Milton Keynes Natural History Society Journal 4

1978 – 83

THE
MILTON KEYNES
NATURAL HISTORY SOCIETY
JOURNAL

Acknowledgement

Milton Keynes National History Society is very grateful to Mrs.Anita Chhabra for her skilful typing and presentation of the papers for this issue of the Journal.

Instructions for contributors

Papers will be accepted on any natural history subject relevant to North Bucks, although publication is at the discretion of the Editor(s). Papers from non-members may be accepted, but those by members will receive preference.

Manuscripts should preferably be type-written, but neat handwritten copy will be accepted, and should be submitted to:

The Editor,
Milton Keynes Natural History Society Journal,
Bradwell Abbey Field Centre,
Old Bradwell
Milton Keynes.

FOREWARD

The Milton Keynes Natural History Society exists to record and study natural history in north Buckinghamshire. Meeting every week at Bradwell Abbey, a wide variety of subjects is studied. Lectures and demonstrations are given by members or by visiting speakers.

The Society is not large but its members are keen, bird records are published regularly, and much work has been carried out on the nature reserve at Stony Stratford as well as in Howe Park Wood. Conservation figures large in the Society's programme. Birds, other animals and plants are cared for in order they are not destroyed by urban development.

Our work is not all dull and serious, the members are a friendly and helpful group, the social side is not neglected. There is an annual dinner, as well as informal question and answer sessions. Any member can ask for a talk on a special subject, endeavours being made to find a speaker to deal with that subject.

Attendance at meetings is increasing but we would like more members. Are you interested in natural history? Why not come along to the Abbey one Wednesday evening at 8 o'clock and give it a trial? Membership is not expensive, ask for a programme and see what the Society has to offer.

This latest Journal indicates to the reader some of the activities carried out in this area. There is however, much more to do, many types of organisms are not studied, we need more members to help with this work.

I wish to thank the contributors and those who have made this journal possible and wish it success in the future.

Gordon Osborn, F.L.S., F.G.S.
President

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No.4/5 1983 ISSN 1303-1583

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BY B.C. FREWIN AND R. MAYCOCK

Although during the development of the new city old habitats have been destroyed, new ones have been created. The balancing lakes have provided new areas of permanent or temporary water, while in the north basin of Willen Lake an island has been constructed.

Before work on the Willen site began, the area consisted of hedgerows, ditches, wet areas and rough, unfarmed areas of grassland. From Willen, west to Down's Barn and Lodge Farm these areas were rich in wildlife and from 1974 to 1978 Kestrels and Barn Owls were frequently seen. In May 1978 the Short-eared Owl was first sighted at Willen and viewed from 2 Km distance at Down's Barn. It was recognised not only by the similarity of its flight to that of the Barn Owl, but also by its very different colour. The imminence of development led to inevitable changes in farm practices and when derelict areas became overgrown, the rough, taller grasses provided ideal habitats for small mammals such as Short-tailed Voles, Field Mice and shrews. It was assumed that the increase in small mammals had led to the increase in birds of prey. This was substantiated in part, by short periods of intensive observation in the field and plantation behind Willen Priory, where Short-eared Owls were frequently seen, swooping into the long grasses.

As work on the lake site progressed, what is now the island was still bridged to the mainland, so that mammals could cross freely. The lake and island were completed in 1974/5, the Down's Barn estate development following some four years later. As development here progressed, the birds of prey moved away, but were still seen towards Willen and over the island. Since this

led to speculation on whether there were mammals on the island, a request was made to Milton Keynes Development Corporation for a survey to be carried out. Permission to do this was granted in August 1980.

To determine the species present, 30 Longworth small mammal traps were laid on three consecutive days and checked at 08.00 and 17.30 each day. No attempts were made at estimating total populations. The results of this trapping are shown in Table I.

At this time of the year much of the island was covered by long and dead grass, which provided a good cover for the mammals, as witnessed by the number of tunnels through it. Such cover, it is assumed, made it difficult for Kestrels and owls to catch small mammals. With no predatory mammals on the island the isolation of the small mammal population may have contributed to its survival. Many of the Short-tailed Voles showed signs of old age: their fur was dishevelled, they were plump and they moved more slowly than expected when released.

When the new A5 road was under construction near Stony Stratford, gravel was extracted from close by. Since the completion of the road, in early 1981, this area has been designated a Wildlife Conservation Area and has been developed with this aim in mind. A series of lagoons was included in the landscape as well as a few islands. It is hoped that one of these islands will provide opportunities for the study of Harvest Mice which are to be introduced. Preliminary visits have been made but no mammal studies have begun. One plant recording visit has been made (18 October 1981) as has one to the Willen Lake island (28 August 1981); the findings are shown in the Appendix.

It is suspected that some plants have been introduced on to the Willen Lake island, but no documented evidence is available. It is known that only four woody species were planted on the Stony Stratford island. Consequently, all other species have come in by natural dispersal or their propagules were already in the soil when it was moved onto the sites. In both cases all the soil was

TABLE I : NUMBERS OF MAMMALS TRAPPED ON WILLEN LAKE ISLAND

Date	Time	*Microtus agrestis* Short-tailed Vole	*Sorex araneus* Common Shrew	*Sorex minutus* Pygmy Shrew
27 August	a.m.	15	2	1
	p.m.	11	1	0
28 August	a.m.	19	3	2
	p.m.	11	1	1
29 August	a.m.	23	4	2
	p.m.	14	1	0

from the areas close to the islands and was not imported from a distance.

About half the species found are possible annuals (38) or biennials (14), and most are weeds commonly found in open or recently disturbed habitats. These and several others have fruits or seeds readily dispersed either by wind or birds. Birds could have transported material on their feet, or faeces could have been dropped with various pips included. Those already in the soil would merely await suitable conditions for germination.

The margins of the islands support several species typical of such habitats and their early appearance is encouraging. One low-lying area of the Willen Lake island now has a good diversity of marsh plants and some are also evident at Stony Stratford.

The total number of species recorded from both islands is high, at 116, with rather more on the larger Willen Lake island (98) and 65 at Stony Stratford. It will be interesting to monitor the areas to see which species are to survive over the years, those which disappear with increased competition from other vegetation and those which may invade from other habitats. Of particular interest has been the discovery of *Juncus tenuis* at Stony Stratford. This is its first known locality in North Bucks. It is surprising that such a record should have come from such a new island!

The water immediately surrounding both islands already has a good stonewort flora. These rather strange plants are opportunists and clearly find the alkaline water suitable for making good growth. They may be replaced in a few years by submerged aquatic flowering plants. Mrs. J. Moore of the British Museum (Natural History) has identified the plant from Stony Stratford as being *Chara vulgaris* var. *papillata*. Specimens from Willen were not sent to Mrs. Moore for confirmation but it is assumed that they are the same taxon.

The island in Mount Farm Lake is the oldest of the three. 60 Longworth traps were set in June 1974 but no small mammals caught. The plants of the island have not been listed.

Acknowledgement

The authors wish to thank MKDC for allowing access to the islands and one of us (BCF) thanks Mr. Cook for allowing access to his farmland. Mr. R.M. Mandale helped with some field observations and Professor A.J. Brook gave advice on presentation; our thanks to them.

References

Clapham, A.R., Tutin, T.G. and Warburg, E.F. Excursion Flora of the British Isles (3rd Edition) Cambridge (1981)

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Moore, J.A. Pers. comm.

Appendix

Plant lists

		Willen	Stony Str.	Longevity
Achillea millefolium	Yarrow	+	+	P
Agrostis stolonifera	Creeping Bent	+	+	P
Alisma plantago-aquatica	Water Plantain		+	P
Alliaria petiolata	Garlic Mustard	+	+	B
Alopecurus geniculatus	Marsh Foxtail		+	P
Anthemis cotula	Stinking Chamomile	+		A
Armoracia rusticana	Horseradish	+		P
Arrhenatherum elatius	False Oat-grass		+	P
Atriplex patula	Common Orache	+	+	A
Barbarea vulgaris	Winter-cress	+		B(P)
Bellis perennis	Daisy	+		P
Bidens tripartita	Trifid Bur-marigold	+		A
Capsella bursa-pastoris	Shepherd's Purse	+	+	A
Cardamine hirsuta	Hairy Bitter-cress	+		A
Carduus acanthoides	Welted Thistle	+	+	B
Carex hirta	Hairy Sedge	+		P
Cerastium fontanum	Common Mouse-ear	+	+	A
Chamerion angustifolium	Rosebay Willow-herb	+		P
Chenopodium album	Fat-hen	+	+	A
Chenopodium polyspermum	Many-seeded Goosefoot	+	+	A
Chenopodium rubra	Red Goosefoot	+		A
Cirsium arvense	Creeping Thistle	+	+	P
Cirsium vulgare	Spear Thistle	+	+	B
Conium maculatum	Hemlock	+		B
Coronopus squamatus	Swine-cress		+	A(B)
Crataegus monogyna	Hawthorn		p	P
Crepis capillaris	Smooth Hawk's-beard	+		A
Crepis vesicaria	Beaked Hawk's-beard	+		(A)B(P)
Cynosurus cristatus	Crested Dog's-tail	+		P
Dactylis glomerata	Cock's foot	+	+	P
Deschampsia caespitosa	Tufted Hair-grass	+	+	P
Dipsacus fullonum	Teasel	+		B
Elymus repens	Common Couch	+		P
Epilobium ciliatum	American Willowherb	+		P

Appendix (continued)

		Willen	Stony Str.	Longevity
Epilobium hirsutum	Great Willowherb	+	+	P
Epilobium parviflorum	Hoary Willowherb	+		P
Epilobium tetragonum	Square-stalked Willowherb		+	P
Fallopia convolvulus	Field Bindweed	+		P
Festuca rubra	Red Fescue	+	+	P
Galium aparine	Goosegrass	+		A
Geranium dissectum	Cut-leaved Cranesbill	+		A
Geranium molle	Dove's-foot Cranesbill	+	+	A
Glechoma hederacea	Ground Ivy	+		P
Heracleum sphondylium	Hogweed	+		B
Holcus lanatus	Yorkshire Fog	+	+	P
Hordeum secalinum	Meadow Barley		+	P
Juncus articulatus	Jointed Rush	+	+	P
Juncus bufonius	Toad Rush		+	A
Juncus effusus	Soft Rush	+		P
Juncus inflexus	Hard Rush	+	+	P
Juncus tenuis	Slender Rush		+	P
Lactuca serriola	Prickly Lettuce	+		B
Leontodon autumnalis	Autumn Hawbit	+		P
Leucanthemum vulgare	Oxeye Daisy	+		P
Lolium perenne	Perennial Rye-grass	+	+	P
Lotus corniculatus	Bird's foot Trefoil	+		P
Lycopus europaeus	Gipsywort	+		P
Matricaria matricarioides	Pineappleweed		+	A
Matricaria recutita	Scented Mayweed	+	+	A
Medicago lupulina	Black Medick	+	+	A(P)
Myosotis arvensis	Field Forget-me-not	+		A
Myosoton aquaticum	Water Chickweed		+	P
Phalaris arundinacea	Reed Canary-grass	+		P
Phleum pratense	Timothy	+	+	P
Picris echioides	Bristly Ox-tongue	+	+	A B
Plantago lanceolata	Ribwort Plantain	+	+	P
Plantago major	Greater Plantain	+	+	P
Poa annua	Annual Meadow-grass		+	A
Poa pratensis	Smooth Meadow-grass	+		P

Appendix (continued)

		Willen	Stony Str.	Longevity
Polygonum aviculare	Knotgrass	+	+	A
Polygonum lapathifolium	Pale Persicaria	+		A
Polygonum persicaria	Redshank	+	+	A
Potentilla reptans	Creeping Cinquefoil	+		P
Primula veris	Cowslip	p		P
Prunella vulgaris	Selfheal	+		P
Prunus spinosa	Blackthorn		p	P
Ranunculus acris	Meadow Buttercup		+	P
Ranunculus repens	Creeping Buttercup	+	+	P
Ranunculus sceleratus	Scelery-leaved Buttercup	+	+	A
Rorippa amphibia	Great Yellow-cress	+		P
Rorippa sylvestris	Creeping Yellow-cress	+	+	P
Rosa canina	Dog Rose		p	P
Rubus fruticosus	Blackberry	+		P
Rumex acetosa	Sorrel	+	+	P
Rumex conglomeratus	Clustered Dock	+		(B)P
Rumex crispus	Curled Dock	+	+	P
Rumex obtusifolius	Broad-leaved Dock	+	+	P
Salix fragilis	Crack Willow		+	P
Sambucus nigra	Elder	p	p	P
Scrophularia auriculata	Water Figwort	+	+	P
Senecio erucifolius	Hoary Ragwort	+		P
Senecio squalidus	Oxford Ragwort	+		A(B)
Senecio vulgaris	Groundsel	+	+	A
Silene alba	White Campion	+		(A)(B)P
Sinapis arvensis	Charlock		+	A
Sonchus asper	Prickly Sow-thistle	+	+	A
Stachys sylvatica	Hedge Woundwort	+		P
Stellaria media	Chickweed	+	+	A
Taraxacum officinale	Dandelion	+	+	P
Trifolium dubium	Lesser Trefoil	+		A
Trifolium pratense	Red clover	+	+	P
Trifolium repens	White Clover	+	+	P
Tripleurospermum maritimum	Scentless Mayweed	+	+	A

Appendix (contined)

		Willen	Stony Str.	Longevity
Tussilago farfara	Colt's-foot	+	+	P
Typha latifolia	Reedmace	+		P
Urtica dioica	Stinging Nettle	+	+	P
Veronica anagallis-aquatica	Blue Water-speedwell	+		(A)P
Veronica beccabunga	Brooklime	+	+	P
Veronica chamaedrys	Germander Speedwell	+		P
Veronica persica	Common Field-speedwell	+		A
Veronica serpyllifolia	Thyme-leaved Speedwell	+		P
Vicia sativa	Common Vetch	+		P
Vicia tetrasperma	Smooth Tare	+		P
Viola arvensis	Field Pansy	+		A
Ranunculus sp.	Crowfoot		+	P
Triticum sp.	Wheat		+	A

Key

+	Present	A	Annual
		B	Biennial
p	Known to have been planted	P	Perennial
		()	Possible longevity

OBSERVATIONS ON THE NUMBERS OF BUTTERFLIES IN TWO HABITATS

BY J. MANDER AND G. STOCKTON

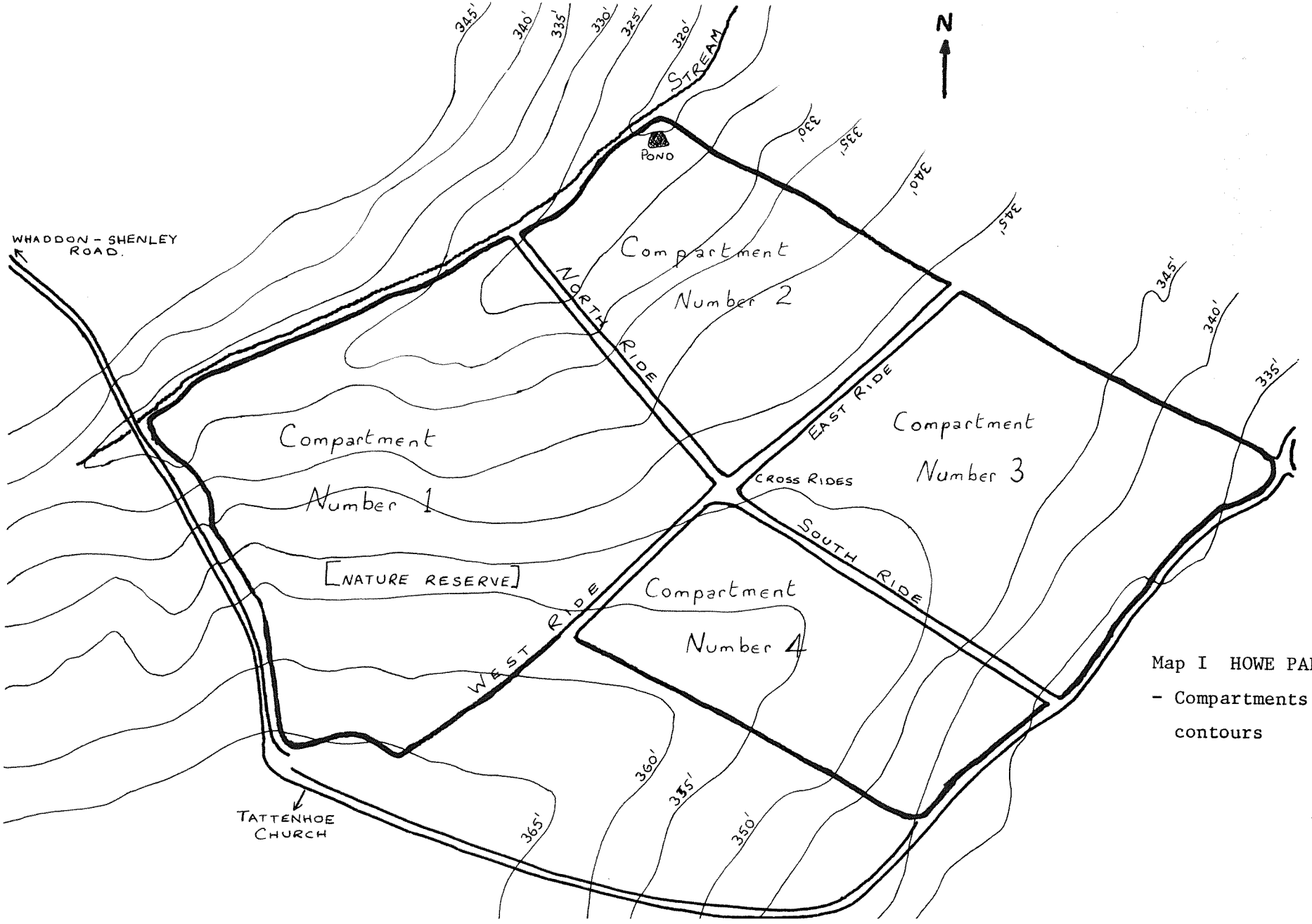
Introduction

The aim of the project is to show how the numbers of butterflies observed may be related to habitat change: i.e. between managed and unmanaged areas of a wood. Weather and climatic conditions are major factors affecting the numbers of butterflies. The other major factor, one which can be controlled, is man's own treatment of natural habitats. The destruction of woodland, ploughing of downland and general delevopment of land have had a serious effect on butterfly populations. Therefore, by choosing areas in a local wood that can be left wild and unmanaged and comparing them with other areas which have been coppiced, the effect of habitat management on butterfly numbers can be assessed, and the conditions that can cause decline of a species or which can contribute to its success can be determined.

Background

(a) The study area

On completion of the New City of Milton Keynes, Howe Park (see Map I), a deciduous woodland of 17.5 hectares, will be bounded with houses and factories in close proximity and roads along its northern edge (Nat. Grid reference SP 834344). This will be in complete contrast to its present rural setting in arable and pastoral land. Also, being distant from the main centres of population, the wood at present suffers little recreational pressure and its flora and fauna are relatively undisturbed. Howe Park Wood is a semi-natural woodland and conforms to a pattern commonly found in the Midlands and South of England of coppice with standards. The standard trees are mainly of Oak (*Quercus robur*) and Ash (*Fraxinus excelsior*), and the coppice of Hazel (*Corylus avellana*), though there is evidence of Hornbeam (*Carpinus betulus*). The wood is a remnant of the once extensive Waddon Chase Forest, and, until recently, had been poorly managed since the last war, so drainage ditches had become blocked, making it a very wet woodland during winter and early spring.



Map I HOWE PARK WOOD
- Compartments and contours

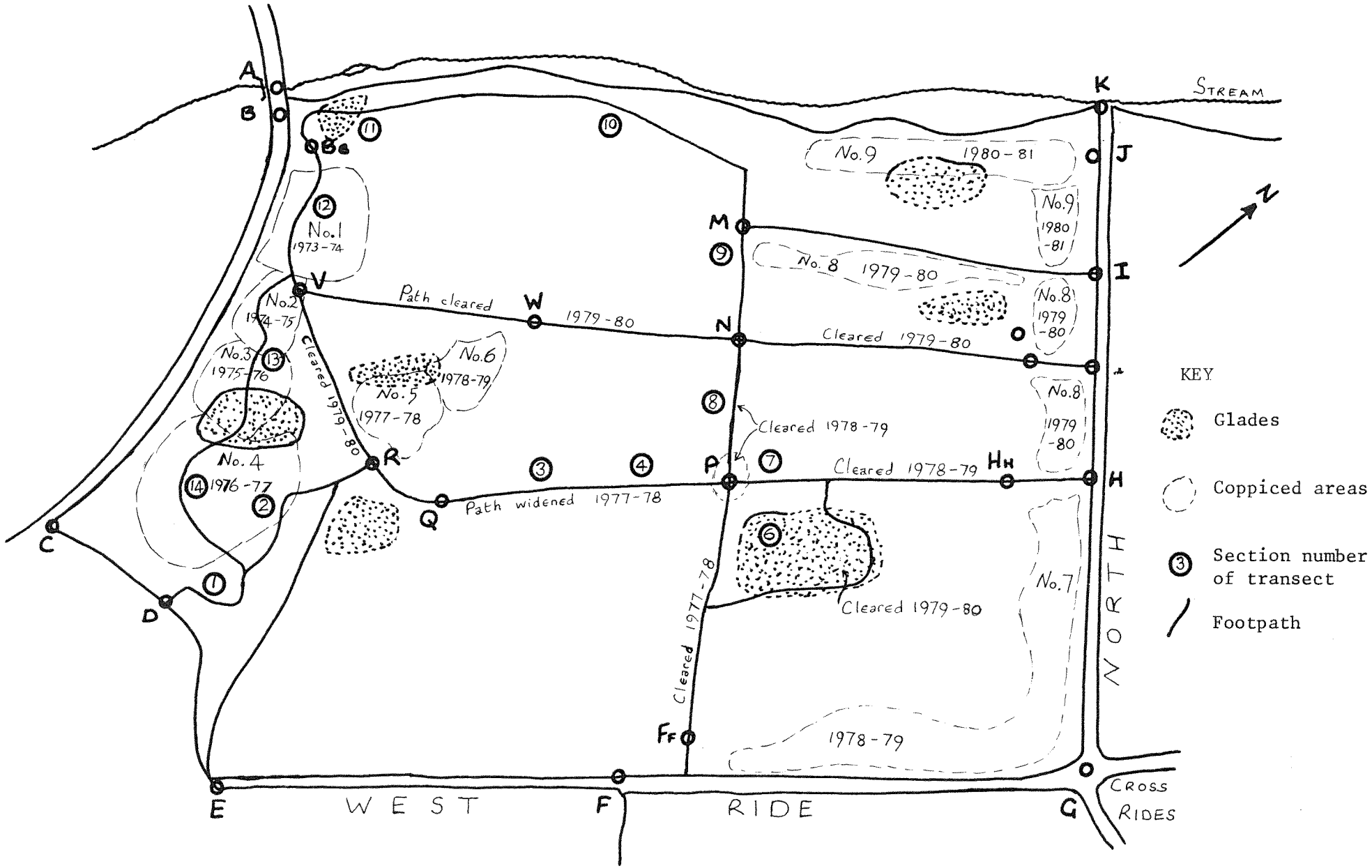
The typical climax vegetaion of this deciduous woodland is developed on a heavy, alkaline, Oxford clay, sub-soil. Mean monthly temperature ranges from about 3.3°C in February to 15.6°C in July.

The ground flora is very rich in species, the rides and open coppiced areas providing the greatest variety. Most of them are typically woodland plants but others have encroached from the surrounding countryside and appear as weeds. Many of the herbs flower early in the year and often form conspicuous carpets, e.g. Lesser Celandine (*Ranunculus ficaria*), Bluebell (*Hyacinthoides nonscriptus*), Wood Anemone (*Anemone nemorosa*) and, to a lesser extent Primrose (*Primula vulgaris*).

At the beginning of this study in April 1978 a transect route was worked out to cover seven areas of managed-land and seven areas of unmanaged wood (see Map II). The recent coppicing dates from 1973. Detailed information of each section walked through is given in the Appendix.

(b) Species studied

It is important to realise that only a few species of butterfly depend entirely on wooded habitats, i.e. those which feed on trees and shrubs. These are the Purple Emperor (*Apatura iris*) on Sallow (*Salix caprea*), the Purple Hairstreak (*Quercusia quercus*) on Oak, Brown and Black Hairstreaks (*Thecia betulae* and *Strymonidia pruni*) on Blackthorn (*Prunus spinosa*), the White-Letter Hairstreak (*Strymonidia w-album*) on Elm, and the Brimstone (*Gonepteryx rhamni*) on Buckthorn. Most butterfly species rely on relatively open spaces in woodland - rides, glades and clearings. From prior knowledge and to keep the detailed analysis simple, it was decided that recordings of the nine commonest species only would be analysed but that notes would be kept of other species observed. The species chosen were Brimstone, Peacock (*Inachis io*), Small Tortoiseshell (*Aglais urticae*), Green-viened White (*Pieris napi*), Small White (*Pieris rapae*), Speckled Wood (*Pararge aegeria*), Large White (*Pieris brassicae*), Gate Keeper or Hedge Brown (*Pyronia tithonus*) and Meadow Brown (*Maniola jurtina*).



Map II HOWE PARK WOOD - Compartment 1 with recent management

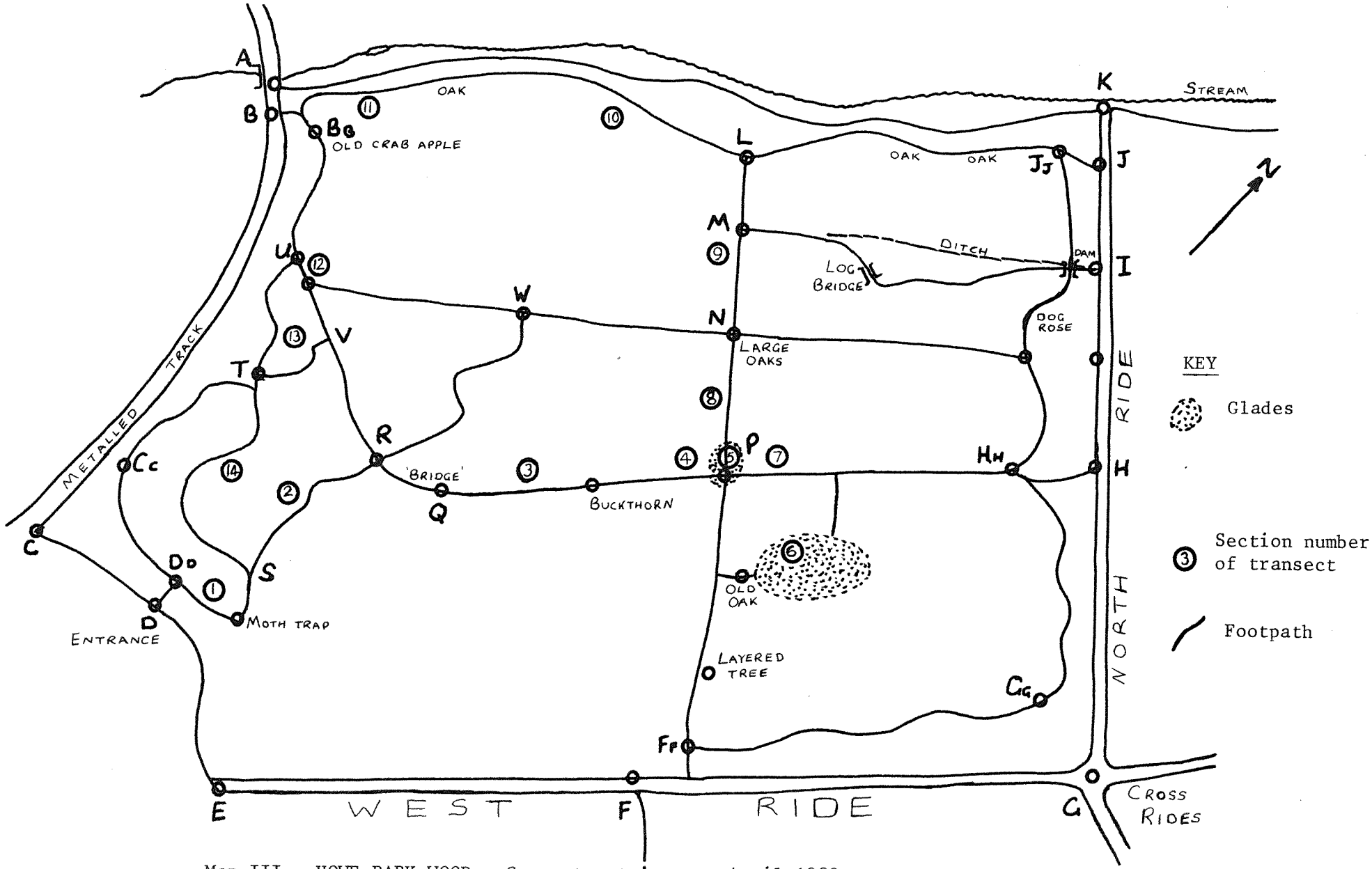
Methods

(a)

To assess the changes in abundance along the transect, the method used was that devised by Pollard (ref. : Pollard, E. 'A Method for Assessing Changes in the Abundance of Butterflies', Biol. Conserv., 12, 1977). The Walk involved an observer walking a known distance through a site and recording and identifying butterflies seen. Each butterfly up to a distance of 5 metres in front and 1.5 metres either side of the recorder as he progressed at a steady pace was noted. Recording stopped when it was necessary to identify an individual by netting or observation. It was important to keep to the same route on each site visit. The walk route was divided into sections which, as far as possible, coincided with changes in the nature, of the habitat, i.e. managed and unmanaged areas, (see Appendix for details of sections and Map III for route walked).

It was found convenient to restrict the route to rides and paths, the boundaries of which were usually obvious. However, it was decided that it would be better still if the 'limits' of the sections were marked by posts. If an individual butterfly was definitely encountered more than once, then only one record was made, but if there was any doubt each sighting was recorded.

The weather conditions and time of recording are critical. Walks were made between 10.45 hours and 15.45 hours. In the height of the season these times may not seem so important but the restriction was made because it covered the main flying time of the majority of species. Observations were not made when the temperature was below 13°C, but were possible between 10-17°C, if there was a minimum of 60% sunshine. Above 17°C, conditions could be either cloudy or sunny for walks to be made. The weather conditions and the time of the walk recorded on each visit to the site. Visits were made as frequently as possible between April and the end of September.



Map III - HOWE PARK WOOD - Compartment 1 as at April 1980

The transect is a method of sampling the butterflies of an area and is neither a total numerical nor species record. Thus the results obtained are only an index of abundance.

(b) Recording of data

Data sheets consist of the daily counts of butterflies observed and also records the weather conditions at the time. From this information Table I was prepared, showing the total number of each species seen each week. Table II shows how the numbers of each species differ in the managed and unmanaged areas.

Results

Tables Ia, Ib and Ic show the numbers of each species of butterfly recorded during the study period 1st April to 30th September in 1978, 1979 and 1980. These butterfly indices can be compared to those in Tables IIa, IIb and IIc, which show index values by sections and summarise the effects that coppicing of the wood had on butterfly life.

The most marked feature shown by Tables II is that the number of observations of butterflies in the managed sections of the transect is considerably greater than in the unmanaged sections. The number observed in the managed areas was 75.3% of the total for 1978, 72% of the total for 1979 and 68% of the total for 1980; conversely, in the more overgrown and shady (i.e. unmanaged) of the wood it was 24.7%, 28% and 32% respectively of the total. It was noticeable that section 1 which was the interface between garden and the wood, was especially prolific for butterflies; this was also true of section 6, the open managed glade in the wood itself.

Interpretation of the fluctuations in butterfly numbers has been difficult because of the low numbers observed due to the poor summers of the last 3 years. However, in general these results indicate that the abundance of the commonest butterflies is greater in the managed sections of the wood. The figures also show the peaks of butterfly numbers in the Spring and Autumn flights for Brimstone, Peacock and Small Tortoiseshell and show possible

TABLE Ia : BUTTERFLY INDEX VALUE BY WEEKS : 1978

Species Index

Week Number	April			May			June								July				August						September				Totals+
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26			
1. BRIMSTONE				5	(3)	1	2														4	(2)		3	1	1	S11, A11		
2. GREEN-VEINED WHITE							2	4	4	9	3	3	(2)		1			9	48	29	29	(19)	9	7	7	1	I28,II58		
3. HEDGE BROWN																	3	18	23	14	6	(6)	5	1			76		
4. LARGE SKIPPER																1	2	1	5								9		
5. LARGE WHITE									2	7	1	9	(5)		1	1	12	1	1		1	(1)		2			I25,II18		
6. MEADOW BROWN												1	(5)		9		10	2	4		1	(1)					33		
7. ORANGE TIP							2	1		3	3	1	(1)														11		
8. PEACOCK				1	(2)	2	2		3											8	9	(7)	5	2			S10,A31		
9. RINGLET																	4	5	1		1	(1)					12		
10. SMALL SKIPPER																	1		1		1	(1)					4		
11. SMALL TORTOISE-SHELL				1	(1)	1										1	11	5	7	8	3	(2)			2	1	S3,II37,A3		
12. SMALL WHITE					(1)	2	6	3	10	7	35	50	(30)		10	6	3	1	11	14	21	(13)	5	18	12	1	I163,II96		
13. COMMA																	1		2		1	(1)	1		2		S0,II0,A8		
14. SPECKLED WOOD							2		1			3	(2)		1		2		1	3	5	(3)	1	5	1		30*		
15. COMMON BLUE																	1										I0,II1		
16. WALL BROWN													(1)		1												I2,II0		
No.of transects (Total: 21 walks)	0	0	0	1	0	2	1	1	1	1	1	1	0	0	1	1	1	1	1	1	2	0	1	1	1	1			

Numbers in brackets are estimated; note that weeks 13 and 14 have been estimated together.

+ Overall numbers are quoted, with : I, II, III = generations, S,A = spring and autumn flight, * = generations not distinct.

TABLE Ib : BUTTERFLY INDEX VALUE BY WEEKS : 1979

Species Index

Week Number	April 1	2	3	4	5	6	May 7	8	9	10	11	June 12	13	14	July 15	16	17	18	19	August 20	21	22	23	Sept. 24	25	26	Totals
1. BRIMSTONE			1				1																				2
2. GREEN-VEINED WHITE												5		5	4			4	3	11		12		2			46
3. HEDGE BROWN																	(8)	15	26	26	13	3	(2)				93
4. LARGE SKIPPER															1			2	1								4
5. LARGE WHITE							1				3	4		2	1	4		1	1	23							40
6. MEADOW BROWN															2	6	(7)	8	7	3	(2)						35
7. ORANGE TIP											1	1															2
8. PEACOCK			2				1												3	5		2		1			14
9. RINGLET														1	4	(5)	6	3	1	(1)							21
10. SMALL SKIPPER															1												1
11. SMALL TORTOISE-SHELL			1				1									1			8	3							14
12. SMALL WHITE			1								12	1		9	5	1		4	14	4		18					69
13. COMMA																1			2			1					4
14. SPECKLED WOOD										(1)	1	2	(5)	8	8	2	(2)	2	2	1	(3)	4	(4)	3			48
15. COMMON BLUE																		1									1
No. of transects (Total : 13 walks)	0	0	1	0	0	0	2	0	0	0	1	1	0	1	1	1	0	1	1	1	0	1	0	1	0	0	

Numbers in brackets are estimated.

TABLE 1c : BUTTERFLY INDEX VALUE BY WEEKS : 1980

Species Index

Week Number	April 1	2	3	4	5	6	May 7	8	9	10	11	12	June 13	14	15	July 16	17	18	19	20	Aug. 21	22	23	24	25	Sept. 26	Totals
1. BRIMSTONE	3	15	3		3	4	3																				31
2. GREEN-VEINED WHITE						10	11	6		7	13		1	2			1				10	2	2				65
3. HEDGE BROWN		1													2						4	1					8
4. LARGE SKIPPER													1	4		1											6
5. LARGE WHITE							1			1	1																3
6. MEADOW BROWN													1	3	3	1						1					9
7. ORANGE TIP							3																				3
8. PEACOCK		6	4		2	4															2	2					20
9. RINGLET														1	5	3	4										13
10. SMALL SKIPPER													1		1		1										3
11. SMALL TORTOISE-SHELL		5	3		1	1								1			2										13
12. SMALL WHITE		2			2	3	4	3			8									2	1	1					26
13. COMMA	1		3		2	1	1										1				1						10
14. SPECKLED WOOD					1	5	6	1			1		6	3		1				6	9	5					44
15. COMMON BLUE																											0
No. of transects (Total : 22 walks)	1	2	1	0	1	2	2	1	0	2	1	0	1	1	1	1	1	0	0	0	1	2	1	0	0	0	

TABLE IIa : BUTTERFLY INDEX VALUES BY SECTIONS : 1978

	Managed/Coppiced								Unmanaged/Wild								
Section Numbers	1	5	6	8	12	13	14	Total	2	3	4	7	9	10	11	Total	Grand Total
1. BRIMSTONE	3	1	7	0	1	1	3	16	0	0	0	0	0	0	1	1	17
2. GREEN-VEINED WHITE	16	14	17	4	29	17	20	117	7	1	1	6	8	6	17	46	163
3. HEDGE BROWN	22	4	6	1	10	6	9	58	0	0	0	2	1	3	4	10	68
4. LARGE SKIPPER	2	1	2	0	2	1	0	8	0	0	0	0	0	1	0	1	9
5. LARGE WHITE	5	6	1	1	1	5	3	22	8	2	1	0	0	4	0	15	37
6. MEADOW BROWN	0	0	5	0	2	1	14	22	2	1	1	1	0	0	0	5	27
7. ORANGE TIP	3	0	1	0	0	1	1	6	0	1	0	3	0	0	0	4	10
8. PEACOCK	3	1	13	2	2	2	4	27	0	0	2	0	0	1	3	6	33
9. RINGLET	0	2	4	0	2	1	1	10	0	0	0	1	0	0	0	1	11
10. SMALL SKIPPER	1	0	0	0	0	0	1	2	0	0	0	1	0	0	0	1	3
11. SMALL TORTOISE-SHELL	28	1	1	1	0	1	1	33	1	0	0	1	1	0	6	9	42
12. SMALL WHITE	18	7	22	7	25	19	60	158	9	4	5	9	5	6	17	55	213
13. COMMA	3	1	0	0	0	0	1	5	0	0	0	1	0	0	0	1	6
14. SPECKLED WOOD	7	2	1	3	1	0	1	15	2	3	2	0	0	2	1	10	25
15. COMMON BLUE	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	1
16. WALL BROWN	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
T o t a l s	111	40	80	19	75	56	119	500	30	12	12	25	15	23	48	166	666

TABLE IIb : BUTTERFLY INDEX VALUE BY SECTIONS : 1979

	Managed/Coppiced								Unmanaged/Wild								
Section Numbers	1	5	6	8	12	13	14	Total	2	3	4	7	9	10	11	Total	Grand Total
1. BRIMSTONE	1	0	0	1	0	0	1	3	0	0	0	0	0	0	0	0	3
2. GREEN-VEINED WHITE	1	4	12	5	5	2	4	33	1	1	1	3	6	1	0	13	46
3. HEDGE BROWN	17	3	5	2	6	14	7	54	4	0	2	4	1	0	5	16	70
4. LARGE SKIPPER	2	0	0	1	1	0	0	4	0	0	0	0	0	0	0	0	4
5. LARGE WHITE	10	4	8	3	0	0	1	26	0	1	4	1	0	1	8	15	41
6. MEADOW BROWN	4	3	7	0	1	4	3	22	2	0	0	1	0	0	1	4	26
7. ORANGE TIP	1	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	2
8. PEACOCK	3	0	5	0	2	0	1	11	0	0	0	1	0	0	2	3	14
9. RINGLET	0	0	3	0	2	3	1	9	5	0	0	0	0	0	1	6	15
10. SMALL SKIPPER	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
11. SMALL TORTOISE-SHELL	8	2	3	1	0	0	0	14	0	0	0	0	0	0	1	1	15
12. SMALL WHITE	3	6	9	10	5	6	7	46	3	2	0	4	5	4	5	23	69
13. COMMA	2	1	0	0	0	0	0	3	0	0	0	0	0	0	1	1	4
14. SPECKLED WOOD	7	1	1	1	1	5	3	19	0	1	3	1	1	4	4	14	33
15. COMMON BLUE	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
16. WALL BROWN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T o t a l s	60	24	53	24	23	35	29	248	15	5	10	15	13	10	28	96	344

TABLE IIc : BUTTERFLY INDEX VALUE BY SECTIONS : 1980

	Managed/Coppiced								Unmanaged/Wild								
Section Numbers	1	5	6	8	12	13	14	Total	2	3	4	7	9	10	11	Total	Grand Total
1. BRIMSTONE	7	4	1	3	2	1	4	22	2	1	2	1	0	2	1	9	31
2. GREEN-VEINED WHITE	2	9	12	5	0	1	5	34	0	3	4	6	1	2	0	16	50
3. HEDGE BROWN	0	1	0	0	0	0	0	1	0	0	0	0	0	0	2	2	3
4. LARGE SKIPPER	1	2	1	1	0	0	0	5	0	0	0	0	0	0	0	0	5
5. LARGE WHITE	0	1	1	0	0	0	0	2	1	0	0	0	0	1	0	1	3
6. MEADOW BROWN	0	0	4	0	1	1	0	6	1	0	0	0	0	0	0	1	7
7. ORANGE TIP	0	0	1	0	0	0	0	1	0	0	0	2	0	0	0	2	3
8. PEACOCK	2	2	3	2	1	0	1	11	0	1	0	2	0	2	0	5	16
9. RINGLET	0	6	0	0	0	0	0	6	0	0	0	0	0	0	0	0	6
10. SMALL SKIPPER	0	0	2	0	0	0	0	2	0	0	0	0	0	0	0	0	2
11. SMALL TORTOISE-SHELL	3	0	1	1	1	0	1	7	0	1	0	0	0	0	3	4	11
12. SMALL WHITE	1	0	3	4	0	0	2	10	2	0	1	4	0	3	2	12	22
13. COMMA	1	2	4	0	0	0	1	8	0	0	0	0	0	0	0	0	8
14. SPECKLED WOOD	8	0	1	2	2	0	1	14	1	2	0	0	0	6	0	9	23
15. COMMON BLUE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16. WALL BROWN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T o t a l s	25	21	40	18	7	3	15	129	6	8	7	15	1	16	8	61	190

changes in generations for Green-viened White, Large and Small Whites. Comparison of the data between managed and unmanaged sections of the woodland show regular differences between peaks and falls over the periods covered.

Conclusion

From the data in Table I and II it seems clear that the number of butterflies recorded is greater in managed areas of the wood.

A note of caution must be sounded, however, because it is not known how the number of adult butterfiles counted in a section relates to actual breeding populations. It can be seen from Table II that section 6 (the open glade) seems particularly important since more butterflies were recorded there than in any other section, save the garden/wood interface of section 1. It is also an area of most recent coppicing and scrub clearance, this last taking place in the winter of 1979/80 (see Map I). In the summer of 1979 the total number of butterflies observed in this area was forty, covering thirteen out of the fourteen species recorded.

It is likely that the butterflies are benefiting from the management of some rides and glades in Howe Park Wood, although the older coppiced sections (12, 13 and 14) dating back to the period 1973-76 are now showing poor returns compared to the earliest years of the survey when butterfiles were very abundant. This is probably due to the dramatic increase in undergrowth, which has grown since the coppicing took place and is now causing a considerable amount of shade.

Most species rely on relatively open spaces in the wood, and coppicing helps by giving wider rides and more open glades and clearings. The most important factor here is light, since the larval food plants of most species will only flourish where light reaches the ground. This also applies to the nectar-producing plants for the adults. The rides or areas with the largest number of species of butterfly are often those with the greatest abundance of flowering plants. Thus counts may largely reflect the attraction of the butterflies to flowering plants, whose presence is related to coppicing. In addition sunshine

is vital to the activity of butterflies; there are a very few species which will fly, feed or mate under the shade of a dense canopy. This preference for open spaces is borne out by a comparison of the abundance of the butterflies in the open glade (section 6), with the extremely overgrown rides of sections 9 and 10. It is also important to consider whether or not coppicing affects the breeding niche because of its effects on larval food plants.

The dominant feature of this study period has been the three cold and wet summers. There is little doubt that this has had a major impact on butterfly numbers. Despite this, the results showed a general similarity for all species, with a greater abundance of butterflies in managed, especially more recently managed, parts of the wood. It will be necessary, to keep records over a number of years so that our provisional conclusions can be verified and related to further habitat management.

When considering butterfly species in a wood it is also necessary to consider its general geographical location, the plant species present, the age of the wood and its size. It seems that the larger the area the greater the chance a butterfly has of finding its own microhabitat, providing of course that time is available for colonisation.

1977-1978

Although the summer of 1978 was generally cool and damp, most species were found to be fairly abundant. This itself is surprising, but even more surprising was the enormous abundance of Small Whites and Green-veined Whites; but this could be related to their association with cool damp habitats - Howe Park Wood is a wet woodland.

1978-1979

Another poor summer again led to recording difficulties. For several weeks there was no suitable weather for recording (see Table Ib). The 1978-9 winter was the most severe for many years and the 1979 results provide an opportunity to gauge its effects

on butterfly numbers. In most cases, index values were lower than in 1978 and it seems that the hard winter and poor summer contributed to these declines. The summers of 1977, 78 and 79 have had below average sunshine and temperatures. Species which showed some increases in 1979 were Large White, Speckled Wood, Hedge Brown and Ringlet.

1979-1980

The poor summer weather of 1980 also made recording difficult, but this was somewhat overcome by not setting aside any one day for recording each week. However, for the 4th, 9th and 12th weeks there was no suitable weather for recording (see number of transects walked, Table I).

Difficulties in identification were encountered with Small and Green-veined Whites, and Large and Small Skippers. One close inspection there is no problem with either pair; any book on British butterflies gives the necessary figures and information to distinguish them. However, in the field the distinctions are not so clear. A net was used to catch those individuals which could easily be caught By examining these closely, sufficient experience was gained for those not seen so clearly to be identified more confidently. Large and Small Skippers have, in addition to morphological differences, distinctly different flight periods.

It is appreciated that restriction of the analysis to the commonest species has simplified the project but still enables trends to be interpreted, as they represent between 87% and 94% of the total number of butterflies observed over the 3-period period. It is also realised that the results are based on observation and that it is probably easier to see butterflies in more open spaces.

However, the logical development of this project is to examine each species in greater detail, by devising tests and referring to literature on their habits and habitats.

Acknowledgements

We would like to thank the staff of the Institute of Terrestial Ecology and also members of the Milton Keynes Natural History Society for their help, particularly Bob Stott for his hard work in preparing maps of the wood and Mike Towns for assisting with observations during holiday periods.

Appendix

SHORT DESCRIPTION OF THE SECTIONS OF THE TRANSECT (SEE ALSO MAPS II &III)

Section No.	Treatment	Description
1	Managed	Wood/Garden Interface - Managed in recent past. Maple; Coppice with Ash, Aspen and Willow. Ground Flora : Bramble.
2	Unmanaged	Right by Large Elm into open glade. Borders on undeveloped area - Mixed Coppice, Hazel predominant. Large standards of Field Maple and Ash - Age 25-30 years. Transect only on edge of Coppice 1876/77 (No.4). Now getting very overgrown.
3	Unmanaged	Into Ride marked by Field Maple No. 24 (boundary between 2/3). Hornbeam Glade.
4	Unmanaged	More open section of ride marked by numbered tree 150. Ride in this section flanked by Blackthorn scrub, edged with odd Blackthorn, Ash, Field Maple and Willow.
5	Managed	Open area at Cross-Rides. Willow and Aspen predominate - temporary winter stream (marshy area except in High Summer months), Blackthorn scrub, Sedge, Rush and Meadow Sweet - cleared 1978/79.
6	Managed	Open Glade - Blackthorn scrub - cleared Winter 1979/80.
7	Unmanaged	Ride edged with Blackthorn and Willow scrub back to cross rides.

Appendix (Continued)

Section No.	Treatment	Description
8	Managed	Blackthorn Ride with Willow and Aspen Coppiced; cleared 1979/80
9	Unmanaged	Willow scrub Ride
10	Unmanaged	Wood/ploughed field edge with Oak, Ash, Hazel - it was once a Medieval Bank.
11	Unmanaged	Grassy Glade with Guelder Rose; also Hazel, Hawthorn, Ash and Field Maple - Glade full of thistles.
12	Managed	Coppice Area No.1 cut 1973/74 (now very overgrown by young coppice)
13	Managed	Coppice Area No.2/3 cut 1974/76 (now very overgrown by young coppice).
14	Managed	Coppice Area No.4 cut 1976/77 (Mixed coppice) Elm (was predominant), now Ash and Willow standards.

EQUIPMENT NEEDED FOR NATURAL HISTORY PHOTOGRAPHY

BY R. ARNOLD

This being a specialised subject, the first thing the photographer must have is a good basic knowledge of natural history, with an understanding of the problems that can be caused by thoughtless exposure of the subject to outside interference mainly through predators both humans and other animals. In all natural history photography the welfare of the subject matter is of paramount importance. If by taking a photograph, the subject matter is put at any risk, the photograph should not be taken.

Equipment Needed

Camera

Although natural history photographs can be taken with simple cameras, i.e. small compacts or even instamatics, to do full justice to the subject a Single Lens Reflex camera is the ideal, with through-the-lens-metering if possible, as this makes judging the correct exposure that much easier. Most natural history photographers use 35mm cameras, but larger format cameras can be used.

Lens

The standard lens of 35mm cameras is around 50mm. This lens is ideal for large subjects such as trees, large flowers, animals, and for habitats. Used with close-up lenses, extension tubes, or bellows, the standard lens can be very effective for smaller subjects.

Macro lenses

These lenses are computed to give their best definition at close distances, giving up to life size on the negative or transparency or, as it is called, a 1-to-1 ratio.

Macro lenses are usually made with focal lengths of 50mm or 100mm. Of the two, I consider the 100mm better as, when used for close-up work, the working distance is double that of 50mm lens, so it is not necessary to get so close to the subject for the same size of image. This does not cause so much interference to the subject.

Both of these lenses can also be used with close-up lenses, tubes and bellows to increase magnification.

Telephoto lenses

These lenses come in most focal lengths from 100mm through to 1000 mm, but for normal work I find 200mm and 400mm are all that I need. With these lenses, photographs of birds and other animals can be taken from a distance, with a reasonally large image on the film resulting.

Zoom lenses

These are lenses of multiple focal lengths, one of the most popular specifications being 70-210mm. This gives a range of all possible focal lengths between 70 and 210mm, so you can frame your subject in the viewfinder to the ideal size. Also, such a lens saves carrying two or three lenses in your bag.

The majority of these lenses have the macro facility and you can get up to half-size on the film.

Close-up accessories

Close-up lenses are the easiest accessories to use, as they are simply screwed on the front of the standard or telephoto lens to enable it to focus to a closer distance. They are made in different strengths, measured in diopters from 1 through to 10, the best range being 1,2,3. If you have these three they can be used singly or together to take you closer to your subject. When you buy close-up lenses, there is usually a table with them to you how close you can get to the subject. Although they are the easiest close-up accessory to use, they do spoil the definition of the main lens to some extent.

Extension tubes are a set of three tubes, which can also be used together or separately. They fit between the camera body and the lens and, as their name suggests, they increase the distance between the lens and the camera. This leads to an increase in magnification. The tubes can be used with a reversal ring: this fits on the front of the extension tubes and the camera lens is reversed on to the

ring. Using the lens this way gives better definition, as lenses are computed to give their best definition at infinity, not at close distances.

Bellows are like extension tubes, but are more versatile. They consist of a variably extending unit (the 'bellows') mounted on rails. The desired magnification is first achieved by altering the extension of the bellows, and the whole assembly can then be racked along a second rail to give sharp focus.

Camera bags

A bag, not too large, but big enough to hold all your equipment, is needed. This must be waterproof, and have pockets for films and accessories. One of the most important accessories you can carry in it is a sheet of plastic as you may well have to lie on the ground to photograph many of the wild flowers and even in dry weather, it is surprising how damp the ground can be.

BREEDING BIRD COMMUNITY OF A NORTH BUCKINGHAMSHIRE BRICKWORKS SITE, NEWTON LONGVILLE - 1977

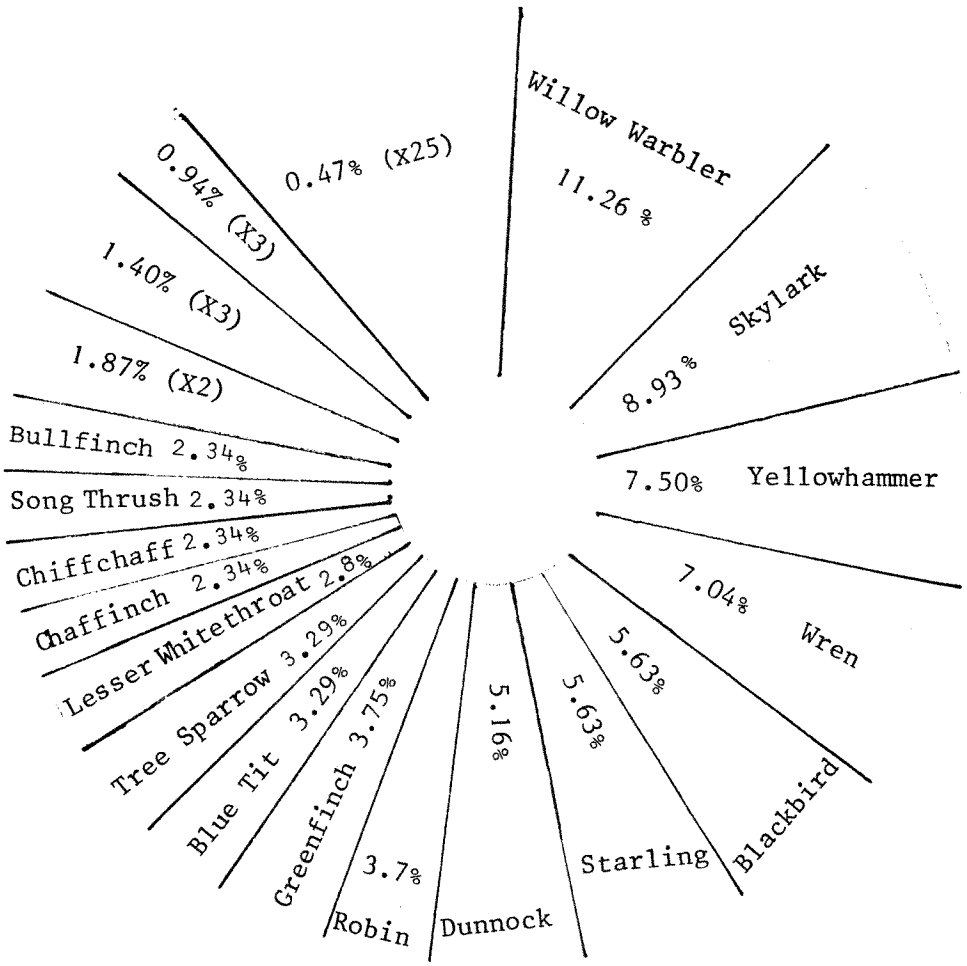
BY P.J. ALDERMAN

The common bird census of this site, summarised opposite is intended to supplement the census work carried out in 1975 in the adjacent brickpit. Map I shows the relative positions of the two sites.

The hills of spoil cover an area of 11 hectares, rectangular in shape and rising from 90 to 108 metres above sea level, and are surrounded on three sides by arable and pasture land (Map II). Tipping began here in 1925, the hills gradually being formed throughout the 1930's from the clay workings immediately to the north west. There were occasional deposits of clay spoil on top of the north-eastern half of the hills during the late 1940's and into the 1950's. This is substantiated by the development of the scrub in this area.

The area contains extremely varied habitats from a small pool with relatively extensive reed beds (*Phragmites australis*) holding Reed Warbler (*Acrocephalus scirpaceus*), Sedge Warbler (*Acrocephalus schoenobaenus*), Moorhen (*Gallinula chloropus*) and Reed Bunting (*Emberiza schoeniclus*), frogs (*Rana temporaria*) and toads (*Bufo bufo*), through open grassland with Skylark (*Alauda arvensis*), Meadow pipit (*Anthus pratensis*) and Grasshopper Warbler (*Locustella naevia*)(1974), to open medium and low Hawthorn (*Crataegus monogyna*) scrub and Bramble (*Rubus fruticosus*), with Willow Warbler (*Phylloscopus trochilis*), Yellowhammer (*Emberiza citrinella*), Blackbird (*Turdus merula*) and Linnet (*Acanthis cannabina*). The site is bounded extensively with high Hawthorn scrub, creating habitat for Magpie (*Pica pica*), Turtle Dove (*Streptopelia turtur*), Robin (*Erithacus rubecula*), Wren (*Troglodytes troglodytes*), Chaffinch(*Fringilla coelebs*), Bullfinch (*Pyrrhula pyrrhula*) and Greenfinch (*Carduelis chloris*); the inner edges of this scrub support Lesser Whitethroat

BIRD COMMUNITY STRUCTURE
BRICKWORKS HILLS OF CLAY SPOIL AT NEWTON LONGVILLE
1977



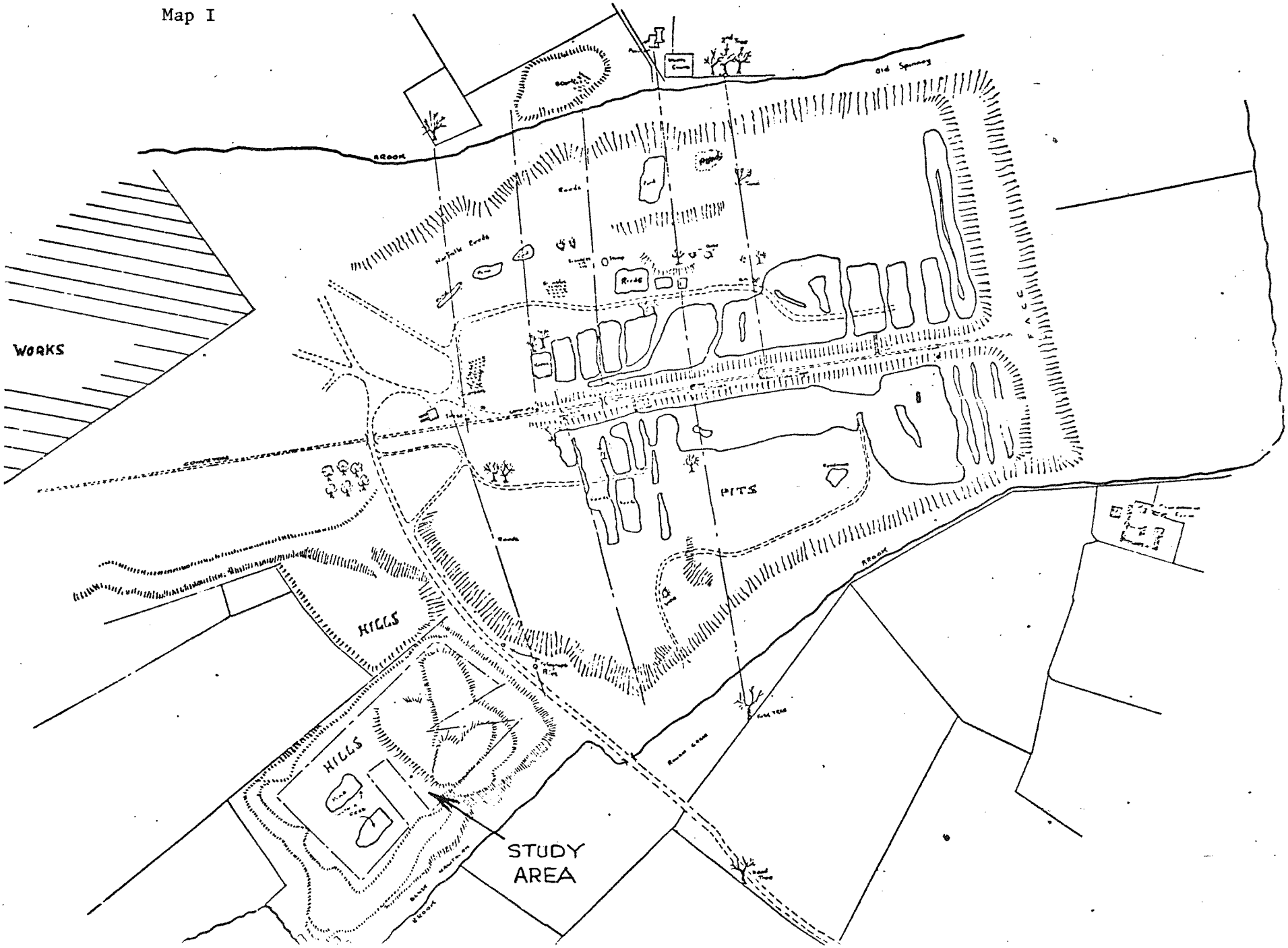
IN ADDITION TO THE SPECIES NAMED THERE ARE :

1.87%	Reed Bunting, Linnet
1.40%	Turtle Dove, Moorhen, Magpie.
0.94%	Marsh Tit, Great Tit, Sedge Warbler.
0.47%	Barn Owl, Tawny Owl, Little Owl, Lapwing, Willow Tit, Meadow Pipit, Reed Warbler, Long Tailed Tit, Pheasant, Cuckoo, Kestrel, Garden Warbler, Green Woodpecker, Lesser Spotted Woodpecker, Red Legged Partridge, Common Snipe, Treecreeper, Stock Dove, Corn Bunting, Mallard, Pied Wagtail, Carrion Crow, Swift, Swallow, House Martin.

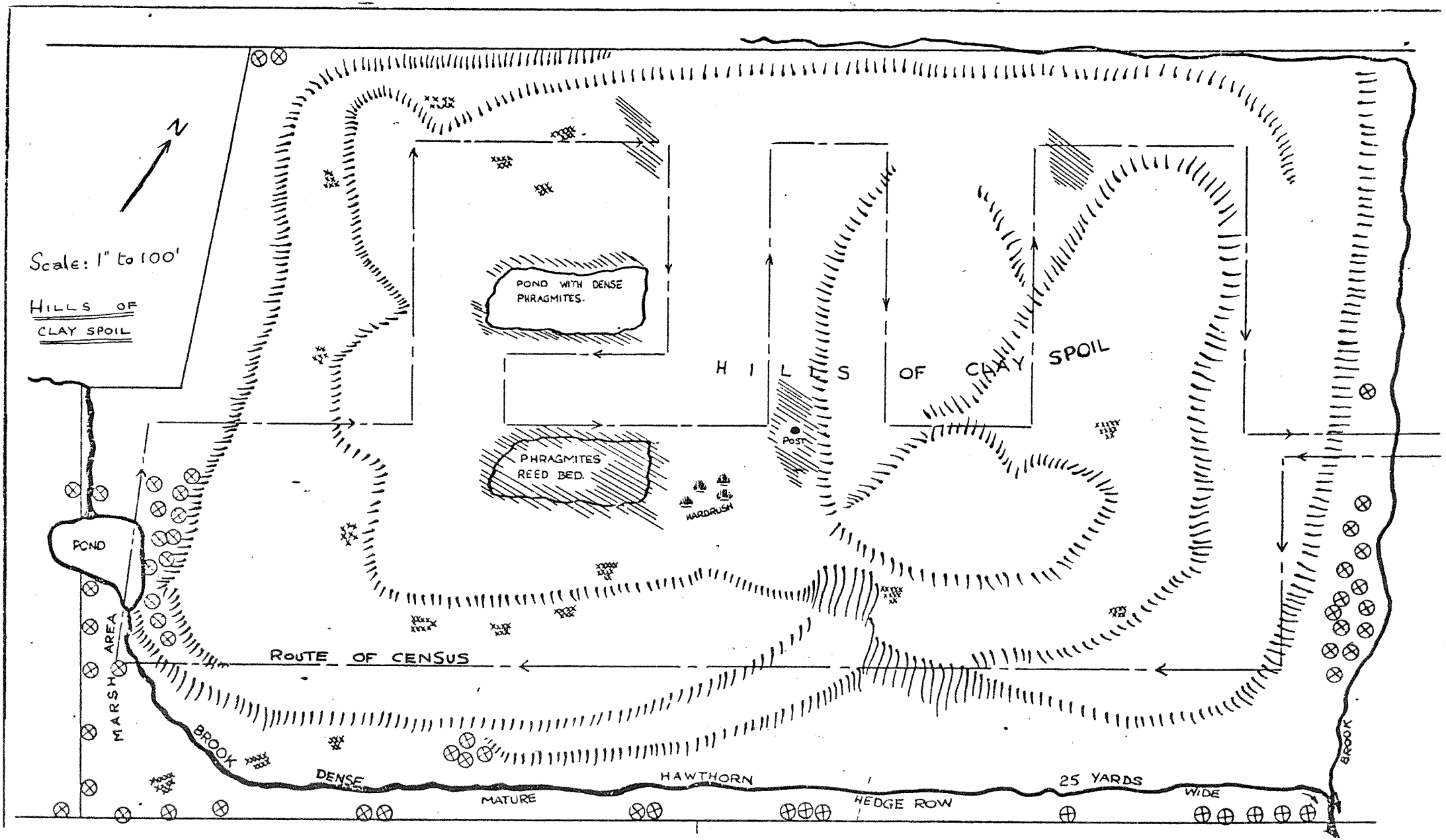
House Sparrow & Woodpigeon not included in census.

Past breeding species other than above : Lesser Redpoll.(1976)
Blackcap.

Map I



Map II


N
Scale: 1" to 100'
HILLS OF CLAY SPOIL
POND WITH DENSE PHRAGMITES.
PHRAGMITES REED BED.
HARDRUSH
POST
HILLS OF CLAY SPOIL
POND
MARSH AREA
ROUTE OF CENSUS
BROOK
DENSE
MATURE
HAWTHORN
HEDGE ROW
25 YARDS
WIDE
BROOK

(*Sylvia curruca*) and Garden Warbler (*Sylvia borin*).

There are two extremely interesting areas of mature and decaying Crack Willow (*Salix fragilis*), providing sites for hole-nesting Green Woodpecker (*Picus viridis*), Starling (*Sturnus vulgaris*), Willow Tit (*Parus montanus*) and Blue Tit (*Parus caeruleus*). In one of these areas the Crack Willows surround a small pond and marsh where Great Willowherb (*Epilobium hirsutum*) predominates in the ground vegetation. The pond, which has a ditch inflow and outflow, contains rich aquatic life. There are several wet depressions on the site supporting small beds of *Phragmites australis* and another where Hardrush (*Juncus inflexus*) predominates, a favourite place for Common snipe (*Gallinago gallinago*).

Generally speaking, the high hawthorn scrub has no ground cover, but there is an exception on the south-west boundary; here the ground does benefit from sunlight through the high scrub and is blanketed with rather forced grasses. This is the stronghold of the Adderstongue fern (*Ophioglossum vulgatum*) and in 1977 it was estimated that the site contained some 2,000 shoots. There is a damp depression on the north-west side of the hills which is completely open, and this too had some 200 shoots. The brambles on the north-west/south-west aspect are all worthy of a search for this fern, just around the inside perimeter of the patches.

The beautiful Bee Orchid (*Ophrys apifera*) is here too, and in 1977 a total of 84 plants was counted in both the pit bottom and on the hills; alongside it is Common Spotted Orchid (*Dactylorhiza fuchsii*) and the very abundant Yellow-wort (*Blackstonia perfoliata*) and Agrimony (*Agrimonia eupatoria*). See Appendix for a list of flowering plants and ferns for the site.

The hills are a traditional site for a pair of Green Woodpeckers and the old willows at the south west end bear the evidence of many years of nesting. Practically whenever this site is visited, throughout the year, birds are much in evidence, being flushed from their ground feeding.

Mammals too abound here: Muntjac deer (*Muntiacus muntjak*), Foxes (*Vulpes vulpes*), Weasels (*Mustela nivalis*), Grey Squirrels (*Sciurus carolinensis*) and scores of Rabbits (*Oryctolagus cuniculus*) together with Short-tailed Voles (*Microtus agrestis*), Bank Voles (*Clethrionomys glareolus*), Long-tailed Field Voles (*Apodemus sylvaticus*) and Common Shrews (*Sorex araneus*), which provide good hunting for the resident Kestrels (*Falco tinnunculus*).

Summer brings a full contingent of butterflies. Wall (*Pararge megera*), Meadow Brown (*Maniola jurtina*), Gatekeeper (*Maniola tithonus*), Small Heath (*Coenonympha pamphilus*), Red Admiral (*Vanessa atalanta*), Small Tortoiseshell (*Aglais urticae*) Peacock (*Nymphalis io*), Common Blue (*Polyommatus icarus*), Small Copper (*Lycaena phleas*), Large White (*Pieris brassicae*), Small White (*Pieris rapae*), Green-veined White (*Pieris napi*), Orange Tip (*Euchloe cardamines*), Brimstone (*Gonepteryx rhamni*), Dingy Skipper (*Erynnis tages*), and Grizzled Skipper (*Pyrgus malvae*). Daytime moths include Cinnabar (*Callimorpha jacobaeae*) Five Spot Burnet (*Zygaena trifolii*) and Six-Spot Burnet (*Zygaena filipendulae*).

Spring and Autumn passage brings the Wheatears (*Oenanthe oenanthe*) in to refuel.

The winter months are full of activity and excitement with large flocks of Redwing (*Turdus iliacus*) and Fieldfare (*Turdus pilaris*) feeding on the haws. Corvidae too are much in evidence at this time - Carrion Crows (*Corvus corone*), Rooks (*Corvus frugilegus*) and Jackdaws (*Corvus monedula*) passing over to and from the nearby refuse tip, and Magpie and Jays (*Garrulus glandarius*) squawking in the high scrub.

The winter of 1979/1980 brought a large Starling (*Sturnus vulgaris*) roost within the dense Hawthorn scrub on the South and West sides of the hills and by March 1980 the whole thicket was one mass of white droppings from the many thousands of birds.

The late afternoons bring that bold, dashing and versatile hunter, the Sparrowhawk (*Accipiter nisus*), working the broad belts of high scrub containing roosting passerines.

There is always a good chance of flushing a Woodcock (*Scolopax rusticola*) from the rough grass in a hedgerow bottom or in the damp depressions on the plateau at this time year. The cold days always bring one or two pairs of the delightfully extrovert Stonechat (*Saxicola torquata*) to over-winter on the site and, with flocks of Meadow Pipits and finches including Bramblings (*Fringilla montifringilla*), all add up to make this an area of outstanding ecological and wildlife importance.

Appendix : FLOWERING PLANTS & FERNS - HILLS OF CLAY SPOIL

Acer campestre	-	Field Maple
Achillea millefolium	-	Yarrow
Agrimonia eupatorium	-	Common Agrimony
Agrostis canina	-	Brown Bent
Agrostis stolonifera	-	Creeping Bent
Agropyron repens	-	Common Couch
Alisma plantago-aquatica	-	Water Plantain
Anthoxanthum odoratum	-	Scented Vernal Grass
Apium nodiflorum	-	Fool's Water-cress
Arrhenatherum elatius	-	False Oat-grass
Artemisia vulgaris	-	Mugwort
Blackstonia perfoliata	-	Yellow-wort
Brachypodium sylvaticum	-	False Brome
Briza media	-	Common Quaking Grass
Calamagrostis epigejos	-	Wood Small-reed
Calystegia sepium ssp sepium	-	Bindweed
Calystegia sepium ssp silvatica	-	Large Bindweed
Carex flacca	-	Glaucous Sedge
Carex hirta	-	Hairy Sedge
Carex otrubae	-	False Fox Sedge
Centaurea nigra	-	Common Knapweed
Cerastium holosteoides	-	Common Mouse-ear
Chamaenerion angustifolium	-	Rose Bay Willowherb
Chrysanthemum leucanthemum	-	Ox-eye Daisy
Cirsium acaulon	-	Ground Thistle
Cirsium arvense	-	Creeping Thistle
Cirsium palustre	-	Marsh Thistle
Cirsium vulgare	-	Spear Thistle
Convolvulus arvensis	-	Lesser Bindweed
Crataegus monogyna	-	Common Hawthorn
Cynosurus cristatus	-	Crested Dog's-tail
Dactylis glomerata	-	Cocksfoot
Dactylorchis fuchsii	-	Common Spotted-orchid
Daucus carota	-	Wild Carrot
Deschampsia cespitosa	-	Tufted Hair-grass
Dipsacus fullonum	-	Common Teasel

Eleocharis palustris	-	Common Spike-rush
Epilobium hirsutum	-	Great Willowherb
Equisetum arvense	-	Field Horsetail
Erigeron acer	-	Blue Fleabane
Eupatorium cannabinum	-	Hemp Agrimony
Eupharasia sp.	-	Eyebright
Festuca arundinacea	-	Tall Fescue
Festuca rubra	-	Red Fescue
Fraxinus excelsior	-	Ash
Galium verum	-	Lady's Bedstraw
Heracleum sphondylium	-	Hogweed
Hieracium pilosella	-	Mouse-ear Hawkweed
Hieracium spp.	-	
Holcus lanatus	-	Yorkshire Fog
Hypochoeris radicata	-	Cat's ear
Juncus inflexus	-	Hard Rush
Lathyrus pratensis	-	Meadow Vetchling
Leontodon hispidus	-	Rough Hawbit
Ligustrum vulgare	-	Privet
Linum catharticum	-	Fairy Flax
Lolium perenne	-	Rye Grass
Lotus corniculatus	-	Common Birds'-foot-trefoil
Lotus pendunculatus	-	Greater Bird's-foot-trefoil
Lotus tenuis	-	Narrow-leaved Birds'-foot-trefoil
Lotus uliginosus	-	Marsh Birds'-foot-trefoil
Medicago lupulina	-	Black Medick
Melilotus altissima	-	Tall Melilot
Mentha aquatica	-	Water Mint
Odontites verna	-	Red Bartsia
Ononis repens	-	Restharrow
Ophioglossum vulgatum	-	Adderstongue fern
Ophrys apifera	-	Bee Orchid
Pastinaca sativa	-	Wild Parsnip
Phleum pratense	-	Timothy Grass
Phragmites australis	-	Common Reed
Picris echioides	-	Bristly Ox-tongue
Pimpinella major	-	Greater Burnet-saxifrage

Pimpinella saxifraga	-	Burnet-saxifrage
Plantago lanceolata	-	Ribwort Plantain
Plantago major	-	Greater Plantain
Plantago media	-	Hoary Plantain
Poa annua	-	Annual Meadow-grass
Poa pratensis	-	Smooth Meadow-grass
Potentilla reptans	-	Creeping cinquefoil
Prunella vulgaris	-	Self-heal
Prunus spinosa	-	Blackthorn
Pulicaria dysenterica	-	Common Fleabane
Quercus robur	-	Pendunculate Oak
Ranunculus acris	-	Meadow Buttercup
Ranunculus repens	-	Creeping Buttercup
Reseda luteola	-	Weld
Rhamnus catharticus	-	Buckthorn
Rhinanthus minor	-	Yellow rattle
Rosa canina	-	Dog Rose
Rubus fruticosus	-	Bramble
Rumex crispus	-	Curled Dock
Rumex obtusifolius	-	Broad-leaved Dock
Salix alba var vitellina	-	White Willow
Salix Caprea	-	Goat Willow
Salix fragilis	-	Crack Willow
Sambucus nigra	-	Elder
Scrophularia auriculata	-	Water Figwort
Senecio erucifolius	-	Hoary Ragwort
Solanum dulcamara	-	Woody Nightshade
Sonchus arvensis	-	Perennial Sowthistle
Sonchus asper	-	Prickly Sowthistle
Stachys sylvatica	-	Hedge Woundwort
Tamus communis	-	Black Bryony
Taraxacum officinale	-	Dandelion
Torilis japonica	-	Upright Hedge-parsley
Trifolium pratense	-	Red Clover
Trifolium repens	-	White Clover
Tussilago farfara	-	Coltsfoot
Typha latifolia	-	Reedmace
Ulmus minor x glabra	-	Small Leaf x Wych Elm

Ulmus plotii	-	Smooth Elm
Ulmus procera	-	English Elm
Urtica dioica	-	Stinging Nettle
Viburnum lantana	-	Wayfaring Tree
Zerna ramosa	-	Hairy-brome

BUCKINGHAMSHIRE SPIDERS (NEW COUNTY RECORDS)

BY P.J. ALDERMAN AND M.J. TOWNS

Since the publication of Bristowe's "Comity of Spiders", our knowledge of the distribution and habitat requirements of British spiders has been steadily increasing. Bristowe's volumes of 1939 and 1941 listed 154 species of spiders occurring in Buckinghamshire. In 1964 D.G. Lambert published a list of new County records in "The Middle Thames Naturalist" bringing the County total to 199; although, unfortunately, his list was published before the Monks Wood Recording Scheme got under way and, apparently, not all Lambert's records were corroborated by voucher specimens. The third volume of "British Spiders" by Locket, Millidge and Merrett, published in 1974, showed a further increase in species. Our own work has added a further fifty records and the County total now stands at 308 species. Our recording has taken place exclusively in North Buckinghamshire at Linford Wood (OS SP.848405), Howe Park Wood (OS SP.834343), the Brickhill ridge and its woods (OS SP.918346, 922320), three roadside verge sites in Milton Keynes (OS SP. 8837, 8736, 9037) and the Newton Longville brickfields and pits (OS SP.856320). A great variety of habitats were sampled. On the Brickhill Greensands, sampling was carried out in coniferous woods, deciduous woods, relic heathland and wet and dry grassy rides. Other sites were on clay and included deciduous and coniferous woods, roadside grassland and the scrub and grasslands of the Newton Longville brickfields - a site we consider long overdue for SSSI status designation. At all sites the spiders were captured by the use of pitfall traps, (jars sunk up to their necks in the ground) charged with a mixture of 4% methanal solution, usually on a basis of year-round sampling.

The fifty new County species we have recorded form the basis of this paper and we offer grateful thanks to Dr. P. Merrett of the Institute of Terrestrial Ecology for his help on many occasions and for confirming the identity of the new species.

GRAPHOSIDAE

Drassodes cupreus (Blackwall)

Length : 6-24 mm.
Newton Longville Brickfields. ♂ May 1978, further records in June. Found in dense mixed grass and also in rabbit-cropped grass on an exposed S.W. ridge. A ferocious spider. It is on record that a female of a related species defeated no less than fifteen formidable spiders, belonging to five other species, within two days.

Zelotes latreillei (Simon)

Length : 4.5-8 mm.
Newton Longville Brickfields. ♂ May 1978. Further ♂ ♀ through to October. In dense mixed long grass and also rabbit-cropped grass.

Brickhill Ridge ♂ May 1978. Vestigial heath-type vegetation. Shiny, all-black spiders, usually found under stones. Common in chalky areas.

Zelotes petrensis (C.L. Koch)

Length : 6-6.5 mm.
Linford Wood. ♂ August 1976, from an area of newly cleared coppice. An extremely rare spider, only five records for Britain. Elsewhere in heathland.

CLUBIONIDAE

Clubiona phragmites (C.L. Koch)

Length : 5-11 mm.
Newton Longville Brickfields. ♂ August 1978, from a *Phragmites australis* reed bed. A common spider of reed beds, probably overlooked in the past.

Agroeca proxima (O.P. Cambridge)

Length : 4-7.5 mm.
Roadside verge (OS.8837). ♂ September 1974. In grass near a metalled field gateway. Taken also from a dry grassy ride on the Brickhills and found to be very abundant on Newton Longville Brickfields again in dry, grassy places.

Agraecina striata (Kulezynski)

Length : 3.5-5.5 mm
Newton Longville Brickfields. ♂ ♀ August 1979, taken from grass in very dry situations. A beautifully marked and generally rare spider usually associated with marshy conditions.

THOMISIDAE (Crab Spiders)

Oxyptila trux. (Blackwall)

Length : 3-5 mm.
Brickhill woods (OS 920349). ♂ June 1978, acid Pedunculate Oak (*Quercus robur*) woodland with a dense Bilberry (*Vaccinium myrtillus*) understorey.

Oxyptila simplex (O.P. Cambridge)

Length : 3-5 mm
Newton Longville Brickfields. ♂ & ♀ June 1978, relatively common in grassy places on the brickfields. Generally an uncommon spider.

SALTICIDAE (Jumping Spiders)

Euophrys aequipes (O.P. Cambridge)

Length : 2-3 mm.
Newton Longville Brickfields. ♂ ♀ May 1978, found exclusively on steep, sunfacing banks covered with rabbit-cropped grass and bare earth patches. An uncommon spider which stalks its prey until it is within jumping distance. Can leap many times its own length.

LYCOSIDAE (Wolf Spiders)

Pardosa agrestis (Westring)

Length : 4.5 - 6.5 mm
Newton Longville Brickfields. ♂ ♀ May 1978, in the brickpit bottom on barren clay with scattered coltsfoot (*Tussilago farfara*). Was very abundant during May and June with immature specimens concentrated in vegetation around scattered pools in the pit bottom. A very rare spider, taken elsewhere on heathland, chalkpits and grassland.

Alopecosa accentuata (Latreille)

Length : 7.5-12 mm.
Newton Longville Brickfields. ♂ April 1978, ♂ ♀ in May, June and July in exposed, rabbit-cropped grass situations. A widely distributed spider of open places and heaths and chalk grassland.

AGELENIDAE

Tegenaria agrestis (Walckenaer)

Length : 7-14 mm
Newton Longville Brickfields. ♂ August 1978, ♂ ♀ during September and October. Found on barren clay in the pit bottom as well as in grassy places. Until comparatively recently regarded as a very rare species but has now been recorded from many localities. This spider prefers waste ground and grassy places. A relative of the familiar large house spider.

Hahnia nava (Blackwall)

Length : 1.6 - 2 mm
Newton Longville Brickfields. ♂ ♀ May 1978, very abundant in May and June on grassy banks, generally a local species.

THERIDIIDAE (Comb-foot Spiders)

Episinus angulatus (Blackwall)

Length : 3.75-4.5 mm
Roadside verge (OS 8837). ♀ June 1975, in grass.
Brickhill Ridge (OS 917346). ♀ May 1978, in relic heath.
Newton Longville Brickfields. ♀ June 1978 in *Phragmites* reed bed

Robertus neglectus (O.P. Cambridge)

Length : 1.75-2.25 mm
Linford Wood. ♂'s August 1976, from litter beneath a mixed conifer/deciduous plantation.

A generally rare species.

TETRAGNATHIDAE

Pachygnatha listeri (Sundevall)

Length : 3-5 mm
Linford Wood. ♂ ♀ August 1976, in old neglected coppice woodland.
Shenley Wood. ♀ September 1974, in a wet ride.
Howe Park Wood. ♂ April/May 1978, in Hornbeam (*Carpinus betulus*) litter and litter and herbs under Aspen (*Populus tremula*)
Brickhill Woods (OS 918346). ♀ July 1978, in wet area of mature, acid, Oak woodland.

A widespread but generally rare species considered to be associated with old established woodlands.

LINYPHIIDAE (Money Spiders)

Walckenaera melanocephala (O.P. Cambridge)

Length : 2-2.25 mm
Newton Longville Brickfields. 1 ♂ July 1979, in short, dense grassland on north facing bank.

Generally rare.

Walckenaera capito (Westring)

Length : 2.75-3.5 mm
Newton Longville Brickfields. ♂'s November 1977 and January 1979, ♀'s January, March, May, June, December, frequent in exposed short grass area and barren ground.

One of the most interesting spiders in the Brickfields. Normally regarded as a high-altitude species occurring above 925 metres in Snowdonia, the Lake District and Scotland, although it has been found at lower altitudes in a number of places. The barren, exposed conditions of the Brickfields probably provide conditions akin to those of upland areas.

Walckenaera nudipalpis (Westring)

Length : 2.75-3 mm

Linford Wood. ♂ ♀ April, May and August 1976, in litter in mixed conifer/deciduous plantation and old neglected coppice.
Howe Park Wood. ♀'s May to July 1978 in a variety of sites in moss, grass and leaf litter.
Brickhill Woods. ♀'s June to August 1978, in a variety of sites, pine needles, wet areas under Oak (*Quercus robur*), wet rides and silted pond.
Newton Longville Brickfields. ♂ ♀ January to April 1978, ♀'s through to August, in wet and dry grass areas. Common.

Walckenaera vigilax (Blackwall)

Length : 2-2.25 mm
Roadside verge (OS 8736). ♂ August 1974, from a newly created road verge with a profuse growth of white Clover (*Trifolium repens*) and a newly topsoiled verge (SP 9037). A widespread species but generally rare.
Newton Longville Brickfields. ♂ April 1980. Newly created barren clay area in pit bottom. No vegetation within 100 yds.

Dicymbium tibiale (Blackwall)

Length : 2.5 mm
Linford Wood ♂ April, May 1976. ♂ ♀ August 1976, from a variety of sites - conifer/deciduous plantation, newly cleared coppice

Dicymbium tibiale (continued)

and old neglected coppice.
Howe Park Wood. ♂ April 1978, in an area recently cleared of Blackthorn (*Prunus spinosa*) scrub.

Pocadicnemis juncea (Millidge)

Length : 1.7-2 mm
Newton Longville Brickfields. ♀ June 1979, in dry, grassy areas. Now regarded as a separate from *Pocadicnemis pumila* of which it was once considered a variety.

Oedothorax tuberosus (Blackwall)

Length : 2-2.5 mm
Howe Park Wood. ♂'s May, June, August 1978. ♀ August 1978 (the females are almost indistinguishable from *O. gibbosus* which also occurred at this site), from a marshy clearing with abundant Sedge (*Carex sp.*).
Newton Longville Brickfields. ♂ ♀ May, June 1978, in *Phragmites* reedbed.

Oedothorax agrestis (Blackwall)

Length : 2.25-2.5 mm
Howe Park Wood. ♂ ♀ April and August 1978, from a marshy clearing with abundant Sedge and in litter and herbage beneath Willows (*Salix caprea*).
Brickhill Woods (OS 923318). ♂ ♀ July 1978, from a damp, open, grassy ride with some rushes.

Oedothorax retusus (Westring)

Length : 2-3mm
Roadside verge (OS 8736). ♀ March 1974, o ♀ May 1974, from a newly created roadside verge with a profuse growth of white Clover.
Brickhill Woods. ♂ ♀ June to September 1978, in a variety of grassy and litter situations, except conifer needle litter.
Newton Longville Brickfields. ♂ ♀ May, June, August 1978, in *Phragmites* reedbed.

Oedothroax apicatus (Blackwall)

Length : 2.25-2.5 mm
Roadside verges (OS 8736). ♂ May and August 1974, ♀ March 1974 from newly created verge with profuse growth of white Clover. Newton Longville Brickfields. ♂ November 1979, from grass in a marshy area adjacent to hills of clay spoil.

Cnephalacotes obscurus (Blackwall)

Length : 1.5 - 1.7 mm
Newton Longville Brickfields. ♂ ♀ April, May, August 1978 in grassy areas.

Ceratinopsis stativa (Simon)

Length : 2-2.5 mm
Newton Longville Brickfields. ♂ June 1979, one specimen in short grass. A spider mainly of southern England and quite rare.

Tapinocyba praecox (O.P. Cambridge)

Length : 1.25 mm
Roadside verge (OS 8837). ♂ March in Spring in grass.
Newton Longville Brickfields. ♂ ♀ mainly in Spring in grass

Lophomma punctatum (Blackwall)

Length : 2.25-2.5 mm
Newton Longville Brickfields. ♀ November 1977, ♂ ♀ February, May, November, December 1978, all from *Phragmites* reedbed. ♂'s taken from marshy area in Spring 1980.

Mioxena blanda (Simon)

Length : 1.5-1.6 mm
Newton Longville Brickfields. ♂ November 1978. Only one specimen taken so far from an exposed site with rabbit-cropped grass and mosses.

An extremely rare species recorded from only seven other sites in Britain. Regarded by Dr. P. Merrett as a soil-living species.

Erigonella hiemalis (Blackwall)

Length : 1.5-1.75 mm
Howe Park Wood. ♂ April and June 1978, from a variety of habitats - Hornbeam (*Carpinus betulus*) litter, moss, grass and wet areas.

Diplocephalus permixtus (O.P. Cambridge)

Length : 1.5-1.6 mm
Newton Longville Brickfields. ♂ ♀ November 1979 onwards, a very common spider in marshy ground by the hills of clay spoil.

Panamomops sulcifrons (Wider)

Length : 1.4-1.5 mm
Newton Longville Brickfields. ♂ November 1978, ♀ December, January, February 1979, ♂ ♀ abundant in May and June on level, short grass area, a local and unusual little spider with a horn at each fore corner of the carapace.

Milleriana inerrans (O.P. Cambridge)

Length : 2-2.5 mm
Roadside verges (OS 8837, 8736). ♂ May 1974 from newly created and topsoiled roadside verges, one bare of vegetation, the other with a profuse growth of white Clover. A surprising record as it is normally regarded as a species of heathland.

Erigone vagans (Audouin)

Length : 2.25-2.5 mm
Brickhill Woods. ♂ October 1978, in a silted-up pond which had also been used as a bottle dump at some time in the past.

A very rare species taken from only twelve sites in Britain, all wet, grassy habitats or sewage beds.

Porrhomma pygmaeum (Blackwall)

Length : 1.6-2 mm
Newton Longville Brickfields. ♂ January, October, ♀ April, June, October, December 1978, in wet areas, common in marsh by hills of spoil in 1979/80.

Porrhomma pygmaeum (Continued)

Brickhill Woods. ♂ ♀ October 1978, ♀ June 1978, very abundant in a silted-up pond and one specimen taken from wet area in acid Oak (*Quercus robur*) woodland.

A widely distributed and common species.

Porrhomma pallidum (Jackson)

Length : 1.7 mm
Brickhill Woods. ♂ May and July ♀ June 1978, from leaf litter in acid Oak woodland with Bilberry (*Vaccinium myrtillus*) understorey and from conifer needle litter.

Agyneta subtilis (O.P. Cambridge)

Length : 2.25-2.5 mm
Linford Wood. ♂ May 1976, in old neglected coppice.
Howe Park Wood. ♂ May, June 1978, in bare, mossy ground beneath Blackthorn (*Prunus spinosa*) scrub and in moss and herbage beneath an Aspen (*Populus tremula*) stand.

Agyneta ramosa (Jackson)

Length : 2-2.5 mm
Howe Park Wood. ♀ July 1978, in moss and herbage beneath a stand of Willow (*Salix caprea*).

Generally a rare species.

Meioneta beata (O.P. Cambridge)

Length : 1.5-1.75 mm
Newton Longville Brickfields. ♂ ♀ June 1979, amongst grass, much rarer at the Brickfields than its abundant close relative *Meioneta rurestris*.

Centromerus expertus (O.P. Cambridge)

Length : 2.5-3 mm
Newton Longville Brickfields. ♂ March 1978, ♂ ♀ extremely common in marshy areas but a few specimens taken from dry ground.

Centromerus expertus (Continued)

Howe Park Wood. ♀ April 1978, in marshy clearing with abundant sedge (*Carex sp.*).

Centromerus dilutus (O.P. Cambridge)

Length : 1.25 mm
Newton Longville Brickfields. ♂ ♀ November 1977. ♂'s through to March and ♀'s through to July.
Brickhill Woods. ♀ May to July 1978, from a variety of sites - pine needle litter, relic heath and acid Oak (*Quercus robur*) woodland.

Centromerita concinna (Thorell)

Length : 2-2.5 mm
Newton Longville Brickfields. ♂ ♀ November 1977. ♂ ♀ Autumn and Winter, ♀'s linger into Spring, exhibits a distinct preference for drier situations in the Brickfields, probably the commonest spider on the site.
Brickhill Woods. ♀ October 1978, in a dry, grassy ride and a silted-up pond.

Bathyphates nigrinus (Westring)

Length : 2.5-2.75 mm
Howe Park Wood. ♂ March 1976, from moss and herbage in a clearing.
Linford Wood. ♂ April and May 1976, from a mixed conifer/ deciduous plantation.

Tapinopa longidens (Wider)

Length : 4 mm
Brickhill Woods. ♀ June 1978, from conifer needle litter in a young plantation.
Newton Longville Brickfields. ♂ August 1979, from a sunny bank with patchy mixed grass.

Lepthyphantes cristatus (Menge)

Length : 2-2.5 mm
Brickhill Woods. ♀ October 1978, from a silted-up pond.

A widespread but uncommon species.

Lepthyphantes tenebricola (Wider)

Length : 2.5-3 mm
Linford Wood. ♂ May, ♀ August 1976, from old neglected coppice woodland.
Howe Park Wood. ♂ June 1978, from bare and mossy ground beneath dense Blackthorn (*Prunus spinos*) scrub.
Brickhill Woods. ♀ July 1978, from a marshy area in an acid Oak (*Quercus robur*) woodland.

A widespread species but infrequent.

Lepthyphantes insignis (O.P. Cambridge)

Length : 2-2.5 mm
Newton Longville Brickfields. ♂ August 1978, in rabbit-cropped grass on an exposed ridge.

An extremely rare spider, only seven previous records for Britain, only four in recent years. Considered to live in moles' nests.

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Addendum

LINYPHIIDAE

Tmeticus affinis (Blackwall)

Weston Turville Reservoir, Near Aylesbury (SP 8609). ♀ Spring 1980.

LYCOSIIDAE

Pirata latitans (Blackwall)

Newton Longville Brickfields. ♂ ♀ June 1980. Marshy Area.

CHECKLIST OF BUCKINGHAMSHIRE SPIDERS

Family ATYPIDAE	-	*Atyphus affinis*.(Eichwald)
Family AMAUROBIIDAE	-	*Amaurobius fenestralis*.(Stroem)
	-	*Amaurobius similis*. (Blackwall)
	-	*Amaurobius ferox*.(Walckenaer)
Family DICTYNIDAE	-	*Dictyna arundinacea*.(Linnaeus)
	-	*Dictyna pusilla*.(Thorell)
	-	*Dictyna uncinata*.(Thorell)
	-	*Dictyna latens*.(Fabricius)
	-	*Lathys humilis*. (Blackwall)
	-	*Argenna subnigra*.(O.P. Cambridge)
Family OONOPIDAE	-	*Oonops pulcher*. (Templeton)
	-	*Oonops domesticus*.(de Dalmas)

CHECKLIST OF BUCKINGHAMSHIRE SPIDERS(Continued)

Family DYSDERIDAE	-	*Dysdera erythrina*.(Walckenaer)
	-	*Dysdera crocata*.(C.L. Koch)
	-	*Harpactea hombergi*.(Scopoli)
	-	*Segestria senoculata*.(Linnaeus)
Family PHOLCIDAE	-	*Pholcus phalangioides*.(Fuesslin)
	-	*Psilochorus simoni*.(Berland)
Family GNAPHOSIDAE	-	*Drassodes lapidosus*.(Walckenaer)
	-	*Drassodes cupreus*.(Blackwall)
	-	*Haplodrassus signifer*.(C.L. Koch)
	-	*Haplodrassus silvestris*.(Blackwall)
	-	*Herphyllus blackwalli*.(Thorell)
	-	*Zelotes praeficus*. (L. Koch)
	-	*Zelotes latreillei*.(Simon)
	-	*Zelotes apricorum*.(L. Koch)
	-	*Zelotes petrensis*.(C.L. Koch)
	-	*Micaria pulicaria*.(Sundevall)
Family CLUBIONIDAE	-	*Clubiona corticalis*. (Walckenaer)
	-	*Clubiona reclusa*.(O.P. Cambridge)
	-	*Clubiona stagnatilis*.(Kulczynski)
	-	*Clubiona pallidula*.(Clerck)
	-	*Clubiona phragmitis*.(C.L. Koch)
	-	*Clubiona terrestris*.(Westring)
	-	*Clubiona neglecta*.(O.P. Cambridge)
	-	*Clubiona lutescens*.(Westring)
	-	*Clubiona compta*. (C.L. Koch)
	-	*Clubiona brevipes*.(Blackwall)
	-	*Clubiona trivialis*.(C.L. Koch)
	-	*Clubiona diversa*. (O.P. Cambridge)
	-	*Cheiracanthium erraticum*.(Walckenaer)
	-	*Agroeca brunnea*.(Blackwall)
	-	*Agroeca proxima*.(O.P. Cambridge)
	-	*Agroeca inopina*.(O.P. Cambridge)
	-	*Agraecina striata*. (Kulczynski)

CHECKLISTLIST OF BUCKINGHAMSHIRE SPIDERS(Continued)

Family CLUBIONIDAE (Continued)	-	*Scotina celans*.(Blackwall)
	-	*Liocranum rupicola*.(Walckenaer)
	-	*Phrurolithus festivus*.(C.L.Koch)
Family ZORIDAE	-	*Zora spinimana*.(Sundevall)
Family ANYPHAENIDAE	-	*Anyphaena accentuata*.(Walckenaer)
Family SPARASSIDAE	-	*Micrommata virescens*.(Clerck)
Family THOMISIDAE	-	*Diaea dorsata*.(Fabricius)
	-	*Misumena vatia*.(Clerck)
	-	*Xysticus cristatus*.(Clerck)
	-	*Xysticus audax*.(Schrank)
	-	*Xysticus erraticus*.(Blackwall)
	-	*Xysticus lanio*.(C.L. Koch)
	-	*Oxyptila practicola*.(C.L. Koch)
	-	*Oxyptila trux*.(Blackwall)
	-	*Oxyptila simplex*.(O.P. Cambridge)
	-	*Philodromus dispar*.(Walckenaer)
	-	*Philodromus aureolus*.(Clerck)
	-	*Philodramus cespitum*.(Walckenaer)
	-	*Philodramus rufus*.(Walckenaer)
	-	*Tibellus maritimus*.(Menge)
	-	*Tibellus oblongus*.(Walckenaer)
Family SALTICIDAE	-	*Salticus scenicus*. (Clerck)
	-	*Heliophanus cupreus*.(Walckenaer)
	-	*Heliophanus flavipes*.(C.L.Koch)
	-	*Marpissa muscosa*.(Clerck)
	-	*Ballus depressus*.(Walckenaer)
	-	*Neon reticulatus*.(Blackwall)
	-	*Euophrys frontalis*.(Walckenaer)
	-	*Euophrys aequipes*.(O.P. Cambridge)
	-	*Euophrys lanigera*.(Simon)
	-	*Sitticus pubescens*.(Fabricius)

CHECKLIST OF BUCKINGHAMSHIRE SPIDERS (Continued)

Family SALTICIDAE (Continued)	-	*Sitticus caricis*.(Westring)
	-	*Evarcha falcata*.(Clerck)
	-	*Evarcha arcuata*.(Clerck)
Family LYCOSIDAE	-	*Pardosa agrestis*.(Westring)
	-	*Pardosa monticola*.(Clerck)
	-	*Pardosa palustris*.(Linnaeus)
	-	*Pardosa pullata*. (Clerck)
	-	*Pardosa Prativaga*.(L. Koch)
	-	*Pardosa amentata*.(Clerck)
	-	*Pardosa nigriceps*.(Thorell)
	-	*Pardosa lugubris*.(Walckenaer)
	-	*Xerolycosa nemoralis*.(Westring)
	-	*Alopecosa pulverulenta*.(Clerck)
	-	*Alopecosa cuneata*.(Clerck)
	-	*Alopecosa accentuata*.(Latreille)
	-	*Trochosa ruricola*.(Degeer)
	-	*Trochosa robusta*.(Simon)
	-	*Trochosa terricola*.(Thorell)
	-	*Arctosa perita*.(Latreille)
	-	*Pirata piraticus*.(Clerk)
	-	*Pirata hygrophilus*.(Thorell)
	-	*Pirata latitans*.(Blackwall)
Family PISAURIDAE	-	*Pisaura mirabilis*.(Clerck)
	-	*Dolomedes fimbriatus*.(Clerck)
Family AGELENIDAE	-	*Agelena labyrinthica*.(Clerck)
	-	*Textrix denticulata*.(Olivier)
	-	*Tegenaria gigantea*.(Chamberlin & Ivie)
	-	*Tegenaria parietina*.(Fourcroy)
	-	*Tegenaria agrestis*. (Walckenaer)
	-	*Tegenaria domestica*.(Clerck)
	-	*Tegenaria silvestris*.(L. Koch)
	-	*Coelotes atropos*.(Walckenaer)

CHECKLIST OF BUCKINGHAMSHIRE SPIDERS (Continued)

Family AGELENIDAE (Continued)	-	*Coelotes terrestris*.(Wider)
	-	*Cicurina cicur*.(Fabricius)
	-	*Cryphoeca silvicola*.(C.L.Koch)
	-	*Antistea elegans*.(Blackwall)
	-	*Hahnia montana*.(Blackwall)
	-	*Hahnia nava*.(Blackwall)
	-	*Hahnia helveola*.(Simon)
	-	*Hahnia pusilla*.(C.L.Koch)
Family MIMETIDAE	-	*Ero cambridgei*.(Kulczynski)
	-	*Ero furcata*.(Villers)
Family THERIDIIDAE	-	*Episinus angulatus* (Blackwall)
	-	*Dipoena inornata*.(O.P.Cambridge)
	-	*Steatoda bipunctata*.(Linnaeus)
	-	*Anelosimus vittatus*.(C.L.Koch)
	-	*Achaearanea lunata*.(Clerck)
	-	*Achaeranea tepidariorum*.(C.L.Koch)
	-	*Theridion sisyphium*.(Clerck)
	-	*Theridion impressum*.(L. Koch)
	-	*Theridion pictum*.(Walckenaer)
	-	*Theridion simile*.(C.L.Koch)
	-	*Theridion varians*. (Hahn)
	-	*Theridion melanurum*.(Hahn)
	-	*Theridion mystaceum*.(L. Koch)
	-	*Theridion tinctum*.(Walckenaer)
	-	*Theridion instabile*.(O.P.Cambridge)
	-	*Theridion bimaculatum*.(Linnaeus)
	-	*Theridion pallens*.(Blackwall)
	-	*Enoplognatha ovata*.(Clerck)
	-	*Enoplognatha thoracica*.(Hahn)
	-	*Robertus lividus*.(Blackwall)
	-	*Robertus neglectus*.(O.P.Cambridge)
	-	*Pholcomma gibbum*.(Westring)

CHECKLIST OF BUCKINGHAMSHIRE SPIDERS (Continued)

Family TETRAGNATHIDAE
- *Tetragnatha extensa*.(Linnaeus)
- *Tetragnatha pinicola*.(L.Koch)
- *Tetragnatha montana*.(Simon)
- *Tetragnatha obtusa*.(C.L.Koch)
- *Tetragnatha nigrita*.(Lendl)
- *Pachygnatha clercki*.(Sundevall)
- *Pachygnatha listeri*.(Sundevall)
- *Pachygnatha degeeri*.(Sundevall)
- *Meta segmentata*.(Clerck)
- *Meta mengei*.(Blackwall)
- *Meta merianae*. (Scopoli)

Family ARANEIDAE
- *Araneus bituberculatus*.(Walckenaer)
- *Araneus gibbosus*.(Walckenaer)
- *Araneus diadematus*.(Clerck)
- *Araneus quadratus*.(Clerck)
- *Araneus marmoreus pyramidatus*. (Clerck)
- *Araneus alsine*.(Walckenaer)
- *Araneus cornutus*.(Clerck)
- *Araneus sclopetarius*.(Clerck)
- *Araneus umbraticus*.(Clerck)
- *Araneus redii*.(Scopoli)
- *Araneus triguttatus*.(Fabricius)
- *Araneus cucurbitinus*.(Clerck)
- *Araneus opistographus*.(Kulczynski)
- *Arnaneus inconspicuus*.(Simon)
- *Araneus alpicus*.(L.Koch)
- *Hypsosinga pygmaea*.(Sundevall)
- *Hypsosinga sanguinea*.(S.L.Koch)
- *Singa hamata*.(Clerck)
- *Cercidia prominens*.(Westring)
- *Zygiella x-notata*.(Clerck)
- *Zygiella atrica*.(C.L.Koch)
- *Mangora acalypha*.(Walckenaer)
- *Cyclosa conica*.(Pallas)
- *Theridiosoma gemmosum*.(L. Koch)

CHECKLIST OF BUCKINGHAMSHIRE SPIDERS (Continued)

Family LINYPHIIDAE

- *Ceratinella brevipes*.(Westring)
- *Ceratinella brevis*.(Wider)
- *Ceratinella scabrosa*.(O.P.Cambridge)
- *Walckenaera acuminata*.(Blackwall)
- *Walckenaera antica*.(Wider)
- *Walckenaera cucullata*.(C.L.Koch)
- *Walckenaera melanocephala*. (O.P.Cambridge)
- *Walckenaera capito*.(Westring)
- *Walckenaera dysderoides*.(Wider)
- *Walckenaera nudipalpis*.(Westring)
- *Walckenaera obtusa*.(Blackwall)
- *Walckenaera corniculans*. (O.P. Cambridge)
- *Walckenaera furcillata*.(Menge)
- *Walckenaera unicornis*.(O.P.Cambridge)
- *Walckenaera vigilax*.(Blackwall)
- *Walckenaera cuspidata*.(Blackwall)
- *Dicymbium nigrum*.(Blackwall)
- *Dicymbium tibiale*.(Blackwall)
- *Entelecara acuminata*.(Wider)
- *Entelecara congenera*.(O.P.Cambridge)
- *Erigonidium graminicola*.(Sundevall)
- *Gnathonarium dentatum*.(Wider)
- *Tmeticus affinis*.(Blackwall)
- *Gongylidium rufipes*.(Sundevall)
- *Dismodicus bifrons*.(Blackwall)
- *Hypomma bituberculatum*.(Wider)
- *Hypomma cornutum*.(Blackwall)
- *Metopobactrus prominulus*. (O.P.Cambridge)
- *Gonatium rubens*.(Blackwall)
- *Gonatium rubellum*.(Blackwall)
- *Maso sundevalli*.(Westring)
- *Pocadicnemis pumila*.(Blackwall)
- *Pocadicnemis juncea*.(Locket & Millidge)
- *Hypselistes jacksoni*.(O.P.Cambridge)

CHECKLIST OF BUCKINGHAMSHIRE SPIDERS (Continued)

Family LINYPHIIDAE (Continued)

- *Oedothorax gibbosus*.(Blackwall)
- *Oedothorax tuberosus*.(Blackwall)
- *Oedothorax fuscus*.(Blackwall)
- *Oedothorax agrestis*.(Blackwall)
- *Oedothorax retusus*.(Westring)
- *Oedothorax apicatus*.(Blackwall)
- *Pelecopsis parallela*.(Wider)
- *Cnephalocotes obscurus*.(Blackwall)
- *Ceratinopsis stativa*.(Simon)
- *Tiso vagans*.(Blackwall)
- *Minyriolus pusillus*.(Wider)
- *Tapinocyba praecox*.(O.P.Cambridge)
- *Tapinocyba insecta*.(L.Koch)
- *Aulacocyba subitanea*.(O.P.Cambridge)
- *Thyreosthenius parasiticus*. (Westring)
- *Monocephalus fuscipes*.(Blackwall)
- *Monocephalus castaneipes*.(Simon)
- *Lophomma punctatum*.(Blackwall)
- *Mioxena blanda*. (Simon)
- *Saloca diceros*.(O.P.Cambridge)
- *Gongylidiellum vivum*.(O.P.Cambridge)
- *Micrargus herbigradus*.(Blackwall)
- *Micrargus subaequalis*.(Westring)
- *Erigonella hiemalis*.(Blackwall)
- *Savignya frontata*.(Blackwall)
- *Diplocephalus cristatus*.(Blackwall)
- *Diplocephalus permixtus*.(O.P.Cambridge)
- *Diplocephalus latifrons*.(O.P.Cambridge)
- *Diplocephalus picinus*.(Blackwall)
- *Araeoncus humilis*.(Blackwall)
- *Panamomops sulcifrons*.(Wider)
- *Lessertia dentichelis*.(Simon)
- *Milleriana inerrans*.(O.P.Cambridge)
- *Erigone dentipalpis*.(Wider)
- *Erigone atra*.(Blackwall)

CHECKLIST OF BUCKINGHAMSHIRE SPIDERS (Continued)

Family LINYPHIIDAE (Continued)

- *Erigone promiscua*.(O.P.Cambridge)
- *Erigone vagans*.(Audouin)
- *Donacochara speciosa*.(Thorell)
- *Leptorhoptrum robustum*.(Westring)
- *Ostearius melanopygius*. (O.P.Cambridge)
- *Porrhomma pygmaeum*.(Blackwall)
- *Porrhomma pallidum*. (Jackson)
- *Porrhomma microphathalmum* (O.P.Cambridge)
- *Porrhomma oblitum*.(O.P.Cambrdige)
- *Agyneta subtilis*.(O.P.Cambridge)
- *Agyneta conigera*.(O.P.Cambridge)
- *Agyneta ramosa*.(Jackson)
- *Meioneta rurestris*.(C.L.Koch)
- *Meioneta mollis*.(O.P.Cambridge)
- *Meioneta saxatilis*.(Blackwall)
- *Meioneta beata*.(O.P.Cambridge)
- *Microneta viaria*.(Blackwall)
- *Maro minutus*. (O.P.Cambridge)
- *Centromerus sylvaticus*.(Blackwall)
- *Centromerus expertus*.(O.P.Cambridge)
- *Centromerus dilutus*.(O.P.Cambridge)
- *Centromerus capucinus*.(Simon)
- *Centromerus aequalis*.(Westring)
- *Centromerus serratus*.(O.P.Cambridge)
- *Centromerus cavernarum*.(L.Koch)
- *Centromerita bicolor*.(Blackwall)
- *Centromerita concinna*.(Thorell)
- *Oreonetides abnormis*.(Blackwall)
- *Macrargus rufus*.(Wider)
- *Bathyphantes approximatus*. (O.P.Cambridge)
- *Bathyphantes gracilis*.(Blackwall)
- *Bathyphantes parvulus*.(Westring)
- *Bathyphantes nigrinus*.(Westring)
- *Kaestneria dorsalis*.(Wider)

CHECKLIST OF BUCKINGHAMSHIRE SPIDERS(Continued)

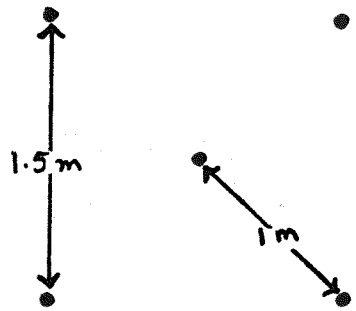
Family LINYPHIIDAE (Continued)

- *Kaestneria pullata*.(O.P.Cambridge)
- *Diplostyla concolor*.(Wider)
- *Drapetisca socialis*.(Sundevall)
- *Tapinopa longidens*.(Wider)
- *Floronia bucculenta*.(Clerck)
- *Labulla thoracica*.(Wider)
- *Stemonyphantes lineatus*.(Linnaeus)
- *Bolyphantes luteolus*.(Blackwall)
- *Lepthyphantes nebulosus*.(Sundevall)
- *Lepthyphantes leprosus*.(Ohlert)
- *Lepthyphantes minutus*.(Blackwall)
- *Lepthyphantes alacris*.(Blackwall)
- *Lepthyphantes obscurus*.(Blackwall)
- *Lepthyphantes tenuis*.(Blackwall)
- *Lepthyphantes zimmermanni*.(Bertkau)
- *Lepthyphantes cristatus*.(Menge)
- *Lepthyphantes mengei*.(Kulczynski)
- *Lepthyphantes flavipes*.(Blackwall)
- *Lepthyphantes tenebricola*.(Wider)
- *Lepthyphantes ericaeus*.(Blackwall)
- *Lepthyphantes pallidus*.(O.P.Cambridge)
- *Lepthyphantes insignis*.(O.P.Cambridge)
- *Helophora insignis*. (Blackwall)
- *Linyphia triangularis*.(Clerck)
- *Linyphia hortensis*.(Sundevall)
- *Linyphia (Neriene) montana*. (Clerck)
- *Linyphia (Neriene) clathrata* (Sundevall)
- *Linyphia (Neriene) peltata*.(Wider)
- *Linyphia (Neriene) furtiva*. (O.P.Cambridge)
- *Microlinyphia pusilla*. (Sandevall)

CARABIDS TO BE FOUND IN HOWE PARK WOOD

BY N. STOTT

The aim of this survey was to discover which Carabids (Ground Beetles) were most abundant and what habitats these beetles seemed to prefer. In order to achieve this aim, pitfall traps were set in two contrasting habitats (see descriptions below). In each of the two areas five containers (charged with 5% methanal) were placed in the following formation:



Traps were set like this because animals stand more chance of falling in than with a linear arrangement.

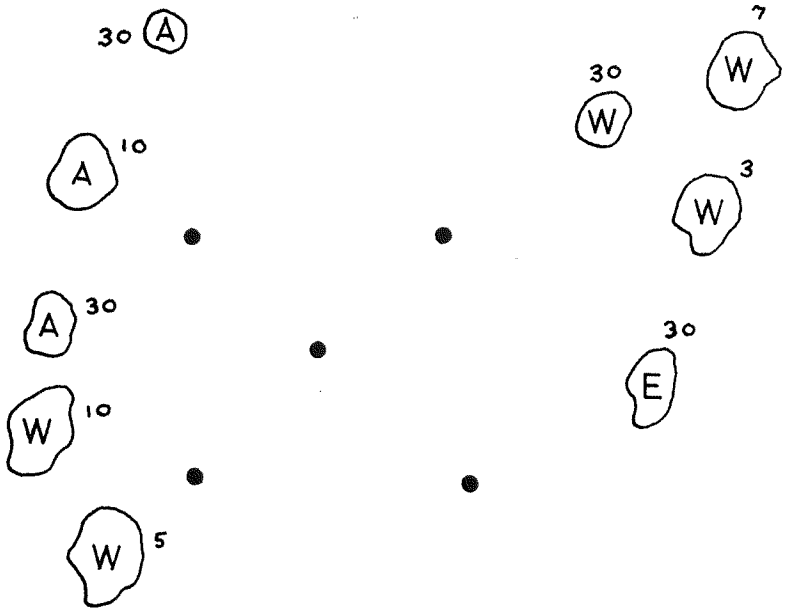
The traps were first sunk in early July (1977) and collections made every month for a year.

Descriptions Of Sites

Site 1 consists of a recently cleared (winter 1976) area of woodland which still has several trees and coppice stands dotted around it. The 'clearing' is about 75 metres across. The ground is wet and the light penetration is good, causing the dense ground vegetation (about 20 cm deep in summer). Below is a diagram showing the trees and coppice stands nearest the traps:

Site 2 is in the older coppiced compartment (coppiced 1973). It has very dense growth in summer, but this is mainly confined to the copice stands and bramble; there is very little ground vegetation and this consists almost entirely of nettles and a few grass tussocks.

Below is a diagram of the trapping site:



The whole site has branches overhanging it and so there is little light penetration. The trap site seems to be drier than that in the clearing as it is on a small ridge.

Results

A total of 14 species were trapped in the clearing, and 11 species were trapped in the coppice. Details are presented in Table I and II.

(N.B. Trap figures represent 'Active Density' which is not the population density).

Trechus secalis is not listed by Moore and is not represented in the Aylesbury County Museum collections. It is thus a new county record, although Chris Reid has taken it in several localities in VC24.

TABLE I : CARABID SPECIES TRAPPED IN THE CLEARING THROUGH THE YEAR

S p e c i e s	January	February	March	April	May	June	July	August	September	October	November	December
Abax parallelepipedus	0	0	0	2	2	2	13	15	10	1	0	0
Agonum assimile	0	0	0	2	8	3	0	0	0	0	0	0
Bembidion guttula	0	1	7	3	0	1	0	0	1	2	0	0
Bembidion lampros	0	0	0	0	0	0	0	0	0	0	0	1
Carabus nemoralis	0	0	1	1	0	0	0	0	1	1	0	0
Carabus violaceus	0	0	0	0	0	0	0	2	0	0	0	0
Nebria brevicollis	4	12	4	0	3	12	1	6	119	394	95	25
Notiophilus biguttatus	0	0	2	0	0	0	0	2	1	3	0	2
Patrobus atrorufus	0	0	0	0	0	0	1	3	16	5	0	0
Pterostichus madidus	0	2	27	47	28	28	321	493	40	37	6	2
Pterostichus melanarius	0	0	0	1	0	6	9	27	7	1	0	0
Pterostichus strenuus	0	1	1	1	1	1	1	0	0	3	1	0
Trechus quadristriatus	0	0	0	0	0	0	0	0	0	1	0	0
Trechus secalis	0	0	1	0	0	0	0	3	5	0	1	0

TABLE II : CARABID SPECIES TRAPPED IN THE COPPICE THROUGH THE YEAR

S p e c i e s	January	February	March	April	May	June	July	August	September	October	November	December
Abax parallelepipedus	0	0	0	3	4	4	2	0	0	0	0	0
Agonum assimile	0	0	0	0	1	0	0	0	0	0	0	0
Amara plebeja	0	0	0	1	0	0	0	0	0	0	0	0
Bembidion guttula	0	1	0	2	0	0	0	0	0	0	0	0
Bembidion lampros	0	0	0	0	0	0	0	0	1	2	1	0
Leistus ferrugineus	0	0	0	0	0	0	0	0	1	0	0	0
Nebria brevicollis	0	0	0	1	2	0	1	0	1	0	0	0
Pterostichus madidus	0	0	0	10	1	1	0	4	0	0	0	0
Pterostichus strenuus	0	0	0	2	0	0	0	0	0	0	0	0
Trechus quadristriatus	0	0	0	0	0	0	0	2	3	3	0	0
Trechus secalis	2	3	0	0	1	1	4	34	19	26	1	1

It can be seen from Table I that in the clearing the two most important species are *Nebria brevicollis* and *Pterostichus madidus*, these accounting for more than 90% of the total catch (see Table III). These two species are of reasonably large size,at 10-14 mm for *N. brevicollis* and 13-17 mm for *P. madidus*. However, the single most important species in the coppice (Tables II and III), *Trechus secalis*, which accounted for 63% of the total catch for that area, is comparatively small at 3.5-4 mm.

It can also be seen that there were no *P. melanarius* (18 mm) or *Carabus sp.*(20-30 mm) trapped in the coppice, while in the clearing 51 *P. melanarius* and 6 *Carabus* were caught. The most probable reason for this is that the clearing, being wetter and with more ground vegetation, would have more food available to support the larger Carabids.

N.B.: It has been shown that methanal improves the Carabid catch, as the beetles are less able to escape from the traps when poisoned (Luff, 1968).

From the trap catches it is possible to determine the periods of the year during which each species is most active and thus most prone to being caught, at the two sites sampled (see Table IV).

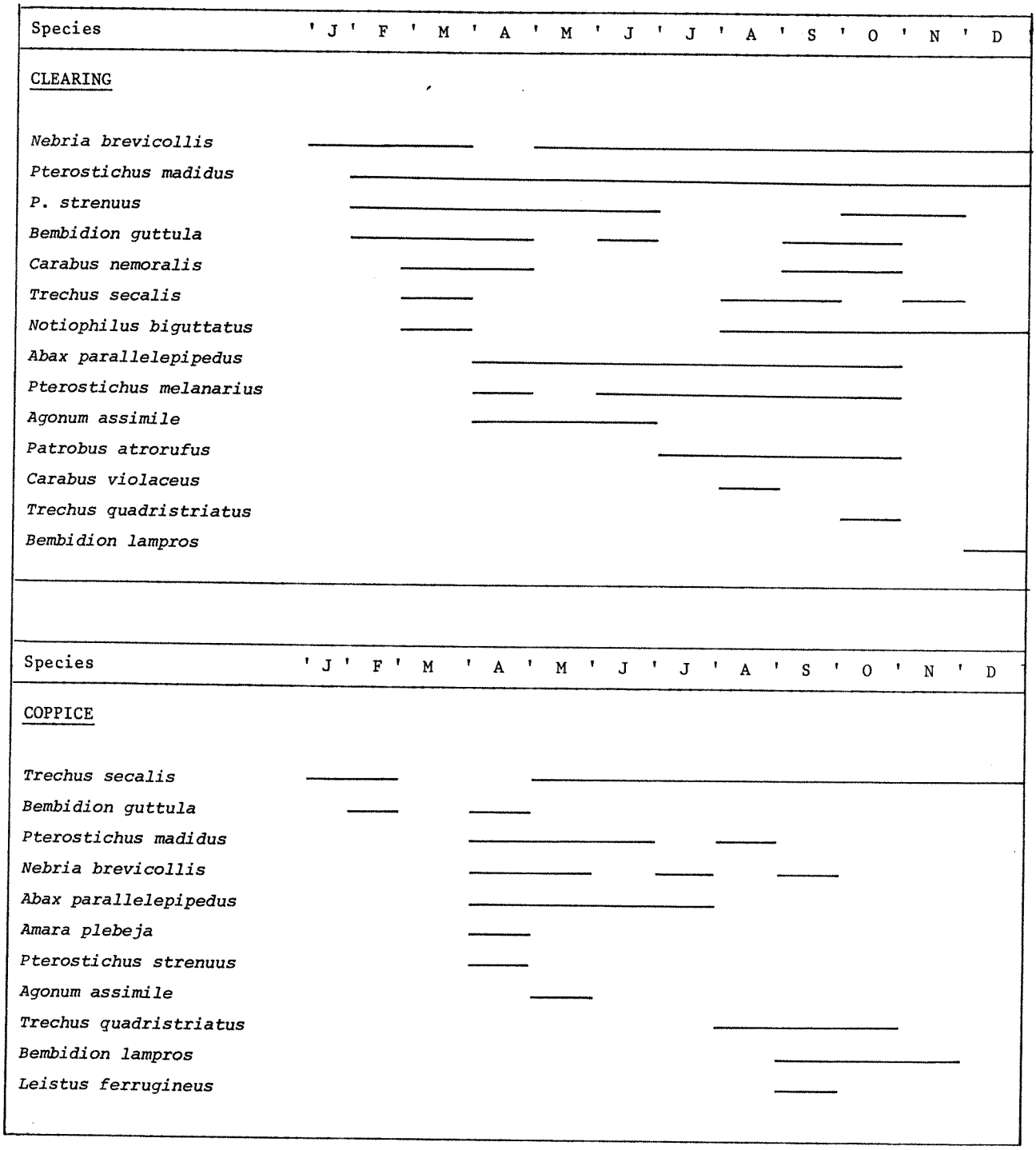
Conclusion

It is obvious from the survey results that the majority of the Carabids prefer open clearings, *T. secalis* being the most notable exception. Therefore it is of great importance to have these open areas in woodlands to allow a greater variety of Carabids. On the other hand, however, it is also important to let other areas become more overgrown, so that other species preferring this sort of habitat can also survive. Thus the coppicing of areas of woodland, which forms clearings and then denser areas, is a useful practice for the maintainance of Carabid populations.

TABLE III : SPECIES TOTALS AND COMPOSITION OF CATCHES AT SITE 1 (CLEARING) AND SITE 2 (COPPICE)

S p e c i e s	Total (Site 1)	%	Total (Site 2)	%
Abax parallelepipedus	45	2.4	13	9
Agonum assimile	13	0.7	1	0.7
Amara plebeja	0	0	1	0.7
Bembidion guttula	15	0.8	3	2.1
Bembidion lampros	1	0.05	4	2.7
Carabus nemoralis	4	0.2	0	0
Carabus violaceus	2	0.1	0	0
Leistus ferrugineus	0	0	1	0.7
Nebria brevicollis	675	35.6	5	3.4
Notiophilus biguttatus	10	0.53	0	0
Patrobus atrorufus	25	1.31	0	0
Pterostichus madidus	1031	54.5	16	10.9
Pterostichus melanarius	51	2.7	0	0
Pterostichus strenuus	10	0.53	2	1.3
Trechus quadristriatus	1	0.05	8	5.5
Trechus secalis	10	0.53	92	63
Grand Total :	1893	100%	146	100%

TABLE IV : PERIODS WHEN SPECIES ARE MOST ACTIVE



Acknowledgement

I would like to thank Dr. M.L. Luff (Newcastle University)for checking my identifications. I would also like to thank Jill Royston for access to the collections at the County Museum, Aylesbury, and Chris Reid for providing additional information.

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THE WEATHER AT BUCKINGHAM DURING 1980

FROM OBSERVATIONS AND RECORDS AT THE CLIMATOLOGICAL STATION, GAWCOTT FIELDS, BUCKINGHAM

BY R. MERRIMAN

From the meteorological aspect, 1980 was an average year with no particular extremes of weather recorded. Rainfall, which totalled 27.084 inches, was 1.38 inches above the annual average, whilst the mean temperature, 48.6°F, was only 0.5°F below average.

Probably the outstanding features of the year were the long dry and sunny spell in early summer, followed by the wet and miserable mid-summer period.

January was a cold, dry and sunny month, with temperatures well below average and a high incidence of frost. It was the second coldest January since the severe January of 1963, with winds blowing from between north and east on fifteen days.

February, by contrast, was very mild, and apart from an unsettled spell at first and again at its close, the middle fortnight was relatively dry. Prevailing winds were mainly from between south and south-west, which accounted for the deficiency of snow and night frosts.

March was a cloudy, wet month, and although it was mild early and late, easterly winds brought snow at times to the area from the 15th to 23rd. Ground frosts were frequent, with the gross minimum temperature plunging to 10.3°F on the night of the 21st/22nd.

April was a dry month, with rainfall well below average - no precipitation was recorded from the 3rd to the 15th. Although winds blew mainly from a north-westerly point, temperatures were above average, with a rather warm spell from the 12th to the 15th.

May, too, was very dry and no rain fell during the first eighteen days. After cold, north-easterly winds at first, temperatures began to rise from the 10th as warm south-easterly winds extended their influence from the continent. Much of the month's rainfall fell towards its close, when temperatures returned to normal values. However, the mean monthly temperature was a little below average, with ground frost recorded on five nights. The night of the 8th/9th was particularly cold with the gross minimum temperature falling to 20.1°F.

June by contrast was a wet month. Apart from the period 10th to 14th when north-easterly winds blew, maritime south-westerlies predominated and rain fell on twenty-two days. Mean temperatures were only a little below average.

July was mainly cool and unsettled until the 20th, with winds from between south-west and north-west. Thereafter, the weather became warm, with temperatures often in the seventies and reaching a maximum of 82.0°F on the 25th. However, this warmth came too late to affect mean temperatures which were below average. Rainfall was above normal and two thunderstorms which occurred during the last week of the month temporarily interrupted the warm spell.

August could be described as an average month insofar as temperatures were concerned, although rainfall was above normal. Over 1¾ inches of rain fell during a thunderstorm on the 14th. South or south-westerly winds blew for sixteen days, and after cloudy unsettled conditions for the first two weeks, a change to summer conditions occurred and no rain was recorded from the 21st to 28th.

September was a warm month, with temperatures above average. Much of the month's rainfall fell during thunderstorms on the 20th and 21st, and winds blew mainly from a south-westerly point.

October was generally cold and wet, with mean temperatures below average and a high incidence of ground frosts. Rainfall was above normal, and fell mainly during the second half of the month.

November was cold and relatively dry during the first twelve days of the month, with north-easterly winds predominating, and snow fell as early as the 7th. A change to much milder conditions occurred on the 14th, when the wind veered to the south-west, remaining in that quarter until the 27th. During this period the weather was very unsettled and some high night minimum temperatures were recorded. A return to north-easterly winds and cold weather dominated the last few days of the month, with temperatures in the thirties and flurries of snow. It is interesting to note that no fog was recorded. Despite the extremes of temperature, the mean temperature was around average, and rainfall totals were below normal.

December was a relatively dry, mild month, despite a few short-lived cold spells. During these colder interludes, sharp night frosts were experienced. Winds blew mainly from the south-west, and as a result little snow was recorded.

SUMMARY OF OBSERVATIONS, 1980
BUCKINGHAM, BUCKINGHAMSHIRE

Month	Mean Max. Temp. °F	Mean Min. Temp. °F	Mean Temp. °F	Max. Temp. °F	Date	Min. Temp. °F	Date	Min. Gross Temp. °F	Date	Total Rain Inches	% Of Ave.	Days With Rain 0.01 +	Max. Rain In a Day Inches	Date	Days With Air Frost	Days With Ground Frost	Days With Sleet or Snow	Days With Thun-der	Days With Hail
January	40.5	30.7	35.6	49.9	30	20.3	3	12.3	13/14	1.620	70	11	0.540	3	18	21	4	0	0
February	48.3	36.4	42.3	54.9	17	27.3	1	20.2	1	1.821	101	15	0.295	4	7	11	2	0	0
March	46.4	33.9	40.1	54.0	27	21.2	22	10.3	22	2.770	163	18	0.405	12	10	18	3	1	0
April	56.0	38.3	47.1	69.8	15	29.4	4	21.1	4	0.870	43	10	0.385	1	5	14	0	0	0
May	61.5	41.6	51.5	74.9	12	28.4	9	20.1	9	1.865	88	7	0.635	28	1	5	0	0	0
June	66.2	48.5	57.3	81.4	4	40.3	23	32.2	23	3.315	199	22	0.690	14	0	0	0	7	4
July	66.6	50.0	58.3	82.0	25	42.2	22	36.2	15/22	3.535	147	19	1.110	13	0	0	0	2	0
August	69.6	52.4	61.0	76.9	20	40.9	25	35.8	25	3.106	139	13	1.865	14	0	0	0	3	0
September	66.4	50.7	58.5	75.0	3	41.1	26	34.1	26	1.630	74	13	0.605	20	0	0	0	2	0
October	54.7	40.8	47.7	64.0	1	29.7	10	21.3	10	3.080	124	19	0.750	15	3	9	0	1	0
November	47.1	38.9	43.0	57.0	15	27.8	3	22.1	3	1.936	74	18	0.500	17	8	10	3	0	0
December	45.8	36.1	40.9	56.0	23	21.3	8	13.5	8	1.536	68	16	0.385	19	9	11	2	0	1
Year	55.7	41.5	48.6	82.0	-	20.3	-	10.3	-	27.084	-	181	1.865	-	61	99	14	16	5

MAMMALS OF NORTH BUCKINGHAMSHIRE 1968 - 1982

B. C. FREWIN

In the early days of the Milton Keynes City development a decision was made to record and compile a list of mammals living wild within the designated area. Between 1968-1982 a concentrated effort was made and the following lists drawn up:

INSECTIVORA		
Hedgehog	*Erinaceus europaeus*	Common
Water Shrew	*Neomys fodiens*	Uncommon
Common Shrew	*Sorex araneus*	Common
Pygmy Shrew	*Sorex minutus*	Common
Mole	*Talpa europaea*	Common
CHIROPTERA		
Natterer's Bat	*Myotis nattereri*	
Pipistrelle	*Pipistrellus pipistrellus*	
Common Long-eared Bat	*Plecotus auritus*	
LAGOMORPHA		
Brown Hare	*Leypus capensis*	Common
Rabbit	*Oryctolagus cuniculus*	Common
RODENTIA		
Wood Mouse	*Apodemus sylvaticus*	Common
Water Vole	*Arvicola terrestris*	Common
Bank Vole	*Clethrionomys glarealus*	Common
Harvest Mouse	*Micromys minutus*	Common
Field Vole	*Microtus agrestis*	Common
House Mouse	*Mus musculus*	Common
Brown Rat	*Rattus norvegicus*	Common
Grey Squirrel	*Sciurus carolinensis*	Common
CARNIVORA		
Badger	*Meles meles*	1968-78 Common Since, less so, due to city development.
Stoat	*Mustela erminea*	Common

CARNIVORA (continued)

Feral Ferret	*Mustela furo*	Uncommon
Weasel	*Mustela nivalis*	Common
Fox	*Vulpes vulpes*	Common
Cat	*Felis domesticus*	Uncommon

ARTIODACTYLA

Red Deer	*Cervus elaphus*	One record only
Chinese Muntjac	*Muntiacus reevesi*	Common

The following have been recorded from other parts of North Buckinghamshire:

RODENTIA

Coypu	*Myocastor coypus*	One trapped and killed. Believed to have been put into Linford pits.

CARNIVORA

Mink	*Mustela furo*	One record only
Otter	*Lutra lutra*	One record only

ARTIODACTYLA

Fallow Deer	*Dama dama*	Uncommon
Chinese Water Deer	*Hydropotes inermis*	Two records only

NORTH BUCKS BIRDS - CHRONOLOGICAL SUMMARIES 1977-1979

BY A.V. HARDING

It is some time since the last systematic report for the North Bucks area was produced, so it seemed appropriate that some effort should be made to cover the intervening period. These summaries are the outcome of this suggestion. Most of the introductory comments to the 1980 Systematic Report, about the geographical area and type of species covered, are largely applicable here and are therefore not repeated. The summaries are necessarily much abbreviated and concentrate even more markedly on the scarcer species. The abbreviation has led to the stretching, and no doubt occasionally the breach, of the rules of grammatical nicety. I trust that if you find them useful, you will pardon this.

1977

The year opened promisingly with a Merlin at Willen on 21st JANUARY and a Slavonian Grebe at the same site from the same day until 30th. Dabbling duck numbers were exceptional with 1000+ Wigeon at Linford on 16th and 500+ at Willen on 8th, 510 Teal at Willen on 22nd and combined local water totals of 14 Gadwall and 21 Pintail. 12 Bewick's Swans, 4 with dyed tails were seen at Willen on 26th. FEBRUARY produced 3 Oystercatchers at Linford on 20th, and Brambling at three sites with most (20) at Old Linslade on 6th. MARCH saw 16 more Bewick's Swans at Linford on 5th and the end of the Whooper Swans at Hyde Lane: 7 of the 9 present since the beginning of the year were last reported on 25th. A Bittern near Old Wolverton was on a typical date - 6th. A Jack Snipe at Newton Longville on 6th and a Spotted Redshank at Willen on 24th were the best of ten species of wader recorded. Only three passerine summer visitors made it in March - Wheatear on 13th, Chiffchaff on 19th and Blackcap on 25th. APRIL first arrival dates of hirundines were Swallows on 5th, Sand Martins rather late on 6th and House Martins on 23rd. Nightingale on 6th at Whaddon was exceptionally early.

More typical were Willow Warbler on 6th, Redstart on 16th and Sedge and Reed Warblers on 17th and 21st respectively. Cuckoo was first reported on 24th and Turtle Dove on 30th. Two Whinchat on 21st at Hyde Lane were the first of a small passage noted at four sites up to end of May. Common Sandpiper passage started on 23rd, but up to 4 at five sites were in evidence by the end of the month. A Whimbrel at Willen on 19th was the most unusual wader, but also at Willen Little Ringed Plover reached 14 by the end of the month and Dunlin 17 on 24th. The first Tern of the year was a Little, scarce in Bucks and exceptionally early on 10th. A Spoonbill at Willen on 27th rounded off the month in spendid fashions. Presumably the same bird made a return visit on 4th MAY and so contributed to a bumper month. A Marsh Harrier at Willen on 21st, Garganey at Linford on 24th and a Hoopoe at Hyde Lane on the same day were the cream, backed up by another Oystercatcher on 6th, this time at Deanshanger, a Turnstone at Foxcote on 23rd and two more Willen Whimbrel on 6th. After a stuttering start to passage Terns were also good with 12

Common at Foxcote on 15th, 33 Black at Willen on 15th and 50 Arctic at the same site on 5th. A scattering of Black Terns and Greenshank were the only passage records of note in a typically dull JUNE and JULY. Very few breeding records were received, observers either giving little attention to the subject or preferring to keep the information to themselves. However successful breeding by Shelduck with 6 young at Linford and Lesser Spotted Woodpecker at Cosgrove are nice to record. The return passage again involved Greenshank, 8 of which were at Willen on 10th AUGUST and at Yardley Gobion an Oystercatcher and 6 Ruff on 29th were the best of the rest. Nightjar, heard in May in the Brickhills was recorded again on 12th August, but no evidence of breeding is forthcoming. Sightings of the odd Whinchat and Black Tern were reported in early SEPTEMBER. The only Hobby of the year was at Newport Pagnell on 18th. No unexpected waders were seen and this situation continued into OCTOBER when Black Terns extended their period of passage to 7th (3 at Foxcote) and Hyde Lane on 9th. Notice of Winter was given by the return of the Whooper Swans to Hyde Lane on 6th: two adults brought 5 juveniles. Quite exceptional was a flock of 18 Common Scoter, all females or immatures, at Foxcote on 27th.

There were no reports of late Summer visitors and no overlap with incoming Fieldfares and Redwings : the latter not being reported until 12th NOVEMBER when there were 5 at Hyde Lane. In a generally poor year for waders out of the blue came a Purple Sandpiper, which stayed at Willen from 11th to 16th and was joined by a second bird on 14th. These were only the 2nd and 3rd records for Buckinghamshire. 4 Bewick's Swans were at Foxcote on 27th to 29th and possibly the same birds were seen regularly at Hyde Lane in DECEMBER, when Whoopers at Hyde Lane had reached 13 by 23rd.

1978

Both the scarce species of Swan were in residence when the year opened: 9 Whoopers and 6 Bewick's at Hyde Lane were the highest counts. 13 Dunlin at Foxcote on 15th JANUARY and a wandering Buzzard over Brickhill Woods on 22nd brightened two winter days. Good numbers of Gadwall rose still further in FEBRUARY with 22 at Linford on 12th. The winter's best totals of Goldeneye - 28+ on 24th at Willen and Goosander - 20 on 12th at Foxcote were also recorded. Jack Snipe at Foxcote on 10th, Willen on 11th and Bradwell Abbey on 17th illustrated that this often overlooked species was around. The same species was recorded on three dates in MARCH at Willen, but a Slavonian Grebe at Hyde Lane from 4th to 9th and a Bittern at the same site commanded most attention. 2 Common Sandpipers at Deanshanger on 15th were decidedly ahead of the bulk of the passage. Wheatear, Chiffchaff and Sand Martin all arrived on typical dates. First arrivals in APRIL included Willow Warbler on 2nd, Blackcap on 3rd, Redstart on 9th and Swallow on 15th. Most other species arrived in the last week of the month including fairly early Swifts and a White Wagtail at Willen on 27th. 17 Siskin in the Brickhills on 30th completed the passerine picture. Wildfowl figured prominently, a Common Scoter at Willen on 12th, a Scaup at Foxcote on 16th and a Mandarin at Chelmscote on 30th replaced the scarcer Swans which had remained until more or less the end of the previous month. Little Gulls at Linford on 7th and Foxcote on 25th were in contrast to the paucity of Commic Terns, but 12 Black Terns were equally divided between Willen and Foxcote in the last week of the month. The last days of April brought the first of the big wader 'happenings' at Willen where the N.Basin had been recently filled. Between 19th April and the end of May (and largely between the 30th and 3rd) in addition to all the more expected waders at least 11 Grey Plover, 2 Turnstone, 2 Oystercatchers, 5 Whimbrel, 41 Bar-tailed Godwits, 3 Knot, 3 Little Stints, single Black-tailed Godwit , Sanderling, Curlew Sandpiper and Wood Sandpiper passed through. These were augmented by a Grey Plover at Foxcote and a Bar-tailed Godwit at Linford. Early MAY also brought a continuation of the Black Tern passage and good numbers of Arctic Terns - 20 on 1st, 44 on 2nd and 13 on 9th at Foxcote and 30+ at Willen on 2nd. More Little Gulls appeared : one at Foxcote on 2nd

and 5 at Willen on 29th. The latter site also produced 2 Common Scoter on 1st and 12 (5 males) on 3rd. The first Hobbies of the year were overtaken in the Raptor stakes by an Osprey which enjoyed the fishing at Linford from at least 9th to 14th. A Hoopoe at Hanslope Park in mid month might seem even better to some, but the icing on a very rich cake was an immature Purple Heron at Newport Pagnell on 28th. In the absence of breeding records a scattering of Black and Common Terns was the best on offer in JUNE. Three Nightjars in the Brickhills on 17th JULY gave rise to some optimism about their fingertip hold in this area. Out of the blue the first Buckinghamshire record of Red-necked Phalarope dropped in on Willen on 8th and 9th. Two Wood Sandpipers on 29th heralded the Autumn wader passage at Willen, where in AUGUST 4 more Wood Sandpipers, 2 Little Stints, 13 Curlew Sandpipers and single Oystercatcher, Spotted Redshank and Sanderling joined double figure counts of Common Sandpipers and Ringed Plovers. Three Little Gulls between 20th and 23rd, a Black-necked Grebe on 20th and 21st and 2 Sandwich Terns on 28th helped the Willen wader watchers pass the time. Foxcote was also busy with a Garganey on 3rd, 14+ Black Terns on 20th and a Black-necked Grebe on 31st.

In SEPTEMBER a Little Stint and a Spotted Redshank joined 4 Greenshanks at Linford. A juvenile Kittiwake was seen at Foxcote on 15th. At Willen the bulk of passage occurred in the first half of the month - Spotted Redshank 6, Curlew Sandpiper 2 and Little Stint 8 are bare minima totals. Only Ruff of the commoner species reached double figures. A single Oystercatcher on 21st was followed by another on 14th OCTOBER, but only a Spotted Redshank on 11th was of scarcity note. Away from Willen a Common Sandpiper at Calvert on 22nd was decidedly late. There were also late October records of Swallows on 20th and Sand Martins on 21st. These overlapped with incoming Fieldfares at Calverton on 15th and Redwings at Stowe on 21st. Calvert produced a Ferruginous Duck on 7th and yet another Black-necked Grebe appeared at Willen on 2nd and 3rd. To most people's surprise the Autumn dispersal of Bearded Tits came our way in the form of 2 on the Grand Union Canal near Tinkers Bridge on 14th. Whooper Swans (2) returned on 12th NOVEMBER and 3 Bewick's Swans graced Calvert on 26th. More surprising a late Wheater was seen on

4th at Greenleys. Two Short-eared Owls during November had risen to probably 5 in DECEMBER. A Scaup at Foxcote on 17th and a Common Scoter at Willen on 19th were for once not the most interesting of the wildfowl. 3 or 4 Whitefronts were seen at Willen from 2nd but on 25th until the end of the year 16 were in evidence. Geese which are likely to be of wild origin are extremely uncommon in Bucks and this was a fine way to see out the year.

1979

Whooper Swans, 9 near the usual site, and Bewicks, 5 at Willen on 4th JANUARY were much as expected. A Great Grey Shrike at Foxcote on 6th was the first in our area for sometime and perhaps more indicative of the first two months of the year. Temperatures were generally lower than average and there were several particularly severe spells. The effects on commoner species of wildfowl were confused. Some such as Goosander appeared on waters they do not usually frequent - 6 sites in all, others managed to produce temporarily high counts such as Coot which reached 650+ at Willen on 16th January. Largely our wildfowl moved West, returned temporarily and then went again. Wildfowl displaced from the East confused the picture further. Even more Arctic conditions in the Baltic produced a spate of Smew records. Foxcote had 1 on 1st, Calvert 1 on 7th and 14th, Linford 6 on 14th, 3 on 15th and 2 on 28th. Visible large scale movement of Skylarks at Willen on 20th, 24th and 26th and at Edgcott on 27th and the appearance of 2 Slavonian Grebes at Calvert on 27th were other indicators of the weather conditions. Smew featured again in FEBRUARY: Foxcote had 2 Redheads from 11th to 25th. Tongwell had a male and a redhead from 8th to 14th but 2 males and the redhead from 17th to 19th. Nearby Willen held a male on 6th and two males and a redhead on 17th which are presumed to be commuters from Tongwell. Another commuter between the same sites was a Slavonian Grebe first seen on 14th. The bird eventually settled at Tongwell and stayed into April assuming summer plumage. The second invasion species of the year was Red-necked Grebe. This well-documented influx into Eastern England in particular was reflected locally by singles at Mount Farm on 18th Deanshanger on 19th and two at Willen from 14th to 18th, one staying on until 27th. Associated with this movement were Red-breasted Mergansers which showed up a Foxcote in the shape of two males and two redheads on 11th and 3 redheads at Willen on 15th, followed by a Common Scoter, also at Willen on 16th. Other records of note were a Glaucous Gull at Willen on 10th, a male Ruddy Duck on 25th at the same site and a peak count of 500+ Wigeon at Linford on 25th. Wildfowl were again the most prominent group in MARCH. Goldeneye reached 45 at Willen on 12th and Goosander 40 at Foxcote

on 23rd : presumably birds returning after being driven west during the cold spell. A superb male Ring-necked Duck graced Willen from 7th to 16th, and was joined on 14th by a Red-throated Diver which dropped in briefly. Sadly the day was marred by the discovery of a Red-necked Grebe corpse. Three Rock Pipits appeared at Willen on 21st : the same day as the first Wheatear. Chiffchaff on 24th was the other March arrival. First dates for common migrants in APRIL were Yellow Wagtail (7th), Willow Warbler (10th), Sedge Warbler (15th), Cuckoo (16th), Blackcap (17th) and Turtle Dove (19th). Passage of less expected species produced 2 Red-breasted Mergansers at Willen on 8th, a Scoter at Calvert on 10th and an Osprey at Willen on 24th. The pick of the Willen waders were 2 Oystercatchers, a Grey Plover, a Black-tailed Godwit and 2 Spotted Redshanks. Newport Pagnell chipped in with a Whimbrel on 15th. MAY Willen wader passage again produced Grey Plovers (3 in all) and Oystercatchers (2). 2 Wood Sandpipers and 3 Sanderling provided variety. Black Tern passage was more concentrated than usual - from the 10th to 15th - and included an exceptional count of 56+ on 13th at Willen. Most of a scattering of Common Terns appeared at the same time as did a Little Tern on 14th. Single Little Gulls at Willen on 11th and 16th fit into the same pattern. Passerines were also interesting. A late Fieldfare was seen at Gawcott on 12th and a Wood Warbler at Emberton on 25th was a bit of a surprise. A singing male Firecrest was reported at an undisclosed site. A pair of Mandarin over Brickhill Woods on 21st may have been the same as the pair at Willen on 9th JUNE. A Sanderling was discovered on 9th at Willen, which repays watching at the unlikliest times - the second Buckinghamshire Avocet dropped in on the 17th. An even stranger Wood Warbler record was one on 29th at Westbury Wilds. Highlights of the other notoriously dull month, JULY, were 2 Buzzards near Willen on 10th and 12th and a Ruddy Shelduck of unknown origin which was seen at Linford in the second half of the month and reappeared periodically at Willen for the next 3 months. The 24th saw a Turnstone at Willen, a precursor to the AUGUST waders there which included Oystercatcher, Little Stint, Black-tailed Godwit, Wood Sandpiper, Curlew Sandpiper (4), Turnstone (8) and Spotted Redshank (3). One of the latter put in an appearance at Linford on 30th. A juvenile Little Gull at Willen on 4th, a Black-necked Grebe also there from 18th to 21st, a thin scattering of

Terns and a couple of Hobbies complete the picture. SEPTEMBER produced very similar birds : Little Gull 6 at Willen on 10th and 1 at Foxcote on 23rd, 4 Hobbies together at Willen on 8th, Oystercatcher, Curlew Sandpiper, Whimbrel and Spotted Redshanks at the same site. A Garganey on 2nd and Mandarin on 4th accompanied the waders. A male Mandarin was also seen at Foxcote on 21st and 28th OCTOBER. There was obviously a little movement at this time since a Red Breasted Merganser (red head) appeared at Calvert on 28th and a Bewick's Swan at Willen on 24th. Small numbers of Redwings and Fieldfares first appeared in small numbers in the same week. There were still Spotted Redshanks at Willen, which were at times joined by Grey Plovers (5 in all) and a scattering of Little Stints throughout the month with a maximum of 8 on 10th. 3 Common Sandpipers on 14th were late. One of the Spotted Redshanks lingered into NOVEMBER, but a Sanderling at Willen on 10th was more surprising. Amidst the typical build-up of wildfowl were 7 Bewick's Swans at Foxcote on 11th and a female Long-tailed Duck at Willen which arrived on 17th and stayed until 8th DECEMBER. This species is scarce inland but when it does appear has a long-stay habit. A Scaup at Foxcote provided someone with a Christmas present and 18 Bewick's Swans saw the last 10 days of the year out at Linford except on Boxing Day when they visited Willen.

NORTH BUCKS BIRD REPORT 1980 (SYSTEMATIC LIST)

BY A. V. HARDING

Introduction

Since there are already summaries for 1977-1979 in this publication, the reader is spared yet another one here. However, as a systematic list for North Bucks is not a regular occurrence I feel I must go into some detail to put this report in context and elaborate upon the difference in treatment of various species.

The geographical area covered is in theory all of Bucks north of a line drawn roughly between Wing in the east and Grendon Underwood in the west. In practice the Deanshanger area and Salcey Forest (part of which is in Bucks) in Northants and the Bedfordshire bits of the Brickhill and Stockgrove Park areas have been included for some years. The boundary is really delineated by where contributors actually watch their birds and records outside but fairly close to the "boundary" are welcomed.

Observer coverage of different parts of the area is very variable. Most contributors do their birding around the Milton Keynes area. In contrast no records at all were received from the southern, central area around Winslow, Horwoods, Nash and Whaddon. Areas of standing water and the river valleys are much preferred; woodland comes a poor second; while acres of farmland have probably never been seen through binoculars.

For each species fully included there follows a brief comment on its current status in N.Bucks. It is important to record this now since the status of some species has clearly altered even in the last few years mainly due to habitat changes. Further changes, for better or worse, may result in equally rapid changes in the next few years.

There then follows all, some or a resumé of the records received for 1980. The factors affecting whether a species is included at all and the depth of treatment, from which list the author's own bias cannot be entirely excluded, include rarity, deviations from the norm in

occurrence and interesting behavioural notes. In addition wherever a species or a species at a specific site has been recorded more systematically, I have attempted to include as much detail as I reasonably can, since this is by its nature more valuable. However, the overriding factor is the actual records received, observers' own interests are reflected in the records they submit and those which they choose to ignore. The most obvious group to suffer are the common resident passerines, which get short shrift in this report, but not even a bare comment can be legitimately included if there are not sufficient records to justify it.

Abbreviations

Only four occur regularly :
GP = gravel pit, MO = many observers, NC = no count, and
NPGP = Newport Pagnell gravel pit.

Initials

For the sake of brevity initials indicating observers are only given for species officially designated as very scarce or rare in Bucks. In one or two instances where a spate of records for such a species occurred in 1980 initials are omitted. Those seeking further guidance on such matters may consult the Bucks Bird Report 1980, the North Bucks Bird Reports (Monthly) for 1980 for even more detail, or the original records, held at the time of writing by A. Harding.

The records from which this report was compiled were contributed by the following:

P. Alderman, Amey Roadstone Co., G. Bray, British Trust for Ornithology, P. Bryant, A. Clements, K. Clements, G. Dawes, C.Emary, J. Fawcett, A.T. Ferguson, C.J. Ferguson, C. Fisher, A. Frost, (A.F. in report), C. Gambrill, A. Harding (A.H. in report), M.A. Harding, R. Hart, J. Headon, A. Henry, A.R. Henry, R. Henry (R.H. in report), M. Hunt, T. Jorgensen, G. Lambert, A. Livett (A.L. in report), A. Long, R.M. Mandale, Middle Thames NHS, J. Niven, North Bucks RSPB Group, W. Pedley, J. Pemberton, E. Reed, M. Richardson,

the late B. Rolfe, J. Ross, M. Smith, N. Stone, A.Tomczynski, P.A. Tunnicliffe, S. Winter, J. Woollett and R.E. Youngman. I thank them all.

The order of the systematic list is that of Prof. K. Voous currently adopted by all major birding organizations and publications. English names are used throughout with the exception of a few subspecies. Scientific names may be checked in the "List of Birds of the Western Palaearctic" published for British Birds by Macmillan 1978.

Red-throated Diver

Very rare vagrant: normally regarded as the scarcest of the three 'common' divers inland.

Willen : one on the S.Basin October 7-11th appeared to be an adult moulting into winter plumage. This is an especially wary species, but this individual became noticeably more confiding towards the end of its stay.

Little Grebe

Resident breeder. Reported in small numbers from 15 sites on nearly all suitable standing waters and the River Ouse and R. Ouzel. Present in the breeding season at most of these sites, but breeding only reported at four. In Autumn the only large numbers were on the R. Ouzel at Willen where 22 on September 6th and Willen Lake itself where 10-12 were seen in September and October.

Great Crested Grebe

Resident breeder, numbers augmented by birds from elsewhere on passage and during the winter. Willen, Foxcote, NPGP, Linford and Hyde Lane regularly had double figure counts, the largest single being at Foxcote : 34 on 30th May. This and the large Willen summer flock presumably are made up of non-breeders. Breeding was proved at Linford and Hyde Lane. Lowest numbers were recorded in December and the highest in March when over 100 birds were on local waters, and September - the main passage periods.

Slavonian Grebe

More or less annual winter visiter in recent years Willen 1 in winter plumage on November 8th (AF, AH, ER, WT)

Black-necked Grebe

One or two annually in recent years on Autumn passage. Willen 1 from September 24th - October 6th (MO). Deanshanger 1 from October 2nd - 4th (ER, AH, CE). Definitely two different birds.

Manx Shearwater

Very rare storm-driven vagrant. One picked up in a Stony Stratford garden on September 18th was successfully released on 20th (per R.Morgan, BTO).

Cormorant

Regular in small numbers, mainly during passage periods. Recorded at Calvert, Deanshanger, Mount Farm, Cotton Valley, Haversham, Willen, Linford and Foxcote. The last three sites were most favoured but never more than two anywhere. The records were between February and mid-May, then September - November.

Grey Heron

Resident breeder. Our only local known breeding site is at Tyringham where there were 37 occupied nests. 17 birds at Foxcote on June 8th is an exceptional gathering, otherwise widely and regularly noted throughout the area is small numbers (often singles). Do all or indeed most of our birds come from Tyringham?

Purple Heron - A UK rarity

An adult at Hyde Lane on April 13th (RM, JM, NS et al). Accepted by BBRC. The second record in N. Bucks in 3 years.

Mute Swan - Resident breeder

The Willen flock was in excess of 30 birds for nearly the whole year and peaked at 70 on October 24th and 63 on December 24th. Other large gatherings were noted at Cosgrove where there were 40 in February and 36 in early March, Tongwell where 35 were seen on December 14th and Hyde Lane where on single days there were 22 in

February, 17 in March, 51 on April 19th, 46 on May 4th, 18 in November and 33 in December. There is presumably some interchange between these sites.

Bewick's Swan - Regular winter visitor in small numbers
In the first winter period Willen: 6 on January 4th, Linford: 3 on January 1st, 7 on January 5th, 11 (3 juv.) from January 7th to 13th, Hyde Lane 1 on January 15th and February 10th to March 15th. In the second Winter period 2 at Linford on October 18th and 2 at Foxcote on November 29th were the only records.

Whooper Swan - Regular winter visitor in small numbers.
Unlike the last species some of the birds usually stay for the duration. They are extremely site-faithful and usually consist of a family party and a few other adults. It is interesting to speculate whether the adults were introduced to the site as juveniles. At Hyde Lane or nearby there were two from the beginning of the year, then 5 from February 10th to almost the end of March. The additional three birds may well have been 3 seen at Cosgrove on February 9th. The first returning birds appeared back near Hyde Lane on November 9th - two adults and a juvenile, which stayed into the New Year.

Grey Goose sp.
A large flock were heard going over Buckingham at 8 p.m. on March 3rd.

White-fronted Goose
Rare - small numbers are generally presumed to be escapes unless there is evidence to the contrary. Two were seen at both Willen and Linford in January.

Grey-Lag Goose - Feral resident breeder
The local population is centred on Linford where 200 were counted on December 30th. Small flocks and individuals seen elsewhere are presumed to come from the main Linford flock.

Canada Goose

Common feral breeder with the local population still apparently expanding. Autumn and Winter population possibly augmented from elsewhere. Linford is its breeding stronghold and several winter counts of around 150 were received from there. The largest single count was of 230+ at Willen on October 11th.

Goose spp.

Small numbers of Bar-headed, Barnacle and Snow Geese are all presumed to be escapes. Eleven of the last species at Willen in late April and early May are known to have escaped from Weston Underwood Bird Gardens.

Shelduck:

Scarce breeder, more regular out of breeding seasons, especially during spring passage and during post-breeding dispersal. In February and March 1 or 2 seen at Haversham, Linford, Deanshanger, Marsh Gibbon and Willen, but at the latter site 7 in the second half of March and 20 on April 11th. Haversham held 11 on April 18th and Linford 8 on April 12th. Numbers were back to 4 or less at Calvert, Willen and Linford in May. Two broods of 3 and 7 were reared at Linford. Thereafter only a couple of single were seen at Willen until September 27th when there were 12. In the second winter period Hyde Lane had 3 on November 30th and Foxcote and Willen each had one in December.

Wildfowl Trust Counts

These are monthly counts organised locally for the W.T. The numerically important waters are given priority, but often smaller waters are counted on the same day. During 1980 the count days were January 13th, February 17th, March 16th, September 14th, October 12th, November 16th, December 14th. In this report generally only the major waters' numbers are given, since counts on minor waters were often extremely low or irregularly taken.

Wigeon - Common winter visitor

Regular in good numbers at only three sites in the area. Wildfowl counts received as follows:

	Jan.	Feb.	March	Sept.	Oct.	Nov.	Dec.
Foxcote	22	12	5	0	23	0	NC
Linford	738	108	200	11	NC	260	0
Willen	26	90	25	0	30	50	109

Other large counts were at Linford 500-600 on January 1st, 200 on February 2nd and 250+ on December 30th. Willen 150 in January 26th and Calvert 130 on December 21st. There were late May records at Foxcote on 26th and Willen on 31st. Willen also had a single on August 9th. Otherwise seen only in small numbers at Deanshanger (Maximum 7).

Gadwall

Winter and passage visitor in small numbers, becoming more frequent. Willen: 1-3 until the end of February , a pair in late May and early June, 3 on August 21st. Thereafter numbers built up to 5 in September 12 in October, 15 in November and 9 on December 2nd. The last record was of 3 on December 6th. 1-3 occasionally seen at Foxcote, Bradwell and Linford in January/February and September to November. Foxcote also had 2 on April 25th.

Teal - Winter visitor

In the first winter period counts of note were 139 at Willen on January 13th and 100 at Linford on February 2nd. Numbers then dropped considerably: 40 at Willen on February 17th and 41 at Foxcote on March 2nd being the largest. A male was present at Willen on several dates throughout May, and a female was also seen there on May 13th. Birds first returned in August, but no more than 30 were seen at one site until November when there were 49 at Willen. In December Foxcote held 49 on 24th and Willen held 150 on 14th.

Mallard: Resident breeder and abundant winter visitor

Wildfowl counts at the most important waters were as follows:

	Jan.	Feb.	March	Sept.	Oct.	Nov.	Dec.
Calvert	340	155	44	393	299	448	280
Deanshanger	34	28	18	0	73	22	20
Foxcote	678	150	34	400	585	280	250
Linford	896	216	24	975	NC	800	840
Willen	649	192	76	520	89	810	661

Pintail: Fairly scarce winter visitor
Foxcote: four for most of January and a pair on November 29th and 30th. Linford: 16 on January 19th coincided with a movement noted in neighbouring counties. Willen: one on February 9th, a pair on March 2nd, one on August 6th, 21 on October 11th with a couple staying to 12th and 2 on November 29th (c/f Foxcote).

Garganey: Rare passage visitor, has bred.
The only record was of one female or immature at Willen on September 13th and 18th (WRT, AH)

Shoveler: Winter visitor. A few summer and isolated breeding occurs. Low numbers (>25) in the first winter period at Linford, Foxcote, Mount Farm and Willen until March 16 when 52 at the latter site. 17 males and 3 females still present there in May when two large broods of young were hatched. It is thought that none survived. Also bred at Linford. Highest numbers as usual recorded in second winter period - a rapid build-up produced 110 at Willen on September 30th, 120 on October 16th, 160+ on November 25th and 77 on December 2nd. Foxcote had 48 on November 11th and 61 on December 24th, while Linford had 55 on November 16th. Hyde Lane is not a regular site but had a count of 56 on November 8th, presumably a short-term move from one of the regular waters.

Red-crested Pochard: Rare visitor - origins usually unknown.
Willen: a juvenile male from September 1st to at least 20th (MD), one on 27th (RH), 2 birds (a adult ♂) from 29th (AT), through October (MO), 1 adult ♂ last seen on November 8th (AH, ER). Obviously, I suspect only 2 birds involved. The two birds in

October were often reported as a pair, but no field notes were received to distinguish the "female" from the juvenile ♂ present earlier. Whether these birds were genuine vagrants, escapes (the four local collections were checked) or feral birds (feral breeding has been reported from Frampton (Glos) and Cotswold Water Park) is not known.

Pochard: Winter visitor

The wildfowl counts at major sites were as follows:

	Jan.	Feb.	March	Sept.	Oct.	Nov.	Dec.
Calvert	50	21	17	7	39	85	38
Foxcote	51	30	22	12	44	60	50
Linford	124	58	5	169	NC	280	25
Willen	180	60	57	73	82	96	84

Also recorded at Mount Farm (max. of 40 in December), and small numbers at Tongwell, Newport NPGP, and Deanshanger.

Tufted Duck: Abundant winter visitor - also breeds fairly widely

Wildfowl counts were as follows:

	Jan.	Feb.	March	Sept.	Oct.	Nov.	Dec.
Calvert	61	18	27	15	24	15	24
Deanshanger	22	22	28	24	18	11	24
Foxcote	33	7	6	23	7	11	29
Hyde Lane	0	66	48	34	36	37	33
Linford	89	142	46	166	NC	84	160
Mount Farm	NC	NC	NC	NC	65	25	25
NPGP	37	53	19	26	47	42	58
Willen	155	193	174	101	106	130	166

Breeding was noted at Linford and Willen. At the latter site over 40 broods of young were noted by end of July. The density of nests on the island at Willen was apparently much higher than normal. Several observers commented that the survival rate of the young hatched was extremely low.

Scaup: More or less annual but scarce visitor - Foxcote is the favourite water.

Willen: 1 ♂ February 29th to April 21st (CG et al) - this long stay is decidedly odd and suspicious. Foxcote: 1 ♀ on November 8th and 16th (CE, RMM, NS), Linford: GP 1 ♀ on December 27th (AF).

Aythya Hybrid:

Willen 1 on November 3rd and 4th could not be assigned to any of the move usual types (AH, WRT)

Goldeneye:

Regular winter visitor in small numbers, except at Willen where numbers are frequently noteworthy.

Monthly maximum counts at Willen were 33 on January 27th, 50 on February 11th, 42 on March 27th, 15 on April 11th, the last record - 5 returned on October 19th, then 27 on November 16th, and 30 on December 2nd. Reported regularly from Foxcote, maximum of 4, from January to March and November/December. Singles or twos also seen at Linford, Calvert, Hyde Lane, Deanshanger and River Ouze at Cosgrove.

Red-brested Mergansers: Rare passage or hard weather visitor.

Willen a female or immature from November 2nd to 18th (AH, AT, WRT).

Goosander:

Winter visitor in small numbers - Foxcote is the favourite site.

Maximum monthly counts at Foxcote were 13 on Janauary 30th, 9 in February, 1 on November 16th and 11 on December 20th.

There were 10 at Willen on January 15th when Foxcote was largely frozen, but probably a genuine influx (and some local movement) in February when other site maximum were 4 at Linford, Bradwell and Haversham, 13 at Deanshanger and 3 at Willen and Cosgrove. In March only Linford had records, the best and last report being of 7 on 22nd. In December 10 were noted at Linford on 14th.

Ruddy Duck: Scarce but increasingly regular visitor post-breeding and in hard weather.

Willen: 1 juvenile on August 19th to 25th (MO), 2 on September 22nd, (AH,AT, ER), 1 juvenile on September 27th to October 2nd (AF,WT).

Foxcote: singles from August 3rd to 10th and November 8th (AF).

Marsh Harrier: Rare passage visitor.
A female flew over Willen on May 2nd (AT).

Sparrowhawk:
Following virtual extinction as a result of pesticides and the subsequent banning of the most virulent of these chemicals, there has been an encouraging increase in the number of sightings of this fine small raptor. There were 25 sightings at 15 different locations, covering all months except June and July. There is a strong bias towards the western part of our area. The only pair were seen over Stockgrove Park on January 10th.

Hobby: Scarce summer visitor.
Twelve sightings between April 25th and September 12th (both at Lathbury), all but one around the eastern and northern edges of the City! No firm evidence of breeding, but records throughout the summer indicate that this was likely.

Red-legged Partridge: Fairly common resident.
An unusually large convey of 50 at Hyde Lane on January 15th.

Lady Amherst's Pheasant:
Small feral population in the Brickhills. The few records received (maximum 2) are unrepresentative.

Water Rail: Winter visitor in small numbers.
The only record was on the River Tove at Castlethorpe on October 26th. This is below average, but probably reflects genuine scarcity this year.

Coot:
Common resident breeder numbers much augmented in winter.
Wildfowl counts (a little sporadic) were received as follows:

	Jan.	Feb.	March	Sept.	Oct.	Nov.	Dec.
Calvert	NC	NC	32	NC	149	120	111
Deanshanger	33	55	26	98	141	82	82
Linford	NC	210	160	100	NC	70	85
Tongwell	180	NC	NC	44	NC	175	123
Willen	884	293	338	480	NC	710	806

Oystercatcher: Annual but scarce passage migrant, but may appear in almost any month.

Willen: 1 on February 18th, March 18th, 2 on April 7th, 1 on May 8th, July 28th and 4 on August 16th. Linford: 1 on August 23rd. Buckingham: 1 over at night on December 1st. The one day stays are typical - there seems to be no habitat to hold this species off passage.

Little-Ringed Plover: Regular passage migrant and breeder in small numbers.

Recorded between April 6th when 2 at Linford and August 13th then 1 at Foxcote. Also noted at Willen and Haversham, but no more than 4 anywhere. Bred successfully at two sites.

Ringed Plover: Regular passage migrant, often in good numbers. Some birds in summers, now probably an annual breeder.

Willen: first record was 2 on February 9th after which the monthly maxima were February (6), March (6), April (7), May (12+), June (14), July (8), August (12). Irregular in September (2). Last record was 1 on October 13th. Successfully bred. Also noted sporadically at Bradwell, Foxcote, Haversham and Linford from February to early June (no more than 3 anywhere). Haversham 2 on August 3rd.

Golden Plover:

Generally an irregular and scarce winter visitor, through most of the area. However, the extreme west of N.Bucks abuts an important wintering area and produces regular flocks, occasionally large.

Calvert: 18 over on April 18th, 1 on September 28th, 12 over October 5th near Grendon Underwood and 30 on April 11th. Willen: 1 over on October 5th, North Crawley 1 on January 21st. Hyde Lane: 40 on December 19th, Marsh Gibbon: maximum was 700 on March 15th.

Grey Plover: Scarce but annual passage migrant,more common than formerly.
Willen: 1 on March 18th and 19th, May 5th (WT) 2 on May 13th and 14th (MO) 1 on May 22nd (AL,WT).

Lapwing: Common winter visitor, prone to cold weather movement. Not regularly counted in our area but 1000 or over were noted at Newport Pagnell on February 17th, Buckingham on December 20th, Willen on December 22nd and Marsh Gibbon on December 13th. At the last site 10,000 were present on floods on December 21st, disappearing when the floods subsided.

Knot: Scarce passage migrant, annual of late at Willen, formerly very rare.
Willen: One in winter plumage on April 19th (AT,WT), One in summer plumage from April 27th to 29th, but apparently in display flight on 28th (AT,JF,WT).

Sanderling: Scarce passage migrant now annual at willen, formerly rare.
Willen: 2 in summer plumage on May 27th (WT). One on June 10th (AH,AL,WT). Typical dates.

Little Stint: Regular passage migrant in small numbers, with a strong bias towards autumn records.
Willen: 1 on May 23rd, 3 on June 5th, 1 on June 27th. One from August 2nd to 6th with two on 10th. Juveniles in late September and early October did not materialise this year, producing an atypical distribution of records.

Temminck's Stint: Rare passage migrant.
Willen 1 on May 12th and 13th (AC, AH, CG et al) 1 on 18th and 19th (CG,WT) may have been a different bird, but for long term record purposes, should perhaps not be counted as such.

Curlew Sandpiper: Annual passage migrant in small numbers. Strong bias towards Autumn records.

The only record was of 2 at Willen on August 14th. This species is prone to good and bad years in national terms, and numbers at other regular inland and East coast sites were indeed also below average.

Dunlin: Passage migrant in variable numbers. Sometimes noted in winter.

Spring passage lasted from February 23rd when 2 at Haversham until June 17th when 2 at Willen. 1 to 4 noted irregularly at Foxcote, Linford and Haversham. More regular at Willen where the maximum was 6 from May 6th to 8th. In Autumn only noted at Willen where 1-4 recorded from July 23rd. Throughout August becoming sporadic in September (but 5 on 15th) until October 15th. The water level was lowered drastically in late October - the Dunlin response was 1 on November 1st rising quickly to 23 on 8th, dwindling to 7 on 29th. By December 8th numbers were down to 4, but two hung on until December 17th.

Ruff: Passage migrant, higher numbers in Autumn.

In Spring singles at Willen on April 10th and May 22nd to 25th and Foxcote on April 27th. In Autumn there were 7 in flooded fields near Castlethorpe on August 17th and 5 on September 4th. At Willen 2 appeared on August 4th and was ever present until September 15th, during which period double figure counts were 20 on August 9th, 10 on 14th, 12 on 15th and 25th, 10 on September 3rd and 11 on September 13th. Thereafter the odd 1 or 2 until October 16th. Following the lowering of the water level 1-4 were present from November 4th to 18th. One also appeared on December 5th.

Jack Snipe: Passage migrant and winter visitor in small numbers.

2 at Newton Longville on February 17th was the only record. May reflect genuine scarcity, but some suitable habitat is probably underwatched.

Snipe: Common and widespread winter visitor and passage migrant. Between January and April present at numerous sites: ponds, lakes rivers and flooded fileds, numbers generally small but 150 at Foxcote on March 15 and 80 at Thornborough on February 17th. Two reappeared at Willen on August 4th and thereafter the pattern was similar to the first winter periods including 60+ at Cosgrove on October 12th and 60+ at Willen on November 27th.

Woodcock: Resident breeder, supplemented by a few winter visitors Only recorded at Salcey Forest, the Brickhills and Stockgrove. No real assessment of numbers.

Black-tailed Godwit: Annual passage migrant in small numbers. In Spring one Foxcote on May 11th (CE). Willen on on March 16th (ARP), one on May 11th (CG RMM), 3 on 13th (AH), one on 14th and 15th (AT, AH). The only Autumn record was 2 at Willen on September 27th (RH).

Bar-tailed Godwit: Annual spring passage migrant in small numbers. Rare in autumn.
Only records were from Willen where two from April 26th to May 3rd (MO) and one on June 3rd (AL).

Numenius sp:
Willen 2 on April 26th, NPGP: 30+ over on August 24th.

Whimbrel: Annual passage migrant in variable numbers.
All the spring records were from Willen, singles over on April 27th (WT) and May 7th (WT), but 18 landed briefly on May 17th (AF, WT). In autumn 5 at Linford on August 23rd (CE), but see Numenius sp.above.

Curlew: Passage migrant and winter visitor in small numbers, rare breeder.
There were only 18 records covering all months except February and December. Just over a third of these were of 2 birds, the others being singles. The sites involved were Calvert, Willen and Foxcote (several records at each), and Hyde Lane, Wolverton, Grendon Wood and Linford. A real scattering.

Spotted Redshank: Annual passage migrant, more frequent in Autumn. One at Foxcote on April 22nd (CE) was the only spring record. Willen: one was reported on August 7th, 10th-16th and 25th-27th. In view of fairly intensive coverage it seems likely that more than one bird was involved.

Two were seen at Willen on September 11th and singles on September 15th, 18th and 20th. There was an interesting wintering record of one on 14th and 16th December (AL,WT) - probably the same but was also seen in January 1981.

Redshank: Passage migrant, and regular breeder. A significant proportion of birds seen are breeders, potential breeders or locally reared juveniles, in contrast to most invaders in N.Bucks.

First birds appeared at Willen on 18th February (AC), everpresent thereafter with monthly maxima of 3 in February, 8 in March, 8 in April, 12 regularly in May with at least 3 pairs breeding, 25+ in June after successful breeding, but only 5 in July. From the end of July to 6th August there were no records, but then reported regularly till August 28th with maxima of 11 on 16th. There were then no records until October. In November and December 1 or 2 were regularly present, but there were 3 on November 29th.

Elsewhere this species was reported from Haversham in February, up to 3 at Linford in March, at Bradwell, Linford, Haversham and Foxcote in April, at Linford, Bradwell and Deanshanger in June, and Stony Stratford in November. No breeding records from these other sites.

Greenshank: Regular passage migrant, with most in Autumn. In Spring recorded from April 15th to June 5th at Foxcote, Willen and Bradwell - probably 7 individuals in all. On return passage Willen and Linford provided most of the records between July 12th and September 30th; a minimum of 12 birds were involved. One on flooded fields near Castlethorpe on August 17th was the only other record.

Green Sandpiper: Regular passage migrant, most in Autumn. Occasionally winters.

Only Spring records were at Haversham on February 23rd and Willen on April 4th. In Autumn a minimum of 13 birds appeared between July 27th and November 10th, mainly at Linford and Willen, but also noted at Calvert and Stony Stratford, where one stayed on until December 4th.

Wood Sandpiper: Annual passage migrant in small numbers.

In Spring the first was seen at Foxcote on May 1st (CE). Then Willen on 7th (WT), 11th (CG) and 15th (AH). Willen was particularly well watched in this period and it is likely that the last three records refer to different birds.

Willen provided all the Autumn records in August - 9th, 2 on 14th 1 from 19th to 26th and 2 on 30th.

Common Sandpiper: Fairly common and widespread passage migrant

In Spring first seen from April 20th, when 3 at Foxcote until May 26th when 2 at Deanshanger. Also reported at Willen, where maxima was 15 on May 17th. Singles at Calvert, Stony Stratford (River Ouse), Old Linsdale (River Ouse), Hyde Lane and Linford. Foxcote also had 4 on May 4th.

One at Foxcote on June 29th was presumably a return passage bird, but there were no further records until the second half of July. Between 10 and 12 birds were at Willen from July 29th to August 15th, dwindling in numbers until September 5th after which singles were still fairly frequently noted until October 7th. At Foxcote birds were present through most of August with a maximum of 5 on 19th. Linford had 3 on 27th July, Haversham 3-4 on August 3rd and Deanshanger 2 on August 8th, within the peak passage period.

Turnstone: Annual passage migrant in small numbers.

Willen 1 on April 25th and 26th (WT, AC), but 30 on 27th (MO) 2 on May 3rd (WT) with presumably 1 of these staying until 16th (MO). Haversham 1 on April 26th (WT). On return passage Willen was again favoured with 3 on July 26th, 2 on August 5th and 1 on August 8th.

Little Gull: Annual passage migrant in small numbers.
Foxcote: a first summer bird on May 13th (CE), 1 at Willen on the same day (AT et al). Autumn records were from the same sites.
Foxcote: a juvenile on August 15th and an adult on August 28th (CE).
Willen: one on August 19th (WT).

Black-headed Gull: Abundant passage and Winter visitor, present in small numbers even in Summer.
First winter period Foxcote numbers build up to 1260 by end of January and 1500+ at end of February. Willen 3000+ on January 10th, an estimated 10,000 for much of February and early March declining to 200 on 31st. In the second half of the year significant counts were Foxcote 2000+ on December 8th. Willen : 5000 on July 31st - presumably passage birds, 4000+ on November 2nd.

Common Gull: Winter visitor.
Foxcote: maxima 74 on March 30th, Willen: 100+ in late February and early March declining rapidly. 200+ on November 2nd.

Lesser Black-backed Gull: Reasonable numbers on passage and during the Winter.
Willen: 100+ on February 29th, 200 on March 11th then rapidly declining, 100 on July 31st, 200 on October 21st, 200+ on November 2nd.

Herring Gull: Winter visitor.
Willen 100+ on January 10th, 100 on October 21st. Very small numbers, sometimes nil during other winter months.

Greater Black-backed Gull:
Willen 200 on January 10th was far and away the highest count.

Kittiwake: Rare visitor, normally considered a storm-blown vagrant but a pattern of regular passage across-country in spring seems to be emerging.
Both records at Willen: one adult on April 25th and 26th (WT, AC, AH), one juvenile on October 16th (WT).

Sandwich Tern: Rare visitor during passage periods.
Two at Willen on May 20th (RH), associated with other Tern passage.

Common Tern: First noted on April 12th at Willen but passage was not significant until May, when there were 15 at Foxocte on 9th, 9 on 12th and 15th and 23 on 31st. At Willen there were 16 on 9th, 11 on 10th. Apart from these dates numbers were small including the only Linford record of 2 on May 5th. 1-4 summered in the area, being seen regularly at Willen, Linford and Tongwell. No firm evidence of breeding. Because of these summering birds difficult to date return passage until juveniles at Linford and Foxcote on August 12th. Numbers at these sites and Willen remained small until the last record at Willen on September 23rd.

Arctic Tern: Annual passage migrant, a sizeable and concentrated spring passage is probably normal.
Previously considered to be scarce, probably because of a combination of difficulty in separting this and the last species, the brevity of passage and possibly a real increase in numbers.

One of the real spectacles of the year. At Willen there were 60+ on April 22nd and 35 on 23rd, but widely fluctuating numbers seen on several visits over the two days and birds seen climbing and leaving Willen would suggest over 100 birds were involved. Foxcote 7 on April 25th and 16 on 27th. This movement was mirrored at other Home Counties and Midlands waters. No Autumn records.

Little Tern: Rare visitor during passage periods.
Recent increase in records probable due to better observer coverage, since stays are usually fairly brief. Willen: 2 on May 10th (AL,RHa, MS), 1 on August 10th (JF,ER).

Black Tern: Regular passage migrant in variable numbers.
Spring passage at Willen stretched from April 13th to June 5th with peak numbers between 10th and 21st May: a total of 20-30 birds with a maxima of 7 on 12th and 15th. Birds were noted at Foxcote within this peak passage period including 9 on 11th.

Black Tern (continued)
Numbers were rather larger on Autumn passage which started with 1 at Linford and 8 at Calvert on August 2. The maxima on other waters were 6 at Linford on August 11th and 14th, 5 at Foxcote on August 22nd, 10 at Willen on August 3rd and 15 on 5th, then just as passage was petering out, 35 turned up at Willen on 27th, the last record.

Turtle Dove: Fairly common Summer visitor.
Reported between May 12th at Ravenstone woods and September 20th at Everly (N'hants). No large flocks reported.

Cuckoo Not uncommon Summer visitor.
First seen at Hyde Lane on April 25th.

Barn Owl: Now apparently very scarce resident breeder, formerly commoner.
Singles only reported from Deanshanger on April 17th and June 18th, Hyde Lane May 5th and 20th. Hopefully underrecorded.

Little Owl: Fairly common resident.
Reported from 20 different sites throughout the year, 6 different individuals were mapped in the Stony Stratford, Beachampton and Thornton area on January 1st.

Tawny Owl: Resident.
Only reported from 8 sites, but possibly ignorred by some observers. An adult and two juveniles seen regularly at Old Wolverton between June 10th and 22nd.

Short-eared Owl: Regular winter visitor in small numbers.
During the first winter period 1-2 birds seen regularly at Willen in January and February then only 1 until April 11th. Linford one on 2 dates in March. Returned on November 13 to Cotton Valley/ Willen area, not frequently seen, but 2 at Willen on December 27th.

Nightjar: Rare Summer visitor.
Recorded at 2 sites - no firm proof of breeding. Needs accurate assessment.

Swift: Widespread Summer visitor, also many passage birds.
First and last records were at Foxcote, April 27th and September 26th.

Kingfisher: Thinly distributed resident, numbers much reduced after hard winters.
Reported in all months from 11 sites, mainly in the Ouse Valley. Noted at 8 sites in August alone, which is encouraging. Bred at Old Wolverton.

Hoopoe: Rare overshoot migrant.
Ravenstone Woods 1 May 10th to 12th.

Green Woodpecker: Widely distributed resident in suitable areas.
Recorded at 18 sites, usually ones or twos except at Calvert where there were 3-6 on March 22nd and 5 on December 25th.

Lesser Spotted Woodpecker: Not scarce.
13 records from 9 sites, which is pretty good for a species which is often difficult to locate.

Sand Martin: Locally common Summer visitor in breeding areas or suitable feeding sites.
First record was at Willen on April 9th. More numerous in Autumn when 100-200 at Willen on five dates between August 22nd and 30th. Foxcote 250+ through in an hour on August 22nd. Only three breeding colonies reported.

Swallow: Widespread Summer visitor and passage migrant.
April 2nd was the date of first at Bradwell. The last were 2 at Lathbury on October 22nd.

Foxcote 1000+ through in an hour on August 22nd. The Linford roost held 1500 on August 23rd, but only a few by 30th.

House Martin: Common summer visitor and passage migrant.
Recorded between April 13th (Deanshanger and Haversham) and October 14th (Lathbury). Highest count was 350+ through Foxcote in an hour on August 22nd (see Swallow and Sand Martin on same date).

Tree Pipit: Local summer visitor.
Recorded as usual at Brickhill, Stockgrove, Ravenstone, and Salcey. Otherwise only seen in breeding season at Tongwell on June 22nd. On passage 10 noted at Willen on September 6th.

Meadow Pipit: Winter visitor in smallish numbers.
A few scattered breeders.

Rock Pipit: Scarce but annual Autumn migrant.
Willen 1 on October 10th, 20 on 11th and 12th (AH, WRT, ER) 2 on November 1st (WRT).

Yellow Wagtail: Fairly common Summer visitor and passage migrant.
Present from April 6th when 5 at Linford until October 21st when 2 at Grendon Underwood. Clear evidence of movement in the last 10 days of August with flock of 20-30 at Willen, Linford and Lathbury.

Grey Wagtail: Regular winter visitor in small numbers.
At six sites in the first period with a maximum of 3 at Linford on March 2nd. Even more records from 5 sites later in the year with 3 at Willen on November 6th. A bumper year.

White Wagtail: (M.a.alba) Probably an annual passage migrant in small numbers.
This subspecies is most obvious in Spring, but an accurate status is impossible to assign, since some observers tend to studiously ignore subspecies, especially this one, while others do not provide field-notes to substantiate claims. These are necessary since while some individuals, especially males, are 'obvious' others are not.
Haversham 1 on April 26th (WRT) Willen 1 April 24th (WRT).

Wagtail sp:
A natural albino of uncertain species at Haversham on April 13th and 26th.

Nightingale: Summer visitor, numbers very uncertain and in need of survey (BTO 1980 survey poorly supported).
First record at Tittershall Wood on April 24th, thereafter reported from Waterperry Wood, Grendon Wood, Cold Harbour and Salcey. No records after May.

Redstart: Scarce summer visitor, some records clearly refer to passage birds.
First at Linslade Tunnel (Beds) on April 13th. A male in 1st winter plumage in Brickhill on May 13th is very odd. A family party in the same area in June. A male in Old Wolverton on July 28th. A female at Calvert on August 24th was the last record.

Whinchat: Regular passage migrant spring and autumn.
None in Spring is unusual. On return passage one at Loughton Lakes on July 19th thereafter very few at Willen except 3 on August 31st and singles at Linford and Lathbury, where the last record was on September 8th. A poor year.

Stonechat: Usually scarce but a regular wintering species.
Small numbers but this situation may be changing in negative fashion. Only 1 record, at Willen on December 7th.

Wheatear: Regular passage migrant, occasionally in respectable numbers.
First recorded on March 23rd at Deanshanger. Thereafter at Willen, Linford, Lathbury, Woughton, Wicken and Calvert in very small numbers up to May 10th. A male near Ravenstone Woods on June 1st was considered to be of the race O.o.leucorrhoa, colloqually known as the Greenland Wheatear (AH, ER). In Autumn from July 15th at Willen, Brickhill, Linford, Foxcote, Great Linford in somewhat higher numbers until the last record of 3 at Willen on October 7th. A below average year on both passages.

Fieldfare: Common and widespread winter visitor.
Largest flocks in first winter period were 200+ at Deanshanger in February and Haversham on March 2nd. Foxcote 100 on April 24th. Last record at Willen on May 10th. Returned on September 11th when 3 at Buckingham. 200+ at Hyde Lane on December 26th was the largest of the few flocks of note reported.

Redwing: Common and widespread winter visitor.
First record in Autumn 10 over Lathbury on September 25th. No large flocks reported.

Grasshopper Warbler: Not scarce. Summer visitor.
Six at Salcey on April 23rd. Thereafter at Calvert, Brickhill, Hanslope Park, Grendon Wood and Ravenstone Woods. No Autumn records.

Warbler Spp.:

	First date (if any)	Last date (if any of relevance reported)
Sedge Warbler	Linford : April 15th	Willen : October 22nd
Reed Warbler	-	Westbury : September 20th
Lesser Whitethroat	Calvert : May 4th	-
White throat	-	Westbury : September 25th
Garden Warbler	Gayhurst: April 13th	-
Blackcap	Cosgrove: April 13th	-
Chiffchaff	Calvert : March 30th	Dadford : September 26th
Willow Warbler	Willen : April 11th	-

No wintering records of Blackcap or Chiffchaff were received.

Reed Warbler: Westbury Wilds - the last recorded bird.
The last reported bird on September 20th was trapped and ringed. This bird had a normal upper mandible but most of the lower one had broken off. The tongue protruded for 7/8 of the length of the upper mandible and had dried hard. The observers not unreasonable conclusion, since the bird had clearly migrated to Westbury and was of normal weight, was that it was nevertheless feeding adequately (CE).

Spotted Flycatcher: Widespread Summer visitor - not numerous.
First recorded at 3 different sites on May 24th.

Treecreeper: Resident in all suitable woods and copses. Moves out into mature hedgerows after several successful breeding seasons and mild winters. Lathbury 1 climbing ladders in the back garden on August 26th.

Carrion Crow: Common and widespread resident. Partial albinos at Haversham on February 23rd. Linford on December 29th and Marsh Gibbon on December 30th.

Brambling: Usually scarce winter visitor, but numbers variable. One at Linford on January 5th was the only record.

Siskin: Scarce winter visitor. Stockgrove Park 5 (1 male) on January 1st, 8+ (2 male) on January 10th.

Redpoll: Winter visitor and resident breeder in small numbers. 14 at Brickhill in January was the biggest flock. 5 or less seen at various times throughout the year at Stockgrove, Linford GP, Linford, Grendon and Ravenstone Woods, NPGP, Lathbury and Willen. Known to breed regularly at two other sites. Underrecorded.

Crossbill: Rare irruption winter visitor. Stockgrove Park 2 males and a female on January 1st (JH).

Other species for which no significant reports were received were recorded in N.Bucks during the year: Kestrel, Grey Partridge, Pheasant, Moorhen, Woodpigeon, Stock Dove, Collared Dove, Great Spotted Woodpecker, Skylark, Pied Wagtail, Wren, Dunnock, Robin, Blackbird, Song Thrush, Mistle Thrush, Goldcrest, Long-tailed, Marsh, Willow, Coal, Blue and Great Tits, Nuthatch, Jay, Magpie, Jackdaw, Rook, Starling, House and Tree Sparrows, Chaffinch, Greenfinch, Goldfinch, Linnet, Bullfinch, Yellow Hammer, Reed Bunting and Common Bunting. All these are familiar breeding species, although in some case numbers may also be augmented by migrants and winter visitors.