bankside vegetation to become established. Barking Creek is particularly valuable for its tidal reed beds, by far the most extensive examples in London of this very rare habitat. According to Ordnance Survey maps, the River Roding is tidal for about three kilometres, as far as the Mill Pool just south of Highbridge Road, and this is the upper limit of the Metropolitan site; in fact, a tidal influence is apparent in the river as far as the north end of the City of London Cemetery. The eastern boundary of Newham follows all but the northernmost half kilometre of this tidal section, which lies in the Borough of Barking and Dagenham.

Reed beds line much of the Newham bank of Barking Creek in its lower reaches, where it runs alongside Beckton

Sewage Treatment Works, and further upstream at Cuckold's Haven, where the Council intends to establish an educational nature reserve. Reeds in brackish water have a distinctive growth form, being generally much taller and more robust than those growing in fresh water. Around the edges of the reed beds several other waterside plants can be found, including sea club-rush, hemlock water dropwort, wild celery and sea aster, the latter resembling a rather fleshy-leaved Michaelmas daisy. Both sea club-rush and sea aster, as their names suggest, and also wild celery, are characteristic of estuarine habitats, and are consequently rare and locally distributed in London.

Several pairs of reed warblers breed beside the creek, suspending their delicately-woven nests between two reed stems, and a few pairs of sedge warblers nest in waterside scrub. Kingfishers and herons regularly fish along Barking Creek. The former may breed in the steep banks, but the latter are visitors from the large heronry at Walthamstow Reservoirs. The intertidal mud supports many ducks and waders. Teal are particularly abundant in the winter, when several hundred may be present, and other ducks which can often be found include mallard, shelduck, gadwall, pochard and tufted duck. The most frequent waders are lapwing, common sandpiper, snipe, ringed and little ringed plovers and oystercatcher (Plant 1986).

Intertidal mud is also an important habitat for invertebrates. Of particular note is the snail *Pseudamnicola confusa*, which is known in Britain from only half a dozen sites, and which was thought to be extinct in the Thames since 1889 until discovered here in 1984 (Harris 1986).

There is *de facto* access to Cuckold's Haven at present, but strictly no access to the sewage treatment works.

The main channel of the River Lea (Bow Creek) is tidal north to Three Mill Lane, and the Channelsea River is tidal to Abbey Road; these points are taken as the upper limits of the Metropolitan site. For much of their length, these channels run between vertical concrete banks, but vegetation has established in places. A reed bed on the Newham bank of Bow Creek beside the southern end of Bromley-by-Bow Gas Works, though small, is very important as one of very few tidal reed beds in London. Plants growing amongst the reeds include sea aster, great hairy willow-herb and hemlock water dropwort.

The mud immediately downstream of Bromley-by-Bow Gas Works supports large numbers of birds. Mallard and teal occur in smaller numbers than in Barking Creek, as do most of the same waders. Gulls are often numerous; black-headed gull is the most abundant species, but common, herring and great and lesser black-backed gulls are also present. The most remarkable feature of Bow Creek's avifauna is the tremendous number of herons which fish along the water's edge. Over fifty regularly feed in this area, roosting on the roof of South Bromley Gas Works, across the river in Tower Hamlets.

Similar numbers of cormorants also occur, suggesting a very large fish population. Unfortunately, there is no public access to the river bank here to allow people to witness this spectacular display of birds. It is hoped that access can be arranged in the future, when the Bromley-by-Bow Gas Works site is developed. Provision of a screened riverside path to a hide would make this a tremendous amenity for local people.

The Channelsea River contains a small, wooded island near its northern tidal limit. Birch is the dominant tree, with a few crack willows also present. This is one of very few naturally-established woodlands in the Borough. The island has natural banks, and marginal vegetation includes wild angelica, policeman's helmet, reed, hemlock water dropwort and great hairy willow-herb. The island provides a refuge for breeding mallards and moorhens. It can be viewed from the footpath which runs along the Long Wall on the eastern side of Mill Meads, as well as from the bridge which carries the Northern Outfall Sewer across the Channelsea River.

M109 Wanstead Flats

Grid ref TQ 406 607

Area 130 ha (45 ha in Newham)

Wanstead Flats, lying across the boundary between the Boroughs of Newham and Redbridge, with a small area in Waltham Forest, form the southernmost portion of Epping

Forest, part of the heath or waste of the ancient forest of Essex. They contain some of the finest acidic grassland in London, with a number of plants which are rare in the capital, as well as several ponds and numerous mature trees. The flora and fauna of Wanstead Flats have been the subject of much research. Surveys have been published of higher plants (Ferris 1981), fungi (Plant & Kibby 1984) and birds (Wren Conservation Group 1974-1990), and extensive data on invertebrates are held by the Passmore Edwards Museum.

A perambulation of 1225 defined the southern boundary of Epping Forest as the main road from Bow Bridge via Stratford to Romford. The woodland extended south at least as far as Plashet at the time of the Domesday Book (*plashet* was a Norman-French name denoting a type of forest inclosure). Most of the woodland in what is now Newham disappeared during the Middle Ages, and by the end of the 18th century the only unenclosed forest in Newham was a few pieces on the southern fringes of Wanstead Flats (shown as "The Lower Forest" on a map of 1777). Further enclosure of the Flats by Earl Cowley in 1871 caused protests, led by the City of London, which was a commoner of the Forest after its purchase of Aldersbrook Farm to build the City of London Cemetery. These protests eventually led to the Epping Forest Act of 1878, which preserved the remaining Forest, including Wanstead Flats, from further encroachment or enclosure.

Wanstead Flats are now divided by roads into four sections: the area to the north-west of Lake House Road is known as the Northern Flats; between Lake House Road and Centre Road lies Western Flats; the large area east of Centre Road

Map not shown due to copyright restrictions

is Central Flats; finally Manor Park Flats occupies the small easternmost triangle of land beyond Forest Drive. The bulk of the site lies in the Borough of Redbridge. The part within Newham comprises Manor Park Flats, the eastern third of Central Flats (including Alexandra Lake) and a narrow strip along the southern edge of Central Flats, beside Capel Road.

Manor Park Flats comprise a mixture of neutral and slightly acidic grassland with scattered trees and bushes. Most of the area is dominated by perennial rye-grass, Yorkshire fog and coarse grasses such as oat grass and cock's-foot, with few herbs except thistles, clovers, yarrow and autumnal hawkbit. Within this rank grassland are patches of shorter grassland composed of red fescue and common bent-grass with abundant sheep's sorrel and cat's ear, plants typical of acidic grassland. A few clumps of gorse and broom are further indicators of the acidic nature of at least some of the soil here. Mature trees include London planes, which line the edges of Manor Park Flats, a few scattered Midland hawthorns and a belt of oaks alongside Aldersbrook Road.

Most of the Newham part of Central Flats is occupied by sports pitches of little ecological interest. However, a few remnants of more-or-less unimproved acidic grassland remain, particularly near the northern edge. The best of these is just south-west of Alexandra Lake, where several heathland plants which are uncommon in London can be found, including creeping willow, heath rush, wavy hair-grass, mat-grass and mouse-ear hawkweed. The last four of these are also scattered in many other parts of the Flats. The last remaining patch of heather on Wanstead Flats could be found in this same area until 1988, but seems now to have disappeared. A few plants of harebell grow just to the east of Alexandra Lake. More extensive areas of unimproved acidic grassland occur outside Newham in the western half of Central Flats and in the north of Western Flats. Additional scarce species in these areas include purple moor-grass, early hair-grass, petty whin, many-headed woodrush and heath bedstraw.

The grasslands of Wanstead Flats support a wide range of invertebrates. These include the nationally notable Roesel's bush-cricket (*Metrioptera roeselii*) and the lesser marsh grasshopper (*Chorthippus albomarginatus*), a species otherwise restricted to coastal dune slacks in south-east England. The fungi are less exciting; Plant and Kibby (1984) found only 69 species (compared with 162 in nearby Wanstead Park). Nearly all of these were common species, but one, *Hebeloma leucosarx*, was new to Essex.

Alexandra Lake, near the eastern end of Central Flats, is the largest lake in Newham. It is not marked on Bacon's Atlas of 1904, so presumably dates from after this time. The lake contains two islands, both densely wooded with sycamore, oak, goat willow and silver birch, providing cover

and seclusion for nesting mallards, coots, moorhens and, in recent years, a pair of little grebes. Other waterfowl regularly seen on the lake outside the breeding season include great crested grebe, Canada goose, mute swan, pochard and tufted duck, while wigeon are occasionally reported. In recent years, up to forty shoveler and small numbers of teal have regularly been seen in winter. The only record of a goldeneye in Newham was a female present here in 1977 (Plant 1986). Other inhabitants of the lake include red-eared terrapins, small aquatic tortoises native to North America and frequently imported to Britain as pets.

The banks of Alexandra Lake consist largely of bare gravel. The sparse vegetation is restricted to numerous clumps of soft rush and a few plants of trifid bur-marigold. This is probably due to grazing by waterfowl and cattle and trampling by anglers and other people. The islands, being free from all but the first of these pressures, have much lush marginal vegetation, including yellow flag, reed sweet-grass and both species mentioned above. Submerged and floating vegetation is largely restricted to algae, but a single white water-lily mysteriously appeared in 1977, not having been seen before or since.

One other pond lies within the Newham part of Wanstead Flats. This is Capel Road Pond, situated just to the east of the junction of Capel Road and Woodford Road. It is much smaller and shallower than Alexandra Lake, and may dry up completely in hot, dry summers. The muddy edges support a few clumps of soft rush, flote-grass and common spike-rush. The latter is a small rush with its flower spike at its tip, and is uncommon in London.

To the north of Alexandra Lake is a small wood, composed largely of beech and pedunculate oak, with small numbers of 14 other tree and shrub species. Another small copse of oak with a few beech is situated near Capel Road Pond. Mature London planes and horse chestnuts line the southern edge of the Flats along Capel Road. Several further small areas of woodland occur in the Redbridge part of the Flats, and numerous scattered trees include field maple, hornbeam and small-leaved lime.

Ditches run along the edges of each section of Wanstead Flats, to prevent vehicular access and to keep cattle, which regularly graze the Flats, from straying onto the roads. Where a bank runs along one edge of the ditch, an interesting roadside flora of ruderal species and garden escapes has developed. These have included annuals characteristic of cornfields, such as field and long-headed poppies, cornflower and corn cockle (the latter two species perhaps deliberately sown), and perennials such as snowdrop and triquetrous garlic.

Wanstead Flats is owned and managed by the Corporation of London as part of Epping Forest, and there is free public access. The whole site lies within the Green Belt.

8 Sites of Borough Importance Grade I

Ne.BI 1 Eastway Cycle Track and Bully Point Nature Reserve

Grid ref TQ 377 852
Area 27 ha (22 ha in Newham)

Lying in the north-west corner of the Borough, beside the River Lea, the Eastway Cycle Track and adjacent Bully Point Nature Reserve contain a valuable mix of scrub, grassland and wetland habitats, supporting an interesting diversity of birds and invertebrates. Both sites are owned and managed by the Lee Valley Regional Park Authority (LVRPA) and have free public access.

At the time of Thomas Milne's map of 1800 all the area to the east of the Channelsea River now occupied by the Eastway Cycle Track was shown as meadow and pasture, while the area between the Channelsea River and the Lea was marshland. In the early years of the 20th century an artificial manure works was sited on what is now the southern end of the cycle track; this doubtless explains some of the ruins there. The cycle track runs around three flat-topped mounds. Two of these originate from rubble from the Blitz, dumped here after the Second World War. The third is an older rubbish dump, dating back at least to Victorian times, and rumoured to contain rubble from the Great Fire of London in 1666.

The sides of these mounds are covered in scrub, composed of a wide variety of shrubs and young trees, many of which have been planted by the LVRPA. These are mostly native species, such as elder, hawthorn, pedunculate oak, goat willow, field maple, gorse and bramble. Exotic shrubs include bladder senna, false acacia and Duke of Argyll's tea tree. In gaps in the scrub, stands of stinging nettle and Japanese knotweed grow.

On the tops of the mounds, grazing by rabbits and occasional mowing maintains a rough grassland vegetation, dominated by oat grass and bent-grasses. The sward contains creeping thistle, bladder campion, everlasting pea, teasel, perennial wall rocket, coltsfoot and other common but colourful flowers. These provide nectar for bees and butterflies, including small copper and small heath, and seeds in autumn for goldfinches and linnets. The tall grass provides food and shelter for an abundance of grasshoppers and Roesel's bush-cricket. The latter is a nationally scarce species with a distribution centred on the Thames estuary, which is common and widespread in all suitable rough grasslands in Newham.

A tributary of the Channelsea River crosses the site from east to west in a steep valley between two of the mounds.

The banks are a tangle of bramble and hop, with patches of Japanese knotweed, policeman's helmet and nettle. The main river then flows southwards along the western edge of the cycle track, running through dense scrub of elder, hawthorn and crack willow, with small amounts of reed, giant hogweed, Russian comfrey and hemlock water dropwort near the water's edge. The water is foul-smelling and presumably seriously polluted, preventing much aquatic vegetation from establishing. Small amounts of fennel-leaved pondweed do, however, manage to survive. In summer, however, the most noticeable smell is the overpowering, sickly-sweet scent of policeman's helmet, which dominates a considerable length of the Channelsea River in the northern half of this site.

Across the Channelsea River from the southern end of the cycle track is Bully Point Nature Reserve, an area of rough vegetation with a small pond, managed by LVRPA as an educational nature reserve. Tall perennials predominate over most of the area, and include several species, such as tansy, wormwood and mugwort, with strongly-scented leaves, allowing visiting school children to use their sense of smell as well as those of sight, touch and hearing, to explore their environment. Also present is viper's bugloss, which is rare in London.

The pond, which is overshadowed by a tall electricity pylon, contains spiked water-milfoil and Canadian pondweed, with soft rush, persicaria and pale persicaria growing in the margins. The pond attracts small numbers of gulls in winter; early in 1991, these included a Mediterranean gull, a rare bird in Britain. A pond-dipping platform has been built to allow children to study the pond without damaging the marginal vegetation. Schools from all over Newham and neighbouring boroughs visit Bully Point.

Among the invertebrates present at Bully Point is the micro moth *Argyrotaenia pulchellana*, which is known in Greater London from only four localities, including East Ham Nature Reserve and the gardens of Buckingham Palace. Obscure invertebrates such as this, however, tend to be under-recorded, as few observers look for them or would know how to identify them.

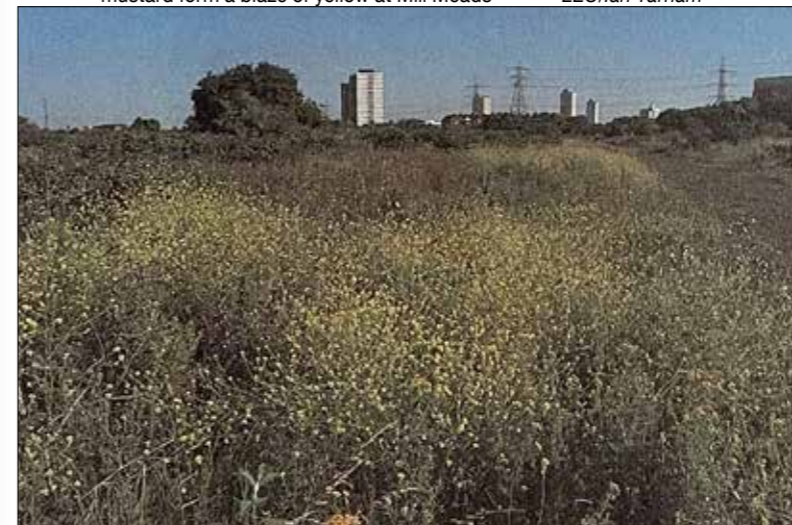
The River Lea runs along the western boundary of the cycle track and nature reserve, just outside the Borough. It is very attractive in this stretch, with abundant bulrush, yellow water-lily, policeman's helmet and submerged vegetation, and contains large numbers of fish. A fine view can be obtained from trains on the North London Link.

The position of this site in the Lea Valley, an important migration route, coupled with its relative elevation and range



Perennial wall rocket and hoary mustard form a blaze of yellow at Mill Meads LEU/Ian Yarham

Dwarf elder and other tall herbaceous species border the Pudding Mill River (page 35) near Marshgate Lane in Stratford LEU/Ian Yarham



The sycamore woodland behind the Memorial Garden at Bromley-by-Bow Gas Works (page 39) is one of very few woods in Newham LEU/Ian Yarham

Secluded woodland in Manor Park Cemetery LEU/Ian Yarham



of habitats, makes it an excellent place to see migrant birds on spring and autumn passage. Whinchat, wheatear, spotted flycatcher and several species of warbler can often be found, with May and August the best months.

The southern boundary of this site adjoins the Lea Junction Railway Triangle (site Ne.BI 2) but a steep-sided river channel between the Channelsea and the Lea, just north of the boundary, prevents any access to the trackside to view the Triangle.

Ne.BI 2 **Lea Junction Railway Triangle**

Grid ref TQ 378 845
Area 1.0 ha

Between Stratford Low Level and Hackney Wick stations, immediately east of the River Lea, British Rail's North London Link is joined by two busy freight lines from the London International Freight Terminal at Stratford, enclosing a triangle of reedswamp with the Channelsea River crossing the northern corner. This is completely inaccessible to the public and has remained more or less undisturbed since the railways were built in the mid-19th century. A fine view is, however, obtained from passing trains, on the right towards Hackney Wick and on the left towards Stratford.

This is possibly a remnant of the original marshland vegetation which once covered much of the Lea Valley, but which has almost disappeared through development and land drainage. If so, it is the only such fragment remaining in Newham, except for the tiny tidal reed bed at Bow Creek, and perhaps the oldest semi-natural vegetation anywhere in the Borough.

In bygone days, the extensive reed beds and marshes alongside the Lea and the Thames would have been home to birds such as the bittern, marsh harrier and bearded tit, which are now restricted to the handful of large areas of reedswamp remaining in Britain, such as Stodmarsh in Kent, Minsmere and Walberswick in Suffolk, the Norfolk Broads and Leighton Moss in Lancashire. The reeds would have been harvested for thatching roofs, as floor coverings and to make baskets. Such rotational cutting helped to maintain healthy reed growth and prevent encroachment by scrub.

Today, a reed bed covers about two-thirds of the triangle of land, and may support a few pairs of reed warblers and reed buntings. Around the edges of the reed bed grow sedges and policeman's helmet. The eastern end of the triangle contains a couple of bushes of elder with nettles growing beneath. Scrub may spread further into the reedswamp unless management is carried out to check it. It would be sad if this reminder of times long gone was lost and became just another patch of elder scrub.

Ne.BI 3 **River Lea system, Stratford Marsh and Mill Meads**

Grid ref TQ 379 837
Area 41 ha

The River Lea forms the western boundary of Newham from Carpenters Road (the A115) in Stratford to its junction with the River Thames at Canning Town, except for a section of about a kilometre where the boundary deviates to the east of the river's present course (possibly following an older course), from just north of where the Hackney Cut joins the Lea as far as the A11. This latter section of the river is in the Borough of Tower Hamlets.

History

Several artificial channels, as well as the Channelsea River, which is a natural water course, leave the main river and run through the Borough. This basic pattern of rivers seems to go back at least to the 11th century, when the Domesday Book (1086) records eight water mills in West Ham, at the time the largest group of mills in Essex. At least five of these sites are identifiable; Pudding Mill, City Mill and Waterworks Mill were to the north of the causeway across the marshes and Abbey Mill and Three Mills were to the south. Then, as later, the mills were on branches of the river, created as mill streams, rather than on the main channel of the Lea.

No major changes in the course of the channels or of the Lea itself seem to have occurred before the 20th century. Some minor changes were undertaken due to mills competing for water power or as a result of the constant struggle against tidal flooding. The Old River Lea was by-passed in 1769 between Lea Bridge and Old Ford by the Hackney Cut.

The main alteration to the channels of the Lea in Stratford was carried out in the 1930s to improve drainage and navigation. Sewage pollution of the Lea ceased in the early 20th century when foul sewers from Stratford, West Ham and Leyton were linked to the Northern Outfall Sewer. Despite this, by 1931 the rivers, which were still essential for storm water drainage, were derelict, foul-smelling and choked with silt and rubbish, leading to frequent flooding and health risks. This led to the passing in February 1931 of the River Lea (Flood Relief) Act, authorising a number of works, which were completed by 1935. These included widening, dredging or diverting sections of the Waterworks, City Mill and Three Mills Wall Rivers, filling in various redundant streams and creating a new flood by-pass (called the Prescott Channel after Sir William Prescott, a member of the Lee Conservancy Board at the time) between the Three Mills Wall and Channelsea Rivers. One other major change was that the River Lea south of Carpenters Road was wholly diverted via the Waterworks River and only connected with the Lea further south via a lock, which is now derelict.

The most northerly of the channels which runs through Newham is the Channelsea River, which leaves the Lea south of Temple Mills Bridge and loops southwards past Stratford station to rejoin the main river north of Bromley-by-Bow Gas Works. Much of the Channelsea River is now underground, but short lengths remain at the Eastway Cycle Track and on either side of Stratford station (described as parts of sites Ne.BI 1, Ne.BII 1 and Ne.L1), as well as the tidal section described as part of site M31. None of the Channelsea River is included in this site.

The pattern before 1930 was that three channels ran south-east from the Lea near Stratford Marsh. From north to south these were the Waterworks River, the City Mill River and the Pudding Mill River. These three all met up again north of Stratford High Street, then divided again into three further channels and flowed back into the Lea via what is now the Bow Back River, the Three Mills Wall River or a third channel slightly to the west of the latter known as the Three Mills Back River, which has now disappeared. The rest of these channels remain, but the flow of water through them has been altered.

The river pattern today

The position now is that the main tidal section of the river system runs through Bow Creek, Abbey Creek, Three Mills Wall River, Waterworks River and then up the River Lea as far as Lea Bridge Road. The Channelsea River is tidal as far as Abbey Road, and the Prescott Channel, which runs for a short distance from the Three Mills Wall River along the western side of Mill Meads to the Channelsea River, is also tidal. The tidal part of the Channelsea River together with Bow Creek are included in site M31.

The second major part of the system is a semi-tidal loop, which runs along the Old River Lea north of Old Ford Lock, the City Mill River, the Bow Back River and back up the Lea to Old Ford Lock. The Lea southwards to Three Mills is also semi-tidal. At Three Mills the incoming tide is allowed to flow through the system but a weir prevents it dropping back with the outgoing tide, making the system semi-tidal.

The City Mill River and the Waterworks River were joined at Carpenters Road Lock and Marshgate Lane Lock. Both locks are now derelict and no water passes through them but British Waterways hope to clear out Marshgate Lane Lock. The remaining waterway is the Pudding Mill River. This bisects the semi-tidal loop and used to run from the Old River Lea south-eastwards to meet the Bow Back River.

The Waterworks River

The Waterworks River, named after the West Ham Waterworks Company's Stratford works, which was built on the river in the late 18th century, is a wide, fairly shallow waterway, running at the bottom of a deep concrete channel. Where

mud has accumulated by the water's edge, wild angelica, policeman's helmet and persicaria can be found. Emergent vegetation includes a few clumps of bulrush and bur-reed, while fennel-leaved pondweed grows abundantly in the water and duckweed floats on the surface. Elder scrub grows on top of the banks in places.

The City Mill River

The City Mill River runs through a large area of wasteland known as Stratford Marsh. It is a narrower channel than the Waterworks River, and runs through a similar steep culvert. There is little marginal or emergent vegetation, but unbranched bur-reed is common in the water, and duckweed covers much of the surface.

Stratford Marsh is a strip of land between the City Mill River and an area of railway sidings. The vegetation is dominated by scrub and tall herbs, and includes the largest population in Britain of dwarf elder. This small relative of the more familiar elder grows only to about a metre in height, and has narrower leaves; it is herbaceous in habit and dies back to ground level in winter. It is not certain that it is native to Britain. Its black berries are poisonous, unlike those of its larger relative, which are often used to make wine or jam. Other shrubs present include bladder senna, which has inflated pea-like pods, bramble and buddleia. Rose-bay willow-herb, hawkweed ox-tongue, wormwood, bracken and oat grass are all plentiful. A similar, smaller area of wasteland is located across on the western side of the City Mill River by Marshgate Lane.

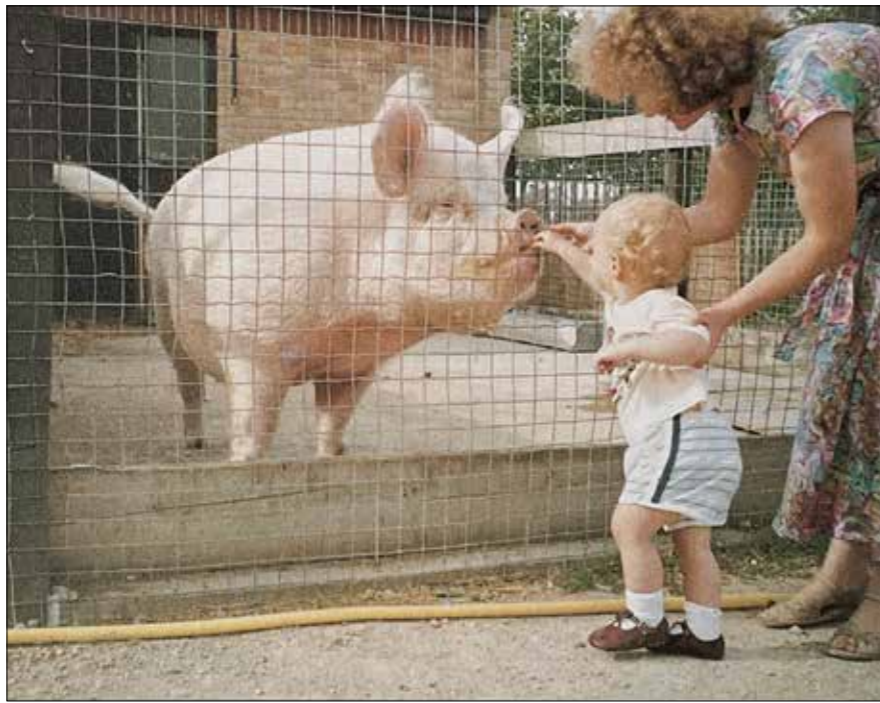
The Pudding Mill River

The Pudding Mill River is a much smaller waterway, about five metres wide. It leaves the Old River Lea about 250 metres south of the City Mill River, running for just over half a kilometre alongside Marshgate Lane and Pudding Mill Lane before vanishing underground. Near its junction with the River Lea, where it flows through the grounds of Queen Mary's College Faculty of Engineering, it is well vegetated, with yellow flag and great reedmace in the margins and fennel-leaved and Canadian pondweeds forming dense submerged tangles. The college grounds, most of which lie outside the Borough, are another fine area of roughland, dominated by tall herbs such as rose-bay willow-herb, hogweed and nettle, with numerous bushes and small trees of hawthorn, elder, apple and sycamore. This can be seen from the Northern Outfall Sewer path.

Further along its length, the Pudding Mill River flows between the road and factories, and is hence of lesser interest. Canadian and fennel-leaved pondweeds and duckweed still thrive, however, despite serious problems of rubbish dumping.



Beaked hawk's-beard adds a splash of spring colour among the monuments in Woodgrange Park Cemetery (page 42)
LEU/Ian Yarham



Newham City Farm (page 43) provides children with a valuable opportunity to meet animals at close quarters
Ian Yarham

Colourful wild flowers adorn a grave in the City of London Cemetery (page 44)
LEU/Ian Yarham



Mute swans with cygnets on the lake at Beckton District Park (page 43)
LEU/Ian Yarham



Reed beds in the flood alleviation lagoons by the River Roding near East Ham Gas Holder Station (page 48)
LEU/Meg Game



The vast Royal Victoria Dock (page 45) provides an impressive waterscape
LEU/Ian Yarham



'Dolphins' in King George V Dock (page 45) provide safe nesting havens for waterside birds such as moorhens and pied wagtails
LEU/Ian Yarham



The Norman church of St Mary Magdalene adds to the interest and appeal of East Ham Nature Reserve (page 46)
LEU/Ian Yarham



The Old River Lea

The section of the Old River Lea which runs from Old Ford Lock up to the City Mill River is particularly attractive, and can be viewed from the towpath which runs along its eastern (Newham) bank. The steep western bank, which is in Tower Hamlets, is densely vegetated with scrub and young woodland, including ash, sycamore, elder, dwarf elder and crack willow. Clumps of bulrush and yellow flag rise up from the water, which contains a good growth of hornwort, fennel-leaved pondweed and unbranched bur-reed. Further south, flowering rush, which is rare in London, can be seen growing at the junction of the Old River Lea and the Bow Back River.

The towpath boasts an interesting wasteland flora, including two alien species of particular note; Sumatran fleabane was recorded here in 1984 as a first British record (Wurzell 1988) and has since spread over much of east London, while Mexican tea, a perennial member of the goose-foot family (which includes familiar species such as fat hen), with a strong smell of creosote, is common here, though not known to be naturalised anywhere else in the country. Another uncommon species to be found here is warty cabbage. The strip of land between the towpath and Marshgate Lane has been planted by the Borough with a mix of mostly native trees and shrubs, including hornbeam, field maple, alder, rowan and aspen.

The southern channels

The Bow Back River, Three Mills Wall River and Prescott Channel contain little vegetation, except pellitory-of-the-wall growing on the steep sides of their channels, but are still of value to fish and birds. The waterways which make up this site contain good populations of a wide range of fish, including pike, perch, carp, bream, roach, dace and eels, and are consequently very popular with anglers wherever access is possible. Herons also take advantage of this abundant food supply, and other water birds to be seen on the rivers include mallard, coot, moorhen and black-headed gull. Pied and grey wagtails can often be watched feeding at the water's edge. Several species of dragonflies and damselflies breed in the rivers.

Mill Meads and Three Mills

To the east of the Prescott Channel, between this waterway, the Channelsea River and the Northern Outfall Sewer, is an area of scrub and tall perennials belonging to Thames Water,

known as Mill Meads. This is part of the Three Mills Conservation Area; Three Mills is England's largest surviving tidal mill complex, with several buildings of architectural and historical significance, including two of the mills. The third mill was a windmill which has disappeared. Also within the Conservation Area, and dominating the skyline, is the elegant and imposing Abbey Mills Pumping Station, built in 1865-8 to house eight beam engines.

The vegetation of Mill Meads is dominated by bramble, creeping thistle, hogweed and Japanese knotweed. The latter is a very tall introduced species, which spreads rapidly by means of underground rhizomes and can quickly take over an area almost to the exclusion of native species. Large areas of Mill Meads are covered by this plant, and control measures are necessary to prevent its further encroachment.

A variety of other plants include tansy, soapwort, Canadian golden rod, wild asparagus, spearmint, reed-grass and red and white champions. These produce a blaze of colour in summer, as well as providing nectar for butterflies and seeds for the large flocks of finches which gather in autumn and winter. These mostly comprise linnets, greenfinches and goldfinches, plus a few chaffinches and bullfinches. In winter, bramblings and yellowhammers, neither of which are common in the Borough, can often be found associating with these flocks.

The East London Rivers Initiative

The River Lea and its associated waterways and waste-land provide a valuable refuge for plants and animals in the otherwise heavily industrial area of Stratford. Places such as Mill Meads, which is accessible to the public along the Long Wall footpath, and the River Lea towpath are very important amenities for local people, where they can enjoy nature and escape from the built environment. This amenity could be increased by improving access to Stratford Marsh and the other river channels, and improving the appearance of the waterways where they are subject to tipping or have little vegetation. The Borough is currently addressing this problem with the launch of the East London Rivers Initiative, involving local industry and volunteers in cleaning up Stratford's rivers, with a pilot project on the Waterworks River in the factory grounds of Kesslers International Ltd. Another problem which needs to be addressed is the illegal use of Mill Meads by motorcyclists, which causes habitat damage and is a potential danger to the public.

Ne.BI 4 Bromley-by-Bow Gas Works

Grid refs TQ 385 824 and TQ 386 818
Area 2.4 ha

Bromley-by-Bow Gas Works was built between 1870 and 1873 by the Imperial Gas Light & Coke Company on the site of a former explosives factory. However, it could not compete with the world's largest gas works at Beckton, and three years later was absorbed by the Gas Light & Coke Company, which owned Beckton. Additions and improvements were made between 1920 and 1952, and in its heyday the works produced 21 million cubic feet of gas per day, and occupied 65 hectares. The advent of natural gas from the North Sea led to its decline, and gas production ceased in 1976. The site is now used for storage of North Sea gas in seven gas holders, which are listed buildings, and also houses the headquarters of services and supplies for the North Thames Region of British Gas and the London Gas Museum and Library.

Within the 27 hectares still owned by North Thames Gas at Bromley-by-Bow are two small pockets of wildlife habitat, which form green oases among the concrete and metal of the gas works and adjacent industrial estate.

The first of these is a patch of woodland at the eastern end of the Memorial Garden, near the main car park in the operational area of the gas works. This has developed on the site of an old garden and has been unmanaged since the First World War. The dense canopy is dominated by sycamore, with a few specimens of horse chestnut, poplar, lime and pear. Beneath is an understorey of elder, rowan, hawthorn, garden privet, mulberry and fig, the latter three species presumably relicts from the former garden. The ground layer consists of bramble, cow parsley, nettle and bittersweet, and the wood is home to foxes, grey squirrels and a variety of woodland birds including jay, robin and blackbird.

The Memorial Garden commemorates the people who worked on the site who died in the two world wars; a gas lamp burns constantly in the centre of the garden. It consists largely of close-mown grass, but has two belts of mature poplars, many of which have been pollarded, running down each side. These have recently been underplanted with wildflower seed mix. The Memorial Garden and wood are much appreciated by the employees of the gas works as an attractive place to relax during lunchtime. There is no public access to the site.

The second area of ecological interest is very different. A ten metre wide strip of rough vegetation has developed on abandoned land at the southern tip of the gas works site, beside Bow Creek. Most of this is grassland, dominated by oat grass, couch grass, bent-grasses and Bermuda-grass. This latter is an attractive and distinctive grass with four or more rows of flowers arising from a single point at the top of the

stem, like the arms of a rotary washing-line. Formerly considered to be an introduced species in Britain, it is now thought that it may in fact be native at several southern English sites where it is known to have occurred for centuries. Its presence at Bromley-by-Bow Gas Works, one of about half a dozen London sites, is probably due to seed accidentally imported by ships supplying the gas works.

Growing among the grasses is a colourful selection of common herbs, such as hardheads, rose-bay willow-herb, hawkweed, coltsfoot and wild mignonette. The grassland supports a wide range of invertebrates, including two nationally notable beetles, *Adonia variegata* and *Plateumaris braccata*. The large populations of invertebrates in turn provide food for hedgehogs, which are surprisingly common in Newham (Plant 1979).

A belt of scrub, composed of bramble, goat willow, silver birch and elder, runs along the northern edge of the grassland. This provides cover for birds such as dunnock and wren. A small area beyond the eastern end of the scrub is sparsely vegetated with grasses, mostly red fescue, along with *Polytrichum* moss and *Cladonia* lichens.

The ecological interest of the site has long been recognised. A survey by R.P. Donnelly of the Gas Light & Coke Company in 1938 recorded, as well as many plants which are still present, such current London rarities as shepherd's needle, wayfaring tree, alexanders and stinking mayweed, while birds included skylarks and stonechats. A colony of rabbits on the site appeared to be lighter in colour than ordinary wild rabbits, presumably due to long genetic isolation (Fitter 1945).

The whole southern part of the gas works site is scheduled for redevelopment by the London Docklands Development Corporation. It is to be hoped that the narrow strip of vegetation described here can be preserved, both for its intrinsic value and to act as a buffer for the adjacent tidal reed bed and mud of Bow Creek (see site M31).

Ne.BI 5 Thames Wharf

Grid ref TQ 398 806
Area 3.2 ha

Thames Wharf and the Limmo Peninsula were included in Ecology Handbook 4 as a Site of Metropolitan Importance (M1). However, in early 1990, a large part of Thames Wharf and the entire Limmo Peninsula were cleared of vegetation in preparation for road and railway construction and commercial development. The only remnant is the southernmost end of Thames Wharf; while this was botanically the most interesting part of the original site, it is not considered that this area alone is of Metropolitan Importance. Thames Wharf was intensively

Some of the butterflies to be found at East Ham Nature Reserve and other sites in Newham



John Archer
Male orange tip



Meadow browns mating
John Archer



Wall browns
John Archer



Small tortoiseshell
LEU/John Archer

surveyed by the London Wildlife Trust and the Passmore Edwards Museum in 1984 (LWT/Essex Biological Records Centre 1985), and this description draws extensively on information in that report. The name "Thames Wharf" was attached to the whole site although, as described below, this also included the site of the Thames Ironworks and its associated rail sidings, which were completely separate from the Thames Wharf coal sidings to the south.

Situated at the mouth of Bow Creek, Thames Wharf was the passenger and goods pier in the Thames at Bugsby's Reach, serving the Eastern Counties & Thames Junction Railway; this was opened in 1846 to move seaborne coal from the riverside to places along the Eastern Counties Railway. Coke ovens were set up to convert coal into locomotive fuel for the railways, and extensive sidings were constructed to the south; the remaining wasteland site is on these abandoned sidings. To the north of the wharf was the Thames Ironworks, established in 1846 to build ships; its shipyard closed in 1912, although the ironworks was active much later. Rail sidings were also constructed for local traffic to and from the ironworks.

Much of the land around Thames Wharf has been disused since the end of the Second World War. During this time, until 1990, the only disturbance came from periodic tipping of rubble from many different sources. This has produced an interesting, hummocky terrain and a wide diversity of micro-habitats, with different plant communities developing on each hummock. These plant communities reached their greatest diversity at the southern end of the site, which, at the time of writing, remains intact. An additional feature of interest is a short culverted stream, which runs across the site and into Bow Creek.

Grassy and herbaceous vegetation covers much of the site. In nutrient-rich areas this consists of a lush growth of rank grasses, such as oat grass and couch, with docks, thistles, nettle and other tall perennials. Among these are three members of the genus *Artemisia*, strongly aromatic members of the daisy family: mugwort, wormwood and Chinese mugwort. On substrates, such as gravel and rubble, which are less rich in nutrients, a much sparser, but more diverse vegetation can be found. A variety of grasses includes two species, characteristic of dry habitats, which are uncommon in London, rat's tail fescue and hard poa. Among these grow a wealth of colourful flowers; American willow-herb, honesty, tufted vetch and lucerne provide a variety of pinks and purples, vying with the yellow of creeping cinquefoil, ribbed melilot and several members of the cabbage family, including the uncommon Lousley's rocket, and the red of field poppy. Hare's-foot, a clover characteristic of sandy places, which is rare in London, can be found towards the eastern edge of the site.

Scattered throughout the grasslands are several dense stands of mature scrub, comprising poplar, birch, willow and

buddleia. This provides cover for nesting and migrant birds. Birds breeding at Thames Wharf include pheasant, willow warbler and red-legged partridge. For the latter, this is the closest breeding site to central London; however, it is highly unlikely that partridges will continue to breed here after the disturbance and fragmentation of habitat in 1990.

A small stream runs for about 150 metres across the site to join Bow Creek. Although flowing through a steep culvert, it contains a very diverse flora; fennel-leaved pondweed grows abundantly within the water, while in the margins and on the steep banks grow reed, persicaria, great hairy willow-herb, celery-leaved crowfoot, hemlock water dropwort and wild celery; the latter is an estuarine plant which is particularly rare in London. Kingfishers have been seen feeding along this stream.

Thames Wharf is owned by British Rail, and the future of the remaining part is uncertain. There is great pressure for further commercial development of the site, but it would be very sad if the whole of this site were to be lost. If public access could be arranged, it would make a very valuable amenity in an area with little accessible wildlife habitat. It is possible that the London Docklands Development Corporation may recreate wildlife habitat on the Limmo Peninsula, which is still zoned as a nature reserve, after the railway development is completed.

It is not easy to reach Thames Wharf at present, surrounded as it is by the mud and dust from the large scale construction workings of the Lower Lea Crossing and the Docklands Light Railway extension to Beckton. The only close-up view now can be obtained from Dock Road, although this is not a recommended outing in view of the parked lorries and other heavy traffic from the nearby works. A more distant picture can be seen from the flyover at Silvertown Way.

Ne.BI 6 Manor Park Cemetery

Grid ref TQ 415 857
Area 17 ha

Manor Park Cemetery is one of several cemeteries in Newham which are of value to wildlife. Situated beside a railway line, and separated only by a single row of houses from the huge open spaces of Wanstead Flats, Epping Forest, Wanstead Park and the Roding Valley, it is ideally placed for a wide range of birds, other animals and plants to colonise its mix of habitats.

The cemetery was developed from 1874 by the Manor Park Cemetery Company on the eastern part of Hamfrith Farm, purchased from a land company who acquired it two years earlier from John Gurney. A chapel was built in 1877, but was largely demolished by a bomb in 1944. Among those buried

here is John Cornwell, the second youngest holder of the Victoria Cross, which he was awarded posthumously for gallantry at the Battle of Jutland in 1916.

The edges of the cemetery are generally overgrown and subject to only occasional management, and hence are ecologically the most interesting areas. The middle is more intensively and formally managed, consisting of short turf and a rose garden, although even here there are plenty of mature oak, lime and horse chestnut trees lining the paths.

A broad strip of rough grassland, dominated by oat grass, runs around the southern and western edges of the site, with much narrower borders of similar habitat in the east and north. The flowers of Canadian golden rod, hawkweed, cat's ear, autumnal hawkbit and common St John's wort form a blaze of yellow throughout the summer, offset by the purple of Michaelmas daisy and buddleia and the white of scentless mayweed. These nectar-rich flowers attract many butterflies, including the painted lady and red admiral, two species which reach Britain in the late summer as migrants from Europe. Roesel's bush-cricket is abundant in the grassland.

There are two areas of developing woodland in Manor Park Cemetery. The largest of these is in the north-west corner. Young ash and sycamore form a dense canopy, beneath which saplings of oak, birch and hawthorn are competing with a tangle of bramble, with patches of bracken in places. More mature trees are present in the form of rows of ivy-clad limes around the edges and a line of horse chestnuts following an old path through the middle. A sparse field layer contains bittersweet, male fern, bent-grasses and garden bluebell. Unfortunately, this area is being increasingly transformed into a more formal graveyard.

The other patch of woodland is situated to the south of the central drive. It consists of mature limes and oaks, which line the edges of the central drive, surrounded by dense scrub of young ash, sycamore, birch and oak. Bramble and bracken dominate the ground flora, with a few foxgloves also present.

Woodland birds breeding on the site include all three British woodpeckers, jays, nuthatches, tawny owls, goldcrests and four species of warblers. None of these species is common in Newham, where woodland is a very scarce habitat. Many of these birds regularly commute across the open grassland of Wanstead Flats between Manor Park Cemetery and the more extensive woodlands of Bush Wood, Wanstead Park and the City of London Cemetery (Plant 1986).

Manor Park Cemetery is privately owned, but there is free public access during daylight hours.

Ne.BI 7 Woodgrange Park Cemetery

Grid ref TQ 418 852
Area 7.9 ha

Woodgrange Park Cemetery contains dense scrub and rough grassland, which have developed over years of neglect, making this one of the best bird sites in the Borough. The cemetery is also of value for its plants, reptiles, amphibians, mammals and invertebrates.

As early as 1189 Stratford Abbey had a grange, known as Woodgrange, in this area. This was at the Forest Gate end of what is now the Woodgrange Estate. The cemetery was founded in 1890, and among its more illustrious internees are Frederick Charrington ("The Great Temperance Advocate") and Charles Mare, the founder of what became the Thames Ironworks, Shipbuilding and Engineering Company, which had its works beside Thames Wharf.

Numerous mature trees, presumably planted in the cemetery's more prosperous past, include common lime, London plane, ash, oak, sycamore and Lombardy and hybrid black poplars. Among the large number of younger, self-seeded trees are oak, goat willow, ash, sycamore, cherry and false acacia. These are surrounded by a dense tangle of bramble and tall weeds, such as rose-bay willow-herb, everlasting pea, cleavers and hogweed. In places Japanese knotweed, a very tall, highly invasive alien species, forms dense stands.

Interspersed with the scrub are areas of rough grassland, dominated by oat grass, cock's-foot and barren brome. Among these grasses grow several types of campion. White campion is common throughout the site, while red campion is restricted to just a few plants at the eastern end. A hybrid between these two species, with pale pink flowers, also occurs in the cemetery, one of a dozen or so locations in London where it is known.

Several small patches of shorter grass, mostly beside the paths, and a more extensive area in the east of the site, contain a greater diversity of wild flowers, including clovers, wild chamomile, birdsfoot-trefoil, common vetch, ox-eye daisy and ivy-leaved speedwell. Four species of *Geranium* can also be found: cut-leaved, dove's-foot and bloody cranesbills and herb Robert. These areas of short grass abound with grasshoppers, and several species of common butterflies can be seen. In the largest grassland area, large ant hills of the yellow meadow ant can be found.

Three species of reptiles breed in Woodgrange Park Cemetery; these are grass snakes, common lizards and slow-worms. None of these is common in London. Three amphibian species, common frogs, smooth newts and common toads, have also been recorded. Of course the lack of standing water prevents any of these from breeding on the site, but toads and newts have both been found hibernating here. Foxes and weasels occur regularly, feeding on a good

population of small mammals which includes common shrews, short-tailed and bank voles and woodmice. Pipistrelle bats can often be seen hunting over the cemetery on summer evenings.

It is for its birds, however, that Woodgrange Park Cemetery is best known. Thirty-two species are known to breed on the site, including four species of warblers (willow warbler, chiffchaff, blackcap and lesser whitethroat) and six species of finches. Of the latter, redpolls and bullfinches are uncommon in the Borough. It is the only place in Newham where cuckoos have been proved to breed (Plant 1986). Other nesting species include pheasants, kestrels and reed buntings. In autumn and winter large flocks of goldfinches, linnets and greenfinches are joined by occasional tree sparrows and bramblings, both scarce birds in London.

Woodgrange Park Cemetery is privately owned, and access is restricted to people with relatives buried there. The owners plan to sell the eastern end of the site for housing development. The money thus generated will be used to improve the remaining area of cemetery in consultation with the Borough and the local community, with nature conservation as one of the main aims. The proposed development is strongly opposed by the Friends of Woodgrange Park Cemetery, an organisation of nearly 400 people which seeks to protect and preserve the character of the cemetery.

Ne.BI 8 Beckton District Park and Newham City Farm

Grid ref TQ 419 814
Area 34 ha

Beckton District Park is a new park, attractively and innovatively landscaped during the late 1970s and early 1980s in an irregular shape between new housing developments. It includes several features of nature conservation interest, including wetland and areas of scrub. The design of a lake in the park helped Newham Leisure Services to a runner up position in the Inner City Improvement section of the 1990 *London in Bloom* awards. The park opened in 1982, with the lake and city farm opening a year later.

The lake in the north of the park is the second largest in the Borough, after Alexandra Lake on Wanstead Flats. An island provides safety for nesting waterfowl, including mute swans, Canada geese, mallards, coots and a variety of farm-yard geese. Other ducks, such as tufted ducks and pochards, can sometimes be seen on the lake, and black-headed and other gulls are frequent visitors. Sand martins pause to feed over the water on spring and autumn migration. Yellow flag, purple loosestrife and a number of exotic plants have been introduced in the margins, but their establishment and spread is inhibited by the large numbers of wildfowl.

A second, much smaller pond in the Beckton Corridor Public Open Space, near the south-eastern edge of the park, has much better-established vegetation. Flowering rush is abundant and, along with arrowhead and purple loosestrife, provides a colourful display in the margins in summer. Canadian pondweed grows in profusion beneath the water's surface, on which floats duckweed. Southern hawker dragonflies can be seen around both water bodies in summer, and may breed in one or both.

Several dense belts of scrub have been planted, especially in the northern half of the park, where they divide the grassland into discrete sections, giving the park a peaceful, secluded atmosphere. The south of the park is occupied by sports pitches, with the scrub belts restricted to the edges. A tremendous variety of trees and shrubs have been planted in these belts, mostly of native species. Among these are ash, wayfaring tree, goat and crack willows, common osier, silver birch, alder, rowan, holly, field maple, hornbeam, gorse and broom. These provide nesting cover for common garden birds and also attract migrants such as willow warblers on spring and autumn passage. Similar native plantings extend as a hedge along the Beckton Corridor, a linear extension of the park with a cycle track and bridleway leading from its eastern edge to East Ham Manor Way.

The grass between the scrub is kept very short and contains few wild flowers, and is consequently of little ecological interest. Some areas were originally seeded with wild flowers, but overzealous mowing prevented them from becoming established. The already considerable nature conservation value of the park could be greatly increased if a few areas of grass were allowed to grow longer, perhaps with just an annual cut in late summer, and were not treated with chemicals. This would allow a greater range of wild flowers to grow and would attract a much greater diversity of butterflies and other invertebrates.

Across Stansfeld Road from Beckton District Park is Newham City Farm. This was designed by the Borough's Landscape Architects and is run by the Leisure Services Department with the aid of Urban Programme Funding. It contains not only traditional farm animals such as pigs, sheep, goats, horses, chickens and ducks, but also more exotic creatures like llamas, guinea pigs, ferrets and wallabies, and is perhaps more of a children's zoo than a farm, especially as no plant crops are grown. Newham City Farm is a very popular place, visited by large numbers of people with children and by numerous school parties from all over the Borough, and is of tremendous educational importance as the only contact many inner-city children ever have with animals.

Also included in the site is an area of roughland beside Newham Way at the north-east corner of the park. This is vegetated with rough grasses such as oat grass and barren brome, interspersed with nettle, hemlock, hogweed, other tall

vegetation and occasional bushes of elder and bramble. Grasshoppers are abundant in the rank vegetation, and small flocks of goldfinches feed on seeds in late summer, flying up when disturbed into the tall Lombardy poplars which line the western edge of the area. This land is zoned for development, and will soon be built on. To redress the loss of this area, it would be valuable to allow similar rough vegetation to develop somewhere in a corner of Beckton District Park.

Ne.BI 9 City of London Cemetery and Alders Brook

Grid ref TQ 422 864
Area 66 ha

In contrast to most other cemeteries and churchyards of wildlife interest in Newham, the City of London Cemetery is intensively managed and most of it has a very tidy appearance. Apart from an area of woodland near the middle of its eastern edge, its value to wildlife stems not from any degree of “wildness”, but from its immense size and its strategic location. It is part of a vast area of open space, linked to Epping Forest via Wanstead Flats and Wanstead Park, and situated on two important green corridors: the Roding valley and the main railway line from Liverpool Street to Colchester. All these factors make the City of London Cemetery one of the best birdwatching sites in the Borough.

Aldersbrook, Little Ilford, first appears as a separate manor early in the 16th century. John Heron, Treasurer of Chamber to Henry VII and Henry VIII, was living there by 1517, when his son Thomas’ memorial brass was placed in the church of St. Mary the Virgin, Little Ilford. In 1786 the estate, then the largest in Newham, was sold to Sir James Long of Wanstead and the manor house demolished. The City of London Corporation purchased Aldersbrook Farm in 1854 to create a new cemetery, incidentally becoming a commoner of Epping Forest through the purchase; the City was soon at the forefront of the fight to save the Forest from encroachment and enclosure, culminating in the Epping Forest Act of 1878.

Founded in 1856, the City of London Cemetery is the second largest cemetery in London (the largest being the St. Pancras and Islington Cemetery at East Finchley). Designed by William Haywood and with its buildings and grounds excellently maintained, this is probably the finest example of a Victorian cemetery, as originally intended, remaining in the capital. Over half a million people are buried here, including many famous people. Among this diverse collection of notables are George Micklewright, the 19th century conservationist largely responsible for the preservation of Epping Forest; Elizabeth Everest, nanny to Winston Churchill; two Lord Mayors of London; and George Binks, the inventor of wire ropes.

The best area for wildlife is a small patch of dense woodland, composed of oak, ash, sycamore and poplar, with a few birches and horse chestnuts, about half way along the eastern edge of the cemetery. An understorey of hawthorn, elm, common willow, bramble and yew provides nesting and foraging cover for birds, while the ground layer consists of bracken, nettle, cleavers, male fern and hedge woundwort. On its southern edge, this woodland thins out to scrub and tall perennials surrounding the cemetery rubbish dump. Bramble, rose-bay willow-herb, nettle and docks dominate, and are interspersed with scattered bushes of elder, gorse and broom. This area is popular with butterflies, including speckled wood, meadow brown and common blue.

The rest of the cemetery consists of very short mown grass between the gravestones, with a few patches of mouse-ear hawkweed, a low-growing member of the daisy family with silvery leaves and pale yellow flowers which is uncommon in London, and two much commoner relatives, cat’s ear and autumnal hawkbit. In the few unmown edges and among the marble chippings on some of the graves can be found white campion, herb Robert and ragwort. Of greater ecological value are the avenues of mature limes, London planes, poplars and horse chestnuts, and scattered large ash, weeping willow, yew and monkey puzzle trees, which are used by the wide range of birds which visit the site.

The City of London Cemetery is the best place in the Borough to see typical woodland birds. All three British woodpeckers are frequent visitors and may breed on the site. Nuthatches, treecreepers, long-tailed tits and jays are all breeding residents, while summer visitors nesting in the cemetery include willow warblers, chiffchaffs and blackcaps. The numbers of these latter species are considerably swelled in spring, and especially in autumn, by passage migrants moving along the Roding valley and attracted by the cemetery’s trees; these may also include whitethroats, lesser whitethroats, garden warblers, spotted flycatchers and occasionally locally scarce species such as pied flycatchers, tree pipits, sparrowhawks and turtle doves. In winter, large flocks of redwings and fieldfares can often be found, while snipe and woodcock sometimes occur in damper areas.

The City of London Cemetery is owned and managed by the Corporation of London, and lies within the Green Belt. There is free public access during daylight hours.

To the east of the cemetery, separated by a narrow strip of rough grassland and allotments, also part of the Green Belt, is a small branch of the River Roding, called the Alders Brook, which forms the boundary between the Boroughs of Newham and Redbridge. On the eastern side of the brook is Ilford Golf Course. At the time of Bacon’s map (1904) the Alders Brook was shown as being as wide as the Roding itself, yet it did not appear on maps at all until the early 19th century. Its origins are obscure, but it probably arose at the beginning of the 19th century, at the same time as the landscaping of

Wanstead Park; this certainly affected the River Roding. The meandering course of the brook suggests a natural origin.

This stream is very slow-flowing and supports abundant marginal and floating vegetation. Great reedmace is the dominant marginal plant in the northern part of the brook, and is gradually replaced by reed sweet-grass to the south. A wide range of other wet-loving species includes soft and hard rushes, fool’s watercress, trifid bur-marigold, star-wort, great hairy willow-herb, gipsy-wort, reed-grass, water-pepper, amphibious bistort, celery-leaved crowfoot, comfrey and bittersweet. Also present are three species which are scarce in London, marsh woundwort, purple loosestrife and water chickweed. The surface of the water is carpeted with duckweed. Common duckweed is rather scarce here, and is vastly outnumbered by two species which are rare in London; the dominant species over most of the brook is great duckweed, which has leaves about one centimetre in diameter with many roots on each leaf, while gibbous duckweed, which has swollen, spongy leaves, is frequent in the north of the brook. Crack willow, alder, ash and hawthorn trees grow beside the brook in places, especially where it runs through the allotments.

Near the northern end of the cemetery, the River Roding forms the Borough boundary for about a hundred metres. A tidal influence is obvious here and this is reflected in the emergent and marginal vegetation, which includes sea aster, sea club-rush, bulrush and great yellow-cress. Unbranched bur-reed grows beneath the water. The river holds a variety of fish, many of which enter the Alders Brook to spawn. Mallards and moorhens breed in the lush vegetation fringing the brook, and kingfishers are frequently seen fishing in both waterways.

Bacon’s map of 1904 indicates the point at which the Alders Brook diverges from the Roding as the upper tidal limit of the river at that time, although modern Ordnance Survey maps show the limit to be the Mill Pool in Barking.

A public footpath runs outside the eastern boundary fence of the City of London Cemetery, giving access to the brook and the Newham bank of the Roding. The brook is not accessible to the public where it flows through the allotments, providing a valuable sanctuary for water birds and other wildlife.

Ne.BI 10 The Royal Docks and London City Airport

Grid ref TQ 424 806
Area 130 ha

The three huge artificial water bodies which make up the Royal Docks are a striking landscape feature, dominating the south of the Borough. The open water is used by a variety of wintering birds, while several surrounding areas of land support locally significant breeding populations of birds. In

addition, the opportunities for habitat creation and improvement are enormous, and are perhaps unique in a London context.

The three docks are more or less linear in shape and lie in an east-west direction. The westernmost is the Royal Victoria Dock. This is separated from the Royal Albert Dock by the new bridge carrying Connaught Road. The King George V Dock lies to the south of the Royal Albert Dock, to which it is connected by a narrow channel at its eastern end. The Royal Albert Dock connects to the River Thames via a small basin to the east.

As the docks nearer the City proved too small for the increasingly large ships being built in the mid-19th century, new sites were sought. The level pasture and marshland in the south of Newham provided an ideal site which was easy to excavate, particularly as the land was already ten feet below high water mark. The promoters of the North Woolwich Railway had purchased a large area of land adjacent to the tracks, and on this the Victoria Dock (it did not acquire the prefix “Royal” until the opening of the Royal Albert Dock) was built between 1850 and 1855. This was a pioneering venture, being the first dock in the country to be connected with the national railway network and the first to use hydraulic machinery.

The original intention to build another dock to the east was delayed for some years, but this enabled experience gained to be used to make the Royal Albert Dock, opened in 1880, capable of taking the largest vessels entering the Thames until well into the 20th century. Further open land had been left available, and one of the first projects undertaken by the newly-formed Port of London Authority was the building of the King George V Dock, the third Royal Dock, which opened in 1921.

In cutting through the peat soil to create the Royal Victoria and Albert Docks, a number of interesting fossils and artefacts were uncovered. Remains of trees including hazel, yew and oak, and other vegetable remains were found, along with deer horns and a few relics of prehistoric people; these latter include a canoe 27 feet long, which is now at the British Museum. The bones of a large whale were found at a depth of 14 feet beneath the Royal Victoria Dock, together with a perfect millstone 22 inches in diameter and a brass dish, suggesting that the marsh had been formed in the historic period. The soil dug out during the construction of the Victoria Dock was used to landscape Battersea Park.

In their heyday the Royal Docks formed the world’s largest area of enclosed dock water (110 hectares), with 18 kilometres of quays that could take 50 ships at a time. They were one of the major centres of Britain’s trade. However, the container revolution of the late 1960s and 1970s led to the decline of the docks, the Royals closing for cargo handling purposes in 1981. During the early 1980s only a few ships remained, laid up due to the industrial recession, and the last big ship left in 1985.

The Royal Docks are now the focus of major redevelopment proposals by the London Docklands Development Corporation.

Due to their great depth and sheer sides (Royal Albert and Victoria Docks are eleven metres deep, while King George V Dock is ten metres deep), the Royal Docks support little or no aquatic vegetation. This may be one of the reasons why they are not as heavily used by water birds as might be expected from their size and location. Considering that they lie very close to the Thames, and that the nearest still waters of similar size (apart from the West India Docks on the Isle of Dogs) are the Walthamstow Reservoirs, nine kilometres to the north-west, while there are no large water bodies to the south and east until well beyond the Greater London boundary, one would expect huge numbers of waterfowl to winter on the Royal Docks. This is not, however, the case. Small numbers of mallards, mute swans and cormorants, and larger numbers of gulls, can regularly be seen; sizeable flocks of great crested grebes and a few little grebes occur in some winters, but otherwise bird numbers at the Royal Docks are disappointing. In particular, very few diving ducks have been recorded; this is particularly surprising, as the deep water would seem ideally suited to species such as tufted duck, pochard and goldeneye. Water sports, especially power boat racing, are one of the main reasons for this.

The vertical sides of the docks provide little opportunity for nesting birds, but a few pairs of moorhens, coots and pied wagtails take advantage of the seclusion provided by several "dolphins" on the south side of King George V Dock. These dolphins were constructed at the same time as the dock itself to provide additional berthing for ships.

Of greater value for breeding birds are the grassy runway surrounds of the London City Airport, situated between the Royal Albert and King George V Docks. The airport was constructed in 1987, when soil was brought in to cover the existing concrete substrate. The runway surrounds were seeded with perennial rye-grass, but this has not thrived due to low nutrient levels and a lack of moisture. Fertiliser was applied once, but leaked into the docks and may have been responsible for an algal bloom, so chemicals are no longer used. This has allowed a fairly herb-rich sward to develop, dominated by red fescue and containing common but colourful wasteland flowers such as ribbed and white melilots, red, white and alsike clovers, hawkweed ox-tongue, hoary mustard, beaked hawk's-beard, common mallow and wild chamomile. The nationally uncommon Bithynian vetch has been found growing here.

This grassland is almost completely undisturbed, as there is no public access to the runway surrounds for safety reasons. It is cut from time to time to keep its height below the ten centimetres demanded by safety regulations, but is otherwise rarely visited. This allows a number of ground-nesting birds which are uncommon as breeding

species in London, to breed. Notable among these are several pairs of lapwings (five in 1990), at perhaps their closest breeding site to central London, skylarks and yellow wagtails. A pair of ringed plovers attempted to nest in 1989, but lost their eggs to a crow; they were, however, successful in raising a brood in 1990. Rabbits also take advantage of the undisturbed grazing, and probably form the main diet of the foxes which have earths at each end of the runway.

Along the southern edge of the King George V Dock is a little-used warehouse surrounded by rough vegetation, including sycamore, willows, elder, buddleia, docks, oat grass and rose-bay willow-herb. The scrub hides a fox earth and provides nest sites for linnets and goldfinches, while a pair of black redstarts, a nationally rare bird which favours derelict industrial sites, breeds in a nearby building. Several other pairs nest in the surrounding area; indeed, London's docklands were once the British stronghold of the species, but as urban regeneration removes the old buildings and waste ground where they used to nest and feed, the population is dwindling. Soon they may disappear from the area altogether, unless a few corners of land are left in a suitable state for them.

The future of the Royal Docks is uncertain. Pressures for waterside development and water sports are likely to limit severely the opportunities for nature conservation, so that the tremendous potential offered by the site is unlikely to be fulfilled. It is to be hoped, however, that with so much water available, a few areas can be used for habitat improvement and creation, in a Borough with few still waters.

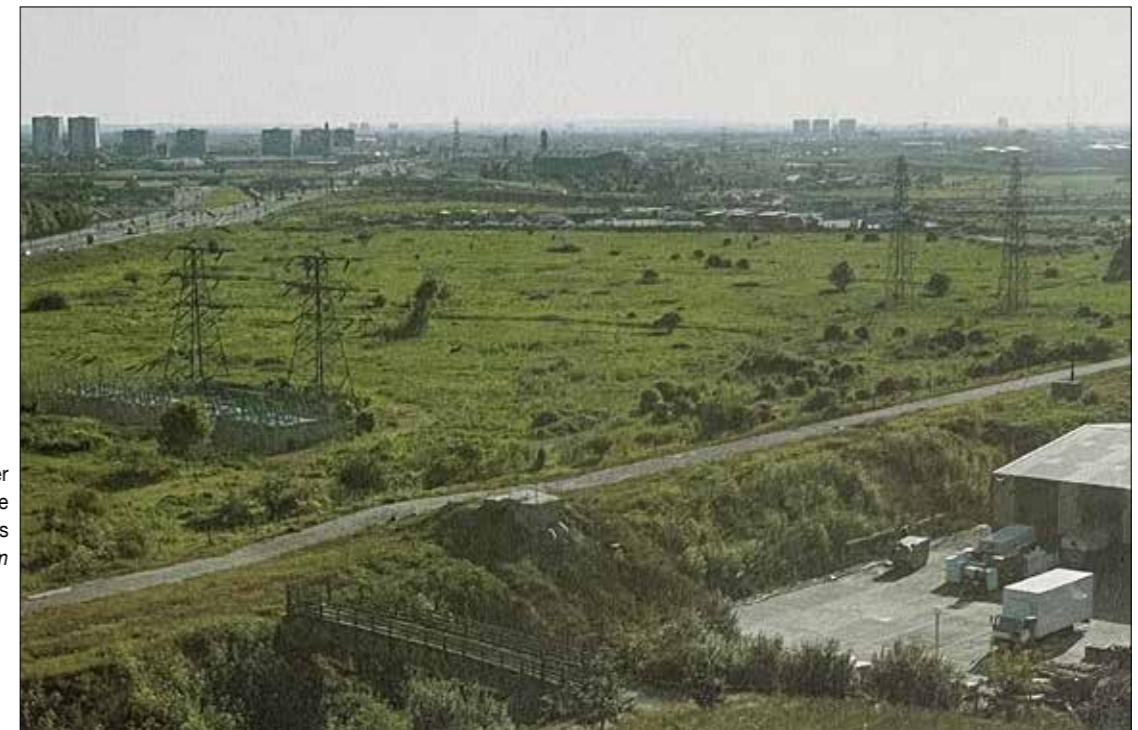
Ne.BI 11 East Ham Nature Reserve

Grid ref TQ 429 823
Area 3.8 ha

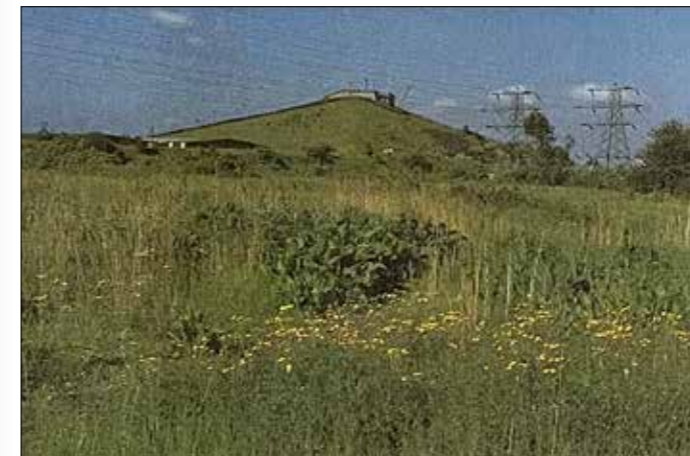
East Ham Nature Reserve in St. Mary Magdalene churchyard holds a possibly unique distinction as an active churchyard managed as an educational nature reserve. It is also probably London's largest churchyard. The nature reserve is an extremely important teaching resource for schools throughout Newham.

Located near a busy road junction and overlooked by the Beckton Alps, the church itself is one of the very few scarcely altered Norman churches to be found in the London area. The body of the church dates from about 1130, although Roman bricks are used in the construction alongside the Norman pudding stone. The upper part of the tower dates from the 16th century.

Leased from the Church of England by the Borough's Leisure Services Department, the site is managed by the Passmore Edwards Museum. A Faculty in the 125-year lease



View over Beckton Triangle from Beckton Alps
LEU/Ian Yarham



Looking across the Beckton Triangle (page 49) to Beckton Alps (page 57)
LEU/Ian Yarham

An attractive wild corner in East London Cemetery (page 53)
LEU/Ian Yarham



Sand spurrey grows in the gravel path to top of the Northern Outfall Sewer bank (page 54)
LEU/John Archer



allows the Borough to manage the site more or less as it wishes and a management plan is in preparation. Management takes account of the fact that the church is still in use and that, although the burial ground is full, a number of graves are still visited. The immediate surrounds of the church are therefore kept neat and tidy, and every effort is made to ensure that access to graves is always possible.

The oldest part of the churchyard (known, probably erroneously, as the “Medieval Churchyard”) is close-mown grass, surrounded by a thick hedge, which was planted in 1981. This consists of hawthorn and blackthorn with some field maple and dogwood, plus suckering elm. The hedge is continuous with an area of regenerating elm scrub and sycamore woodland in the north-east corner of the site. In this area, hazel has been planted in the understorey and some dead elm is being removed and replaced by birch and ash. A fox earth is situated in the woodland.

A much smaller area of scrub, composed largely of bramble with a few sycamores, is located in the south-west corner of the churchyard. Several sycamores were removed from this area in 1990. During November 1990, local volunteers, co-ordinated by the Wren Conservation Group, planted 5,000 trees of mixed native species along the western side of the reserve. The purchase of these trees was grant-aided by the Nature Conservancy Council. It is hoped that this will develop into a sizeable area of woodland, a habitat which is very scarce in Newham. A small copse of 20 Scots pines was planted in the south of the reserve in 1981.

The remainder of the site is composed of grassland. A small area on the northern edge is cut annually in the autumn, and another small section is cut in the spring. The rest of the grassland is allowed to grow naturally, and is dominated by oat grass and couch-grass, with tall weeds such as rose-bay willow-herb, soapwort and Canadian golden rod, and climbers such as hops, ivy and large bindweed.

The rather low floral diversity is compensated for by a diverse invertebrate fauna. Intensive recording has produced a list of over 650 invertebrate species (although this is only a tiny fraction of the total likely to be present). These include eighteen species of butterfly and 323 moths, of which nine are nationally or locally uncommon. Other nationally notable species include Roesel’s bush-cricket, which is particularly abundant here, three flies, four beetles and an ant. In addition, a total of nine types of lacewings is a particularly good assemblage.

Among the vertebrates, apart from the foxes already mentioned, hedgehogs are very common, and a hibernaculum has been constructed for them from felled sycamore timber. Two grey squirrels, otherwise absent from the south of the Borough, were introduced by local people in 1990. Common lizards breed in the grassland areas.

Breeding birds include blackcap and spotted flycatcher, while a pair of barn owls, now very rare in London and sadly

declining throughout the country, nested in the church tower until the mid-1970s. Large flocks of goldfinches can be seen in late summer, to be replaced by greenfinches, chaffinches and bullfinches in the winter. Bird ringing recoveries indicate that in hard winters the woodland areas of the nature reserve provide a well-used feeding area for flocks of finches and tits, with birds ringed as far away as Colchester being recorded.

A visitor centre was built in 1981 and formally opened by Her Majesty the Queen in 1983. This houses a classroom and a small museum display. It is staffed by an Assistant Curator, who oversees the management of the reserve, which is carried out by three museum assistants. A teacher is also employed on the site, which is visited by one or two classes from Newham schools on most weekdays during term time.

A nature trail has been laid out, with guides available in eight languages. The paths were upgraded in 1990 to enable people in wheelchairs to use one nature trail unassisted and a second with assistance. Tapping boards beside the paths facilitate the enjoyment of the site by blind people. These improvements were grant-aided by the Nature Conservancy Council and the Area Museum Service for South East England.

The Borough plans to declare East Ham Nature Reserve as its first statutory Local Nature Reserve in the near future. The site is being used as a model for the National Churchyard Conservation Campaign, which was launched there in May 1991.

The reserve is open to the public daily from 9 am to 5 pm, and the visitor centre is open at weekends from 2 pm to 5 pm.

Ne.BI 12 River Roding at Little Ilford

Grid ref TQ 436 848
Area 11 ha

The River Roding supports some interesting communities of plants, fish and invertebrates, and is also an important corridor and flyway for migrating birds. It defines much of the eastern boundary of Newham. Where the boundary deviates from the present course of the river, perhaps following a former course, the river lies to the east of the boundary.

The River Roding first enters Newham for a short stretch beside the City of London Cemetery (see site Ne.BI 9), where the river forms the Borough boundary for about 150 metres. South of there, the river flows through the Borough of Redbridge for about one and a half kilometres before again meeting the edge of Newham south of the A406/A118 road interchange. It then forms the Borough boundary for just over

a kilometre between there and the British Gas East Ham Holder Station. This is the section of river described here. South of this it flows through the Borough of Barking and Dagenham until Cuckold’s Haven. The tidal reaches below the Mill Pool at Town Quay, Barking, known as Barking Creek, are described as part of the River Thames Site of Metropolitan Importance (M31).

Much of this section of the river was formerly accessible to the public from Little Ilford Park and the adjacent playing fields, but the construction of the A406 South Woodford to Barking Relief Road has recently isolated these open spaces from the river. There is now *de facto* public access to the River Roding from the Newham bank at only one place along this stretch: from an area of rough grassland at the end of Millais Avenue.

The river flows mostly between vertical steel and concrete banks, which allow little marginal vegetation to grow. Tall stands of reeds have, however, managed to establish themselves in several places on both sides of the river. The most extensive reed beds are in two flood alleviation lagoons on the western bank of the river, alongside the gas holder station. The northernmost of these, lying half in Newham and half in Barking and Dagenham, is now completely overgrown with reeds, supporting a small breeding population of reed warblers. The southern lagoon, lying entirely in Barking and Dagenham, was created more recently, in the late 1980s. It still has considerable areas of mud and open water, as well as reed beds. At the edges of the reeds, hemlock water dropwort and sea aster can be found. The latter, looking like a tall, fleshy Michaelmas daisy, is an indication that there is a distinct tidal influence here, even though it is above the tidal limit indicated on Ordnance Survey maps. A few pairs of mallards breed in the bankside vegetation and can often be found feeding on the mud.

To the west of the river, straddling the boundary between Newham and Barking and Dagenham, is an area of rough grassland surrounding the gas holder station. This is dominated by couch-grass and contains a variety of other grasses, including fiorin, tufted hair-grass and oat grass, and herbs typical of industrial wastelands, such as white and ribbed melilots, prickly lettuce, thistles, hoary mustard and scentless mayweed. Also present is Sumatran fleabane, a tropical species first found in England as recently as 1984 but now spreading rapidly in east London (Wurzell 1988).

In damper areas reed-grass, reed, conglomerate and hard rushes and great and lesser reedmace can be found, the latter being distinctly scarce in London. This grassland supports vast numbers of grasshoppers and the locally common Roesel’s bush-cricket, as well as several common butterflies. A row of large hybrid black poplars grows near the river, interspersed with young birch, alder, rowan and elder. These trees provide a roosting place for the large numbers

of goldfinches attracted to the seeds of the grassland herbs in late summer.

Much of this land is to be returned to operational use by British Gas North Thames in the near future, so at least some of its interest will be lost. However, a planning condition allows for a riverside walk and an area of public open space in the north-east corner of the site.

A smaller area of rough grassland can be found across the railway immediately to the north of the British Gas land. A steep reed-covered bank separates its eastern edge from the river, which also supports extensive reed beds here, and the A406 bisects it on a flyover. Beneath the road the ground is bare, but on either side is rank vegetation dominated by couch grass and containing a range of common plants such as broad-leaved dock, lesser burdock, teasel and bristly ox-tongue, and a few scattered hawthorns and poplars. There is *de facto* access to this area from the end of Millais Avenue. The land to the east of the A406 is zoned as open space in the East Ham Local Plan, while that to the west is zoned for allotments.

Ne.BI 13 Beckton Triangle and Cuckold’s Haven

Grid ref TQ 439 825
Area 69 ha

Large areas of open land still remain undeveloped around Beckton, in the south-east of the Borough, containing a range of habitats and supporting important populations of birds. The land has remained undeveloped due to the danger of flooding and because of its isolation, which was increased by the construction of the Northern Outfall Sewer in the south and later of the A13 Newham Way to the north. Thus some of the land’s original character, as marshy grassland criss-crossed by ditches, has been retained.

The area described here extends from the Northern Outfall Sewer north to Cuckold’s Haven, and is crossed by several main roads; the East Ham and Barking By-pass (A13) runs approximately east-west across the site, separating the triangle of land to the south from Cuckold’s Haven and adjacent open land to the north; the A406 runs into the site from the north, meeting the A13 at a large roundabout; the new Eastern Gateway Access Road runs south from this roundabout. The planned East London River Crossing road will also run across this land.

Adjacent to the triangle are two more large areas of open land: Beckton Sewage Treatment Works and the Beckton Gas Works site. These complement the site, increasing the area of habitat available to a number of birds typical of open countryside. Its value to birds is increased by its location next to the River Roding, an important migration route.



LEU/Ian Yarham

St Mark's church provides a backdrop to the colourful "wasteland" on the former Silvertown Tramway Sidings (page 57)



North Woolwich Old Goods Yard in a blizzard
Ian Yarham

Colourful wild flowers in the Thames Barrier Prospect Park (page 56)
LEU/Ian Yarham



Looking up the northern slope of Beckton Alps (page 57)
LEU/Ian Yarham

To the south of the A13 is a large triangle of land bounded by the Northern Outfall Sewer and Jenkins Lane. Within this area are a lorry park and a sports field, which are excluded from the site. The triangle is vegetated with a mix of rough grassland and tall herbs, with scattered thickets of bramble and occasional bushes and trees of apple, hawthorn, elder, sycamore, goat willow and poplar. Oat grass is the dominant grass, while a wide range of tall perennials includes hemlock, wormwood, hogweed, thistles, docks, tansy, Russian comfrey and goat's rue. The area is crossed by several ditches, containing reed and great reedmace. Some of the larger ditches, which hold water permanently, contain sea club-rush, water plantain and duckweed, and support breeding moorhens. These dykes are an important semi-natural feature of the area, and form a significant percentage of the Borough's standing freshwater.

Other birds breeding on the site include stonechats and red-legged partridges, both of which are rare in London, and yellow wagtails and reed buntings, which are scarce breeding birds in Newham. The seeds of the tall weeds attract large flocks of finches in late summer, while snipe can often be found in the ditches in winter. Up to three short-eared owls could regularly be seen here in winter until the construction of the Eastern Gateway Access Road fragmented the site and increased disturbance to an unacceptable level for this shy bird of open country.

Included within the site is Beckton Meadows Community Smallholding. Situated just south of the A13/A406 roundabout, this educational farm was established in 1983 by a group of local residents called "Allotments for the Future", with animals being introduced in 1985. The smallholding bred goats, pigs, rabbits, chickens, turkeys and geese, and for a few years attracted many visitors from the local community, as well as school groups. Its educational use recently declined, however, due to a shortage of funds. This, along with other problems of vandalism and land tenure, led to the smallholding being wound up early in 1991.

North of the A13, the grass is rather shorter, due to unauthorised grazing by horses. Several areas are subject to tipping and disturbance, and support ruderal plant communities. Plants found in the grassland areas include red bartsia, which is uncommon in London, hawkweed oxtongue, teasel and mugwort. Among the wild flowers found on the tipped areas and at Cuckold's Haven are soapwort, cypress spurge, creeping yellow-cress, scentless mayweed, common mallow and everlasting pea. These form a blaze of bright colour in summer, and attract butterflies, bees and other nectar-feeding invertebrates.

There is *de facto* public access to Cuckold's Haven, where the Borough proposes to create an educational nature reserve, and to much of the triangle. An extensive view over the area can be obtained from the top of the Beckton Alps. Cuckold's Haven is designated as Metropolitan Open Land. The area

between Cuckold's Haven and the A13 was zoned for industry in the East Ham Local Plan, but no development is currently planned there; it would make an ideal site for habitat creation, and could become an extension of the planned nature reserve. Sadly, most or all of the land south of the A13 is likely to be developed in the near future.

Ne.BI 14 Beckton Gas Works

Grid ref	TQ 445 813
Area	69 ha

Beckton Gas Works was built between 1868 and 1870 by the Gas Light & Coke Company, a pioneering company which first began to manufacture gas in 1812. By the 1860s, it was decided that a new, large, out-of-town gas works was needed to replace the many small, ageing works in London. The name of the works, and subsequently of the community which developed to house its work force, came from Simon Adams Beck, the Governor of the company, who drove the first pile on 19th November 1868. Beckton grew to become the largest gas works in the world, covering 260 hectares and producing almost 1,000 million cubic feet of gas per year. At its peak it employed over 5000 people. Coal gas production was run down with the introduction of North Sea gas, and ceased at Beckton in the early 1970s. The site is still used to store gas and as an engineering works, but now occupies a drastically reduced area.

Surrounding the present operational area is a large area of derelict land. Abandoned buildings, some of them half demolished, give the site an eerie, "film set" atmosphere, and indeed the site has recently been used as a location for several films, including *1984*, *Biggles* and *Full Metal Jacket*. These buildings, and the areas of scrub and tall herbs beneath them, provide habitat for important populations of invertebrates and breeding birds.

Among the birds, the most significant is the black redstart. Up to five pairs of this nationally rare bird nest in the derelict buildings on the site; this is between five and ten per cent of the British breeding population. Indeed, Beckton Gas Works is perhaps the "classic" site for black redstarts, and was the location of a BBC film about the species made in the early 1970s. Another locally rare bird nesting in the old buildings is the little owl. This starling-sized owl was introduced to Britain in the late 19th century, and has spread over much of England and Wales. It is not uncommon in outer London, but Beckton Gas Works is one of the closest breeding sites to central London, and the only site in Newham. Kestrels also nest in these buildings.

In the shadow of the crumbling buildings is a typical wasteland vegetation of tall perennials interspersed with

stands of young birch. Little information on the plants of the site is available, but viper's bugloss, which is rare in London, was present during the 1970s. Several areas are devoid of any vegetation, presumably due to pollution. A beetle previously unrecorded in Britain, *Bruchela rufipes*, was found here among the tall herbaceous vegetation in 1983 (Hyman 1987); several adults and larvae were found feeding on wild mignonette. A number of other locally or nationally scarce beetles also occur on the site.

The tall herbaceous vegetation provides habitat for three species of bird which are uncommon in London; Beckton is one of their closest breeding areas to central London for all three. These are the stonechat, yellow wagtail and red-legged partridge.

There is no public access to the site, which is owned by a subsidiary of British Gas. Proposals to develop the site for industrial use could lead to the loss of much or all of it, possibly along with some of the adjacent Thames foreshore, which is an important area for wintering wildfowl and waders (see site M31).

Ne.BI 15 Beckton Sewage Treatment Works

Grid ref TQ 449 823
Area 100 ha

Beckton Sewage Treatment Works on the banks of Barking Creek is the largest sewage works in Britain, the largest full treatment works in Europe and one of the biggest in the world. It processes waste from about two and a half million Londoners north of the River Thames, carried along the Northern Outfall Sewer. The drainage area extends west to Hammersmith, north to Tottenham and east to Newham.

Constructed in 1864 as the Northern Outfall Works at a cost of £164,000, the works received sewage from London north of the river and discharged it, untreated, into the Thames on the outgoing tide. This led to terrible pollution of the river in the area, and probably contributed to many of the 550 or so deaths when the *Princess Alice* sank off Beckton in 1878. The Metropolitan Board of Works carried out several extensions, beginning in 1889 with the introduction of sedimentation channels. Further extensions followed, and in 1967 construction work was undertaken so that all outflow from the works received primary and secondary treatment, with the aim of improving water quality in the Thames.

Apart from the tidal reed beds and mud of Barking Creek, which are described under site M31, the main ecological interest of the site is centred on two areas of rough vegetation, to the north-east and north-west of the operational area. The

filter beds and settling tanks of the treatment works itself are also of value as feeding grounds for birds.

To the north-east of the operational site is an area of Wrough grassland, extending in a narrow strip southwards beside Barking Creek. Oat grass is the dominant species, with abundant creeping thistle and a variety of other herbs including cypress spurge and field milk-thistle. This grass is mostly long, providing food and shelter for abundant grasshoppers and Roesel's bush-crickets. In other places, the grass has been grazed short by rabbits. These areas are favoured by butterflies, with a range of common species being present. Birds breeding within the grassland include meadow pipit, skylark and pheasant.

The north-western rough area consists of similar grassland, interspersed with scrub of bramble, elder and hawthorn. This provides shelter for the foxes which breed on the site, and nest sites for whitethroat and sedge warbler. The latter, unlike its close relative the reed warbler, which nests in the reed beds of Barking Creek and ventures into scrub only to forage, frequently feeds in reeds but always nests in bushes.

Several water-filled ditches run through these two rough areas, including a particularly well-vegetated one in the north-west corner of the site, visible from Jenkins Lane. This contains two plants which are rare in London: glaucous bulrush and sea club-rush. A reed-fringed lake near the creek is full of fish, mostly roach with a few large carp, which attract herons. Mallards, tufted ducks and moorhens breed in the reeds; a pair of the latter also nests on the tiny ornamental pond beside the main site offices.

The filter beds and other operational areas attract large numbers of birds, which feed on the abundant invertebrate population associated with the sewage. Meadow pipits, pied wagtails and starlings are present throughout the year, though their numbers increase in the winter. Large numbers of gulls are present from late summer through to early spring, with a few non-breeding individuals remaining the year round. Black-headed gulls are the most numerous. Their name is somewhat misleading, as the dark head is in fact chocolate brown, and is reduced to a small spot behind the eye outside the breeding season. Reasonable numbers of common and herring gulls are present in winter, while lesser black-backed gulls are most numerous on autumn migration. A few great black-backed gulls are occasionally seen in winter, especially in hard weather. It is likely that other, scarcer gull species occur from time to time; the Mediterranean gull has been reported once, and such records would probably be more frequent if birdwatchers visited the site.

Beckton Sewage Treatment Works is owned and managed by Thames Water plc, and there is strictly no public access.

9 Sites of Borough Importance Grade II

Ne.BII 1 Former Stratford Railway Works

Grid ref TQ 384 846
Area 10 ha

A sizeable area of scrub, tall herbs and rank grassland has developed on old sidings and railway works to the west of Stratford station. This is a haven for common birds, such as goldfinches, and provides a semi-natural backdrop for passengers waiting on the platforms.

Stratford station was opened in 1839, and alongside it the Eastern Counties (later Great Eastern) Railway Company built a small repair depot. In 1847 the company's main works was transferred here from Romford. During the next 60 years the works was gradually enlarged until by 1906 it covered 32 hectares, and built as well as repaired locomotives and rolling stock. The works still holds the record for the fastest building of a railway engine: nine hours and 47 minutes, achieved in 1891. During the 20th century the works gradually declined, and closed in 1963. The International Freight Terminal was opened on part of the site in 1967, but the rest remains abandoned.

Rough grassland and tall weeds predominate, with typical "wasteland" species such as rose-bay willow-herb and Canadian golden rod providing colour among the oat grass and bramble. A few bushes of buddleia and elder and a scattering of young birches grade into denser scrub of the same species on a triangle of land between three railway lines to the west of the station. Dwarf elder, an introduced relative of elder with poisonous berries, is common here.

The Channelsea River (see also site Ne.L1) emerges from an underground culvert for a short length on the sidings before passing under the station through another culvert. Stands of great reedmace emerge from the water's edge, and the natural-looking banks are lined with a dense growth of bramble and great hairy willow-herb.

The site's location in the Lea Valley makes it a frequent feeding area for migrating birds; whinchats, stonechats, wheatears, common sandpipers and a sparrowhawk have all been seen in recent years. A pair of black redstarts, which breed nearby, can often be seen in late summer feeding their fledgelings on the site.

There is no public access to the site, which may be lost if proposals to make Stratford one of the Channel Tunnel termini are realised.

Ne.BII 2 Stratford Gas Holder Station Rough

Grid ref TQ 386 836
Area 5.4 ha

This is a small area of "wasteland" on the site of the former Stratford Gas Works in Livingstone Road. Gas production began in 1845, with coal being brought up the Channelsea River and by railway into Stratford Market sidings. After successive ownership by the West Ham Gas Company and the Gas Light & Coke Company, the works became part of the North Thames Gas Board after the Second World War. Gas production at the site ceased in 1967, and it is now a holder site for natural gas, which is stored here prior to distribution.

It is situated beside the bank of the Northern Outfall Sewer, an important green corridor which probably assists plants and animals to colonise the site. A larger area of vegetation was present on the gas works site until 1989, when the south-eastern part was cleared for development. Further development is likely to lead to the loss of most or all of the remaining vegetation in 1991.

The most interesting part of the site is a tiny stand of sycamore and poplar woodland in the north-west corner. Despite its small size, this wood is significant in a Borough severely deficient in woodland. The rest of the site consists of a typical mix of rough grassland, tall perennials, such as teasel, perennial wall rocket and rose-bay willow-herb, and odd bushes of bramble, elder and birch.

There is no public access to the site, but it can be viewed from the footpath on the sewer bank.

Ne.BII 3 East London Cemetery

Grid ref TQ 398 828
Area 12 ha

The East London Cemetery is mostly kept neat and tidy, with only two small areas allowed to grow wild. A large number of mature trees helps to offset the intensive management, and the site is a good place to see birds. The Northern Outfall Sewer runs past the northern edge of the cemetery; this is an important corridor, which may assist plants and animals to colonise the cemetery.

A patch of scrub next to the sewer bank, in the north-west corner of the cemetery, is dominated by elder, liberally draped with the white, bell-like flowers of large bindweed. Two strongly scented plants, mugwort and black horehound, grow at the edges of the scrub. A larger rough area is a strip of rank grassland in the south-west of the site. A variety of common wild flowers, such as hawkweed, thistles, lucerne and coltsfoot, provide nectar for butterflies and other insects, while the incessant chirping of grasshoppers is a constant background in summer.

The many mature limes, horse chestnuts, hornbeams and other trees attract migrant birds in spring and autumn. Spotted flycatchers and several species of warbler can often be found at these seasons, supplementing the more familiar resident "garden" birds.

Founded in 1871, the East London Cemetery is privately owned, and there is free public access during daylight hours. In addition to its ecological value, historical interest is provided by several monuments. A memorial to those who died when staging collapsed at the launching of *HMS Albion* in 1898 includes the ship's anchor. Another monument commemorates the sinking of the Thames paddle boat *Princess Alice* in 1878 with the loss of over 500 lives, the worst civilian disaster in British history, while a third was erected in 1927 "in memory of the Chinese who have died in England". The grave of Andrea Angel, Brunner Mond's chemist killed in the Silvertown explosion of 1917, is also here.

Ne.BII 4 Northern Outfall Sewer

Grid ref TQ 410 825
Area 23 ha

Constructed in the 1860s by the Metropolitan Board of Works to carry sewage from the northern half of London to the Northern Outfall Works at Beckton, the Northern Outfall Sewer runs right across the Borough from Stratford to Beckton, buried beneath a steep-sided bank. The sides of the bank have developed a mixture of vegetation types, which provide habitats for a wide range of animals. This linear belt of habitat forms a very important green corridor, linking the Lea and Roding valleys, and possibly assisting plants and animals to colonise the numerous open spaces adjacent to the bank; these include the East London Cemetery, Newham General Hospital Rough, East Ham Nature Reserve and Beckton Alps. A cycleway runs along the top of the bank from Stratford High Street to High Street South in East Ham, making it an important corridor for people, too.

By the 1850s the River Thames in central London was one vast open sewer, and the "Great Stink" of 1855 brought matters to a head. The Houses of Parliament were obliged to

have curtains soaked in chloride of lime (calcium chloride) at the windows facing the river and there was serious talk of moving Parliament and the Law Courts out of London. The Metropolis Local Management Act of that year established the Metropolitan Board of Works, whose first task was the construction of a proper sewerage and drainage system. This resulted in the construction of the Northern and Southern Outfall Sewers between 1860 and 1865. The Abbey Mills Pumping Station was also built at West Ham to lift lower-level sewage into the Outfall and to deal with surface drainage and storm water.

The western end of the bank, from Wick Lane in the Borough of Tower Hamlets to Stratford High Street, is vegetated on the top and sides with a mosaic of rough grassland and scrub. A good diversity of plants includes yellow toadflax, lucerne, bracken, dwarf elder and bramble, with a few trees of silver birch and sycamore. A large colony of the rare Bermuda-grass was discovered here in 1990. Hoary mustard, a yellow-flowered member of the cabbage family with very hairy leaves, is common here; this introduced species has spread rapidly in London in the last few years. Small flocks of goldfinches can often be seen here, their jingling calls set against a background of the monotonous song of Roesel's bush-crickets. Public access to this section is limited to the stretch between Wick Lane and the Liverpool Street to Stratford railway line. However, there is quite a sense of countryside to be found here, particularly near the crossing over the Lea, and this is not repeated until one is east of the Beckton Alps.

East of Stratford High Street, the cycleway and its borders of short-mown grass occupy the top of the bank, with taller vegetation largely restricted to the sides: a mix of rough grassland and scrub with scattered trees, containing typical "wasteland" species. Sand-spurrey, a low-growing plant with pretty pink flowers which is rare in London, can be found on the gravel cycle track near East Ham. Alongside the East London Cemetery, the sewer banks are wooded with dense stands of sycamore.

The sunny banks of the Northern Outfall Sewer are ideal habitat for reptiles; this is the best place in the Borough to see grass snakes and slow-worms, both of which are known to breed here. The grass snake is the commonest snake in London, but is still far from numerous, especially in inner London; it is harmless to people. The slow-worm is a legless lizard, and resembles a small, brown snake; it lacks the distinctive yellow collar of the larger grass snake. A third reptile, the common lizard, also breeds here; it is rather more widespread in the Borough, being particularly common at East Ham Nature Reserve. The high bank also attracts migrating birds, such as wheatears and whinchats, in spring and autumn.

The Northern Outfall Sewer is owned by Thames Water, but the banks and cycleway are maintained by the Borough.

The view north across the Lady Trower Trust Playing Fields (page 60) towards East Ham Gas Holder
LEU/Ian Yarham



An avenue of limes in West Ham Cemetery (page 62)
LEU/Ian Yarham



An island of grassland between tracks of the North London Link (page 60), as seen from the bank of the Northern Outfall Sewer
LEU/Ian Yarham



An old tree stump in West Ham Park (page 63) provides habitats for a wide range of fungi and invertebrates
LEU/Ian Yarham



Ne.BII 5 Thames Barrier Prospect Park and Rough

Grid ref TQ 413 799
Area 10 ha

The Thames Barrier Prospect Park is a small riverside park of mostly mown grass with a thick border of trees and shrubs, giving spectacular views over the River Thames and the Thames Barrier. The grassland contains a greater variety of wild flowers than most small parks, including red bartsia, a semi-parasitic plant which is not common in London, fleabane, wild carrot and birdsfoot-trefoil. A couple of areas of grass at the western end have been left unmown and, as well as the above four species, include the more common yarrow, black medick, red and white clovers, ragwort and smooth hawkbeard. The patch of grass nearest the river also has common mallow, as well as the impressive background of the Thames Barrier itself. The shrubberies provide nesting cover for birds, and are composed mostly of native species, such as hawthorn, blackthorn and elder, all of which produce berries, an important winter food source for thrushes and starlings.

The Thames Barrier was built in 1974-82 across Woolwich Reach to protect London (including over half of Newham) from flooding, and is the largest of its kind in the world. It is designed as a set of moveable gates which completely seal the Thames from the sea when closed, without blocking navigation when open. In an emergency it can be closed within 30 minutes; the first such operation was in February 1983. The Prospect Park was created as a place to view the barrier from the north side of the Thames (the main Thames Barrier Visitor Centre is at Charlton on the south bank). The park was originally the site of the works of Burt, Boulton & Haywood, manufacturers of creosote in the 19th century; this caused the land to be very polluted, a fact that came to light during the construction of the barrier.

Adjacent to the park is a much larger area of highly contaminated wasteland. This is vegetated with grassland, dominated by cock's-foot and bent-grasses, with a colourful mix of flowers, including hawkweed ox-tongue, purple toadflax, ribbed melilot, wild carrot and perennial wall rocket. A few scattered buddleia bushes attract butterflies, such as peacock, comma and small tortoiseshell. Meadow pipits are common here in autumn and winter, and may breed on the site.

There is free public access to the park, which is one of the few places in Newham where one can view the Thames. It is owned by the London Docklands Development Corporation and managed by the National Rivers Authority. The wasteland is inaccessible, but can be seen from the park and the park access road.

Ne.BII 6 Newham General Hospital Rough

Grid ref TQ 416 822
Area 6.1 ha

This is an area of rough vegetation on a tall, flat-topped mound adjacent to Newham General Hospital, a school and the McMillan Stadium. Next to the Northern Outfall Sewer and separated from Beckton District Park only by the A13 Newham Way, it forms an important link in the network of green corridors in the Borough, as well as supporting an interesting flora and fauna.

In the early years of the 20th century this site, in common with most of the south of the Borough, was marshland intersected by dykes. It later became a Council tip, the capping of which produced the steep-sided mounds present today. The bank certainly predates the hospital, which was opened by Her Majesty the Queen in 1984, replacing much of the earlier hospital provision in the Borough, such as Forest Gate Hospital (see site Ne.L4).

The steep banks are vegetated with dense stands of Japanese knotweed, interspersed with other tall weeds, such as field milk-thistle, teasel, lesser burdock and horse-radish, and occasional bushes of elder. This tall vegetation provides cover for rabbits and foxes. On the top of the mound the vegetation is lower, a colourful mixture of rank grasses and wild flowers, dominated by perennial wall rocket, soapwort, couch grass and, in the north of the site, curiously large amounts of fennel. This strongly aromatic member of the carrot family has long been used as a culinary and medicinal herb; the seeds are a favourite flavouring in Indian cuisine, while the root, which has a milder liquorice flavour, can be eaten as a vegetable. A wide range of medicinal properties have been attributed to the root and seeds, including arousal of the appetite and the relief of colic and stomach cramps, while fennel oil is recommended for flatulence. Intense grazing by rabbits has reduced the amount of more palatable species, allowing these tougher, less appetising plants to dominate. Occasional patches of scrub are composed of bramble and Duke of Argyll's tea tree, an introduced thorny shrub with deep purple flowers.

In addition to the rabbits and foxes, the site supports breeding skylarks and a wealth of invertebrates, including common blue, wall and red admiral butterflies, a large population of grasshoppers and the ubiquitous (in Newham) Roesel's bush-cricket.

There is no official public access to the site, which can be viewed from the sewer bank or from a footpath between Boundary Lane and the A13. However, it is frequently used illegally by motorcyclists. The site is to be used for an extension to Newham General Hospital, and will be built on in the near future. Clearly the need for improved medical provision

outweighs the nature conservation importance of the site, but it is to be hoped that some ecologically sensitive landscaping of the new hospital grounds can be undertaken to offset the loss of nature conservation amenity.

Ne.BII 7 Silvertown Tramway Sidings

Grid ref TQ 416 801
Area 1.2 ha

This area of disused sidings opposite St Mark's Church, Silvertown, formerly served the Silvertown Tramway, the first rail link between Canning Town and North Woolwich, constructed in 1847 across lonely, malaria-infested marshes. There were only two or three houses along the line, so the railway had little passenger traffic; the opening of the pleasure gardens (now the Royal Victoria Gardens) at North Woolwich in 1851 brought some business at weekends and holidays. In an attempt to redress the balance, efforts were made to attract industry to sites alongside the line. Among the factories established here was S W Silver's waterproofing works, which arrived in 1852 and rapidly expanded, giving its name to the community which grew up nearby.

When the Victoria Dock opened in 1855, a swing bridge was provided to carry the railway over the dock entrance near Bow Creek. This delayed railway traffic, so the Dock Company built a new railway to the north and east of the dock; this was taken on by the Eastern Counties Railway, while the Dock Company took over the old line, which became known as the Silvertown Tramway.

The sidings were probably a Great Eastern Railway depot. In the 1920s the weight of goods and passenger traffic was such that level crossings in the area were closed for nine hours per day to road vehicles, and for 47 minutes in every hour in peak times. Even in the 1950s there was sufficient traffic at Silvertown sidings to justify the allocation of shunting locomotives, but by the early 1980s they were a shadow of their former activity and they ceased to be used entirely soon afterwards. The tracks remain on the abandoned sidings, which are still connected rather tenuously to the North London Link at Silvertown station. To the west, however, the Tramway has completely disappeared.

Silvertown Tramway Sidings have a dramatic backdrop of mobile cranes, chimneys, smoke and steam, derelict mills and the spire of St Mark's Church; it is only the nearby red buses and the distant tower at Canary Wharf that remind one that this is London and not the North of England. The sidings are now covered by a diverse mix of grassland and tall herbs, with a few trees and shrubs, typical of railside land. The grassland and wild flowers continue along the old line to Silvertown

station, broken only by a level crossing. The boundary of this site, therefore, has been continued eastwards to the junction with the North London Link.

The ballast which forms the substrate is low in nutrients, preventing competitive grasses from dominating the vegetation, and helping to maintain a diverse flora of species such as common St John's wort, hawkweed ox-tongue, Canterbury bell, Canadian and Sumatran fleabanes, yellow toadflax, bracken, bramble and bladder senna. The attractive appearance these plants create is unfortunately somewhat spoiled by the dumping of spoil and rubbish on the south-west corner of the sidings from a scrapyards just beyond.

The sidings are owned by the London Docklands Development Corporation. The LDDC intends to carry out environmental improvements on the site; it is to be hoped that these will take account of its nature conservation interest. The site has considerable educational potential for its industrial archaeology as well as its natural history. An additional advantage for this site is that across the road is St Mark's Church, which is managed by the Passmore Edwards Museum. At the time of writing, the Museum is exploring various possibilities for the church building but its use as a museum is the most likely option.

The mauves and yellows of the majority of the flowers make the sidings very colourful in high summer and with the old railway lines, sleepers and points as a base to the foliage, this is a fascinating mixture of industrial heritage and nature conservation.

Additional note: Just before Nature Conservation in Newham was printed, this site was cleared of most of its vegetation. Its long-term future at the present time seems uncertain.

Ne.BII 8 Beckton Alps

Grid ref TQ 431 819
Area 6.4 ha

Beckton Alps, an artificial hill some 36 metres high, with a dry ski slope, is the highest point in the Borough and dominates the skyline in the otherwise flat south of Newham. The hill is cloaked in grassland and scrub, and panoramic views of the Borough, including the extensive open land to the east, can be enjoyed from the top. A zigzag path up the side enables one to reach the summit from East Ham Manor Way.

The upper slopes of the hill are grassy (apart from the artificial ski slope). The grass is cut fairly frequently, but still contains a reasonable diversity of plants, including some which are uncommon in London. It is possible that some of these may originate from wild flower seed mixes which were sown in the area. Of particular note is strawberry clover; distinguished



LEU/Ian Yarham
Yellow flag growing in
the Royal Albert and
Victoria Docks Cut
(page 65)



Poppies and other
wild flowers on the
western edge of
Priory Park
(page 65)
LEU/Ian Yarham

The large number of
mature trees make
Central Park (page 66) a
good place for birds
LEU/Ian Yarham

Plashet Park Zoo (page 65)
is a valuable educational resource
Ian Yarham



from red clover by its smaller, paler-pink flower heads, and the inflated, strawberry-like seed heads which give it its name, strawberry clover is known from only about half a dozen sites in London, most of them public parks, although it is probably under-recorded. Another legume which is rare in London is sainfoin; resembling a tall, upright clover with bright crimson flowers, sainfoin was probably introduced to Britain as a fodder crop, and can be invasive in chalk grassland, its preferred habitat.

Lower down the hill, a wide variety of mostly native trees and shrubs has been planted. These include willows, hawthorn, gorse, field maple and hornbeam. They should establish dense scrub to give cover to nesting and migrant birds. The latter seem to be attracted to the site, presumably because the hill is visible from a long distance. Warblers such as willow warbler and chiffchaff can often be seen in the bushes on passage, and yellow wagtail and wheatear frequently stop briefly to feed in the grassland.

The mound was originally a spoil heap from the Beckton Gas Works. Apart from the manufacture of gas at Beckton, there was a large by-products plant built in the north-western part of the gas works site. By-products from the manufacture and purification of gas, such as tar, ammonia, fertilisers, ink, medicinal products and dyes were reused or sold, and the waste, mostly ash, was dumped at the extreme north-western edge of the works site. This became Beckton Alps. The chemical waste it contained was considered too corrosive to move safely, so it was capped *in situ* with one metre thick clay covered with topsoil in 1982 by the London Docklands Development Corporation (LDDC), with advice from the Borough. The soil came from digging the basements of the new British Library at St Pancras. Planting was carried out in 1983-4, but much was lost due to vandalism. The LDDC, which owns and manages the site, is carrying out piecemeal remedial planting as funds become available.

To the south of Beckton Alps, the roadsides have been planted by the Council and LDDC with dense belts of native shrubs, such as elder, hazel and rowan. In autumn and winter, these attract large numbers of starlings and thrushes, which feed on the berries. Common garden birds nest in the thick cover. These shrubberies are also included within the site. There is free public access to the slopes of Beckton Alps.

**Ne.BII 9 North Woolwich
Old Goods Yard**
Grid ref TQ 432 798
Area 1.2 ha

This is a small but particularly interesting piece of railside land by North Woolwich station, on the site of a former goods depot. The depot opened in 1847, when the line from Stratford to Canning Town, which had opened the previous year, was extended to the ferry at North Woolwich. In that year, R Ruegg wrote that the only buildings at North Woolwich were “a public house... a small house occupied by the family of a shepherd, and the terminus of the North Woolwich Railway. It is singular to hear the whistle of a locomotive and the clatter of the iron wheels where, twelve months since, the heron, the plover and the bittern roamed in undisturbed solitude”. The goods yard remained open until 1970, when the tracks were lifted.

It is a good many years since bitterns “roamed” over North Woolwich, but the uneven surface, with ruts and mounds, gives rise to both dry and damp ground conditions existing side by side, and this has increased the site’s already high floral diversity. Plants typical of railside habitats include tansy, white melilot, common St John’s wort, everlasting pea and the ubiquitous buddleia. Centaury, a small plant with very attractive pink flowers, is scarce in London, though railsides are one of its favoured habitats. Far more surprising is the presence of eyebright, a tiny, white-flowered member of the figwort family, which is very rare in London, occurring mostly on chalk grasslands in south London. Damper patches hold soft and hard rushes, great hairy willow-herb, creeping buttercup and fleabane, as well as a few small goat willows.

Grazing by rabbits helps to keep the turf short and to discourage invasion by scrub. The site is leased to the Passmore Edwards Museum Trust, which runs a railway museum in the old station buildings. North Woolwich Old Station was built in 1854 to replace the original station of 1847, which was sited slightly further to the east. The new, much smaller station was opened in 1979. The Trust intends to develop the old goods yard as an extension to the museum, when finances allow. A sizeable proportion of the site has recently been cleared of vegetation and is used as a vehicle park, but what is left is still valuable. There is currently no public access to the wasteland, although glimpses can be obtained from the road and the railway, but its educational potential needs to be assessed in the meantime, especially as school groups already visit the railway museum.

Ne.BII 10 Lady Trower Trust Playing Fields

Grid ref TQ 434 841

Area 5.9 ha (4.4 ha in Newham)

These former playing fields, owned by a charitable organisation, the Lady Trower Trust, were abandoned in the early 1980s, and now form a large area of rank grassland. Oat grass and couch grass are the most frequent grasses. Creeping thistle is abundant, and in places dominates to the exclusion of the grasses; its purple flowers make the site very attractive in summer, while later its downy seeds form a cotton wool-like carpet over the fields, gently moving in the breeze. Other wild flowers present include teasel, scentless mayweed and ragwort. Goldfinches find abundant food in the seeds here.

A thick, though broken, hedge of hawthorn and elder, with a few tall poplars, runs along the middle of the fields, increasing the rural atmosphere, which is spoiled only by noise from the busy A406, which passes the eastern edge of the site. The Borough boundary between Newham and Barking and Dagenham crosses the playing fields, following an old course, now dry, of the River Roding; this became known as the Back River when the main flow of the Roding was straightened to its present course. Migrant birds moving through the Roding Valley frequently stop here to feed, especially whinchats, which perch on the scattered bushes of elder and dog rose. Kestrels can often be seen hunting overhead, indicating a good population of small mammals.

There is currently no public access to the site, which can be viewed from beside the A406. It is designated as Metropolitan Open Land in the East Ham Local Plan.

Ne.BII 11 Railside land

A network of railway lines crosses the Borough, some in cuttings or on embankments where relatively undisturbed vegetation can develop, since management by British Rail is in most places infrequent (although when it does occur it is often very severe) and public access is prohibited. This railside land thus provides excellent habitat for plants and animals, corridors for the spread of wildlife, and, where cuttings are concerned, a pleasant and deceptively rural outlook for train travellers. The Liverpool Street to Ipswich main line is a particularly important green corridor, running across the north of the Borough and connecting urban London with the Essex countryside.

The vegetation which develops naturally alongside London's railways tends to be a mosaic of trees, bushes, tall perennials and grassy vegetation, the proportions depending

on the management (if any), time and the substrate. Most unmanaged areas would eventually naturally become woodland, but the timescale for this process varies.

On very inhospitable stony and polluted ground, such as may be found on abandoned sidings and tracks, the vegetation may take many years to progress from a low, ruderal and grassy stage, perhaps with a scattering of buddleia bushes.

The progression towards woodland may be faster on unmanaged, somewhat more natural substrates on the sides of embankments and cuttings. Open patches are often dominated by oat grass, a tall grass which is particularly successful on unmanaged ground. This gives way to scrub, typically of bramble and hawthorn; the long, arching stems of the former produce roots wherever they touch the ground, so the plant rapidly extends over and dominates large patches of land. Eventually, trees establish themselves, particularly fast-growing species such as sycamore and birch. This mixture of vegetation of differing heights, species and structure is advantageous to many birds and other animals, providing food sources, breeding sites and shelter.

Of course there are many local variations in the vegetation of railside land. Ornamental species such as Spanish broom may have been planted, particularly near stations. Frequent fires or cutting may maintain a perpetual grassy sward. Periodic treatment with herbicides may limit the plants to those which can establish rapidly, such as Michaelmas daisy.

Vegetated railside land in Newham is shown in figure 7. Much of the railside vegetation is restricted to narrow strips of trackside buddleia and ruderal plants. Some of the better areas are indicated on the map, and brief notes on the habitats and species present are given below. It should be remembered, however, that all vegetated railside land in the Borough is important, especially so in view of its linear continuity. Also, the difficulties of surveying railsides should be considered; valuable habitats and rare species may remain undiscovered in areas not specifically mentioned.

- 1** On either side of the Northern Outfall Sewer, the tracks of the North London Link are separated by an island of grassland with scattered bushes of buddleia, elder and bramble, and a few young birch trees. Within the grassland grow hawkweed, docks, lesser burdock and rose-bay willow-herb.
- 2** Between West Ham and Canning Town stations, the railsides are quite wide, and are vegetated with a typical mix of grassland and bramble scrub, with perennial wall rocket, yellow toadflax, ragwort and cat's ear. There is a small patch of reeds just south of West Ham station. The disused part of Canning Town station has a good growth of vegetation which is particularly colourful in the summer, when the Michaelmas daisy and buddleia are in flower.

Reproduced from the Ordnance Survey 1:50,000 map with the permission of the Controller of Her Majesty's Stationery Office © Crown copyright

Map not shown due to copyright restrictions

Figure 7 Important railway land with known nature conservation value

- 3** Just south of Manor Park Cemetery is an island between two tracks, consisting of rough grassland with numerous large cherry trees.
- 4** East of Woodgrange Park station, the railway runs through a cutting. The sides are cloaked in grassland with extensive patches of rose-bay willow-herb and a few trees and bushes of sycamore, hawthorn, bladder senna, elder and dog rose.
- 5** A narrow strip of sycamore and lime woodland is present on the south side of the railway, just west of Silvertown station. Between Silvertown and North Woolwich stations, an attractive strip of ruderal vegetation follows the old railway line to the south of the single track currently in use. This links the sites at Silvertown Tramway Sidings and North Woolwich Old Goods Yard.
- 6** The abandoned sidings by the former Stratford Vegetable Market contain a diverse ruderal community, including good populations of two London rarities, dittander and hare's-foot.

10 Sites of Local Importance

Ne.L1 **Channelsea River, Stratford**

Grid ref TQ 386 842
Area 0.4 ha

The Channelsea River (see also sites Ne.BI 1, BI 2 and BII 1), unlike the other branches of the Lea in the Stratford area, was formed naturally, and its course has remained more or less unaltered through the centuries, although parts of it now run underground. Its name has variously been spelt as one or two words, and in both Bacon (1904) and Bartholomew (1968) it was shown as the Channel Sea River.

A short section of the Channelsea River, separated by underground sections from the rest of its course, can easily be seen just south of Stratford station. Despite artificial banks and problems with tipping, the dense marginal and emergent vegetation and scrub borders give this site a real wilderness feel, right in the centre of built-up Stratford.

Great reedmace is abundant, almost choking the river in places. Among the reedmace grow hemlock water dropwort and a few small bushes of goat willow. Duckweed covers most of the water surface. The banks are cloaked with a tangle of bramble, nettle, bracken, elder and buddleia, and seem to be a favourite feeding site for local house sparrows and starlings, whose noisy squabbling provides an almost constant background.

There is no public access to the river's edge, but it can be overlooked from a footbridge which crosses both the river and the North London Link; many people pause here for a few minutes to enjoy this small patch of green in the grey.

Ne.L2 **All Saints Churchyard, West Ham**

Grid ref TQ 394 839
Area 0.6 ha

West Ham Parish Church, or All Saints Church, is an attractive medieval church with a sizeable churchyard, providing a pleasant green space in a densely built up part of the Borough. Avenues of large London planes and limes provide good tree cover over much of the churchyard, and the grass below is kept reasonably tidy without being over-manicured, allowing common wild flowers such as chickweed, common mallow, autumnal hawkbit and cat's ear to grow in some profusion. The few gravestones remaining include some attractive

monuments, with interesting growths of lichens and mosses on many of these. Lichens are small green, grey or yellow encrustations which grow on rocks, stonework or trees; they are made up of a fungus and an alga, neither of which can live without the other. Very susceptible to atmospheric pollution, lichens are gradually becoming widespread again in London after disappearing from many areas in the early part of the 20th century, indicating an improvement in the quality of the air.

The church itself has a complicated building history; the nave walls are Norman, the pillars in the nave are 13th century and the roof is Tudor in origin. The tower dates from around 1400, and other features were added later. In the early years of this century, when the separate diocese of Essex was being formed, West Ham Church nearly became a cathedral, finishing third behind Chelmsford and Colchester in a vote amongst the parishes of the county to choose a cathedral.

The combination of history and natural history makes this a valuable educational site, a fact much appreciated by at least one nearby primary school, which makes regular use of the churchyard.

Ne.L3 **West Ham Cemetery**

Grid ref TQ 397 857
Area 8.0 ha (4.7 ha in Newham)

West Ham Cemetery is owned and managed by the Borough of Newham, although it lies partly in Waltham Forest. It was established by the West Ham Burial Board in 1857 and extended in 1871. Good drainage and low cost were considered more important than the landscape potential when the land was purchased; the cemetery is therefore rather lacking in distinctive features, with a straightforward grid plan of paths. It is tidily maintained; its main nature conservation interest stems from its mature trees, which attract good numbers of resident and migrant birds. The trees are mostly common limes, but there are also pedunculate and holm oaks, ash, false acacia, sycamore and several species of conifers. These attract common garden birds throughout the year, and migrant warblers and spotted flycatchers on spring and autumn passage.

The grass beneath the trees is mown fairly frequently, but still contains a rather greater diversity of plants than many amenity grasslands. These include common mallow, ox-eye daisy, white campion, black medick and sheep's sorrel; if

allowed to flower, they would produce an attractive display of colour. Free public access to the cemetery during daylight hours gives people the chance to see these birds and plants, in an area deficient in green space. West Ham Jewish Cemetery, adjacent to the western edge of West Ham Cemetery, has few trees and is not included in this Local site.

Ne.L4 **Forest Gate Hospital Site**

Grid ref TQ 398 845
Area 1.8 ha

Forest Gate Hospital was originally an industrial school from 1854 to 1906, and the scene of one of the Borough's greatest tragedies in 1890 when 26 children suffocated in a fire. In 1908 it became a branch workhouse of Poplar Union, and in 1911 was purchased by West Ham Union, which reopened it as a workhouse infirmary in 1913. The hospital was extended in 1931 and 1950, but the main Victorian building remained. The opening in 1984 of Newham General Hospital made Forest Gate Hospital redundant, and it was closed.

After the abandonment of Forest Gate Hospital, the hospital grounds developed a valuable array of wildlife habitats, including grassland, scrub and developing woodland. Most of the site is to be developed for housing, and much of it was bulldozed in 1990. Parts of the building are to be retained, however, as well as the southern and central part of the grounds, which will become Public Open Space, managed by the Borough.

To the east of the entrance in Forest Lane is a small orchard of pear and cherry trees. This, and two overgrown lawns to the west of the gate, are surrounded by dense hedges of holly, spotted laurel, sycamore, buddleia and a variety of exotic shrubs. Further west is a small area of young sycamore woodland, with a ground flora of bramble, Sumatran fleabane and seedlings of elder and holly. Along the southern edge of the site are several mature trees of lime, sycamore, London plane, horse chestnut and red horse chestnut.

To the north of this strip of vegetation is a bare area where buildings have been demolished. Further north still is an area of rough vegetation, composed of bramble, perennial wall rocket, snowberry, Russian vine, mugwort and rose-bay willow-herb. An avenue of large horse chestnuts extends north from this. The rest of the site is bare and will be covered by houses in 1991.

A wide variety of birds breed on or visit the site, including the stock dove, which is rare in Newham, and the jay, as well as most of the more familiar garden birds.

The Council proposes to retain most of the existing vegetation in the strip along the southern edge of the site,

although many sycamore seedlings will be cleared. This will be a valuable amenity and educational facility in an area rather deficient in accessible wildlife sites. The northern part of the proposed park will be more formal, with tennis courts, putting green and a mown grass area for ball games. Park construction is proposed to begin in 1991 and is due to be complete by 1993.

Ne.L5 **West Ham Park**

Grid ref TQ 401 842
Area 31 ha

West Ham Park is a large formal park, owned and managed by the Corporation of London. It serves a large area of the Borough, including West Ham, Stratford, Upton and parts of Upton Park and Forest Gate, as the nearest large green space where people can escape from their heavily built-up environment. Throughout the park, paths are lined with avenues of majestic London planes, limes and horse chestnuts, while a greater range of mature trees can be found in the formal gardens. It is this area, with its tall trees and dense ornamental shrubberies, which attracts most of the birds, these being the main nature conservation interest of the park. West Ham Park is one of very few sites in the Borough where nuthatches can be seen; these acrobatic birds, blue-grey above and pale orange below, are the only British birds which can climb *down* vertical tree trunks (woodpeckers and tree-creepers always go up). Tawny owls breed regularly in the park. Among migrant birds, in addition to the usual warblers and spotted flycatchers which occur in spring and autumn in many places in Newham, a pied flycatcher, a rare bird in London, has been seen in the park. Hedgehogs are common residents.

A tiny pond, with vertical concrete sides, contains yellow flag and duckweed, and has abundant Canadian pondweed below the surface. The pond has been stocked with goldfish.

The grass beneath the trees is cut very short, and contains few plants other than perennial rye-grass. The ecological and educational value of the park would be considerably increased if a small area was allowed to grow longer, with just one or two cuts per year; seeding such an area with a wildflower mix would speed up the improvement. Proposals to set aside a small area as a meadow, managed in this way, have been carefully considered by the park's managers, but were deemed inappropriate in a Victorian park of historic importance.

Although the botanical interest of West Ham Park is currently low, this was by no means always the case. Formerly the grounds of a large mansion called Ham House, it was

owned by Dr John Fothergill, an eminent Quaker physician and botanist, from 1762 until his death in 1780. During this time, by commissioning plant hunters and through correspondence with “persons in far countries”, Fothergill amassed a unique collection of several thousand plants and trees from every part of the habitable globe. The collection, partly housed in a run of hot and cold greenhouses 260 feet long, and also including an ornamental canal for aquatic plants, was considered by Sir Joseph Banks to be “second only to Kew” in importance. One of Fothergill’s many successes was the first tea tree to flower in England.

His main interest in botany was in plants which might be useful in medicine or for food; he was a doctor by profession. On one occasion he treated a sea captain with yellow fever and, in lieu of payment, requested the captain bring him “two barrels of earth from Borneo, taken from as many points as possible”; from this soil, many new plants were obtained and introduced into English gardens.

After Fothergill’s death in 1780, the plant collection was sold and the greenhouses largely dismantled. The estate passed eventually to Samuel Gurney, a Quaker banker and philanthropist, brother of the prison reformer Elizabeth Fry. After his death in 1856, his grandson John Gurney wanted the estate preserved as an open space and offered it for £25,000 for that purpose. The family put up £10,000, the City Corporation gave another £10,000 and the balance of £5,000 was raised by public subscription. Gurney then conveyed the estate to the Corporation and West Ham Park opened on 20th July 1874; it has been managed by the City ever since. A cairn of stones marks the former site, near the Upton Lane entrance to the park, of Ham House, which was pulled down in 1872. The declivity which contained Fothergill’s ornamental canal can still be seen in parts of the park.

Ne.L6 Royal Albert and Victoria Docks Cut

Grid ref TQ 414 809
Area 0.5 ha

The Royal Albert and Victoria Docks Cut (sometimes known as the Victoria Dock Cut) was a narrow ditch, about two metres wide, which was part of the Victorian drainage system for the area. It ran west-east from near Thames Wharf (although it never connected with Bow Creek) to Gallions Reach on the Thames.

In the first half of the 19th century, uncontrolled development was creating slums at Canning Town and Stratford. The agricultural drainage system of open ditches was woefully inadequate for the expanding population, and epidemic diseases such as cholera accounted for over one third of all

deaths in the area between 1848 and 1854. In the latter year, a Bill was passed in an abortive effort to empower the Havering and Dagenham Commissioners of Sewers to carry out a main drainage scheme. However, the local opposition was such that in 1855 there was a General Board of Health Inquiry into the sanitary state of West Ham. The report produced was known as the “Dickens Report” as the Inspector in charge was Alfred Dickens, brother of the great Charles. Under Dickens’ recommendations the West Ham Board of Health was established in 1856; this body did carry out a proper drainage and sewerage system.

The Docks Cut remained as part of the Commissioners’ scheme and was an open ditch or “cut” running alongside the new Victoria Dock to the Thames at Gallions Reach. This had originally been planned to replace the old land drains destroyed in making the dock. The Dock Company, which had undertaken to provide the cut, did not complete it as far as Gallions Reach until it had finished its dock scheme by opening the Royal Albert Dock in 1880.

The cut never officially served a sewerage function in the modern sense. Its fall to Gallions Reach was miniscule and it was virtually stagnant but by the late 20th century it had developed into an ecologically valuable site. Extensive redevelopment in the Dockland area during the late 1980s and early 1990s, particularly construction of the Docklands Light Railway extension to Beckton, resulted in almost the entire length of the cut being culverted into underground pipes. The only section remaining above ground at the end of 1990 is a length of about 150 metres beside Connaught Road (A 112), just east of Custom House station.

Despite its steep sides, this last remnant of the Royal Albert and Victoria Docks Cut supports a lush marginal growth of reed, yellow flag and sea club-rush. Duckweed covers the water’s surface. The attractive appearance of the waterway created by this vegetation is somewhat marred by rubbish dumped in the water.

The cut is surrounded by bramble and tall weeds, such as mugwort, cleavers and the introduced Greek dock, a very large species of dock. To the north of this are allotment gardens. As there are no plans to culvert this last remnant of the cut, it might be possible to allow public access to the site, which has in the past been used for nature study by a local school.

Ne.L7 Priory Park

Grid ref TQ 415 836
Area 4.4 ha

The “newest” site in this handbook, Priory Park was only opened in early 1991. The park was formed mostly from the former Priory Road Recreation Ground, with the remainder being made up from a former goods yard. The latter became a coal yard and subsequently a Council depot until construction of the park began in 1990.

Priory Park has a completely virgin look at the time of writing. The planted trees are still small, the paths look freshly scrubbed and the most colourful feature, at least in winter, is the children’s play equipment in the centre. This primarily flat park has a long frontage along Grangewood Street, where two entrances, with attractive and distinctive iron gates, are located. Seven further entrances are located in other surrounding streets. The low terraced houses to the east are not intrusive, but the newer housing and tower blocks to the west, with the floodlights of West Ham United’s football ground beyond, rather overshadow the park.

An egg-shaped “ecology area”, 25 metres across, has been created in the northern part of the park by digging down to the water table. The bowl thus created has standing water in winter but dries out in the summer months. A few trees, mostly alders, have been planted around the edges, but otherwise it is intended to allow plants to colonise the area naturally. At the time of writing, a fair range of common but colourful wild flowers, including common mallow, goat’s rue, melilot and thistles, have already arrived. The proximity of the railway cutting will doubtless assist this process, but the introduction of a few wetland plants may prove necessary. The bowl is surrounded by low wooden fencing with a gate to allow access.

Elsewhere in the park an area of shrubs and young trees of mostly native species, including ash and field maple, has been added, and a belt of conifers has been planted by Grangewood Street. Other shrubberies contain large amounts of cotoneaster, a berry-bearing shrub much appreciated by thrushes and starlings in winter.

An area of ruderal vegetation located between the park and the railway line has been included within this site, although strictly speaking it is not part of the park. It consists of a display of colourful wild flowers, with poppies being particularly prominent, on either side of a track which descends from Grangewood Street towards the railway. Although inaccessible to the public, a good view can be obtained through the fence in Grangewood Street or from the park.

A new primary school is being built immediately to the south-east of the park; this is due to open in 1992. It is hoped that the school will take over management of the ecology area. Once it has matured, Priory Park will make a valuable addition in terms of amenity and environmental education to a heavily built-up area with few other such resources.

Ne.L8 Plashet Park

Grid ref TQ 420 844
Area 7.2 ha

Plashet Park is a fairly large public open space situated in the middle of a large area which is otherwise deficient in green areas of any kind, and wildlife habitats in particular. It was established in 1889, when J.H. Bethell, with the help of the Vicar of East Ham, secured the grounds of Wood House, a late 18th century weatherboarded house standing just to the west of High Street North, East Ham, for a public park and obtained a grant of £3,000 from the City Parochial Trustees towards the cost. The park was opened in 1891. Further land was later added to achieve the park’s present size.

The park itself consists of flat, closely-mown grass with avenues of mature London plane trees, and is of little ecological interest. However, within the park is a children’s zoo, which is an important educational amenity, much enjoyed by local people using the park, and frequently visited by school groups and patients from the nearby psychiatric hospital.

Among the usual range of animals, such as goats, sheep, donkeys, rabbits, geese and ducks, are some less familiar ones; these include a tropical aviary, housed in a large greenhouse, and two families of grotesque, but curiously appealing, Vietnamese pot-bellied pigs. A second greenhouse serves as a classroom for visiting schools, while a third has been converted by one of the park keepers, to his own design, into a tropical butterfly house; this opened in the spring of 1991 and includes an ornamental pond, with a bridge and fountain, and a wide variety of tropical plants to provide nectar for the butterflies. For the zoo’s opening hours, telephone Newham City Farm on 071-476-1170.

Along with Newham City Farm, Plashet Park Zoo offers a rare opportunity for inner city children to come into contact with animals. Its educational value would be still greater if the ecological interest of the park were increased, thus combining the captive animals with a place for nature study. This could be easily achieved by planting more trees and shrubs, preferably of native species, and allowing some of the grass to grow longer. Plashet Park would then be a wonderful asset for the people and schools of Plashet and Upton Park.

Ne.L9 Central Park
Grid ref TQ 425 842
Area 10 ha

Central Park fulfills a similar role in East Ham to that of West Ham Park further west in Upton and West Ham; it is the only sizeable green space in a large built-up area. The land was obtained in 1896 by East Ham Urban District Council to create a park in the centre of the growing town. It had previously been the grounds of Rancliffe House, an early 18th century house which was demolished in 1908. The park was later extended to its present size by further land purchases. The town's monument to over 1,600 East Ham residents killed in the First World War stands in the grounds.

Central Park is very similar to the larger West Ham Park, with mature plane, lime and horse chestnut trees along the paths, and an attractive area of formal gardens containing shrubberies and a variety of trees. Dogs are prohibited from the gardens, making them a rare haven from dog mess. The gardens support a similar range of breeding and migrant birds to other open spaces in the Borough with large trees. The vast majority of the park is short-mown grass, so there is plenty of scope for ecological improvements.

A pond similar to that in West Ham Park has been planted with fringed water-lily and a variety of exotic marginal plants, and has been stocked with goldfish and rudd.

Central Park is owned and managed by the Council, and has free public access during daylight hours. Newham's Leisure Services Department has designed a tree trail in the

park, with a route map and teachers' pack, to serve as an attractive walk for the public and as an educational facility.

Ne.L10 Langdon School Rough
Grid ref TQ 435 839
Area 0.25 ha

This overgrown orchard garden beside Barking Road has been more or less undisturbed since the Second World War, and forms a haven for birds, foxes, rabbits and squirrels. The fruit trees and ornamental shrubs, along with bramble and elder, have grown into a dense tangle of scrub, with large bindweed climbing over the shrubs, and nettles and Canadian golden rod beneath. A line of tall trees (weeping willow, poplar and lime) along the edge nearest the road helps to shield the site from traffic noise, allowing the beautiful songs of blackbird, robin and song thrush to be heard.

The site is owned by Langdon School, and would make an ideal school nature area. It is greatly valued as an area of wilderness by local people, although there is no official public access at present. It is designated Metropolitan Open Land in the East Ham Local Plan.

The site is the subject of a bid for Urban Programme funding in 1991–1992 to clear some of the scrub for access by the school, repair fencing and carry out supplementary planting of native trees and shrubs and wild flowers.

11 Sites nearby in adjacent London Boroughs important to Newham

London Borough of Tower Hamlets

The Mudchute	TQ 382 789
Victoria Park	TQ 362 840
Hertford Union Canal	TQ 365 837
Old Ford Pumping Station	TQ 374 838
Tower Hamlets Cemetery	TQ 370 823

London Borough of Hackney

River Lea	TQ 370 858
Lea Navigation	TQ 366 855

London Borough of Waltham Forest

Epping Forest	TQ 393 923
---------------	------------

Walthamstow Marshes and Reservoirs	TQ 360 865
Temple Mills Marshalling Yards	TQ 372 862

London Borough of Redbridge

Bush Wood	TQ 402 873
Wanstead Park	TQ 414 875
Valentines Park	TQ 436 877

London Borough of Barking and Dagenham

Barking Levels	TQ 475 825
Barking Park	TQ 445 850

Some of these sites are shown in figure 8.

References and further reading

- Bacon** c1904
Atlas of London and Suburbs
Stanford W (Ed)
G W Bacon & Co Ltd
- Batholomew J and Son Ltd** 1968
Bartholomew's Reference Atlas of Greater London 13th Edition
John Bartholomew & Son Ltd
- Burke T** 1922
In the Streets of Cyprus-on-Thames in *The London Spy*
Thornton Butterworth
- Burley R, Game M & Frith M** 1989
Ecology Handbook No.11
Nature Conservation in Waltham Forest
London Ecology Unit
- Burton R M** 1983
Flora of the London Area
London Natural History Society
- Clapham A R, Tutin T G & Warburg E F** 1981
Excursion Flora of the British Isles
3rd Edition Cambridge University Press
- Dickens A** 1855
Report on the sewerage, drainage and supply of water and the sanitary conditions of West Ham
General Board of Health
- Essex Biological Records Centres** 1983
A Provisional Atlas of the Amphibians and Reptiles of Essex
Passmore Edwards Museum
- Ferris P R** 1981
The flora of southern Epping Forest, Part 2: Wanstead Flats and Bush Wood
London Naturalist 60 pp 6-19
- Fitter R S R** 1945
London's Natural History
Collins, London
- Great Eastern Railway Society** 1987
Return to North Woolwich
Passmore Edwards Museum
- Greater London Council** 1986
Ecology Handbook No.4 *A Nature Conservation Strategy for London: Woodland, Wasteland, the Tidal Thames and two London Boroughs.*
- Harris G J** 1986
Pseudamnicola confusa rediscovered in the Thames Estuary
Journal of Conchology 32 (2) page 147
- Harrison J G & Grant P J** 1976
Thames Transformed London
- HM Inspectorate, Department of Education and Science** 1989
Environmental education from 5 to 16
Curriculum Matters 13 HMSO London
- Hyman P S** 1987
Bruchela rufipes (Olivier) (Col. Anthribidae) rediscovered in Great Britain
Entomologist's Monthly Magazine 123 page 90
- Jackson A A** 1978
London's Local Railways
David & Charles, Newton Abbot
- London Borough Of Newham** 1986
West Ham 1886-1986
London Borough of Newham
- London Borough of Newham** 1987
Newham Official Guide
London Borough of Newham
- London Wildlife Trust & Essex Biological Records Centre** 1985
A Report on the Wildlife and Habitats of Thames Wharf and Bow Creek Including the Limmo Peninsula
London Wildlife Trust/Passmore Edwards Museum

- McDougall D** 1936
Fifty Years A Borough 1886-1936: The Story of West Ham
West Ham County Borough Council
- Mee A** 1972.
The King's England. London North of the Thames except the City of Westminster
Hodder & Stoughton, London
- Meller H** 1981
London Cemeteries, An Illustrated Guide and Gazetteer
Avebury of Amersham
- Montier D J** 1977
Atlas of Breeding Birds of the London Area
B T Batsford, London
- Morley H** 1857
Londoners over the Border,
Household Words No.30 Charles Dickens
- North Thames Gas Board** 1970
Supplement to Historical Index of Gas Works 1806-1957 North Thames Gas Board
- Pevsner N & Radcliffe E** 1965
The Buildings of England: Essex
2nd Edition Penguin, London
- Plant C W** 1979
The status of the hedgehog *Erinaceus europaeus* in the London Boroughs of Barking, Newham, Redbridge and Waltham Forest
London Naturalist 58 pp 27-37
- Plant C W** 1986
The Birds of Newham
PEMT Enterprises Ltd
- Plant C W** 1987
The Butterflies of the London Area
London Natural History Society
- Plant C W & Kibby G** 1984
The fungi of southern Epping Forest
London Naturalist 63 pp 34-52.
- Plant C W, Harris G J, Kirby P, Hyman P S & Lambert S J** 1985
Biological recording in metropolitan Essex - a review of progress
London Naturalist 64 pp 27-40
- Prater A J** 1981
Estuary Birds in Britain and Ireland
Poyser
- Raven P J** 1988
Ecological Effects of a Major Insecticide Pollution on an Essex River
London Naturalist 67 pp 75-85
- Ruegg R** 1847
Summer Evening Rambles Round Woolwich
- St Bonaventure's School** undated
A Study of Waste Site Flora in the London Borough of Newham
Newham Geography Teachers Workshop
- Slee J** 1974
Philanthropy and Botany -
Dr John Fothergill (1712-1780)
Country Life 14 November 1974
- Stewart E G** 1958
Historical Index of Gas Works, Past and Present in the Area Now Served by the North Thames Gas Board 1806-1957, North Thames Gas Board
- Stokes A** 1933
East Ham from Village to County Borough
Wilson & Whitworth
- Swales S** (Ed.) 1988
The Development of Environmental Education in London London Ecology Unit
- White H P** 1987
A Regional History of the Railways of Great Britain: 3 Greater London (3rd Edition)
David & Charles, Newton Abbot
- White W** 1863
History, Gazetteer and Directory of the County of Essex
2nd Edition, printed for the author
- Wren Conservation Group** 1974-1990
Birds of southern Epping Forest
Annual Report of the Wren Conservation Group 1974-1990
- Wurzell B** 1988
Conyza sumatrensis (Retz.) E Walker establishes in England, *Watsonia* 17 pp 145-148

Appendix 1 Addresses of some relevant organisations

Allotments for the Future

c/o Ms Sheila Beskine
58 Buxton Road
Stratford
London E15 1QU

British Trust for Conservation Volunteers

London Ecology Centre
80 York Way
London N1 9AG

British Trust for Ornithology

National Centre for Ornithology
The Nunnery
Nunnery Place
Thetford
Norfolk
IP24 2PU

Director of Education

London Borough of Newham

Education Offices
Bridge House
320 High Street
Stratford
London E15 1EP

Director of Environment and Planning

London Borough of Newham

Town Hall Annexe
Barking Road
East Ham
London E6 2RP

Director of Leisure Services

London Borough of Newham

3-11 Nelson Street
East Ham
London E6 4EH

Docklands Forum

The Brady Centre
192 Hanbury Street
London E1 5HU

English Nature (Nature

Conservancy Council for England)
Room 801, Chancery House
Chancery Lane
London WC2A 1SP

Friends of Woodgrange

Park Cemetery

c/o Mr A. Wade
53 Levett Gardens
Seven Kings
Ilford

Essex

IG3 9BU

Lee Valley Regional Park Authority

Myddleton House
Bulls Cross
Enfield
Middlesex
EN2 9HG

Local Studies Library

Stratford Reference Library
Water Lane
Stratford
London E15 4NJ

London Docklands

Development Corporation

Royal Docks Office
Gate 8 North Side
Royal Victoria Dock
Connaught Road
London E16 1BL

London Gas Museum

Twelvetrees Crescent
Bromley-by-Bow
London E3 3JH

London Natural History Society

c/o British Museum (Natural History)
Cromwell Road
South Kensington
London SW7 5BD

London Wildlife Trust

London Ecology Centre
80 York Way
London N1 9AG

Museum in Docklands Project

Unit C14
Poplar Business Park
10 Prestons Road
Poplar
London E14 9RL

Newham Allotment Holders

Federation

c/o Mr Bill Gladwell
60 Wolsey Avenue
East Ham
London E6 4AJ

Newham Friends of the Earth

c/o Durning Hall
Earlham Grove
Forest Gate
London E7 9AB

Passmore Edwards Museum

30 Romford Road
Stratford
London E15 4BZ

Peoples Plan Centre

10 Pier Parade
Pier Road
North Woolwich
London E16

Royal Society for the

Protection of Birds

The Lodge
Sandy
Bedfordshire
SG19 2DL

Wren Conservation Group

c/o Mr Mike Dent
14 Coolgardie Avenue
Highams Park
London E4 9HD

Appendix 2a English and Latin plant names used in the text

A

Alder
Alexanders
Alsike clover
American willowherb
Amphibious bistort
Apple
Arrowhead
Ash
Aspen
Autumnal hawkbit

Alnus glutinosa
Smyrniolum olusatrum
Trifolium hybridum
Epilobium ciliatum
Polygonum amphibium
Malus domestica
Sagittaria sagitifolia
Fraxinus excelsior
Populus tremula
Leontodon autumnalis

B

Barren brome
Beaked hawk's-beard
Beech
Bent-grass
Bermuda-grass
Birch
Birdsfoot-trefoil (common)
Bithynian vetch
Bittersweet
Black horehound
Black medick
Blackthorn
Bladder campion
Bladder senna
Bloody cranesbill
Bracken
Bramble
Bristly ox-tongue
Broad-leaved dock
Broom
Buddleia
Bulrush
Bur-reed

Bromus sterilis
Crepis vesicaria
Fagus sylvatica
Agrostis sp.
Cynodon dactylon
Betula sp.
Lotus corniculatus
Vicia bithynica
Solanum dulcamara
Ballota nigra
Medicago lupulina
Prunus spinosa
Silene vulgaris
Colutea arborescens
Geranium sanguineum
Pteridium aquilinum
Rubus fruticosus
Picris echioides
Rumex obtusifolius
Cytisus scoparius
Buddleja davidii
Schoenoplectus lacustris
Sparganium erectum

C

Canadian fleabane
Canadian golden rod
Canadian pondweed
Canterbury bell
Cat's ear
Celery-leaved crowfoot
Centaury
Cherry
Chinese mugwort
Cleavers
Clover
Cock's-foot
Coltsfoot
Comfrey
Common St John's wort

Conyza canadensis
Solidago canadensis
Elodea canadensis
Campanula medium
Hypochaeris radicata
Ranunculus sceleratus
Centaurium erythraea
Prunus sp.
Artemisia verlotiorum
Galium aparine
Trifolium sp.
Dactylis glomerata
Tussilago farfara
Symphytum officinale
Hypericum perforatum

Common bent-grass
Common lime
Common mallow
Common osier
Common sallow
Common spike-rush
Common vetch
Conglomerate rush
Corn cockle
Cornflower
Couch grass
Cow parsley
Crack willow
Creeping buttercup
Creeping cinquefoil
Creeping thistle
Creeping willow
Creeping yellow-cress
Cut-leaved cranesbill
Cypress spurge

Agrostis capillaris
Tilia x europaea
Malva sylvestris
Salix viminalis
Salix cinerea
Eleocharis palustris
Vicia sativa
Juncus conglomeratus
Agrostemma githago
Centaurea cyanus
Elymus repens
Anthriscus sylvestris
Salix fragilis
Ranunculus repens
Potentilla reptans
Cirsium arvense
Salix repens
Rorippa sylvestris
Geranium dissectum
Euphorbia cyparissias

D

Dittander
Dock
Dog rose
Dove's-foot cranesbill
Duckweed
Duke of Argyll's tea tree
Dwarf elder

Lepidium latifolium
Rumex sp.
Rosa canina
Geranium molle
Lemna minor
Lychium spp.
Sambucus ebulus

E

Early hair-grass
Elder
Elm
Everlasting pea
Eyebright

Aira praecox
Sambucus nigra
Ulmus sp.
Lathyrus latifolius
Euphrasia agg.

F

False acacia
Fat hen
Fennel
Fennel-leaved pondweed
Field maple
Field milk-thistle
Field poppy
Fig
Fiorin
Fleabane
Flote-grass
Flowering rush
Fool's watercress
Foxglove
Fringed water-lily

Robinia pseudoacacia
Chenopodium album
Foeniculum vulgare
Potamogeton pectinatus
Acer campestre
Sonchus arvensis
Papaver rhoeas
Ficus carica
Agrostis stolonifera
Pulicaria dysenterica
Glyceria fluitans
Butomus umbellatus
Apium nodiflorum
Digitalis purpurea
Nymphoides peltata

G

Garden bluebell	<i>Hyacinthoides hispanica</i>
Garden privet	<i>Ligustrum ovalifolium</i>
Giant hogweed	<i>Heracleum mantegazzianum</i>
Gibbous duckweed	<i>Lemna gibba</i>
Gipsy-wort	<i>Lycopus europaeus</i>
Glaucous bulrush	<i>Schoenoplectus tabernaemontani</i>
Goat willow	<i>Salix caprea</i>
Goat's rue	<i>Galega officinalis</i>
Gorse	<i>Ulex europaeus</i>
Great duckweed	<i>Lemna polyrhiza</i>
Great hairy willow-herb	<i>Epilobium hirsutum</i>
Great reedmace	<i>Typha latifolia</i>
Great yellow-cress	<i>Rorippa amphibia</i>
Greek dock	<i>Rumex crispatus</i>

H

Hard poa	<i>Desmazeria rigida</i>
Hard rush	<i>Juncus inflexus</i>
Hardheads	<i>Centaurea nigra</i>
Harebell	<i>Campanula rotundifolia</i>
Hare's-foot	<i>Trifolium arvense</i>
Hawkweed ox-tongue	<i>Picris hieracioides</i>
Hawkweeds	<i>Hieracium</i> spp.
Hawthorn	<i>Crataegus monogyna</i>
Hazel	<i>Corylus avellana</i>
Heath bedstraw	<i>Galium saxatile</i>
Heath rush	<i>Juncus squarrosus</i>
Heather	<i>Calluna vulgaris</i>
Hedge woundwort	<i>Stachys sylvatica</i>
Hemlock	<i>Conium maculatum</i>
Hemlock water dropwort	<i>Oenanthe crocata</i>
Herb Robert	<i>Geranium robertianum</i>
Hoary mustard	<i>Hirschfeldia incana</i>
Hogweed	<i>Heracleum sphondylium</i>
Holly	<i>Ilex aquifolium</i>
Holm oak	<i>Quercus ilex</i>
Honesty	<i>Lunaria annua</i>
Hop	<i>Humulus lupulus</i>
Hornbeam	<i>Carpinus betulus</i>
Hornwort	<i>Ceratophyllum demersum</i>
Horse chestnut	<i>Aesculus hippocastanum</i>
Horse-radish	<i>Armoracia rusticana</i>
Hybrid black poplar	<i>Populus x canadensis</i>
Hybrid campion	<i>Silene x hanpeana</i>

I

Ivy	<i>Hedera helix</i>
Ivy-leaved speedwell	<i>Veronica hederifolia</i>

J

Japanese knotweed	<i>Reynoutria japonica</i>
-------------------	----------------------------

L

Large bindweed	<i>Calystegia septum silvatica</i>
Lesser burdock	<i>Arctium minus</i>
Lesser reedmace	<i>Typha angustifolia</i>
Lime	<i>Tilia</i> sp.
Lombardy poplar	<i>Populus nigra italica</i>

London plane
Long-headed poppy
Lousley's rocket
Lucerne

M

Male fern
Many-headed woodrush
Marsh woundwort
Mat-grass
Mexican tea
Michaelmas daisy
Midland hawthorn
Monkey puzzle tree
Mouse-ear hawkweed
Mugwort
Mulberry

O

Oak
Oat grass
Old man's beard
Ox-eye daisy

P

Pale persicaria
Pear
Pedunculate oak
Pellitory-of-the-wall
Perennial rye-grass
Perennial wall rocket
Persicaria
Petty whin
Policeman's helmet
Poplar
Poppy
Prickly lettuce
Privet
Purple loosestrife
Purple moor-grass
Purple toadflax

R

Ragworts
Rat's tail fescue
Red bartsia
Red campion
Red clover
Red fescue
Red horse chestnut
Reed
Reed sweet-grass
Reed-grass
Reedmace
Ribbed melilot
Rose
Rose-bay willow-herb
Rowan
Russian comfrey
Russian vine

Platanus hybrida
Papaver dubium
Sisymbrium loeselii
Medicago sativa

Dryopteris filix-mas
Luzula multiflora
Stachys palustris
Nardus stricta
Chenopodium ambrosioides
Aster spp.
Crataegus laevigata
Araucaria araucana
Hieracium pilosella
Artemisia vulgaris
Morus sp.

Quercus sp.
Arrhenatherum elatius
Clematis vitalba
Leucanthemum vulgare

Polygonum lapathifolium
Pyrus pyraeaster
Quercus robur
Parietaria judaica
Lolium perenne
Diploaxis tenuifolia
Polygonum persicaria
Genista anglica
Impatiens glandulifera
Populus sp.
Papaver sp.
Lactuca serriola
Ligustrum sp.
Lythrum salicaria
Molinia caerulea
Linaria purpurea

Senecio spp.
Vulpia myuros
Odontites verna
Silene dioica
Trifolium pratense
Festuca rubra
Aesculus x carnea
Phragmites australis
Glyceria maxima
Phalaris arundinacea
Typha sp.
Melilotus officinalis
Rosa sp.
Chamaenerion angustifolium
Sorbus aucuparia
Symphytum x uplandicum
Fallopia baldschmanica

S

Sainfoin
Sand-spurrey
Scentless mayweed
Scots pine
Sea aster
Sea club-rush
Sedges
Sheep's sorrel
Shepherd's needle
Silver birch
Small-leaved lime
Snowberry
Snowdrop
Soapwort
Soft rush
Spanish broom
Spearmint
Spiked water-milfoil
Spotted laurel
Star-wort
Stinging nettle
Strawberry clover
Sumatran fleabane
Sycamore

T

Tansy
Teasel
Thistle
Trifid bur-marigold
Triquetrous garlic
Tufted hair-grass
Tufted vetch

Onobrychis viciifolia
Spergularia rubra
Tripleurospermum inodorum
Pinus sylvestris
Aster tripolium
Scirpus maritimus
Carex spp.
Rumex acetosella
Scandix pecten-veneris
Betula pendula
Tilia cordata
Symphoricarpos albus
Galanthus nivalis
Saponaria officinalis
Juncus effusus
Spartium junceum
Mentha spicata
Myriophyllum spicatum
Aucuba japonica
Callitriche sp.
Urtica dioica
Trifolium fragiferum
Conyza sumatrensis
Acer pseudoplatanus

Tanacetum vulgare
Dipsacus fullonum
Cirsium sp.
Bidens tripartita
Allium triquetrum
Deschampsia cespitosa
Vicia cracca

U

Unbranched bur-reed *Sparganium emersum*

V

Viper's bugloss *Echium vulgare*

W

Warty cabbage *Bunias orientalis*
Water chickweed *Myosoton aquaticum*
Water plantain *Alisma plantago-aquatica*
Water-pepper *Polygonum hydropiper*
Wavy hair-grass *Deschampsia flexuosa*
Wayfaring tree *Viburnum lantana*
Weeping willow *Salix babylonica*
White campion *Silene latifolia*
White clover *Trifolium repens*
White melilot *Melilotus alba*
White water-lily *Nymphaea alba*
Wild angelica *Angelica sylvestris*
Wild asparagus *Asparagus officinalis*
Wild carrot *Daucus carota*
Wild celery *Apium graveolens*
Wild chamomile *Matricaria recutita*
Wild mignonette *Reseda lutea*
Willow *Salix* sp.
Wormwood *Artemisia absinthium*

Y

Yarrow *Achillea millefolium*
Yellow flag *Iris pseudacorus*
Yellow toadflax *Linaria vulgaris*
Yellow water-lily *Nuphar lutea*
Yew *Taxus baccata*
Yorkshire fog *Holcus lanatus*

Appendix 2b Alternative English names for plants

Many plants are known by a variety of different English names in different books. Those used in this handbook largely follow Clapham, Tutin & Warburg's (1981) *Excursion Flora of the British Isles*. For readers familiar with other texts, some of the commoner alternative names are given below.

Bermuda-grass	Creeping dog's-tooth
Bittersweet	Woody nightshade
Blackthorn	Sloe
Cleavers	Goosegrass
Common St John's wort	Perforate St John's wort
Common sallow	Grey willow, grey sallow
Dwarf elder	Danewort, dane elder
Field milk-thistle	Perennial sow-thistle
Fiorin	Creeping bent

Garden bluebell	Spanish bluebell
Goat willow	Great sallow
Hard poa	Fern-grass
Hardheads	Black knapweed
Oat grass	False oat-grass, tall oat-grass
Persicaria	Redshank
Policeman's helmet	Himalayan balsam
Reed-grass	Reed canary-grass
Rowan	Mountain ash
Triquetrous garlic	Three-cornered leek
Wild chamomile	Scented mayweed

Index to sites and key to figure 8

site number shown in figure 8	site description on page	site number shown in figure 8	site description on page		
see 10	Alders Brook <i>BI</i>	40	18	Lea Junction Railway Triangle <i>BI</i>	34
1	All Saints Churchyard, West Ham <i>L</i>	62	see 29	London City Airport <i>BI</i>	41
2	Beckton Alps <i>BII</i>	57	19	Manor Park Cemetery <i>BI</i>	41
3	Beckton District Park and Newham City Farm <i>BI</i>	43	see 25	Mill Meads <i>BI</i>	33
4	Beckton Gas Works <i>BI</i>	51	see 3	Newham City Farm <i>BI</i>	39
5	Beckton Sewage Treatment Works <i>BI</i>	52	20	Newham General Hospital Rough <i>BII</i>	56
6	Beckton Triangle and Cuckold's Haven <i>BI</i>	49	21	North Woolwich Old Goods Yard <i>BII</i>	59
7	Bromley-by-Bow Gas Works <i>BI</i>	39	22	Northern Outfall Sewer <i>BII</i>	54
see 11	Bully Point Nature Reserve <i>BI</i>	32	23	Plashet Park <i>L</i>	65
8	Central Park <i>L</i>	66	24	Priory Park <i>L</i>	65
9	Channelsea River, Stratford <i>L</i>	62	—	Railside Land <i>BII</i> (see figure 7)	60
10	City of London Cemetery and Alders Brook <i>BI</i>	44	25	River Lea system, Stratford Marsh and Mill Meads <i>BI</i>	34
11	Eastway Cycle Track and Bully Point Nature Reserve <i>BI</i>	32	26	River Roding at Little Ilford <i>BI</i>	48
12	East Ham Nature Reserve <i>BI</i>	46	27	River Thames and tidal creeks <i>BI</i>	28
13	East London Cemetery <i>BII</i>	53	28	Royal Albert and Victoria Docks Cut <i>L</i>	64
14	Forest Gate Hospital Site <i>L</i>	63	29	Royal Docks and London City Airport <i>BI</i>	45
15	Former Stratford Railway Works <i>BII</i>	53	30	Silvertown Tramway Sidings <i>BII</i>	57
16	Lady Trower Trust Playing Fields <i>BII</i>	60	31	Stratford Gas Holder Station Rough <i>BII</i>	53
17	Langdon School Rough <i>L</i>	66	see 25	Stratford Marsh <i>BI</i>	33
see 25	Lea (River) <i>BI</i>	33	32	Thames Barrier Prospect Park and Rough <i>BII</i>	56
			see 27	Thames (River) and tidal creeks <i>BI</i>	28
			33	Thames Wharf <i>BI</i>	39
			34	Wanstead Flats <i>M</i>	30
			35	West Ham Cemetery <i>L</i>	62
			36	West Ham Park <i>L</i>	63
			37	Woodgrange Park Cemetery <i>BI</i>	42

M Sites of Metropolitan Importance
BI Sites of Borough Importance, Grade I
BII Sites of Borough Importance, Grade II
L Sites of Local Importance

Map not shown due to copyright restrictions

