A BIODIVERSITY ASSESSMENT OF PLATT FIELDS PARK, MANCHESTER






Greater Manchester
Ecology Unit

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A Report prepared for –

The Friends of Platt Fields Park

By

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1 INTRODUCTION

Biodiversity can perhaps best be defined as 'the mix of wild plants and animals with which we share our world'. CABE Space, part of the government's Commission for Architecture and the Built Environment set up to champion excellence in the design and management of parks, states in its Manifesto for Better Public Spaces that 'the parks in our towns and cities have an important role to play in supporting biodiversity' and calls upon people who are designing and managing parks to protect and enhance biodiversity and promote its enjoyment to local people.

The Public Parks of Manchester represent an invaluable greenspace resource for people and wildlife in an otherwise very built up and densely populated area. However, many of these greenspaces have developed wildlife interest almost by default – they have not been planned or developed with wildlife in mind. They can often, therefore, be improved for wildlife by relatively simple changes to management. This study provides an assessment of the current biodiversity value of one of these public spaces, Platt Fields Park, and provides suggestions for some simple measures that could be taken to enhance the biodiversity value of the Park.

2 Background to this study

The Greater Manchester Ecology Unit (GMEU) was commissioned by the Friends of Platt Fields Park to produce a Biodiversity Assessment of the Park in October 2008. The main aims of the study were

1. To carry out a baseline biodiversity audit of the Park and appraise it's current biodiversity value

2. To put forward suggestions for biodiversity enhancements for the Park

The information in this document has been drawn from a number of sources, including:

- Site surveys carried out by Derek Richardson and Mandy Elford in November 2008.
- Bat Survey by Derek Richardson and Mandy Elford (to be completed in Spring 2009)
- Breeding Bird Survey by Stephen Atkins (Assistant County Bird Recorder) and Mandy Elford (to be completed in May 2009)
- Ecological Data Search of existing biodiversity information concerning the Park
- UK Biodiversity Action Plan (UK BAP)
- Greater Manchester Biodiversity Action Plan (GM BAP)
- Greater Manchester County Bird Recorder Judith Smith
- The South Lancashire Bat Group

3 Overall site description and usage

The location and extent of Platt Fields Park is shown in Map 1.

Platt Fields Park is a mature, well-established area of public greenspace located in South Central Manchester, approximately 2 miles from Manchester City Centre. Laid out early in the twentieth century on an area formerly used

as private parkland, Platt Fields Park now comprises approximately 31 hectares of public open space bordering densely built-up and populated areas of Rusholme, Fallowfield and Moss Side. Platt Fields Park is very well used by the general public for a wide range of formal and informal recreational activities ranging from dog walking, jogging and bird watching to very large scale organised events and team sports. The Park contains a newly opened world-class BMX track, a Skate Park, formal bowling greens, tennis courts, football pitches, a basketball court and children's playgrounds. A formal Lake forms the centrepiece of the Park, used for boating and fishing. In the centre of the Lake there is a wooded island. A number of other birds are also known to nest on the island, including a problematic number of Canada geese. The Park contains a variety of 'garden spaces' and has three dedicated 'show fields' used for large scale public events.

The majority of Platt Fields Park could be classified ecologically as intensively managed, frequently mown amenity grassland with standard parkland trees. The grassland has been nutrient enriched from fertilizer input and cuttings creating a bright green lush and dense, but generally species poor, grass sward. There is a large man made lake with a central wooded island to the south of the site. Two water courses cross the site. Platt Brook is a brick lined channel with a fluctuating but generally fast flowing water level. An area of less intensively managed woodland and scrub runs along the banks of Platt Brook. The Nico ditch, an ancient boundary feature, supports a slow flowing and shallow water course. The Park supports a good number of veteran broadleaved trees, areas of younger planted broadleaved woodland and some relatively newly planted standard broadleaved trees. The Park is intensively used by the public.

4 GMEU Personnel

This Biodiversity Assessment has been undertaken by Derek Richardson MIEEM, Principal Ecologist with GMEU and Mandy Elford AIEEM, Associate Ecologist with GMEU. GMEU provides advice on wildlife and nature conservation issues predominantly to, and on behalf of, the ten local authorities of Greater Manchester. Derek Richardson is an experienced urban ecologist with significant experience in urban parks appraisal and development projects. He has worked in Manchester for the past five years, having previously worked as an Ecologist with Vale Royal Borough Council in Cheshire and with Knowsley Borough Council on Merseyside. Mandy Elford is an Associate Ecologist with more than six years of experience of carrying out ecological surveys and assessments in Greater Manchester.

5 LEGISLATIVE FRAMEWORK AND RESPONSIBILITIES

There are certain laws, statutes and guidelines related to nature conservation that Park managers and developers should be aware of and take into account when planning changes to Park management regimes.

5.1 The NERC Biodiversity Duty

The Natural Environment and Rural Communities (NERC) Act came into force on 1st Oct 06. Section 40 of the Act states:

'Every public authority must, in exercising its functions, have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity.'

This means that managers and developers of public parks have a statutory duty to contribute wherever possible to the conservation of biodiversity. The Act makes reference to a particular list of habitats and species regarded as priorities for conservation efforts. These habitats and species are listed in national and local Biodiversity Action Plans (BAPs). Those priority habitats and species listed in Plans and of most relevance to Platt Fields Park include bats, song thrush and urban greenspace. Any proposals for biodiversity enhancements of the Park should take into account the need to further the conservation of these particular habitats and species

5.2 Protected and Notable Species

There are many species in the UK which are specially protected by law. The species relevant to this study are:

Bats

Bats have been recorded feeding in Platt Fields Park**.** All species of bat and their roosts are protected under the terms of the Wildlife and Countryside Act 1981 and the Conservation (Natural Habitats, &c) Regulations 1994 which implements EC Directive 92/43/EEC.

It is a criminal offence to:

- Intentionally or deliberately kill, injure, catch or keep bats
- Damage, destroy or obstruct access to bat roosts
- Disturb bats, for example by entering known roosts
- Sell, barter or exchange bats, alive or dead

The implication is that any works planned for the Park must accommodate the requirements of bats and must also avoid all the offences as listed above.

Birds

All birds (with the exception of some pest species) and their nests are specially protected under the terms of the Wildlife and Countryside Act 1981. It is an offence to intentionally take damage or destroy the nest of any wild bird while it is in use or being built.

5.3 Invasive and 'problem' species

Japanese Knotweed (*Fallopia japonica*)

Japanese knotweed is a highly invasive plant introduced to the UK as an ornamental and fodder plant in the 1800's. It is an offence under the terms of the Wildlife and Countryside Act 1981 'to plant or otherwise encourage' the growth of Japanese knotweed. This could include disturbing the surrounding soil, cutting the roots and/or plant if incorrectly managed. All waste containing Japanese knotweed comes under the control of Part II of the Environmental Protection Act 1990.

Surveys conducted for this report have recorded small patches of Japanese Knotweed in the Park. Advice concerning the control of Japanese knotweed is given in Appendix 3 of this document

Canada Geese (*Branta Canadensis*)

Canada geese numbers have increased dramatically over recent years throughout Greater Manchester, and a relatively large flock appears resident in Platt Fields Park. Canada geese compete with native wildfowl for nest sites and damage other birds nest sites through trampling. The geese have an inefficient digestive system which requires the geese to consume large amounts of plant matter. As a consequence they can graze extremely closely, turning their heads on one side to scissor away the entire grass sward. This, in combination with the fertilizing effect of their droppings and the trampling of their webbed feet, produces a smeared surface where grasses eventually disappear.

Although it is not an offence to feed Canada geese or encourage them to breed, such activities can reduce the variety of other bird life in the Park, and can make attractive lakeside grassland and areas of aquatic and marginal vegetation very difficult to establish and maintain. Advice of the management of Canada geese is therefore given in Appendix of this document.

6 SURVEY METHODOLOGY

6.1 Desk Study

A desk based survey for existing species records was undertaken using the Greater Manchester Ecology Unit's database in October 2008.

Bird records were requested from the County Bird Recorder Judith Smith.

Bat records were requested from the South Lancashire Bat Group.

Information relating to the park was requested from Manchester City Council

The results of these desk studies are presented in Map x and Appendix x of this Report.

6.2 Extended Phase 1 habitat survey

Walk over field surveys of the Park were undertaken on 16/10/2008 and 22/11/2008 in accordance with the JNCC Methodology (1990) for undertaking Phase 1 habitat surveys. 'Phase 1' surveys are a widely used standard technique for identifying and recording habitat types. The habitat descriptions used in this survey method sometimes do not fit well with habitat types found in urban greenspace areas. For this reason the Park was also divided into a number of 'compartments', and each compartment is described in more detail in the text of this report. A photographic record of the compartments was also taken. In an 'extended' Phase 1 survey the survey is extended to include descriptions of any habitats and features considered likely to support protected or important species, together with incidental species records collected during habitat surveys. Apart from those described below no specific

species surveys were undertaken during the field surveys.

The field surveys were undertaken in November, late in the field season and too late to identify early flowering plants in woodland areas. A further survey of the ground flora in the woodland is therefore planned for spring 2009. This survey will also enable a more complete species audit to be undertaken of the Park.

6.3 Breeding Bird Survey

A breeding bird survey to supplement existing and incidental bird records was undertaken in early April and early May 2009. The survey was undertaken by Stephen Atkins (Assistant County Bird Recorder), Derek Richardson and Mandy Elford. The survey followed the standard set criteria used across Europe when recording for bird atlases and comprised two dawn surveys, one in early to mid April 2009 and a further in early to mid May 2009. These will be 2-3 hour walkover surveys of the whole site.

The results of the breeding bird survey can be found in Appendix 4.

6.4 Bat Activity Survey

Bat activity surveys were undertaken in June 2009 in appropriate weather conditions to supplement known bat records from the Park. The aim of these surveys was to establish which species of bat are using the park to feed and also to identify any roost sites. Survey activities were carried out in accordance with the methodologies detailed in the Bat Workers Manual, Second Edition, (JNCC 1999). The survey comprised a number of elements:

- To obtain the maximum information about the site, a daylight survey will be carried out to assess which trees are most suitable for roosting bats.
- The daylight survey will be followed by a dusk and dawn survey of the tree lines (woodland edge habitat) and the lake area using Petterrson Ultrasound Detectors to assess levels and locations of bat foraging activity

6.5 Habitat Survey - woodland ground flora

A habitat survey of the woodland ground flora was undertaken in May 2009**.** This will be in the form of a walkover survey recording species present, names will follow Stace (1991).

7 SURVEY RESULTS AND EVALUATION OF NATURE CONSERVATION INTEREST

The general habitats found in the Park includ amenity grassland, scattered mature and semi-mature trees, small areas of closed canopy woodland and open and running water.

The grassland is generally species poor, generally comprising a mix of meadow grasses (*Poa* sp) and rye grass (*Lolium* sp), but with a limited range of flowering plants such as meadow buttercup, daisy, dandelion and greater plantain present in some areas.

The trees comprise a relatively narrow range of mainly broadleaved species, including sycamore, silver birch, beech, lime, alder, willow and oak, supplemented by a wider range of planted fruit trees (*Malus, Pyrrus, Prunus*).

7.1 Vegetation and habitats by compartment

This section should be read in conjunction with Map 2 showing the locations of the compartments described and Map 3 (Phase 1 habitat survey map)

7.1.1 Compartment 1

Photo 1 View from the entrance at Hart Road

An area of close-mown, species poor amenity grassland with scattered mature, semi-mature and young broadleaved trees and formal pathways. There are a number of fine mature oak and beech trees within this area. The raised area of amenity grassland shows extensive grazing by geese.

Photo 2 The Sensory Garden

The sensory garden and willow labyrinth fall within this compartment. The garden supports amenity grassland, scattered broadleaved trees, mid-level shrub cover, together with more formal planting beds and built features. There is also fallen deadwood within this area with associated bracket fungus. The area around the willow labyrinth is very wet. The sensory garden provides a range of temporal and spatial ecological niches absent form other areas of the Park and this area is therefore important in biodiversity terms.

7.1.2 Compartment 2

Photo 3 Wet area adjacent to Princess Christian College

This compartment supports a small pond with some emergent vegetation (e.g. *Juncus* sp.), an associated ditch with adjacent willow scrub, amenity

grassland and scattered trees; occasional stands of Japanese knotweed occur along the rear wall of the Park in this compartment.

Photo 4 BMX Track, football field, skate park and basketball courts

This area contains the focus of activity areas, with the new Olympic standard BMX track, basketball courts, a skate park, bowling greens and a football field. The football field was very wet at the time of survey. Newly planted broadleaved trees have been introduced as part of a new landscaping scheme for the BMX track. A small number of wildflowers were recorded on a new landscaped bank close to the back of the BMX track (e.g. cornflower, ox-eye daisy, red campion), presumably introduced as part of the landscaping scheme(?). The BMX track itself has a number of areas of bare earth and sparse, species poor grassland.

7.1.3 Compartment 3

Photo 5 The Orchard

This compartment of the Park supports a wide variety of semi-mature and mature fruit trees (the Orchard), species poor amenity grassland. There are some fine mature broadleaved trees (beech, sycamore and lime) lining the walkways. A number of the fruit trees showed signs of past damage to stems and branches.

Photo 6 Area to the south of Manchester High School for Girls off Wilmslow Road

Also in this compartment, an area to the south of Manchester High School for Girls supported a range of fine mature and veteran broadleaved trees (notably sycamore and beech) and standing dead timber. Ivy covered walls

and medium level shrub cover (e.g. rhododendron) provides good vegetation cover in this area, which seemed at the time of survey to be quieter than other areas of the Park, probably because of the lack of formal recreation facilities. Grey Squirrels and Jays were recorded in this area.

Photo 7 Shakespeare Garden (South east of the park)

This area of the Park supports more in the way of ornamental planting, with formal planting beds. The Shakespeare garden, comprising formal planting beds, mixed herbaceous planting, conifer planting and, at the time of the survey, areas of bare soil. The garden is surrounded by mature conifers which provide valuable roosting areas for birds. At the rear of the Shakespeare garden is an unmanaged area of tall herb species (rosebay willowherb and Himalayan balsam) and scrub (dominated in places by regenerating sycamore).

Photo 8 Nico Ditch

The ancient boundary(?) feature known as the Nico ditch runs along the north of this compartment. The ditch is overgrown with shrub vegetation, in some places apparently regenerating trees that had been cut back relatively recently; it also has some small stands of the invasive Japanese knotweed. The ditch held no running water at the time of the survey visits, but there were some areas of shallow standing water visits. The ditch had some small collections of rubbish scattered through it.

7.1.4 Compartment 4

Photo 9 The Lake and wooded island

The man made lake is the centrepiece of the Park. The Lake is concrete edged and has no marginal and little aquatic vegetation. The island in the centre of the lake is well wooded and also supports no marginal vegetation. The woodland comprises mature and semi-mature broadleaved species including poplar, sycamore and willow.Grey heron breeds on the island, as, apparently, do a number of waterfowl species.

Photo 10 The Lake in summer with algal bloom evident

A number of species of waterfowl use the Lake, including moorhen, coot, goosander, pink footed goose, mute swan, great crested grebe and mallard. It also has a problematic number of Canada geese. At the time of the survey the lake had a recovering blue green algae problem, probably caused by nutrient enrichment.

Daubenton bats have been recorded feeding over the Lake, a very important species record for Manchester.

The Lake is the major draw for public viewing of Park wildlife (the waterfowl).

7.1.5 Compartment 5

Photo 11 Platt Brook and associated woodland

Platt Brook runs through the site from Wilmslow Road, (north of Grangthorpe Road) to just south of Whitmore Road. It is a brick lined culvert with a fluctuating water level in the centre of a planted area of woodland and scrub. The brook supports no marginal or aquatic vegetation – there is little available suitable substrate for plant establishment and the speed of the current probably mitigates against plant establishment.

Photo 12 Wooded area alongside Platt Brook with Japanese knotweed evident

The planted woodland around Platt Brook comprises the largest area of closed canopy woodland within the Park. Some large trees (Manchester poplars) have clearly been recently felled in this area and there was significant deadwood present, a valuable biodiversity feature. The woodland contains some stands of invasive Japanese knotweed. The understorey is mainly rhododendron and bramble; the ground flora is to be surveyed in Spring 2009. Parakeets were recorded in this area at the time of survey, an exotic and unusual site in a north west Park! The species is apparently resident in the Park.

Photo 13 Many-zoned Polypore (*Trametes versicolor*) on fallen deadwood.

7.1.6 Compartment 6

Photo 14 Area to the north of Manchester High School for Girls off Wilmslow Road

Photo 15 As above looking in the direction of Wilmslow Road

An area of amenity grassland with some mature standard trees. There are cattered ornamental species and shrub planting.

7.1.7 Compartment 7

Photo 16 Showground, junction of Wilmslow Road and Platt Lane

Photo 17 Driveway from Platt Lane

The showgrounds comprise a large area of species-poor amenity grassland lined with mature trees.

7.1.8 Compartment 8

Photo 18 Showground on Platt Lane

An area of amenity grassland lined with mature trees, used as a showground and sports field.

7.1.9 Compartment 9

Photo 19 Manchester City Sports Academy

An area of amenity grassland and some mature trees together with the Manchester City Sports Academy with football pitches.

7.2 Breeding Birds

Survey to be completed in spring 2009.

7.3 Bats

Pipistrelle and Daubentons bats have been recorded feeding in the Park. Bat Activity surveys are to be completed in spring 2009**.**

7.4 Other notable species

Song thrush a UK Biodiversity Priority Species has been identified as using the site; it is not yet known if they use the site for breeding, this will be identified in the breeding bird survey. It is a familiar and popular parkland songbird whose numbers are declining seriously; it is therefore on the R.S.P.B. Red List of species of conservation concern because of its decline. It is smaller and browner than a mistle thrush with smaller spotting on the breast. It nests in trees and hedgerows and feeds on worms, snails and fruit. In the winter months it often uses shorter grass/stubble to feed.

7.5 Invasive and problem species

7.5.1 Japanese knotweed

There are several stands of Japanese knotweed on site (see map x)

Japanese knotweed, *Fallopia japonica* is a very invasive weed. It occurs throughout Greater Manchester in a variety of places for example in parkland and along river corridors. It was introduced from Japan as a garden plant in 1850. It was spread through fly tipping and vegetative propagation across large tracts of land. The smallest fragment of this invasive plant will propagate.

Knotweed has been controlled with some success for some years by means of foliar herbicide spraying, although there are a number of concerns regarding the impact of foliar spraying because of its effect on the surrounding vegetation. Herbicide spraying therefore needs to be undertaken carefully by properly trained operatives. This method also requires two visits per year to the site. In 1999 a three year programme to investigate a new methodology for the control of knotweed commenced. The research looked at a new way of controlling knotweed using the cut and injection method; it also compared a variety of herbicides which were known to have been successful in controlling knotweed using the foliar spray methodology. The research investigated the effect on the surrounding ground flora and shrubs and trees.

Herbicides tested

- Glyphosate (Roundup Pro Bi-active)
- 2,4D Amine (Dormone)
- Asulam (Asulox)
- Picloram (Tordon 22K)
- Triclopyr (Garlon 4)
- Diquat (Reglone)
- Imazapyr (Arsenal 50)

Only Glyphosate, Diquat and 2,4D Amine are licensed to use near water courses, where many infestations occur. Picloram and Imazapyr can be persistant and damage neighbouring trees and broad leaved herbs. Picloram and Imazapyr are not recommended for use in areas to be landscaped or in natural vegetation. The following best practice has emerged from the research -

Methodology for Control

- The knotweed is cut with loppers, just below the first node, usually about 8 to 10cms above ground level. Some operators prefer to cut just above the node and perforate the septum with a sharp instrument. There does not appear to be any difference between the effectiveness of the methods.
- The cut growth is stacked on site, usually on polythene and later burnt.
- The optimum timing is mid-August to late September, provided the knotweed is not stressed by drought or frost.

- Using a spot gun applicator, 5 to 10mls of the herbicide (Roundup bi-active) is applied to the hollow cut stem. With larger patches, a dye is added to ensure each stem is treated.
- Any re-growth is likely to be low growing and distorted and cannot therefore be treated with the injection method. This should be spot sprayed with Roundup Pro-Biactive, ensuring minimum run-off.
- The site should be monitored for at least five years and any re-growth tackled as soon as possible

The cut and inject method is a very effective way of controlling Japanese knotweed. Although primarily designed for use in sites of high nature conservation value or in gardens and parks, it can in fact be used anywhere. There can be time savings over the foliar spray method because it needs only one visit per year. Aftercare treatment will generally require spot spraying of individual re-growth the following year. The method can be used in moderately windy conditions. It will be accepted far more readily by communities concerned about herbicide use.

It is important to treat all knotweed on a site. The 'edge effect' of leaving plants will cause knotweed to re-invade. It is also important to re-visit the site annually and tackle any re-growth.

Roundup Pro-Biactive is the most effective herbicide for most situations and is licensed to be used near water courses. Kill rates vary, depending on soil depth and how well established the knotweed is. On some very extensive research sites in Cornwall, a 99 per cent reduction in knotweed has been achieved over three years.

8 Overall Nature Conservation Evaluation

Platt Fields Park supports a number of species and habitats which are of recognized national and regional biodiversity value. These include two species of bat (Pipistrelle and Daubenton) which are specially protected species. The Park also supports Song Thrush which is a Biodiversity Priority Species. Urban greenspace is a priority habitat for conservation as listed in the Greater Manchester Biodiversity Action Plan.

The major features of the Park with local and city-wide importance are

1 The fine stock of mature and semi-mature trees. Each of these trees represents an ecosystem in its own right, supporting invertebrates, fungi and birds. The tree species list for the park includes many native broadleaved species, raising the possibility that a number of the trees date back to a time before the laying out of the park proper, when the site was private parkland and/or farmland. As such, these trees are also important heritage features. Veteran trees are very important ecologically because they provide habitat niches for a huge array of other organisms. The special features of ancient trees which make them unique as wildlife habitat are the exceptionally species-rich communities associated with wood decay, the bare surfaces of the trunk and boughs and the roots.

2 The water features, particularly the Lake, which has been shown to

support a range of wildfowl, a heronry (rare in Manchester) and feeding bats. Greater plant diversity is also found along the line of Platt Brook where closed-canopy woodland adjoins the water course, along the line of the Nico ditch and along the line of the ditch and small pond in compartment xx

3 The easy access that the Park provides for local people to experience an area of semi-natural greenspace and get close to wildlife, particularly waterfowl using the Lake. There are excellent interpretation boards around the Park explaining and interpreting park wildlife and Park history and these represent a valuable feature for encouraging people to appreciate wildlife and nature conservation efforts.

However, there are large areas of the Park supporting close-mown, species poor amenity grassland with little biodiversity value. There is therefore significant scope for **enhancing** the biodiversity value of the Park.

9 SUGGESTED BIODIVERSITY ENHANCEMENT MEASURES

Platt Fields Park has significant potential for biodiversity enhancement. Any suggested ecological enhancements, however, must take into account the high level of public use of the Park and the need to accommodate a wide range of public uses, both formal and informal. The following suggestions are made with these factors in mind. They are *suggestions* and not *prescriptions*, open for debate, change and addition.

Suggestions are made for the enhancement of the existing strong biodiversity features in the Park, but there are also more general suggestions. All of these suggestions are aimed at the principle of increasing the number and variety of **ecological niches** available in the Park (called in technical terms niche differentiation). Basically this means introducing more variety, particularly in terms of providing -

1 temporal variety – this means having food sources and sources of shelter and protection available for as many wildlife species as possible for as much of the year as possible. For example, planting a range of flowering plants that make nectar available through as much of the year as possible, or putting up bat hibernation boxes for use during the winter months.

2 a variety of hydrological conditions – from the very wet areas of standing water, through wetland areas that remain wet for only part of the year to areas that remain very dry throughout most of the year.

3 as wide a range of sustainable food sources as possible

4 a range of areas that can be used by wildlife for shelter – for example gaps in walls, log piles, low growing shrubs and artificial nesting boxes for birds, bats and invertebrates, or areas of the Park deliberately kept a little quieter in terms of formal public activity

5 a variety of texture and structure in the vegetation – for example, planting hedgerows, allowing grass to grow to different heights in some places, allowing some areas of bare soil to be created and left for periods in the year.

9.1 The use of ‘native’ species in biodiversity enhancement schemes

Ecologists have for a long time recommended the use of ‘locally native’ species in biodiversity enhancement schemes. This is justified by the fact that plant species that have been present in the UK landscape for many decades or hundreds of years often support more invertebrates than species that have been introduced only relatively recently. Native species of local provenance are also often recommended for landscape reasons – they fit the local character and will appear less ‘jarring’ in the landscape. However, this does not mean that non-native species are without biodiversity value.

Work undertaken on UK gardens has shown that gardens, although dominated by non-native plants, can nevertheless be very rich in biodiversity. This is because many invertebrates are generalist feeders – they will eat any plant material that is palatable and do not care too much about whether it is native or not. Many also feed on dead and decaying plant matter, many are

‘carnivores’, eating other invertebrates, and many spend their adult phases not eating much at all. For these species the most important factors governing their diversity seem to be the variety of plants available (in terms of species, structure and texture) and the extent of niche variety available to support their various life stages. The number and variety of invertebrate species will govern the numbers of birds and mammals that feed on them.

It is notable that for Platt Fields Park the dominant habitat context of the Park is private garden space in the residential areas surrounding the Park. This is reflected in the bird species recorded, which includes a range of ‘garden birds’ (robin, blackbird, song thrush etc).

The wildflower charity Landlife has also shown that wildflower ‘block’ plantings including species not necessarily of local provenance can nevertheless have biodiversity value; they are also attractive, and people respond very well to the shows of colour that these plantings can provide in public parks.

The statements above do not mean that we should completely abandon the long-established principle of only planting ‘native’ species in biodiversity enhancement schemes in Platt Fields Park, since this principle does have some merit, but it does mean that it is our opinion that the Park could accommodate non-native plantings that are nevertheless of genuine biodiversity value.

9.2 Enhancing the Lake

The Lake has significant current biodiversity value, but it also has some issues currently affecting the ability of the lake to maximize its biodiversity value.

The lake has a problem of excessive blue green algae growth which is considered to be due to several factors:

- Absence of a water ‘throughput’
- Accumulation of sediments, leaves and litter
- Absence of aquatic vegetation
- Excessive numbers of Canada Geese and other waterfowl fouling the Lake
- Insufficient aeration

In addition to being a health and safety hazard, the excessive algal growth will decrease biodiversity by affecting oxygenation of the Lake water, releasing toxins into the water and physically swamping other aquatic species. It is noted that Park managers have introduced measures for controlling the algae in the Lake, including discouraging of feeding of the waterfowl and aeration of the water using a pump. These measures appear to be having some success, although it is noted that discouraging the feeding of wildfowl can be unpopular with some Park users, and the use of a pump for aeration is expensive and not entirely sustainable since it relies on a power supply. The following suggestions are therefore put forward as possible supplements or replacements for the measures already being implemented to enhance biodiversity.

9.2.1 Providing a water throughput

A water flow through the lake will serve to flush out sediments and organic matter and may help to aerate the water. Investigations should be undertaken to find out if the lake has, or had, a more effective water inlet and outlet so that the feasibility of enhancing water throughput could be investigated. The most obvious source of water for this throughput is the Platt Brook, although it is recognized that the water in the Brook will need to be investigated for pollution levels before using it to flow through the Lake.

9.2.2 Preventing the accumulation of sediment, leaves and litter and/or removing sediment

Leaf litter provides a source of organic material into the lake system. Microbial decomposition of this material creates a demand for oxygen which will add to the development of low oxygen concentrations during warm water conditions. To reduce the input of leaf litter:

- Erect low level fencing at strategic points around the lake margin where leaves accumulate and then can be more easily removed.
- Implement a manual leaf litter collection programme during autumn from the lake surrounds and from the surface of the water.
- Selectively remove of trees and branches from the island.

Dredging the lake would remove sediments and improve the quality and functioning of the lake in the long term, but this operation can be disruptive to the lake ecosystem in the short to medium term and could also be very expensive. An alternative approach to dredging would be to combine the existing aeration system with applications of finely powdered chalk. The application of chalk assists in creating the correct environmental conditions within the silt for the micro-organisms associated with the breakdown of organic material.

9.2.3 Introduction of aquatic and emergent vegetation

No emergent or submerged aquatic vegetation is currently present in the lake. Algal control can be achieved by introducing aquatic plants, which would also improve the biodiversity value and visual quality of the lake. However, to achieve algal control using only introduced aquatic plants would require a 50 percent + plant cover of the lake surface which is not possible at Platt Fields. A more limited planting scheme could therefore be implemented, used in combination with other algal control measures.

Emergent aquatic species could be introduced around the lake margins to ‘soften’ the artificial quality of the concrete edging, and also around the marginal edges of the island. This would require selective tree removal to increase the light availability for the plants around the island. Robust plant species should be selected and provided with suitable protection from the geese. The use of temporary fencing and cage structures would need to be deployed to allow the plants to establish.

A suggested range of plant species for introduction include:

Short marginal vegetation - water depths 0 -0.3m

Water forget-me-not	*Myosotis scorpiodes*
Water mint	*Mentha aquatica*
Flowering rush	*Butomus umbellatus*
Sedges	*Carex rostrata, C. riparia, C. acutiformis*

Tall (reed) marginal vegetation - water depths 0 -0.5m

Lesser reed mace	*Typha angustifolia*
Branched bur-reed	*Sparganium erectum*
Yellow flag iris	*Iris pseudacorus*

Floating-leaved vegetation - water depths 1 - 2.5m

Amphibious bistort	*Polygonum amphibian*

Open water planting of robust ornamental lily species such as *Nymphaea gladstoniana* which may be able to tolerate the attentions of wildfowl better than more delicate species. Careful consideration should be given to the locations of this large lily species it should be restricted to areas where they cannot be damaged by boat users.

Floating Islands are another option these are man-made platforms, of varying designs and materials including wooden, metal or plastic frames and coir matting into which the planted emergent and aquatic vegetation can anchor. The islands are secured to the bottom of the lake using anchors and guys. They provide refuges for wildlife and aquatic fauna. The below water element of the floating islands can create a refuge for fish and invertebrates such as dragon and damselfly larvae. Spring mounted boards are available to deter Canada geese - these are designed to sink below the water level if a Canada goose were to try to mount the board.

It is recognized that the success of any measures to introduce aquatic and emergent vegetation around the Lake will likely depend on the successful control of Canada geese, since otherwise the presence of this species will compromise any attempts at the introduction of vegetation. The control of Canada geese is discussed in Appendix 2.

The centre island is overgrown and gloomy. A third of the island could be cleared of trees and the ground left to vegetate naturally. The bare ground would provide habitat for invertebrates.

9.3 Watercourses/Wetlands

Platt Brook

Platt Brook is a brick lined culvert which at present has very little biodiversity value. Introduction of a substrate into the brook could aid plant establishment, provide variation in water flows and provide shelter for aquatic invertebrates. The substrate could comprise areas of gravel or shale placed at strategic locations along the water course.

It is recognized that such an intervention may affect flood levels up and downstream, and therefore the Environment Agency would need to be consulted on this proposal before any implementation.

Nico Ditch

This is an ancient ditch which held little water at the time of the walkover surveys. The ditch is in places clogged with vegetation which needs clearing. There are also small stand of Japanese knotweed which need treating. The most effective way to treat Japanese knotweed near to a water course is to use the cut and inject method. The most effective herbicide is Glyphosate (Roundup Pro-Biactive) which is licensed for use near watercourses (see previous section).

In biodiversity terms the Nico ditch would benefit from some dredging and deepending, although it is recognized that this proposal would need to properly consider the historical value of the Ditch.

Ditch and pond (compartment)

The area identified as area 10 on map*** is a small ditch and pond currently becoming choked overgrown with leaf fall and encroaching vegetation. Plans to open this ditch are underway - the ditch and the pond should be cleared of vegetation , widened and deepened in the winter months (to ensure no amphibians and/or invertebrates are killed or harmed in the process). The ditch should be left to recolonise naturally. The ditch may require clearing once a year by hand in the winter months in future years.

Vegetation adjacent to the ditch could be enhanced by planting more willows, although these should be set back a little from the edge of the ditch to reduce leaf fall into the ditch.

Area 7 (map**)

An area of wet grassland in the south east corner of the Park could easily be made into an ephemeral pond (only holding water for a part of the year). The area could be lowered by approximately one foot and the soil used to create a bank side. These kinds of water bodies are important for a range of plant species some invertebrate species. For example, the Southern Hawker dragonfly lays its eggs in the damp soil at the edges of these pools; its eggs will lie dormant in the soil for the winter months the larvae of this dragonfly emerge in early spring.

Southern Hawker (just emerged)

9.4 Trees

9.4.1 Veteran Trees

Ancient trees provide habitat for a huge array of other organisms. The special features of ancient trees which make them unique as wildlife habitat are the exceptionally species-rich communities associated with: Wood decay, the bare surfaces of the trunk and boughs and the roots.

There are more than 1700 different invertebrate species in Britain and Ireland which are dependent on decaying wood in order to complete their life cycles. This represents about 6% of the entire British invertebrate fauna wood-decay is a major resource! That means more than 1700 different life styles, since each species has very particular requirements. These statistics really bring home just how diverse a habitat wood decay can be.

The keys to understanding the ecology of these invertebrates is to develop an understanding of the two key processes involved:

- the aging process of woody plants
- the process of wood decay.

A wide range of birds nest inside tree cavities, some adopting existing cavities with little or no modification - such as owls, kestrels, marsh tit, tree-creeper - while others modify the cavity and its access considerably, e.g. woodpeckers and nuthatch.

Some are directly dependent on the trees for the bulk of their food, including foliage gleaners such as warblers, while others are specialists on wood-decay invertebrates plus invertebrates which are merely sheltering in the wood, e.g. overwintering or nocturnal insects. Generally the bird does not concern itself with why the particular invertebrate is where it is, merely eating it! The woodpeckers are the main birds specifically breaking into decaying wood in search of food - even nuthatch and treecreeper are mainly gleaning prey from the external surfaces and shallow cavities.

Recommendations –

- Retain standing deadwood wherever possible. Leave fallen branches to decay on site where possible. Some trees might be associated with perceived and actual safety risk because of dropping limbs. Careful pruning can eliminate this problem.
- Allow the grass to grow around the base of the tree throughout the park; do not mow right up to the trunk. This will encourage more insects. Larvae descend the tree to pupate and if the grass is very short most will be picked off by birds before they can burrow into the earth. If the grass is longer they have more cover.
- Provide more interpretation concerning the value of veteran trees
- More tree planting is needed throughout the park in order to replace the veteran trees over time.

7.5 The Orchard

The fruit trees in the orchard are not fruiting well. There were no signs of widespread systemic disease in the trees (often a problem in orchards), although many trees showed signs of deliberate breaking of stems and branches. The lack of fruit could therefore possibly be due solely to people pressure (damaging trees and/or picking fruit too early).

Recommednation - Allow the grass in the orchard to grow to a little longer (around three inches?) in this area in the late summer when fruit is ripening; this could be achieved simply by altering the height of the cutting blades on the mower. Leaving the grass longer means that it will be wetter, which may deter people from straying into the area. A temporary interpretation board could be placed in this area if necessary to explain the longer grass. Allowing the grass to grow a little longer is also good for biodiversity in general, since it helps the survival of many types of invertebrate, and the soil will hold moisture for longer in dry periods.

7.6 Woodland Walk

The area identified on the map as area 6 is an area where a woodland walk could be created. A path passes between, on the one hand, a screen of relatively young broadleaved trees and on the other (along the back of Albion Road) more mature and more widely spaced broadleaved trees. The area of the Park which backs on to the houses on Albion road is presently an area of amenity grassland with a few scattered trees. There is scope to plant a number of large standard trees in this area, which would in time form more of a closed canopy woodland feel along the path. The planting should be widely spread and mowing should cease after tree planting. Because the woodland walk may appear dark in summer when trees are in full leaf we would suggest thinning the younger trees on the other side of the path to leave gaps in places, allowing easy access to the playing fields beyond.

One of the habitat boosters that is available in public parks is leaf-litter. The new woodland habitat would benefit enormously if some of those leaves were brought in and spread over the ground in the early years. The leaves help to keep the root zone of the newly planted trees moist and they will also provide food for the organisms of decay which in turn provide a livelihood for foraging blackbirds and hedgehogs. A woodland wildlife feel would therefore be more quickly established

7.7 Hedgerows

According to the UK Government advisors on nature conservation, the Joint Nature Conservation Committee (JNCC):

"*Hedgerows are the most significant wildlife habitat over large stretches of lowland UK and are an essential refuge for a great many woodland and farmland plants and animals*."

Hedgerows are the principal habitat for around 50 existing species of conservation concern in the UK, including 13 globally threatened or rapidly declining species (more than for most other key habitats). They are particularly important for butterflies and moths, farmland birds, bats and

dormice. There is an estimated ½ million km of hedgerow in England and Wales, of which 42% (about 154,000 km) are ancient and/or species-rich.

Over 600 plant species, 1500 insects, 65 birds and 20 mammals have been recorded at some time living or feeding in hedgerows. Over 100 species of invertebrates can be found in a typical 20-metre section of hedgerow. Hedgerows adjacent to roads, green lanes, tracks and wooded ground tend to be particularly species-rich.

Hedgerows also act as wildlife corridors for many species, including reptiles and amphibians, bats and birds allowing movement between other habitats.

Since 1945 there has been a drastic loss of hedgerows through removal and neglect throughout the UK, particularly in eastern counties of England. This loss is still continuing. Between 1984 and 1990, the net loss of hedgerow length in England was estimated as 21%, in Scotland 27% and in Wales 25%. This loss was the result of a combination of outright removal (1.7% per annum) and neglect (3.5% pa). In England and Wales the loss continued between 1990 and 1993, with neglect becoming increasingly important and removal less so.

The area shown on the map as **area 12** around the south and south-west of the site could be planted with hedgerows. Hedgerows can be made up of a variety of species. Hawthorn forms the basis for many hedges because it is tough and fast growing. It also provides a good source of food for birds and insects and good protection for nesting birds. It is important to note that hawthorn flowers and fruits on old growth so trimming should be carried out very carefully, preferably only on alternate years.
Other valuable hedgerow species are holly, dogwood, guilder rose and blackthorn.

7.8 Grasslands

The area identified on the Biodiversity enhancement map as **area 8** is presently an area of wet amenity grassland, but with a high proportion of meadow buttercup. It seems that water drains to the area from the nearby playing fields. A wet wildflower area could be created here. A simple way to do this would be simply to stop mowing the area in the Spring and wait to see what develops. The area would need to be closely defined to avoid claims of 'untidiness' and would need to be strimmed off in Summer.

If the resulting meadow were considered too species poor new plant species could be introduced, but this would need more intervention. The existing turf would likely need to be removed prior to re-seeding, together with the possible removal of some topsoil to reduce fertility. A seed mix could then be introduced. It is important to prepare the ground approximately six weeks prior to sowing. The amount you need to sow will depend on each seed mix. Do not be tempted to sow the mix too thickly as the plants need space to establish. A suitable seed mix could include meadow buttercup, devil's bit scabious, purple loosestrife, selfheal and ragged robin.

The area identified as **area 9** on the map, the grass embankment, could also be planted with wildflowers. Plug planting this area could be a better option than stripping the turf and topsoil, to avoid disturbing existing landscaping.

Suitable species could include birdsfoot trefoil, cornflower, evening primrose, field scabious, ox-eye daisy and red campion.

The grassland area between the tracks of the BMX circuit have been apparently been created partly on a limestone substrate. Parts of the area could be seeded with a limestone grassland seed mix – including, for example, birdsfoot trefoil, chicory, cowslip, greater knapweed, ox-eye daisy, selfheal or vipers bugloss.

Seed mixes can be obtained from various sources. **Landlife**, a nationally registered wildflower charity, based in Liverpool. The email address is http://www.landlife.org.uk. Alternatively a selection of species could include:

7.8.1 Amenity grassland areas (show fields)

Large areas of the Park comprise close-mown amenity grassland used for formal and informal recreation and, therefore, generally unsuitable for the establishment of wildflower plantings. However, amenity grassland does have biodiversity value. These areas can be important for many bird species as a source of food (providing the soil structure is good to support invertebrate populations) and as a safe refuge for roosting (particularly gulls).. The soil is an ecosystem in its own right with its own biodiversity and complex interactions. There are a whole host of organisms that live in the soil; invertebrates such as earthworms and beetles and micro-organisms (bacteria, fungi, protozoa, nematodes, mites). These all work with chemical and energy processes to digest organic matter and circulate nutrients and they form a vital part of the food chain. Currently the show fields appear compacted and would benefit from aeration to provide a good soil structure. This process could be worked into the mowing/management regime.

7.9 Enhancements benefitting specific species (bats and birds)

7.9.1 BATS

Bats have been recorded feeding over the park (Pipistrelle and Daubenton). A bat survey is to be undertaken in spring 2009 in mild weather conditions to establish if any other species are using the park and also to identify any roosts, in order to better target enhancements for bats. In general -

Potential roost sites

The bridge and culvert over Platt Brook currently offer little bat roosting potential although these are ideal places for bats to roost. To create roosting potential several options are available:

- mortar could be removed from some brickwork to create suitable gaps.
- occasional bricks could be removed.
- several bricks could be removed and replaced by ‘bat bricks’
- install bat boxes

Photos 20 & 21 Bridge over Platt Brook and the Platt Brook culvert

Bat boxes may be problematical in these locations because they may be subject to deliberate disturbance.

The boat house is also a good place for roosting bats such as the Pipistrelle to hibernate. The pipistrelle is a very small crevice dwelling bat and will roost under roof and ridge tiles, under weather boarding, above soffits, behind facia and barge boarding and inside cavity walls. We understand that the roof on the boat house is to be renewed shortly; by leaving small gaps sufficient for the pipistrelle to enter (approx 1cm) bat roosting opportunities could be achieved in this building without any added cost. Alternatively bat boxes could be installed on the refurbished building.

Photos 22 & 23 The boat house is a good place to install bat roosting provision

The walkover survey identified a quieter part of the park where bat boxes could be placed in trees (compartment 5). Further recommendations regarding bat box areas will follow following the bat survey.


Photos 24 & 25 Area south of Manchester High School for girls suitable for the installation of bat boxes

7.9.2 BIRDS

Many of the biodiversity enhancements described above will be of value for birds, but birds may also benefit from the installation of nest boxes on trees and buildings throughout the park, since there was a paucity of nesting places recorded during the assessment of the site.

There are very many designs and suppliers of bird nesting boxes, but it would be good to have a bird box building event in the Park to specially build boxes for the Park.

8 Education/Interpretation

The interpretation boards currently sited throughout the site are of a high quality. However whilst work is carried out on certain parts of the Park it may be a good idea to place temporary interpretation boards to advise the public why, for example the grass is being left to grow in the orchard, or why new wetland areas are being enhanced.

Fixed interpretation panels should be supplemented by a programme of guided walks with a wildlife theme or wildlife-themed events

9 REFERENCES

Eileen, J. *Development of Good Practice for the use of the injection method of herbicide application to control Japanese knotweed (Fallopia japonica)* (Camborne School of Mines, University of Exeter, 2002)
For further information look up the Japanese Knotweed Control Forum atwww.ex.ac.uk/knotweed and the Cornwall County Council website on knotweed atwww.cornwall.gov.uk/environment/knotweed/cornwall.htm
Simon Ford, Regional Nature Conservation Adviser for Wessex, The National Trust

Baines, J. C. *(1986) The Wild Side of Town. Elm Tree Books London*

10 OTHER USEFUL SOURCES OF INFORMATION/FUNDING

Landlife, a wildflower charity, offer advice on wildflower grassland creation and can supply seeds**. www.wildflower.org.uk**

CABE Space offer advice on the development and management of public parks and produce a useful range of publications including 'making contracts work for wildlife; how to encourage biodiversity in urban parks'. **www.cabe.org.uk**

The **RSPB** are a useful source of information on biodiversity enhancements for birds. **www.rspb.org.uk**

The **SITA Trust** offers a range of grants for practical biodiversity projects. **www.sitatrust.org.uk**

APPENDIX ONE

BIRDS RECORDED

African Grey (Parrot)
Blackbird
Blackcap
Black-headed Gull
Blue Tit
Canada Goose
Carrion Crow
Common Pochard
Coot
Egyptian Goose
Eurasian Sparrowhawk
Feral Pigeon
Goldfinch
Goosander
Cormorant
Great Crested Grebe
Great Tit
Great Spotted Woodpecker
Grey Heron
Grey Wagtail
Jay
Magpie
Mallard
Moorhen
Muscovy Duck
Mute Swan
Pink-footed Goose
Ring-necked Parakeet
Robin
Song Thrush UK BAP Priority Species
Tawny Owl
Tufted Duck
Willow Warbler
Wood Nuthatch
Wren

MAMMALS RECORDED

Grey Squirrel
Pipistrelle Bat
Daubentons Bat

TREES RECORDED

Horse Chestnut	*Aesculus hippocastanum*
Rowan	*Sorbus aucuparia*
Rowan (hybrid)	*Sorbus sp*
Ash	*Fraxinus excelsior*
Silver Birch	*Betula pendula*
Lime	*Tilia europaea*
Sycamore	*Acer pseudoplatanus*
Apple (various types)	*Malus sp*
Holly	*Ilex aquifolium*
Beech	*Fagus sylvatica*
Oak (various)	*Quercus sp*
Alder	*Alnus sp*
Goat Willow	*Salix caprea*
Grey Willow	*Salix cinerea*
Crack Willow	*Salix fragilis*
Hazel	*Corylus avellana*
European Larch	*Larix decidua*
Scots Pine	*Pinus sylvestris*
Cherry (Various)	*Prunus sp*
Hawthorn	*Crataegus monogyna*
Pear	*Pyrus sp*
Yew	*Taxus baccata*

APPENDIX TWO

The Management of Problems caused by Canada Geese
A Guide to Best Practice

Introduction

The Canada Goose population in Britain numbers over 63,000 birds and is still increasing. The geese live in local populations, usually of up to a few hundred birds, which remain around one or two water bodies that offer suitable habitats for breeding, roosting etc. Because the geese have relatively few predators, and can produce four or five young per year, numbers at particular sites can grow very rapidly and significant problems may occur. Any management techniques used to control the problems caused by Canada Geese must be legal (Canada Geese are protected under both British and European legislation) and should take account of the fact that Canada Geese are a popular species with many members of the general public.

This paper aims to provide land managers with the information that they need to manage difficulties caused by Canada Geese in a way that is effective, legal and sensitive to public opinion.

The Biology and Behaviour of Canada Geese

In order to develop an effective management strategy for any nuisance wildlife, it is necessary to understand enough about the biology of the species and the local population involved to be able to predict the outcome of whichever management techniques are chosen. This section gives a brief point by point overview of the biology of Canada Geese in Britain insofar as it affects the management of the species.

1.1 Breeding

A single clutch of around 6 eggs is laid in early April each year. Incubation, solely by the female, takes 28-30 days.Nests are usually close to water bodies, often on islands which provide some protection from predators such as foxes, dogs or mink.

The adult geese defend a small territory around the nest, but are willing to tolerate other pairs nesting nearby, so large colonies can build up on sites with enough nesting territories and adequate food supplies.

The geese are aggressive in defence of their nests and will attack Canada Geese, other waterfowl, and even humans who approach too closely.

1.2 Fledging and the moult

The hatched young are flightless for 10 weeks and are protected by the adults on the water at the breeding site. Mortality rates are highest for very young fledglings, but become little different from adults once the young are more than a few weeks old.

The adult birds moult around the end of June and are unable to fly for a 3-4 week period.During the moult, both adult and juvenile birds must feed from the water or walk to find food.

The amount of suitable food available at a site during this period may be important in governing the number of breeding pairs that it can support.

Some birds, which have either not attempted to breed or which have failed to raise a brood, undertake longer journeys to find the best sites to moult. Some birds from Yorkshire and the West Midlands fly as far as Scotland to find suitable moulting sites.

1.3 Dispersal

The geese normally remain close to the site where they hatched, and once young birds mature they may wait several years for a breeding territory to become available. Large flocks of non breeding adults may thus build up at certain sites. Most Canada Geese remain faithful to their home area for life, even if apparently suitable water bodies with no Canada Geese present are available nearby. Females are generally more site faithful than males Small numbers (usually of young birds) abandon their home area either to join other groups or to establish new colonies.

1.4 Wintering

Unlike their North American ancestors, Canada Geese in Britain are mostly non-migratory, moving only short distances between breeding and wintering sites within their local area.

Birds may fly out from the water bodies where they roost to regular winter feeding sites such as waterside grazing pasture, amenity grassland etc. They may also move around their home range taking advantage of feeding opportunities such as sprouting winter cereals or root crops as they become available.

1.5 Causes of mortality

Adult Canada Geese have few natural predators in Britain, and most of the known causes of recorded mortality are associated with man's activities. Annual mortality is estimated at between 10 and 20% of the whole population. Juvenile birds have the same level of mortality as adults once they reach their first moult.

The causes of death are:

- 67.2% shooting
- 4.3% hit power lines
- 5.5% predation
- 23% unknown.

There is little evidence that natural factors, which become more severe as numbers of birds increase, such as limited food availability, act to control Canada Goose numbers.
Low annual mortality and high reproductive rates give the national population the scope to increase in size for the foreseeable future.

2. Problems Caused By Canada Geese

2.1 Grazing and trampling

Canada Geese are vegetarians, grazing on both land and water plants.
Damage to amenity grassland in public parks, where the geese may occupy regular feeding and roosting sites all year round can be severe.Unsightly and un-hygenic areas of mud and droppings which are expensive to reinstate frequently occur. The geese may trample as well as graze pasture and crops.

2.2 Fouling with droppings

Because of the low nutrient value of their food, Canada Geese need to eat large quantities of vegetation. When feeding they may produce droppings at a rate of one every 6 minutes.
The droppings contain bacteria that may be harmful if swallowed and they also make grassed areas unattractive and paths slippery.

If the droppings are passed into water bodies they may cause increased nutrient loadings leading to possible toxic algal blooms and low oxygen levels in the water.

2.3 Damage to wildlife habitat

Canada Geese can damage the habitat of other wildlife, for example by grazing or trampling nesting sites of other bird species. Destruction of waterside habitat, such as reed beds, by Canada Geese can be a significant problem, leading to erosion of river banks in some cases.

2.4 Excluding other wildlife

There is little hard evidence that Canada Geese cause significant problems by competing directly with other wildlife. Aggressive confrontations do occur, and there is some evidence of other large waterfowl being excluded by, or excluding, Canada Geese from a preferred breeding site. Such interactions are rare, however, and are thought to have little effect on the overall populations of other native waterfowl.

3. Management Techniques

3.1 The protected status of Canada Geese.

The Canada Goose, like all other birds in Britain, is protected under the EC Wild Birds Directive implemented in the United Kingdom through the Wildlife and Countryside Act (1981). This makes it an offence to capture, kill or injure Canada Geese, to damage their nests or eggs, or to disturb them on a breeding site. Any control technique which involves breaking the protected status of the Geese requires a licence from the appropriate government authority. However, Canada Geese can be legally shot by authorised persons or trapped by approved methods in the open season (between September 1st and January 31st, or February 20th on the foreshore). The use of shooting or trapping by approved methods to control Canada Geese during the open season does not, therefore, require a licence, but care should be taken to ensure that other regulations concerning firearms safety, capture methods etc. are adhered to.

3.2 Integrated Management Strategies (IMS) For Canada Geese

Experience has shown that it is unlikely that a single management technique will be fully effective in controlling a problem caused by Canada Geese. For example:

- Fencing an area to keep birds off will simply cause them to move to an alternative site close by and continue to cause damage.
- Preventing reproduction by treating eggs to stop hatching will not reduce the population of adults (and hence the levels of damage or nuisance) for many years.
- Culling the adult population at a site may simply allow non breeding adults from nearby waters to move in to vacated breeding territories.

In those cases where effective management of the problem has been achieved, Integrated Management Strategies (IMS) which combine a suite of techniques have invariably been employed. One of the most effective Canada Goose management programmes to date involved the development of an IMS that combined reduction of adult numbers, reproductive control and fencing to exclude birds in an IMS carried out by Wandsworth Borough Council as part of a larger programme to improve the quality of its urban park lakes.

3.3 The Scale Of Management Required For A Successful IMS

Although the damage or nuisance caused by a group of Canada Geese may be occurring at only one site, it is important to remember that the population of geese to which the birds belong may be spread over a number of nearby waters. When developing an IMS for a particular situation, it will often be necessary to manage birds away from the site where the problem actually occurs. This is especially important if population reduction is to be included in the IMS. For example, if scaring or habitat management proved insufficient to control a

problem at a wintering site, and population reduction by egg control or culling became necessary, the breeding and moulting sites used by the wintering birds would need to be identified and the co-operation of the landowners obtained before this strategy could be implemented.

3.4 Available techniques for the control of problems caused by Canada Geese

The choice of which techniques to combine into an IMS will depend upon the type of damage that is occurring, the type of control that is needed to reduce the damage to acceptable levels, and the biology and distribution of the birds involved. A series of examples are given at the end of this section. The techniques available fall into two broad categories; the control of behaviour, by scaring or excluding the birds from the site in question, and the control of numbers, by manipulating the breeding rate or rate of mortality of adult birds. Some of these techniques, especially those involving the manipulation of bird numbers, will require a licenc. Where a licence is needed this is indicated below.

3.4.1 Behaviour modification (scaring, exclusion, repellent chemicals)

Scaring techniques
a) Visual.

Ground based scarers

Most visual scarers rely on the natural fear of the unfamiliar of wild animals. Scarecrows of various designs, flags and flapping tapes have all been employed to deter geese from areas such as sprouting crops. However, even migratory goose species learn to ignore these deterrents and Canada Geese, which often live close to man, are used to man made items. Scarecrows, whether human or animal effigies, windmills, rotating mirrors etc., should be placed in the centre of the area where problems are occurring and should be moved every 2 or 3 days to maximise their effect. Flags or flutter tape should be attached to upright poles at regular intervals across the affected area. In general, the closer the spacing of the flags the greater the deterrent effect is likely to be. Visual scarers may be effective for short term deterrence of Canada Geese from sensitive areas, especially if alternative sites are available nearby.

Kites and balloons

Other visual scaring techniques include kites and balloons, often painted with large eyes or made in the shape of predatory birds. A threat from above may be more intimidating for birds which may naturally be attacked by birds of prey, and a single balloon may deter birds from a larger area than a ground based scarer. The devices should be set to fly above the problem area during normal wind conditions. They may need to be re-set if wind direction changes and may not fly well in heavy rain or very strong winds. As with ground based scarers, birds will eventually learn to ignore them and they are best used as short term deterrents when alternative sites are available for the birds to move to.

Problems with visual scarers

Although effective in the short term, visual scarers have some drawbacks, particularly in situations such as public parks. The scarers may be unattractive and interfere with recreational use of areas and could be subject to theft. They also require maintenance and some need to be moved on a regular basis to maximise their effect. Visual scarers are particularly appropriate for use to protect agricultural crops where the geese need to be excluded for a limited period of time such as during sowing or prior to harvest.

b) Acoustic

Acoustic scarers, from the commonly used gas cannon through recorded bird calls to complex solar powered artificial sound generators, are all marketed as being effective in deterring Canada Geese. Most will deter the birds from relatively small areas providing that there are alternative areas for them to use for roosting or feeding nearby. Like visual scarers, the birds will eventually learn that they offer no threat, although their effectiveness can be prolonged by moving the scarers every two or three days. Acoustic scarers are often hidden (by deploying them at the edge of a field or behind hay bales or other screens) so that the birds cannot see where the sound is coming from. This is thought to prolong the time before the birds realise that the sound represents no threat, but there is little scientific evidence to support this assertion.

Problems with acoustic scarers

As with visual scarers, acoustic scarers may be unsuitable for use in areas frequented by the public due to the sudden loud noises involved, and the relatively expensive equipment may be subject to theft or vandalism. These systems are more likely to be of use to protect agricultural crops or to deter birds from islands or similar remote areas.

c) Combined visual/acoustic

Some scaring systems combine visual and acoustic stimuli in order to enhance the deterrent effect. Such systems vary from gas cannons which shoot a projectile up a pole when the cannon goes off (in order to simulate a shot bird falling to the ground) to an inflatable rubber man which emerges from a box accompanied by a loud klaxon. The combination of visual and acoustic stimuli may lengthen the time before the birds habituate to the scarers, and they will be more effective if moved every 2 or 3 days. All of these systems have the same drawbacks as visual or acoustic scarers alone and are suitable for use in similar situations.

d) Human operated bird control

For many bird species the most effective bird scarer is a human being, armed either with a harmless scaring device such as a flag or firework, or with a shotgun. Where Canada Geese are regularly shot, the simple presence of a human may be sufficient to deter birds from an area. In most situations, however, Canada Geese show little fear of man, particularly where they are used to being fed by the public. Even if the geese can be trained to fear humans, the deterrent will only be effective if it is continuously deployed whenever the geese are present. The resulting high cost of human operated scaring of Canada Geese, by whatever method, means that it is usually only an effective option when the damage caused is extremely expensive, or where the risks to health and safety are extreme (e.g. in preventing birdstrikes to aircraft).

Shooting to support scaring

It is widely believed that periodic shooting of a small number of birds helps to make them more wary and thus makes acoustic and visual scarers more effective. Whilst there is little scientific evidence to support this theory, this may well be the case, and licences to shoot limited numbers of birds to support scaring outside the open season may be issued in certain circumstances.

Exclusion

Where scaring of Canada Geese is not desirable, it may be possible to exclude the birds from sensitive areas by physically preventing them from gaining access. As with scaring techniques, exclusion is likely to be most effective if alternative sites are available for the birds to move to. These techniques may create some difficulties as they affect other waterfowl species as well as Canada Geese. The erection of fences along a lakeside may also have implications for public safety if someone were to fall into the water and be unable to get out easily.

Fencing

Perhaps the most obvious way to exclude Canada Geese is to fence sensitive areas to prevent them gaining access. Despite the fact that the geese can fly, even low fences of around 1m high can be effective in excluding them from some areas as they prefer to walk to their feeding and roosting sites if possible, often landing and taking off from water. Thus, fencing the edge of a lake may be sufficient to cause the geese to move elsewhere if they are unable to walk easily out of the water. Canada Geese dislike enclosed areas where they cannot easily escape from predators. Barriers that divide fields into smaller units may therefore help to discourage the birds from using the site concerned.

Fences have also been successfully used to exclude Canada Geese from breeding and roosting sites, especially where alternative sites were available nearby. Fencing the perimeter of park lakes is not necessarily an expensive option because a simple post and chicken wire fence will suffice if properly erected, but a more decorative and permanent structure may involve a significant cost. Fencing may be a particularly effective option at sites used by moulting Canada Geese because if they are prevented from walking out of the water whilst they cannot fly they will not be able to access the feeding areas nearby. Care should be taken, however, to ensure that if moulting adults or newly hatched young are found at a fenced site, they do not starve through lack of access to grazing areas.

Barrier planting, marginal vegetation, trees

An alternative to fencing lake edges, or placing barrier fencing around grazed areas, is to modify the vegetation in the areas suffering damage by Canada Geese. Establishing areas of dense vegetation along the shores of water bodies (possibly concealing a cheaper fence structure) or breaking up large grass areas with planting which restricts the bird's view of the water (and hence reduces its feeling of safety) have all proved effective in certain circumstances. If Canada Geese do move out to feed in small areas flanked by hedges and trees, they prefer a shallow climb out angle to aid their escape. Thus, the taller the surrounding vegetation relative to the size of the field or other grazed area the less likely the geese are to use it.

Chemical repellents

A number of products are currently under development which are designed to harmlessly repel wildlife from areas where they are not wanted. Some of these products are currently on sale in the USA and have met with mixed success. At present there is no repellent chemical available in the UK that is approved for use and is effective against Canada Geese. Further field testing will be required before a proper evaluation of available repellent chemicals can be made in the future.

Habitat management

It may be possible to permanently alter an area where Canada Geese are causing problems to make the site unattractive to them. Whilst the features that make a water suitable for Canada Geese are not fully understood, enough is known about the biology of the birds to allow a number of suggestions for habitat modifications to be made.

Landscaping: bank steepening and island removal

As with fencing, making it more difficult for Canada Geese to walk out of water bodies onto feeding areas by steepening banks may encourage the birds to move elsewhere. Avoiding shallow marginal areas which support water plants will also restrict the food supply for the geese, but this may adversely affect other waterfowl and/or damage the rest of the aquatic habitat. Safety concerns about having deep water and steep banks in public areas would also need to be considered. Because Canada Geese prefer to breed on islands, the complete removal of an island could be considered if fencing proved ineffective in discouraging the birds. Low lying islands could be effectively removed by raising water levels in some circumstances. As with all other exclusion or habitat modification techniques, the effect on other wildlife would need to be considered before embarking on such a project.

Reducing available foraging areas adjacent to water bodies by changing ground cover.

It may be possible to reduce or eliminate Canada Goose damage to amenity areas by changing the ground cover planting to species that are not palatable to the geese. Ground cover plants with tough leaves, such as Ivy, and many shrub species are not readily eaten by Canada Geese and planting the fringes of lakes with a combination of barrier planting and unpalatable ground cover may reduce the feeding opportunities to the point where the geese move elsewhere.

3.4.2 Population management

In situations where serious problems are being encountered and where habitat management, scaring or exclusion techniques are inappropriate or have been tried and have failed, it may be necessary to reduce the scale of the problem by reducing the size of the goose population at a particular site. There are a number of techniques that can be used for population management but all require a licence from the appropriate authority, except for shooting in season.

Relocation

The initial response to the first problems caused by Canada Geese in the 1950's and 60's was to capture the birds during the flightless period of the moult and to move them to other waters where there were no Canada Geese at the time. Many of the relocated birds simply returned to their original home, whilst those that did remain on the new site began to reproduce rapidly in the new habitat and problems soon began to occur at these sites as well. It is thought that these reintroductions played a significant part in the sudden rapid expansion of the Canada Goose population which is continuing today. Because further relocations are likely to speed the geographic spread of the species, and may also speed up population growth in newly colonised areas, it is unlikely that licences will be granted to relocate Canada Geese in the foreseeable future. It is illegal, under schedule 9 of the Wildlife and countryside Act 1981, to release Canada Geese into the wild without a licence.

Shooting in season

Canada geese may be legally shot during the open season (1st. September to 31st. January, or 20th. February on the foreshore) by authorised persons (i.e. persons acting with the authority of the landowners and the owners of the shooting rights to the land involved). Because they are frequently quite tame, Canada Geese are not regarded as a very 'sporting shot' by many wildfowlers and the numbers shot each year are relatively small. If the hunting pressure on Canada Geese were to be increased they may become more wary and hence offer a greater challenge to the hunter. However, it is unlikely that winter shooting alone could reduce a large population of, for example, 500 birds by a significant amount in a single season as the increasing wariness of the birds would make the shooting of large numbers in a single session increasingly difficult, and the birds might simply desert the site during the winter open season, returning to breed, and hence cause more damage, in the spring. Intensive shooting to reduce population size has additional drawbacks in that it will disturb other waterfowl, and may not be possible in public parks etc. for safety and public relations reasons.

Egg control (requires a licence)

Treating the eggs of Canada Geese to prevent hatching is one of the most commonly used licensed population control techniques. It is easily carried out and requires effort annually over a limited period. It is also generally regarded by the public as an acceptable means of population control. Eggs may be removed from nests once the clutch is complete, but there is a possibility that the bird will lay a second clutch. To avoid this, eggs may be treated to prevent hatching or replaced with dummy eggs so that the goose incubates the eggs as normal and then abandons the clutch when they fail to hatch. There are a variety of treatment methods that may by licensed:

- **Egg pricking**. This involves piercing the egg with a pin or small nail and moving this rapidly around inside the egg to kill the embryo before returning the egg to the nest. Egg pricking must be done carefully as if the bird detects that the eggs are damaged she may desert the nest and lay another clutch.
- **Boiling.** Eggs may be boiled to kill the embryo and returned to the nest.
- **Egg oiling.** Eggs may be coated with mineral oil by rolling them in a small quantity of mineral oil carried in a polythene bag. The mineral oil sold as liquid paraffin (BP) in chemists is harmless to the birds - **note this is not paraffin fuel as used in stoves etc**. The oil blocks the pores in the eggshell and starves the embryo of oxygen. This technique is easy to carry out, 100% effective in preventing hatching and does not adversely affect the sitting bird.

Providing that the treatment is applied early in the incubation cycle, ideally immediately after the clutch is complete, all of these techniques are humane and effective in preventing additional young birds being recruited to the population. However, because of the low mortality rate of the adults, it may need 80% of all of the eggs on a site to be treated for in excess of 8 years before egg control alone will begin to show a reduction in population size. If nests are hard to find or manpower resources limited, egg control alone is likely only to hold the problem at its present level rather than to reduce it significantly.

Control of adults (requires a licence)

The quickest way to achieve a large scale reduction in the number of Canada Geese at a site is by the culling of fully grown birds. The effect is immediate and, if the birds can be captured during the moult, most, or all, of a population can be removed. The principal disadvantage of this technique is that it often meets with a strong adverse reaction from the public. The techniques require some specialist knowledge to be used effectively and considerable manpower is needed if a large scale cull is to be carried out effectively and humanely.

The most common way of removing birds is by capture during the moult. Canada Geese moult all of their flight feathers simultaneously, and, for a period of four to six weeks around the beginning of July, are unable to fly. The birds form moulting flocks, remaining on the water for most of the time to reduce the risk of predation during this vulnerable period. A number of small boats or canoes can be used to herd the birds towards the bank where a funnel shaped enclosure made of chicken wire supported by fencing stakes is erected. The funnel leads into a catching pen with a removable door. The birds are forced up onto the bank and into the mouth of the funnel. The catching party then drive the birds into the funnel and, eventually, into the pen and the door is closed. This technique requires some experience if it is to be carried out successfully, and expert advice should be sought. Smaller numbers of birds may be captured using nets or similar devices, providing any method used does not contravene Section 5 of the Wildlife and Countryside Act 1981, again expert assistance should be employed.

Once captured, it is necessary to humanely despatch the birds. A number of techniques are allowed by law, but it is best to seek professional advice if a large number of birds need to be despatched. Employing a veterinary surgeon to despatch the birds by lethal injection or to oversee the whole operation may be advisable to allay the concerns of the general public.

Before embarking on the large scale destruction of geese it is important to be sure that the birds that you are removing are actually the ones that are causing the problem. For example, birds causing agricultural damage at a wintering site may moult at a site a considerable distance away. It should also be noted that at long established breeding sites there may be a surplus of birds waiting to occupy breeding territories, but which moult elsewhere. Thus, a cull of breeding birds may simply create vacant territories for other birds to move into and repeat culls may be necessary for a number of years before the problem is finally brought under control.

3.5 Examples Of Possible Integrated Management Strategies For Problems Caused By Canada Geese

The choice of which techniques to use in an IMS will depend on a number of factors specific to the site in question; these include the biology and movement patterns of the birds involved, the severity of the problem, the timescale in which the problem needs to be resolved, possible adverse public reaction, cost and manpower constraints, and the need to obtain licences for some techniques. Examples of IMS that might be developed for typical situations follow, if in doubt, the landowner or manager should take expert advice on the development of an IMS suitable for his or her particular circumstances.

Example 1

A public park with an ornamental lake and lawns. A resident and growing population of 200 Canada Geese with 15 pairs breeding on an island in the lake. Birds range widely over the park, damaging lawns and bankside vegetation and leaving large quantities of droppings which are fouling grassed areas and paths.

Suggested IMS:

The lake shore and island should be fenced to prevent the birds walking out to feed. If other waterfowl are present, a small gap at the bottom of the fence will allow them to move in and out of the water whilst restricting the movement of the geese. Consideration should be given to establishing bankside vegetation that is resistant to damage by the geese (the presence of the fence will aid establishment or reinstatement of damaged areas). Flutter tape or other scarers may be deployed to keep the geese off badly damaged areas. In order to prevent further population increase, a licence should be sought from the Department of the Environment, Transport and the Regions to treat the eggs of any birds that breed on the island despite the fencing. The licence could be issued on the grounds of public health and

safety due to the hazards posed by the droppings in public areas. These techniques should be monitored for at least two years in order to assess their effectiveness. If problems persist, a licensed cull of birds may be necessary, with sufficient birds being captured during the moult to reduce the population to the desired level, followed by on going egg control to keep the population under control.

5 Further Reading

ADAS 1987: **Bird Scaring - Leaflet P9003** MAFF Publications

Allan J.R. Kirby J.S. & Feare C.J. (1995) **The biology of canada geese (Branta canadensis) in relation to the management of feral populations.** Wildlife Biology Vol. 1 p 129-143.

Department of the Environment Transport and the Regions (1998) **Population Dynamics of Canada Geese in great Britain and Implications for Future Management**. Report by wildfowl and Wetlands Trust and British Trust for Ornithology.

Department of the Environment Transport and the Regions (1998) **Canada Goose Research Project: Control Measures and Study of Related Canada Goose Problems.**

Department Of The Environment (1994) **Canada Geese - A Guide To Legal Control Methods.** National Canada Goose Working Group.

Wandsworth Borough Council (undated) **London Lakes Project Overview Document**. Obtainable from Wandsworth BC price £15

How to apply for a licence to control Canada Geese

All management of Canada Goose problems must be undertaken within the law. Some techniques, such as scaring birds away (but not from a nesting area) can be undertaken freely, others, such as shooting birds out of season or preventing eggs from hatching are illegal unless a special licence is obtained from the government (usually Natural England). The law requires that the licensing authority is satisfied that there is a significant problem and that there is no other satisfactory solution before it can issue a licence. Licences can be issued only for the following situations:

- To prevent serious damage to livestock, foodstuffs for livestock, crops, vegetables, fruit, growing timber or fisheries.
- To preserve public health or public or air safety
- To conserve wild birds or to protect any collection of wild birds.