THE LEICESTERSHIRE WILDFOWLERS' ASSOCIATION

PRIORY WATER NATURE RESERVE

Priory Water Wildfowl Project

The establishment and development of a nature reserve 1987 - 2007

Sunrise at Priory Water S.J. Houghton

by Peter M.J. Shelton B.Sc., Ph.D.

with major contributions from:

Frank Clark Ph.D., Tony Dakin, Dave Gamble, Tim Goodlife, Steve Houghton and Mark Rossell

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Forewords

From: The President of The Leicestershire Wildfowlers' Association
The Rt. Hon. Lord Crawshaw

In England, where 80% of the population live in towns and cities, many people prefer to ignore the fact that so much of the beauty of our rural landscape was created by the sportsmen of past generations. How dull and lifeless would our countryside be, without the woods, spinneys, hedges and lakes created by our predecessors, and from which we are all benefiting today.

With increasing pressure on space, time and resources, it is immeasurably more difficult to continue the work into the 21st century, but those of us who are lucky enough to live in the countryside and, particularly those of us who enjoy country sports, do have a responsibility to continue the work of our ancestors.

Twenty years ago the L.W.A.'s plan to create Priory Water set an example. It was a plan, particularly valuable in land-locked Leicestershire, to provide a sanctuary for water loving animals, birds and plants. It was a project ahead of its time, long before conservation became the fashionable word it is today.

Peter Shelton's book shows the enormous imagination, enthusiasm and generosity of the many people involved, both financially, and in the time they have given. It also shows the huge amount of knowledge required for the creation of habitats, the preservation of rare species, and the identification and recording of such a variety of both flora and fauna.

The history of Priory Water is a worthy celebration of the last 20 years and a very valuable record of a project of which the L.W.A. can be justly proud.

Crawshaw

From: R.D.F. Bream, T.D., D.L. Chairman of the Leicestershire Wildfowlers' Association 1957-1990

The *Priory Water Wildfowl Project* is published with pride, for it heavily underlines the enormous effort of L.W.A. members who, together, have supported the Association's objectives with total dedication for many years. It should not be forgotten that the Association was originally formed to promote the interests of wildfowlers in the face of increasing challenges. It was soon realised that we could support the legitimate cause of wildfowling by widening the scope of its activities. Local landowners and farmers provided enormous support and the Association's members were pleased to participate in carefully regulated vermin control on their land. The ever increasing membership was also able to enjoy clay pigeon shooting. Early on, the importance of Conservation and Education were recognised. The Priory Water Project reflects the latter objectives as well as our ambition to benefit the countryside, and our wish to protect its flora and fauna. In so doing, the L.W.A. has enhanced its excellent reputation.

R.D.F. Bream

From: J. Swift, M.A., M.Phil. Chief Executive, British Association for Shooting and Conservation

I am delighted, for several reasons, that the Leicestershire Wildfowlers' Association has produced this comprehensive account of the Priory Water Wildfowl Project.

Having been interested in progress at Priory Water since its beginning more than twenty years ago, and having sadly made all too infrequent visits over the years, it is especially pleasing to witness the reserve's continued success and to read about the hard work and lessons learned on the way.

Every wildlife site brings something new to teach us and the Priory Water is no exception: but those lessons are so easily lost if somebody doesn't have the initiative to write it all down for posterity.

On account of their embedded wisdom I still have cause to revisit the W.A.G.B.I. publications of the late Dr. Jeffery Harrison bullied by his fellow wildfowler-conservationists to write in the late 1970s. They together with much older ones still, are kept safely in the John Gow Library here at Marford Mill. Principal among them was that covering Jeffery's pioneering work on the Sevenoaks Gravel Pit Reserve which so inspired the Priory Water Project.

That series was kicked off by a slim brochure published in 1970 called *Wildfowl Conservation in Action-The Story of a Triumvirate (Nature Conservancy, WAGBI and Wildfowl Trust)*. Others have followed covering the breeding birds of the Medway Estuary, the wildfowl of the North Kent marshes, Loch Leven N.N.R., Caerlaverock on the Solway, as well as the Ribble and Kent estuaries.

Each provides insight into the shared interests of shooting and conservation and how they can be, and still are, combined for the public good. Let it not be forgotten that Britain is envied across Europe – indeed around the world – for the sensible relations that exist between shooting and conservation interests; being based on the common enemy in the form of habitat loss and degradation and combined with a shared determination to make the best of that which still exists or can be created.

The Priory Water Project takes its place in that line up, but has an additional and especially timely message. Conservation, today, demands not just active protection and management of sites that are wildlife rich, but optimising every possibility for people to enjoy and understand them.

I very much hope that this publication will better inform those who have cause to read it and stand as a record in posterity to those whose initiative brought it about.

John Swift

Preface

The idea that the Leicestershire Wildfowlers' Association ought to write a book to describe the nature reserve at Priory Water was stimulated in 2004 by a conversation with an ex-member of the Kent Wildfowlers' Association who had recently moved to Leicestershire and had a great interest in wildfowl and country matters. He was at that stage reached by so many sportsmen where he had given up active wildfowling but still retained a great interest in wildfowl. I suggested that he should join the Friends of Priory Water scheme so that he could watch birds and continue with his hobby of photography. Shortly afterwards he showed me a booklet about the Sevenoaks Wildfowl Reserve in Kent written by John Tyler. This booklet described the development of a reserve with many similarities to our own. It was on the site of a reclaimed gravel working, it was established by Kent wildfowlers (Drs James and Jeffery Harrison) and it was dedicated to the conservation of wildfowl. For anyone carrying out habitat restoration work it is essential to document as much as possible. Only then can one see what progress has been made and can one judge how successful the effort has been. It is also important to record how much of the habitat is natural and how much has been created artificially. It was with these thoughts in mind that I suggested that we write our own book so that those coming after us would have a clear understanding of how the reserve had come about and how it has been managed. I took the idea to the Priory Water Management Committee and it was strongly supported. What I had not anticipated was that Chairman of the committee Tim Goodlife would immediately propose that I should gather material and produce the book! Fortunately, there were a number of members of the L.W.A. with considerable knowledge of the early development of the reserve and there were excellent bird records going back to its beginning. Thus, I was able to obtain extensive records and photographs from our current Chairman Tony Dakin. It is now over twenty years since Tony, as the then Hon. Secretary, proposed to the Council of the L.W.A that the Association should carry out an ambitious habitat improvement scheme for the conservation of wildfowl. The idea was unanimously approved by Council under the leadership of the then Chairman, Richard Bream T.D., D.L. It led directly to the setting up of what was to become known as The Priory Water Wildfowl Project.

Tony has been an enthusiastic supporter of this flagship project ever since. Of course there would be no reserve at all if it were not for the generosity of Mr. R.A. Jelley who leased the site to the L.W.A. at a peppercorn rent. The timing of the book coincides with the 50th Anniversary of the L.W.A. and the 20th Anniversary of the reserve and the wonderful state of the reserve today stands as a fitting tribute to so many members of the Association who have made it into a wildlife haven. Particular mention should be made of the L.W.A. members who have served on the Priory Water Management Committee and successive Chairmen of that Committee including such enthusiasts as Geoffrey Grant who devoted many years of service to Priory Water. Finally, it is a great pleasure to record my admiration for the prescience of those in the L.W.A. who started the reserve and in doing so have made such a big contribution to conservation.

P.M.J.S. September 2006

Acknowledgements

Over the years the Reserve has benefited from the generosity of many people and organisations. Mr. Ron Jelley in particular has made an outstanding contribution. Not only has he granted the lease until 2050 but he has also shown a continuing and active interest in supporting the Priory Water project. On many occasions he has provided machinery and expertise without which major works could not have been completed. We gratefully acknowledge support received from Acresford Sand and Gravel Ltd. and Jelson and Co. The late John Cato provided earth moving machinery and was a major player in the building of bird hides and other projects. The Wildman brothers kindly provided their mini-digger for pond clearance. We are grateful to Melton Borough Council and the Wreake Valley Rotary Club for the donation of trees. The Boot Aquaria provided and planted large numbers of aquatic plants. Many people gave of their time when major construction work was required and scientific advice from local amateurs and professionals has always been forthcoming when requested. We are grateful to the British Association for Shooting and Conservation who have given valuable advice on reserve management. Grants for major projects on the reserve have been awarded by a number of bodies including: The Everards Foundation, Pedigree Pet Foods, the BASC Wildlife Habitat Trust, Leicestershire County Council and Melton Borough Council. Thanks are also due to Stuart St. John's Nursery for numerous plants including the oak tree planted to mark the Queen's Golden Jubilee. Thanks are due to the Leicestershire and Rutland branch of F.W.A.G. for advice.

Particular thanks are due to all those members of the L.W.A. who helped with the development of the reserve. These include members of work parties who turned out on many occasions and did the physical work. Many contributed items of equipment and used their own tools for the benefit of the reserve. The whole enterprise has been co-ordinated by a management committee and there have been a number of dedicated Chairmen of that committee. Most recently these have included: Tim Goodlife, Kevin Wilcox, Geoffrey Grant and Steven Williams. Geoffrey ran the reserve at a very critical period in its development and his success in generating funds from many sources is legendary.

With respect to this publication, I am grateful to Tim Goodlife for providing much valuable information. With respect to bird records, Friend of Priory Water member Dave Gamble has kept a monthly bird count since the reserve's inception. He has also kept a record of mammals, reptiles and insects. This has been made available to me and his invaluable lists with comments have been reproduced virtually unchanged. Mark Rossell has also provided information not only on birds but also on the moths of Priory Water and his records are reproduced in this book. He was accompanied in mothing sessions by Howard Orridge who helped with identification, particularly of the Micro-lepidoptera. I am indebted to Steve Houghton for extensive records and notes of the dragonflies of Priory Water. Once again those records provide the basis for the report on the Odonata. Chairman Tony Dakin extracted key records concerning Priory Water from the L.W.A.'s journal 'Pintail'. These records were invaluable and have been incorporated into the text. With respect to the recording of trees I am indebted to Dr. Frank Clark who helped me

with identification. He has also collected and identified freshwater invertebrates, helped with the identification of flowering plants and provided valuable advice on all matters scientific. These include providing an account of the geology of the site. In this he was helped by Dr. Roy Clements of the University of Leicester. We are grateful to Professor Clive Stace, also of the University of Leicester who readily identified plants for us, especially the willows. Dr. Peter Long kindly visited the reserve with me and identified fungi. The L.W.A. has a large collection of photographs of the reserve at all stages of its development. These photographs were taken by friends and members of the L.W.A. and were made available to me by Tony Dakin. Although the photographers are often unknown we gratefully acknowledge the contribution that such records make and have used them where appropriate. Many photographs were readily provided by Mark Rossell and especial thanks are due to him. I am grateful to Steve Houghton for his dragonfly images and to Frank Clark for his picture of a Bee Orchid. Many years ago ornithologist and artist Andrew Mackay provided the L.W.A. with some lovely sketches of wildfowl at Priory Water. The one that is best known to members of the Association is the painting of the Pintail which for many years the L.W.A. has used as its logo. I have reproduced it on the cover and title page of the book. Various pamphlets produced by the L.W.A. and The Friends of Priory Water have also provided useful information. For the sake of consistency I have modified and expanded some of the notes given to me by my co-contributors. I have tried to set the data into context. If I have introduced errors in the process, I apologise. A number of people helped with proof reading at various stages in the preparation of the manuscript. These included Dr. F. Clark, Mrs A. Shelton, Mr. T. Goodlife, Mr. S.J. Houghton, Mr. M. Rossell and Mr. D. Gamble; to them I am extremely grateful. Mr John Swift of B.A.S.C. who kindly explained the history of the Sevenoaks Reserve which was set up and run by father and son wildfowlers James and Jeffery Harrison until Jeffery's death in 1978 when the Jeffery Harrison Memorial Trust was set up and took over its management. The Sevenoaks Reserve was handed over to the Kent Wildlife Trust about five years ago.

PMJS

Conservation awards to The Leicestershire Wildfowlers' Association

Even before the establishment of the Priory Water reserve the L.W.A. was known for its conservation work and this was recognised by the following awards:

1971 Awarded the coveted Stanley Duncan Trophy for conservation from the Wildfowlers' Association of Great Britain and Ireland (W.A.G.B.I.) The award was in recognition of the Association's duck rearing programme in which up to then 14,000 duck had been released onto sanctuary waters. Later the number of duck released was to reach a staggering 38,000 duck.

1982 Started the Grace Dieu Snipe Project on wetland by the ballast water for the original Charnwood Forest Canal. After two years the project was awarded a Certificate of Merit by the Laurent Perrier Champagne Awards for Wild Game Conservation.

With the establishment of the reserve more awards were to follow:

1989 Conservation work at Priory Water recognised by B.A.S.C. (formerly W.A.G.B.I.) by the award of the Stanley Duncan Trophy for Conservation for the second time.

1991 Won second prize of a cut glass bowl from the British Field Sports Society Jubilee Conservation Awards for work in re-claiming the gravel pits at Priory Water to encourage wildfowl and providing observation areas for the public.

1992 L.W.A. receives the Quorn hunt award for best example of traditional hedge laying in Quorn Hunt country for the roadside hedge which was laid by a local hedge layer.

1994 The conservation work at Priory Water is recognised by the award of the Ted Scruton Memorial Shield for Conservation by Leicestershire and Rutland Farming and Wildlife Advisory Group.

2005 Work at Priory Water rewarded by the award of the Ted Scruton Memorial Shield for Conservation for the second time.

Priory Water Nature Reserve and Wildfowl Project

INTRODUCTION

The Leicestershire Wildfowlers' Association has an exemplary record in the field of conservation. While its prime aim is the promotion of shooting sports, it has always recognised the importance of conservation and protection of habitat. The establishment and development of the Priory Water Nature Reserve provide splendid examples of what the dedicated efforts of field sportsmen can achieve in the task of improving our natural resources.

This book describes the extent and history of the reserve, its management objectives and its flora and fauna. It serves as a record of its status at the beginning of the twenty first century.

The management of the countryside for the pursuit of country sports has had a major positive influence on the health of the flora and fauna of the British Isles. While the first objective of such management programmes may be narrowly directed towards the conservation of one or a few particular quarry species, the spin-off benefits for other species and the health of the countryside are enormous. Thus, the countryside of Leicestershire, a county that would otherwise have a shortage of such habitats, owes much of its woodland habitat to artificially planted fox coverts (Hoskins, 1977). These provide important refuges for plants, birds and mammals that would otherwise be struggling. In the same way, well-managed shoots do a great deal for conservation by increasing habitat diversity, by making wildlife corridors, introducing beetle banks, protecting headlands, planting cover crops, restoring ponds and managing hedgerows, coverts and woodlands.

A blank canvas – Priory Water before rehabilitation in 1987 J Cato

Tony Dakin, John Cato, Ron Jelley, Jeremy Westmoreland, Karl Pipes, Clive Ablewhite, Mike Tilling and Nick Brankin-Frisby celebrate the handing over of the lease. LWA Picture Library

The impact on the survival of a wide range of organisms can be massive. Similarly, the health of our rivers has improved dramatically in recent years. Much of this improvement is attributable to the vigilance of anglers in managing their waters via the influence they have on the Environment Agency. Sportsmen know all this but the non-sportsmen often do not fully appreciate the positive influence that correctly managed field sports have on the countryside. It is hoped that this book will demonstrate the contribution made to conservation by a dedicated group of wildfowlers over a twenty year period.

The establishment of the reserve

The setting up of the Priory Water Nature Reserve goes back to the late 1980s. Before then the main conservation work of the Leicestershire Wildfowlers' Association (L.W.A.) had been the rearing of wildfowl and their release on sanctuary waters throughout Leicestershire. As a result a massive total of 38,000 wildfowl including mallard, gadwall and pintail had been released. In addition, a small conservation project to encourage and record snipe had been undertaken at Grace Dieu. As these projects reached a natural conclusion, discussions in 1984 between the then Honorary Secretary Tony Dakin and the then Chairman Richard Bream T.D., D.L. led to the conclusion that the L.W.A. should consider a much more ambitious project that would permanently benefit wildfowl. The key to improving the lot of any species is habitat improvement. If the Association was to make a real difference to the well-being of wildfowl in Leicestershire, it had to find a suitable wetland site that could be developed specifically for the conservation of wildfowl. This would

enable the Association to expand its conservation work, to enrich the environment and to provide a resource which would benefit both wildfowlers and the wider community. In particular it would provide an opportunity for individual sportsmen to contribute to the well-being of the countryside. The project would have an educational role by providing a direct demonstration of the valuable conservation work associated with shooting sports.

Over the next two years many meetings were arranged with landowners and various planning authorities with a view to finding a suitable piece of ground, preferably with water. Finally, after many disappointments an ideal area of old gravel workings was located near Kirby Bellars village. (O.S. ref: SK 71,18). The reserve is the site of an exhausted gravel pit from which late Pleistocene, and (to a lesser extent) Holocene, sands and gravels were extracted. The land owned by Acresford Sand & Gravel was made available to the Association at a peppercorn rent by Mr. Ron Jelley owner of the land and a Vice President of the Association. By May 1987 the Hon. Secretary Tony Dakin was able to present the lease, complete with full sporting rights to the then Chairman Richard Bream. On Sunday May 3rd 1987, members of the Wildfowling and Conservation Committee and members of the press met Mr. Jelley on the reserve for the official handing over ceremony. The occasion was marked by the opening of a bottle of champagne awarded to the L.W.A. for the Grace Dieu snipe project.

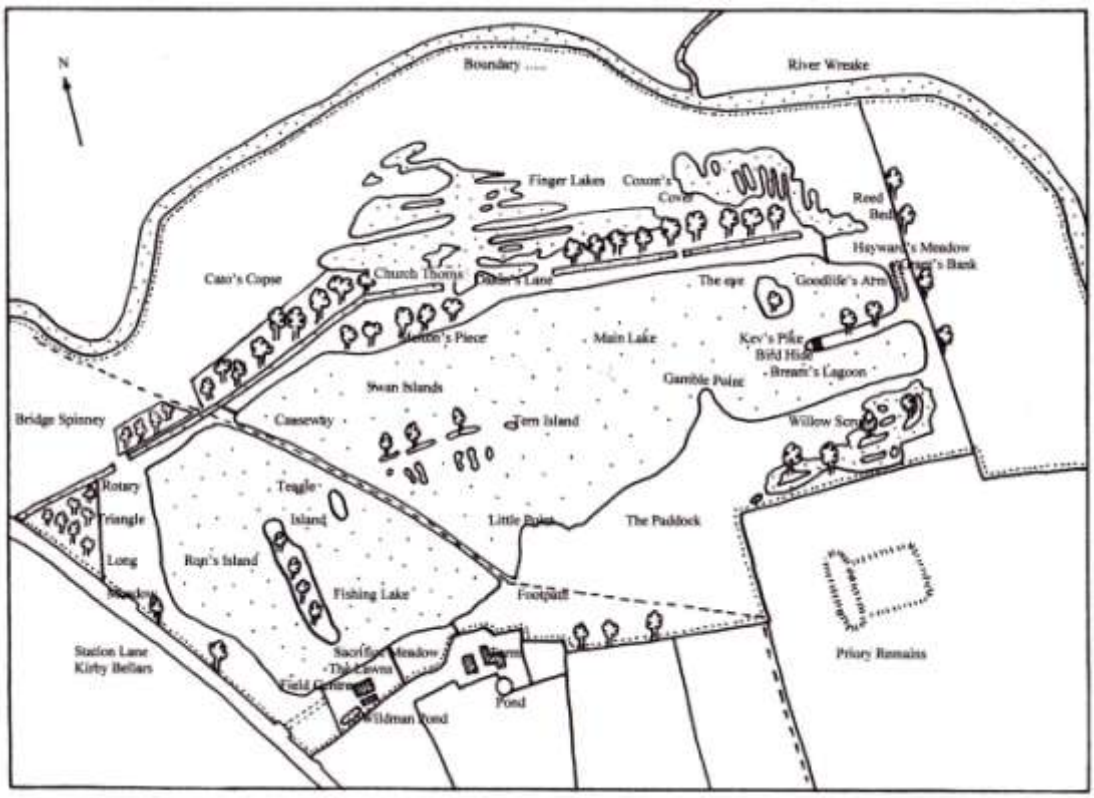
It was decided to name the reserve Priory Water. This reflected the fact that immediately adjacent to the reserve there are the remains of an Augustinian Priory founded in

Priory Water Logo – The Goosander PMJS

A.D. 1359. The presence of the priory provided a coincidental link between the new site at Kirby Bellars and that at Grace Dieu because the latter also had an ancient priory of the same Order. At about this time it was suggested that a logo should be designed specifically for the reserve. One proposal was the common tern, as at least one pair had bred at Priory Water that year. However, as the reserve is an important wintering area for the goosander, and according to local ornithologist Mr. David Gamble accounted for 75% of the Leicestershire population, it was decided to adopt the goosander as the Priory Water logo. In order to finance the various projects, money was sought from a variety of sources and by 1991 over £10,000 had been raised from a variety of sources including: the Everards Foundation, Pedigree Pet Foods, BASC Habitat Trust, Melton and Leicestershire Councils and anonymous donations from friends and members. Since then, the reserve has come on by leaps and bounds and in 1993 Mr. Jelley was sufficiently impressed by the progress made that he extended the lease to 2050. Others were beginning to recognise what had been achieved. In 1994 we received press coverage from the 'Leicester Mercury' with a centre page spread. Soon after, the L.W.A. was awarded the Ted Scruton Memorial Shield by F.W.A.G. for the conservation work at Priory Water. Eleven years later it received this award once more.

Otters and access

The location of the reserve in the flood plain of the River Wreake has been ideal in many ways. The river provides a wildlife corridor and this has enabled key species such as the otter to visit the reserve. Back in 1987 we were not to know that such visits would take place and in the May 1987 issue of 'Pintail', the Association's Journal, the main topic was the decline of the otter. The seclusion of the reserve, restricted human access and habitat rehabilitation work are all factors that help to account for the subsequent appearance of otters at Priory Water. In late March 2000, not far from the location of our old tower hide a dead otter cub was found. The autopsy revealed that it had died of starvation. It is not uncommon for otter cubs to fail to develop the hunting instinct and this one was a mere 12 weeks old. The presence of an otter cub provided direct evidence that otters were breeding in Leicestershire at or near to Priory Water. Numerous people showed interest and excitement including the Derbyshire Wildlife Trust at Elevendon Castle who are responsible for the "Otters and River Project" in Leicestershire and the 'Leicester Mercury' Newspaper. The excitement engendered illustrates the dilemma facing a conservation project such as that of the Leicestershire Wildfowlers' Association. For the otters to thrive, and especially to breed, non-disturbance is critically important. In this instance the over-enthusiastic reporter from the Leicester Mercury produced a two-page report with symbols showing the exact location where the otter cub was found. Wardens were issued with special permits and they were instructed to escort any persons from the area. With the backing and enthusiasm of Mr. Jelley our past president, plans were drawn up to create and improve the habitat for the otters. There were



Map of Priory Water showing the main features PMJS

numerous meetings with the local Council, Environment Agency and Otter Trust to see what could be done. The old tower hide was in a state of disrepair and had to be dismantled on safety grounds. Plans to build a new tower hide overlooking the island on the fishing lake were drawn up and agreed. However, because the funding source demanded full access to the site at all times, the Priory Water Management Committee could not agree, having always jealously guarded rights of access. Consequently the tower hide was not rebuilt. This anecdote illustrates the tightrope that is walked by the management committee when issues concerning rights of access emerge.

The question of access is complicated by the fact that a footpath crosses the reserve on the causeway between the fishing and main lakes. While this normally causes no problems, disaster struck in 2001 with the widespread outbreak of foot and mouth disease within the country. Priory Water was closed in accordance with the DEFRA ruling and it was appalling that certain members of the general public took no notice. As fast as signs prohibiting access to the site were put up they were ripped down and on one occasion the Chairman personally escorted 30 ramblers off the site to much verbal abuse.

In the case of Priory Water, the L.W.A. provides rights of access to non-members of the Association via its Friends of Priory Water Scheme the first meeting of which was on June 12th 1989. The scheme provides access for naturalists and local people who have an interest in conservation. Some of its members have made outstanding contributions to the identification and recording of wildlife on the reserve and in particular our knowledge of the reserve's bird and insect life would be very much poorer without them. Those with a genuine interest in the reserve have always been welcomed. The creation of the Friends of Priory Water scheme was an important decision for a variety of reasons. It provided links with the local community, it provided expertise and members of the scheme provided eyes and ears on the reserve. With regard to the otters, further evidence of their presence came in July 2000 with a sighting by Mr. David. Gamble of an otter swimming in the larger of the two lakes (Main Lake). Later, in March and April 2004, characteristic otter spraints with that slightly lavender scent were identified on a stone at the eastern end of Main Lake. They were viewed and judiciously smelt by numerous members of the management committee. The next year, in Autumn 2005, a partially devoured Tench in the Long Meadow provided further evidence of their presence.

Otters are secretive and much of their activity is nocturnal. The present number of sightings at Priory Water may very much underestimate their presence. What we do know is that otters have recently bred in the area and that they visit Priory Water on what seems to be a regular basis. The otter story is very rewarding for all concerned in habitat improvement at the reserve and their presence gives us confidence in the way that it is developing.

Otter spraint, Priory Water *PMJS*

Geology and recent history of gravel workings

When the site was first acquired the landscape was very bare and it was clear that there was a need for a long-term management plan. Previous to the L.W.A. acquiring the lease on the site the surrounding land had been levelled and the flooded gravel pits had been used briefly as a put and take trout fishery. However, little had been done in the way of tree planting or in habitat improvement specifically designed to maximise the wildlife potential of the site. During the levelling work and general tidying up a considerable amount of rubble and hardcore was buried just beneath the surface and much of the reserve, especially that near to the Field Centre and the roadside flower meadow, consists of made-up ground with only a shallow covering of topsoil. Other parts of the reserve especially at the north eastern end are less modified and naturally occurring fossils can be found on areas of bare soil in the region surrounding the Finger Lakes. In many areas the Association has sought expert opinions from local specialists and they have willingly given their time and advice. With respect to the geology we are indebted to Dr. Frank Clark and Dr. Roy Clements from the University of Leicester who explained the key features. The geology of Priory Water

Devil's Toe Nail - (*Gryphaea arcuata*) PMJS

comprises river alluvium (Holocene, 0-10,000 BP)**,** floodplain level terrace gravels (Syston Sand and Gravel – Devensian (late Pleistocene, *circa* 10,000-26,000 BP)) and a deposit of slightly higher-level terrace gravels (Wanlip Sand and Gravel (again Devensian, *circa* 80,000 BP)). These rest on a bed-rock of mudstones of the Scunthorpe Mudstone Formation (lower part of Lias Group, Lower Jurassic – *circa* 200 Ma). Boulder clay of the Oadby Till (Anglian, mid Pleistocene, *circa* 500,000-400,000 BP) occurs on the surrounding hills. Close by to Asfordby the Coal Measures (late Carboniferous, *circa* 300 Ma) occur at depth and are overlain by water-bearing Permo-Triassic rocks**.** This created difficult and dangerous coal mining conditions that helped stop the exploitation of the Belvoir Coalfield: mining ceased at Asfordby in 1997. Where the drift has been disturbed fossils may be found, principally the Devil's Toe Nail (*Gryphaea arcuata*) and pieces of belemnite. In addition, pieces of rock of the Lower Lias may also be revealed. These yield fragments of Sea Lily (*Pentacrinus* sp.), gastropod (*Eucylus* spp.), *G. arcuata* and other bivalve molluscs.

With respect to quarrying, excavations started at Kirby Bellars in 1961 on the South West side of Station Lane at the site now referred to as Kirby Lakes. In 1969, further excavations started on the other (North East) side of Station Lane. Once the latter site had become exhausted it was partially restored to create a lake area of approximately 40.5 hectares (100 acres). It was on this North East side of Station Lane that the current wildfowl reserve was later to develop. The reserve itself now extends to over 81 hectares (200 acres). It comprises approximately 32

hectares (80 acres) of open water in the form of two large lakes and various smaller lakes and ponds surrounded by rough grazing and planted spinneys.

MANAGEMENT OF THE RESERVE

The success of the reserve and its development are due to a number of factors. These include an ongoing interest by Mr. R. Jelley, the continued support of the Council of the L.W.A., the enthusiasm of successive dedicated conservation officers, many willing work party volunteers and help and advice from professional biologists, local naturalists and conservation organisations. These have included amateurs and experts in fields of ornithology, bird ringing, entomology, angling and botany. Another major factor has been the tranquillity of the reserve and, in accordance with the need to keep human disturbance to a minimum, a significant early decision in January 1988 was to allow no shooting on the reserve.

An important requirement for any reserve is a clear management plan. This has to evolve as the reserve develops. Soon after its instigation, meetings were set up with The British Association for Shooting and Conservation (B.A.S.C.) to help formulate the initial forward management plan. This was drawn up by Peter Mayhew and was received in December 1987; it included tree planting schemes to effect windbreaks and shelter belts. Grants were sought and received from various sources. As well as seeking advice from B.A.S.C. and interested locals it was decided to visit the Sevenoaks Wildfowl Reserve which had been set up and managed by the Kent wildfowlers Drs James and

Dave Gamble (ornithologist) and Mark Rossell (moth expert); Local naturalists play a very important role in identification and recording PMJS

Jeffery Harrison. After Jeffery's death in 1978 the work was carried on by The Jeffery Harrison Memorial Trust. By 1988 the Sevenoaks Reserve was well established with almost 13,000 trees having been planted between 1960 and 1974. That summer the visit to see the Kent reserve was made by the L.W.A. Chairman, the Hon. Secretary, the Hon. Treasurer and the Vice President Mr. R. Jelley. The visit allowed the party to see how old gravel workings could be converted into a thriving nature reserve. The visit impressed the party so much that Mr. Jelley saw fit to add a further 40.5 hectares (100 acres) across the Kirby Bellars to Asfordby Road and this was named Kirby Lakes. In October it was decided that inland wildfowling would be allowed at Kirby Lakes and would be used as a reward for L.W.A. members who attended work parties at Priory Water Nature Reserve. Today, the reserve is managed by a committee

Clearing a culvert to regulate water levels - Work parties are an essential management tool.. PMJS


Hedge laying PMJS

which draws up plans and makes recommendations concerning the short and long-term objectives of the reserve. The work parties meet once a month and help to put those plans into action. Their activities range from tree planting, coppicing, hedge laying and mowing to bridge building, raft construction, pond clearance, maintenance of machinery and building construction.

Aims

The original aim of the reserve was to provide a suitable habitat for wildfowl and waders. However, with the habitat improvement that has resulted from twenty years of active management, new habitats have developed and there has been a massive benefit to wildlife in general. The situation now is quite different to what it was at the beginning. Now we have a complex environment and within this environment a major supplementary aim is to maximise biodiversity. The maturing reserve provides a wonderful educational resource and our aim to benefit the wider community is met by organising visits by schools and wildlife groups and by encouraging the Friends of Priory Water Scheme.

THE FIELD CENTRE

The decision to build a Field Centre that could be used as an educational resource was taken at the end of the 1980s and by 1990 work had began on the building it. Early problems with the foundations meant that the building would have to sit on six concrete piles up to three metres deep. By Christmas the building had progressed and was being roofed. Mr. T.G.M. Brooks J.P. carried out the official opening of the new field centre on September 22nd 1991. There was a fine turnout of other wildfowling clubs in support of our efforts, some travelling from the Kent W.A. In 1993 work started on completing the inside of the field centre with the generous assistance of


Equipment maintenance PMJS

The Field Centre in 1991 before later extensions L.W.A. Picture Library

Mr. R. Jelley the then President of the L.W.A. Diorama boards were fitted to the walls and display cabinets were built. Even then it became obvious that further room was required to house maintenance equipment and plans were drawn up for an extension to the side of the building. This was completed by October and the whole project was finished in just two weeks.

The Field Centre provides a wonderful meeting place and educational resource with wildfowl exhibits and a small library PMJS

View of the Field Centre in 2006 with extension to the nearside and tractor store in the background. PMJS

The year 1995 finished on a sour note when burglars targeted the centre, stealing most of the exhibits and other less important items. Although covered by insurance the L.W.A. had to account for a hefty excess. After the burglary new steel shutters were fixed to the windows and new steel security gates were fitted to the entrance doors. Many members came forward to donate new specimens to replace those lost.
About then, the centre was extended once more with plans being drawn up and approved by Melton Borough Council.

In April 1998, on Good Friday, the whole of the reserve was flooded to a depth of about four feet. The centre was flooded with about two inches of water but thankfully no damage was done thanks to prompt action by L.W.A. members in protecting the equipment and cleaning up next morning. The year 1999 saw another extension built to the rear of the centre to house an increased amount of equipment for the reserve and new show materials.

By 2003 the maintenance of the site had become too large a task to manage with hand tools and garden-sized mowers. Following approval by the L.W.A. Council a tractor and trailer were purchased. This enormously helped with the many heavy tasks that a reserve of this size and stage of development requires. The extra equipment meant that a further building was required and with the tremendous assistance of Mr. Jelley, plans were drawn, passed and the work was completed in 2004. Many members gave willingly of their time and expertise, saving considerable expense and creating a tractor store that blends in well with the other buildings.

BIRD HIDES

The construction of two bird hides at an early stage made a clear statement about the role of the reserve as a bird

Bird hide on Kev's Pike PMJS

conservation project. One of these remains and is located on the peninsula known as Kev's Pike at the eastern end of the main lake. It overlooks a gravel spit and provides a useful observation point. The second was a tower hide. A planning application was submitted to Melton Borough Council in November 1989 and the hide was completed in 1990. By 2001, it was being frequented by trespassing youths and some of the structure was rotten. For safety reasons it had to be dismantled. Plans for a replacement were made (see above) but have not yet been put into action. Today, the veranda of the Field Centre forms a useful dry area from which to watch birds. In addition, in 2004 a living willow hide was successfully planted close to a small bird feeding station in Cato's Copse.

EDUCATIONAL AND RESEARCH VISITS

It was always the intention of the L.W.A. that the reserve should be used for educational purposes. On December 7th 1991 two classes from Queniborough (51 pupils) made the first official visit to the reserve by a party of school children. Over the years this has been followed by many other organised visits by groups both young and old. These have recently included two visits by children from Captains Close Primary School Asfordby. Other organisations that have visited the reserve to see its wildlife include: Wreake Valley Rotary Club, Norton and Gaulby Young Farmers, Atherstone Pony Club and members of the Women's Institute. At a more formal level the site has had visits from The Game Conservancy and the Leicestershire and Rutland branch of F.W.A.G. The reserve has hosted advisory visits from the British Association for Shooting and Conservation on a number of occasions.

Over the years organised visits by a number of interest groups have been set up.

Parties attending moth trapping evenings are organised by Mark Rossell of the Leicester Moth Group and summer dragonfly walks are led by Steve Houghton of The Leicestershire and Rutland Dragonfly Group. Dave Gamble has led bird watching parties from the earliest days of the reserve. We have also had visits from individual members of the Leicestershire Entomological Society.

School party at the old tower hide S.A. Williams

The Priory Water management Committee is happy to arrange educational visits wherever possible. It is also happy to encourage research projects at the reserve when appropriate. Thus, at the end of January 1989 L.W.A. members helped to set up cannon nets in a bid to catch, record, ring and colour mark widgeon. This was carried out under the direction of Carl Mitchel from the Wildfowl Trust at Slimbridge. A total of 116 Wigeon was netted in one go; being the best catch that Mr. Mitchel had recorded for over three years. The birds were measured, weighed and marked and all were noted to be in excellent condition. Over the years there have been two major licensed bird ringing programmes and, as an example, the year 2000 saw a total of 614 birds of 31 species ringed with all the ringing and biometrical data being sent to the British Trust for Ornithology. A number of local amateur naturalists serve on our management committee and to them we are extremely grateful. Not only do they provide specialist expertise but they also provide links with various local naturalists' organisations.

HABITAT CREATION AND REHABILITATION

There are essentially six main types of habitat on the reserve as it is now. These are open water, ponds and scrapes, ruderal (wasteland), grassland, woodland and hedges. All six types of habitat require management and the work required changes as the reserve matures. Thus, with respect to trees, the initial tasks involved extensive planting, now there is a need for thinning and coppicing, hedges have reached the stage where they need laying, maturing ponds require clearing, and grassland areas need annual mowing. Such maintenance requires a substantial effort on the part of the monthly work parties and any new projects must be fitted into the overall work schedule.

Tree planting in the early days. - Over the years some 16,000 trees have been planted S.A. Williams

Open water management

The original gravel extraction work created two main lakes separated by a causeway containing a footpath that crosses the reserve. In order to minimise disturbance it was decided, at an early stage, that the larger of the two lakes that is furthest from the field centre and the Kirby Bellars-Asfordby Road, should have limited access. In accordance with this policy, fishing by members of the L.W.A. Angling section is restricted to the more westerly lake.

Of critical importance to many species of duck and waders is the depth of water. To a certain extent this can be controlled. Methods include altering overflows and depositing material in the water. The main method adopted at Priory Water was a lowering of water level in the Fishing Lake by modifying the overflow into the ditch on its north-western boundary. Because the two lakes are connected by a culvert running under the causeway between them, this had the beneficial result of exposing much more of the gravel spit known as Little Point in the main lake. This general area has been attractive as a roost and potential nesting area for numerous species of bird including Little Ringed Plover (*Charadrius dubius*). Substantial numbers of Lapwing (*Vanellus vanellus*) now use these gravels and increasing the area of the spit has been of considerable benefit. In addition to

Exposed gravels are used by many birds PMJS

Preparing the tern raft in 2004 PMJS

lowering water level, gravels on a nearby island were supplemented with two tons of pea gravel in May 2004. Little Ringed Plover and Oyster-catchers (*Haematopus ostralagus*) were reported to be using this re-gravelled area soon afterwards. The bird community of Priory Water consists of permanent residents and temporary visitors. The latter may be passing migrants, winter visitors and summer breeders. The islands provide secluded nest cover for a variety of species and selective coppicing of trees on the islands has been designed to give a balance of open and heavily vegetated areas. However, natural shingle nesting sites are limited and in April 2004 a tern raft was built and anchored in the Main Lake near to the Little Point. It was immediately used by a variety of species including Little Ringed Plover and up to four pairs of Common Terns (*Sterna hirundo*). Later in 2004 two pairs managed to fledge five young on the raft. In 2005 four pairs of Common Terns successfully fledged eight young between them.

The fact that otters had been using the reserve, and the Environment Agency report that the reserve was the first proven site of otter breeding in Leicestershire since the 1950s, meant that plans for further developments of the reserve were treated sympathetically by Melton Borough Council. They passed plans for the creation of new reed beds and the

Newly established Norfolk Reed Beds (*Phragmites australis*), eastern end of the Main Lake PMJS

construction of three bund areas on the banks of the River Wreake. It was hoped that work to be carried out by the Environment Agency could start in the spring of 2001 at an estimated cost of about £60,000. The foot and mouth outbreak that year meant that work on the new reed beds had to be postponed and could not take place until the early part of 2002. When the project went ahead it was on a reduced scale to that originally planned but nevertheless involved a great deal of earth moving. Machines arrived on site and with the fine weather they were able to move 1,400 tonnes per day with very little damage to the surrounding areas. Surplus earth was used to create a large bank (Grant's Bank) at the eastern end of the Main Lake. The hope was that it would be used by sand martins and kingfishers as a nesting site. Whilst on site the workmen created a new culvert to control the lake water levels. The long dry summer dropped the water levels and the new reed bed quickly became as dry as a bone. Site meetings were organised and it was agreed that the machines would return to excavate deeper. After this had been completed the Eastern end of the Main Lake was planted with Norfolk Reeds (*Phragmites australis*) and fencing was erected to protect the reeds until they had become established. The new reed bed was planted in 2004. Other significant plantings in the Fishing and Main Lakes are of the White Water Lily (*Nymphaea alba*) and today large patches are thriving along their southern shores. These colonies were almost certainly due to one of our

Purple Loosestrife-(*Lythrum salicaria*), Main Lake PMJS


White Water Lily (*Nymphaea alba*), Main Lake PMJS

members who had planted over 500 plants around the margins of the lakes by the middle of 1993.

The Fishing Lake has a prolific growth of Canadian Pondweed (*Elodea canadensis*). This can prove to be problematic for fishermen and in the summer months *E. canadensis* is removed by raking. In 2005 the amount of *E. canadensis* declined in the Fishing Lake and the water was green and murky with a bloom of the blue green alga *Aphanizomenon sp*. The other lake remained free of bloom and its water was clear. At first the cause was suspected to be the stocking of the Fishing Lake with Tench (*Tinca tinca*), Carp (*Cyprinus carpio*) and Bream (*Abramis brama*) the previous year. However, later inspection of a culvert showed there to be evidence of what appeared to be sewage seeping into the lake. The resulting enrichment probably caused the bloom. Fortunately, the pollution problem seems to have been a transient one. Rather little attention has been paid to the various islands apart from occasional coppicing of the trees and shrubs. However, in 1993 over one thousand Wild Daffodils (*Narcissus pseudonarcissus*) were planted on Ron's island in the fishing lake.

Ponds and scrapes

There are a number of ponds and scrapes on the reserve that not only provide useful nesting sites but also contain a rich variety of insect and other wildlife. Some of the pond areas were left over from the original site. In 1995 two scrape areas were excavated by an L.W.A. member using his JCB digger. Because they are shallow, ponds become clogged by the natural succession of plant life. Left unchecked, open areas of water will eventually disappear. Consequently, periodic clearing of ponds is required. This is particularly true of the very shallow pond next to the Field Centre (Wildman Pond). This was cleared in 1995 and again in 2004. In order to preserve the resident wildlife, normally only part of the pond is cleared at any one time. The Norfolk Reed bed (*Phragmites australis*) created at the eastern end of the Finger Lakes (see above) has now become well established and provides ideal habitat for Reed Buntings (*Emberiza schoeniclus*) and Reed Warblers (*Acrocephalus scirpaceus*). However, large stands of Water Horsetail (*Equisetum fluviatile*) and Branched Bur-reed (*Sparganium erectum*) are also beginning to spread and may need control in the future.

With respect to Wildman Pond, there has been some planting of native species including: Water Soldier (*Stratiotes aloides*), Flowering Rush (*Butomus umbellatus*), Purple Loosestrife (*Lythrum salicaria*), and Marsh Marigold (*Caltha palustris*). The Willow Scrub pond is very heavily


Biologist Frank Clark surveys Wildman Pond PMJS

shaded and contains a number of willow covered islands. Consequently the flora is limited. Nevertheless, Reedmace (*Typha latifolia*) Flowering Rush (*Butomus umbellatus*) and Water Mint (*Mentha aquatica*) are present on the margin bounded by the Paddock.

Ruderal

Almost by definition a disused industrial site provides a ruderal (wasteland) landscape. Early work on the reserve consisted of site clearance and tidying up. In a typical day in Spring 1989 the L.W.A. Pintail journal records there was an excellent turnout for a work party with all members of the junior section present. The day was spent clearing the site of concrete, redundant fences etc. and several lorry loads were cleared with the help of a JCB digger. The juniors planted an area with approximately 100 trees to finish off the day. Many days such as this have turned the reserve into the wonderful wildlife haven that it has become today. During the summer months an old dilapidated cattle crush next to the double gates was demolished and burnt and a new one was built by the entrance to the cricket field. As this area had fallen into disuse, Mr. Jelley included it to be under control of Priory Water. Machinery and manpower supplied by Mr. Jelley made various improvements to the north shore of the main lake and also to the entrances to the reserve. The early work left what was virtually a blank canvas upon which the reserve could be developed. With tree planting and the creation of flower meadows, much of the original ruderal landscape has disappeared. Nevetheless, inspection of the flora still reveals the presence of plants typical of wasteland. These include: the Teasel (*Dipsacus fullonum*), Yarrow (*Achillea millefolium*), Musk Mallow (*Malva moschata*), Dwarf Mallow (*Malva neglecta*), Horseradish (*Armoracia rusticana*), Creeping Thistle (*Cirsium arvense*), Spear Thistle (*Cirsium vulgare*), Ragwort (*Senecio jacobaea*), Bee Orchid (*Ophrys apifera*), Nettle (*Urtica dioica*), Bramble (*Rubus fruticosus*), Great Willowherb (*Epilobium hirsutum*) and White Dead Nettle (*Lamium album*). Most of these are widely distributed although the Horseradish is more restricted with clumps in the Long Meadow. Alongside Dakin's Lane, large stands of Hemlock (*Conium maculatum*) are present. This plant is characteristic of damp, sparsely grassy places.

Bee orchid (*Ophrys apifera*) on the Lawns F. Clark

Grassland

The reserve contains a significant area of grassland. Some of this to the south of the lakes (Sacrifice Meadow and The Paddock) is pasture used by horses and it is heavily grazed throughout the year. The resulting short grass provides a useful grazing area for geese and wigeon. Two other areas have been planted with a mix of wild

Cowslips (*Primula veris*) - Long Meadow in the spring looking towards Asfordby church PMJS

flower seeds and are maturing as wild flower meadows. Long Meadow was created in 1991 following meetings held with F.W.A.G., County Hall and seed merchants and a large grant was awarded from the B.A.S.C. Habitat Trust Fund. The meadow was completed in September using a local agricultural contractor; regrettably his discs were smashed when preparing the ground because of the infill substrate and, only two weeks after the ground had been seeded, the whole area was submerged under two feet of floodwater. Nevertheless photographs appearing in the 1993 summer issue of Pintail showed the wild flowers in the new meadow with excellent shots of Lady's Smocks (*Cardamine pratensis*), Cowslips (*Primula veris*), Marsh Marigolds (*Caltha palustris*), Ox Eye Daisies (*Chrysanthemum leucan-themum*), Yellow Irises (*Iris pseudacorus*) and Common Spotted Orchids (*Dactylorhiza fuchsii*). Nine Bee Orchids (*Ophrys apifera*) were counted and significant numbers of Common Spotted Orchid were observed. Further plantings of wild flowers took place in Autumn 1993. The meadow is now well established and, in addition to most of those mentioned above, contains a rich variety of plants including Black Knapweed (*Centauria nigra*), Meadow Vetchling (*Lathyrus pratensis*), Birdsfoot Trefoil (*Lotus corniculatus*), Yellow Rattle (*Rhinanthus minor*), Ragwort, (*Senecio jacobaea*), Spear Thistle (*Cirsium vulgare*), Creeping Thistle (*Cirsium arvense*), Perennial Sow Thistle (*Sonchus arvensis*), Horseradish (*Armoracia rusticana*), Betony (*Stachys officinalis*), Field Bindweed (*Convolvulus arvensis*), Red Clover (*Trifolium pratense*), White Clover (*Trifolium repens*), Fritillary (*Fritillaria meleagris*), Yarrow (*Achillea millefolium*), Cocksfoot (*Dactylis glomerata*), Slender Fox-tail (*Alopecurus myosuroides*), and Soft Rush (*Juncus effusus*). The Cowslips continue to make a beautiful display every Spring. In order to maintain them and other wild flowers, the meadows are grazed or mowed once the plants have seeded. In the early days the emphasis was on grazing, first

Mowing is an essential part of meadow management, Long Meadow, September 2006 PMJS

by cattle and then by sheep. Today, it proves more practical to mow and bale the meadows. The water-side margins of the meadow are characterised by a mix of plants including Great Willowherb (*Epilobium hirsutum*), Water Figwort (*Scrophularia auricula*), Branched Bur-reed (*Sparganium erectum*) and Reed-mace (*Typha latifolium*).

In 2004 during extensive operations to create reed beds at the eastern end of the Finger Lakes the area known as Hayward's Meadow was re-profiled and on the last day of work, the Environment Agency workmen involved with the reed bed operation presented the L.W.A. with £600 worth of wild flower and grass seeds to be used on the reserve.

In addition, a number of mature plants were planted in the meadow. As well as those planted species, a number of others are present including: Meadow Vetchling (*Lathyrus pratensis*), Musk Mallow (*Malva moschata*), Dwarf Mallow (*Malva neglecta*), Field Scabious (*Knautia arvensis*), Perforate St John's Wort (*Hypericum perforatum*), Purple Loosestrife (*Lythrum salicaria*), Creeping Thistle (*Cirsium* arvense) and Yarrow (*Achillea millefolium*).

Flower Species sown in Hayward's Meadow 2006	
Black Knapweed	*Centaurea nigra*
Meadowsweet	*Filipendula ulmaria*
Rough Hawkbit	*Leontodon hispidus*
Autumn Hawkbit	*Leontodon autumnale*
Ox-eye Daisy	*Leucanthemum autumnale*
Birdsfoot Trefoil	*Lotus corniculatus*
Ribwort Plantain	*Plantago lanceolota*
Self-heal	*Prunella vulgaris*
Meadow Buttercup	*Ranunculus acris*
Yellow Rattle	*Rhinanthus minor*
Great Burnet	*Sanguisorba officianalis*
Red Campion	*Silene dioica*

Grass species sown in Hayward's Meadow 2006	
Providence Creeping Bent	*Agrostis stolonifera*
Solo Rough Stalked Meadow Grass	*Poa trivialis*
Crested Dog's-tail	*Cynosurus cristatus*
Slender Creeping Red Fescue	*Festuca rubra*

Species planted as established plants in Haywood's Meadow 2006	
Cowslip	*Primula veris*
Primrose	*Primula vulgaris*
Bulbous Buttercup	*Ranunculus bulbosa*
Lesser Celandine	*Ranunculus ficaria*
Bluebell	*Endymion non-scriptus*
Foxglove	*Digitalis purpurea*
Bugle	*Ajuga reptans*
Common Dog Violet	*Viola riviniana*
Dove's-foot Crane's-bill	*Geranium molle*
Wood Anemone	*Anemone nemorosa*
Early Purple Orchid	*Orchis mascula*
Bee Orchid	*Ophrys apifera*

Woodland

Back in 1987 the site was virtually devoid of trees. Willows had become established on some of the islands and on the footpath between the two main lakes and there were a number of mature Ash trees in the hedge bordering the main lake at its eastern end but otherwise there were virtually no trees. Tree planting began in

Mixed skein of Greylag and Canada Geese over mature Ash trees to the east of the Main Lake PMJS

earnest and the majority that are present today were planted in the years 1987, 1988 and 1989. The L.W.A. experienced some difficulties with respect to the purchase of trees in 1988 due to the storms that had occurred in the south of England. With 16 million trees destroyed in the South, the cost of trees had trebled while the grant of £1.10 per tree from Leicestershire County Council remained static. However, by the end of March L.W.A. members had planted over 300 trees and they were fenced off. The first grant for hedge planting was used to fill gaps in the hedge from the brick bridge to the eastern end of the large lake. A Council landscape grant was awarded and members worked hard to plant the new trees and fence the areas off before the nesting season started. In 1989 Melton Borough Council financed planting of trees to commemorate 'Plant a Tree Week'. The trees were planted on the northern shore of the main lake in an area now known as Melton's Piece. In a similar vein, the conservation section

Guelder Rose (*Viburnum opulum*) – Dakin's Lane PMJS

of the Wreake Valley Rotary Club planted a triangular area of land near to the northern double gate entrance. This area is now known as the Rotary Triangle. During the winter months of 1991 a further two thousand trees were planted. In 1993 a grant was obtained to clear dead trees on the reserve with two new ones being planted for every one removed. The L.W.A. undertook further tree planting sessions north of the main lake in 1995. The species list of planted trees makes quite interesting reading. The majority of planted trees are native and it is the current policy to plant only native trees. Among these, the dominant species found on the reserve are: Hawthorn (*Crataegus monogyna*), Field Maple (*Acer campestre*), Ash (*Fraxinus excelsior*), Silver Birch (*Betula pendula*), and

Coppiced Hazel *(Corylus avellana)* Cato's Copse PMJS

Hazel (*Corylus avellana*). Guelder Rose (*Viburnum opulum*) is common on the margins of coppices. Non-native species include: Buddleia (*Buddleja davidii*), Swedish White-beam (*Sorbus intermedia*) and Cornelian Cherry (*Cornus mas*). In addition, a number of fruit trees were planted including: Crab Apple (*Malus sylvestris*), Wild Cherry (*Prunus avium*) and Pear (*Pyrus communis*).

Over the years some 16,000 trees and shrubs have been planted on the reserve and in 2006 many of these are approaching twenty years of age. Today, the emphasis is on managing the woodlands that have been created.

This involves thinning out the weaker trees and coppicing species such as hazel and hawthorn and pollarding willows. Tree planting is now on a vastly reduced scale and takes place when trees are donated or on special occasions. Thus, two Beech trees (*Fagus sylvaticus*) donated in 2005 were planted in the Long Meadow and to mark the Queen's Golden Jubilee in 2003, an Oak (*Quercus robar*) was planted in the lawns to the east of the Field Centre by our then President, the Lord Lieutenant Sir Timothy Brooks K.C.V.O., J.P. With the development of the tree canopy, attention is now

Tree thinning is needed for increased light and the understorey plants to thrive PMJS

turning to the understorey where enrichment of the flora is required. In many places the spinney floors are either bare or are sparsely populated with Stinging Nettles (*Urtica dioica*). Thus, in 2005 a large number of Native Bluebell bulbs (*Hyacinthoides non-scripta*) were planted in the Rotary Triangle, Long Meadow, Bridge Spinney and Cato's Copse. Other much smaller plantings of Woodruff (*Galium oderatum*) and Wood Avens (*Geum urbanum*) in the Cato's Copse area took place in 2006. Full lists of trees, shrubs and flowering plants are given in Appendices 1 and 2.

Hedges

The reserve contains a mixture of old and newly planted hedges. The well-established roadside hedge is an old one. It contains a number of species of which the dominant one is Hawthorn (*Crataegus monogyna*). Like all old hedges, a number of other species are represented including: Field Maple (*Acer campestre*), Elder (*Sambucus nigra*) Ash (*Fraxinus excelsior*), Blackthorn (*Prunus spinosa*) Bramble (*Rosa fruticosus*) and Dog Rose (*Rosa canina*). There is also one possible specimen of Midland Thorn (*Crataegus laevigata*). In 1992 David Smith a Leicestershire hedge-laying champion was invited to lay 275 metres of the roadside hedge with a similar distance to be completed the following year; the work won the Quorn annual competition for the best laid hedge in the county. Other old hedges are visible on aerial photographs taken before the trees planted by the L.W.A. became established. Two are to be found to the north and east of the main lakes. Within the eastern hedge there are two or three definite specimens of Midland Thorn (*Crataegus laevigata*). This close relative of Hawthorn (*C. monogyna*) is characterised by less deeply indented leaves and by rather barrel-shaped fruits. As well as the old ones, a number of new hedges were

Midland Thorn (*Crataegus laevigata*) PMJS

planted including three in the winter of 1991. These were designed to enclose areas planted with new trees. Since then there have been further plantings to close gaps in existing hedges. Other

plantings of Hawthorn on the lake side of Dakin's Lane west of Melton's Piece were carried out in 2004. Later this will be further developed to provide a lakeside screen. To keep the established hedges in check, a number of work parties were devoted to hedge laying in 2004 and 2005.

FUNGI

Records of fungi are limited. However, mycologist Dr. Peter Long, lately of the University of Leicester, inspected the site in mid-September 2006 and pointed out that it takes between 20 and 30 years for a fungal community to become established in new ground. Hence, at Priory Water one expects a very limited range of fungi because of the re-profiling work that was carried out subsequent to gravel extraction. This was borne out by inspection. In the paddock, a pasture used by horses, there were several clumps of Blackening Waxcap (*Hydrocybe conica*). This fungus is typical of poorer unimproved grassland. The floral diversity of the pasture and presence of the fungus suggests that this area is one of the least modified parts of the reserve

Elsewhere in the tree-planted North East corner of the reserve (Coxon's cover) several specimens of Brown Roll-rim (*Paxillus involutus*) were found. This common fungus, often symbiotic with Birch (*Betula pendula*), was probably brought in with tree planting in 1988/89. In addition, a number of genera associated with wood decay were found. These included specimens of *Psathyrella candolleana* on a decaying willow stump and Blushing Bracket (*Daedaleopsis confragosa*) on a decaying willow log, both in Coxon's covert. *Pholiota aurivella* is parasitic on Ash trees and a specimen was found within the split and decaying trunk of an old ash tree near to the bird hide. At the end of September, specimens of Liberty Cap (*Psilocybe semilanceata*) were found near the entrance to the reserve in Long Meadow. This poisonous species occurs in fields, gardens and roadsides and its presence is consistent with the fact that the area consists of made-up ground

Psathyrella candolleana on decaying willow stump PMJS

WILDLIFE

Birds

With the establishment of the reserve a strong relationship was formed with the Leicestershire and Rutland Ornithological Society and this helped to provide the L.W.A. with reliable bird counts. The L.W.A. is particularly indebted to Leicestershire and Rutland Ornithological Society member and Friend of Priory Water Mr. D. Gamble for his meticulous records and for making them available to the L.W.A. Monthly wildfowl counts are sent to the Wildlife and Wetlands Trust. As the most conspicuous and easily studied inhabitants of Priory Water, more is known about the birds than any other group of organisms in the area. Comprehensive records have been collected since 1988 and there are casual records going back to 1974. As early as June 1989 the site was beginning to show visible signs of improvement and the number of bird

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Lapwing (*Vanellus vanellus*) over Main Lake, duck and geese on the water, Kirby Bellars church behind PMJS

species seen at the reserve had topped 140. In September 2006, with the sighting of a Cetti's Warbler (*Cettia cetti*), another first for the reserve, the total now stands at 234 different types. However, of them, five (all wildfowl) are almost certainly of captive origin. In total, 61 species have bred at the reserve. These include 17 species of waterfowl, with strong and expanding populations of Greylag (*Anser anser*) and Canada Geese (*Branta canadensis*). Mallard (*Anas platyrhynchos*) and Tufted Duck (*Aythya fuligula*) are the main species of breeding duck. Gadwall (*Anas strepera*) and Pochard (*Aythya farina*) have bred but they are mainly winter visitors when they can be present in significant numbers. Other non-breeding winter visitors such as Wigeon (*Anas penelope*), Teal (*Anas crecca*), Goldeneye (*Bucephala clangula*) and Shoveler (*Anas clypeata*) make up an important part of the bird count and dramatically swell the numbers of wildfowl. As well as the species that one would expect to find using the reserve there have been many sightings of unusual or rare visitors. Thus, as early September 18th 1988, the 'Pintail' journal records a passing visit by a Leach's Petrel, this being only the 11th sighting in Leicestershire since the start of the century, and the sighting of 30 Sandwich Terns (*Sterna standvicensis*). In March 1989 there was the first of two sightings of a Bittern (*Botarus stellaris*) at the reserve. Consultation with the full list (Appendix 3) reveals many other such exciting moments

While the original aim of the reserve was to improve habitat for waterfowl, the diversity of habitats that has been created on land has meant that many terrestrial species are benefiting. Thus, 44 species of birds other than waterfowl have bred at the reserve. These include the Reed Warbler (*Acrocephalus scirpaceus*) and the Sedge Warbler (*Acrocephalus schoenobaenus*) that are

Bird feeder in Cato's Copse PMJS

common in dense vegetation by the waterside. In addition, several other species of British warbler breed at Priory Water. Many of the other breeders nest in spinneys, hedges and trees; the presence of nesting individuals is attributable to the habitat that has been created. Apart from habitat improvement, two other methods have been used to encourage birds; these are the provision of artificial nest sites (nest boxes and the tern raft) and the creation of feeding stations. Mr. M. Rossell provided and sited twenty-three nest boxes at Priory Water by the beginning of 1989. By 1995, the number of boxes had risen to over 40 with Tree Sparrows (*Passer montanus*) breeding in one of them. In June 2006 a pair of Barn Owls (*Tyto alba*) nested on the reserve for the first time and raised two young using a nest box on an island (The Eye) in the Main Lake. Previously they had been seen regularly hunting over the meadow areas. Common Terns (*Sterna hirundo*) have successfully bred on the raft. Small bird feeding stations have been set up near to the Field Centre

Common Tern (*Sterna hirundo*), Priory Water M. Rossell

and in Cato's Copse. Friends of Priory Water member Mick Bailey has been responsible both for producing the feeders and keeping them topped up. Among the more interesting species to visit the feeders in 2006 were Siskins (*Carduelis spinus*) and Redpolls (*Carduelis cabaret*).

OTHER VERTEBRATES

Fish and fishing

Our knowledge of fish largely comes from the fishing section of the L.W.A. which was set up in 1987 and the first Pike fishing match with eleven anglers took place on October 24th of that year. The Committee made the decision that fishing was to be restricted to the smaller of the two large lakes purely to

13lb Common Bream (*Abramis brama*); Fishing Lake, June 1994. S.A. Williams

keep disturbance to a minimum. Severn Trent Water Authority was asked to survey the lake and make any recommendations with regard to stocking. This was handled by Mr Steve Leighton, the local Fisheries Officer, and his pike experts fished the water and caught several Pike (*Esox lucius*) weighing up to 17 lb. One fisherman reported that he had seen a large pike estimated to weigh between 35 lb to 40 lb in the corner of the Fishing Lake close to the footpath. Initial reports showed that the water quality and weed content were first class and that the lake was supporting numbers of Roach (*Rutilus rutilus*) and

Tench (*Tinca tinca*) in excellent condition. The recommended stocking density was up to 55 lb of fish per acre (0.4 hectares) of water. Stocking of Roach, Tench and Carp (*Cyprinus carpio*) began on December 8th with a first batch fish consisting of 25 kilograms of Roach. This amounted to 10% of the planned stocking with the balance was to follow in January 1989. Radio Leicester agreed to attend and record the occasion. There was a continuing improvement in the fishing following the stocking and a 2.5 lb Roach was caught on Saturday August 3rd1991. In 1993 a fishing report revealed the presence of Perch (*Perca fluviatilis*) ranging from 3 oz to 1.5 lb, plenty of small Roach and excellent catches of Tench up to 7 lb 2 oz; the best Pike caught weighed 15 lb.

A fishing match on June 26th 1994 produced excellent fish with Tench of real quality up to 7.5 lb in weight. A 13 lb dead Bream (*Abramis brama*) was found in the fishing lake and a scale reading showed it to be at least 15 years old. There were obvious signs of it being egg-bound which was the probable cause of death. Just after this report a member of the L.W.A. caught a Bream weighing 7 lb 7 oz.

In January 1996 Priory Water featured on the television programme 'Screaming Reels' with excellent shots of the wild flowers, the lake and one of our members catching specimen tench.

In the summer of 1998 the Main lake was netted by Framlington Fisheries and specimen fish were transferred to the fishing lake as follows: Common Carp, 2 x 25 lb, 2 x 18 lb, 2 x 14 lb, 2 x 12 lb, 6 Roach over 2 lb, 3 Common Bream at 16 lb each and one 4 lb Perch. A lot of fish netted showed signs of Pike and Cormorant damage. Very few silver fish were caught and a large number of Pike with big heads and lean bodies were removed. In

Kevin Wilcox and Priory pike of 19 lb 15 oz M. Rossell

2004 the fishing lake was stocked with 100 Tench, 100 Carp and 358 Bream. Over the years some very large Pike have been caught, and on two occasions in Autumn 2005 Pike over 20lb were caught. One of these was a fishery record specimen of 26 lb 6oz. In 2006 two Tench over 8lb were caught, the biggest being a fishery record of 8lb 13oz.

Amphibians and Reptiles

No detailed survey of the amphibians has been carried out but the Common Toad (*Bufo bufo*) is the most commonly encountered. This is followed by the Common Frog (*Rana temporaria*) and the Smooth Newt (*Triturus vulgaris*). Other species of newt may well be present.

Of the British species of reptile only the Grass snake (*Natrix natrix*), and Slow Worm (*Anguis fragilis*) have been recorded at Priory Water. The

The Common Frog (*Rana temporaria*) breeds in reserve ponds PMJS


Grass Snakes (*Natrix natrix*) are very common M. Rossell

former is common, the latter has been recorded infrequently. With the increased vegetation on the reserve suitable habitat for Slow Worms has decreased. (Appendix 4)

Mammals

Although there have been no specific studies of mammals, 21 species have been recorded or are probably resident (Appendix 5). Species such as the Short-tailed Vole (*Microtus agrestis*) are occasionally present in large numbers. At these times they form a rich food source for birds such as the Barn Owl (*Tyto alba*). With respect to bird predation, Mink (*Lutreola lutreala*) and Grey Squirrels (*Neosciurus carolinensi*) are probably the most destructive vertebrates. The Hedgehog (*Erinaceus europaeus*) has not been recorded on the reserve and


Barn owls (*Tyto alba*) have been attracted to nest on the reserve by the small mammal population M.Rossell

although Foxes (*Vulpes vulpes*) have bred locally they have not posed a significant problem in the past. Recently, a new Badger's (*Meles meles*) sett has been established in the Willow Scrub area. An interesting development in 2005 was the discovery of a dead Harvest Mouse (*Micromys minutes*). Due to modern agricultural practices this species has suffered a massive decline in the U.K. Finding one on the reserve is attributable to the improved grassland vegetation. Apart from the terrestrial mammals, the reserve is frequented by dozens of Daubentons's Bats (*Myotis daubentoni*), which may be seen over the water on summer evenings.

INVERTEBRATES

Dragonflies and Damselflies

Of the invertebrates, probably the most spectacular are the dragonflies and Priory Water is possibly the best site for watching and studying both dragonflies and damselflies in the county of Leicestershire. The species list total of 23 is exceptional for the county (Appendix 6). Our knowledge of dragonflies is largely due to the enthusiasm of Steve Houghton whose records are sent to the County Recorder for the Odonata. A number of factors contribute to their success at Priory Water. These include: the large diversity of habitats (due to the management strategy), a good range of aquatic flora and fauna (essential for shelter and feeding of larvae) and the excellent quality of the water which is essential for breeding of species such as the Emperor Dragonfly (*Anax imperator*). In addition, the terrestrial habitats, such as sheltered rides and lush meadows, provide areas over which the adult dragonflies can feed on abundant small insects. Wooded areas

A male Small Red-eyed Damselfly; the species was first recorded in Leicestershire at Priory Water in July 2006 S.J.Houghton

The Broad-bodied Chaser breeds at Priory Water S.J.Houghton

and reed-beds provide food and also roosting sites where they can rest at night or shelter during cool or inclement weather. For species that require moving water for breeding, there is an adjacent stretch of well-vegetated slow-flowing river. There are very few sites that encompass all these habitats in one site. The minimal amount of disturbance of the flora, and

the environment in general, is another factor in the success of the insect life; too much disturbance by either humans or farm animals can have a very negative effect on a large number of dragonfly and damselfly species.

Some species have done spectacularly well at Priory Water. The Black-tailed Skimmer (*Orthetrum cancellatum*) and the Red-eyed Damselfly (*Erythromma najas*), which have joined the breeding list in the last ten years, are now present in large numbers each summer. More recently the Hairy Dragonfly (*Brachytron pratense*) has established a small breeding colony. This is significant because it is only just beginning to colonise Leicestershire which is on the northern edge of its distribution range.

The Four-spotted Chaser (*Libellula quadrimaculata*) is still not a common species in some areas of the county yet it is present on the reserve in huge numbers; in addition to this, Priory Water is the only site known in the county where the rare *praenubila* form of the species can be found.

The Four-spotted Chaser S.J.Houghton

Not all species of dragonfly are resident; there is still a handful of species that are classed as either migrants or vagrants. Priory Water has played host to three of these species in recent times: the Yellow-winged Darter (*Sympetrum flaveolum*), the Lesser Emperor (*Anax parthenope*) and the Red-veined Darter (*S. fonscolombii*) have made transient visits. The Red-veined Darter was recorded for the first time in 2006 and was added to the county list only three years ago.

A significant new species at the reserve is the Small Red-eyed Damselfly (*Erythromma viridulum*). In the U.K., this species was first discovered in Essex in 1999 with later appearances in Buckinghamshire and Bedfordshire (Brooks & Lewington, 2002). The closely related Red-eyed Damselfly population on the reserve was already being monitored for Small Red-eyed Damselflies in 2006 and on July 22nd they were seen at the reserve for the first time. This was the first record for this species in the county and up to 130 individuals were counted. The year 2006 was also marked by the appearance of another new species: the Variable Damselfly (*Coenagrion pulchellum*), a species with a patchy distribution in England and Wales.

There is a strong possibility that other species will colonise or visit the reserve in the future: the Scarce Blue-Tailed Damselfly (*Ischnura pumilio*) has already been found in the neighbouring county of Warwickshire. Details of the main species found at Priory Water are given separately, with an indication of breeding status on the reserve, population density and the duration of their flight seasons (Appendix 6).

Lepidoptera - Butterflies

A total of 30 species of butterfly has been recorded at Priory Water (Appendix 7). Of these, 19 species

Clouded Yellow (*Coleas crocea*) a vagrant and an occasional visitor to the reserve M. Rossell

occur annually, two are seen in most years and five of them are rare visitors. Features that make the reserve favourable for butterflies include: physical diversity of habitat, the presence of plants to attract adults and the presence of suitable food plants for the larval stages. Thus, the presence of

Butterflies with grass-feeding larvae	
Small Skipper	*Thymelicus sylvestris*
Essex Skipper	*Thymelicus lineola*
Large Skipper	*Ochlodes vanata*
Speckled Wood	*Pararge aegeria*
Wall Brown	*Lasiomamata megera*
Gatekeeper	*Pyronia tithonus*
Meadow Brown	*Maniola jurtina*
Ringlet	*Aphantopus hyperantus*
Small Heath	*Coenonympha pamphilus*

Butterflies with nettle-feeding larvae	
Red Admiral	*Vanessa atalanta*
Small Tortoiseshell	*Aglais urticae*
Peacock	*Inachis io*
Comma	*Polygonia c-album*
Painted Lady	*Vanessa cardui*

flower meadows, sheltered rides and woodland, provides habitat diversity. Flowering plants provide nectar for adults and there are food sources for a variety of caterpillars. Important food sources on the reserve include grasses and nettles. Caterpillars of nine of the recorded species (Skippers and Browns) feed on grasses; five species of nymphalid e.g. Red Admiral (*Vanessa atalanta*) feed on nettles. Buckthorn (*Rhamnus catharticus*) is a food source for the Brimstone (*Gonepteryx rhamni*); Lady's Smock (*Cardamine pratense*) is the food source for the Orange-tip (*Anthcharis cardamines*). Many of the species that are recorded annually probably breed on the reserve although a full study has not been carried out. Others such as the Clouded Yellow (*Colias croceus*) are continental migrants and their presence is transient

The large Skipper (*Ochlodes vanata*) M. Rossell

Lepidoptera - Moths

The serious recording of moths at Priory Water is a relatively recent phenomenon and the vast majority of records come from night-time mothing sessions. which began in 2000. They use a mercury vapour lamp either suspended over a white sheet or as part of a trapping system. There are also records from casual sightings of moths disturbed from vegetation, chance sightings of larvae and sightings of the few day-flying species. Records from moth trapping sessions are sent to the County Recorder for Lepidoptera. In both 2005 and 2006 all night mothing sessions were arranged using a number of traps. These sessions increased by 22 the number of species recorded at Priory Water on each occasion. The large diversity and numbers of moths have

The day-flying Latticed Heath (*Semiothisa clathrata*); larvae feed on clover and trefoils of the meadows M. Rossell

been greatly enhanced by the range of habitats and the presence of important food plants. The improved management of the meadows and the planting of reed beds has led to a continuing yearly increase in the number of species recorded. Those associated with the reed beds include the Large Wainscot (*Rhizedra lutosa*) and the Bulrush Wainscot (*Nonagria typhae*).

The great majority of identified species belong to the so-called Macro-lepidoptera. Of these the most frequently recorded day-flying species are: Six-spot Burnet (*Zygaena filipendulae*), Silver-ground Carpet (*Xanthorhoe montana*), Shaded Broad-bar (*Scotopteryx chenopodiata*), Latticed Heath (*Semiothisa clathrata*), Cinnabar (*Tyria jacobaeae*), Silver-Y (*Autographa gamma*), Mother Shipton (*Callistege mi*) and Burnet Companion (*Euclidia glyphica*). Because of the difficulties with identification, the Micro-lepidoptera have received much less attention. The most commonly seen are the Mother of Pearl (*Pleuroptya ruralis*), which is often dislodged from vegetation during daylight hours and the tiny, white Water Veneer (*Acentria ephemerella*), which occurs in thousands, but is most often seen in the form of dead bodies floating in the water. In total 236 species of moth have been recorded on the reserve (Appendix 8).

Larvae of the eyed hawk moth (*Smerinthus ocellata*) feed on Sallows (*Salix* spp.) found on the reserve M. Rossell

Other Insects

Although very many other species of insect occur at Priory Water, relatively few have been positively identified (Appendix 9). Noteable recent species include Roesel's Bush-cricket (*Metrioptera roeselii*) and the Long-winged Conehead (*Conocephalus discolor*). Both of these species of tettigoniid favour grassy habitats of the type found on the reserve. Common species of beetle such as the Cockchafer are often seen. Aquatic samples from the two large lakes and the Finger Lakes reveal a range of Hemipterans including

Cockchafer (*Melolontha melolontha*) M. Rossell

a number of species of Waterboatmen (Corixidae), Pondskaters, (Gerridae) and a Saucerbug (Naucauridae). There is a range of Beetles (Coleoptera) from five families (Haliplidae, Dytiscidae, Hygrobidae, Gyrinidae and Carabidae). Caddis flies (Trichoptera) are well represented with a number of families

present (Limnephilidae, Hydroptilidae, Leptoceridae, Phryganeidae and Polycentropidae). Alder flies (Magaloptera, Sialidae) are present in the form of *Sialis lutaria*. There are numerous unidentified midges (Diptera, Chironomidae) and the Mayflies (Ephemeroptera) are represented by the Pond Olive (*Cloeon dipterum*). Damselfly larvae (Odonata) from two species were identified but many more are certainly present. A comprehensive study of the other insects at Priory Water is still to be undertaken

Other Aquatic Invertebrates

Among the aquatic invertebrates there are a number of molluscs including eight species of gastropod snail and a pea mussel (*Pisidium* sp.). The annelid worms are represented by four species of leech (Hirudinia) whose hosts range from fish, waterfowl, molluscs and other invertebrates. Crustaceans are represented by the Water Slater (*Asellus aquatica* and the amphipod "shrimp" *Crangonyx pseudogracilis*) (see Appendix 10). A detailed study of freshwater invertebrates is overdue.

CONCLUSION

Many people have contributed to the success of the Priory Water Project and it has formed the main focus of the L.W.A.'s conservation effort. The present account provides ample evidence of what has been achieved. What began as an attempt to improve the lot of wildfowl has been successful on a grand scale. The reserve is now host to many species of plants and animals and is a shining example of what can be achieved by consistent hard work over many years.

Much remains to be done on the recording side. Although species lists for birds, amphibians, mammals, dragonflies, moths and butterflies are mostly up to date, others are not. A thorough survey of terrestrial insects would reveal an enormous number of species. The same holds true for aquatic invertebrates. The site is also host to many species of grasses and other flowering plants and the current list is far from complete. The hope is that this data will be obtained in the next few years.

Appendix 1 **Trees and shrubs at Priory Water**

(Data collected by F. Clark and P. Shelton)

Picea abies	Norway Spruce	Few
Pinus sylvestris	Scots Pine	Few
Taxus baccata	Yew	Single specimen
Juglans regia	Common Walnut	Single specimen
Castanea sativa	Sweet Chestnut	Few
Fagus sylvatica	Beech	Two specimens
Quercus ilex	Holm Oak	Single specimen
Quercus robur	Common or Pedunculate Oak	Common
Alnus glutinosa	Common Alder	Fairly common
Alnus incana	Grey Alder	Fairly common
Betula papyrifera	Canoe Birch	Fairly common
Betula pendula	Silver Birch	Common
Corylus avellana	Hazel	Very common
Populus tremula	Aspen	Few
Salix alba	White Willow	Fairly common

Salix aurita	Eared Willow	Single specimen
Salix caprea	Sallow or Goat Willow	Fairly common
Salix cinerea	Grey Sallow	Fairly common
Salix x *cinerea* x *viminalis*	Pussy Willow x Osier hybrid	One identified
Salix fragilis	Crack Willow	Common
Salix x *holosericea*	Silky Leaved Osier	One identified
Salix viminalis	Common Osier	Common
Crataegus monogyna	Common Hawthorn	Very common
Cretaegus laevigata	Midland Thorn	Few
Malus domesticus	Apple Tree	Few
Malus sylvestris	Crab Apple	Fairly common
Prunus avium	Wild Cherry or Gean	Few
Prunus cerasus	Sour Cherry	Few
Prunus domestica	Plum	Few
Prunus spinosa	Blackthorn or Sloe	Common
Pyrus communis	Common Pear	Few
Rosa canina	Dog Rose	Common
Sorbus aucuparia	Rowan or Mountain Ash	Few
Sorbus aria	Common Whitebeam	Few
Sorbus intermedia	Swedish Whitebeam	Few
Laburnum anagyroides	Laburnum, Golden Rain	One specimen
Ulex europaeus	Gorse	One
Cornus mas	Cornelian Cherry	Few
Cornus sanguinea	Dogwood	Few
Frangula alnus	Alder Buckthorn	Few
Rhamnus catharticus	Buckthorn	Few
Aesculus hippocastanum	Horse-Chestnut	Few
Acer campestre	Field Maple	Very common
Acer pseudoplatanus	Sycamore	Few
Hedera helix	Ivy	Very common
Buddleja davidii	Common Buddleia	Few
Fraxinus excelsior	Common Ash	Common
Ligustrum vulgare	Privet	Few
Sambucus nigra	Elder	Common
Viburnum lantana	Wayfaring Tree	Few
Viburnum opulus	Guelder Rose	Common

Appendix 2 **Flowering plants at Priory Water**

(Data collected by F. Clark and P. Shelton)

Equisetum fluviatile	Water Horsetail	Locally common
Nymphaea alba	White Water Lily	Common
Anemone nemorosa	Wood Anemone	Few
Caltha palustris	Marsh Marigold	Fairly common
Ranunculus acris	Meadow Buttercup	Fairly common
Ranunculus bulbosa	Bulbous Buttercup	Recent planting
Ranunculus ficaria	Lesser Celandine	Recent planting
Urtica dioica	Stinging Nettle	Very common
Silene dioica	Red Campion	Few
Hypericum perforatum	Perforate St John's Wort	Fairly common
Malva moschata	Musk Mallow	Fairly common

Malva neglecta	Dwarf Mallow	Fairly common
Viola riviniana	Common Dog Violet	Recent planting
Armoracia rusticana	Horse-radish	Single clump
Cardamine pratensis	Lady's Smock	Few
Primula veris	Cowslip	Very common
Primula vulgaris	Primrose	Few
Primula veris x.P. vulgaris	Cowslip x Primrose hybrid	Few
Filipendula ulmaria	Meadowsweet	Few
Geum urbanum	Wood Avens (Herb Bennet)	Recent planting
Sanguisorba officianalis	Great Burnet	Recent planting
Lathyrus pratensis	Meadow Vetchling	Common
Lotus corniculatus	Birdsfoot Trefoil	Common
Trifolium pratense	Red Clover	Common
Trifolium repens	White clover	Common
Lythrum salicaria	Purple Loosestrife	Few
Epilobium hirsutum	Great Willowherb	Common
Geranium molle	Dove's-foot Crane's-bill	Recent planting
Conium maculatum	Hemlock	Common
Solanum dulcamara	Woody Nightshade (Bittersweet)	Common
Convolvulus arvensis	Field Bindweed	Fairly common
Ajuga reptans	Bugle	Fairly common
Lamium album	White Dead Nettle	Fairly common
Mentha aquatica	Water Mint	Fairly common
Prunella vulgaris	Self Heal	Fairly common
Stachys officianalis	Betony	Fairly common
Plantago lanceolota	Ribwort Plaintain	Recent planting
Digitalis purpurea	Foxglove	Recent planting
Rhinanthus minor	Yellow Rattle	Few
Scrophularia auriculata	Water Figwort	Fairly common
Galium oderatum	Woodruff	Recent planting
Galium verum	Lady's Bedstraw	Recent planting
Dipsacus fullonum	Teasel	Common
Knautia arvensis	Field Scabious	Few
Achillea millefolium	Yarrow	Very common
Centaurea nigra	Black Knapweed	Very common
Cirsium vlgare	Spear Thistle	Common
Cirsium avense	Creeping Thistle	Common
Leontodon autumnal	Autumn Hawkbit	Recent planting
Leontodon hispidus	Rough Hawkbit	Recent planting
Leucanthemum vulgare	Ox-eye Daisy	Common
Senecio jacobaea	Ragwort	Fairly common
Sonchus arvensis	Perennial Sowthistle	Fairly common
Butomus umbellatus	Flowering Rush	Few
Elodea canadensis	Canadian Waterweed	Very common
Stratiodes aloides	Water Soldier	Few
Juncus effusus	Soft rush	Common
Agrostis stolonifera	Providence Creeping Bent	Recent planting
Alopecurus myosuroides	Slender Foxtail	Recent planting
Cynosurus cristatus	Crested Dog's-tail	Recent planting
Dactylus glomerata	Cocksfoot	Common

Festuca rubra Slender	Creeping Red Fescue	Recent planting
Phragmites australis	Norfolk Reed	Fairly common
Poa trivialis	Solo Rough Stalked Meadow-grass	Recent planting
Sparganium erectum	Branched Bur-reed	Fairly common
Typha latifolia	Reedmace	Common
Hyacinthoides non-scripta.	Bluebell	Fairly common
Fritillaria meleagris	Fritillary or Snake's Head	Few
Narcissus pseudonarcissus	Wild Daffodil	Fairly common
Iris pseudocorus	Yellow Iris	Few
Dactylorhiza fuchsia	Common Spotted Orchid	Few
Ophrys apifera	Bee Orchid	Common

Appendix 3 **Birds at Priory Water**

(Data collected by D. Gamble)

Gavia immer	Great Northern Diver	Vagrant, with one record in 1978
Tachybaptus ruficollis	Little Grebe	Occasional visitor, has bred
Podiceps cristatus	Great Crested Grebe	Breeding resident
Podiceps grisegena	Red-necked Grebe	Rare passage and winter visitor
Podiceps auritus	Slavonian Grebe	Vagrant, with one record in 2002
Podiceps nigricollis	Black-necked Grebe	Rare passage visitor
Oceanodroma leucorhoa	Leach's Petrel	Vagrant, with one record in 1988
Phalacrocorax carbo	Cormorant	Non-breeding resident
Phalacrocorax aristotelis	Shag	Vagrant, with one record in 1996
Botaurus stellaris	Bittern	Rare winter visitor (two records)
Egretta garzetta	Little Egret	Vagrant, with one record in 2003
Ardea cinerea	Grey Heron	Non-breeding resident
Platalea leucorodia	Spoonbill	Vagrant, with one record in 1974
Cygnus olor	Mute Swan	Breeding resident
Cygnus columbianus	Bewick's Swan	Scarce and irregular winter visitor
Cygnus cygnus	Whooper Swan	Scarce winter visitor
Anser brachyrhynchus	Pink-footed Goose	Scarce and irregular winter visitor
Anser albifrons	White-fronted Goose	Rare winter visitor
Anser anser	Greylag Goose	Breeding resident
Anser caerulescens	Snow Goose	Escape. Former breeding resident
Branta canadensis	Canada Goose	Breeding resident
Branta leucopsis	Barnacle Goose	Escape. Occasional visitor
Branta bernicla	Brent Goose	Rare winter visitor (two records)
Branta ruficollis	Red-breasted Goose	Escape. Rare visitor
Alopochen aegyptiacus	Egyptian Goose	Rare visitor (two records)
Tadorna ferruginea	Ruddy Shelduck	Escape vagrant one record 1976/7
Tadorna tadorna	Shelduck	Annual visitor, has bred
Aix galericulata	Mandarin	Occasional visitor
Anas penelope	Wigeon	Mainly a winter visitor
Anas strepera	Gadwall	Resident, occasionally breeds
Anas crecca	Teal	Mainly a winter visitor
Anas platyrhynchos	Mallard	Breeding resident
Anas acuta	Pintail	Scarce winter and passage visitor
Anas querquedula	Garganey	Rare passage visitor
Anas clypeata	Shoveler	Mainly a winter visitor
Netta rufina	Red-crested Pochard	Escape. Occasional visitor

Aythya ferina	Pochard	Mainly a winter visitor, has bred
Aythya collaris	Ring-necked Duck	Vagrant, with one record in 1994
Aythya nyroca	Ferruginous Duck	Vagrant, two records (1990 & 97)
Aythya fuligula	Tufted Duck	Breeding resident
Aythya marila	Scaup	Rare winter visitor
Somateria mollissima	Eider	Vagrant, with one record in 1989
Clangula hyemalis	Long-tailed Duck	Vagrant, one record 2 birds in 88
Melanitta nigra	Common Scoter	Rare passage visitor
Bucephala clangula	Goldeneye	Winter visitor
Mergus albellus	Smew	Scarce and irregular winter visitor
Mergus serrator	Red-Brstd. Merganser	Irregular passage & winter visitor
Mergus merganser	Goosander	Winter visitor
Oxyura jamaicensis	Ruddy Duck	Regular visitor, has bred
Pernis apivorus	Honey Buzzard	Vagrant, with one record in 2000
Circus aeruginosus	Marsh Harrier	Scarce passage visitor
Accipiter nisus	Sparrowhawk	Breeding resident
Buteo buteo	Buzzard	Occasional visitor, increasing
Pandion haliaetus	Osprey	Occasional passage visitor
Falco tinnunculus	Kestrel	Breeding resident
Falco columbarius	Merlin	Rare winter visitor
Falco subbuteo	Hobby	Non-breed scarce summer visitor
Falco peregrinus	Peregrine	Scarce mainly winter visitor
Alectoris rufa	Red-legged Partridge	Occasional visitor
Perdix perdix	Grey Partridge	Occasional visitor
Phasianus colchicus	Pheasant	Breeding resident
Rallus aquaticus	Water Rail	Mainly a winter visitor
Gallinula chloropus	Moorhen	Breeding resident
Fulica atra	Coot	Breeding resident
Haematopus ostralegus	Oystercatcher	Passage visitor, has tried to breed
Recurvirostra avosetta	Avocet	Rare passage visitor
Charadrius dubius	Little Ringed Plover	Summer visitor, has bred
Charadrius hiaticula	Ringed Plover	Mainly a passage visitor, has bred
Charadrius morinellus	Dotterel	Vagrant, one record 5 birds (1995)
Pluvialis apricaria	Golden Plover	Winter visitor
Pluvialis squatarola	Grey Plover	Rare passage and winter visitor
Vanellus vanellus	Lapwing	Mainly a winter visitor
Calidris canutus	Knot	Rare winter visitor
Calidris alba	Sanderling	Vagrant, with one record in 2004
Calidris minutus	Little Stint	Scarce autumn passage visitor
Calidris temminckii	Temminck's Stint	Vagrant, with one record in 1999
Calidris ferruginea	Curlew Sandpiper	Rare autumn passage visitor
Calidris alpina	Dunlin	Passage and winter visitor
Philomachus pugnax	Ruff	Passage migrant,occasional winter
Lymnocryptes minimus	Jack Snipe	Winter visitor
Gallinago gallinago	Snipe	Mainly a winter visitor
Scolopax rusticola	Woodcock	Scarce winter visitor
Limosa limosa	Black-tailed Godwit	Rare autumn passage visitor
Limosa lapponica	Bar-tailed Godwit	Vagrant, with one record in 1994
Numenius phaeopus	Whimbrel	Scarce passage visitor
Numenius arquata	Curlew	Irregular visitor

Tringa erythropus	Spotted Redshank	Vagrant, with one record in 1985
Tringa totanus	Redshank	Scarce passage and winter visitor
Tringa nebularia	Greenshank	Passage visitor
Tringa ochropus	Green Sandpiper	Passage and winter visitor
Tringa glareola	Wood Sandpiper	Scarce passage visitor
Actitis hypoleucos	Common Sandpiper	Passage visitor
Arenaria interpres	Turnstone	Rare passage and winter visitor
Phalaropus fulicarius	Grey Phalarope	Vagrant, with one record in 1990
Stercorarius parasiticus	Arctic Skua	Vagrant, with one record in 1976
Larus melanocephalus	Mediterranean Gull	Rare passage and winter visitor
Larus minutus	Little Gull	Scarce spring & rare winter visitor
Larus ridibundus	Black-headed Gull	Mainly a winter visitor
Larus delawarensis	Ring-billed Gull	Vagrant, with one record in 1995
Larus canus	Common Gull	Mainly a winter visitor
Larus fuscus graellsii	Lesser Bl.-backed Gull	Passage and winter visitor
Larus michahellis	Yellow-legged Gull	Scarce passage visitor
Larus cachinnans	Caspian Gull	Vagrant, with one record in 1999
Larus argentatus argenteus	Herring Gull	Mainly a winter visitor
Larus hyperboreus	Glaucous Gull	Vagrant, with one record in 1995
Larus marinus	Great Bl.-backed Gull	Scarce mainly winter visitor
Rissa tridactyla	Kittiwake	Rare visitor
Sterna sandvicensis	Sandwich Tern	Rare passage visitor
Sterna hirundo	Common Tern	Breeding summer visitor
Sterna paradisae	Arctic Tern	Irregular spring passage visitor
Sterna albifrons	Little Tern	Vagrant, with one record in 1993
Chlidonias niger	Black Tern	Irregular spring passage visitor
Columba livia	Feral Pigeon	Resident in the area
Columba oenas	Stock Dove	Breeding resident
Columba palumbus	Woodpigeon	Breeding resident
Streptopelia decaocto	Collared Dove	Resident in the area, has bred
Streptopelia turtur	Turtle Dove	Rare summer visitor, has bred
Cuculus canorus	Cuckoo	Breeding summer visitor
Tyto alba	Barn Owl	Rare winter visitor
Athene noctua	Little Owl	Resident in the area
Strix aluco	Tawny Owl	Probably resident, has bred
Asio otus	Long-eared Owl	Rare passage visitor
Asio flammeus	Short-eared Owl	Rare winter visitor
Apus apus	Swift	Summer visitor
Alcedo atthis	Kingfisher	Resident, breeds in the area
Picus viridis	Green Woodpecker	Resident in the area, has bred
Dendrocopos major	Great Sp. Wdpecker	Resident, occasionally breeds
Dendrocopos minor	Lesser Sp. Wdpecker	Occasional visitor
Alauda arvensis	Skylark	Breeding resident
Riparia riparia	Sand Martin	Mainly passage visitor
Hirundo rustica	Swallow	Summer visitor, breeds nearby
Delichon urbica	House Martin	Summer visitor, has bred nearby
Anthus trivialis	Tree Pipit	Passage visitor, no recent records
Anthus pratensis	Meadow Pipit	Passage and winter visitor
Anthus petrosus	Rock Pipit	Vagrant, with one record in 1994
Anthus spinoletta	Water Pipit	Rare passage and winter visitor

Motacilla flava flavissima	Yellow Wagtail	Breeding summer visitor
Motacilla cinerea	Grey Wagtail	Mainly winter visits breeds nearby
Motacilla alba yarrellii	Pied Wagtail	Breeding resident
Bombycilla garrulus	Waxwing	Vagrant, one record (5) in 2001
Troglodytes troglodytes	Wren	Breeding resident
Prunella modularis	Dunnock	Breeding resident
Erithacus rubecula	Robin	Breeding resident
Phoenicurus ochruros	Black Redstart	Vagrant, one record (2) in 1994
Phoenicurus phoenicurus	Redstart	Scarce passage visitor
Saxicola rubetra	Whinchat	Passage visitor, declining
Saxicola torquata	Stonechat	Scarce winter visitor
Oenanthe oenanthe	Wheatear	Passage visitor
Turdus merula	Blackbird	Breeding resident
Turdus pilaris	Fieldfare	Winter visitor
Turdus philomelos	Song Thrush	Breeding resident
Turdus iliacus	Redwing	Winter visitor
Turdus viscivorus	Mistle Thrush	Resident, has bred
Cettia cetti	Cetti's Warbler	Scarce, with one record in 2006
Locustella naevia	Grasshopper Warbler	Irregular summer visitor
Acrocephalus schoenobaenus	Sedge Warbler	Breeding summer visitor
Acrocephalus scirpaceus	Reed Warbler	Breeding summer visitor
Sylvia curruca	Lesser Whitethroat	Breeding summer visitor
Sylvia communis	Whitethroat	Breeding summer visitor
Sylvia borin	Garden Warbler	Breeding summer visitor
Sylvia atricapilla	Blackcap	Breeding summer visitor
Phylloscopus trochiloides	Greenish Warbler	Vagrant, with one record in 1996
Phylloscopus sibilatrix	Wood Warbler	Vagrant, with one record in 1989
Phylloscopus collybita	Chiffchaff	Breeding resident
Phylloscopus brehmii	Iberian Chiffchaff	Vagrant, with one record in 1999
Phylloscopus trochilus	Willow Warbler	Breeding summer visitor
Regulus regulus	Goldcrest	Mainly a winter visitor
Muscicapa striata	Spotted Flycatcher	Scarce passage visitor
Aegithalos caudatus	Long-tailed Tit	Breeding resident
Parus palustris	Marsh Tit	Irregular visitor
Parus montanus	Willow Tit	Breeding resident
Parus ater	Coal Tit	Irregular visitor
Parus caeruleus	Blue Tit	Breeding resident
Parus major	Great Tit	Breeding resident
Certhia familiaris	Treecreeper	Mainly a winter visitor
Lanius excubitor	Great Grey Shrike	Rare autumn passage visitor
Garrulus glandarius	Jay	Irregular visitor
Pica pica	Magpie	Breeding resident
Corvus monedula	Jackdaw	Breeding resident
Corvus frugilegus	Rook	Resident, breeds nearby
Corvus corone	Carrion Crow	Breeding resident
Sturnus vulgaris	Starling	Breeding resident
Passer domesticus	House Sparrow	Occasional visitor
Passer montanus	Tree Sparrow	Irregular visitor, has bred
Fringilla coelebs gengleri	Chaffinch	Breeding resident
Fringilla montifringilla	Brambling	Rare winter visitor

Carduelis chloris	Greenfinch	Breeding resident
Carduelis carduelis	Goldfinch	Breeding resident
Carduelis spinus	Siskin	Scarce winter visitor
Carduelis cannabina	Linnet	Mainly a breeding summer visitor
Carduelis flavirostris	Twite	Vagrant, one record (2) in 1995
Carduelis cabaret	Lesser Redpoll	Mainly a scarce winter visitor
Carduelis flammea	Mealy Redpoll	Vagrant, one record (8) in 2001
Loxia curvirostra	Crossbill	Irruptive vagrant
Pyrrhula pyrrhula	Bullfinch	Breeding resident
Plectrophenax nivalis	Snow Bunting	Vagrant, with one record in 1993
Emberiza citrinella	Yellowhammer	Breeding resident in the area
Emberiza schoeniclus	Reed Bunting	Breeding resident
Miliaria calandra	Corn Bunting	Irregular visitor, no recent records

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In addition, several races of more common subspecies of those listed above have been recorded:

Phalacrocorax carbo sinensis	Continental Cormorant	Scarce spring visitor
Charadrius hiaticula tundrae	Arctic Ringed Plover	Scarce spring visitor
Larus fuscus fuscus	Baltic Gull	Rare autumn visitor
Larus fuscus intermedius	Intermediate Lesser Black-backed Gull	Autumn and winter visitor
Larus argentatus argentatus	Scandinavian Herring Gull	Winter visitor
Motacilla flava flava	Blue-headed Wagtail	Scarce summmer visitor, has bred
Motacilla alba alba	White Wagtail	Scarce spring visitor
Oenanthe oenanthe leucorhoa	Greenland Wheatear	Spring visitor
Phylloscopus collybita abietinus	Scandinavian Chiffchaff	Scarce winter visitor
Phylloscopus collybita tristis	Siberian Chiffchaff	Rare winter visitor
Fringilla coelebs coelebs	Continental Chaffinch	Winter visitor

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Wildfowl are notorious for hybridization and several hybrids have occurred:

Anser caerulescens x Anser anser	Snow Goose x Greylag Goose
Anser caerulescens x Branta leucopsis	Snow Goose x Barnacle Goose
Branta canadensis x Anser anser	Canada Goose x Greylag Goose
Branta canadensis x Anser indicus	Canada Goose x Bar-headed Goose
Branta canadensis x Branta leucopsis	Canada Goose x Barnacle Goose
Aix galericulata x Anas sp.	Mandarin x *Anas* sp.
Anas penelope x Anas crecca	Wigeon x Teal
Anas strepera x Anas platyrhynchos	Gadwall x Mallard
Anas strepera x Anas crecca	Gadwall x Teal
Aythya marila x Aythya fuligula	Scaup x Tufted Duck
Aythya marila x Aythya fuligula	Scaup x Tufted Duck

There are several records of exotic species; recent escapes from captivity which are not on the British List. These include:

Threskiornis aethiopica	Sacred Ibis
Cygnus atratus	Black Swan
Anser indicus	Bar-headed Goose
Tadorna cana	Cape Shelduck
Aix sponsa	Wood Duck

Anas sibilatrix	Chiloe Wigeon
Anas bahamensis	White-cheeked Pintail
Anas castanea	Chestnut Teal
Anas flavirostris	Speckled Teal
Parabuteo unicinctus	Harris's Hawk
Falco cherrug	Saker
Lophura nycthemera	Silver Pheasant
Pavo cristatus	Peafowl
Nymphicus hollandicus	Cockatiel
Melopsittacus undulatus	Budgerigar

Appendix 4 **Amphibians and Reptiles at Priory Water**

(Data collected by D. Gamble)

Amphibia		
Triturus vulgaris	Smooth Newt	A few records, but probably under-recorded
Bufo bufo	Common Toad	Appears to be fairly common
Rana temporaria	Common Frog	Formerly common but has decreased
Reptilia		
Anguis fragilis	Slow Worm	A few records, but probably under-recorded
Natrix natrix	Grass Snake	Resident and common

Appendix 5 **Mammals at Priory Water**

(Data collected by D. Gamble)

Sorex minutus	Pygmy Shrew	Probably resident
Sorex araneus	Common Shrew	Probably resident
Talpa europaea	Mole	Resident and fairly common
Myotis daubentoni	Daubenton's Bat	Probably resident
Pipistrellus pipistrellus	Pipistrelle Bat	Probably resident
Nyctalus noctula	Noctule Bat	Probably resident
Oryctolagus cuniculus	Rabbit	Resident, few, because of myxomatosis
Lepus europaeus occidentalis	Brown Hare	Recorded nearby but not on the reserve
Sciurus carolinensis	Grey Squirrel	Resident, controlled
Clethrionomys glareolus	Bank Vole	Probably resident
Arvicola amphibius	Water Vole	Formerly resident, probably absent
Microtus agrestis	Short-tailed Vole	Resident, occasionally super-abundant
Apodemus sylvaticus	Wood Mouse	Probably resident
Rattus norvegicus	Brown Rat	Probably resident
Vulpes vulpes	Red Fox	Resident in area, little control
Meles meles	Badger	Resident in area, currently colonising
Mustela erminea	Stoat	Probably resident
Mustela nivalis	Weasel	Probably resident
Mustela vison	American Mink	Resident in area, controlled
Lutra lutra	Otter	Occasional visitor, perhaps resident
Muntiacus reevesi	Reeves's Muntjac	No sightings, but spoor has been found
Erinaceus europaeus	Hedgehog	No record but should be present

Appendix 6 Damselflies and Dragonflies recorded at Priory Water

(Data collected by S.J. Houghton)

Zygoptera

Calopteryx splendens Banded Demoiselle,river,breeds,common,mid-May-earlyAug
Lestes sponsa Emerald Damselfly,breeds,low numbers,late June-late Aug.
Platynemis pennipes White-legged Damselfly, river breeds,medium nos,June-Jly.
Pyrrhosoma nymphula Large Red Damselfly, breeds,low-medium nos,Late Apr-Jly
Coenagrion puella Azure Damselfly, breeds, prolific, Late May-Aug.
Coenagrion pulchellum Variable Damselfly, uncommon,1st seen '06, May-Aug.
Enallagma cynthigerum Common Blue Damselfly, very common, late May-end Sept.
Ischnura elegans Blue-tailed Damselfly,breeds,prolific,early May-early Aug.
Erythromma najas Red-eyed Damselfly, breeds, v.common, mid-May-end Jly.
Erythromma viridulum Small Red-eyed Damselfly, 1st Leics. record (130) Jly '06.

Anisoptera

Brachytron pretense Hairy Dragonfly, breeds, low numbers, early May-late June.
Aeshna mixta Migrant Hawker, breeds, common, end of July-late October.
Aeshna cyanea Southern Hawker, may breed, low nos., mid July-end Aug.
Aeshna grandis Brown Hawker, breeds, abundant, mid-June-end Aug.
Anax imperator Emperor Dragonfly, breeds, common, mid-June-late Jly.
Anax parthenope Lesser Emperor Dragonfly, rare migrant, has been recorded.
Libellula quadrimaculata 4-spotted Chaser,breeds,very common, mid-May-mid-Aug.
Libellula depressa Broad-bodied Chaser, breeds, low nos., mid-May-end Jly.
Orthetrum cancellatum Black-tailed Skimmer, breeds, common, late May-start Aug.
Sympetrum striolatum Common Darter,breeds,very common, end of June-mid-Oct.
Sympetrum sanguineum Ruddy Darter, breeds, common, mid-June-early Sept.
Sympetrum flaveolum Yellow-winged Darter, infrequent summer migrant to U.K.
Sympetrum fonscolombii Red-veined Darter, infrequent summer migrant 1st seen '06.

Appendix 7 Butterflies recorded at Priory Water

(Data collected by D. Gamble and M. Rossell)

Pieris brassicae	Large White,	Common.
Artogeia rapae	Small White,	Common.
Artogeia napi	Green-veined White,	Very common.
Anthocharis cardamines	Orange Tip,	Common.
Colias crocea	Clouded Yellow,	Uncommon.
Gonepteryx rhamni	Brimstone,	Common.
Leptidea sinapis	Wood White,	Very rare.
*Callophrys rub*i	Green Hairstreak,	Rare.
Lycaena phlaeas	Small Copper,	Common.
Celastrina argiolus	Holly Blue,	Common.
Aricia agestis	Brown Argus,	Rare.
Polyommatus icarus	Common Blue,	Common.
Inachis io	Peacock Butterfly,	Common.
Vanessa atalanta	Red Admiral,	Common.
Vanessa cardui	Painted Lady	Common.
Aglais urticae	Small Tortoiseshell,	Very common.
Polygonia c-album	Comma Butterfly,	Uncommon.
Argynnis aglaja	Dark Green Fritillary,	Rare.
Maniola jurtina	Meadow Brown,	Very common.
Aphantopus hyperantus	Ringlet,	Common.

Pyronia tithonus	Gatekeeper,	Common.
Coenonympha pamphilus	Small Heath,	Rare.
Pararge aegeria	Speckled Wood,	Very common.
Lasiommata megera	Wall Brown,	Uncommon.
Pyrgus malvae	Grizzled Skipper,	Very rare.
Thymelicus lineola	Essex Skipper,	Fairly common.
Thymelicus sylvestris	Small Skipper,	Common.
Ochlodes venatus	Large Skipper,	Fairly common.

Appendix 8 **Moths recorded at Priory Water**
(Data collected by M. Rossell)

Macro-lepidoptera		no. of sightings 2000-06
Hepialus humuli	Ghost Moth	7
Hepialus sylvina	Orange Swift	2
Hepialus lupulinus	Common Swift	11
Zygaena filipendulae	Six-spot Burnet	16
Zygaena lonicerae	Narrow-bordered Five-spot Burnet	2
Philudoria potatoria	The Drinker	11
Habrosyne pyritoides	Buff Arches	2
Tethea ocularis	Figure Of Eighty	3
Hemithea aestivaria	Common Emerald	1
Timandra griseata	Blood-Vein	8
Scopula imitaria	Small Blood-Vein	1
Scopula floslactata	Cream Wave	3
Idaea biselata	Small Fan-footed Wave	2
Idaea dimidiata	Single-dotted Wave	2
Idaea aversata	Riband Wave	5
Rhodometra sacraria	The Vestal	1
Xanthorhoe designata	Flame Carpet	2
Xanthorhoe spadicearia	Red Twin-spot Carpet	2
Xanthorhoe ferrugata	Dark-barred Twin-spot Carpet	2
Xanthorhoe quadrifasiata	Large Twin-spot Carpet	1
Xanthorhoe montanata	Silver-ground Carpet	17
Xanthorhoe fluctuata	Garden Carpet	11
Scotopteryx chenopodiata	Shaded Broad-Bar	30
Epirrhoe alternata	Common Carpet	17
Camptogramma bilineata	Yellow Shell	5
Eulithis pyraliata	Barred Straw	2
Ecliptopera silaceata	Small Phoenix	1
Chloroclysta siterata	Red-green Carpet	3
Chloroclysta citrata	Dark Marbled Carpet	1
Chloroclysta truncata	Common Marbled Carpet	6
Cidaria fulvata	Barred Yellow	2
Colostygia pectinataria	Green Carpet	8
Epirrita dilutata	November Moth	1
Perizoma alchemillata	Small Rivulet	2
Perizoma didymata	Twin-spot Carpet	1
Eupithecia centaureata	Lime-speck Pug	4
Eupithecia vulgata	Common Pug	3
Eupithecia icterata	Tawny Speckled Pug	1

Chloroclystis chloerata	Sloe Pug	1
Chloroclystis rectangulata	Green Pug	1
Gymnoscelis rufifasciata	Double-striped Pug	2
Odezia atrata	Chimney Sweeper	1
Abraxas grossulariata	The Magpie	2
Lomaspilis marginata	Clouded Border	4
Semiothisa clathrata	Latticed Heath	10
Plagodis dolabraria	Scorched Wing	2
Opisthograptis luteolata	Brimstone Moth	13
Epione repandaria	Bordered Beauty	1
Ennomos alniaria	Canary-shouldered Thorn	3
Ennomos fuscantaria	Dusky Thorn	2
Selenia dentaria	Early Thorn	3
Ourapteryx sambucaria	Swallow-tailed Moth	1
Biston betularia	Peppered Moth	2
Peribatodes rhomboidaria	Willow Beauty	1
Alcis repandata	Mottled Beauty	1
Cabera pusaria	Common White Wave	8
Cabera exanthemata	Common Wave	5
Lomographa temerata	Clouded Silver	4
Campaea margaritata	Light Emerald	2
Sphinx ligustri Privet	Hawk-Moth	2
Mimas tiliae	Lime Hawk-Moth	3
Smerinthus ocellata	Eyed Hawk-Moth	1
Laothoe populi	Poplar Hawk-Moth	1
Deilephila elpenor	Elephant Hawk-Moth	4
Phalera bucephala	Buff-Tip	1
Furcula bicuspis	Alder Kitten	1
Notodonta dromedarius	Iron Prominent	6
Pheosia gnoma	Lesser Swallow Prominent	1
Pheosia tremula	Swallow Prominent	2
Ptilodon capucina	Coxcomb Prominent	4
Pterostoma palpina	Pale Prominent	7
Orgyia antiqua	The Vapourer	2
Calliteara pudibunda	Pale Tussock	4
Euproctis similis	Yellow-Tail	2
Eilema griseola	Dingy Footman	1
Eilema complana	Scarce Footman	1
Eilema lurideola	Common Footman	3
Arctia caja	Garden Tiger	1
Spilosoma lubricipeda	White Ermine	5
Spilosoma luteum	Buff Ermine	3
Phragmatobia fuliginosa	Ruby Tiger	4
Tyria jacobaeae	The Cinnabar	14
Nola cucullatella	Short-cloaked Moth	1
Nola confusalis	Least Black Arches	1
Agrotis segetum	Turnip Moth	1
Agrotis exclamationis	Heart And Dart	6
Agrotis puta	Shuttle-shaped Dart	3
Axylia putris	The Flame	5

Ochropleura plecta	Flame Shoulder	12
Noctua pronuba	Large Yellow Underwing	13
Noctua comes	Lesser Yellow Underwing	4
Noctua fimbriata	Broad-bordered Yellow Underwing	2
Noctua janthina	Lesser Broad-bordered Yellow Underwing	5
Noctua interjecta	Least Yellow Underwing	1
Diarsia mendica	Ingrailed Clay	1
Diarsia rubi	Small Square Spot	6
Xestia c-nigrum	Setaceous Hebrew Character	8
Xestia triangulum	Double Square-Spot	1
Xestia sexstrigata	Six-striped Rustic	3
Xestia xanthographa	Square-spot Rustic	5
Naenia typica	The Gothic	1
Mamestra brassicae	Cabbage Moth	1
Melanchra persicariae	Dot Moth	1
Lacanobia thalassina	Pale-shouldered Brocade	2
Lacanobia oleracea	Bright-line Brown-Eye	8
Tholera decimalis	Feathered Gothic	1
Orthosia cruda	Small Quaker	1
Orthosia gracilis	Powdered Quaker	1
Orthosia stabilis	Common Quaker	4
Orthosia incerta	Clouded Drab	3
Orthosia gothica	Hebrew Character	4
Mythimna ferrago	The Clay	3
Mythimna straminea	Southern Wainscot	1
Mythimna impura	Smoky Wainscot	11
Mythimna pallens	Common Wainscot	8
Mythimna comma	Shoulder-striped Wainscot	1
Aporophyla nigra	Black Rustic	1
Lithophane leautieri	Blair's Shoulder-Knot	1
Allophyes oxyacanthae	Green-brindled Crescent	1
Dichonia aprilina	Merveille-Du-jour	1
Dryobotodes eremita	Brindled Green	1
Eupsilia transversa	The Satellite	1
Conistra ligula	Dark Chestnut	1
Agrochola lota	Red-line Quaker	2
Agrochola macilenta	Yellow-line Quaker	1
Agrochola lychnidis	Beaded Chestnut	1
Atethmia centrago	Centre-barred Sallow	3
Omphaloscelis lunosa	Lunar Underwing	1
Xanthia citrago	Orange Sallow	1
Xanthia togata	Pink-barred Sallow	1
Xanthia icteritia	The Sallow	4
Acronicta megacephala	Poplar Grey	2
Acronicta leporina	The Miller	3
Acronicta alni	Alder Moth	1
Acronicta psi	Grey Dagger	3
Amphipyra pyramidea	Copper Underwing	3
Amphipyra berbera	Svensson's Copper Underwing	2
Amphipyra tragopogonis	Mouse Moth	2

Euplexia lucipara	Small Angle Shades	1
Phlogophora meticulosa	Angle Shades	10
Ipimorpha subtusa	The Olive	1
Enargia ypsillon	Dingy Shears	1
Cosmia trapezina	The Dun-Bar	2
Apamea monoglypha	Dark Arches	9
Apamea lithoxylaea	Light Arches	2
Apamea crenata	Clouded-bordered Brindle	3
Apamea epomidion	Clouded Brindle	1
Apamea remissa	Dusky Brocade	2
Apamea unanimis	Small Clouded Brindle	2
Apamea anceps	Large Nutmeg	1
Apamea sordens	Rustic Shoulder-Knot	4
Oligia strigilis	Marbled Minor	3
Oligia latruncula	Tawny Marbled Minor	2
Oligia fasciuncula	Middle-barred Minor	5
Mesoligia literosa	Rosy Minor	1
Mesapamea secalis	Common Rustic	4
Photedes minima	Small Dotted Buff	3
Hydraecia micacea	Rosy Rustic	2
Gortyna flavago	Frosted Orange	1
Celaena leucostigma	The Crescent	1
Nonagria typhae	Bulrush Wainscot	2
Rhizedra lutosa	Large Wainscot	1
Hoplodrina alsines	The Uncertain	3
Hoplodrina blanda	The Rustic	6
Caradrina morpheus	Mottled Rustic	1
Caradrina clavipalpis	Pale Mottled Willow	1
Panemeria tenebrata	Small Yellow Underwing	3
Heliothis armigera	Scarce Bordered Straw	2
Pseudoips fagana	Green Silver-Lines	1
Diachrysia chrysitis	Burnished Brass	2
Plusia festucae	Gold Spot	6
Autographa gamma	Silver Y	46
Autographa pulchrina	Beautiful Golden Y	1
Autographa jota Plain	Golden Y	1
Abrostola triplasia	The Spectacle	3
Catocala nupta	Red Underwing	1
Callistege mi	Mother Shipton	2
Euclidia glyphica	Burnet Companion	8
Scoliopteryx libatrix	The Herald	2
Laspeyria flexula	Beautiful Hook-tip	1
Rivula sericealis	Straw Dot	7
Hypena proboscidalis	The Snout	10
Herminia strigilata	Common Fan-foot	2
Herminia nemoralis	Small Fan-foot	1
Micro-lepidoptera		
Nemophora degeerella		1
Anthophila fabriciana		1
Argyresthia brockeella		3

Argyresthia goedartella		1
Yponomeuta evonymella	Bird Cherry Ermine	1
Prays fraxinella	Ash Bud Moth	1
Coleophora trifolii	Large Clover Case-bearer	1
Carcina quercana		1
Agonopterix arenella		1
Ethima dodecea		2
Blastobasis decolorella		1
Agapeta hamana		1
Agapeta zoegana		1
Pandemis cerasana	Barred Fruit-tree Tortrix	3
Pandemis heparana	Dark Fruit-tree Tortrix	1
Archips podana	Large Fruit-tree Tortrix	1
Aphelia paleana	Timothy Tortrix	4
Clepsis spectrana	Cyclamen Tortrix	14
Epiphyas postvittana	Light Brown Apple Moth	1
Pseudargyrotoza conwagana		1
Tortrix viridana	Green-oak Tortrix	4
Celypha striana		1
Celypha lacunana		35
Hedya nubiferana	Marbled Orchard Tortrix	8
Endothenia quadrimaculana	only the 2nd County Record	1
Epiblema uddmanniana	Bramble Shoot Moth	2
Epiblema trimaculana		1
Eucosma cana		8
Rhyacionia pinivorana	Spotted Shoot Moth	1
Chrysoteuchia culmella	Garden Grass-veneer	15
Crambus lathoniellus		6
Agriphila straminella		1
Agriphila tristella		1
Donacaula forficella		19
Donacaula mucronellus		1
Acentria ephemerella	Water Veneer	1000s
Scoparia ambigualis		1
Elophila nymphaeata	Brown China-mark	13
Nymphula stagnata	Beautiful China-mark	30
Cataclysta lemnata	Small China-mark	1
Evergestis forficalis	Garden Pebble	1
Eurrhypara hortulata	Small Magpie	3
Phlyctaenia coronata		1
Phlyctaenia perlucidalis		1
Udea lutealis		1
Udea olivalis		3
Nomophila noctuella	Rush Veneer	1
Pleuroptya ruralis	Mother of Pearl	1
Hypsopygia costalis	Gold Triangle	1
Orthopygia glaucinalis		1
Pyralis farinalis	Meal Moth	1
Euzophera pinguis		1
Platyptillia pallidactyla		5

Appendix 9 **Other Insects**

(Data collected by F. Clark and D. Gamble)

Conocephalus discolor	Long Winged Conehead
Metrioptera roeselii	Roessel's Bush-cricket
Acanthosoma haemorrhoidale	Hawthorn Shieldbug
Cercopis vulnerata	Red and Black Froghopper
Jassus lanio	Leaf Hopper
Corixa dentipes	Lesser Waterboatman
Corixa punctata	Lesser Waterboatman
Sigara dorsalis	Lesser Waterboatman
Sigara distincta	Lesser Waterboatman
Micronecta scholtzi	Lesser Waterboatman
Gerris argentatus	Pond Skater
Ilyocoris cimicoides	Saucer Bug
Sialis lutaria	Alder Fly
Panorpa communis	Scorpion Fly
Chironomidae	Unidentified midge larvae
Haematopota pluvialis	Cleg Fly
Syrphus ribesii	Hover Fly
Sarcophaga carnaria	Flesh Fly
Rhyssa persuasoria	Ichneumon Fly
Vespula vulgaris	Common Wasp
Elaphrus cupreus	Ground Beetle
Melolontha melolontha	Common Cockchafer
Rhagonycha fulva	Soldier Beetle
Coccinella 7-punctata	Seven-spot Ladybird
Psyllobora 22-punctata	Twenty-two-spot Ladybird
Adalia bipunctata	Two-spot Ladybird
Haliplus (confinis ?)	Small Water Beetle
Ilybius (fenestratus ?)	Diving Beetle
Hyphydrus ovatus	Diving Beetle
Hygrobia hermanni	Screech Beetle
Gyrinus sp.	Whirligig Beetle
Cloeon dipterum	Pond Olive
Anabolia nervosa	Caddis Fly
Limnephilus politus	Caddis Fly
Hydroptilidae	Unidentified larva
Mystacides longicornis	Angler's Grousewing
Phryganea grandis	Caddis Fly
Holocentropus dubius	Caddis Fly

Appendix 10 **Other Aquatic Invertebrates**

(Data collected by F.Clark)

Mollusca

Lymnaea stagnalis	Great Pond Snail
Lymnaea peregra	Wandering Snail
Lymnaea auricularia	Ear Snail
Physa acuta	Bladder Snail

Planorbis carinatus	Ramshorn Snail
Planorbis corneus	Ramshorn Snail
Planorbis planorbis	Ramshorn Snail
Bithynia tentaculata	Snail
Pisidium spp	Pea Mussel
Annelida	
Glossiphonia complanata	Leech, Mollusc/invert feeder
Erpobdella octoculata	Leech, Invert feeder
Piscicola geometra	Leech Fish parasite
Theromyzon tessulatum	Leech, Bird parasite
Crustacea	
Asellus aquaticus	Hoglouse
Crangonyx pseudogracilis	Amphipod "shrimp"

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