FRIENDS OF THE EMM BROOK V. CHAIRMAN 2.
NOT TO BE TAKEN AWAY

PROTECTING THE EMM BROOK FOR WILDLIFE AND PEOPLE

a wildlife survey of the Emm Brook through Wokingham

carried out for the Wokingham Society

by The Berkshire, Buckinghamshire and Oxfordshire Wildlife Trust (BBOWT)
The Lodge
1 Armstrong Road
Littlemore
Oxford
OX4 4XT

Berkshire
Buckinghamshire
Oxfordshire

THE wildlife TRUSTS

CONTENTS

1. Introduction

This survey was commissioned by the Wokingham Society to help highlight the importance of the Emm Brook as a wildlife corridor through Wokingham town. It is also a tool to help encourage people to view the Emm Brook and its wildlife as an important community asset that should be conserved and enhanced for wildlife and people.

2. Survey Methodology

This wildlife survey of the Emm Brook was carried out by Stuart Colgate, BBOWT.

To increase the range of plants and animals recorded, the survey was performed during three seasons, namely summer (August 2003), winter (December 2003 - January 2004) and spring (April 2004). Plants were the main group of organisms surveyed during the summer, although other species were noted, including mammals, birds, invertebrates, etc.

The Emm Brook was divided into 6 sections and plants and animals were recorded in each. The habitat adjacent to the stream was also noted, due to its importance to a range of wildlife as refuge, nesting site, food source, etc. During the surveys, both sides of the brook were walked where access allowed.

The sections were chosen so they could be identified easily, so that records from future monitoring could be compared with previous records for the same parts of the brook. This would, over time, build up a picture of the natural heritage of the area and allow any changes to the habitat and wildlife to be tracked.

2.1 Sections of Emm Brook within Wokingham area used in survey.

	From (upstream)	Grid ref.	To (downstream)	Grid ref.
1	Chapel Green (confluence)	SU815675	Finchampstead Rd (A321)	SU809680
2	Finchampstead Rd (A321)	SU809680	Barkham Rd (B3349) industrial estate	SU803683
3	Barkham Rd (B3349)	SU803683	Footbridge NE of Woose Hill	SU799688
4	Footbridge NE of Woose Hill	SU799688	Reading Rd (A329)	SU799694
5	Reading Rd (A329)	SU799694	Emmbrook Rd (opposite school)	SU800699
6	Emmbrook Rd (opposite school)	SU800699	Toutley Bridge, Old Forest Road.	SU798705

3. Overview of the Emm Brook water catchment

The Emm Brook is a stream taking water from several places including Crowthorne Woods SPA (Special Protection Area), which lies between Crowthorne, Bracknell and Bagshot. It also takes water from land at Wellington College, Crowthorne (SU833637); Heath Lake SSSI (SU829652); Queen's Mere (SU814655) and the grounds of the Transport and Road Research Laboratory (SU845654).

Much of the water flowing into these streams flows off heathland and coniferous woodland with acidic soils so the water is naturally acidic which often manifests itself as a bright orange-brown deposit in the silt and on vegetation in the stream channel. Acidic water favours the survival of plants and animals more adapted to this type of environment.

The water from all these sites flows northwards where two main branches of the Emm Brook converge in the Chapel Green area (SU8167). It continues to flow northwards through Wokingham, leaving the town at Toutley Bridge, on the edge of Emmbrook. The stream passes beneath the junction of the M4 and A329(M) motorways continuing via Merryhill Green and Dinton Pastures Country Park, around Lavell's Lake LNR, to its confluence with the River Loddon (SU782733). The River Loddon in turn flows into the River Thames between Lower Shiplake and Wargrave (SU778787).

4. Descriptions of Sections of Emm Brook within Wokingham area used in survey.

4.1 Section 1: Chapel Green to Finchampstead Road (A321).

4.1.1 Location

The Emm Brook in this section comprises several smaller streams gradually converging to form the main channel, which passes under Finchampstead Road and thence into section 2 (Molly Millar's Industrial Estates). Several public footpaths cross the streams and surrounding habitats from which the winter survey was conducted. These can be located from an Ordnance Survey (OS) map with 3 points of access from Wokingham. The area surveyed was bounded by the railway lines and Finchampstead Road to the north and west; the footpath between Gipsy Lane footbridge and Ludgrove School to the east; the roadway between Luckley Road, Eastheath and Ludgrove School to the south.

4.1.2 Habitat description

The dominant habitat in this area was pasture for grazing horses and for riding and jumping. There were also sheep and cattle grazing other fields. Interspersed amongst this were small areas of wet woodland. Wet woodland is a priority habitat within the UK Biodiversity Action Plan. Other habitats included marshy grassland and ditches, open running water with riparian herbs, trees, scrub and hedgerows.

The southern part of this section had frequent gorse, a possible indication of the acid nature of the soil and water associated with the areas to the south.

The Emm Brook tributary running more-or-less parallel to the railway on the western edge of the site drains both the railway embankment and the linear woodland through which it flows, before it reaches Luckley Road. To the north of this road, it meanders through wet grassland, with tussock-forming plants (e.g. rushes and sedges) on either side of the channel.

Two tributaries near Ludgrove School contained orange-brown sediment, which stains the stream bed and the vegetation in contact with the water. This is possibly iron oxide - a substance formed naturally and is indicative of slightly acidic water, due probably to the run-off from heathland and conifer plantations through which the water flows. The adjacent habitats are stands of alder, tall herbs and scattered scrub, including gorse.

4.1.3 Species description

Winter and spring surveys were undertaken.

During winter, birds seen or heard within this section were recorded and included 6 siskin, 6 greenfinch and 2 chaffinch, siskins being particularly fond of alder. Several species associated with open grassland and pastures included redwing, fieldfare, and green woodpecker. The once common starling, long associated with human habitation and agriculture was present in a flock of more than 50 birds. In the March survey, chiffchaff were heard singing in the wooded area to the south of Luckley Road, which along with a brimstone butterfly patrolling its territory heralded the coming of springtime. Other species included dunnock, house sparrow, pied wagtail and a flock of about 20 jackdaws foraging in the pastures. Four tortoiseshell butterflies were also recorded from the section.

4.1.4 Key species

Common Name	Scientific Name	Conservation status (BOCC*)
House Sparrow	*Passer domesticus*	Red list
Starling	*Sturnus vulgaris*	Red list
Fieldfare	*Turdus pilaris*	Amber list
Redwing	*Turdus iliacus*	Amber list
Green Woodpecker	*Picus viridis*	Amber list
Dunnock	*Prunella modularis*	Amber list

** BOCC = Bird of Conservation Concern*

4.2 Section 2: Finchampstead Road to Barkham Road (Industrial Estates)

4.2.1 Location

This section of the Emm Brook flows northwest from Finchampstead Road (A321) to Barkham Road (B3349). It passes through an industrial estate, channelled between commercial units, car parks and residential access roads. It is bridged by 3 or 4 small roads within the estate, as well as the railway.

4.2.2 Habitat description

This section was not surveyed, but a brief visit was made to accessible points where the stream could be seen, namely from roads crossing it. It was narrow and channelled in parts and often heavily-shaded by overhanging trees and shrubs. In the lighter areas emergent plants grew. In other parts the brook was more open with short vegetation on the banks, used as picnic areas by people working in the industrial estate.

4.2.3 Enhancement opportunities

This section would be worth surveying if permission from landowners were granted. There is considerable potential for enhancement in this section.

4.3 Section 3: Barkham Road to footbridge NE of Woose Hill.

4.3.1 Location

This section of the Emm Brook begins where it emerges from flowing beneath Barkham Road, having just passed through the Molly Millar's Lane industrial estates. From Barkham Road it flows northwards alongside private houses and gardens on the eastern side and a narrow strip of amenity grassland on the west. It passes under Meadow Road and continues generally northwards alongside private dwellings in the east and a wider strip of amenity grassland with trees and shrubs on the west. The stream gradually diverges from the dwellings entering an area of amenity grassland and trees. It is joined by the water flowing from two drains from Woose Hill, and a little further downstream is a footbridge (not the bridge leading up to the superstore). This marks the end of section 3 and the start of section 4.

Emm Brook, August 2003, between Barkham Road and the footbridge NE of Woose Hill.

4.3.2 Habitat description

The brook meanders more or less the entire length of this section. Meanders create shallow banks of silt that collect on the inside of bends where water flows more slowly with steeper eroding banks on the outside of the bends. The stream varies from being cast in dense shade from overhanging trees and shrubs to being open with fringes of tall herbs. Alongside parts of the brook were gardens of private dwellings bounded by fences and hedges. Other lengths were adjacent to amenity grassland with trees, some recently planted and some that had regenerated naturally. There were occasional thickets of shrubs, comprising both native and

introduced species. The edges of this linear parkland were both bounded by private dwellings and roads. The water in the channel was between 2 and 4 metres wide and varied from 10 cm to 50 cm depth, with silt covering most of the stream bed. During the summer survey the water flow was generally slow.

4.3.3 Species description

Stream and bank vegetation
The water channel supported 4 species of submerged aquatic plants; these were curled pondweed, which was abundant where it occurred, broad-leaved pondweed, common water starwort and the introduced Canadian pondweed. Many other plants typical of the wetland community were recorded with emergents (plants with roots under water but most vegetation above surface) including reed sweet-grass, reed canary grass, purple loosestrife and water plantain. Some herbs were close to the stream on the bank and included redshank, common figwort, water dock and abundant Himalayan balsam (an invasive, introduced species). Common alder, and several willows were noted including white, grey, goat and crack willows along with common osier - all trees of wetland habitats.

Grassland vegetation
The grassland was closely mown and comprised mainly of the hardy perennial rye-grass. It also supported flowering plants able to tolerate frequent mowing including common daisy, yarrow, greater plantain and ribwort plantain. The areas of grassland that were mown less intensely such as beside hedges and shrubs included a larger range of species. These included common toadflax, hedge woundwort, white deadnettle and hairy brome.

Trees and shrubs
There were a reasonable variety of trees and shrubs in the areas adjacent to the stream and banks. Some had probably been present before the housing was built. Native trees included field maple, ash, wild cherry, English oak and rowan, although some had been planted. Introduced species included Norway maple, sycamore, red oak, grey alder and weeping willow. Shrubs were present as single plants and also as small thickets and included the native species blackthorn, elder and dogwood, and the introduced and invasive snowberry.

Gardens
Although not a single type of habitat, gardens are important as refuges, nesting sites and food sources for a wide range of animals and plants, including 'garden' birds such as house sparrow, song thrush and starling, all of which have undergone major population declines in recent years and have been placed on the 'red-list' of the UK Birds of Conservation Concern (BOCC). Ponds are also of vital importance for many species especially amphibians (frogs, toads and newts).

Animals recorded during the summer visit included mole. Birds included a kingfisher flying and hunting for food along the brook, no doubt after the abundant fish fry. Blackbird, great tit and wood pigeon were also seen. Two butterflies, the large white and speckled wood were noted along with *Scatophaga*, a flesh fly and spangle galls on oak leaves indicating the presence of the larvae of a gall wasp.

4.3.4 Key species

Common Name	Scientific Name	Conservation status (BOCC*)
Kingfisher	*Alcedo atthis*	Amber list

** BOCC = Bird of Conservation Concern*

4.3.5 Enhancement opportunities

The most important enhancement would be to widen the strip of unmanaged riparian herbs and grasses and also create a buffer strip of less heavily mown grass allowed to grow longer. Other patches of amenity grassland could also benefit from being allowed to grow taller to encourage more species of native wild flowers and invertebrates (e.g. butterflies, grasshoppers, etc.). Himalayan balsam, which is invasive and smothers native plants, should be removed by pulling and removing from site. Litter and garden waste dumped beside and in the stream should also be removed. Householders could be encouraged to value the site (leaflet drop, create a 'Friends of Emm Brook' group, interpretation boards, etc.).

4.4 Section 4: Footbridge NE of Woose Hill to Reading Rd (A329).

4.4.1 Location

This section of the Emm Brook starts at the footbridge to the northeast of Woose Hill and southeast of the superstore (Safeway) and flows through an open access linear park (continuous with that of section 3) as far as the Reading Road (A329). Towards the northern end of the section the stream divides into two and converges again further on by a weir. This was where a mill once stood, the flow of water controlled by sluices to ensure water was backed up to allow sufficient flow to drive the mill.

Emm Brook, August 2003, between footbridge NE of Woose Hill to Reading Road (A329)

4.4.2 Habitat description

Except for the length beyond the weir, the brook in this section was fairly straight as it passed through the parkland, which comprised amenity grassland, well-spaced trees (many of which had been planted), woodland, riparian scrub, stream vegetation and open water. Some lengths of bank were trampled and eroded due to disturbance by humans and animals. Areas of deposited silt and gravel were present within the water channel. The water in the channel was between 2 and 5 metres wide and varied from 5 cm to 50 cm in depth. Silt covered most of the visible stream bed, but gravel and boulders occurred upstream of the weir where silt had been washed away. During the summer survey the water flow was generally very sluggish.

4.4.3 Species description

Stream and bank vegetation

The channel contained a range of aquatic plants including patches of abundant curled pondweed and the introduced Canadian pondweed, along with broad-leaved pondweed and a water starwort. The banks on both sides of the stream had dense patches of stinging nettle and the introduced and invasive Himalayan balsam. Amongst these were typical native wetland plants including reed sweet-grass, meadowsweet, branched bur-reed and water dock.

Woodland

The woodland surrounding the northern part of the brook including the weir supported many naturally occurring native trees and shrubs, which are able to tolerate occasional inundation from the stream overtopping its gently sloping banks. Trees included common alder, grey and crack willows as well as ash, wych elm and English elm. Shrubs included hawthorn, holly, elder and the introduced cherry laurel and Sachalin willow. Within the woodland were plants that indicated the site had been wooded for at least 400 years. These ancient woodland indicator species included remote sedge, hairy brome, giant fescue and holly. It also supported plants which had invaded from other habitats or were colonisers of disturbed ground, such as hedge mustard, prickly lettuce and nipplewort. The area supports abundant mosses and liverworts.

Grassland vegetation

The grassland of perennial rye-grass was closely mown and supported dandelion, daisy and yarrow, which are able to survive frequent mowing. In areas that were left longer, other grasses and herbs flourished including Yorkshire fog, cock's-foot, hemlock and goat's-beard.

Trees and shrubs

Several trees had been planted, a few of which were native such as hornbeam, English oak and yew but most were non-native including red oak, red alder and white poplar. Aspen and crab apple were also present. Fungi were recorded on fallen dead wood, lichens on living and dead wood.

Animals recorded included mole and the introduced grey squirrel. A householder said he often saw roe deer and fox. Birds recorded during the August visit included kingfisher, grey wagtail (by weir) and green woodpecker.

Seven species of insect were noted including speckled wood and red admiral butterflies, a hawker dragonfly and the seven-spot ladybird.

4.4.4 Key Species

Common Name	Scientific Name	Conservation status (BOCC)
Kingfisher	*Alcedo atthis*	Amber list
Grey Wagtail	*Motacilla cinerea*	Amber list
Green Woodpecker	*Picus viridis*	Amber list

** BOCC = Bird of Conservation Concern*

4.4.5 Enhancement opportunities

The most important enhancement would be to widen the strip of riparian herbs and grasses to increase its value to wildlife and retain a further buffer strip of taller, less frequently cut grassland. Other patches of amenity grassland would also have increased benefit for wildlife if mowing were reduced.

The woodland could be allowed to expand by fencing areas to allow trees and shrubs to regenerate naturally from seed, or by additional planting of native trees and shrubs from within the wood.

Himalayan balsam should be removed from stream banks by pulling and removing from site.

4.5 Section 5: Reading Road (A329) to Emmbrook Road (by Emmbrook Comprehensive School)

4.5.1 Location

The stream in this section flows northwards from the roundabout where the dual Woosehill joins the Reading Road (A329). The brook soon passes under a railway bridge and into the grounds of Emmbrook Comprehensive School until it reaches Emmbrook Road, by the school entrance.

4.5.2 Habitat description

A full survey was not carried out in this section, but the stream was viewed from a few accessible places. The stream channel just to the north of the roundabout on Reading Road was about 4 metres wide and 0.5-1.0 metre deep, shaded by trees

and shrubs, with private gardens, garages and Tarmac car parking adjacent to the banks.

Further along, it flowed between the school playing fields and private gardens. The school fields were separated from the brook by a fenced 2 metre wide strip which comprised mown vegetation. Some gardens on the opposite side of the brook had lawn to the bank; others had a hedge or fence. Steel revetments were present in places to strengthen banks. The stream channel was straight and clear with no sign of emergent vegetation.

4.5.3 Species description

The stream beside the Reading Road was shaded by trees and shrubs including ash and holly with several introduced species including cherry laurel, Portugal laurel, sycamore and Scots pine. The ground flora was species-poor consisting mainly of ivy with scattered male fern. This area would make good cover for birds and mammals although only 3 bird species were recorded during the brief visit, namely blue tit, blackbird and woodpigeon.

In the area beside the school grounds, birds seen were chaffinch, blue tit and magpie, the first 2 making use of the adjacent gardens.

4.5.4 Enhancement opportunities

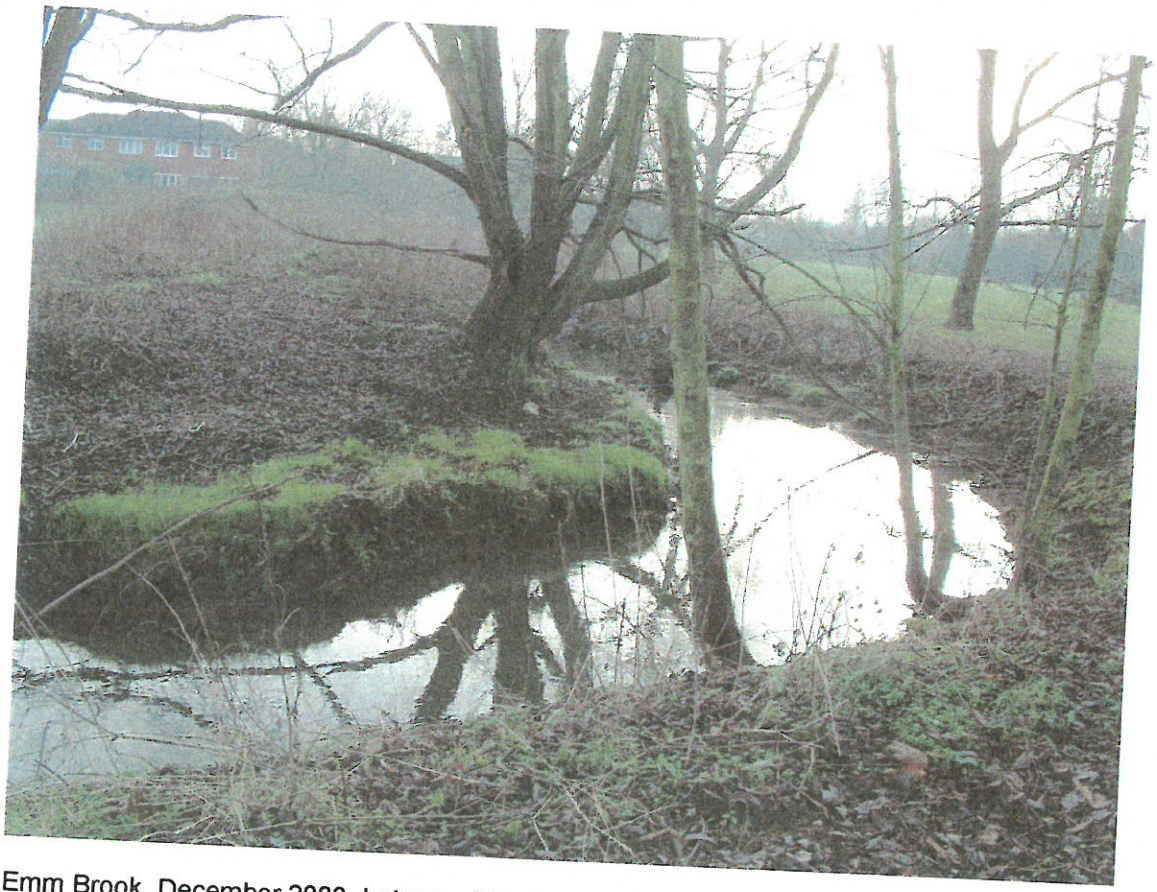
There is great potential for enhancement of this section for wildlife and good opportunities for community involvement from both the school and the adjacent householders. Such enhancements for wildlife could enhance the aesthetic and educational value of the area.

Allowing native bank-side plants to grow could for example, enhance the strip fenced off from the school playing fields. Householders could be encouraged to value the brook and its wildlife.

4.6 Section 6: Emmbrook Road to Toutley Bridge, Old Forest Road.

4.6.1 Location

Having passed under Emmbrook Road opposite the gates of Emmbrook Comprehensive School, the Emm Brook meanders through a linear strip of parkland with open public access, bounded on both sides by residential housing and school grounds. At the northern boundary of section 6 it flows beneath Forest Road at Toutley Bridge and then through rough pastures and areas of tall herbs and scrub towards the M4 motorway. A drainage channel from Ashridge Sewage Treatment Plant, which also passes alongside an industrial estate, joins the Emm Brook just south of Toutley Bridge.



Emm Brook, December 2003, between Emmbrook Road and Toutley Bridge, Forest Road.

4.6.2 Habitat description

The brook takes a meandering course through the linear park which comprises amenity grassland, many planted trees, riparian scrub, stream vegetation and open water. Some lengths of bank were trampled and eroded due to disturbance by humans and animals and areas of deposited silt and gravel were present within the water channel. Some lengths of the stream were bordered by small clumps of trees and shrubs, which cast dense shade over the water and the banks, whereas in more open areas, herbaceous plants were able to thrive. The water in the channel was

between 2 and 3 metres wide and varied from 10 cm to 50 cm in depth. Silt covered most of the visible stream bed, but gravel occurred in riffles where silt had been washed away. During the summer survey the water flow was very sluggish but during the winter and spring visits it was reasonably fast.

4.6.3 Species description

Several trees have been planted.in the amenity grassland along the brook including the native species English oak, aspen, ash, silver birch, rowan and common lime. Non-native trees have also been planted including horse chestnut and hybrid black poplar. Some trees had probably established naturally within this wetland environment including common alder, grey willow, crack willow, goat willow and osier, although there was evidence of management, i.e. pollarding of crack willows in the recent past. Crab apple was abundant in patches, particularly in hedges and scrubby thickets and might have regenerated naturally for many years.

Shrubs found alongside the brook included abundant hawthorn, along with blackthorn, elder and dogwood. Gorse and Buddleja had probably been introduced from dumping of garden waste. The stream channel contained three aquatic species, the native fennel pondweed and common duckweed and the introduced Canadian pondweed. A survey done for the National Rivers Authority in 1994 also found the aquatic willow moss. Native emergent species recorded included fool's watercress found in dense stands, watercress, hemlock water dropwort and greater reedmace. There was also an abundance of Himalayan balsam, an invasive, introduced species which can out-compete native plants. On the banks were other wetland plants including water forget-me-not, purple loosestrife, redshank and butterbur.

Other species were noted which are associated with grassland, scrub, disturbed soil habitats. These included meadow foxtail (grass), hemlock, bristly ox-tongue and the ubiquitous stinging nettle. During the April visit wild onion and lesser celandine were frequent.

During the summer, very few birds were recorded, namely wren, chaffinch, woodpigeon and blackbird, whereas in the winter and spring the lists were more extensive and included song thrush (2), redwing (9), fieldfare, goldfinch (10) and greenfinch (4) to name but four. Evidence of fox and mole were also found.

Abundant fish fry were present in the Emm Brook during summer and an unidentified fish was noted, possibly a trout. Insects recorded included painted lady and large white butterflies, banded demoiselle, white-tailed bumblebee and a species of *Sarcophaga*, a flesh fly.

4.6.4 Key Species

Common Name	Scientific Name	Conservation status (BOCC)
House Sparrow	*Passer domesticus*	Red list
Song Thrush	*Turdus philomelos*	Red list
Starling	*Sturnus vulgaris*	Red list
Dunnock	*Prunella modularis*	Amber list
Fieldfare	*Turdus pilaris*	Amber list
Redwing	*Turdus iliacus*	Amber list

** BOCC = Bird of Conservation Concern*

4.6.5 Enhancement opportunities

Litter such as bottles, cans and food containers amongst the riparian vegetation and in the water channel should be removed. Local householders could be encouraged to value the area on their doorstep to reduce the dumping along the boundary of amenity grass and the riparian vegetation. Himalayan balsam needs to be removed by pulling and removal from the site.

APPENDIX 1

Species recorded from each section of Emm Brook

Species	Sections					
	1	2	3	4	5	6
BIRDS						
Blackbird	P		P	P	P	P
Blue Tit	P		P	P	P	
Carrion Crow	P		P	P		
Chaffinch	P		P	P	P	P
Chiffchaff	P					
Collared Dove	P					
Dunnock	P					
Fieldfare	P					
Goldfinch	P					
Goldfinch	P			P		
Great Tit	P		P	P		P
Green Woodpecker	P			P		
Greenfinch	P			P		
Grey Wagtail				P		
House Sparrow	P					
Jackdaw	P					
Jay			P	P		
Kingfisher			P	P		P
Long-tailed Tit	P		P	P		
Magpie	P		P	P	P	
Nuthatch				P		
Pied Wagtail	P					
Redwing	P			P		
Robin	P			P		
Siskin	P					
Song Thrush	P			P		
Starling	P		P			
Woodpigeon	P		P	P	P	P
Wren	P			P		P
MAMMALS						
Fox	P			P		
Grey Squirrel				P		
Mole	P			P		
Rabbit	P					
Roe Deer				P		

BUTTERFLIES						
Brimstone butterfly	P					
Small Tortoiseshell	P					
Large White			P	P		P
Speckled wood			P	P		P
Painted Lady						P
Red Admiral				P		
DRAGONFLIES AND DAMSELFLIES						
Banded Demoiselle						P
a hawker dragonfly				P		
OTHER INVERTEBRATES						
White-tailed bumblebee						P
7-spot Ladybird				P		
Neuroterus quercusbaccarum (a gall wasp)			P			P
Scatophaga sp. (a flesh fly)			P			P
Pontania proxima (a sawfly)						
Urophora cardui (a picture-winged fly)						
FUNGI						
Candlesnuff Fungus	P					
Jew's-ear Fungus				P		