

The Bedfordshire Naturalist

**THE JOURNAL OF THE
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NATURAL HISTORY SOCIETY
FOR THE YEAR
1983
No. 38**

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October 1984

BEDFORDSHIRE NATURAL HISTORY SOCIETY 1984

Chairman:

Mr D. Green, Red Cow Farm Cottage, Bidwell, Dunstable, Beds LU5 6JP

Honorary Secretary:

Mrs M.J. Sheridan, 28 Chestnut Hill, Linslade, Leighton Buzzard, Beds LU7 7TR

Honorary Treasurer:

Mr M.R. Chandler, 19 Hillside Close, Shillington, Hitchin, Herts SG5 3NN

Honorary Librarian and Membership Secretary:

Mr R.B. Stephenson, 17 Pentland Rise, Putnoe, Bedford MK41 9AW

Honorary Editor (*Bedfordshire Naturalist*):

Mr C.R. Boon, 7 Duck End Lane, Maulden, Bedford MK45 2DL

Council (in addition to the above):

Miss R.A Brind
Mr S. Halton
Mrs R.M. Hayman

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Mr D. Kramer
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Mr B.J. Nightingale

Mr D.J. Odell
Mr M.J. Palmer
Mr D.G Rands

Honorary Editor (*Muntjac*):

Mr R.V.A. Wagstaff, 3 The Lawns, Everton, Sandy, Beds SG19 2LB

Committees appointed by Council:

Finance:

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Mr D. Green

Mr S. Halton
Dr B. Nau

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Membership:

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REPORT OF THE COUNCIL

The Council is pleased to report that the Society has continued to prosper during 1983. An imperceptible fall of eight has brought this year's total membership to 452. It is inevitable that numbers will fluctuate from year to year and only if there is a consistent downward trend will there be any real cause for concern. Ever mindful of the need to attract new members, a strong publicity programme remains in force in the form of Library exhibitions, posters in public places and through Chiltern Radio.

A wide range of field meetings and lectures was enjoyed by many during the past year. The now traditional Maulden Wood all-night meeting, the one day courses at Shuttleworth Agricultural College, and the Yorkshire weekend, still appear to be the most popular meetings on the summer programme. The winter programme included a variety of fascinating lectures given voluntarily by members of the Society and several outside speakers to whom we are always grateful. The interest in Members' Evenings has grown considerably with organised quizzes and an increasing number of photographers exhibiting slides, both contributing to a relaxed, informal atmosphere.

It was a delight to the Council and to the general membership to learn that Dr John Dony had been awarded the M.B.E. for his services to conservation in the county. We all offer him our warmest congratulations.

The Council regrets to announce that Mr Julian Knowles, who has been the Society's Programme Secretary for the past four years, has decided not to stand for re-election. His application to a far from easy task, flair for original ideas and consideration for the needs of others, have been highly valued by those who have worked with him. The Council is grateful to him and will miss his lively contributions to Committee Meetings. Mr Knowles's resignation from this position will enable him to devote more time to the preparation of the Society's proposed book on the Natural History of Bedfordshire.

Support from members who are willing to make some contribution to the programme either in the form of suggestions for meetings, or as volunteer speakers or field-meeting leaders, is always appreciated.

The Council is pleased to announce the formation of the B.N.H.S. *Bird Newsletter* which contains more detailed and topical information than can practicably be included in the *Muntjac*. This has proved to be a great success with over 40 subscribers to date and six editions of approximately eight pages each having been circulated since its inception in June. It is stressed that the publication of this *Bird Newsletter* will in no way minimise the amount of bird information contained in the *Muntjac*.

The Council is very aware of the valuable contributions made by so many members of the Society and would like to thank them most sincerely. Finally, it is hoped that members will continue to enjoy their membership and to support the Society in any way they can.

MARY SHERIDAN

	1980	1981	1982	1983
Ordinary Members	326	363	354	345
Associate Members	57	62	58	64
Student Members	30	32	28	24
Corporate Members	10	11	11	10
Life Members	5	5	5	5
Honorary Members	4	4	4	4
	432	477	460	452

Table. Membership of the Society over the last four years

EDITORIAL

Many members of the Society have photography as a hobby which is complementary to their natural history interest. At our Members' Evenings we regularly see the high proficiency achieved. I think most people concentrate on photographing species whether they be flowers, fungi or frogs. Another subject, perhaps not covered so often, is the changes in the Bedfordshire countryside. These changes were highlighted for me recently on recent walks along the footpaths of Maulden when I was disturbed to see that a few wild or wet areas had either totally disappeared or been drastically altered. Apart from the important loss of habitat, and we should all strive to prevent such losses, it is important to record the changes. What better way to do it than by photography.

In the Journal for 1947, *Bedfordshire Naturalist* No. 2, the 1st Ordinary Meeting of the Society was reported. Mr Roy Palmer (the first Editor and Recorder for Orthoptera, Odonata, Amphibians and Reptiles and Mammals) presented a lantern lecture on "Pond Life" on 16th January 1947. Thirty seven years on, on 6th December 1983 a landmark passed unnoticed when the 500th Ordinary Meeting took place, a talk on bird ringing.

PROCEEDINGS

Indoor Meetings

- 482nd Ordinary Meeting** 5th January, Bedford. "The birds and animals of Kenya" by Mr P. Smith. Chair: Mr B.J. Nightingale.
- 483rd Ordinary Meeting** 11th January, Dunstable. "An introduction to British deer" by Mr C. Banks and Mr B.F. Barton. Chair: Mr D. Anderson.
- 484th Ordinary Meeting** 20th January, Luton. Members' evening. Chair: Mr V.W. Arnold.
- 485th Ordinary Meeting** 2nd February, Bedford. "A look at Yorkshire" by Mr V.W. Arnold. Chair: Mr S. Halton.
- 486th Ordinary Meeting** 8th February, Leighton Buzzard. "Swifts, Eggs and Weather" by Dr R.J. O'Connor, Director of the British Trust for Ornithology. Chair: Mr D. Green.
- 487th Ordinary Meeting** 22nd February, Dunstable. Chairman's evening — a look at National Societies with Mr D. Green.
- 488th Ordinary Meeting** 24th February, Flitwick. "A sideways look at the spring flowers of South West U.S.A." by Mr C.R. Boon. Chair: Mr J.P. Knowles.
- 489th Ordinary Meeting** 2nd March, Bedford, "A personal A-Z of wildlife" by Mrs E.B. Rands. Chair: Mrs B. Chandler.
- 490th Ordinary Meeting** 8th March, Leighton Buzzard. "Bugs in Beds" by Dr B.S. Nau. Chair: Mrs M.J. Sheridan.
- 491st Ordinary Meeting** 22nd March, Dunstable, "Natural History at work" by Mr A. Brackenbury. President of Sorby N.H.S. Chair: Mrs E.B. Rands.
- Annual General Meeting** 24th March, Flitwick.
- 492nd Ordinary Meeting** 6th October, Bedford. "Weeds in our garden" by Mr D.G. Rands. Chair: Mrs M.J. Sheridan.
- 493rd Ordinary Meeting** 18th October, Dunstable. "Wild life in Canada" by Mr W.J. Drayton. Chair: Mr H.F. Pegg.
- 494th Ordinary Meeting** 27th October, Flitwick. "The Wild Life Parks of Kenya" by Mr P.R. Symonds.
- 495th Ordinary Meeting** 2nd November, Bedford. "A look at the natural history of the Chilterns" by Mr R.V.A. Wagstaff. Chair: Mr R.B. Stephenson.
- 496th Ordinary Meeting** 10th November, Luton. "Fun in Fungi" by Mr A.R. Outen. Chair: Mr D.G. Rands.



*Greater Spearwort by pond at Harlington — see report p.70
(Photo: R. Revels)*

- 497th Ordinary Meeting** 15th November, Dunstable. "Bedfordshire wetlands revisited" by Dr J.G. Dony. Chair: Mr C.R. Boon.
- 498th Ordinary Meeting** 24th November, Leighton Buzzard. "Foresteing at Rushmere" by Mr F.W. Atkinson. Chair: Mrs M.J. Sheridan.
- 499th Ordinary Meeting** 1st December, Bedford. Member's evening. Chair: Mr R.B. Stephenson.
- 500th Ordinary Meeting** 6th December, Dunstable. "Bird ringing in Bedfordshire over 20 years" by Mr P.J. Wilkinson. Chair: Dr B.S. Nau.
- 501st Ordinary Meeting** 14th December, Leighton Buzzard. "Studies of the Stock Dove" by Dr R.J. O'Connor, Director of the British Trust for Ornithology. Chair: Mr A.J. Livett.

Field Meetings

- | | |
|---------------|---|
| 2nd January | Blackwater Estuary, Essex. Waders and wildfowl. Leader: Dr B.S. Nau. |
| 9th January | Ouse Washes. Winter wildfowl. Leader: Mr D. Odell. |
| 27th February | Lower Alders, Campton. Snowdrops and winter birds. Leaders: Mrs M.J. Sheridan and Mr J.P. Knowles. |
| 17th April | Barton Hills. Spring flowers including Pasque Flower. Leader: Mr C.R. Boon. |
| 24th April | Woburn Park. Spring in the Park. Leader: Mr J.P. Knowles. |
| 8th May | Odell Gravel Pits. Leader: Dr B.S. Nau. |
| 11th May | Flitwick Moor. Spring birds. Leader: Mr J.P. Knowles. |
| 18th May | Aspley Heath. Exploring the woods. Leader: Mr P. Smith. |
| 21st May | Sharpenhoe. Dawn chorus. Leader: Mr J.P. Knowles. |
| 21st May | Biggleswade Common. Leader: Dr B.S. Nau. |
| 22nd May | Ashridge. Leader: Mr C. Banks. |
| 28th May | Church Meadow, Maulden. Close study of flora. Leader: Mr C.R. Boon. |
| 5th June | Breckland. Car trip. Leader: Dr B.S. Nau. |
| 8th June | Totterhoe Knolls. To see the Orchids. Leader: Mr S. Halton. |

12th June	Wicken Fen NR. Car trip. Leader: Mr J.P. Knowles.
17/19th June	Yorkshire Dales. Weekend trip. Leader: Mr V.W. Arnold.
22nd June	Tiddenfoot Pit. Study of the flora. Leader: Dr. J.G. Dony.
25/26th June	Maulden Woods. Annual all-night meeting.
28th June	Pegsdon Hills. Leader: Mr M.C. Williams.
2nd July	Woburn Park. Plant life. Leaders: several.
3rd July	Marston Thrift. Botany and butterflies. Leader: Mr N. Pollard
10th July	Dunton Green Lanes. Leader: Mr J. Green.
17th July	Shuttleworth College. One day course on a variety of natural history subjects.
20th July	River Ouse, Bedford. Leader: Miss R.A. Brind.
24th July	Odell Great Wood. Leaders: Mr and Mrs A. Muir-Howie.
31st July	Barton Hills. Leader: Mr J.D. Burchmore.
7th August	Felmersham Nature Reserve. A look at freshwater life. Leaders: Mr and Mrs A. Muir-Howie.
21st August	Bison Hill. Leader: Mr S. Halton.
28th August	Radwell gravel pits. Leader: Mr D. Green
9th September	Stockgrove Park. Moth trapping. Leaders: Mr V.W. Arnold and Mr K. Webb.
10th September	Woburn Park. Pond and lake life. Leaders: several.
18th September	Henlow Scout Camp. Leader: Mrs E.B. Rands.
25th September.	Norfolk Coast. Car trip. Leader: Mr A.B. Tomczynski.
1st October.	Flitwick Moor. Lacewings and molluscs. Joint meeting with Conchological Society. Leader: Dr B. Verdcourt.
2nd October	Potton Wood. Fungus foray. Leader. Mr A.R. Outen.
9th October	Maulden Churchyard. Leaders: Mrs F.B.M. Davies, Mrs E.B. Rands and Mr C.R. Boon.
16th October	Thefford Forest. Mammal watching. Leader: Mr D. Anderson.
30th October	Woburn Park. Bird watching. Leaders: several.
6th November	King's Wood, Houghton Conquest. Fungus foray. Leader: Dr D.A. Reid.
13th November	Rushmore Park, Heath and Reach. Live mammal trapping. Leader: Mr D.G. Rands.

REPORT OF THE TREASURER

For the second year in succession we have made a slight loss, £84, on our current income and expenditure account. This means that we shall need to consider raising the annual subscriptions which we have held at the very low level of £3.50 for six years, longer than our usual 3 year cycle of slight profit, break-even and slight loss.

The main expense remains The Journal but its excellence is shown by the numbers of copies regularly sold to non-members. The other expenses have been held down.

Our investments continue to produce a good return and it remains Council's intention to use this income to fund our publications, in particular the proposed book on the natural history of Bedfordshire so that the Society's assets can be used to ensure that the work and knowledge of our members has a permanent record.

The bank deposit account is now rather high and much of this will be invested so that we may maximise the income but leave sufficient capital accessible to fund our publications.

Further certificates have now been received for income tax paid on our investment income and this will be reclaimed again in this current year.

Our Fixed Assets have been checked, some small items written off, but our Malaise and 12 mammal traps are now included.

Finally our total assets continue to increase and now stand at £15,900 an annual increase of £1,300.

M. CHANDLER

**INCOME AND EXPENDITURE ACCOUNT
FOR YEAR ENDED 31st DECEMBER 1983**

INCOME - Current Accounts

1982		1983
£		£
1203	Subscriptions	1242
69	Sales	40
53	Surplus on Meetings	6
13	Donations	10
1338		1298

EXPENDITURE - Current Accounts

1982		1983
£		£
	ADMINISTRATION	
21	Postage	33
17	Sundries	12
28	Insurance	29
10	Auditors' Honorarium	10
76		84
	MEETINGS	
153	Hire of Halls	151
-	Lecturers and Films	13
148	Programmes	150
13	Expenses	-
314		314
	SCIENTIFIC	
769	Journal	845
6	Recorders' Expenses	20
8	Sundries	16
3	Site Recording	6
786		887
	PUBLICITY	
142	Newsletter	46
-	Application Forms	-
50	Advertising	17
192		63
	EQUIPMENT	
2	Repairs	-
2		-
	DEPRECIATION	
19	of equipment	34
19		34
-51	Excess of Income over Expenditure	-84
1338		1298

PUBLICATIONS ACCOUNT		
155	Brought Forward	758
603	Income	99
-	Expenditure	3
758		354
GRANTS ACCOUNT		
129	Brought Forward	-
129	Transferred	-
Nil		-
DEPOSIT ACCOUNTS - Interest		
827	City of Nottingham Bonds	551
219	East Staffs Co. Co. Bonds	218
93	Redbridge Borough Bonds	93
64	Southend-on-Sea B.C. Bonds	100
199	Bank Deposit Account	278
1153	Income Tax Repaid	-
2555		1240

BALANCE SHEET AS AT 31st DECEMBER 1983

1982		COST	DEPRECIATION		1983
			Total	Year	
	FIXED ASSETS				
35	Books and Journals				35
10	O.S. Maps		10	10	-
8	Bird Song Records				8
15	Display Board				15
3	Tools		3	3	-
2	Old Screen		2	2	-
16	New Screen	20	6	2	14
18	Slide Projector	60	48	6	12
33	Duplicator and Stand	110	88	11	22
	Malaise and Mammal Traps				50
140				34	156
	CURRENT ASSETS				
481	Bank Account				171
4200	Deposit Account				4772
54	Cash in Hand				51
3000	City of Nottingham Bonds				3000
3000	City of Nottingham Bonds				3000
2500	East Staffs D.C. Bonds				2500
1000	Redbridge Borough Bonds				1000
1000	Southend-on-Sea B.C. Bonds				1000
15235					15494
-	Debtor				276
	CURRENT LIABILITIES				
775	Creditors				25
£14600	TOTAL				£15901

M.R. CHANDLER
Honorary Treasurer

P.J. HIGGINS
Honorary Auditors

S. DRAYTON (Mrs)

METEOROLOGY

Report of the Recorder

THE WEATHER OF 1983

In this report of the weather for 1983 I want to concentrate on the more unusual and significant events that occurred in 1983 of which the remarkably hot July was an outstanding example.

January was a particularly mild month with maximum and minimum temperatures between 3.5 and 4°C above the normal. It was often overcast with very few frosts (4 or 5 nights) and very little snow. In fact there was no day in the month at all which could be recorded as having snow lying (officially this refers to the state of the ground at 0900GMT) though there was short lived cover for a while on the last day of the month.

February was in marked contrast to January with a pronounced cold spell mid-month. After 6 days of light snowfalls commencing on the 7th, there followed a period of 12 dry and sunny days, providing a very quiet and pleasant interlude. The weather was cold throughout this time, and despite the earlier light falls the ground remained snow covered for several days, only gradually becoming more broken and receding. The weather was never as extreme as in 1981/82 but frosts occurred widely on 20 nights through the month.

March was lacking in extremes of any kind and there was no really severe or wintry weather to speak of. April was generally rather cold and very wet, unusually so compared with many Aprils of recent years. The rainfall was more than double the normal and, unusually, this was the second wettest month in the whole year. The cold wet weather continued throughout May, and with the help of several heavy and thundery showers mid-month this was generally the wettest month of the year in Bedfordshire. One compensation at least was the absence of any late frost.

In contrast, June proved to be without doubt the driest month in the year. Only 11mm of rain were recorded at Silsoe and just 15mm at Thurleigh in the north of the county. June is of course normally one of the drier months in the year but these figures represent only a third of the normal rainfall. This was generally the driest June since 1962 although June 1976 was nearly as dry. Temperatures, however, were only moderate and there were only two really warm days early in the month.

July 1983 was unprecedentedly hot. For comparison, a continuous weather record has been constructed for Central England going back to 1659 and there is no hotter July in all of that time. However, in 1983 the hottest weather coincided almost exactly with the calendar month and was in fact less extreme than the hottest 31 days in 1976 which began on the 21st of June. In Bedfordshire, the mean maximum temperature in this month was between 25 and 27°C, and a maximum of 32°C was reached at several places on the 16th. Rainfall totals were generally low but there were heavy local falls of rain associated with thunderstorms.

August was less hot and less sunny, though both temperature and sunshine were both well above average, and rainfall again less than normal. Taking the summer of 1983 as a whole, it was the second hottest (after 1976 and alongside 1975 and 1911), sixth driest, but only the 14th sunniest this century.

September was mostly unsettled and there were no really warm days. October was also quite average, though this hides the milder and wetter first half compared to the much drier and colder second half. Again November was a fairly average month with a few sharp frosts in the third week. December was similar with temperatures generally above average particularly in the second half of the month.

There are few significant variations in the weather around Bedfordshire. The hillier southern part tends to have a higher rainfall but this is often obscured by heavy thundery showers which can occur anywhere. Most of the description above is based on figures from Silsoe in the south, Thurleigh in the north and Sandy in the east together with those of my own site in Barton-le-Clay. I would like to thank Mrs Taylor of the National Institute of Agricultural Engineering at Silsoe and the various wardens at the RSPB Reserve at Sandy for their help in providing records. I am particularly indebted to Philip Eden for his additional comments on the summer of 1983.

I am always interested in any unusual examples of the weather and its consequences so why not drop me a line if you see anything of note.

Finally I include a summary of the year's weather from Silsoe as in previous reports.

Month	Mean Max°C	Mean Min°C	Highest Temp°C	Lowest Temp°C	Rainfall mm	Sunshine hours	Air Frost	Ground Frost
January	9.5	3.9	13.7	-3.2	35	42	3	9
February	4.1	-1.5	11.8	-7.5	26	72	19	23
March	10.0	2.6	14.2	-1.7	30	91	3	19
April	11.2	2.5	17.9	-1.6	95	147	4	14
May	14.3	6.3	20.3	2.2	100	111	-	4
June	19.2	9.9	23.1	4.9	11	167	-	1
July	25.8	13.0	31.0	5.2	32	231	-	-
August	23.4	12.2	29.0	3.9	32	211	-	-
September	17.9	10.6	23.4	4.8	63	117	-	-
October	14.3	6.4	22.8	-3.7	38	119	4	8
November	10.1	4.1	15.8	-7.8	38	39	6	8
December	8.3	2.0	12.9	-6.0	50	50	9	15
Year	14.0	4.0	31.0	-7.8	550	1397	48	101

MIKE WILLIAMS

MAMMALS

Report of the Recorder

1983 was another good year for mammal recording, with the total number of records obtained being well up to the usual level.

Of course after 13 years of accumulative recording it is not surprising that no new species were seen, or much change in range found, with the exception of one or two species. This means that there was no serious loss of mammals or range, which in itself is good news in today's climate of habitat loss and increasing human use of the countryside. Several interesting projects were undertaken during the year, contributing to our knowledge of Bedfordshire mammals.

An increase in small mammal trapping produced many new records from a total of 308 trap-nights work. A special study of the house and grounds of the RSPB Headquarters at Sandy told us more on the distribution of the Yellow-necked Mice found there. Sandy is one of only two known sites for this species in Bedfordshire, although neighbouring counties find it much more widespread. Yellow-necked Mice were caught during the summer in the house, and in the grounds up to 200 metres from the house. The range of the Yellow-necked Mouse outside of the house is very limited as many sites further from the house were trapped, but without any captures. Total catch showed it to be only the third most common species, outnumbered three to one by Wood Mice, and three to two by Bank Voles. Over the whole county trapping showed the Wood Mouse to be, by almost four times, the most common small mammal species, followed by Bank Vole, Short-tailed Vole, Common Shrew, Pygmy Shrew and House Mouse. Although not obtained by trapping, it is pleasant to be able to report the sighting at three new locations of the scarce Water Shrew, from both the north and south of the county. After the Yellow-necked Mouse, found in

only two tetrads, the Water Shrew is found in 28, then the Pygmy Shrew in 64, up to the Wood Mouse in 159.

Bats seemed to have a quiet year, although not much work was done with them during the summer. The usual winter check of hibernation sites showed some in use and containing Natterer's Bats. Since that check I am sorry to report the loss of the best site in the county, by blocking of the entrances. Efforts have been made to get it re-opened and, although a promise was made to clear the entrances, no action has so far been taken. Continuing efforts will be made to get this site restored, as suitable hibernation sites for bats are very few and getting scarcer as old trees are felled and we all make our houses more draught and bat proof. A group of members went to a Mammal Society symposium of Bat workers during 1983 and I was surprised and pleased to find that Bedfordshire is very well up, compared to the rest of the country, in the amount and variety of Bat work we undertake.

Badgers are another species which get special attention, with all known setts being checked along with much effort being spent in finding new setts. 1983 was definitely a good year for our Badgers, with many setts becoming active after some years of disuse and many new setts, or out-lying holes, being dug. Cubs were seen at several setts, compared to none seen in the previous year. A total of 49 Badgers were seen by people watching 13 different setts in the county. In an effort to obtain not just distribution data, but also density data, I have asked all Badger watchers to list their watches and results so that the numbers and frequency can be compared year to year. 1983 will act as a base-line with 2.3 Badgers seen per sett and 1.6 Badgers seen per watch. However, the year was not all good news for Badgers, with several setts being dug or blocked. A man was caught digging at a sett in the centre of the county but no prosecution was brought. Also, a sett was gassed in the south, causing the death of at least one animal found when members re-opened the entrance. Again no legal action was considered possible. However, during the year a person was prosecuted and fined for Badger digging in Hertfordshire and, as digging is on the increase in Britain, I urge all members to be on the look out for such activities. If any member sees anyone digging near a sett, call the Police at once. Also, if members come across a recently dug sett, please let me know as soon as possible so that records can be made and repairs effected if necessary. During the early spring of 1983 at least 10 Badgers were known to be killed on the roads, this being the time when male Badgers go on walk-about looking for the girls. Two of these Badgers were sent to MAFF for TB checks and were both found to be clear. One of these Badgers came from the area of Dunstable Downs which, a few years ago, had an outbreak of TB in cattle so it was good to find the Badgers were again not involved in the disease.

Mink have continued their spread with seven new records along the River Ouse. As has been reported in the *Muntjac*, the Mink is getting common enough for several members to see pairs together and at very close range, and I am sure this species will continue to increase in numbers and in range.

The Otter survey, run by John Green, only confirmed that no sign of this animal could be found in any part of Bedfordshire (see page 12). Although the results were negative, we can record its loss with certainty, backed up by many hours in the field, and I would like to thank all those that took part in the survey.

Interesting observations that occurred during the year include Barry Nightingale having active Hedgehogs in his garden up to the 28th December, compared to only the 5th November in 1982. Nobody reported any Rabbits with myxomatosis, although I am sure it is still about, and will probably erupt again. However, many people reported seeing Hares across the whole of the county, but mainly in small parties of ones and twos. A group of 32 were seen near Luton in the snow during February and Stephen Cham reported following one animal along a road for three-quarters of a mile at 27 m. p. h. The Fat Dormouse was reported alive and well in the outer area of Whipsnade Zoo, which is good news as their previous site there has been demolished. A Fox was reported walking along the edge of the M1 motorway in Luton so perhaps we are getting the start of the Urban Fox as found in London and other large cities, although the Luton Fox was going south so perhaps it was making its way to London and the bright lights! It is interesting to compare the many records I received for Stoat and the very few for Weasel. Is this a true comparison of their frequency, or an indication of their ease of observation? It is not an imbalance I have noticed in

previous years so perhaps the Stoat did have a good year. Again, as in 1982, several Stoats were seen in whole or part white coats during the winter, so the cold of 1982 seems to have triggered some animals to go to white fur for the winter, or perhaps they expected another snowy year. At the end of my report last year I mentioned the sighting of two large deer in Houghton Regis, thought to be Red Deer. It subsequently came to light that they were two Sika Deer that had escaped from Woburn. Whipsnade Zoo were called in to catch them but they only succeeded in getting one of them. The remaining animal was seen again in the area in early 1983 but I have had no report of it since then.

As in 1982, a small competition was run to see which team of two members could see the most number of mammal species in a 24 hour period. The winners were again Rosemary Brind and John Green, but this time they saw eight species, compared to only six the year before. However, Barry Squires reported that, on a day in April, he saw three species in 2 minutes, so perhaps another year I should restrict the event to only one hour duration - or less!

Only three new 10 Km. records were obtained to send on to the National Records Centre at Monks Wood. New tetrad records for the county were 72. The number of species recorded in Bedfordshire since 1970 remains at 36, ranging from the most common, the Rabbit through Harvest Mouse, Hedgehog and Hare, down to the least common, the Barbastelle Bat, Otter and Wallaby.

The new tetrad records for 1983 are listed below and, if added to the distribution maps published in the Journal for 1974 (*Bedf Nat* 29 36-39) and the update lists published each year since then, will give a full record of the distribution of the mammal species that have been found in Bedfordshire since 1970.

- Mole** *Talpa europaea* - 3 tetrads. 02B, 11H, 12D.
Common Shrew *Sorex araneus* - 2 tetrads. 04S, 15F.
Pygmy Shrew *Sorex minutus* - 4 tetrads. 91X, 92C, 01BG.
Water Shrew *Neomys fodiens* - 3 tetrads. 02A, 15F, 24C.
Bat - 1 tetrad. 14B.
Pipistrelle Bat *Pipistrellus pipistrellus* - 1 tetrad. 05K.
Rabbit *Oryctolagus cuniculus* - 1 tetrad. 92K.
Brown Hare *Lepus capensis* - 2 tetrads. 02B, 03B.
Bank Vole *Clethrionomys glareolus* - 5 tetrads. 91X, 96L, 01BC, 24B.
Short-tailed Vole *Microtus agrestis* - 2 tetrads. 01CG.
Water Vole *Arvicola terrestris* - 2 tetrads. 95S, 02S.
Wood Mouse *Apodemus sylvaticus* - 9 tetrads. 91X, 01BCG, 02Q, 05Y, 06R, 24AB.
Brown Rat *Rattus norvegicus* - 5 tetrads. 01B, 03FR, 05B, 11H.
Grey Squirrel *Sciurus carolinensis* - 5 tetrads. 93XZ, 94U, 02D, 14S.
Fox *Vulpes vulpes* - 4 tetrads. 93W, 02M, 04J, 14T.
Badger *Meles meles* - 6 tetrads. 92L, 93F, 01I, 02C, 03B, 13E.
Mink *Mustela vison* - 7 tetrads. 95GNT, 04U, 05D, 15AF.
Stoat *Mustela erminea* - 8 tetrads. 91Y, 02B, 05E, 12EF, 15FS, 16F.
Weasel *Mustela nivalis* - 1 tetrad. 02Q.
Muntjac Deer *Muntiacus reevesi* - 1 tetrad. 13C.

All these records have been obtained from the 41 people listed below, 36 members and 5 non-members. To these people go my genuine thanks. Without them I would have much less to report.

D. Anderson, V. Arnold, C. Banks, R. Brind, C. Burton, T. Chalton, S. Cham, B. Clutton N. Dawson, J. Deller, C. Dony, J. Dony, B. Drayton, L. Evans, R. Fryett, D. Green, J. Green, D. Guntrip, S. Halton, R. Henry, C. Hill, G. Hooper, M. Hooper, L. Jarrett, J. Kemp-Gee, D. King, D. Lawrence, B. Nau, B. Nightingale, D. Odell, H. Pegg, A. Read, M. Rowlands, L. Smith, B. Squires, B. Stephenson, C. Tack, K. Taylor, T. Thomas, A. Tomczynski, P. Underwood.

DAVID ANDERSON

THE OTTER IN BEDFORDSHIRE

by M.J. Green

INTRODUCTION

Countrywide much concern has been given to the gradual disappearance of the Common Otter *Lutra lutra*, from its old haunts by the rivers and streams of the countryside. This was first realised in the fifties and prompted the Universities Federation for Animal Welfare to instigate a survey of the Otter's status, which began in October 1952 and culminated in the Otter Report (Stephens 1957).

The results did not show any great population decline in the country as a whole but did show some local declines. Bedfordshire was mentioned in conjunction with the River Great Ouse as having well stocked tributaries, although in the report Pike (1952) was quoted as reporting that "...their numbers have become depleted in recent years in Bedfordshire because of hunting and other controls...". At the end of the fifties the Otter hunts began to show poor results from their days by the waterside and in 1964 (O'Conner *et al* 1979) a voluntary rule was introduced whereby the hounds were called off any Otter raised and a kill was not pursued, indeed in 1971 the local hunt (Bucks Otter Hounds) abandoned hunting altogether.

County surveys to monitor the changes in population etc., were begun and one of the first was Suffolk (West 1975) considered a good Otter area. The survey showed there were still some Otters resident in the county but at nowhere near the optimum figures for a viable population and when some of the checks were repeated at a later date, the situation had deteriorated to the extent that doubt was expressed whether there were any Otters left in the county.

Nationally by 1970, the situation was becoming grave and soon after the Nature Conservancy Council organised the English survey (Lenton 1979). The survey was governed by a time consideration which meant that not all of the country was covered. Diagonally joined 50km squares were checked, and a portion of Bedfordshire was surveyed with visits to the corners of the 50km squares located in the north and west of the county Fig 1. From these checks a single positive sign was found close to where the River Ouse leaves the county. Soon after the publication of this report a decision was made to hold a countywide survey in Bedfordshire.

In conjunction with the survey a literature search showed that there was little published documentation relating to the status of the Otter in Bedfordshire for the period 1900 to the present time, but there were some well produced records for pre-1900, firstly in the Vermin Payments (Elliott 1936) these beginning in 1665 and some later records in the Victoria County History (Zoology section), (Elliott 1904), both these being compiled by Mr Steele Elliott to whom we must be very grateful. Probably as a direct result of the recent surveys etc.,

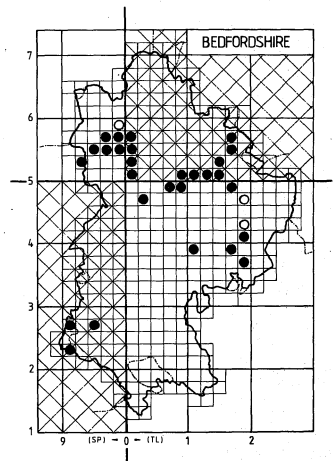


Fig. 1. Tetrads in which survey was done
 ● Designated sites. ○ Random checks.
 ⊗ English survey - 50km squares.

Address: 77 London Road, Biggleswade, Beds



Fig. 2. Simulated sprainting site under bridge over a small stream-spraint marked with an arrow.
(Photo: T.J. Thomas)

some beneficial results for the Otter began to show as several bodies were set up with the welfare of the Otter as prime consideration, the Otter Haven Project (1977) being one where large stretches of river bank were left undisturbed, and managed with the Otters' welfare in mind. Perhaps the most important measure was the listing of the Otter (in schedule 1 of the Conservation of Wild Creatures and Wild Plants Act 1975) as a protected species throughout England and Wales from January 1st 1978. Full protection in Scotland came later in 1982.

BEDFORDSHIRE OTTER SURVEY (March 1982 - July 1983)

Method

Initially a request was made in both the *Muntjac* (BNHS) and *Heron* (B&HNT) newsletters for people with an interest in Otters and some time to spare to help with the fieldwork. The response was good and at an indoor meeting the survey purpose and methods were explained. Seventeen people volunteered to help (the survey was based on methods tried and found satisfactory by the NCC survey). The indoor meeting was followed by two outdoor riverside instruction sessions.

The requirements of the survey were to visit selected sites four times in the duration of the survey period. The sites, Fig 1., were picked to give a good coverage of the county's waterways, also to give easy access without trespass. No fixed dates were proposed and it was left to the individuals to visit their sites as they wished. This way it was hoped to give a good coverage throughout the year and to be a better way of picking up a transient Otter than by using fixed dates.

The surveyors were asked to walk along 600 metres of river bank using the site picked as a central point looking for footprints, food remains and spraints, the latter, Fig 2., being the most common sign and perhaps in some respects the hardest to find; forms were provided to be filled in at each visit. On the forms the surveyors were also asked to record the presence of Mink *Mustela vison* and Water Vole *Arvicola terrestris*.



*Fig. 3. River and bank improved for drainage. Now unsuitable as Otter habitat.
(Photo: T.J. Thomas)*

Results

The points chosen for the survey checks covered a wide range of habitats and differing river conditions, varying from busy road bridges to little used bridges crossing small streams. Some still water sites were also looked at. Altogether 132 checks were logged by members of the survey team. During the same period some spot checks were carried out at suitable points by the writer. Unfortunately all the results proved negative, which does not give a very encouraging picture for the Otter in Bedfordshire. However it was not a totally dismal picture for several records of other mammals were collected, also several droppings were submitted for identification.

Mink were recorded at nine of the sites visited and on a total of sixteen visits, a fact which confirms the spread of this mammal through the county in a very unobtrusive manner. Whether it will be to the detriment of our present fauna or fill a niche of its own, only time will tell. Water Voles were not recorded as frequently as the Mink. They were present at nine sites, but were only recorded once at each site. At only two sites were both Mink and Water Vole recorded.

Shortcomings of the survey were the difficulty in spotting signs that may only remain for a few days depending upon the weather conditions and also the water levels which can fluctuate considerably after heavy rain. Similarly the very nomadic nature of the Otter often not staying in an area for long and therefore leaving few signs would greatly diminish the chances of any signs being found at all. The writer has found from personal experience that even in good Otter areas, signs are not always easy to find.

Habitats

During the survey period some of the sites were checked for habitat suitability and in some cases the survey was extended beyond the initial 600 metres to cover more bankside. One such check is logged in Appendix I. From these habitat checks it was found that the amount of good Otter sites was very low. Much of the bankside cover and mature trees were severely cut back or non-existent, Fig 3, overall not a very encouraging situation to make any transient Otter stay in the county for long.

HISTORICAL RECORDS

These have been accumulated from many sources, too many to acknowledge individually although extracts from papers are acknowledged. Vermin Payment records (Elliott 1936) and Victoria County History records (Elliott 1904) are put in sections on their own as they are unique and to combine them with assorted notes would undoubtedly spoil their impact. The V.C.H. records take over conveniently where those of the Vermin Payments finish. They also give more details of the fate of the Otter on each reported event. Sadly most of the reports record the death of an Otter rather than a sighting as per present times.

Records gained from personal communication and literature are logged in date order as far as possible. They begin at the year 1900 but then have some large gaps until the beginning of the forties. From then on they appear in rather spasmodic form up to the present day. All records are taken at face value as accurate and only with some of the reports received since 1979 has an attempt been made to verify the accuracy of the facts, and this has only been when the informant was the person who saw the Otter.

Reading the V.C.H. account carefully it would appear that there were some problems with pollution even all those years ago, although it would probably have been from effluent rather than today's noxious chemicals. Despite the losses mentioned from the traditional sites it would seem that population numbers were maintained up until the fifties when the well-documented decline began. There would not then have been the pressures from recreation such as boating and fishing, both of which were practised but not in such a concentrated manner. Also any management of the waterways would have been mainly by hand and not by the noisy mindless machines of the present day. More land adjacent to the river would have been used for pasture with its numerous small streams and wet patches etc., again all managed by hand and leaving the Otter many areas of comparative quiet.

Vermin Payments

Adding up the number of Otters killed for reward the total is over 120, a horrifying number considering the present day situation. However this number was taken over a period from 1665 until 1820 giving an average of well below one per year and when looking at later records it would seem this loss did not affect the population greatly. What is not known is the number killed and not recorded — perhaps not a great number as the killing of such a "pest" would not go unnoticed by locals. The list of parishes where Otters were killed for reward is fairly widespread although those in the south of Bedfordshire are not mentioned in this paper. It is interesting that in the Victoria County History a similar situation exists.

Reading through the list of parishes raises some interesting points such as why did both Northill and Mogerhanger record four kills each when neither could be said to be adjacent to rivers? Did the hunters travel far afield bearing in mind that transport was not as readily available in those days and then return with their captures? Or did the Otter frequent smaller streams and ponds away from the main river, which may have been good sources of food and shelter?

Eaton Socon had the highest number of kills, 46 being recorded in a period spanning 96 years, while two parishes on the river Ivel must have had very good habitat for the Otter as Blunham had 23 killed in 92 years while Clifton boasted the highest rate of kills, 23 in 30 years. The latter could imply that Clifton had by far the best habitat or the best Otter hunters. The following is a list of parishes that record Otters being killed:- Bletsoe, Blunham, Bromham, Clifton, Eaton Socon, Kempston, Melchbourne, Mogerhanger, Northill, Pertenhall, Renhold, Roxton.

Victoria County History Records

During the period covered by the records (1837 to 1902) 77 Otters were mentioned and sadly, as stated elsewhere, the majority came to grief rather than being observed or left alone. Young and old alike were disposed of without mercy, many finishing up as mounted specimens, a Mr Covington and a Mr Wright accounting for twenty and over a dozen respectively. It is also stated that there were more records but the details of them were too vague to allow publishing. See the unpublished notes of Steele Elliott in Appendix II.

Seventeen areas were mentioned as sites of Otters being seen or killed, six of these being on tributaries of the River Ouse. There is an interesting gap in records between the first report in 1837 and the next one dated at 1878. Why this should be so is not known and one can draw one's own conclusions.

Interesting records include one of three young found in a nest of sedge and rush in the reed beds near Castle Mill in December 1878, when they were stated to be about two weeks old. Otters were found and killed at Sandy 1879, Biggleswade 1883, Langford 1883/85/87/93/95 and Beeston 1885, all on the River Ivel. In 1890 an adult and young were accounted for at Bromham Hall while at Odell litters of young were found in 1886 and 1895. In 1894 a male weighing 30lbs was killed at Shefford (this was a very large Otter). In 1895 an adult was shot on an island adjoining Bedford baths and two days later two young were found under the boards at the back of the bathing sheds. At Cardington in October 1898 a female was shot and two young captured, and a third young one may have been killed and not taken. Three young were seen near Roxton bridge December 1900.

In January 1902 one was seen disporting in the river close to the town bridge, and later in the month a male was caught and released at Bromham. From this last date records finish although Mr Steele Elliott reports seeing several Otters in the river Ouse in the stretch between Little and Great Barford. At the latter he found a well used holt in the old Mill sluice brickwork.

Published and unpublished records, pre 1970

A record from the diary of W. Lucas (1814) (pers. comm.) says a very large male Otter was caught in the river between Ickleford and Arlesey and was shown in the Market (probably Hitchin).

One early record is of an Otter killed at Tempsford in the River Ouse in 1900 which is now on display at Bedford Museum. Another old record is to be found in the book *Ouse silent tide* (C.F. Farrer 1969) who states that an Otter was seen playing in the river near the Bedford Bridge. This was in January 1902 and is probably the same record as in the V.C.H. From here we have a long gap until 1934 when an Otter was taken at Maulden from the river Flit and is now in Luton Museum.

In an article on the mammals of the Hitchin area A.H. Foster (1934) mentions that Otters were occasionally known to visit the River Ivel, but the River Hiz had no stock of fish and was not visited.

Again records stop till the early 1940's when a local man remembers there always being Otters in the river Ouse, at Tempsford. This I learned when talking to him some years ago. Also in the same general area, although on the river Ivel, local people always said that an Otter could be raised from the "Osier beds" near Blunham, an area that has now been virtually cleared by drainage and scrub clearance, although remnants do still exist.

While carrying out a field survey I spoke with a well-known Bedford naturalist who remembers finding a nest with young Otters in a hollow willow tree beside the River Ouse many years ago, before the second World War, although he could not remember the date. The first mention of Otters in natural history literature (Palmer 1947) shows that the Otter was fairly numerous, and later (Palmer 1949) that they were well known and the Ouse and its tributaries were their regular haunts.

An unusual report was received a few years ago from a very reliable lady who found a dead Otter in her garden at Ickwell during 1956. There were no obvious causes of death and the animal was buried in the garden.

During some early Otter survey work 1974/1975 carried out by Mr M. Demidecki, he spoke to a gentleman who remembered working by a stream that ran into the Ouse north of Bedford in about 1955, and there found an Otter that was suffering from "water pollution". The animal was shot but no further details or dates are available.

Around 1950 a local naturalist was walking by the Ivel at Stanford when he had the good fortune to see an Otter eating a fish on the bank close to the Osier beds there. Oliver Pike (Pike 1953) tells of an Otter that visited his pond at Leighton Buzzard and became quite tame, while in an article called *The Hunted Otter* (Pike 1952) he mentions the scarcity of Otters in Bedfordshire streams and puts the blame upon the hunters.

For a period from 1954-55, several sightings were reported from a stretch of river between

Cardington and Willington. In the same period and area an Otter was killed in a reed bed behind Octogen Farm, Cople. These appear to be the last sightings from this area.

We have appeals for information in the *Bedfordshire Naturalist* by Mr H. Key. With his first request (Key 1955) he also stated that Otters were known to visit lakes but no further information was given. Key (1957) again appealed for information and suggested that they were getting scarce (this was the period of the decline) and the appeal was repeated (Key 1959a).

In September 1954, according to the *Biggleswade Chronicle* (Anon 1979) the first Otter for 29 years was killed at Sandy Mill. This would make the previous kill there in 1925 (presumably by the Bucks Otter Hounds). At Stevington a local farmer flushed an Otter from long grass while working close to the river. He was able to see it enter the river, the year was, he thought, about 1955. In March 1956, an Otter became engaged in a fight with a dog belonging to shooting people in a small stream close to the Ivel at Blunham, but the result of the fracas is not recorded. The same person also remembered flushing an Otter from reed beds at Wyboston while Duck shooting in 1958, but on this occasion the Otter was unharmed. During the same year an Otter was seen at Stevington (Key 1959b).

Information from a bird watcher would indicate that the killings of the Otter at Sandy in 1954 was not the end of their reign, a holt was in use up to 1960. During the hard winter of 1962 a local shooting man, after ducks, saw one in the river Ouse near Bones Meadow at Tempsford, and recently an interesting report came to me that a pair of Otters lived in the Lake at Ickwell Bury for up to two years around this period before being shot for an undisclosed reason. During 1965 a chance sighting was recorded at Willington Mill with no further information. 1969 brought a good record from a fisherman who, while fishing close to the power station near Bedford in the new cut of the river Ouse, saw an Otter leave the water with a fish and was able to watch it for some time, while later he found fish remains in the area. The same year a fisherman at Clapham saw two Otters and had good views of them and was able to be certain of identity.

Published and unpublished records, post 1970

We now come to a period when all records are listed as received but with the gradual spread of Mink through the county some doubt must exist as to their accuracy, especially in the light of the county survey showing the almost certain absence of the Otter from Bedfordshire.

A fisherman reported seeing an Otter in the car park lake at Felmersham in July 1972, and the same person again saw one in the same lake during 1974. In September 1973 from the same area came a report of Otter prints in the mud seen by a group walking the reserve.

An interesting report was given by a gentleman who stopped by some trees alongside the River Ouse near the Falcon Inn on the A6. He saw an Otter leave the water with a fish and was able to watch it eating the fish. He was joined by an AA man who verified the sighting. This occurred in autumn 1973 or 1974.

June 1974 brought the return of Otters to the Ivel at Broom where a local land-owner reported seeing them for the first time in many years (Anon 1974). In September 1975, two Otters were seen by fishermen at Wyboston pits who said they were playing with sticks and when asked what size the animals were they replied "as large as a cat". A fisherman spoken to at Odell in 1975 said that "Badgers" were catching fish and leaving them on the bank, but although the area was searched soon after no fish remains or Otter signs were found.

An old holt (now collapsed) at Pavenham was reported as having an Otter and cubs there for a while in 1975, and around the same stretch of river one was seen in the winter of 1978/79 by a local farmer.

In January 1979, it was thought that an Otter was responsible for attempting to enter a duck decoy near Blunham but no definite signs were available and this report is open to some doubt. A local man reported that he had seen Otter prints and a spraint on the mud on the Ouse near to Willington in spring 1979. At Stevington a farmer's wife reported seeing an Otter early one morning in the same year and later in the year, during September, a fisherman on the same stretch of river reported seeing an Otter. In July 1979 a fisherman reported having a good view of an Otter and cubs in the river near Harrold early one morning. December 1979 brought a second hand report of one seen near Harrold presumably on the Ouse.

We now come to the 1980's, a period during which some survey work was being carried out by the writer prior to the official county survey. Several reports were received, some rather late, but most were followed up as soon as possible if it was thought that there was any chance of a sign being there. Unfortunately nothing was found but that does not detract from the value of the reports.

In August 1980 several strong reports of Otters at Bromham were received but searching at likely spots and talking to locals produced nothing. Later in the year an animal with a broad head and whiskers was seen swimming in one of the lakes at Felmersham.

Quite recently in 1982 while I was talking to a fisherman about Otters at Wyboston he said that he had seen one swim across Heron Lake early one morning, it emerged on a far bank and he had been able to watch it for a short while.

In July 1981 two Otters were seen in one of the Felmersham reserve lakes late one evening by one of the Wardens who watched them for several minutes. During the summer of 1981 a pair of Otters were seen in a small stream that runs into the Ouse in the Willington area but the report was received many months later due to land owners not wanting them to be disturbed. In May 1981 one was reported in gravel pits at Langford but no more details are to hand. In November 1981 an Otter was seen twice crossing the road near Jordan's Mill on the Ivel at Broom, but checks a few days later did not produce any evidence. In May 1982 a large animal was seen in the gravel pits by the Ivel at Henlow. It was described as being as large as a half grown Labrador dog and when disturbed it dived and was not seen any more. Again a search revealed nothing but the site was found to be of quite suitable habitat although rather small in area.

During the early summer of 1983, reports were received of an Otter being seen twice by a very experienced countryman in the north of Bedfordshire and during the same week it was seen by a friend of his. A very cursory check did not show any signs, and the last report received before closing the book was from a gentleman who saw an Otter while sitting quietly at Felmersham during the summer of 1983. He has seen them before in other parts of the country and was sure of identity.

DISCUSSION

Winding through the northern part of Bedfordshire we have one of the country's larger water systems providing many miles of bank and several tributaries of varying size. However, these many miles of bank can not be described as good Otter habitat and it would not be inaccurate to say that only approximately 10-15% is of a quality to be of use to an Otter for either territory, refuge or as a breeding area (Appendix III). Looking at these areas on the map of the county we find that they are all well spaced along the rivers and the areas in between can be considered as unsuitable for the Otter. In the south of the county we have some lesser waterways but to them the same applies with only a few stretches of good habitat and many lengths of bankside are unsuitable.

Improved drainage and more efficient farming methods have both helped, perhaps unintentionally, to bring about this situation and unfortunately it does not seem possible that the situation will change enough for the return of the Otter as a permanent resident of the Bedfordshire waterways. Recent drainage improvement has straightened the rivers and removed many of the features that contributed to the character of the river such as trees overhanging the water and odd little bends, all helping to form pools and backwaters where fish could congregate or shoal. These places would have been found by the resident Otters of years ago but now these features have gone forever.

Fishing, boating and many other water activities all put pressure upon the Otter by disturbance. It should be said in fairness to those pursuits that they are not new and were no doubt practised when the Otter was more plentiful and that individually they would cause little distress to the Otter. The use of organochlorine pesticides has also been blamed for the decline by causing the death of Otters and also inhibiting the breeding success of adults. As we live in a county where cereals are grown, no doubt the use of pesticides has been a contributing factor in the disappearance of the Otter from our waters. Now these dangerous chemicals have been banned from being used on the farms.

Hunting and the taking (killing) of Otters by various means have been part of the country

scene since records began and although many suffered a cruel and untimely fate it would appear from the figures produced that these "sports" had no drastic effect upon the Otter population other than perhaps in the years of the decline helping to inhibit the return of the Otter to its former numbers.

From the data gathered it would seem that the rate of the decline can be ascribed to three stages and perhaps in the following order:-

- i) *Beginning of Decline.* Soon after the end of the Second War the rise albeit slow in recreational and leisure pursuits associated with the rivers.
- ii) *Speed up of Decline.* Pressure on the farmers to produce more food and the introduction of the organochlorine pesticides.
- iii) *Prohibiting Recovery.* Considerable loss of habitats through drainage and improvements to previously unusable farmland.

Perhaps in years to come one of man's created features, the gravel pits that are common in Bedfordshire, may just be good enough to support an Otter for an unknown period of time (Lenton 1979), but that depends greatly upon how they are managed. Some guidance in water management for the Otter and also our aquatic flora and fauna has been published by the Vincent Wildlife Trust (King *et al* 1980).

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APPENDIX I. River Great Ouse - a section looked at for suitability as Otter habitat

A great variety of sites were checked during the survey and, as explained in the text, access was a prime consideration for choosing many of the sites. Selecting a typical section of the river was rather difficult and eventually a section south of the road bridge at Great Barford (Fig 4) was surveyed for about two kilometres during the winter when the dead vegetation facilitated the task of assessing the potential of the terrain as Otter habitat.

Regular 600 metre checks had been carried out at this site as part of the complete survey, but these had mostly been in the summer and spring months when the rank vegetation had made a comprehensive habitat assessment rather difficult. During the summer visits a note was made of the considerable amount of disturbance from the recreational pursuits carried out in the area, such as fishing, boating and walking the footpaths.

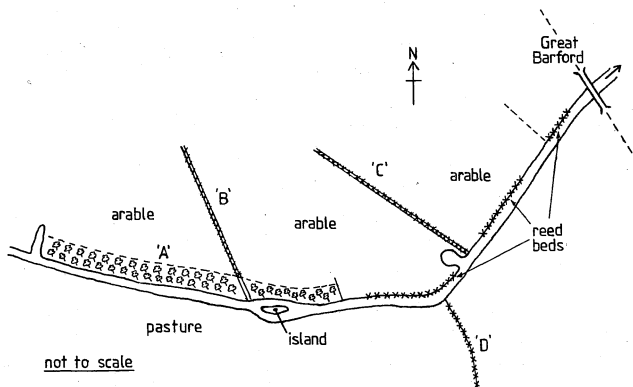


Fig. 4. Study site south of Great Barford road bridge.

Land use adjacent to the river in this section was predominantly pasture for grazing while the remainder was cultivated. Much of the area was low lying and liable to flood easily at times of high rainfall in winter and spring. There was a noticeable lack of mature trees to provide holt sites among their root systems, the commonest tree being willow but these have very fine root systems and do not provide good holt sites.

The main attraction of the area to an Otter would probably be in the summer when the bankside vegetation was at its thickest and the following areas were noted as being probably the best of the section:-

The three reed beds marked on the diagram could provide daytime laying up couches during the spring and summer months, although in winter they are non-existent. The two overgrown ditches on the north side of the river, marked B and C, could provide shelter for some of the year when the vegetation was thick and would act as useful highways to take an Otter away from the river's edge during the day. The areas of trees and scrub marked A could also provide some short term refuge but was probably too close to the river for a permanent site. The small ditch marked D, running into the river on the south side, could provide a highway from the river leading to a thick hedge and an area of scrub in the vicinity.

The lack of laying up sites away from the river, but with reasonable access routes, was considered detrimental to the area as potential Otter residential habitat.

APPENDIX II. Unpublished notes of J. Steele Elliott

A collection of Otter records from the notes of Mr Steele Elliott have recently come to hand. They were found in an interleaved copy of the Vertebrate section of the Victoria County History. Some are rather short of detail and they are quoted as received other than being transcribed in date order, ones that are mentioned previously in the text are marked with an asterisk.

Publication and date unknown, sent me by J.S. Wright.

"A fine female otter was killed at Sandy on Mach 12 by Mr W. Brown. It is now in the hands of Mr J.S. Wright, Clifton, for preservation." "Another fine male otter was caught by Mr H. Kefford of Henlow Park on 18 March. It weighed 17 lbs. Both pike and otter have been forwarded to Mr J.S. Wright, Clifton, Biggleswade, bird and animal preserver, to be stuffed".

The keeper at Warden Great Wood when at Chicksands, killed one old and two young otters in a culvert.

Otter seen several times in the River Ivel at Blunham by my uncle, T.P. Elliott.

Add to record 17.4.1837. *Three had been seen previously in the hollow tree by riverside and one eventually killed in the same place. Stuffed by J. Mantle of Mill Street.

Beds. Mercury

5.1.1884

Beds. Mercury

Saturday

1.3.1884

Beds. Mercury

Saturday

22.3.1884

Beds. Mercury

Saturday

11.4.1885

Beds. Mercury

Saturday

8.8.1885

Beds. Mercury

2.1.1886

Beds. Mercury

Saturday

23.1.1886

1896

Beds. Times

7.9.1900

1.5.1901

J. Land?

Wrest Park

19.3.1902

T. Pearse

2.2.1905

Beds. Times

6.10.1905

8.11.1906

12.11.1906

Beds. Times

14.11.1906

Beds. Times

22.11.1906

*Young otter shot in River Ivel on 17.12.1883 by Mr A. King, weight 8 lbs. etc.

Another otter was captured at Biggleswade on Friday by S. Cheeseman, the water bailiff. He found two together in a hollow tree near Widow Hay Staunch, the male escaped and the one killed weighed 12 lbs.

A large female otter was found dead on Friday last by Cheeseman, the water bailiff. It had got into one of his traps about three weeks ago and escaped. The dead otter was found under some bushes with trap on its leg. This is the fourth otter killed this Winter.

*A dog otter killed by Mr A. King at Langford in the Ivel near Holme Mills on Wednesday. (1st April). Weight 25 lbs. This is the fifth otter killed here in about 12 months.

On Sunday morning a fine young otter killed in brook at Great Barford.

*Beeston. An otter, 24 lbs. in weight, 4'4" shot at Beeston on Xmas Day. (25.12.1885) Sent to Mr J.S. Wright for preservation. This makes the fourth otter shot in the neighbourhood.

*Mr King of Langford shot another fine male otter weighing 24 lbs. on the banks of the Ivel near Langford on Tuesday last (19th January). We are informed that none of these animals had been seen in the neighbourhood for 20 years until quite recently but since the formation of the Angling Association no less than 10 have been killed in the district.

Two otters have been killed at Luton Hoo as I am informed by Neill, the water keeper there. J.S.E.

On Friday the otter hounds from Newport Pagnell met at the "Mill", Sandy. About a mile up river an otter was turned out of osier bed which unfortunately was flooded but after half an hour the kill was made. A ceremony of christening was afterwards performed, the blood of the dead otter being sprinkled on a young gent's face, and he was presented with a pad. The tail was given to a lady from Woburn Sands and the head of Mr Jordan of Holme Mill, Biggleswade. Two other otters were found but managed to escape.

Excrement examined at Langford contained fish bones and scales only. J.S.E.

"I have every reason to say that at long intervals the otter travels up our brook".

Mr Young exhibited recently at B.N.H. Society an otter, 28 lbs. shot at Kempston.

Records otter being killed at Sandy looking inside a poultry run.

Young bitch otter about 8 weeks old, weighing say 4-5 lbs. was taken at Blunham and seen by myself in Covington's workshop. J.S.E.

Otter reported seen at Castle Mills last week. J.S.E.

Letter from C. Mann, member of B.N.H. Society asking if otters lately seen in the river near the Embankment were allowed to remain unharmed and unharmed.

Last week, Mr Gilbert proprietor of the Old Horseshoe Inn, Blunham, while strolling along the river Ouse bagged a very fine bitch otter weighing 17½ lbs. and measuring 3ft 6½ins in length.

- Beds. Times*
22.10.1909
22.9.1913
A dog otter measuring 4ft 4ins in length and weighing about 32 lbs. was shot at Great Barford on 15 October 1909.
Otter leisurely swimming along the Embankment this evening at 8 o'clock. An engine driver on the Midland Railway threw a piece of wood at one and killed it last week. It was swimming under one of the railway bridges. H.H.
- Beds. Times*
3.10.1913
7.3.1915
14.3.1915
6.4.1915
12.12.1921
(H. Howkins letter).
9.2.1924
31.1.1928
Beds. Times
24.2.1928
Beds. Times
22.1.1932
Beds. Times
1.6.1934
An otter weighing 18 lbs. 44" long and 20" round has been shot near the water mill. Killed below my mill in the rough grass under Highromper Bridge. R. Brocklebank.
Remains the fish scales, bones, etc. in some half dozen places between Blunham Old Mill and Tempsford. There is plenty of evidence that otters are commoner now than in memory of this generation. The kills are too numerous now to make worth noting. The Ivel seems to hold more than the Ouse.
Found head and other remains of a 3 lb. otter along river at Turvey towards Carlton, one other place I also saw remains of a? (Remains of fish eaten by otter? J. Green July 1984)
Head of pike side of brook at Kempston. Would have weighed 10 lbs. Remains of an otter feed. H. Howkins
Williamson shot a dog otter last week.
Three skins at the "Anchor", Tempsford, all killed on island by Tempsford sluice. Evidently a similar group to three I saw there and one of which is in my collection. J.S.E.
I met Warren, the keeper, the other morning January 10th. He had just shot an otter along the Cardington Brook against Willington Road by osier bed. It was about three parts grown. H. Howkins.
An otter was seen from Bedford Bridge on 21st. It was in the river just below the bridge and was swimming towards Island.
Last week Mr Bernard Clarke of Malting Farm, Blunham, shot a fine otter in the River Ivel. It weighed 21 lbs.
Mr Lionel Burgoine, aged 16, the eldest son of Mr Frank Burgoine, of Sunnyside, Maulden, shot an otter in one of his father's meadows about 10 o'clock, near to the River Flit. The dead animal was a male otter weighing 30 lbs. and about 5ft. in length. A smaller one also seen was a female and has since been seen near the spot where the capture was made. Many of the older people say that only once before can they remember these animals in the locality, one being killed many years ago.

APPENDIX III. Artificial holts

With the loss of habitats suitable as sites to rest and breed or rear its young the Otter has extra pressures. With this in mind many areas are installing artificial holts or resting places. There is much discussion as to the best design or materials to use and in the end it is usually left to the resources of the individual to use the sites available and any materials to hand. The hunt in years past has installed holts and these were used quite regularly when the Otter was more plentiful (Foxes and Badgers are also fond of man-made homes).

As Bedfordshire has suffered as much as any county in habitat loss from bank clearance and river improvements for more efficient agricultural needs, it was decided to try and help any transient Otter as it passed through the county and three artificial holts have been constructed to complement ones installed by the hunt many years ago, the first being finished in 1980. Unfortunately to date they have only been used by Badgers and Mink but we still hope that one day an Otter will find one as it travels the River Ouse.

BIRDS

Report of the Recorder

INTRODUCTION

1983 was an exceptional year and 185 species were seen, exceeding the previous highest annual total by 11.

The year opened with Long-tailed Ducks still present from 1982, but attention was firmly focused on Exeter Wood when a "buzzard", which had been frequenting the area for some weeks, was confirmed as a Rough-legged Buzzard. It stayed in the vicinity until the end of April. Hen Harriers also showed well, whilst unusual wildfowl were represented by Pinkfeet, a Red-crested Pochard and a Ferruginous Duck.

The main event in February had its origin in the strong north-east winds which caused the biggest seabird wreck ever seen in Britain. Evidence of this reached the county with a Puffin at Woburn, a Razorbill at Stewartby Lake, the first this century, and five Little Auks which were found between 9th and 22nd. Almost overshadowed was a Great Northern Diver at Barkers Lane, a Grey Plover at the same site, and a roost of up to ten Bearded Tits at Brogborough.

A Black Redstart on Blows Downs in early March was the first of several to be seen during the month. Hen Harriers were still putting in an appearance and a Buzzard was seen at Battlesden. Waders during this period included Grey Plover and Turnstone, and undoubtedly the highlight was a flock of 19 Avocets which flew over Barkers Lane on 27th March.

April arrived with cold northerly airstreams, prohibiting migration from the south, but new arrivals included Common Scoter, Garganey and more Grey Plover. Warmer southerly air in mid-month encouraged an influx of summer visitors and an Osprey, Sandwich Tern, Arctic Tern, Spotted Redshank, Turnstone, Whimbrel and Bar-tailed Godwit passed through. From 17th to 22nd Pied Flycatchers, normally an uncommon visitor, were found in five locations. Most of the more typical summer migrants arrived during the same period, many of them earlier than usual, and included Redstarts, Ring Ouzels, Whinchats, Wood Warblers, Water Pipit and at least eight Blue-headed Wagtails. At the end of the month a superb Slavonian Grebe stayed for a few days whilst ten Little Gulls passed quickly over Barkers Lane.

May started well with both Brent Goose and Little Gull at Brogborough on the 1st, to be followed elsewhere by Firecrest, more Garganey, Quail, Pied Flycatcher, Little Tern and a strong passage of Black and Arctic Terns. However, the most memorable event was the occurrence of two new species in the county. The first of these was a White Stork seen at Potton, unfortunately by only one lucky observer. By contrast a Collared Pratincole, which stayed at Girtford for six days, was seen by several hundred observers. A Marsh Harrier which drifted over Girtford on 21st gave those present an unexpected bonus.

Putting aside the excitement of finding rare migrants, it was pleasing to receive the results of a survey of our breeding riparian species that was carried out during the summer by a team of University students. Their findings are detailed in the main body of the report. During the breeding season the usual mixed fortunes were reported. Four pairs of Sparrowhawks raised young and continued to be evident in most parts of the county. Buzzards were seen displaying in the summer, but only one pair of Hobbies were proved to have bred, despite widespread sightings. Little Ringed Plovers maintained their tenuous hold but Ringed Plover failed to breed for the first time since their arrival in the county as a breeding species in 1971. Nightjars were only found in two localities despite extensive searches in other suitable areas. On the brighter side, it now seems strange that Ruddy Duck was only found in the county for the first time in 1980. In 1983 sightings were frequent and two pairs were present throughout the summer in suitable breeding habitat.

July was one of the hottest on record but bird activity remained quiet with only Quail near Sandy to raise temperatures. Most of the wading bird habitats were unsuitable during the autumn and, consequently, wader passage was a disappointment. Wood Sandpiper, Greenshank, Turnstone and Oystercatcher passed through in August and a Black-necked Grebe near Brogborough was the first of four to appear. However, the spotlight was stolen by the arrival of a rare White-winged Black Tern which graced Stewartby for three days, joined during its stay by a

Little Tern. At the end of the month a noticeable fall of passerines, including Redstarts, Whinchats, Willow Warblers, Spotted Flycatchers, Lesser Whitethroats and Pied Flycatchers took place.

September started with gale force westerlies which brought the second rush of seabirds in the year. On the 3rd a Storm Petrel was seen at Brogborough, the first since 1894, on the 4th a Leach's Petrel appeared briefly at Stewartby and then two days later four Shags arrived at Brogborough. Birdwatchers alerted by these events also found Ferruginous Duck and Knot at the same site. On the 16th, a Manx Shearwater, no doubt a victim of the same weather movement, was picked up alive at Willington and released later on the coast. Two Little Stints showed at Girtford in mid-month and a Black-tailed Godwit appeared briefly at Blunham.

October was also dominated by westerlies which were responsible for the year's second Leach's Petrel, this time at Kempston. Up to five Buzzards were reported from the Southill area to supplement those seen at three other localities in September. At Brogborough one diligent observer found the year's second Red-crested Pochard among a record flock of 842 Pochard.

A decidedly wintry look beset the list for November. Cold easterlies from the 12th brought, on the following day, Red-breasted Merganser, 14 Bewick's Swans and Brent Geese whilst on the 17th a Great Grey Shrike arrived to spend the winter at Barkers Lane. Two days later a Glaucous Gull, only our third, appeared at the same site whilst at Chimney Corner only our second Velvet Scoter arrived to complete a remarkable trio.

December's weather was fairly unseasonal and several large flocks of Golden Plover became established, seven Bewick's Swans appeared at Stewartby and a Hen Harrier was seen near Pegsdon. During the milder weather both Blackcaps and Chiffchaff were found, but perhaps more typical was a Kittiwake and Whooper Swan at Brogborough and a Bittern at Felmersham on Boxing Day.

During the year Ring-necked Parakeet was given full status as a British species. With the two other additions already mentioned this brought the Bedfordshire list to 263. My thanks go to those observers who helped put it on record.

P. Almond, D. Anderson, D.H. Ball, M.J. Beauchamp, D.K. Bednall, B.T.O., C.W. Burton, Mrs. A. Catchpole, R. Catchpole, M. Chandler, A.H. Chapman, T.D. Charlton, R. Cinderey, Mrs. E.M. Cook, P. Cottier, R. Daniel, F.P. Dawson, I.K. Dawson, A. Doody, W.H. Drayton, R. Dumpleton, S.E. Eaton, T. Edwards, R. Fryett, W.H. Gerrard, D. Green, M.J. Green, C. Harbard, A. Harding, W.S. Hardy, R. Hart, The Hawk Trust, L.S. Hazzard, R. Higgins, (RHi), P.N. Holden, B. Howes, D. Howes, R.A. Hume, M. Hunt, C. Hutchinson, B.M. Innes, L.R. Jarrett, J.G. Jarvis, H. Key, D.J. King, J.P. Knowles, D. Kramer, Ms. D. Lawrence, D.P. Lawrence, A.J. Livett, R. Millard, Dr. J. Muir, E.C. Newman, (B. Nightingale), J. Niles, D.J. Odell, P. Oldfield, M.J. Palmer, Ms. S. Parry, H. Pegg, T. Peterkin, R. Rayment, L. Rose, J. Rowe, R.S.P.B., Mr. Sharman, Mrs. E.M. Sharrock, Dr. J.T.R. Sharrock, R. Simmons, P. Smith, D. Snaithe, B.R. Squires, R.B. Stephenson, T.J. Stowe, J. Swann, C. Tack, N.R. Terry, M. Thompson, J. Tirrel, (J.T.), A. Tomczynski, Dr. D. Toomer, Mrs. J. Toomer, P. Trodd, J. Turner, (J.Tu), C. Ward, K. Weedon, Mrs. M.P. Willatts, S.G. Williams, N. Wood, D.S. Woodhead, Young Ornithologists Club.

SYSTEMATIC LIST FOR 1983

Species recorded in Bedfordshire during 1983 in usual numbers and not included in the systematic list are: — Kestrel, Red-legged Partridge, Pheasant, Common Gull, Stock Dove, Woodpigeon, Tawny Owl, Green Woodpecker, Great Spotted Woodpecker, Skylark, Dunnock, Robin, Song Thrush, Mistle Thrush, Goldcrest, Long-tailed Tit, Marsh Tit, Coal Tit, Blue Tit, Great Tit, Nuthatch, Treecreeper, Starling, House Sparrow, Greenfinch, Linnets, Bullfinch, Yellowhammer.

English and scientific name follow the *'British Birds' List of Birds of the Western Palearctic* (1978).

The following abbreviations are used in the text: — CBC = Common Bird Census; CHP = Chalk Pit; CLP = Clay Pit; GP = Gravel Pit; L = Lake; Res = Reservoir; R = River; SP = Sand Pit; SW = Sewage Works.

- Great Northern Diver** *Gavia immer* One at Barkers Lane GP 3rd February was only the third this century (AH).
- Little Grebe** *Tachybaptus ruficollis* On the R. Ouse nine confirmed breeding territories with at least seven broods, totalling 13 young. Two broods at Milton Ernest, at least four broods Bromham-Kempston and one brood Great Barford. On R. Ouzel three territories and broods between Linslade and Slapton (4 young). Other breeding records received from Girtford GP, Brogborough CLP, Stewartby L, Steppingley Res, and Dunstable SW.
- Great Crested Grebe** *Podiceps cristatus* Two territories on R. Ouse at Sharnbrook and between Harrold and Turvey, but no broods seen. Successful breeding noted at the following sites with the number of young in parenthesis: Battlesden L one pair (2); Brogborough CLP one pair (2); Grovebury SP three pairs (10); Houghton Regis CHP one pair (2); Southill L one pair (2); Stewartby L one pair (2) and Woburn L one pair (1). Breeding also took place at Felmersham NR with one pair present but success was unknown. Attempted breeding by two pairs was frustrated by disturbance at Barkers Lane GP. The highest winter gathering was 66 at Stewartby L 22nd February.
- Slavonian Grebe** *P. auritus* One in summer plumage Steppingley Res from 28th April to 3rd May (BRS, BN *et al*).
- Black-necked Grebe** *P. nigricollis* One at Brogborough No. 2 CLP (DHB, BN *et al*) from 6th to 14th August, two at Blunham GP 19th September (PO) and one at Harrold GP 16th to 23rd October (DSW, DH).
- Manx Shearwater** *Puffinus puffinus* A storm-blown bird was picked up alive at Willington on 16th September and later released on the coast (RR).
- Storm Petrel** *Hydrobates pelagicus* A single Brogborough CLP 3rd September was the first since 1894 (AT).
- Leach's Petrel** *Oceanodroma leucorhoa* Singles Stewartby L 4th September (DJO, BN, BRS) and Kempston 18th October (DJO).
- Cormorant** *Phalacrocorax carbo* Recorded in every month from March to November from a total of ten localities. Most were singles but nine flew west over Blows Downs and seven north over Girtford on 5th April, and five were at Harrold GP on 7th September. Seven at Barkers Lane GP on 31st March had the white heads and necks typical of the continental race *P. c. sinensis*.
- Shag** *P. aristotelis* Four storm-driven birds at Brogborough CLP on 6th September were the first in the county since 1968 (AT, DJO, PT *et al*).
- Bittern** *Botaurus stellaris* One at Felmersham NR from 26th to 27th December (WSH).
- Grey Heron** *Ardea cinerea* Breeding reports from Southill L, with seven nests certainly occupied, three probably and two possibly, and from Luton Hoo with a total of five nests. Still no reports from the heronry at Bromham.
- White Stork** *Ciconia ciconia* One at Potton on 5th May is the first county record. It coincided with several other reports of vagrant herons in southern England (FPD).
- Mute Swan** *Cygnus olor* On R. Ouse 20 territories, but the only successful broods were at Harrold (3 young), Radwell (5), Turvey Park (4), and Eaton Socon (3). There was an unsuccessful nest at Bromham. On R. Ouzel unsuccessful nests at Linslade and Leighton Buzzard. On R. Ivel one brood of eight was successfully raised. Nesting success was undoubtedly affected by late spring flooding. Other single broods reported from Barkers Lane GP (4 young), Dunstable SW (young unknown), Girtford GP (8) and Stewartby L (4).
- Bewick's Swan** *C. columbianus* 14 flew south over Barkers Lane GP 13th November (DK) and seven were seen at Stewartby L 17th December (DJO).
- Whooper Swan** *C. cygnus* Of the four feral birds released at Blunham GP at least one was still present at year end. Elsewhere one was seen at Brogborough CLP 28th December (AT).
- Pink-footed Goose** *Anser brachyrhynchus* Five at Radwell GP 16th January (DSW).
- White-fronted Goose** *A. albifrons* Two in Woburn Park from 7th February to 10th March were perhaps of captive origin.
- Greylag Goose** *A. anser* Breeding records from Felmersham NR with six adults and 12 juveniles, and a maximum of 60 young counted at Harrold GP on 8th May. Throughout the year the

highest numbers were reported from Harrold/Radwell area including counts of 250-300 9th July at Harrold, 187 at Radwell 18th September and 205+ at Turvey 27th December. 63 were counted at Blunham GP on 13th February with smaller numbers from seven other sites.

- Canada Goose** *Branta canadensis* Young noted at Brogborough CLP (20) Eversholt L (4), Battlesden L (7), Southill L (6), Harrold GP (22), Sharnbrook (11). A nesting pair was also present at Elstow CLP. High counts included 241 Southill L 2nd January, 130 Luton Hoo 27th September, 220 Brogborough CLP 9th October, 225 Harrold GP and 271 Woburn L both on 16th October.
- Brent Goose** *B. bernicla* Singles Brogborough CLP 3rd-4th March, 1st May and 13th November and three over Harlington also 13th November (AT, MJP *et al*)
- Shelduck** *Tadorna tadorna* Up to two pairs were present until June at the same site where breeding took place in 1981 and 1982. Unfortunately, because of further excavation work breeding was not successful. A pair were seen copulating at another site in May but no further evidence was seen of breeding. Four birds which summered near Turvey were thought to be escapes. Away from these sites seen in each month except September at a total of 11 sites. Small influxes were noted in March, April and in August when six were at Barkers Lane GP on 10th, three over The Lodge, Sandy on 12th, one at Girtford GP on 15th, one at Stewartby L 29th and five at Dunstable SW on 31st.
- Mandarin** *Aix galericulata* Breeding site on R. Ouzel occupied with three drakes and four ducks present with broods of six and seven raised. Elsewhere birds reported from Woburn L with a maximum of ten, Harrold GP with seven, Turvey five, Stockgrove Park four and Eversholt L two.
- Wigeon** *Anas penelope* Numbers were higher in the first winter period with a maximum of 50 at Barkers Lane GP 1st January and 70 at Harrold GP on 29th January. The last to depart in spring were ten at Radwell GP and five at Barkers Lane GP on 28th March, and the earliest autumn returns were two at Harrold GP 29th August. Recorded from total of 12 sites but numbers were down on recent years.
- Gadwall** *A. strepera* Numbers were well down with a maximum of 92 at Blunham GP 4th January. Birds had virtually deserted this, their normal stronghold, by March. A flock built up at Dunstable SW in the second winter period peaking at 40 on 17th December. Reports from eight other localities but no other count exceeding ten.
- Teal** *A. crecca* Numbers were well down. The largest flocks were 143 Southill L 19th November and 132 at Barkers Lane GP 15th January. Smaller numbers from 11 other sites. Breeding took place on R. Ouzel at Old Linslade with eight young raised, and birds summered at two other localities on R. Ouse.
- Mallard** *A. platyrhynchos* Along the R. Ouse 232 territories with at least 80 broods counted. On the R. Ouzel ten pairs with broods between Linslade and Slapton, and on R. Ivel seven pairs with broods. A good nesting season at Barkers Lane GP with 150 young reared. Numbers overall continue to decline in the county and the only locations to hold 300 or more were Harrold GP with 550 on 18th December, Southill L with 487 on 28th August, Grovebury SP with 300 on 2nd October and Turvey with 300 27th December.
- Pintail** *A. acuta* At Harrold GP a single drake was present from 1st January to 10th March, and then perhaps the same bird at Radwell GP 20th March. Four at Harrold GP on 18th December and two on 30th. Elsewhere singles Coronation CLP on 13th November and Stewartby L 11th December.
- Garganey** *A. querquedula* An average year with the first pair at Girtford GP on 4th — 9th April, single drakes Barkers Lane/Fenlake 4th May and Blunham GP 22nd May. In the autumn a single Dunstable SW 19th August with two on 29th August, and lastly a single Luton Hoo 18th September.
- Shoveler** *A. clypeata* Status about the same as last year. 60 at Dunstable SW 14th October, 31 at Southill L 26th November and 23 Blunham GP 4th January. Reports from 11 other sites but never more than seven together. Bred successfully at Girtford GP with three young raised. Breeding attempted but failed at Houghton Regis CHP.

- Red-crested Pochard** *Netta rufina* Single drake Harrold GP 29th January to 6th February (DSW *et al*) and an immature drake Brogborough CLP 1st to 15th October (AT).
- Pochard** *Aythya ferina* Bred successfully at Brogborough CLP with seven young, and Stewartby L with three young. Unprecedented build-up occurred in the autumn at Brogborough CLP with 167 on 25th July, 343 21st August, 405 on 8th September and then 842 on 3rd October. Numbers then rapidly dropped, with 356 on 16th October, 403 on 27th November and 148 on 18th December. These numbers totally dwarfed flocks elsewhere during this period with only 103 at Radwell GP 13th November and 152 at Blunham GP 25th December exceeding 100. In the first winter period 216 at Barkers Lane GP on 3rd January and 121 Blunham GP 21st January were the only counts of note.
- Ring-necked Duck** X *Aythya* A hybrid drake at Blunham GP on 26th February showed elements of Ring-necked Duck (RAH).
- Ferruginous Duck** *A. nyroca* A duck was present at Blunham GP from 25th January to 26th February (DJK, MJP *et al*) and a drake at Brogborough CLP from 3rd September until 6th (BN, AT *et al*). Certain features of this bird did not totally rule out the possibility of a hybrid. Can observers please note that for conclusive acceptance of records for this species careful consideration should be given to avoid possible confusion with various hybrids.
- Tufted Duck** *A. fuligula* Breeding records from R. Ouse with five pairs and two broods, R. Ouzel with one brood of six, probably 11 pairs at Blunham GP with 75 juveniles, Girtford with probably five pairs and 33 juveniles and Stewartby L with a maximum of seven young. Very low numbers throughout the year with no flock exceeding the 99 at Blunham GP on 25th December. Maximum counts at other sites were 90 at Chimney Corner CLP 7th December, 70 Radwell GP 16th January, 68 Harrold GP 23rd January, 60 Brogborough CLP 20th December, 58 Wyboston GP 30th December, 50 Dunstable SW during December and 41 Luton Hoo 13th February.
- Long-tailed Duck** *Clangula hyemalis* Staying over from 1982 were two at Stewartby L, last seen 29th April (MJB, AT *et al*) and one at Barkers Lane GP, last seen 8th February (DK, MJP *et al*).
- Common Scoter** *Melanitta nigra* Four at Stewartby L and three at Brogborough CLP all on 4th April probably involved the same birds (TP, PT, PS). Three at Brogborough CLP 13th June (DHB).
- Velvet Scoter** *M. fusca* A duck at Chimney Corner CLP 19th - 20th November was only the second county record (CW, AT, DJO *et al*). It presumably was the same bird that was relocated at Brogborough CLP on 6th December (DHB).
- Goldeneye** *Bucephala clangula* Records were widespread. The highest counts were ten from Harrold GP 16th January and 12 Barkers Lane GP 4th February. The last to depart in spring was one at Radwell GP 18th May and the first to return was one at Barkers Lane GP 12th October. Reports from Blunham GP where released birds are present are not included.
- Red-breasted Merganser** *Mergus serrator* Two at Stewartby L and Barkers Lane GP on 18th April probably involved the same birds. Singles Chimney Corner CLP 29th October and at Barkers Lane GP 13th to 20th November (DK, AT, CT, *et al*).
- Goosander** *M. merganser* The first was at Blunham GP 16th January, followed by four at Woburn L 7th February with three there 27th February; one stayed at Stewartby L from 5th February until 4th April and then in December singles Chimney Corner CLP on 24th and Barkers Lane GP 28th.
- Ruddy Duck** *Oxyura jamaicensis* The first breeding activity took place in the county, when at a site in mid-Bedfordshire two pairs stayed throughout the summer with display taking place. At Barkers Lane GP one 1st January, one 25th March and two from 26th February to 6th March, singles 28th March, and from 11th to 20th November. Two at Stewartby L 30th April. At Woburn two on 11th March; Brogborough CLP three on 21st August, two different birds 18th September; at Radwell GP single 13th November and Harrold GP 26th December.
- Some of these records may originate from the releases made at Blunham GP.
- Marsh Harrier** *Circus aeruginosus* A single drifted over Girtford GP 21st May (RHi, AT).

- Hen Harrier** *C. cyaneus* Singles in the Knocking Hoe — Higham Gobion area 21st January to 26th February, near Gastlings, Old Warden 22nd January, Exeter Wood 29th January, Blunham 18th March, Home Wood, Sandy 20th March and in the second winter period singles at The Lodge, Sandy 8th November and near Tingley Wood, Pegsdon 19th December (CWB, BN, DJO, CDH, RAH, TDC).
- Sparrowhawk** *Accipiter nisus* Four pairs successfully bred, and display was seen at five other sites. During the year birds were seen in 12 of the 10 KM squares in the county. Noticeable absentees were from SP96, TL06, TL15 and TL24 which may reflect observer coverage rather than a lack of birds. Two observers reported Sparrowhawks taking prey from their garden.
- Buzzard** *Buteo buteo* In the spring one was seen at Battlesden L 13th March. Two were seen soaring and calling in June in a locality in the west of the county. A noticeable influx took place in September with birds seen at Totternhoe and Whipsnade on 5th, Charlewood with two on 9th, a single Exeter Wood 16th October and then possibly up to five in the Exeter Wood — Southill area where ones and twos were then seen up to the year end. One was seen over The Lodge, Sandy 1st November and lastly a single was seen in Luton Hoo 4th December.
- Buzzard** sp *Buteo/Pernis* sp One was present in Luton Hoo during July and two were seen 17th September.
- Rough-legged Buzzard** *B. lagopus* On 8th January one was found at Exeter Wood. It stayed in the area until 23rd April, during which time it was seen north to Sheerhatch Wood, east as far as Sandy and south to Chicksands Wood. It is possible that more than one bird was involved particularly as two 'buzzards' had been reported from Exeter Wood at the end of 1982 (BN, DHB, DJK *et al*).
- Osprey** *Pandion haliaetus* One passed west over Blunham 14th April (TDC).
- Hobby** *Falco subbuteo* Although proof of breeding came from only one site, where one young was raised, it is not unreasonable to suggest, with the numerous sightings reported, that six other pairs were present.
- Grey Partridge** *Perdix perdix* Records from only 18 tetrads and most of those from the south and west of the county. By contrast one observer from Totternhoe reported 28 sightings during the year compared with only five for Red-legged Partridge, whereas on Whipsnade Downs only one pair was found.
- Quail** *Coturnix coturnix* A good year with the first heard at Galley Hill 5th May, and subsequently reported from Dunstable Downs, Totternhoe, by R. Ouse, Queens Park and lastly on 20th July near Sandy.
- Lady Amherst's Pheasant** *Chrysolophus amherstiae* At the main breeding site in Charlewood an estimated 20 pairs raised 35 young. At Luton Hoo numbers were down with breeding success low. In Maulden Woods at least six males were present. Elsewhere six were seen in Warden Great Wood in January, two males at Battlesden L in September and a single male in Flitwick Plantation in February.
- Water Rail** *Rallus aquaticus* Status remains unchanged with records in the breeding season from Flitwick Moor with a daily maximum of four. Winter records from ten sites, mostly singles.
- Moorhen** *Gallinula chloropus* On R. Ouse 150 territories were occupied, 30 nests were found and 22 broods raised. On R. Ouzel 22 territories were occupied, ten nests found and five broods raised. On R. Ivel seven territories were occupied and three broods raised.
- Coot** *Fulica atra* On R. Ouse 62 territories were occupied, 30 nests found and 14 broods raised. On R. Ouzel three territories were occupied between Linslade and Slapton. Towards the end of the year a large influx occurred particularly at Brogborough CLP with 715 on 13th November, 783 27th November and 950 18th December. Elsewhere 405 were counted at Chimney Corner CLP on 13th December, 108 at Blunham GP on 18th December, 102 Barkers Lane GP 20th December and a maximum of 240 at Dunstable SW during December.
- Oystercatcher** *Haematopus ostralegus* Singles Stewartby L 26th February, Harrold GP 12th March, Barkers Lane GP 21st March, Carlton 13th August and Harrold GP 17th October.



Fig. 1. Collared Pratincole over Girtford where it stayed from 19th to 24th May
(Photo: T. Loseby)

- Avocet *Recurvirostra avosetta*** 19 flew north east over Barkers Lane GP 27th March (DK). This is the third county record.
- Collared Pratincole *Glareola pratincola*** One at Girtford GP 19th — 24th May. This is the first county record and has been accepted by the British Birds Rarities Committee (JM, JT *et al*), (Fig. 1).
- Little Ringed Plover *Charadrius dubius*** A poor breeding season with activity noted at just two sites, both new. At one site a single pair raised one young, at the second at least four pairs and possibly eight attempted to breed, raising at least two young. Birds were present at another five sites during the breeding season but no evidence of breeding. Passage numbers remained low and away from the breeding sites the daily maximum was four. The first in spring were singles at Dunstable SW and Barkers Lane GP 29th March.
- Ringed Plover *C. hiaticula*** For the first time since 1971, when breeding first took place in Bedfordshire, this species failed to breed. Passage numbers were low with a spring maximum of eight at Blunhm GP 1st April and an autumn maximum of eight at Girtford GP 11th July, where the last were seen on 17th September. Winter records of singles from Barkers Lane GP on 2nd January, Harrold GP 26th February and Radwell GP 27th February.
- Golden Plover *Pluvialis apricaria*** Widespread and numerous in both winter periods with records from 28 localities. The first in autumn was one over Everton 13th August and the last in spring was one over Barkers Lane GP 10th April. There was a noticeable passage in March. Impressive flocks were reported from Broom with 537 on 26th November, Cardington airfield with 382 on 3rd December, Kempston with 300 30th December, near Willington with 400 29th December, Wyboston with 350 2nd January, Keepers Warren with 370 8th January, Totternhoe 300 on 3rd March and 700 near Eaton Bray 15th March.

- Grey Plover** *P. squatarola* One at Barkers Lane GP 8th February was found dead there on 20th (DK). One at the same site 27th March was joined by another on 28th (DK, DJO *et al*). Lastly, one was seen in Houghton Regis CHP 13th April (PT).
- Lapwing** *Vanellus vanellus* Impressive flocks of 5000 Harrold GP 1st January, 1000 at Radwell GP 16th January and 5th March, and 1000 Great Barford 9th September. Adjacent to R. Ouse 14 territories were counted.
- Knot** *Calidris canutus* Single Brogborough CLP 3rd September (AT).
- Little Stint** *C. minuta* Single Girtford GP 11th to 19th September was accompanied by a second from 15th to 17th (DJO, DHB).
- Dunlin** *C. alpina* Very low numbers. Spring passage was noted from just two sites and lasted from 1st March to 18th April with a maximum of four at Barkers Lane GP 11th April. In the autumn just three records — a single at Girtford GP 5th to 11th July and again 2nd August, and a single Dunstable SW 29th August. Winter records from Chimney Corner CLP with a single from 20th to 24th November and then three on 7th December, Elstow CLP with a single on the same day, Barkers Lane GP with a single 22nd December and Radwell GP with seven on 30th January.
- Ruff** *Philomachus pugnax* Two at Dunstable SW 30th March, single at Radwell GP 20th to 25th August and two at Totternhoe 13th September with one on 15th.
- Jack Snipe** *Lymnocyptes minimus* More widespread in first winter period with records from five sites. At Radwell GP present from 2nd January until 19th March peaking at five, at Houghton Regis CHP with a maximum of ten with the last on 8th April, at Barkers Lane GP with singles 11th February and 17th April and at Harrold GP with singles 8th January and 5th March. The first returning bird was at Grovebury SP 18th September, and then in December at Girtford GP from 11th to 29th with a peak of three. The maximum at Houghton Regis CHP in the second winter period was five.
- Snipe** *Gallinago gallinago* One definite breeding record from near Sandy, and drumming was heard at Brogborough CLP 29th May, Houghton Regis CHP 1st and 8th April, Linslade 31st May and Little Barford 9th June. The only large flocks noted were on the flooded meadows at Fenlake with 151 12th February and 103 22nd February, and in the second winter period 158 6th December and 95 on 22nd.
- Woodcock** *Scolopax rusticola* Roding noted from Maulden Woods, The Lodge Sandy, Palmers Wood, Holme Wood, Chicksands Wood, Millbrook and Wavendon Heath. The only obvious migrant was one at Girtford Bridge 7th December. 25 were flushed during a shoot in Warden Great and Little Woods 15th January.
- Black-tailed Godwit** *Limosa limosa* Single Blunham GP 19th September (SGW).
- Bar-tailed Godwit** *L. lapponica* Single Brogborough CLP 25th April (AT).
- Whimbrel** *Numenius phaeopus* One over The Lodge, Sandy, 18th April followed by one at Barkers Lane GP two days later, 13 over Everton 30th July and one over The Lodge, Sandy 12th September.
- Curlew** *N. arquata* Small passage early spring with singles at Barkers Lane GP 31st March, and in April at Stewartby L on 10th, Radwell GP 24th and Barkers Lane GP 28th. In June two at Girtford GP on 13th and single Barkers Lane GP on 28th, where one was also seen 2nd July. Birds were heard near Great Brickhill 22nd July and over Carlton 29th August, when one was also seen at Harrold GP. Three were there on 1st September with singles also on 10th and 25th. Finally November records from Stewartby L 11th and Chimney Corner CLP on 20th.
- Spotted Redshank** *Tringa erythropus* Single Barkers Lane GP 18th — 19th April and at Great Barford 11th September.
- Redshank** *T. totanus* The only breeding records were from Houghton Regis CHP, where at least five pairs were present during the breeding season, with one well grown chick seen, and at Girtford GP where three pairs bred. Single territories were held adjacent to R. Ouse near Eaton Socon, Tempsford and Great Barford.
- An influx occurred during March with birds reported from eight sites, the maximum being ten at Girtford GP on 26th. A smaller passage then continued through April at a further five

localities. Away from the breeding areas seen only at five sites in the autumn with a maximum of two. Winter records from three sites, all singles.

- Greenshank** *T. nebularia* Typically only two spring records with singles at Radwell GP 24th April and Felmersham NR 29th April. In the autumn the first was one at Grovebury SP 16th July but the main passage lasted from 7th August, when there were four near Great Barford, single at Radwell GP and three at Grovebury SP, until 22nd September at a total of ten sites.
- Green Sandpiper** *T. ochropus* Seen every month except May and June. Between January and April singles seen at eight localities. A small passage was noted 27th to 29th March with records from three sites. In the autumn birds were more widespread with reports from 15 sites. The main influx was between 24th and 26th July with reports from six sites. The maximum together was five at Chalton SW 25th August.
- Wood Sandpiper** *T. glareola* The only record was one at Harrold GP 20th August.
- Common Sandpiper** *Actitis hypoleucos* An unusual winter record with a single at Stewartby L 16th to 22nd January, and the same or another on 19th March. The main spring passage, commencing on 1st April, was noted at seven sites, mainly singles, but a peak of five occurred at Dunstable SW. The main autumn passage commenced 16th July and was reported from 14 sites with the last, a single, at Stewartby L on 6th October.
- Turnstone** *Arenaria interpres* Singles Stewartby L 20th April and Girtford GP 17th August.
- Little Gull** *Larus minutus* Ten at Barkers Lane GP 27th April and two Brogborough CLP 1st May (DJO, AT).
- Black-headed Gull** *L. ridibundus* During the BTO Gull survey 26,980 were counted at roost on Stewartby L 22nd January.
- Lesser Black-backed Gull** *L. fuscus* Roosts of 250 were counted at Grovebury SP 5th September and 200 at Stewartby L 27th October.
- Herring Gull** *L. argentatus* During the BTO Gull survey 1,215 were counted at Stewartby L 22nd January. Elsewhere up to 65, including several large dark Scandinavian birds frequented Potton in December. 200 at Elstow rubbish tip 26th November were mostly dark types.
- Glaucous Gull** *L. hyperboreus* A first winter bird first seen at Barkers Lane GP 19th November was relocated at Elstow rubbish tip the next day (DJK, DHB *et al.*). This is only the third county record.
- Great Black-backed Gull** *L. marinus* 150 were present at Sundon rubbish tip in January.
- Kittiwake** *Rissa tridactyla* Single Brogborough CLP 10th December (SGW)
- Sandwich Tern** *Sterna sandvicensis* Single Barkers Lane GP 11th April (DJO, DK, JS) and another there 26th April (MJP).
- Common Tern** *S. hirundo* The first in spring was one at Barkers Lane GP 11th April, but the main arrival was about ten days later with nine at Barkers Lane GP on 19th, nine at Stewartby L 20th, three at Harrold GP 23rd and seven at Brogborough CLP 25th. The last was a single at Barkers Lane GP 11th October. Successful breeding took place at three localities with two, three and four young raised. Fish carrying in July was seen at a fourth site but no further evidence of breeding was seen.
- Arctic Tern** *S. paradisaea* Three at Barkers Lane GP 11th April with two there on 25th, single Brogborough CLP 1st May, two Radwell GP 8th May, single Stewartby L 10th May. In the autumn all records were from Brogborough CLP with a single 3rd September, two on 5th and then a single from 6th to 22nd September.
- Little Tern** *S. albigrons* Singles Dunstable SW 23rd May (PT) and Stewartby L 12th — 13th August (DJO *et al.*).
- Black Tern** *Chlidonias niger* Strong passage in both spring and autumn. The first were four at Brogborough CLP and two at Stewartby L on 17th April, followed by a single at Barkers Lane GP on 22nd. The next movement was on 25th with 11 at Barkers Lane GP, four at Stewartby L and a single at Brogborough CLP. At these three sites a steady trickle then moved through, with a peak of ten on 6th May at Barkers Lane GP, until 15th May. In the autumn again the passage centred on these three sites, starting on 21st July, peaking with 12 on 23rd September at Stewartby L and finally two at Brogborough CLP and five at Harrold GP on 1st October.



Fig. 2. This White-winged Black Tern stayed at Stewartby L. from 10th to 12th August.
(Photo: A. Tomczynski)

- White-winged Black Tern** *C. leucopterus* The third county record occurred at Stewartby L between 10th and 12th August (MJG, MJP, DHB *et al*). This record is waiting confirmation from the British Birds Rarities Committee, (Fig.2).
- Razorbill** *Alca torda* One found dead at Stewartby L on 23rd February coincided with other seabirds blown inland by the strong north-east winds. It was estimated to have been dead for about a week, (MJB, BN). The only other county record is an old specimen from last century thought to have come from Fenlake.
- Little Auk** *Alle alle* Five found between 9th and 22nd February were only the third occurrence this century and the first since 1950. The first at Luton on 9th was found alive, but died later; the second found on the same day at Keysoe was later released alive as was the third found at Potton on 16th. The last two were both found dead on 22nd, one at Flitwick and one at Greenfield (per CH, DS).
- Puffin** *Fratercula arctica* One found freshly dead at Woburn on 17th February had been ringed 28th July 1982 on Sule Skerry, Orkney (per BTO).
- Collared Dove** *Streptopelia decaocto* Winter roosts reported as follows: 112 Stewartby 5th January; 110 near County Hall, Bedford 22nd March; 120 Well Head 12th November; 130 Wootton Green 29th November.
- Turtle Dove** *S. turtur* The first in spring were at Whipsnade Zoo and The Lodge, Sandy, 22nd April followed by one at Old Warden a day later. The last was a late bird at Bedford SW on 2nd October. Results from a CBC plot near Old Warden shows a drop of 66% from 1982 in the number of breeding pairs.
- Ring-necked Parakeet** *Psittacula krameri* During 1983 this species was given full status (category C) as a British bird. Single in Houghton Regis CHP 31st July and most of August, two over Tebworth and one over Tempsford in December.

- Cuckoo** *Cuculus canorus* The first was on 19th April at The Lodge, Sandy.
- Barn Owl** *Tyto alba* Six pairs bred, but at one site the three young died when the adults disappeared, presumably killed. Three other pairs possibly bred and records were received from six other sites. The Hawk Trust, who are conducting a national survey into this species, estimate the county population to be 20 pairs.
- Little Owl** *Athene noctua* Records received from 25 localities, 12 of them in the breeding season; few from north of Bedford and east of Old Warden.
- Short-eared Owl** *Asio flammeus* Reported from seven sites between January and March. Most were singles except three on 16th January at Coronation CLP, where a peak occurred on 13th February of seven. Influx during April with singles at five sites and a late bird at Barkers Lane GP 3rd May. Unusually reported twice in July but no evidence of breeding. Not then reported until November. Birds were present at four sites at year end, all singles except three between Sewell and Totternhoe in December.
- Nightjar** *Caprimulgus europaeus* Two males Wavendon Heath and another at Moneypot Hill were the only records despite intensive searches at most other suitable sites.
- Swift** *Apus apus* The first was at Barkers Lane GP 19th April, which was early, and the last were three at the same locality and two at The Lodge, Sandy 20th September. The main spring passage was between 3rd and 13th May including 350 at Stewartby L on 8th.
- Kingfisher** *Alcedo atthis* After the set-backs in the winter of 1982 a good recovery. Eight pairs raised young, including three along R. Ouse and birds were present at another three sites in the summer. Reported from an additional 12 sites outside the breeding season.
- Lesser Spotted Woodpecker** *Dendrocopos minor* Reported from 11 localities, all but two north of Maulden Woods. Note that during the Breeding Atlas period 1968-77 birds were reported from 73 tetrads. On a 200 acre CBC plot near Old Warden breeding pairs have dropped from five in 1981 to one in 1983.
- Sand Martin** *Riparia riparia* The first were two at Blunham GP 25th March and the last at Barkers Lane GP 1st October. Breeding colonies at Grovebury SP with 120 pairs, Shire Hall, Bedford with five nest holes, Radwell GP with 200 nest holes, Tingrith with 20-50 nest holes and Turvey ten nest holes. This would suggest an increase in the breeding population, or perhaps only a reflection of improved observer coverage.
- Swallow** *Hirundo rustica* The first was one at Barkers Lane GP on 4th April and the last on 20th October at The Lodge, Sandy.
- House Martin** *Delichon urbica* The first, which was later than usual, was at Harrold GP on 16th April and the last was one at Carlton on 5th November.
- Tree Pipit** *Anthus trivialis* Breeding records from ten sites with the earliest on 13th April at The Lodge, Sandy. A migrant was seen at Harrold GP 7th September.
- Meadow Pipit** *A. pratensis* Typical early spring influx at Barkers Lane GP with 88 on 31st March, 180 on 1st April, 90 on 2nd April and then 110 on 12th April. At Radwell GP 100 on 27th March, 150 on 3rd April, 300 on 4th and 200 on 7th April.
- Rock Pipit** *A. spinoletta* One Brogborough CLP 15th October (AT). One showing the characteristics of the race *A. spinoletta spinoletta*, known as the Water Pipit was seen at Barkers Lane GP 18th April (DK et al).
- Yellow Wagtail** *Motacilla flava* The first was at Barkers Lane GP 2nd April and the last were three at Radwell GP 2nd October. Along R. Ouse 30 confirmed territories and 21 possible territories were plotted; by R. Ouzel one confirmed territory and by R. Ivel one confirmed and one possible. Additional breeding records from Grovebury SP, near Lewsey Farm, Luton and Barkers Lane GP. Impressive numbers built up here during April with 48 on 14th, 75 on 19th and 85 on 20th. In the autumn 100 were counted at Harrold GP on 14th September.
- Examples of the race *M. flava flava*, known as the Blue-headed Wagtail were seen at Barkers Lane GP from 11th April to 14th May, peaking with four 17th—18th April. It was considered that six different birds were involved. One was seen at Stewartby L 18th April and another at Brogborough CLP 20th April. (DJO, DK, AJL, AT et al)

- Grey Wagtail** *M. cinerea* Definite breeding record from Linslade where two broods were raised. A pair was seen carrying nesting material in Luton Hoo and birds were present at three other sites in the summer. Winter reports from 16 other localities mostly of singles, but seven at Luton SW on 13th February is of particular note.
- Pied Wagtail** *M. alba* Along R. Ouse only six confirmed and eight possible territories were found; along R. Ouzel two confirmed and two possible and by R. Ivel three confirmed territories. Winter flocks included 100 at Barkers Lane GP 23rd January, 93 Luton SW 13th February, 330 at roost Queens Park 30th November and 100 Leighton SW 29th December. Single birds of the continental race, *M. alba alba*, known as the White Wagtail, were seen at Radwell GP from 14th to 22nd April, Barkers Lane GP from 10th to 17th April with three from 19th to 21st, Girtford GP on 21st April and two at Blunham GP 22nd April.
- Wren** *Troglodytes troglodytes* Large recovery noted since 1981/82 winter. On a 200 acre CBC plot near Old Warden 42 pairs were holding territory compared to 14 in 1982, and at The Lodge, Sandy described as common and widespread with 54 pairs breeding.
- Nightingale** *Luscinia megarhynchos* The decline continues with 11 singing males at five sites. The earliest were two at Odell Woods 23rd April.
- Black Redstart** *Phoenicurus ochruros* No breeding records although one seen in a Luton garden from 10th March to 15th April was near to a former breeding site. One on Blows Downs on the 5th March was followed by another there on 30th March with three on 31st. Elsewhere singles at Stanbridge 19th March, Barkers Lane GP 29th — 30th March, Oakley and Whipsnade Zoo 3rd April, Old Warden 9th April, Linslade from 15th — 23rd April and lastly Lewsey Farm, Luton on 11th May added up to a notable influx.
- Redstart** *P. phoenicurus* Four pairs were successful in raising ten to 12 young in the Wavendon Heath/Woburn Golf Course/Charlewood area. Another pair raised young near The Lodge, Sandy. These records reflect a substantial improvement in the breeding status. Remarkable influx in mid-April with 11 birds at nine localities between 16th and 21st April, and then another five singles during late April and May. In the autumn singles at Everton 13th August, Whipsnade Zoo on 27th August, Whipsnade Downs on 30th August, Brogborough CLP 3rd September and lastly, Sandy 9th October.
- Whinchat** *Saxicola rubetra* No breeding records although notable influxes in both spring and autumn. Between 17th April and 1st May ten birds were seen at five sites with another two at Barkers Lane GP 5th May. In August, between 11th and 31st, 18 birds were seen at eight sites, and in September nine birds at another five sites.
- Stonechat** *S. torquata* Increase on 1982 with singles in the first winter period at Stewartby L, Barkers Lane GP and Brogborough CLP, and at the end of the year at Bedford SW and Lewsey Farm, Luton. Passage noted on Blows Downs 19th to 25th August and 26th September.
- Wheatear** *Oenanthe oenanthe* Very heavy spring passage. The first was one near Blunham 12th March, passage then lasting until 8th May at numerous sites. The peaks were 18 on Blows Downs on 30th March, and typically another wave between 2nd and 5th May with eight on Galley Hill, seven at Barkers Lane GP and six in Houghton Regis CHP. As usual, the autumn passage was lighter and more spasmodic, lasting from 10th August until 20th September, with a peak of five at Bedford SW on 19th September. Lastly, a late bird was seen at Blunham 29th October.
- Ring Ouzel** *Turdus torquatus* Passage noted on Whipsnade Downs between 16th and 22nd April with at least four birds, and on Blows Downs between 14th April and 1st May, with at least five birds involved. Four late birds were seen at Little Hill, Billington on 27th May.
- Blackbird** *T. merula* Strong passage noted at Barkers Lane GP between 29th October and 29th November with 88 on 5th November, 51 on 6th and 47 on 15th.
- Fieldfare** *T. pilaris* The first arrival was at Whipsnade Zoo 27th October with the latest in spring one at the same site 16th April, and then another on 14th May at Exeter Wood. The only flock of note was 500 at Battlesden L 13th March.

- Redwing** *T. iliacus* The first in autumn were at Everton on 2nd October and the last in spring at Totternhoe 14th April. Large influx took place 19th — 21st November with 500 at Harrold GP and 1000 at Stanbridgeford.
- Grasshopper Warbler** *Locustella naevia* With only 21-23 singing males from eight sites this represents a further decline. The first was at Harrold GP 16th April which was early.
- Sedge Warbler** *Acrocephalus schoenobaenus* The first was at Barkers Lane GP 15th April and last there on 28th September. 17 singing males were counted at this site in the summer. Adjacent to R. Ouse 230 confirmed territories were counted with 12 along R. Ouzel and 32 adjacent to R. Ivel.
- Reed Warbler** *A. scirpaceus* The first, and earliest ever, was one at Harrold GP 16th April, and the last was at Barkers Lane GP 2nd October.
Along the R. Ouse 112 singing males were found with seven along R. Ivel. Colonies at six other sites were reported, the largest of 18 at Battlesden L.
- Lesser Whitethroat** *Sylvia curruca* The first was on 23rd April at Old Warden Tunnel which was early. Between 23rd and 26th August a small fall was noted at five sites, with a maximum of 17 on Blows Downs.
- Whitethroat** *S. communis* The first on 17th April, which was early, was at Stewartby L, where the last was seen on 18th September. On a 200 acre CBC plot near Old Warden breeding pairs have dropped from ten in 1981, seven in 1982, to five in 1983.
- Garden Warbler** *S. borin* The first was seen at Barkers Lane GP 27th April.
- Blackcap** *S. atricapilla* The first was seen at Blunham 8th April which was earlier than average.
Winter records from Harrold GP 20th November, Dunstable 20th December and Maulden 27th December with two on 28th.
- Wood Warbler** *Phylloscopus sibilatrix* Singing birds heard in suitable breeding habitat at Rushmere (two birds), The Heath, Leighton Buzzard (two birds) and Stockgrove (one bird).
Small influx in spring with two at Barkers Lane GP on 23rd April, one staying until 28th, one in Bedford also 23rd, then three in Luton Cemetery 1st May, one in Luton Hoo on 2nd and one at Blunham on 11th.
- Chiffchaff** *P. collybita* Winter records at Harrold GP from 1st January to 5th February, Dunstable SW 8th January, Chalton SW 13th February and Maulden 8th December. The first probable migrant was one at Cox Hill, Sandy 17th March and the last at Barkers Lane GP 16th October. Indications from CBC results are that the breeding population was well down.
- Willow Warbler** *P. trochilus* The first was at Barkers Lane GP 1st April but the main arrival was 20th — 21st April with 30 at Brogborough CLP and 30 at Chalton SW. The breeding population appeared to be stable.
- Firecrest** *Regulus ignicapillus* A singing male near Old Warden 8th May (SGW, DJO *et al.*)
- Spotted Flycatcher** *Muscicapa striata* The first was on 26th April at Barkers Lane GP, and the last at the same site 24th September. A small fall 21st — 24th August with five Brogborough CLP and three Stewartby L. Both local and national CBC results indicate an increase in the breeding population.
- Pied Flycatcher** *Ficedula hypoleuca* Unprecedented influx in April which was noted throughout south-east England, with one at Barkers Lane GP 17th to 19th, Haynes Park 17th, Luton town centre 20th, Whipsnade Downs 21st, Stanbridge 22nd and lastly, The Lodge, Sandy 6th May. In the autumn singles at Brogborough 19th August, The Lodge, Sandy 26th August and lastly Totternhoe 1st October.
- Bearded Tit** *Panurus biarmicus* A peak of ten found roosting at Brogborough CLP from 11th February until 3rd March (AT, DJO, JS, *et al.*)
- Willow Tit** *Parus montanus* Recorded from 23 widely spread localities.
- Great Grey Shrike** *Lanius excubitor* One at Barkers Lane GP 17th November stayed to 1984 (DK, DJO *et al.*)
- Jay** *Garrulus glandarius* Evidence of the late autumn invasion from the continent into Britain reached the county with the following flocks noted: 12 at Luton Hoo 12th October with 19

on 4th December (normally one or two seen); 18 over Fancott 18th October; flocks of eight and ten in Whipsnade Zoo in late September; large numbers in Kensworth, including 13 in one flock, and a fourfold increase from early October in Aspley Heath/Woburn area.

Magpie *Pica pica* A maximum of 50 + was counted at the roost on Dunstable Downs in the first winter period.

Jackdaw *Corvus monedula* Roost of 500 Little Barford 8th January.

Rook *C. frugilegus* Roost of 1500 Little Barford 8th January.

Carrión Crow *C. corone* A bird showing characteristics of the Hooded Crow, *C. corone cornix*, was seen at Whipsnade Zoo 13th April (CT).

Tree Sparrow *Passer montanus* A flock of 210 was counted at Northhill 22nd January.

Chaffinch *Fringilla coelebs* An 'albino' stayed at Barkers Lane GP from 19th to 23rd April.

Brambling *F. montifringilla* The largest flock was 30 on 31st March at Houghton Hall, Dunstable, where the last was seen 5th April. The first in autumn was one over Whipsnade Zoo 5th November, and then at Bedford SW and Willington the next day. In the second winter period, apart from a roost of 18 at The Lodge, Sandy in December, the largest flock was of six, although ones and twos were widespread.

Goldfinch *Carduelis carduelis* Influx at Barkers Lane GP on 22nd August numbered 140.

Siskin *C. spinus* One pair almost certainly bred at The Lodge, Sandy. A singing bird in April and May and then a pair was seen on June 16th with three juveniles.

Small flocks were widespread, particularly in the second winter period, with a peak of 120 at Eversholt L 11th December.

Redpoll *C. flammea* The largest flock was of just 40 at The Lodge, Sandy February 12th.

Crossbill *Loxia curvirostra* At The Lodge, Sandy a female on 3rd January, three 7th March and 20 29th June comprising mainly adults. A pair was seen 17th July and a pair with six juveniles on 18th. The last was one over Sandy on 29th July. Elsewhere four were at Old Wavendon Heath 23rd January and a pair was at Whipsnade Zoo 19th March.

Hawfinch *Coccothraustes coccothraustes* A fall in the number of sightings with two 29th April and then up to four in Maulden Woods in May. One January in Studham and one near Old Warden in April and May.

Reed Bunting *Emberiza schoeniclus* 94 confirmed and 46 possible territories along R. Ouse, four confirmed and two possible along R. Ouzel. At Harrold GP a roost of 300 in January.

Corn Bunting *Miliaria calandra* Breeding season records from Grovebury SP, Sandy, Blows Downs, Houghton Regis CHP, Stopsley Common, Warden Hills and Dunstable SW.

ESCAPES

Canary One at Blunham GP 30th June and probably the same at Girtford GP 18th July.

Bar-headed Goose One Stewartby L 22nd January and one at Harrold GP 9th July.

Lesser White-fronted Goose An adult 9th July at Harrold GP.

Snow Goose Singles Radwell GP 29th January, Woburn 5th February, Radwell GP 20th August and Brogborough CLP 14th October with four at Harrold GP 16th October.

Barnacle Goose Single Blunham GP 1st to 5th January. Four in Harrold/Radwell area between 16th January and 1st April. Two at Harrold GP 9th July, one at Radwell GP 20th August, one at Harrold GP 26th November, three Luton Hoo 18th December and one at Turvey 27th December.

BARRY NIGHTINGALE

BIRD RINGING REPORTby **D.S. Woodhead**

A total of 3837 birds were ringed during the year, a lower total than in previous years due to one very active ringer leaving the area and other totals not being received in time to include in the report. The numbers of species ringed increased from the previous year (55 to 64) and there were sufficient numbers of recoveries to provide an interesting report, see Table.

The number of Canada and Greylag Geese have been rapidly expanding in the county over the past few years reaching large numbers particularly in the Harrold/Radwell area. The presence of these flocks is posing an increasing problem for the local farmers, so in an effort to understand the movements of these birds both locally and hopefully further afield, an effort was made to ring part of the flock this year as they congregated to moult at Harrold Gravel Pits. At total of 100 geese were ringed which was a very pleasing total for the first years effort. It is too early to gain any information yet, but if the ringing is continued in forthcoming years I hope to put an interesting report together. One fact that did emerge was that a large number are shot locally, particularly Canada Geese.

Enough information is being put together for an updated report to be made on the local Sand Martin situation; this will probably be reported on in the near future. Two active colonies were worked in the county at Radwell and Potton and a number of birds were also caught at an impressive roost that built up at Girtford GP in the autumn. A total of 24 short distance recoveries were received and the more interesting longer movements are listed, these include three from Scotland, one from Wales and one which took two days to cover 114Km from Gloucestershire.

The number of Sylvia Warblers passing through in the autumn appeared much higher this year. Lesser Whitethroats seemed to find Harrold GP very much to their liking, a total of 15 being caught on one day alone.

Once again I must thank those ringers who operate in the county for the submission of their records and also appeal to others who work in the county to submit theirs so that in future years I can put together a more interesting report.

RINGING TOTALS FOR 1983

Great Crested Grebe	1	Yellow Wagtail	4	Long-tailed Tit	21
Mute Swan	1	Pied Wagtail	2	Marsh Tit	6
Greylag Goose	56	Wren	32	Willow Tit	11
Canada Goose	44	Duncock	65	Coal Tit	2
Coot	1	Robin	49	Blue Tit	154
Sparrowhawk	1	Nightingale	4	Great Tit	74
Kestrel	1	Wheatear	2	Treecreeper	4
Ringed Plover	4	Blackbird	180	Jay	2
Lapwing	15	Fieldfare	6	Jackdaw	3
Jack Snipe	1	Song Thrush	55	Rook	1
Snipe	2	Redwing	2	Starling	121
Common Sandpiper	7	Sedge Warbler	189	House Sparrow	41
Turnstone	1	Reed Warbler	183	Tree Sparrow	5
Collared Dove	1	Lesser Whitethroat	53	Chaffinch	25
Cuckoo	4	Whitethroat	19	Greenfinch	156
Swift	12	Garden Warbler	47	Goldfinch	29
Kingfisher	2	Blackcap	66	Linnets	37
Skylark	6	Chiffchaff	7	Redpoll	23
Sand Martin	819	Willow Warbler	186	Bullfinch	70
Swallow	658	Goldcrest	5	Yellowhammer	10
House Martin	139	Spotted Flycatcher	18	Reed Bunting	78
Meadow Pipit	14				

CONTRIBUTORS S. Batty, P. Holmes, E.C.B. Newman, P.J. Wilkinson, M.A. Woodhead.

Address: 79, The Moor, Carlton, Bedford MK43 7JS

SPECIES	RINGING DETAILS						RECOVERY DETAILS				
	ring number	age code	sex	date	location	date	location	recovery manner	distance km	direction	
Greylag Goose	LO 3461	4		8.7.83	Harrold G.P.	5.9.83	Earls Barton, Northants	+	13	NW	
Canada Goose	1105663	3	J	12.8.80	Rutford County Park, Ollerton, Notts	19.2.83	East Hyde	V	155	SSE	
						19.9.83	Luton Hoo	+			
	LO 3414	4		8.7.83	Harrold G.P.	15.10.83	Irthlington G.P., Northants	+	33	N	
Shoveler	FRO 1349	4	♂	28.2.81	Blunham	29.11.81	Izmail, USSR	+	2261	ESE	
Ringed Plover	BV 88257	1		21.7.79	Harrold G.P.	4.8.83	Grafham Water, Cambs	V	23	NE	
Kingfisher	SA 70163	4		11.5.83	Bedford S.F.	26.6.83	Harrold G.P.	V	14	NE	
Sand Martin	B 903110	4		18.6.83	Bangor, Gwynedd	11.9.83	Girtford	V	282	ESE	
	B 881174	3	J	13.8.83	Ashton-in-Makerfield, Lanes	11.9.83	Girtford	V	218	SE	
	B 922070	3	J	29.7.83	South Cerney, Gloucs	31.7.83	Radwell G.P.	V	114	NE	
	B 732698	3		10.8.83	Seaside Dyke, Errol, Tayside	14.9.83	Harrold G.P.	V	496	SSE	
	B 277273	3	J	23.8.81	Radwell G.P.	25.7.82	Seaside Dyke, Errol, Tayside	V	496	NNW	
	*A 881545	3	J	27.7.80	Radwell G.P.	10.7.82	Steelpark, Ochiltree, Strathclyde	V	443	NNW	
	B 427749	4	♂	22.7.82	Hurst Green, Whalley, Lanes	2.9.82	Harrold G.P.	V	221	SE	
Swallow	B 901010	1		5.7.83	Dungavel, Strathclyde	17.9.83	Girtford	V	461	SSE	
	B 093378	3	J	26.8.82	Bedworth, Sloughs, Warwcs	27.8.82	Harrold G.P.	V	69	ESE	
Blackbird	XA 31377	5	♂	17.2.81	Bicester, Oxon	20.1.83	Cranfield	V	45	NE	
Reed Warbler	B 537437	4		25.7.82	Spalding Common, Lincs	5.8.83	Harrold G.P.	V	69	S	
Garden Warbler	KA 48298	4		16.5.82	Richmond, N.Yorks	4.5.83	Cranfield	V	266	SSE	
Starling	XK 38023	4	♂	18.10.81	Carlton	5.11.82	Castell Nanhyfer, Nevern, Dyfed	X	288	E	
	XX 77658	3	♀	12.11.71	Hull, E. Yorks	3.1.74	Luton	X	205	S	
Greenfinch	NK 16232	5	♂	4.1.82	Cranfield	5.2.83	East Retford, Notts	V	140	NNE	
Reed Bunting	B 764078	3	♀	22.11.82	Girtford	5.6.83	Brandon, Warwcs	V	81	WNW	

Euring age code: 1 Pullus; nestling or chick
 2 Fully grown, but year of hatching unknown
 3 Hatched during calendar year of ringing (J - in juvenile plumage)
 4 Hatched before calendar year but exact year unknown
 5 Hatched during previous calendar year
 6 Hatched before previous calendar year but exact year unknown

Sex: ♂ male
 ♀ female

Recovery manner: V - Controlled (trapped and released)
 + - Shot or killed
 X - Found dead or dying

Table. Details of selected ringing and recovery records.

FISH

Report of the Recorder

At the last meeting of the Society's Recorders, we were urged to pay more attention to the relative abundance of the various species within our disciplines as well as continue with routine work on distribution. My task in this respect has been made much easier thanks to the kindness of the Anglian Water Authority, who sent me copies of detailed fishery surveys for the Great Ouse downstream of Bedford from Fenlake to Wyboston, the River Ivel from Astwick to the Ivel/Ouse confluence at Tempsford, the Rivers Flit, Hiz and Hit, plus the Longholme Lake at Bedford. Furthermore, as an added bonus, I was able to extract no less than 55 new county tetrad records from these reports.

The graphs show the comparative abundance per species represented as a percentage of the total number of fish taken from the two main rivers. Looking first at the downstream section of the Ouse, Fig 1, we can see that Roach are the most numerically abundant species accounting for 51% of the total. Second comes the Gudgeon with 22%, then the Ruffe with 8% with 5% apiece are Dace and Bleak, Common Bream with 3%, and 2% are Pike and Perch, and lastly the Chub with only 1%. The others mentioned are those species whose individual scores came to less than 1%. I list them here in order of numerical abundance, with the figures in brackets referring to their percentage scores: Silver Bream (0.46%), Eel (0.16%), Roach/Bream Hybrids (0.15%), Tench (0.13%), Carp (0.02%), and Rudd (0.01%).

It is interesting to note that if you consider the total weight of the individual species taken and look at their contribution to the mean biomass, a somewhat different picture emerges. Common Bream were the most dominant species by weight, accounting for 36% of the total mean biomass. In order of importance the others are as follows: Roach (29%), Pike (13%), Chub (6%), Ruffe (4%) and Gudgeon (3%).

Turning to comparative abundance per species in the Ivel, Fig 2, again it can be seen that Roach take the Lion's share with 58%. Next the Gudgeon with 16%, Dace with 13%, Chub with 4%, Perch with 3%, Common Bream and Ruffe with 2%, and lastly the Pike with 1%. The others being: Eel (0.46%), Bleak (0.20%), Stone Loach (0.20%) and Tench (0.15%).

The total mean biomass contribution per species in the Ivel is as follows: Roach (38%), Chub (24%), Pike (12%), Dace (8%) and Gudgeon (6%).

I did not consider it worthwhile to produce graphs showing the comparative abundance per species in the three minor rivers and Longholme Lake, nor shall I deal with the biomass contribution per species in these areas. However, the surveys did indicate the following with regard to numerical abundance at these locations:

River Flit. Gudgeon were the most abundant species accounting for 62% of the total number of fish taken. Next came the Dace with 35% and finally the Stone Loach with 3%. The Bullhead was mentioned as the next most abundant species, but as no details were given regarding the number taken, no percentage figure can be given.

River Hiz. Rainbow Trout were the most abundant species with a score of 40%, although it is suspected that these are escapees from a Trout Farm near Hitchin. The Stone Loach came second with 33%, and Pike and Gudgeon came a joint third with 13%.

River Hit. Dace were the most abundant species with seven individual fish taken. The Bullhead came second, but apparently no other species were taken. Again, no percentage figures can be given as there are no details with regard to the numbers of Bullhead.

Longholme Lake, Bedford. In order of numerical abundance the species scored as follows: Roach (81%), Pike (6%), Gudgeon (4%), Perch (3.5%), Bleak (3%), Chub (0.8%) and Tench (0.8%).

Now to deal with the routine matters of general recording and distribution. However, as the AWA's surveys also made a most significant contribution to this aspect of our work, I shall still be referring to them. 1983 was certainly a bumper year, with 74 new county tetrad records for a total of 22 species — i.e. 81% of all the species so far recorded on the county list.

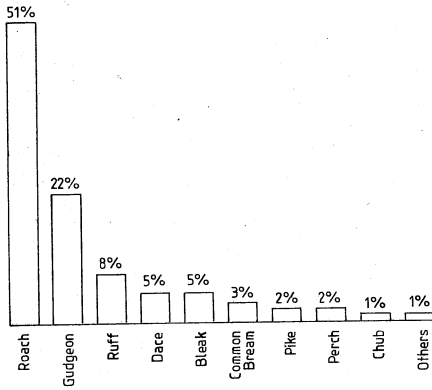


Fig. 1. Comparative abundance of species. R. Great Ouse — Fenlake to Wyboston.

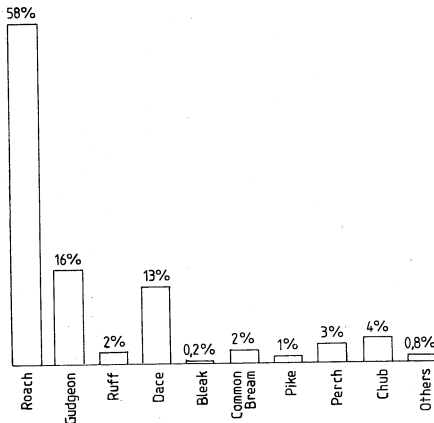


Fig. 2. Comparative abundance of species. R. Ivel — Astwick to Ivel/Ouse confluence at Tempsford.

It was very pleasing to obtain a record for Spined Loach — only the third report of this species which I have received, the last record being obtained in 1977. It is interesting to note that in the 1948 edition of this Journal (*Bedf. Nat.* 330) the late Mr Fred Soper reported how this species was unexpectedly found in Longholme Lake, when it was netted by the "Fishery Board" in January of that year. However, the species failed to reappear when the AWA netted the site on 27th July, 1983. Oddly enough, though, our 1983 record was obtained when they netted the Great Ouse at Fenlake, which is in the same tetrad as Longholme Lake, 04U.

I think the time has come to seriously re-assess the status of the Bleak in the county. Certainly, the available evidence indicates that some of my own assumptions in this respect have been wrong. We received eight records for this species in 1983, although only one was a new tetrad record. In the 1978 Fish Report (*Bedf. Nat.* 33 43) I classed Bleak as "a very common species in virtually every stretch of our linear waters." In the 1981 Fish Report (*Bedf. Nat.* 36 38) I pointed out that whilst David Anderson's fishing friends had not found the species in the River Ouzel or the canal at Leighton Buzzard, I still believed them to be "abundant" in the Rivers Ouse and Ivel. However,

the AWA's Survey of the downstream stretch of the Ouse places them in only a modest fourth position in the abundance stakes, accounting for a mere 5% of the total number of fish taken. The situation in the Ivel is even worse, for they did not even appear in sufficient numbers to be featured on the graph. In fact, in the Ivel they came ninth in the abundance stakes with a very low score of 0.20% of the total.

To be honest, I was going to review the Silver Bream's continued status on the county list. Hitherto, we only had two records for this species, both of them being received during my first year as Fish Recorder in 1976, with no subsequent confirmation reports whatsoever. Therefore, it is extremely pleasing to note that the AWA's survey of the Ouse provided us with five new county tetrad records for the species. Furthermore, considering how uncommon (or under-recorded) they are, the Silver Bream achieved a very respectable eighth place in the river's comparative abundance stakes, with a score of 0.46%.

We received two reports of Barbel during the year, one of them providing a new tetrad record. This being a dead specimen found by Countryside Ranger, Mike Beauchamp, on the Ouse between Harrold and Odell. A subsequent scale reading indicated that this fish was between 6 to 8 years of age. To date, all of our Barbel records have been obtained from the Ouse upstream of Bedford, and it may be significant to note that the AWA's survey of the downstream stretch produced no reports of this species. The AWA are going to survey the river upstream of Bedford in 1984 and have kindly promised to send me a copy of the report. It will be interesting to see what, if anything, this turns up in respect of Barbel. Also, we have both European Catfish and Zander recorded from the Ouse, although neither species featured in the survey. Again, our reports of both species have occurred a few kilometres upstream from the survey's starting point, so I wonder if the results of the upstream survey will show any significant differences between this and the ichthyofauna of the downstream stretch?

Understandably, the highly detailed information supplied by the AWA has dominated this year's report. However, I most certainly do not overlook the very valuable contributions provided by the five individuals who submitted fish records during the year. Indeed, every single one of them provided at least one new county tetrad record and my sincere thanks go to the following:

M. Beauchamp, Laura Brightman, Rosemary Brind, B.M. Innes and A. Muir-Howie.

NEW TETRAD RECORDS FOR 1983

- Pike** *Esox lucius* — 5 tetrads. 05V, 13Y, 14UW, 23E.
Perch *Perca fluviatilis* — 4 tetrads. 95P, 05V, 14U, 16A.
Roach *Rutilus rutilus* — 6 tetrads. 92R, 95P, 05V, 14W, 16A, 23E.
Rudd *Scardinius erythrophthalmus* — 2 tetrads. 95P, 16A.
Dace *Leuciscus leuciscus* — 5 tetrads. 05V, 13EPZ, 14Q.
Chub *Leuciscus cephalus* — 1 tetrad. 14Q.
Gudgeon *Gobio gobio* — 6 tetrads. 05V, 13EYZ, 14QW.
Bleak *Alburnus alburnus* — 1 tetrad. 05V.
Common Bream *Abramis brama* — 5 tetrads. 95P, 05V, 14UWY.
Silver Bream *Blicca bjoerkna* — 5 tetrads. 15AFLST.
Tench *Tinca tinca* — 3 tetrads. 95P, 05V, 16A.
Barbel *Barbus barbus* — 1 tetrad. 95N.
Carp *Cyprinus carpio* — 2 tetrads. 95P, 15F.
Crucian Carp *Carassius carassius* — 2 tetrads. 14Q, 16A.
Eel *Anguilla anguilla* — 6 tetrads. 05V, 13Z, 14QXY, 15A.
Bullhead *Cottus gobio* — 3 tetrads. 13EP, 14U.
3-Spined Stickleback *Gasterosteus aculeatus* — 2 tetrads. 04U, 15F.
Stone Loach *Noemacheilus barbatulus* — 5 tetrads. 13EYZ, 14Y, 15F.
Spined Loach *Cobitis taenia* — 1 tetrad 04U.
Minnnow *Phoxinus phoxinus* — 1 tetrad. 15F.
Ruffe *Gymnocephalus cernua* — 7 tetrads. 05V, 14UW, 15FLST.
Rainbow Trout *Salmo gairdneri* — 1 tetrad. 13Y.

SPIDERS (Araneae)

Report of the Recorder

There was some response to my comments in the 1982 Report. Dave Guntrip (pers. comm.) has noted *Pholcus phalangioides* in his Luton home, but has expressed some doubt as to its origins since he has collected the species outside the county, so this specimen may have been imported.

Terry Hollingworth provided information from a Ph.D. thesis by Holmes (ref. 33) which had involved pitfall-trapping for spiders at Cranfield (1981-1982). Of the 45 species listed, four are new records for Bedfordshire. Apart from one of these, they are not uncommon; however, as the specimens are not available for checking, the identifications must be treated with caution. Most specimens were thrown away (pers. comm. Holmes) though a small collection was set up. This may not have survived but is being searched for.

A useful book on spiders was published during the year. It is *The Country Life Guide to Spiders of Britain and Northern Europe* by Dick Jones, and is published in paperback and hardback by Country Life Guides (previously known as Hamlyn Guides). Over 350 spiders and harvestmen are illustrated by photographs, as well as being described.

ADDITIONS TO THE COUNTY LIST AND THE LITERATURE SURVEY

Family CLUBIONIDAE		<i>Oedothorax gibbosus</i> (Blackwall)	33
	<i>Clubiona compta</i> C.L. Koch	<i>Oe. fuscus</i> (Blackwall)	33
	<i>Agroeca proxima</i> (O.P.—Cambridge)	<i>Oe. retusus</i> (Westring)	33
Family LYCOSIDAE		<i>Oe. apicatus</i> (Blackwall)	33
	<i>Trochosa ruricola</i> (Degeer)	<i>Silometopus reussi</i> (Thorell)	33
	<i>T. robusta</i> (Simon)	<i>Cnephalocotes obscurus</i> (Blackwall)	33
	<i>T. terricola</i> Thorell	* (<i>Aulacocyba subitanea</i> (O.P.—Cambridge)	33)
Family MIMETIDAE		<i>Tiso vagans</i> (Blackwall)	33
	<i>Ero furcata</i> (Villers)	<i>Monocephalus fuscipes</i> (Blackwall)	33
Family TETRAGNATHIDAE		(<i>Jacksonella falconeri</i> (Jackson)	33)
	<i>Pachygnatha clercki</i> Sundevall	<i>Gonyldiellum vivum</i> (O.P.—Cambridge)	33
	<i>P. degeeri</i> Sundevall	<i>Micrargus herbigradus</i> (Blackwall)	33
Family ARANEIDAE		<i>M. subaequalis</i> (Westring)	33
	<i>Araneus opistographus</i> Kulczynski	* (<i>M. laudatus</i> (O.P.—Cambridge)	33)
Family LINYPHIIDAE		<i>Erigonella hiemalis</i> (Blackwall)	33
	(<i>Ceratinella brevipes</i> (Westring)	<i>Savignya frontata</i> (Blackwall)	33
	<i>Walckenaera antica</i> (Wider)	<i>Diplocephalus latifrons</i> (O.P.—Cambridge)	33
	<i>W. melanocephala</i> O.P.—Cambridge	<i>Araeoncus humilis</i> (Blackwall)	33
	<i>W. nudipalpis</i> (Westring)	<i>Lessertia denticelis</i> (Simon)	33
	<i>W. dysderoides</i> (Wider)	* (<i>Typhochrestus digitatus</i> (O.P.—Cambridge)	33)
	(<i>W. monoceros</i> (Wider)	* (<i>Drepanotylus uncatu</i> (O.P.—Cambridge)	33)
	<i>Dicymbium nigrum</i> (Blackwall)	<i>Milleriana inerrans</i> (O.P.—Cambridge)	33
	<i>Entelecara erythropus</i> (Westring)	<i>Ostearius melanopygius</i> (O.P.—Cambridge)	33
	<i>Moebelia penicillata</i> (Westring)	<i>Agynera subtilis</i> (O.P.—Cambridge)	33
	<i>Hypomma cornutum</i> (Blackwall)	<i>Meioneta rurestris</i> (C.L. Koch)	33
	<i>Gonatium rubens</i> (Blackwall)	<i>Bolyphantes luteolus</i> (Blackwall)	33
	<i>Pocadicnemis juncea</i> (Millidge)		33

* New county records

REFERENCES

33. HOLMES, P. *A field study of the ecology of the Grain Aphid, Sitobion arvense, and its predators*. Ph.D. Thesis.

T. J. THOMAS

**THE SPIDERS AND HARVESTMEN OF OLD WARDEN
TUNNEL NATURE RESERVE
PART II: THE SPIDER SPECIES
by T.J. Thomas**

INTRODUCTION

The objectives of the experiment and the procedures used have been previously described (Thomas 1982a) and this report follows on with a general account of the spiders captured during 1977-1983. Although not all the pitfall traps were in place until mid-1978, the results for the preceding months are given for completeness of the record. Some of the references quoted will be found in Part I, and the tables and figures are numbered in sequence from that paper.

THE SPIDER SPECIES

The list of spiders given at the end of this report contains 142 species — captured by various methods — of which 101 have been taken in the pitfalls including five species new to the reserve or the county and have been reported (Thomas 1981, 1982). Thus the first objective of the experiment in finding new species has been achieved. Many juveniles that were determinable to the genus and the species have also been given in the list along with the total numbers of individuals captured for 1977-1983.

A single, but interesting capture, was that of a gynandromorph of the species *Centromerita concinna* (compare with Arnold 1980).

Some of the spiders listed are not likely to be taken in pitfalls, e.g. *Araneus umbraticus*, an orb-web builder that usually lives beneath the loose bark of trees, although there will be adventitious captures such as *Meta mendei* which is common and abundant on the reserve.

Area	A	B	C		A	B	C	
Year	Species/yr			total	cumulative/yr			total
1977	5	4	8	11	5	4	8	11
1978	27	23	18	44	29	26	22	48
1979	34	29	36	54	41	40	38	68
1980	26	31	36	55	47	48	48	81
1981	37	25	30	51	61	52	53	91
1982	40	34	42	60	68	55	59	98
1983	39	27	34	57	74	57	67	101
Mean	35	29	36	55	—	—	—	—

Table 3. Numbers of spider species in the pitfalls (1977-1983)

Nevertheless, have the pitfalls yet taken all the capturable species possible? Table 3 shows the numbers of species found in each year of the experiment, as well as the cumulative totals, year by year, for each trapping area. Remembering that 1977 and 1978 were the initial years of the experiment, when the traps were being placed, so that those results are incomplete, the total cumulative figures show a steady decrease in the number of new species being taken, although the individual areas are not so consistent, particularly on a year to year basis. Also, the number of species captured each year, for an individual area or in total, is fairly consistent, so that a limit to the

Address: 142 Selbourne Road, Luton, Beds

number of capturable species is probable. As the experiment has been under way for only seven years, and is continuing, perhaps future results will confirm this implied limit to the species capturable by the pitfall method. Such a limit would not be unexpected as, apart from adventitious captures, there is a finite number of spider species that are likely to be ground-dwelling (cursorial). And, allowing for natural variations as well as adventitious takes, the numbers of species captured yearly in any of the trapping sites should be steady, especially as the collecting procedure is standardised and if the area does not change in any way that affects the spider species composition.

THE ABUNDANT SPECIES

In each complete year of the trapping experiment 15-20 species accounted for approximately 70% of the captures, and of these, six species averaged 52% of all individuals over the same period, i.e. 1979-1983. These abundant spiders were: *Agroeca inopina* (8%), *Pardosa nigriceps* (8%), *Alopecosa pulverulenta* (8%), *Trochosa terricola* (13%), *Lepthyphantes tenuis* (10%) and *Bathypantes gracilis* (5%).

The immediately notable point about these spiders is that the last two are members of the Linyphiidae, the hammock web builders. As pitfalls are supposed to catch only cursorial creatures, then why were these two species taken?

On many occasions, during the emptying of the traps, it had been noticed that webs had been spun inside the pots, and that, in many instances, those webs were occupied. Sometimes the spiders were seen eating prey. These spiders were identified as *L. tenuis* and *B. gracilis*, though once there was an agelenid, *Hahnia helveola*, who had presumably made the web she was occupying. Alderman (1981) has commented that his pitfalls set in bare earth produced the first two-named spiders in spite of the nearest vegetation being at least 150 yards away.

The presence of these two captures imply that the pitfalls had modified the habitat by not only providing support for the building of webs but also a source of prey and shelter (compare with assumption (i) in Part I). The latter matches that which Jocque (1973) had to say about his experiments on the web of a closely-related species, *Lepthyphantes zimmermanni*. He believes that certain spiders, e.g. *L. zimmermanni*, *L. flavipes*, *L. tenuis*, *B. gracilis*, are not really ground-dwelling, and the reason why they build their webs just above, or in the litter layer, is because the webs are not strong enough to withstand wind action. Laboratory experiments upon *L. zimmermanni* demonstrated that this species always made its web in the leaf litter layer if there was a wind, or above the litter if there was no wind. Also Duffey (1962) points out that web-building spiders are largely sedentary, which means that the choice of a web site will be influenced by very small differences in the structure of the habitat and microclimate, e.g. temperature and humidity variations, light intensity, availability of web attachment points as well as a food supply. From the above observations it is obvious that the introduction of the pitfalls has modified the habitats in favour of *L. tenuis* and *B. gracilis*.

ACTIVITY OF THE ABUNDANT SPECIES

A distinction must be made between "abundance" and "activity". Just because six species were abundant in terms of the number taken in the pitfalls, this is not necessarily a measure of their true abundance, nor does it make them the commonest spiders on the Reserve. Other spiders, e.g. *Tibellus oblongus*, *Enoplognatha ovata*, are common as well as abundant, and yet were rarely taken in the traps. Thus, species reckoned as abundant and common by this trapping method are only so because they, and their way of life, make them capturable.

Pitfalls will generally take creatures that move at ground level, i.e. showing a degree of movement or activity. A spider (see Bristowe 1971, Chapter 6, for a detailed account of a spider's life) will spend much of its time seeking food and growing to eventually mature, i.e. "trivial" behaviour (see e.g. Southwood (1962)). A male spider, soon after maturing, charges its palps, which are modified sex organs, with sperm in readiness for mating and then searches for a female. This is a change in behaviour involving a greater activity and movement across the ground increasing the chances of capture in pitfalls. Males usually die soon after mating, resulting in a

cessation of activity! Females probably will have a similar trivial activity until after mating when their behaviour will change due to egg-laying and the preparation of egg-sacs. Thus, an increase in the numbers of individuals taken in pitfalls is due to a change in the behaviour of the spider, i.e. a measure of their activity, and not to a change in abundance.

The activities of the six "abundant" spiders have been derived from the results for 1977—1983. No major differences were found in the span of activities for any of the species in each trapping area, in any year. Therefore the activities are independent of the site, and are not radically affected by seasonal variations from year to year. For comparison, the available results of other authors are given at the end of the discussion for each species (see also Bristowe 1971). Immatures in the genera of the six species were assumed to be that species. Thus, by combining the results from each site, a pattern of activity throughout the year was established for each of the spiders, as shown in Figure 2 where all the figures are the percentages of the total individuals, including immatures, for each species.

Agroeca inopina. Immature males began to be active in April, reaching a maximum in July. The subsequent decrease in these juveniles was matched by a corresponding increase in mature males during August, reaching a peak in September — by when mating had probably occurred — to disappear after January. Immature females were first taken in June, with a peak in July similar to the juvenile males. Mature females were captured throughout the year, with a maximum in October/November. This slightly later activity of the females is probably due to them seeking suitable sites for their egg-sacs, as this species usually fastens its sac to grass stems.

The pitfall results show that *A. inopina* mates in late summer, and that egg-laying takes place within a month or so of mating. Two very young *Agroeca* individuals were taken in September, in different years and in different areas, which suggests that the eggs hatch very soon after laying, followed by the rapid dispersal of the spiderlings.

The life span of the male is about 16 months and the female 22 months.

Pardosa nigriceps. The immature males, which are readily recognised as being this species, showed some activity throughout the winter, then increasingly so in the spring to mature with a maximum in May, but quickly disappearing by July. The pattern is similar for the juvenile females which mature in April and having a maximum activity in May when mating probably occurs since egg-sacs were being carried in July. The production of egg-sacs was not restricted to the months immediately following mating, since a mature female with an egg-sac containing viable eggs was captured one September.

The life spans of the male and female *P. nigriceps* are approximately 12 and 16 months respectively.

Note: Duffey (1962):— April is the main active period.

Goodier (1970):— males in April to May; females spring and summer. Coleman (1977):— male dominant in April and May, with a peak in May and ceasing afterwards; females have a June peak with activity ceasing after August.

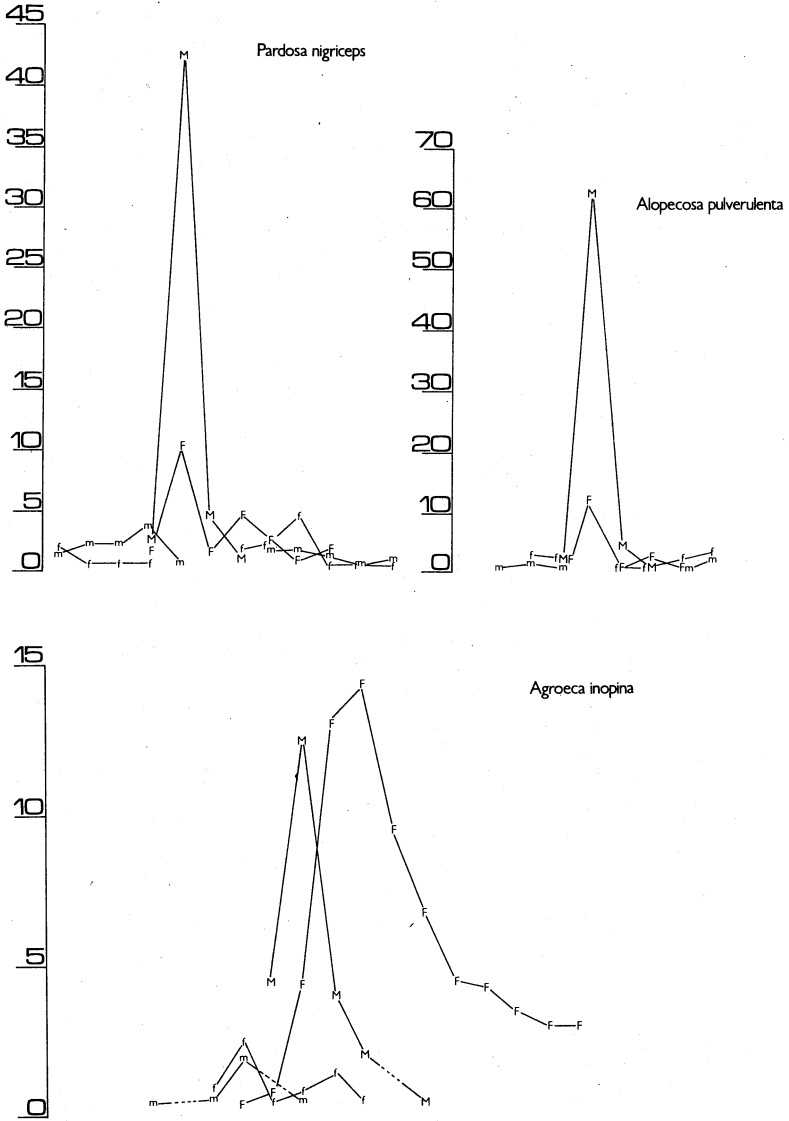
Alopecosa pulverulenta. This species had a very similar activity pattern to that of *P. nigriceps*. Immature males and females were active in February and March whilst the mature sexes had their maximum activity in May when mating probably takes place. A few captures of mature males in October suggested another period of activity, which was probably due to conditions being favourable for early maturing (not given in Figure 2.). No females were ever captured with egg-sacs as this species retreats to a burrow, as does *Trochosa terricola*, (see photograph, Thomas 1981), to lay her eggs. The almost complete disappearance of the females in June, with their reappearance in July, tends to confirm this particular change in behaviour.

The males have a life span of approximately 12 months and the females about 15 months.

Note: Lockett and Millidge (1951):— adults April onwards.

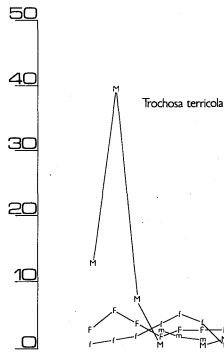
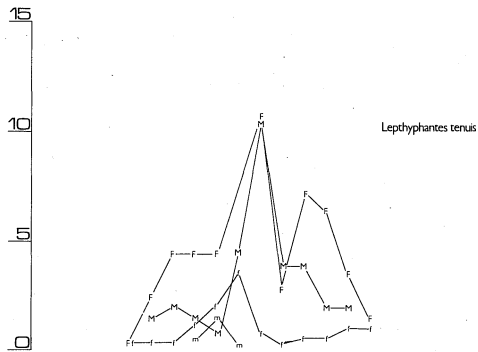
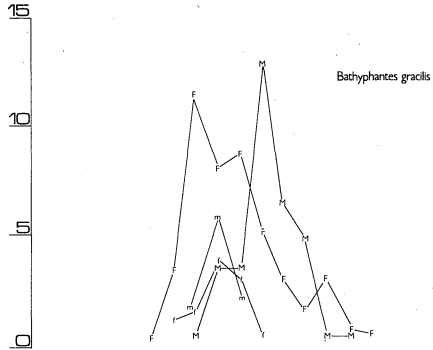
Goodier (1970):— June. Coleman (1977):— males and females appear in April, with a peak in May; males dominant in April to June; females in April to August (second peak in August).

Sudd (1972):— May to August, with a maximum in June.



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Fig. 2. The activities of the six "abundant" spider species. Vertical scale is percentage of total individuals.
 M-mature males; m-immature males; F-mature females; f-immature females.



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Trochosa terricola Immature males were first active in June, continuing into winter, whilst immature females had their initial activity in March, reaching a maximum in July. When mature, both sexes were active in March, with a maximum in April when mating probably occurs. Mature males disappeared after June, whereas females continued into November. Mature males appeared again in August, continuing into November. Thus, there was a second period of activity for mature males, probably from eggs laid in the same year. These and immatures overwinter to become active the following spring. The fall in female activity after April is probably due to egg-laying when the females retire to burrow for this purpose (compare with *A. pulverulenta*).

The life span of the male is at least 12 months, whilst that of the female is about 18 months. Note: Locket and Millidge (1951):— adults throughout the year, especially autumn and spring. Coleman (1977):— both sexes early in March, extending until October; males peaked in April and September, females in April and August. Goodier (1970):— June; male April to May; May, with a maximum in June and another in July. Sudd (1972):— male April to May; female April to September, with a peak in May.

Lepthyphantes tenuis Immature males were found at various times throughout the year, with an increased activity around September. Mature males, which were present in every month except April and May, had their peak in November. Immature females were captured throughout the year, with a peak in October that fell to a low level as they matured, reaching the first of two maxima a month later, synchronising with the mature males, probably to mate. The second peak was in January, falling away to a very low activity in May. The dip in the activity during December may be due to the females retiring to lay their eggs.

Not all the captures of *L. tenuis* were in webs inside the traps, so it may well be that this species exhibits the restless wandering that Bristowe (1971) describes, and that web-building is abandoned for periods of time. This also applies to *B. gracilis*.

The life span of both sexes is about 12 months. Note: Williams (1962):— June to December — maximum in December. Coleman (1977):— males only in November, and females were not active in April, May and June. Locket and Millidge (1953):— adults at all seasons.

Bathyphantes gracilis. What makes this species particularly interesting is the order of maturity and activity of the sexes. The males peaked after the females, i.e. there was no synchronisation as in the other species. For the mature males and females the activity peaks were November and August, respectively. There was no obvious drop, and then recovery, in female activity as there was for *L. tenuis*, i.e. an egg-laying period. Males were not taken in April or May, nor the females in May.

The overall activity pattern was not as clear cut as in the other five species. There are two possible explanations. Figure 2 implies three female peaks of activity, in August, October and February. Therefore is it possible that *B. gracilis* has been confused with another species, *B. parvulus*? These two species are very similar and are considered to be the same by some authors. At present the sexes are not separable with certainty of identification, especially as intermediate forms can occur. Perhaps both species are present in the pitfall captures, but have not been correctly identified, and may only be told apart by their activities, these occurring at different times.

Those few captures that were identified as *B. parvulus* were compared against the activity graph (Fig 2). Though not conclusive, the August to October activity may be due to *B. parvulus* females, whilst *B. gracilis* females were active November to February. A slight halt in the graph at September/October for the males could be *B. parvulus*, the remainder being *B. gracilis*.

This is not a completely satisfactory answer to the activity pattern since a far simpler explanation is that the sexes do not have to synchronise, especially as matures can be found at most times of the year, and mating will eventually occur.

The life span for both sexes is about 12 months. Note: *B. gracilis*:— Sudd (1972):— July: maximum in June to August, and another December to

January. Coleman(1977):— male peak in November and female peak in August.

Williams(1962):— November to December, and May to June maxima. Locket and

Millidge(1953):— adults spring, summer and autumn.

B. parvulus:— Locket and Millidge(1953):— adult spring and summer. Williams(1962):— May to June maximum.

CONCLUSIONS

The pitfall traps in the Cutting section of Old Warden Tunnel Nature Reserve have captured 101 spider species, five of which were new site or county records. Six species were abundant in that they accounted for 52% of all captures. Some general conclusions on the activity, mating time, egg laying and life spans were drawn from the trapping data for these six species (*Agroeca inopina*, *Pardosa nigriceps*, *Alopecosa pulverulenta*, *Trochosa terricola*, *Lepthyphantes tenuis* and *Bathyphanes gracilis*) which matched reasonably well with other authors. *B. gracilis* posed a particular problem in that the order of activity of the mature sexes was not as for the other five species. A possible explanation for this has been put forward but there was not enough hard evidence to confirm it.

With the taking of new species and the determination of the general behaviour of the more abundant species, two of the three objectives for this pitfall-trapping experiment have been realised.

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SPECIES LIST

<i>Amaurobius similis</i> (Blackwall)		<i>Alopecosa</i> sp. juv	99	<i>W. dysderoides</i> (Wider)	1
<i>Dictyna uncinata</i> Thorell		<i>Trochosa ruficollis</i> (Degeer)	48	<i>W. nudipalpis</i> (Westring)	1
<i>D. arundinacea</i> (Linnaeus)		<i>T. robusta</i> (Simon)	12	<i>W. unicornis</i> O. P.—Cambridge	2
<i>Dysdera erythrina</i> (Walckenaer)	31	<i>T. terricola</i> Thorell	508	<i>Dicymbium nigrum</i> (Blackwall)	1
<i>D. crocata</i> C. L. Koch	4	<i>Trochosa</i> sp. juv.	137	<i>Gongylidium rufipes</i> (Sundevall)	2
<i>Dysdera</i> sp. juv.	9	<i>Pisauro mirabilis</i> (Clerck)	35	<i>Dismodicus bifrons</i> (Blackwall)	7
<i>Harpactea hombergi</i> (Scopoli)		<i>Agelena labyrinthica</i> (Clerck)	2	<i>Gonatium rubens</i> (Blackwall)	97
<i>Segestria senoculata</i> (Linnaeus)		<i>Tegenaria gigantea</i> (Chamberlin and Ivie)	2	<i>Gonatium</i> sp. juv.	6
<i>Drassodes lapidosus</i> (Walckenaer)	15	<i>T. agrestis</i> (Walckenaer)	1	<i>Maso sundevalli</i> (Westring)	1
<i>D. cupreus</i> (Blackwall)	11	<i>T. silverstris</i> L. Koch	4	<i>Peponocranium ludicrum</i> (O. P.—Cambridge)	1
<i>Drassodes</i> sp. juv.	37	<i>Tegenaria</i> sp. juv.	1	<i>Pocadicnemis juncea</i> (Millidge)	39
<i>Zelotes latreillei</i> (Simon)	22	<i>Cicurina cicur</i> (Fabricius)	30	<i>Oedothorax fuscus</i> (Blackwall)	1
<i>Zelotes</i> sp. juv.	8	<i>Cicurina</i> sp. juv.	4	<i>Oe. apicatus</i> (Blackwall)	1
<i>Micaria pulicaria</i> (Sundevall)	1	<i>Hahnia helveola</i> Simon	10	<i>Cephalocotes obscurus</i> (Blackwall)	1
<i>Clubiona corticalis</i> (Walckenaer)		<i>H. pusilla</i> C. L. Koch	1	<i>Micrargus herbigradus</i> (Blackwall)	21
<i>C. reclusa</i> O. P.—Cambridge	5	<i>Ero cambridgei</i> Kulczynski	1	<i>M. subaequalis</i> (Westring)	1
<i>C. terrestris</i> Westring	1	<i>E. furcata</i> (Villers)	17	<i>Erigonella hiemalis</i> (Blackwall)	3
<i>C. neglecta</i> O. P.—Cambridge		<i>Ero</i> sp. juv.	1	<i>Panamomops sulcifrons</i> (Wider)	1
<i>C. lutescens</i> Westring		<i>Epispinus angulatus</i> (Blackwall)	2	<i>Lessertia dentichelis</i> (Simon)	1
<i>C. compita</i> C. L. Koch		<i>Epispinus</i> sp. juv.	2	<i>Erigone dentipalpis</i> (Wider)	1
<i>C. brevipes</i> Blackwall		<i>Steatoda bipunctata</i> (Linnaeus)	1	<i>E. atra</i> (Blackwall)	3
<i>C. diversa</i> O. P.—Cambridge	3	<i>Theridion sisyphium</i> (Clerck)	2	<i>Ostearia melanopygus</i> (O. P.—Cambridge)	1
<i>Clubiona</i> sp. juv.		<i>T. sisyphium</i> group sp. juv.	2	<i>Porrhomma microphthalmum</i> (O. P.—Cambridge)	1
<i>Cheiracanthium erraticum</i> (Walckenaer)		<i>T. impressum</i> L. Koch	1	<i>Agyneta subtilis</i> (O. P.—Cambridge)	1
<i>Cheiracanthium</i> sp. juv.	2	<i>T. varians</i> Hahn	2	<i>Meioneta rurestris</i> (C. L. Koch)	2
<i>Agroeca brunnea</i> (Blackwall)	25	<i>T. denticulatum</i> (Walckenaer)	1	<i>M. saxatilis</i> (Blackwall)	29
<i>A. proxima</i> (O. P.—Cambridge)	1	<i>T. bimaculatum</i> (Linnaeus)	26	<i>M. beata</i> (O. P.—Cambridge)	1
<i>A. inopina</i> O. P.—Cambridge	380	<i>T. pallens</i> Blackwall	1	<i>Microneta viaria</i> (Blackwall)	1
<i>Agroeca</i> sp. juv.	37	<i>Theridion</i> sp. juv.	5	<i>Centromerus sylvaticus</i> (Blackwall)	35
<i>Phrurolithus festivus</i> (C. L. Koch)	3	<i>Enoplognatha ovata</i> (Clerck)	4	<i>C. prudens</i> (O. P.—Cambridge)	1
<i>Zora spinimana</i> (Sundevall)	59	<i>E. thoracica</i> (Hahn)	7	<i>C. dilutus</i> (O. P.—Cambridge)	9
<i>Zora</i> sp. juv.	11	<i>Robertus neglectus</i> (O. P.—Cambridge)	2	<i>C. capucinus</i> (Simon)	1
<i>Misumena vatia</i> (Clerck)		<i>Robertus</i> sp. juv.	2	<i>Centromerita bicolor</i> (Blackwall)	42
<i>Xysticus cristatus</i> (Clerck)	15	<i>Pholcomma gibbum</i> (Westring)	18	<i>C. concinna</i> (Thorell)	35
<i>X. quadax</i> (Schrank)	1	<i>Tetragnatha extensa</i> (Linnaeus)	2	<i>Oreonitides abnormis</i> (Blackwall)	
<i>X. latio</i> C. L. Koch	1	<i>T. montana</i> Simon		<i>Bathyphantes gracilis</i> (Blackwall)	195
<i>X. ulmi</i> Hahn	2	<i>T. pinicola</i> L. Koch		<i>B. parvulus</i> (Westring)	28
<i>Xysticus</i> sp. juv.	36	<i>Tetragnatha</i> sp. juv.	5	<i>Bathyphantes</i> sp. juv.	49
<i>Philodromus cepstinus</i> (Walckenaer)		<i>Pachygnatha degeeri</i> Sundevall	44	<i>Kaestneria pullata</i> (O. P.—Cambridge)	2
<i>Philodromus</i> sp. juv.	1	<i>Pachygnatha</i> sp. juv.	10	<i>Diplostyla concolor</i> (Wider)	12
<i>Tibellus oblongus</i> (Walckenaer)	4	<i>Meta segmentata</i> (Clerck)	4	<i>Floronia bucculenta</i> (Clerck)	4
<i>Tibellus</i> sp. juv.	4	<i>M. mengei</i> (Blackwall)	4	<i>Stemonyphantes lineatus</i> (Linnaeus)	31
<i>Salictus scenicus</i> (Clerck)		<i>Meta</i> sp. juv.	1	<i>Lephyphantes minutus</i> (Blackwall)	
<i>Heliophanus flavipes</i> C. L. Koch	2	<i>Araneus diadematus</i> Clerck		<i>L. obscurus</i> (Blackwall)	
<i>Heliophanus</i> sp. juv.	3	<i>A. quadratus</i> Clerck		<i>L. tenuis</i> (Blackwall)	469
<i>Euophrys frontalis</i> (Walckenaer)	10	<i>A. cornutus</i> Clerck		<i>L. zimmermanni</i> Bertkau	46
<i>Euophrys</i> sp. juv.	8	<i>A. umbraticus</i> Clerck		<i>L. cristatus</i> (Menge)	2
<i>Neon</i> sp. juv.	1	<i>A. redii</i> (Scopoli)		<i>L. mengei</i> Kulczynski	7
<i>Pardosa monticola</i> (Clerck)	2	<i>Araneus</i> sp. juv.	1	<i>L. flavipes</i> (Blackwall)	3
<i>P. pullata</i> (Clerck)	88	<i>A. opisthographus</i> Kulczynski		<i>L. ericaeus</i> (Blackwall)	18
<i>P. pratensis</i> (L. Koch)	59	<i>A. cucurbitinus</i> group sp. juv.	1	<i>L. pallidus</i> (O. P.—Cambridge)	13
<i>P. amentata</i> (Clerck)	3	<i>Zilla diodia</i> (Walckenaer)		<i>Lephyphantes</i> sp. juv.	114
<i>P. nigriceps</i> (Thorell)	358	<i>Hyssosinga pygmaea</i> (Sundevall)	1	<i>Linyphia triangularis</i> (Clerck)	6
<i>P. lugubris</i> (Walckenaer)	3	<i>Hyssosinga</i> sp. juv.	3	<i>L. (Neriene) montana</i> (Clerck)	8
<i>P. proxima</i> (C. L. Koch)	1	<i>Walckenaera acuminata</i> (Blackwall)	23	<i>L. (Neriene) clathrata</i> Sundevall	10
<i>Pardosa</i> sp. juv.	172	<i>W. antica</i> (Wider)	7	<i>Linyphia</i> sp. juv.	17
<i>Alopecosa pulverulenta</i> (Clerck)	350	<i>W. melanocephala</i> O. P.—Cambridge	5	<i>Microlinyphia pusilla</i> (Sundevall)	
<i>A. accentuata</i> (Latreille)	37	<i>W. capito</i> (Westring)	1	<i>Linyphiidae</i> sp. juv.	41

GRASSHOPPERS AND CRICKETS (Orthoptera/Saltatoria)

Report of the Recorder

This is another year with few new records to report. As a county we are one of the best recorded for orthoptera in the country. The most significant records have been for the Slender Groundhopper and the Common Green Grasshopper. These two are not very common in Bedfordshire.

The Slender Groundhopper is an inhabitant of wet marshy places. One record was from the waters edge of a now landscaped gravel working at Great Barford (TL131509). The other record was found by Mary Sheridan at Heath at Reach (SP927288). This was a roadside verge in a narrow lane between two working sandpits. The verge is a local passing place for cars and the depositing of rubbish. It is amongst the rubbish that the species appears to be thriving. The area is damp from local springs that continually flow down the side of the lane.

The Common Green Grasshopper records were located by sound only. One record was from Woburn Park (SP972340) in a heather area. The other was on the edge of a ride in Home Wood near Northill (TL140465). This particular species very often can only be located by sound and then it has to be a warm sunny day for them to burst into singing or stridulating.

This year saw the publication by Cambridge University Press of the *Naturalist Handbook 2 'Grasshoppers'* by Valerie K. Brown. This is a useful book for the identification of grasshoppers and crickets.

The following records are additions this year to the maps published in the Journal for 1977 (*Bedf. Nat.* 32 25-30)

Common Green Grasshopper — 2 tetrads 93R, 14N

Meadow Grasshopper — 1 tetrad 93R

Oak Bush-cricket — 1 tetrad 93R

Slender Groundhopper — 2 tetrads 92J, 15F

The Latin names for all species were published in the Journal for 1976 (*Bedf. Nat.* 31 49-50)

ACKNOWLEDGEMENTS

I would like to thank Mrs M. Sheridan and B. Squires for their records.

D.G. RANDS

LACEWING FLIES (Neuroptera)

Report of the Recorder

Nothing of interest was recorded during 1983 save for a specimen of *Micromus variegatus* (Fabr.) found by Mrs E.B. Rands on spinach in her garden at Luton (7-9-83). This is certainly new to the Luton area and the second time the species has been found in the county. I have found all three species of the genus in my garden at Maidenhead (Berkshire) so it is worth looking out for lacewings in gardens. The common mayfly *Cloëon dipterum* (L.) was taken at Maulden Wood during the all-night meeting and is probably not recorded for the county previously. Dr Peter Barnard kindly named it for me.

B. VERDCOURT

BUGS (Hemiptera — Heteroptera) Report of the Recorder

This year has seen no new species for the county. In fact, having re-examined the reference specimens of *Psallus variabilis* I have concluded that none is this species and so, for the second time, this species is deleted from the county list. Two of my 'records' were actually the Maple bug *P. assimilis*, collected from Oak, and another was a faded *P. perrisi* which had been stored in alcohol. There are two other changes to report. Taxonomically, what has been called *Anthocoris minki* Dohrn in Britain is now considered to be *A. simulans* Reuter — this bug seems to be widespread in small numbers on Ash in Beds. A name change is therefore required in the county list. Secondly, in the Report for 1978 (*Bedf. Nat.* 33 56-57) I listed *Neides tipularis* in error for *Chorosoma schillingi*, as an addition to the list, this also necessitates a name change in the list.

On the positive side I am happy to report that the strange underwater bug *Aphelocheirus aestivalis* is alive and well in the R Ouse at Radwell and Odell. The habitat at these two sites is fast flowing shallows, 0.3-0.5m deep, where the bug is found under large stones on the riverbed. Both of my previously known sites in the county had been destroyed by major river engineering works — Bromham Weir and Kempston Mill.

One of the commonest grass bugs is of the genus *Notostira*. In the British literature it has been called *N. erratica* and, more recently, *N. elongata*. However, it is now known that both the true *N. erratica* and the true *N. elongata* occur in the British Isles. In view of this I have dissected the, relatively few, male specimens I have from Beds. I find that these are all *N. elongata* in the strict sense.

My annual check of Britain's only known colony of *Placochilus seladonicus*, at Leighton Buzzard, proved negative on 27th August. There has been a negative year before but the bug was subsequently refound.

This year I have done considerable recording out of the county and this has revealed some interesting contrasts. Particularly striking is the difference in the bug fauna of dry grassland a relatively short distance away in the Suffolk Brecks, as compared with similar habitat on our own Greensand. In the Brecks *Aelia acuminata*, *Chorosoma schillingi*, *Dolycoris baccarum*, *Polymerus unifasciatus* and *Rhopalus parumpunctatus* are all widespread and often very numerous. In Beds, however, the first two of these species are very local (only known from near Sandy) and are not numerous where they do occur. The rest are unknown in the county! Again, at Wendover (Bucks), on the crest of the Chiltern escarpment, the acid-grassland bug *Stenodema holsatum* is found. I therefore searched similar habitat at Whipsnade this summer but without success.

CHANGES TO THE BEDFORDSHIRE LIST

Anthocoris simulans Reuter — is the correct name for previous "*A. minki* Dohrn" records.
Chorosoma schillingi (Schummel) — replaces *Neides tipularis*, given in error.
(*Psallus variabilis* (Fall.) — is to be deleted)

B.S. NAU

BUTTERFLIES (Lepidoptera) Report of the Recorder

One of the most common observations among all naturalists in the first half of the year was that everything was 2-3 weeks late.

The cold winter months seemed to drag on into early spring and it was not until mid-April that I saw my first Brimstone butterfly of the year. I noted that I had seen them as early as February only two years ago.

This coldness turned into wetness and the year did not look very promising at all. However,

the plant growth was good and as soon as any warm days appeared the butterflies were flying about their task of egg laying. The showing of the Orange-Tip were much lower than usual but as the insect spends up to 9 months as a pupa it is very vulnerable to weather and predation, and it is always a wonder that any survive at all.

White butterflies seemed to be very common in May and June but the Large White was the least common of them all and did not seem to overwinter at all well. This species is particularly vulnerable to attack from Ichneumon flies and many larvae and pupae fall prey to these tiny wasp like insects. During these months a few Clouded Yellow butterflies appeared in Britain but almost passed unnoticed as I have only one recorded sighting for that time of year. However, the story was to change dramatically later in the year with a second influx from Europe coupled with our home grown brood from those early arrivals, and from August onwards they were common. Combinations of southerly air flows and a warm June followed by a hot July gave us all a chance to see this most beautiful butterfly in large numbers even in Bedfordshire, Fig 1. Any trip to the South Coast of England in high summer was rewarded with views of masses of them feeding wherever they could. Unfortunately this species, in common with others in the Pieridae group, do not sit with their wings open so that the full beauty of the upper surface of the wings with its black and golden yellow colour is only seen while the insect is in flight; a flight so rapid incidentally that it is only the keen sighted observer who enjoys this spectacle.

August also saw a small influx in Norfolk of the Camberwell Beauty and at least one made the trip to Bedfordshire turning up at Sandy on August 31st. Another migrant, the Painted Lady, seemed to be only poorly represented this year with numbers never reaching the high figures they did two years ago. Unfortunately all these three species are not frost hardy and therefore cannot overwinter here in Britain.

Considering the brown species, the very high numbers of Meadow Brown, Gatekeeper and Small Heath bore witness to the luxuriant growth of grasses caused by the wet spring and warm June. The Marbled White continued its northward movement and was reported at the River Ouse at Willington.

I was delighted that there was so many Wall Brown butterfly records sent in and not one record of "unknown Fritillary". This is completely due to the skill of the current group of people who contribute to the recording scheme (Now about 30) and it shows their dedication to the art of butterfly watching.

The Wall Brown is often mistaken for one of the Fritillaries but given a hard second look the differences are obvious. The flight pattern is different and the basic habits are not alike. Only dedicated observation will show this however and my thanks for that dedication must be recorded here. The unfortunate position is that Bedfordshire is far too far north for any of the Fritillaries to exist with the possible exception of the Dark Green Fritillary which sometimes gains a toe hold in the southern Chiltern ridge. (NB The Duke of Burgandy is not a Fritillary).

The Small Copper had a good season and many more areas were recorded as supporting this

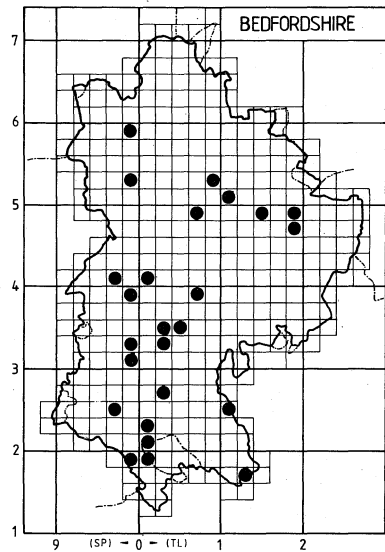


Fig. 1. Clouded Yellow sightings in 1983

beautiful little butterfly. But one report of a Large Copper must be discounted. I suspect that a large Copper was seen but not the Large Copper which is confined to Wood Walton Fen where it is deliberately bred. However this raises the whole subject of captive breeding as this could have been a captive bred specimen seen at Shefford. Many more members are pursuing this delightful aspect of the hobby and I can only encourage them to do so, as it is the best way to learn. One plea however, if you do breed and release butterflies or know of anyone locally who does please let me know.

Serious lepidopterists such as Richard Revels and Vic Arnold who regularly breed insects always tell me if and when they release surplus stock to the wild. One case in point concerns myself and my attempt to raise a brood of Swallowtail Butterflies for a live exhibit well out of season. I got the timing all wrong and had to release them at my home as I do not like to see them on a pin except in proper scientific collections. The local excitement that the release caused, taught me a lesson, as the telephone never seemed to stop ringing to claim new Bedfordshire records for the Swallowtail although it was September and I had very little peace until they had dispersed in a few days.

The Common Blue had a very productive season as did many of the smaller butterflies. The Large Skipper and Small Skipper seemed to be everywhere in their seasons and the Purple Hairstreak did very well among the large oak trees that have managed to escape the woodman's axe!

Owners of gardens which support a buddleia bush or two were once more delighted by the large numbers of Peacock and Small Tortoiseshell that joined all the other regular visitors in the late summer. Comma butterflies did well and seemed to visit gardens much more this year than I can ever remember. In fact buddleia gives us this year's amusing tale.

A local gardener called on me to ask me to cut down my own buddleias as the butterflies it attracts were eating his lettuce and cabbage. Instead of closing the door in his face I continued to convince him that he was wrong and was greatly amused by the sight of him leaving my home clutching lovingly the potted buddleia I had persuaded him to plant in his garden but I think I forgot to mention that the larval food plant of the Large White is cabbage!! Oh well maybe he will find out for himself.

To sum up the 1983 season is therefore very simple. Most species bred very well, others did not and the Holly Blue was one of the poorest. Fig 2 shows the latest picture of recording in the county. Nevertheless the records scheme did very well indeed in this year which must now be called the Clouded Yellow Year.

ACKNOWLEDGEMENTS

My thanks are given to the following who sent in their records: M.F. Allen, Vic Arnold, C.W. Burton, Steve Cham, Trevor D. Charlton (RSPB), Graham Clarke, Betty Clutton, Dr and Mrs J.G. Dony, Anne Doody, Steve Halton, Mr and Mrs Headon, R. Henry, Mr and Mrs M. Hooper, Brian Inns, Martin Izzard, David King, Julian Knowles, David Manning, David Odell, Barry Squires, B. Vissian, Mr and Mrs Weedon.

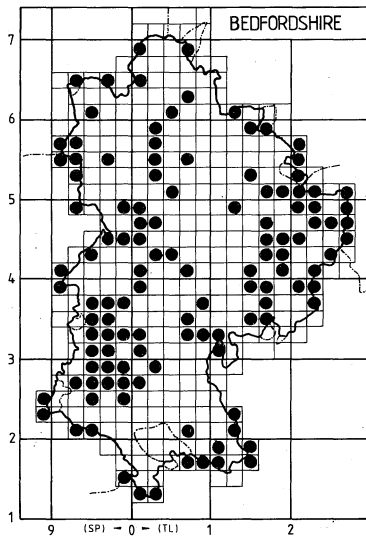


Fig. 2. Tetrads with fewer than 10 records - as at 31.12.83

MOTHS (Lepidoptera) Report of the Recorder

If it had not been for the good weather in June, July and August, 1983 would have been a very mediocre year for moths. It was possible to do a great deal of field work in this warm period, running mercury vapour traps at various sites in the county.

At the start of the year, together with D.V. Manning, a *Provisional checklist of the Butterflies and Moths of Bedfordshire* was produced. This list shows that up until the end of 1982, a total of 529 species of macro moth had been recorded for the county, additional species will be shown in future annual reports. This checklist, together with reports from previous recorders since 1958, have all used the nomenclature and numbers as used by Heslop. This system is now considered by lepidopterists to be out of date, so as from 1984 my report will use the nomenclature of Kloet and Hinks as found in *A Recorder's Log Book or Label List of British Butterflies and Moths* by J.D. Bradley and D.S. Fletcher. Several new species have been added to the British list — this new system includes them — it also includes species that have been 'split' (i.e. Copper Underwing and Svensson's Copper Underwing). K.F. Webb recorded this latter moth from various parts of the county during 1983.

During the last few weeks of 1983, I worked on a project to find out the number of species of moth that were recorded per 10 Km square since 1960. This shows which areas have been worked well and which areas need attention. A map is included with this report Fig. 1; it is hoped that this will be updated at regular intervals, showing what progress is being made.

Members of the Society kept up their field work during the year, supplying me with numerous records — it is pleasing to note that a number of new individuals submitted records as well during the year. Marston Thrift was worked this year by W.J. Champkin, S. Finney and R. Passley — the list of species recorded on this reserve now stands at 213.

T.S. Hollingworth carried on with his work at Cranfield and has also devoted more of his time to the 'micro' lepidoptera.

K.F. Webb, as well as running mercury vapour traps, employed some of the methods used by earlier entomologists to try and find species that are not attracted to light. His methods included: sugaring, dusking, searching for larvae and also investigating flowers and blossoms for feeding moths. Some of his results are contained in my species list at the end of this report.

I also received information from J. Moore, who runs a trap in his garden at Salford, nr Cranfield. He informed me that the larvae of the Privet Hawk, when fed on the leaves of apple produce bigger specimens.

To end this brief report on the year, I could do no better than to quote the remark made by B.R. Squires when a motor cyclist turned up as we were trapping.

"Hells Angel — one attracted to mercury vapour lamp, Sundon Quarry, appeared to be high flying". It's surprising what comes to light!

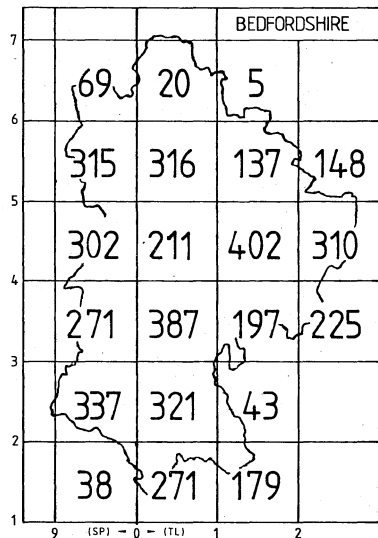


Fig. 1. Number of species in 10km squares - as at 31.12.83

SPECIES LIST

The following list contains new species and species of particular interest with comments where required. Species marked * are new county records. All numbers and English names as per *Checklist of the British Lepidoptera* by I.R.P. Heslop (1964 Library Edition).

- 87 **Pine Hawk**. Once again an excellent year for this moth — it has now been recorded at Stockgrove Park, Heath and Reach and Rowney Warren, Shefford. An investigation into its Bedfordshire distribution started in 1983.
- 97 **Humming Bird Hawk** This migratory moth was recorded from more sites in the county this year, than for many years past. Gardens containing buddleia are good sites to check.
- 101 **Poplar Kitten** Recorded by W.J. Champkin from Marston Thrift, K.F. Webb took it as larvae in the same area, and J. Moore took a female at light in his garden trap in Salford. Not usually a common moth.
- 102 **Sallow Kitten** Recorded from various sites around the county — this is by far the most common of the 'Kittens', although 1983 was an exceptionally good year for this moth.
- 107 **Lunar Marbled Brown** Never a very common insect — taken at light by T. Hollingworth at Cranfield, W.J. Champkin at Marston Thrift and Warren Wood, Clophill, by K.F. Webb.
- 135 **Common Vapourer** One at light, Luton Hoo, on 13/8/83. A common insect, but not normally found in light traps.
- 137 **Pale Tussock** A good year for this species — it comes to light in large numbers.
- 138 **Brown Tail** On the night of 9/7/83, D. Grant of Sewell conveyed, in his Land Rover, a small party up to the top of Totternhoe Knolls. Among the number of species caught was a single Brown Tail. This is a very uncommon moth in the county.
- 142 **White Satin** Although I reported that 1982 was a good year for this species, 1983 was even better with a three-fold increase in records over 1982. It will be interesting to see if it keeps up this increase or become scarce again.
- 144 **Black Arched Tussock** J. Barnwell reported this moth from Aspley Heath — the first time he had seen it for many years. I took three males at light on 5/8/83, at Stockgrove Park, Heath and Reach.
- 150 **Oak Eggar** This is a very uncommon moth in the county, with very few records over the last few years. One larva was found on a hedgerow near Salford by J. Moore in early May, 1983. More records are needed for this species.
- 166 **Short Cloaked Black Arches** Now considered to be a common Bedfordshire moth.
- 169 **Least Black Arches** Taken at light on 10/6/83 at Stockgrove Park, Heath and Reach. It was at first considered to be a 'micro', but K.F. Webb succeeded in identifying it against a named collection. This species has only been recorded once before in the county — from a Rothamsted trap at Sandy in 1969.
- 174 **Rosy Footman** One at light, Maulden Woods, on 8/7/83. K.F. Webb took approx. 12 the following night at Warren Wood, Clophill and on the 11/7/83 at Warren Wood they were abundant. This was the first time that they had been recorded since 1975.
- 224 **Osier Hornet Clearwing** Found by K.F. Webb in the East Hyde area in sallow — adult emerged in July. This species was last recorded for the county from J.B. Barnwell's collection from the Woburn Sands area during the late 1940's. Further investigation by K.F. Webb may prove that this species, and possibly other clearwings are not as rare as had been thought. Endurance and patience are needed to search for signs for these moths!
- 233 **Small Red Belted Clearwing** This species was reported by D.V. Manning from a garden in Bedford where it was "sunning itself on a lilac leaf". Another uncommon insect.
- 334 **Bordered Orange** At light, Sundon Quarry, 20/7/83. B. Squires found it a common insect at this site, flying both day and night. Not a very well distributed moth in the county having a bias towards the chalk downs.
- 367 **Varied Coronet** A good year for this species — the warm weather in the summer allowed a partial second brood as several moths came to light at Stockgrove Park, Heath and Reach on 9/9/83.

- 371 **Tawny Shears** K.F. Webb found this moth to be abundant, flying round the flowers of champions during the summer. Perhaps a study of its food plants would reveal that it is more common than current records show.
- 501 **Small Yellow Underwing** The last record for this moth was in 1976 when D.V. Manning reported it in the Bedford area. It flies on sunny days in May and early June in meadows. Would members please look out for this moth and report any sightings direct to me.

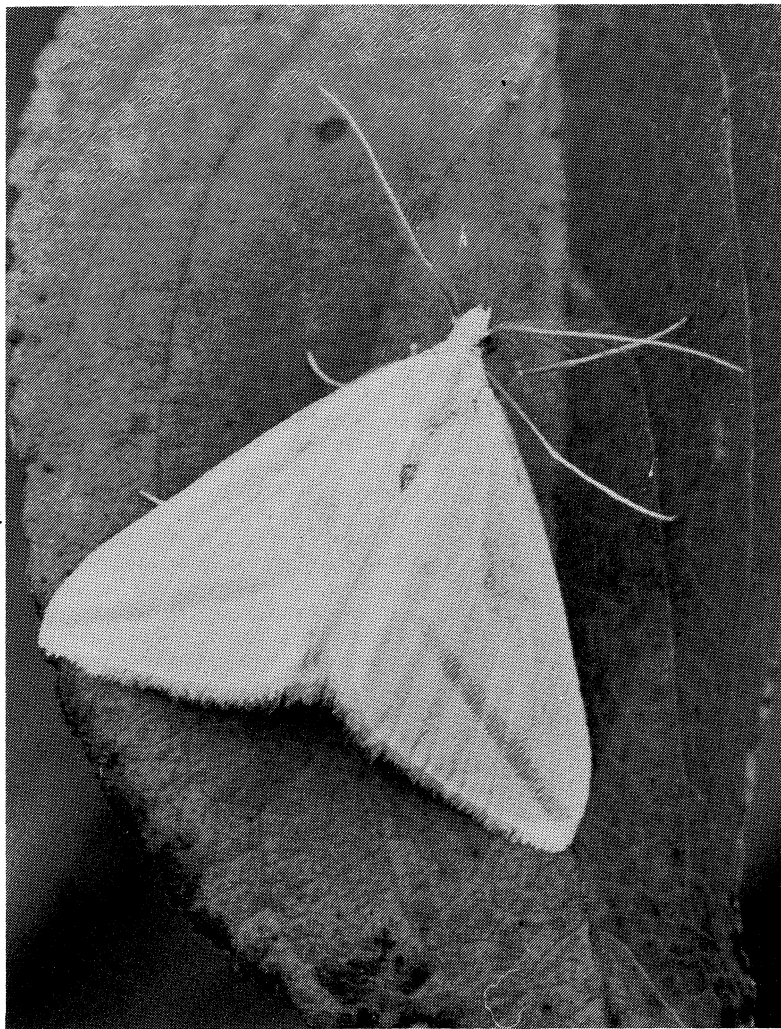


Fig. 2. The Vestal. A migratory species first recorded in Bedfordshire during 1983. (Photo: R. Revels)

- 506 **Marbled Beau** A common moth but one that always appears to be found near buildings where, presumably, its food plant grows. Both South (1961) and Heath (1983) claim that its food plant is the lichen *Lecidea confluens*. This lichen does not grow in Bedfordshire and according to Frances Davis is found 'mainly on siliceous rocks in hilly districts'. What does it feed on in Bedfordshire? A task for someone to investigate.
- 517 **Dark Dagger** In its adult form, a moth that can only be identified by a study of its genitalia. A specimen from Maulden Wood taken in August and examined by Rothamsted proved to be this insect. The larvae of this moth were found in Marston Thrift by S. Finney during a survey there in 1983.
- 539* **Pale Pinion** Recorded in Vol. 10 of MBGBI as being found in the county — further information will be published when details are received from J. Heath.
- 583 **Barred Sallow** Taken at light most years but never an abundant insect. Wooded areas are its main haunt (Luton Hoo and Marston Thrift in 1983) but it does turn up in K.F. Webb's garden trap in Luton.
- 603 **White-spot Marbled** At light 12/7/83, Molivers Lane, Bromham by A. Muir-Howie — identity confirmed by Rothamsted. This moth has only been recorded three times in Bedfordshire so it is either rare or gets misidentified.
- 617 **Nut-tree Tuffet** This species appeared to be common this year with records from Maulden Woods, Leighton Buzzard, Luton Hoo (including the melanic ab. *melanotica*), plus various locations where K.F. Webb found the larvae.
- 627* **Gold Spot** Taken at light in June 1983 by J. Moore in his garden light trap at Salford. Specimen examined and photographed.
- 666 **Beautiful Hook-tip** This species had a good year with another partial second brood resulting in moths at light on the 30/9/83 in Stockgrove Park, Heath and Reach.
- 721* **The Vestal** A migratory species that does not normally go much further north than southern England. This year they appeared in large numbers in England. The first Bedfordshire record came from A.H. Chapman who took one at light in Everton on 1/9/83. They then appeared at Cockayne Hatley, Biggleswade and Everton again on 26/9/83, Luton and Luton Hoo on 27/9/83 and were also recorded later on from Aspley Heath and Bromham. Several different colour forms were recorded, Fig. 2.
- 850 **Mottled Pug** Records used to be very scarce for this moth, but it now appears to be a very common species. Recorders have now taken to sending their pugs to me to take into Rothamsted, or have now become more familiar with this group.
- 900 **Orange Thorn** Several were taken by A. Muir-Howie, at light in Molivers Lane, Bromham on the 12/7/83. Regarded as a rare Bedfordshire insect, this colony will be checked again in 1984.

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V.W. ARNOLD

SOME NOTES ON MICROLEPIDOPTERA IN BEDFORDSHIRE

by Terence S. Hollingworth

Of the 2496 species of lepidoptera recorded for the British Isles (Bradley and Fletcher), 106 are butterflies and 895 represent the macro-lepidoptera, 726 of the latter belong to two major families: the Noctuidae and the Geometridae. The balance of 1495 gives the British list of microlepidoptera; by far the majority of the lepidopteran fauna. One half of the insects on the list for the butterflies and macro-moths have been recorded for Bedfordshire. One would expect a similar proportion of the micros to be represented in the county, i.e. about 750 species. So far, however, less than a third have been recorded (Arnold and Manning) and a hundred of these not since the Victoria County History. If this target is to be reached within a reasonable time, far more attention will have to be given to the smaller moths. D. V. Manning at Sharnbrook has been largely responsible for the current list. He would welcome contributions from all those working with macro-moths; who most certainly encounter smaller moths at their traps. The author or V. W. Arnold will also accept any records or specimens for identification.

During 1983 the list exceeded the 500 mark for the first time. The recent additions to the county list are as follows: Species numbers and names are as Bradley and Fletcher's Log Book. Figures in brackets are tetrad references.

- 31 *Ectoedemia rubivora* † Worley's Wood, Melchbourne (TL06B) — These Nepticulid moths are best identified by collecting the mined leaves in which they feed.
- 229 *Monopis obviella* † In Rothamsted trap at Cockayne Hatley (1979). Identified 1983 (TL24P). These so-called clothes moths are often found dead inside houses. Probably emerging from stored seeds and grain or from bird's nests in the loft.
- 254 *Leucoptera laburnella* Felmersham Nature Reserve (SP95Z), 1980 specimen identified 1983. This minute shimmering white and gold insect was introduced with Laburnum.
- 275 *Bucculatrix crataegi* † The old railway line Willington, (TL15A).
- 288 *Caloptilia stigmatella* Felmersham nature reserve (SP95Z).
- 403 *Argyresthia glabrata* Willington old railway station (TL15A). Beaten from conifers. The Argyresthid moths display a characteristic, head down attitude at rest.
- 410 *Argyresthia brockeella* † Knotting, West Wood. (SP96W)
- 415 *Argyresthia retinella* Colworth estate (SP96V).
- 491 *Coleophora gryphipennella* Larvae on rose in October and November. Judges Spinney (TL05C), Worley's Wood, Melchbourne (TL06B), Totternhoe Knolls (SP92W), Bedford, Castle Mound (TL04P), Felmersham Nature Reserve (SP95Z). Specimens of this group, the Coleophoridae, are recognised by their long thin wings and the thrust forward, porrected, antennae at rest. The larvae build cases from which to feed. They can be found attached to their food plant, eating small round holes in the leaves. The cases are unique to each species.
- 493 *Coleophora serratella* Putnoe Wood (TL05R), larvae on Elm in June.
- 504 *Coleophora viminetella* † Rothamsted trap at Cockayne Hatley (TL24P), 1979 specimen identified 1983.
- 516 *Coleophora trifolii* At MV light Cranfield aerodrome (SP94K). A metallic bronze coloured insect, tinged violet, seen during the day.
- 533 *Coleophora anatipennella* At MV light Cranfield aerodrome (SP94K).
- 578 *Coleophora murinipennella* † MV light Cranfield aerodrome (SP94K).
- 582 *Coleophora glaucicolella* Sharnbrook (SP95Z).
- 590 *Perittia obscurepunctella* Aspley Heath (SP93H). Small moth of the family Elachistidae which mine leaves and stems of various grasses. (Traugott-Olsen and Nielson).
- 726 *Metzneria metzneriella* At MV light Cranfield aerodrome (SP94K). Belonging to the Gelechid moths, easily recognised by their trapezoidal hindwings and recurved palpi, but not easily identified to species. There is no current literature on this group.

Address: 4 The Coppens, Stotfold, Hitchin, Herts SG5 4PJ

- 727 *Metzneria neuropterella* Meyrick lists Bedford in the distribution for this species.
- 732 *Eulamprotes unicolorrella* At MV light Cranfield aerodrome (SP94K).
- 765 *Teleiodes vulgella* † Rothamsted trap Cockayne Hatley (TL24P) 1979 specimen identified 1983.
- 770 *Teleiodes proximella* Sutton Fen (TL24D) at MV light.
- 771 *Teleiodes alburnella* Rowney Warren at MV light (TL41A). Recorded from various counties in England since its discovery in 1935.
- 792 *Mirificarma mulinella* Rothamsted trap at Cockayne Hatley 1979, (TL24P).
- 802a *Gelechia sororculella* Rothamsted trap at Cockayne Hatley 1979 (TL24P).
- 856 *Anarsia spartiella* At MV light Cranfield aerodrome (SP94K).
- 858 *Hypatima rhomboidella* † Knotting, West Wood (SP96W).
- 925 *Phtheochroa rugosana* † Sharnbrook (SP95Z), Stotfold at MV light (TL23I). These two records were found independently in 1983. The larvae feed on WhiteBryony. The Toticroid moths, of which this is one, are immediately obvious from the strongly curved costa, the leading edge of the wing. This group is well described by Bradley. (Bradley, Tremewan and Smith).
- 983 *Choristoneura hebenstreitella* At MV light Stotfold 1978. (TL23I)
- 999 *Adoxophyes orana* Sharnbrook (SP95Z). Said to be an orchard pest.
- 1000 *Psycholoma lecheana* † Came to the all-night meeting at Mauden Wood (MV light) (TL03P), and was bred from pupae found on low shrubs Putnoe Wod (TL05R).
- 1053 *Acleris hastiana* Found fluttering in the mown grass at the edge of peri-track Cranfield aerodrome early November (SP94K).
- 1067 *Olethreutes cespitana* Sharnbrook (SP95Z).
- 1086 *Hedya salicella* Sharnbrook (SP95Z) and at MV light Cranfield (SP94K).
- 1092 *Apotomis turbidana* Flitwick Moor (TL03M) and Rowney Warren (TL14F) at MV light.
- 1095 *Apotomis sororculana* At MV light Flitwick Moor (TL03M).
- 1102 *Endothenia nigricostana* At MV light Flitwick Moor. (TL03M).
- 1111 *Bactra lancealana* † Rothamsted trap at Cockayne Hatley 1979 (TL24P).
- 1119 *Ancylis geminana* † Worley's Wood, Melchbourne, (TL06B).
- 1135 *Epinotia demarniana* At MV light Rowney Warren, (TL14F).
- 1137 *Epinotia tetraquetrana* At MV light Sutton Fen (TL24D).
- 1138 *Epinotia nisella* † At MV light Boyd Scout Camp Henlow (TL13Z).
- 1142 *Epinotia tedella* Worley's Wood, Melchbourne. (TL06B) and Sharnbrook (SP95Z).
- 1155 *Epinotia brunnichana* Caught flying over rough ground Marston Thrift (SP94Q), and Sharnbrook (SP95Z).
- 1166 *Zeiraphera diniana* At MV light Cranfield aerodrome (SP94K).
- 1210 *Rhyacionia buoliana* † At MV light Cranfield aerodrome (SP94K). Feeds on Pinus.
- 1248 *Cydia molesta* The oriental fruit moth. Another likely candidate for a window bottom. Sharnbrook (in house) (SP95Z). Feeds on peaches and imported fruit.
- 1292 *Calamotropha paludella* † At MV light Cranfield aerodrome (SP94K) and again at Flitwick Moor. (TL03M). A fine insect which feeds on Reed-mace. Illustrates the universal appeal of wet areas to all organisms. This and the remaining species belong to the Pyralidae (Beirne). Many of these are common everywhere and can be disturbed by day from long grass and hedge bottoms. Many too are much larger than some of the so-called macros.
- 1331 *Acentria nivea* † Which has polymorphic (alate and apterate) females and aquatic larvae, is an example of how closely related the trichoptera are to the lepidoptera. That nivea has more of a resemblance to a caddis fly than to a moth probably explains it having been overlooked for so long (Novak and Severa). It is, nevertheless, abundant at several sites in Bedfordshire. Recorded for Flitwick Moor, (TL03M), Cranfield aerodrome (SP94K), Rowney Warren (TL14F), Boyd Scout Camp (TL13Z), Stotfold (TL23I) and Sharnbrook (SP95Z).
- 1452 *Spycita roborella* † At MV light Cranfield aerodrome (SP94K) and Clarendon school (TL04R).
- 1457 *Hypochalcia ahenella* D. & S. At MV light Stotfold (TL23I).

The microlepidoptera are probably no more or less indicators of site diversity than their larger counterparts. Each insect discovered offers a piece of useful information if we can interpret it correctly. They are however, also in keeping with their relatives, very mobile. It would be just as difficult to prove, although it is equally common in the county, that the tiny *Plutella xylostella* fluttering round the living-room light, had just arrived from France as it would be for a large Vanessa.

† First records since the *Victoria County History*.

ACKNOWLEDGEMENT

With thanks to David Manning of Sharnbrook for details of his records.

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HOVERFLIES (Diptera — Syrphidae) Report of the Recorder

An important event in the hoverfly world this year was the appearance of a new book: *British Hoverflies*, by A. E. Stubbs and S. J. Falk, published by the British Entomological and Natural History Society. The keys and plates are so superbly clear that, as the authors intend, anyone with more than a passing interest in insects should be able to identify nearly all the hoverflies he sees and/or catches. There are authoritative chapters on the types of area to visit, techniques to use, mounting, labelling, and a wealth of interesting observations and questions still unanswered.

To ensure that the interest generated by this publication can be applied directly to providing a better picture of hoverfly distribution in Bedfordshire, a summary of the presently available records has been drawn up, and constitutes the heart of this report.

N. F. JANES

10 km Square Species	SP										TL										
	91	92	93	94	95	96	01	02	03	04	05	06	11	12	13	14	15	16	23	24	25
sub-family SYRPHINAE																					
<i>Baccha</i> sp	+	+			+	+	+	+	+	+	+			+	+	+					+
<i>Chrysotoxum bicinctum</i>		+					+	+													
<i>cautum</i>				+	+	+			+												
<i>festivum</i>										+											
<i>verralli</i>									+	+											
<i>Dasysyrphus albostrigatus</i>		+			+	+	+	+	+			+			+	+				+	+
<i>lunulatus</i>					+	+			+			+			+						
<i>tricinctus</i>							+		+												+
<i>venustus</i>		+			+	+	+	+	+			+				+					+
<i>Epistrophe eligans</i>		+	+	+	+	+	+	+	+				+	+	+	+					
<i>grossulariae</i>		+			+				+	+					+						
<i>Episyrphus balteatus</i>	+	+	+	+	+	+	+	+	+	+	+	+			+	+	+			+	+
<i>Leucozona glaucius</i>		+																			
<i>lucorum</i>	+	+		+	+	+	+	+	+	+		+	+		+	+	+				
<i>Melangyna cincta</i>								+	+	+											
<i>labiatarum</i>					+			+													
<i>lasiophthalma</i>							+		+												
<i>umbellatarum</i>						+		+													
<i>Melanostoma mellinum</i>	+	+	+		+	+	+	+	+	+	+	+			+	+	+			+	+
<i>scalare</i>	+	+	+		+	+	+	+	+	+	+			+	+	+				+	+
<i>Meliscaeva auricollis</i>	+	+	+		+		+	+	+	+					+	+					+
<i>cinctella</i>		+	+				+	+	+							+					+
<i>Metasyrphus corollae</i>	+	+	+	+	+	+	+	+	+	+	+	+			+	+	+			+	+
<i>latifasciatus</i>					+	+			+					+							
<i>luniger</i>	+	+			+	+	+	+	+	+	+	+					+				+
<i>Parasyrphus annulatus</i>					+																
<i>lineolus</i>		+			+							+									
<i>punctulatus</i>										+											
<i>vittiger</i>							+														
<i>Platycheirus albimanus</i>	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+			+	+
<i>ambiguus</i>								+													
<i>angustatus</i>			+	+		+	+		+	+							+				
<i>clypeatus</i>		+			+		+		+	+		+			+		+				
<i>fulviventris</i>									+	+	+										
<i>manicatus</i>		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
<i>peltatus</i>	+	+		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
<i>scutatus</i>		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+			+	+	+
<i>tarsalis</i>									+						+	+				+	+
<i>Pyrophaena granditarsa</i>		+						+	+												
<i>rosarum</i>									+												

10 km Square Species	SP										TL										
	91	92	93	94	95	96	01	02	03	04	05	06	11	12	13	14	15	16	23	24	25
<i>Pyrophaena granditarsa</i>		+						+	+												
<i>rosarum</i>									+												
<i>Scaeva pyrastris</i>	+	+			+		+	+	+	+						+	+				
<i>Sphaerophoria menthastri</i>		+					+	+	+								+	+		+	+
<i>scripta</i>	+	+	+	+	+	+	+	+	+	+	+					+	+	+		+	+
<i>Syrphus ribesii</i>	+	+	+	+	+	+	+	+	+	+	+	+				+	+	+		+	+
<i>torvus</i>			+													+	+	+		+	+
<i>vitripennis</i>	+	+							+											+	+
<i>Xanthocramma atrofasciatus</i>				+			+							+	+	+	+		+	+	+
<i>pedissequum</i>				+				+	+							+					
sub-family MILESIINAE																					
<i>Anasimyia contracta</i>								+	+												
<i>lineata</i>										+											
<i>transfuga</i>										+											
<i>Cheilosia albipila</i>									+								+				
<i>albitarsis</i>		+		+	+	+		+	+	+	+	+							+	+	
<i>antiqua</i>						+		+	+						+		+		+	+	
<i>bergenstammi</i>								+	+												
<i>cynocephala</i>									+												+
<i>grossa</i>								+													
<i>honesta</i>									+												
<i>illustrata</i>		+			+		+	+	+					+							
<i>intonsa</i>									+												
<i>paganus</i>		+	+	+	+	+	+	+	+		+	+	+								
<i>proxima</i>			+		+	+	+	+	+		+	+	+		+	+	+		+	+	
<i>variabilis</i>				+	+	+	+	+	+	+		+	+				+			+	+
<i>vernalis</i>		+	+				+	+	+	+	+				+	+				+	+
<i>Chrysogaster hirtella</i>		+					+	+	+	+		+									
<i>solstitialis</i>		+	+		+			+	+		+						+			+	+
<i>Criorhina berberina</i>					+				+							+				+	+
<i>Eristalinus sepulchralis</i>		+				+		+	+	+	+				+		+			+	+
<i>Eristalis arbustorum</i>	+	+	+	+	+	+		+	+	+	+	+			+		+			+	+
<i>horticola</i>		+	+		+	+		+	+		+	+			+	+	+		+	+	+
<i>intricarius</i>		+			+			+	+		+	+			+	+	+		+	+	+
<i>nemorum</i>		+		+				+	+		+	+			+	+	+		+	+	+
<i>pertinax</i>	+	+	+	+	+	+	+	+	+	+	+	+		+	+	+	+		+	+	+
<i>tenax</i>	+	+		+	+	+	+	+	+	+	+	+		+	+	+	+		+	+	+
<i>Eumerus ornatus</i>				+	+	+	+	+	+	+	+	+		+	+	+	+		+	+	+
<i>strigatus</i>								+	+						+	+	+		+	+	+
<i>tuberculatus</i>		+				+		+	+	+	+								+	+	+

10 km Square Species	SP										TL										
	91	92	93	94	95	96	01	02	03	04	05	06	11	12	13	14	15	16	23	24	25
<i>Ferdinandea cuprea</i>				+					+												
<i>Helophilus hybridus</i>		+			+				+												
<i>pendulus</i>		+		+		+	+	+	+		+	+	+		+	+	+			+	+
<i>Lejogaster metallina</i>		+			+				+				+								
<i>Merodon equestris</i>		+							+												
<i>Myathropa florea</i>				+	+	+	+	+	+	+		+	+						+	+	+
<i>Neoscia aenea</i>									+												
<i>dispar</i>				+	+			+	+	+					+		+				
<i>podagrica</i>		+			+	+	+	+	+		+	+			+		+				+
<i>Orthonevra nobilis</i>									+												
<i>splendens</i>		+	+						+							+					
<i>Parhelophilus frutetorum</i>									+												
<i>versicolor</i>				+	+			+	+									+			
<i>Pipiza austriaca</i>						+	+		+												+
<i>luteitarsis</i>									+			+									+
<i>noctiluca</i>		+	+			+			+	+					+						+
<i>Pipizella varipes</i>									+	+							+	+			
<i>Portevinia maculata</i>									+	+											
<i>Rhingia campestris</i>		+	+	+	+	+	+	+	+		+			+	+	+	+	+			+
<i>Sericomyia lappona</i>			+																		
<i>Sphegina kimakowiczi</i>									+												
<i>verecunda</i>									+												
<i>Syritta pipiens</i>		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		+	+	+
<i>Tropidia scita</i>									+												
<i>Volucella bombylans</i>						+	+	+	+	+	+										+
<i>pellucans</i>		+	+	+	+	+	+	+	+	+	+					+					+
<i>Xylota segnis</i>			+		+	+	+	+	+		+										
<i>sylvarum</i>					+		+		+							+					
<i>tarda</i>					+				+												
<i>nanthocnema</i>			+																		
<i>Xylotomima nemorum</i>		+			+				+												

Table. Summary of hoverflies recorded in Bedfordshire since 1977

- Notes 1. For earlier records, see
LAURENCE, B.R. 1945 *Ent. Mon: Mag.* 81 125
1950 *Ent. Mon. Mag.* 86 351
2. No records for TL07

**CHECKLIST OF BEDFORDSHIRE COLEOPTERA:
(2) HYDRAENIDAE TO BUPRESTIDAE
by B.S. Nau**

ABBREVIATIONS

BB — Balfour-Browne
D — Day
J — Jarvis
N — Nau
NFJ — Janes

R — Roche
V — VCH (Fowler)
V52 — Verdcourt
W — Williams

The numerical subscripts denote the year of publication where this is necessary for clarity. The references may be found in *A checklist and bibliography of Coleoptera in Bedfordshire* by B.S. Nau published in the Journal for 1982, (*Bedf. Nat.* 37 50-51).

NUMBER OF SPECIES

Staphylinoidea:		Scarabaeoidea:		Byrrhoidea:	
Hydraenidae	7	Lucanidae	3	Byrrhidae	4
Ptilidae	2	Trogidae	1	Dryopoidea:	
Leiodae	22	Geotrupidae	4	Heteroceridae	2
Silphidae	12	Scarabaeidae	26	Dryopidae	1
Scydmaenidae	8	Dascilloidea:		Elmidae	4
Scaphidiidae	2	Dascillidae	1	Buprestoidea:	
Staphylinidae	306	Eucinetoidae:		Buprestidae	2
Pselaphidae	10	Clambidae	1		
		Scirtidae	7		
				TOTAL	425

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STAPHYLINOIDEA

HYDRAENIDAE

<i>Octhebius bicolor</i> Germar	J,V52
<i>O.dilatatus</i> Stephens	BB58
<i>O.minimus</i> (Fabricius)	V,W28
<i>Hydraena nigrita</i> Germar	V,BB58
<i>H.riparia</i> Kugelann	R
<i>Limebius papposus</i> Mulsant	W28,BB58
<i>L.truncatellus</i> (Thunberg)	V

PTILIIDAE

<i>Acrotrichis intermedia</i> (Gillmeister)	J50
<i>A.montandoni</i> (Allibert)	J50,N

LEIODIDAE

<i>Hydnobius punctatus</i> (Sturm)	R
<i>Leiodes badia</i> (Sturm)	R

<i>Agaricophagus humeralis</i> (Fabricius)	V
<i>Amphicyllis globus</i> (Fabricius)	V
<i>Agathidium laevigatum</i> Erichson	V
<i>A.seminalum</i> (L.)	V
<i>A.varians</i> Beck	R
<i>Ptomophagus subvillosus</i> (Goeze)	V,J
<i>Nargus velox</i> (Spence)	V,V52
<i>Choleva angustata</i> (Fabricius)	V
<i>C.cisteloides</i> (Frolich)	V
<i>C.spadicea</i> (Sturm)	V
<i>Scioldreporides fumata</i> (Spence)	V
<i>S.watsoni</i> (Spence)	R44
<i>Catops chrysomeloides</i> (Panzer)	V,V52
<i>C.fuliginosus</i> Erichson	J50
<i>C.grandicollis</i> Erichson	V
<i>C.longulus</i> Kellner	J50,V52
<i>C.nigricans</i> (Spence)	V
<i>C.nigrita</i> Erichson	V

<i>C. tristis</i> (Panzer)	V	<i>Metopsia retusa</i> (Stephens)	V, N, NFJ	<i>Platystethus capito</i> Heer	NFJ
<i>Colon brunneum</i> (Latreille)	V	<i>Megarthus affinis</i> Miller	J50	<i>P. cornutus</i> (Gravenhorst)	NFJ
SILPHIDAE		<i>M. denticollis</i> (Beck)	V	<i>P. nitens</i> (Sahlberg)	R, NFJ
		<i>M. depressus</i> (Paykull)	R, NFJ	<i>Anotylus fairmairei</i> (Pandelle)	R
<i>Nicrophorus humator</i> (Gleditsch)	V, N	<i>Proteinus brachypterus</i> (Fabricius)	V, NFJ	<i>A. insecatus</i> (Gravenhorst)	V
<i>N. interruptus</i> Stephens	J50	<i>P. ovalis</i> Stephens	V, NFJ	<i>A. inustus</i> (Gravenhorst)	J50, V52, NFJ
<i>N. investigator</i> Zetterstedt	J50, N	<i>Anthobium atrocephalum</i> (Gyllenhal)	V, NFJ	<i>A. rugosus</i> (Fabricius)	V, N, NFJ
<i>N. vespillo</i> (L.)	V, V52, N	<i>A. unicolor</i> (Marsham)	V, N, NFJ	<i>A. sculpturatus</i> (Gravenhorst)	V, V52, NFJ
<i>N. vespilloides</i> Herbst	V, V52, N	<i>Olophrum piceum</i> (Gyllenhal)	V, NFJ	<i>A. tetracarinatus</i> (Block)	V
<i>N. vestigator</i> Herschel	V	<i>Lesteva heeri</i> Fauvel	NFJ	<i>Oxytelus laqueatus</i> (Marsham)	R, NFJ
<i>Thanatophilus rugosus</i> (L.)	V, V52, N	<i>L. longelytrata</i> (Goeze)	V	<i>O. sculptus</i> Gravenhorst	V
<i>T. sinuatus</i> (Fabricius)	V	<i>L. pubescens</i> Mannerheim	V	<i>Oxyporus rufus</i> L.	V, V52
<i>Oiceoptoma thoracicum</i> (L.)	V	<i>Eusphalerum luteum</i> (Marsham)	J	<i>Stenus argus</i> Gravenhorst	NFJ
<i>Dendroxena quadrimaculata</i> (Scopoli)	J50, V52	<i>E. minutum</i> (Fabricius)	J50	<i>S. ater</i> Mannerheim	J50
<i>Silpha atrata</i> L.	V, V52, N	<i>E. torquatum</i> (Marsham)	V	<i>S. atratulus</i> Erichson	V
<i>S. laevigata</i> Fabricius	V52	<i>Droephylla ioptera</i> (Stephens)	D	<i>S. bifoveolatus</i> Gyllenhal	V, NFJ
SCYDMEAENIDAE		<i>D. vilis</i> (Erichson)	NFJ	<i>S. biguttatus</i> (L.)	J50
		<i>Hapalaraea pygmaea</i> (Paykull)	D	<i>S. bimaculatus</i> Gyllenhal	V, N, NFJ
<i>Cephennium gallicum</i> Ganglbauer	R	<i>Omalius caesus</i> Gravenhorst	V, NFJ	<i>S. binotatus</i> Ljungh	V, V52, NFJ
<i>Neuraphes angulatus</i> (M&K)	R	<i>O. excavatum</i> Stephens	V, NFJ	<i>S. brunnius</i> Stephens	V, NFJ
<i>Scydmorephes sparshalli</i> (Denny)	R	<i>O. exiguus</i> Gyllenhal	R	<i>S. canaliculatus</i> Gyllenhal	J
<i>Stenichnus collaris</i> (M&K)	V	<i>O. italicum</i> Bernhauer	NFJ	<i>S. cicindeloides</i> (Schaller)	V, N, NFJ
<i>S. poweri</i> (Powler)	W30, R	<i>O. rivulare</i> (Paykull)	V, V52, NFJ	<i>S. clavicornis</i> (Scopoli)	V, NFJ
<i>S. scutellaris</i> (M&K)	R	<i>O. rugatum</i> M&R	V52	<i>S. comma</i> LeConte	D, V52
<i>Euconnus fimetarius</i> (Chaudoir)	R	<i>Phloeonomus punctipennis</i> Thomson	V	<i>S. crassus</i> Stephens	R, NFJ
<i>Scydmaenus tarsatus</i> M&K	V	<i>P. pusillus</i> (Gravenhorst)	V	<i>S. exiguus</i> Erichson	V
SCAPHIDIIDAE		<i>Phloeostiba plana</i> (Paykull)	V	<i>S. flavipes</i> Stephens	V, N, NFJ
		<i>Xylodromus concinnus</i> (Marsham)	V	<i>S. fulvicornis</i> Stephens	V, N, NFJ
<i>Scaphidium quadrimaculatum</i> Olivier	V, N	<i>X. depressus</i> (Gravenhorst)	V	<i>S. guttula</i> Muller	V
<i>Scaphisoma agaricinum</i> (L.)	V	<i>Philorinum sordidum</i> (Stephens)	R	<i>S. impressus</i> Germar	V, V52, NFJ
STAPHYLINIDAE		<i>Siagonium quadricorne</i> Kirby	J, NFJ	<i>S. juno</i> (Paykull)	V, N, NFJ
		<i>Syntomium aeneum</i> (Muller)	V	<i>S. latifrons</i> Erichson	V, N, NFJ
<i>Micropeplus fulvus</i> Erichson	J50	<i>Bledius gallicus</i> (Gravenhorst)	V	<i>S. ludyi</i> Fauvel	NFJ
<i>M. porcatus</i> (Paykull)	R	<i>Carpelimus bilineatus</i> Stephens	V, NFJ	<i>S. melanopus</i> (Marsham)	R
<i>M. staphilinoides</i> (Marsham)	NFJ	<i>C. corticinus</i> (Gravenhorst)	R, NFJ	<i>S. nigriritulus</i> Gyllenhal	R44
		<i>C. elongatus</i> (Erichson)	V, NFJ	<i>S. nitidiusculus</i> Stephens	N
		<i>C. rivularis</i> (Motschulsky)	D	<i>S. ochropus</i> Kiesenwetter	R, N
		<i>Aploderus caelatus</i> (Gravenhorst)	V	<i>S. pallipes</i> Gravenhorst	V
		<i>Platystethus arenarius</i> (Fourcroy)	V, NFJ	<i>S. pallitarsis</i> Stephens	J, V52, N, NFJ

<i>S. picipennis</i> Erichson	NFJ	<i>X. tricolor</i> (Fabricius)	R, NFJ	<i>Ontholestes tessellatus</i> (Fourcroy)	V
<i>S. picipes</i> Stephens	R, NFJ	<i>Philonthus addendus</i> Sharp	V, NFJ	<i>Heterothops dissimilis</i> (Gravenhorst)	NFJ
<i>S. pubescens</i> Stephens	V, N, NFJ	<i>P. albipes</i> (Gravenhorst)	V	<i>H. praeivius</i> Erichson	V
<i>S. rogeri</i> Kraatz	V, N	<i>P. cephalotes</i> (Gravenhorst)	V, NFJ	<i>Quedius boops</i> (Gravenhorst)	V
<i>S. similis</i> (Herbst)	V, NFJ	<i>P. cognatus</i> Stephens	V, V52, NFJ	<i>Q. cinctus</i> (Paykull)	V, V52, NFJ
<i>S. solutus</i> Erichson	J50, NFJ	<i>P. concinnus</i> (Gravenhorst)	NFJ	<i>Q. cruentus</i> (Olivier)	V, V52, NFJ
<i>S. tarsalis</i> Ljungh	V, N, NFJ	<i>P. cruentatus</i> (Gmelin)	R, NFJ	<i>Q. fulgidus</i> (Fabricius)	V
<i>Dianous coerulescens</i> (Gyllenhal)	V	<i>P. discoideus</i> (Gravenhorst)	J	<i>Q. fuliginosus</i> (Gravenhorst)	V, V52
<i>Euaethetus bipunctatus</i> (Ljungh)	R	<i>P. fimetarius</i> (Gravenhorst)	R44, V52, NFJ	<i>Q. lateralis</i> (Gravenhorst)	NFJ
<i>Paederus fuscipes</i> Curtis	J	<i>P. intermedius</i> (B&L)	J50, V52	<i>Q. maurorufus</i> (Gravenhorst)	V
<i>P. littoralis</i> Gravenhorst	V, D, V52, NFJ	<i>P. jurgans</i> Tottenham	J50	<i>Q. mesomelinus</i> (Marsham)	V, NFJ
<i>P. riparius</i> (L.)	J50	<i>P. laminatus</i> (Cruetzer)	V, NFJ	<i>Q. molochinus</i> (Gravenhorst)	V, NFJ
<i>Lathrobium brunnipes</i> (Fabricius)	V, N, NFJ	<i>P. marginatus</i> (Strom)	V, V52, NFJ	<i>Q. nemoralis</i> Baudi	NFJ
<i>L. elongatum</i> (L.)	V, NFJ	<i>P. micans</i> (Gravenhorst)	V	<i>Q. nigriceps</i> Kraatz	NFJ
<i>L. fulvipenne</i> (Gravenhorst)	V, NFJ	<i>P. politus</i> (L.)	V, V52, NFJ	<i>Q. picipes</i> (Mannerheim)	V, NFJ
<i>L. geminum</i> Kraatz	V, NFJ	<i>P. rectangulus</i> Sharp	J50	<i>Q. schatzmayri</i> Gridelli	J50
<i>L. multipunctum</i> Gravenhorst	V, V52	<i>P. sanguinolentus</i> (Gravenhorst)	V	<i>Q. scitus</i> (Gravenhorst)	R44
<i>L. quadratum</i> (Paykull)	J50	<i>P. sordidus</i> (Gravenhorst)	R44, NFJ	<i>Q. semiobscurus</i> (Marsham)	V, NFJ
<i>E. terminatum</i> Gravenhorst	V	<i>P. splendens</i> (Fabricius)	V, V52	<i>Q. tristis</i> (Gravenhorst)	NFJ
<i>Achenium depressum</i> (Gravenhorst)	D, J50	<i>P. succicola</i> Thomson	(V)	<i>Habrocerus capillaricornis</i> (Gravenhorst)	R, NFJ
<i>Sunius melanocephalus</i> (Fabricius)	V	<i>P. varians</i> (Paykull)	V, D, NFJ	<i>Mycetoporus clavicornis</i> (Stephens)	R, NFJ
<i>S. propinquus</i> (Brisout)	J50	<i>P. varius</i> (Gyllenhal)	V, V52, NFJ	<i>M. lepidus</i> (Gravenhorst)	V, NFJ
<i>Lithocharis ochracea</i> (Gravenhorst)	R	<i>Gabrius nigrutilus</i> (Gravenhorst)	J50, NFJ	<i>M. longulus</i> Mannerheim	R
<i>Astenus lyonessius</i> (Joy)	V, D, NFJ	<i>G. trossulus</i> (von Nordmann)	V	<i>M. nigricollis</i> Stephens	V
<i>A. pulchellus</i> (Heer)	J, NFJ	<i>Platydracus fulvipes</i> (Scopoli)	R, W30	<i>M. punctus</i> (Gravenhorst)	R
<i>Rugilus erichsoni</i> (Fauvel)	V, J50	<i>P. latebricola</i> (Gravenhorst)	R, W30	<i>M. rufescens</i> (Stephens)	NFJ
<i>R. orbiculatus</i> (Paykull)	V, NFJ	<i>P. pubescens</i> (Degeer)	NFJ	<i>M. splendidus</i> (Gravenhorst)	R
<i>R. rufipes</i> Germar	V, V52	<i>P. stercorarius</i> (Olivier)	R44, V52	<i>Lordithon exoletus</i> (Erichson)	V
<i>R. similis</i> (Erichson)	V	<i>Staphylinus aeneocephalus</i> Degeer	R	<i>L. lunulatus</i> (L.)	V, V52
<i>Othius angustus</i> Stephens	V, NFJ	<i>S. ater</i> Gravenhorst	R, NFJ	<i>L. thoracicus</i> (Fabricius)	V
<i>O. myrmecophilus</i> Kiesenwetter	NFJ	<i>S. brunnipes</i> Fabricius	V, V52, NFJ	<i>L. trinotatus</i> (Erichson)	V
<i>O. punctulatus</i> (Goeze)	V, N, NFJ	<i>S. compressus</i> Marsham	R, NFJ	<i>Bolitobius analis</i> (Fabricius)	V, NFJ
<i>Atrecus affinis</i> (Paykull)	V, NFJ	<i>S. globulifer</i> Fourcroy	V, NFJ	<i>B. cingulatus</i> (Mannerheim)	V
<i>Gyrophynus angustatus</i> Stephens	NFJ	<i>S. melanarius</i> Heer	V52	<i>B. inclinans</i> (Gravenhorst)	V
<i>G. fracticornis</i> (Muller)	V	<i>S. nero</i> Faldermann	NFJ	<i>Sepedophilus littoreus</i> (L.)	V
<i>G. punctulatus</i> (Paykull)	V, NFJ	<i>S. olens</i> Muller	V, N, NFJ	<i>S. marshami</i> (Stephens)	V, NFJ
<i>Xantholinus glabratus</i> (Gravenhorst)	V, V52, NFJ	<i>S. winkleri</i> Bernhauer	J50, NFJ	<i>S. nigripennis</i> (Stephens)	V, NFJ
<i>X. linearis</i> (Olivier)	V, V52, N, NFJ	<i>Creophilus maxillosus</i> (L.)	V	<i>Tachyporus atriceps</i> Stephens	V
<i>X. longiventris</i> Heer	V	<i>Ontholestes murinus</i> (L.)	J50	<i>T. chrysomelinus</i> (L.)	V, N, NFJ

<i>T. hypnorum</i> (Fabricius)	V,N,NFJ	<i>Hydrossecta eximia</i> (Sharp)	V	<i>Atheta cauta</i> (Erichson)	V
<i>T. nitidulus</i> (Fabricius)	V,NFJ	<i>H. fragilis</i> (Kraatz)	V	<i>A. cinnamoptera</i> (Thomson)	V
<i>T. obtusus</i> (L.)	V,NFJ	<i>H. thinobioides</i> (Kraatz)	V	<i>A. nigripes</i> (Thomson)	V
<i>T. pallidus</i> Sharp	NFJ	<i>Alcoconota gregaria</i> (Erichson)	V	<i>A. longicornis</i> (Gravenhorst)	V
<i>T. pusillus</i> Gravenhorst	V,NFJ	<i>Pycnota paradoxa</i> (M&R)	R	<i>Alianta incana</i> (Erichson)	V,V52
<i>T. solutus</i> Erichson	J50,NFJ	<i>Amischa analis</i> (Gravenhorst)	V	<i>Pachnida nigella</i> (Erichson)	V
<i>Lamprinodes saginatus</i> (Gravenhorst)	R	<i>Nehemitropia sordida</i> (Marsham)	V	<i>Thamiarea cinnamomea</i> (Gravenhorst)	V
<i>Tachinus elongatus</i> Gyllenhal	R	<i>Geostiba circellaris</i> (Gravenhorst)	V	<i>Drusilla canaliculata</i> (Fabricius)	V,N,NFJ
<i>T. humeralis</i> Gravenhorst	V,NFJ	<i>Dinaraea aequata</i> (Erichson)	V	<i>Zyras humeralis</i> (Gravenhorst)	V
<i>T. laticollis</i> Gravenhorst	V	<i>Dadobia immersa</i> (Erichson)	V	<i>Z. limbataus</i> (Paykull)	R
<i>T. marginellus</i> (Fabricius)	V	<i>Plataraea brunnea</i>	(V)	<i>Phloeopora testacea</i> (Mannerheim)	V
<i>T. signatus</i> Gravenhorst	V,V52,NFJ	<i>Atheta elongatula</i> (Gravenhorst)	V	<i>Chiloporata longitarsus</i> (Erichson)	V,D
<i>T. subterraneus</i> (L.)	V,NFJ	<i>A. gyllenhalii</i> (Thomson)	V	<i>Ocalea badia</i> Erichson	V
<i>Cilea silphoides</i> (L.)	V	<i>A. luridipennis</i> (Mannerheim)	V	<i>O. picata</i> (Stephens)	V
<i>Cypha longicornis</i> (Paykull)	V,N,NFJ	<i>A. palustris</i> (Kiesenwetter)	V	<i>Mniusa increassata</i> (M&R)	V
<i>Oligota inflata</i> (Mannerheim)	V	<i>A. fungivora</i> (Thomson)	V	<i>Oxyopoda alternans</i> (Gravenhorst)	V
<i>O. pusillima</i> (Gravenhorst)	V	<i>A. nigricornis</i> (Thomson)	V	<i>O. elongatula</i> Aube	V
<i>Myllaena brevicornis</i> (Matthews)	V	<i>A. nigrifulva</i> (Gravenhorst)	V	<i>O. opaca</i> (Gravenhorst)	V
<i>M. dubia</i> (Gravenhorst)	V	<i>A. amicula</i> (Stephens)	V	<i>O. umbrata</i> (Gyllenhal)	R
<i>M. elongata</i> (Matthews)	V	<i>A. atricolor</i> (Sharp)	V	<i>Ischnoglossa prolixa</i> (Gravenhorst)	V
<i>M. gracilis</i> (Matthews)	V	<i>A. trinotata</i> (Kraatz)	V	<i>Dexiogyia corticina</i> (Erichson)	V
<i>M. intermedia</i> Erichson	V	<i>A. melanaria</i> (Mannerheim)	V	<i>Homoeusa acuminata</i> (Markel)	V
<i>Hygronoma dimidiata</i> (Gravenhorst)	V	<i>A. clientula</i> (Erichson)	V52	<i>Crataraea suturalis</i> (Mannerheim)	V
<i>Encephalus complicans</i> Stephens	V	<i>A. fungi</i> (Gravenhorst)	V	<i>Haploglossa nidicola</i> (Fairmaire)	V
<i>Gyrophaena affinis</i> Mannerheim	V	<i>A. aterrima</i> (Gravenhorst)	V	<i>Tinotus morion</i> (Gravenhorst)	V
<i>G. bihamata</i> Thomson	V52	<i>A. pygmaea</i> (Gravenhorst)	V	<i>Aleochara bipustulata</i> (L.)	V
<i>G. fasciata</i> (Marsham)	V	<i>A. nigra</i> (Kraatz)	V	<i>A. curtula</i> (Goeze)	V
<i>G. minima</i> Erichson	V	<i>A. sordidula</i> (Erichson)	V	<i>A. intricata</i> Mannerheim	V
<i>G. nana</i> (Paykull)	V	<i>A. aquatica</i> (Thomson)	V	<i>A. lanuginosa</i> Gravenhorst	V
<i>G. strictula</i> Erichson	V52	<i>A. castanoptera</i> (Mannerheim)	V	<i>A. moesta</i> Gravenhorst	V
<i>Anomognathus cuspidatus</i> (Erichson)	V	<i>A. graminicola</i> (Gravenhorst)	V		
<i>Bolitochara lucida</i> (Gravenhorst)	V	<i>A. hypnorum</i> (Kiesenwetter)	V	PSELAPHIDAE	
<i>Autalia impressa</i> (Olivier)	V	<i>A. pertyi</i> (Heer)	V	<i>Euplectus piceus</i> Motschulsky	V
<i>A. rivularis</i> (Gravenhorst)	V	<i>A. autumnalis</i> (Erichson)	V	<i>E. sanguineus</i> Denny	J50
<i>Cordalia obscura</i> (Gravenhorst)	V	<i>A. fungicola</i> (Thomson)	V	<i>E. signatus</i> (Reichenbach)	V
<i>Falagria caesa</i> Erichson	V	<i>A. laticollis</i> (Stephens)	V	<i>Amauronyx maerkeli</i> (Aube)	W30,R
<i>Tachyusa constricta</i> Erichson	V	<i>A. oblita</i> (Erichson)	R	<i>Bryaxis puncticollis</i> (Denny)	V
<i>Gnypeta carbonaria</i> (Mannerheim)	V	<i>A. pillicornis</i> (Thomson)	V	<i>Tychus niger</i> (Paykull)	R,N
<i>Callicerus obscurus</i> Gravenhorst	R	<i>A. atramentaria</i> (Gyllenhal)	V	<i>Brachygluta fossulata</i> (Reichenbach)	V

FLOWERING PLANTS, FERNS AND FERN ALLIES
(Spermatophyta and Pteridophyta)
Report of the Recorder

1983 proved to be a profitable year for plant recording in the county, the most interesting record being the re-discovery of Greater Spearwort *Ranunculus lingua*. This was apparently last observed in Bedfordshire by James Saunders in 1882 growing by the side of 'Reed Pond', Sundon and it was in a similar situation in the adjacent village of Harlington that it was found by L. G. Adams, an active field botanist in the county before he left us 25 years ago to go to Australia where he now works in the Commonwealth Herbarium at Canberra. He was back in Britain to do some work at Kew and to take a holiday in his earlier surroundings. The spearwort had also been found in 1864 by John McLaren 'near Sharnbrook', where it was also seen, almost simultaneously, in the river Ouse below a bridge by Sharnbrook Mill by members of the Society during a meeting intended to have a primary ornithological interest. The species is grown occasionally by the side of garden ponds and it is just possible that these two records may have their origin in escapes from such introductions, but on the other hand a warning to us not to be too hasty in assuming that species at one time known in the county have, through lack of records, become extinct.

Another new record was in some respects similar. I have long known Dwarf Cherry *Prunus cerasus* in Hertfordshire and had almost given up hope of finding genuine specimens in Bedfordshire, the record in the Flora (1953) being subject to some doubt. It was one of a number of small trees planted in hedgerows when so many of these were laid in the 18th and early years of the 19th century and it was in such a situation that my wife and I found it on the margin of a small wood near Stopsley. Although not a native species it is at long last good to have it definitely recorded in the county. An example of how long introduced species may persist has been reported by A. W. Guppy who observed a large patch of *Astrantia major* surviving in St. Mary's Gardens, adjacent to the Town Bridge, Bedford, where Mr Guppy considers that it must have been planted at some time prior to 1891.

An observation of a very different nature was made by Miss Joan Kemp-Gee at Whipsnade of a plant of Purple Helleborine *Epipactis purpurata* completely lacking in chlorophyll, a strange-looking form which I have seen in Hertfordshire and Buckinghamshire but which has not been reported in Bedfordshire for almost 200 years. It was such a plant that Charles Abbot found near Woburn which seemed so unusual to him that he sent it to J.E. Smith, who described it as a species new to science.

Otherwise the summer was conducive to plant growth, making me grateful to more members than has been usual in recent years who have sent in records. Many came from Chris Boon and Graham Dennis, my thanks being especially due to both. Notwithstanding this there were fewer additional tetrad records this year than in previous years (only 516), this being in part due to a large amount of time spent on site-recording, including the churchyard survey organised by Mr Boon.

My reports in the past few years have included few additional alien species but more have been added in 1983, again partly due to the hot summer encouraging plants to flower but more to the settling down of the large rubbish dumps which have replaced the smaller ones we had previously. The Sundon dump, very rewarding 40 years ago in its alien flora, gave new species in *Rudbeckia hirta* (Compositae), *Physalis peruviana* and *Salvia viridis*, while the dump at Deepdale, Potton, added *Capsicum annuum* var. *grossus* (Solanaceae). Three species, all grasses, were added to the already large wool-alien flora — *Eragrostis minor*, *E. procumbens* and *Diplachne muelleri*.

My report would not be complete without mention of work begun by our Recorder for Woodlice, Centipedes and Millipedes in extending his interests to a study of the dandelion flora of the county, his work supplemented to some extent by that of my wife. It may be some time before he is able to report on his progress, when it must be left to him to outline the problems involved in the task he has undertaken.

JOHN G. DONY

MOSSES AND LIVERWORTS (Bryophyta)

Report of the Recorder

Arable fields have long been neglected as a Bryological habitat in Bedfordshire and there are a number of reasons for this: The species occurring are mostly ephemeral (persisting for only a limited time); they are at their best between September and December when I have usually been involved in fungal activities (!); the species are also very tiny, hard to find and difficult to identify. This year however, due in a large part to the efforts of Marcus Yeo, one of my former students, a number of these species were recorded as new to the county.

Pottia bryoides was found by M. Yeo in a field at Millow and has subsequently been found by me in two other localities. *Ephemerum serratum* var *minutissimum*, also new to the county, was found by us jointly at Riseley, whilst at Wymington M. Yeo found *E. recurvifolium* which had not been seen in the county for many years. *Phascum cuspidatum* is a very common arable weed but var *schreberianum* had not been recorded for the county until M. Yeo found it near Potton. (This variety is only recorded for 9 other British Vice-Counties).

One of the most exciting finds was *Sphaerocarpos michelii*, a most curious liverwort species recorded for only sixteen British Vice-Counties and found for the first time in Beds in a leek field near Broom. Virtually no other Bryophyte species was present in the field, an indication of how frustrating the search of arable fields can be before producing its unexpected rewards. The two British species in this genus can only be determined with certainty when fertile and when M. Yeo found the material it was sterile. Fortunately I was able to collect and grow material on until spores were produced such that the identity of the species could be established.

Walls also produced their share of new county records this year, again mostly small species. *Tortula marginata* was found by M. Yeo on an old wall nr Haywood in the the Woburn area. *T. virescens* was first recorded by me from Clifton churchyard and subsequently from a number of other localities. *Gyroweisia tenuis* from the mortar of an old wall nr Higher Berry End and *Trichostomopsis umbrosa* from a similar habitat at Podington Church were further additions by M. Yeo, whilst I added *Bryum radiculosum* from wall mortar at Upper Stondon. This species like a number of members of the genus has rhizoidal gemmae.

From concrete on the side of the Ivel at Shefford M. Yeo added *Barbula nicholsonii* to the county list and from bare mud beside a flooded gravel pit at Odell he found the first record of *Physcomitrella patens* in the county for over 50 years.

Flitwick Moor has been well worked over many years by large numbers of experienced Bryologists but Marcus Yeo's keen eye for detail spotted *Sphagnum russowii*, new to the county, as the ninth species of this genus to be recorded for the moor. This species is not recorded for any adjacent county and is generally rare in south-east England.

The importance of Stockgrove Park as a Bryological site was further emphasised by new county records by M. Yeo of the liverwort *Barbilophozia attenuata* and *Brachydontium trichodes*, a tiny moss species found on Sandstone rock faces just below the lake. This species is also uncommon in south-east England.

I would like to thank the following individuals who have submitted specimens and records during the year: Mrs. F. Davies, Mr and Mrs G. Hooper, Mr J. Knowles and most especially Mr M. Yeo. I would also appeal for further assistance from other members of the society in sending me specimens. (Further details in this connection will be provided in *The Muntjac*).

ALAN OUTEN

LICHENS

Report of the Recorder

One of the most interesting sites for lichens in the county is the Double Arches sand quarry near Heath and Reach, where a total of 33 species has been recorded, including two species relatively uncommon in Bedfordshire. This site has a variety of stable habitats for lichen growth including trees, buildings, brick walls and concrete mountings as well as the sandstone blocks which have lain undisturbed for many years and provide a habitat not unlike the natural rock surfaces these lichens normally colonise.

Although there are many trees at this site they are immature and cast shade and so few support any real lichen growth other than the common *Lecanora conizaeoides* and *L. expallens* and the ubiquitous alga *Pleurococcus vulgaris*. However the older *Salix* spp. do support a variety of lichen assemblages including *Evernia prunastri*, *Lecanora chlorotera*, *Parmelia glabrata*, *P. saxatilis* and *Usnea subfloridana*.

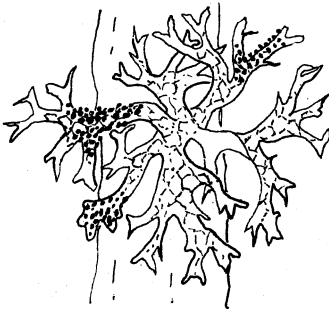
The sandstone blocks are well colonized with colourful assemblages of common crustose species e.g. *Caloplaca* spp., *Candelariella* spp., *Lecanora* spp. and foliose species e.g. *Physcia* spp. Many of these lichens are also found growing on the asbestos roofs, concrete pilings and machinery mounts scattered around the quarry.

On the ground small tracts of *Cladonia* rich turf are common and these include *Cladonia coniocraea*, *C. conista*, *C. fimbriata*, and *C. pyxidata*. These squamulose lichens with their basal scales are common on undisturbed soil and are important colonisers of bare ground.

Only one lichen is found growing on the ironwork of the machinery in the quarry and this is *Lecanora polytropa*, a lichen well adapted to growing on this unusual type of substrate.

Apart from the two fruticose species *Evernia prunastri* and *Usnea subfloridana* all the lichens found are common throughout the county, but rarely found in such abundance outside churchyards.

FRANCES B.M. DAVIES



Evernia prunastri



Lecanora conizaeoides



X10

X1

(Diagrams from *The Common Lichens of Bedfordshire* by Frances Davies)

THE FUNGUS FORAY

The fungus foray, held on 6 November, was led as usual by Dr D.A. Reid, with about 30 members participating. In the morning the party visited King's Wood, Houghton Conquest, but after lunch we moved to Tunnel Wood, Amptill. The day was fine but cold, and due to the late date larger fungi were virtually absent. However, as a result the smaller agarics and resupinate fungi were collected, and while names could not be supplied in the field, subsequent laboratory study showed a number of these gatherings to be of species new to the county. Despite this it will come as a surprise to the forayers on that occasion to learn that a total of 114 species was collected of which 11 were new to the county.

Of the new agarics *Mycena stylobates* is a very tiny white species growing on rotting leaves or vegetation with cap only 2-3mm diam., ornamented with minute gelatinous spines; the stem is attached to the substrate by a well-formed basal disc. This was not the common white *Mycena* which was so abundant in these same situations — this was *M. tenerrima*. The latter although extremely similar has a cap which, under a lens, appears as if sprinkled with sugar. *Russula nitida* is a dark purplish species with grooved margin, a white stem flushed with pink, mild taste and a yellowish spore-print. It grows in damp birch woods, and it is probable that earlier gatherings in the county were determined as *R. venosa*, at least in part. *Simocybe sumptuosa* is a lignicolous species with olive coloured, velvety cap up to about 1 cm across, and olive-brown adnate gills. It has cheilocystidia, and caulocystidia, all of which are very elongated thin-walled organs varying from cylindrical-flexuose or clavate to capitate, with apex up to 13 μm wide; the spores (5.0-6.0-8.0(-11.0) x (3.5-4.0-4.5(-5.0) μm , are ellipsoid to phaseoliform and pale brown in colour. *Tricholoma ustaloides* belongs to the *albo-brunneum* group; it has a slightly sticky red-brown cap, whitish gills which become spotted with reddish-brown and white flesh which on bruising has a strong smell of meal.

Amongst the resupinate Aphyllophorales (non-gill bearing Basidiomycetes) *Cristinia helvetica*, with white fruitbody densely ornamented with tiny warts, is a common species which has no doubt been, hitherto, overlooked. The other two species *Leptosporomyces ovoideus* forming white easily separable cobwebby or flaky patches, and *Phanerochaete martelliana* which forms a thicker more membranous cream-coloured fruitbody, are both rarities in this country. The former being known from a single previous collection and the latter from two such gatherings.

Bovista nigrescens was an unexpected find since it is typical of open grassy turf or heathland; the fact that it has not previously been found in the county is surprising. It is a globular puff-ball, which when cut through is seen to lack a sterile base. It is most easily recognised when old as it becomes entirely black; in that condition its attachment to its underground mycelium is usually broken with the result that, as in this case, it is found lying loose on the ground being blown about by the wind scattering its spores in the process.

Fusidium griseum is a very common grey mould on dead fallen leaves. Finally *Puccinia ribesii-pendulae* is a rust with its uredo— and teleutospore stages on *Carex pendula* and its acedial stage on species of *Ribes*. The latter stage has not, so far, been reported from Britain.

The list of species follows:—

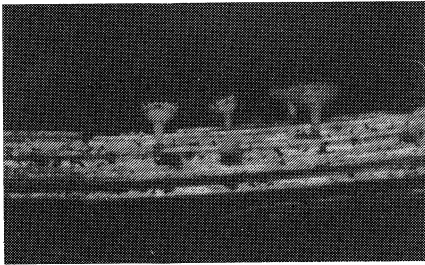
Amanita muscaria (A); *Armillaria mellea* (H); *Baeospora myosura* (A); *Cliocybe cerussata* (H); *C. geotropa* (H); *Cliopilus hobsonii* (H); *Coprinus atramentarius* (A); *C. comatus* (A); *C. lagopus* (H); *C. micaceus* (A); *C. plicatilis* (H); *Gymnopilus hybridus* (A); *Hebeloma mesophaeum* (A); *Hypholoma fasciculare* (H); *H. sublateritium* (H); *Inocybe geophylla* v. *lilacina* (H); *Lacrymaria velutina* (A); *Lactarius blenni* (H); *L. pyrogalus* (H); *L. turpis* (A); *Lepiota rhacodes* (H); *Lyophyllum ulmarium* (H); *Marasmius epiphyllus* (A); *M. ramealis* (H, A); *Mycena flavoalba* (A); *M. galericulata* (H, A); *M. galopus* (H); *M. olida* (H); *M. polygramma* (H); *M. spirea* (H); **M. stylobates*; *M. tenerrima* (H); *M. vitilis* (H); *Oudemansiella radicata* (A); *Panaeolus campanulatus* (H); *Paxillus involutus* (H); *Pleurotus cornucopiae* (H); *P. dryinus* (H); *Pluteolus aleuriatus* (H); *Psathyrella candolleana* (A); *P. conopilea* (H); *P. microrrhiza* (A); *P. spadiceo-grisea* (H); *P. squamosa* (H); *Resupinatus applicatus* (H); *Rhodotus palmatus* (H, A); **Russula nitida* (= *venosa* in part of earlier records) (H); *R. ochroleuca* (H, A); **Simocybe sumptuosa* (H); *Stropharia aeruginosa* (H); **Tricholoma ustaloides* (A); *Tricholomopsis rutilans* (H); *Tubaria furfuracea* (H, A).

- Bjerkandera adusta* (H, A); *Calyptrella capula* (H); *Coriolus versicolor* (H); **Cristinia helvetica* (H); *Daedalea quercina* (H); *Daedaleopsis confragosa* (A); *Ganoderma applanatum* (H); *Heterobasidium annosum* (A); *Hyphodontia sambuci* (H); *Inonotus hispidus* (H); **Leptosporomyces ovoideus* (H); *Merulius termellosus* (H); *Peniophora cinerea* (H); *P. lycii* (H); *P. quercina* (H); **Phanerochaete martelliana* (H); *P. velutina* (H); *Phellinus ferreus* (H); *Phlebia merismoides* (H); *Piptoporus betulinus* (A); *Pistillaria setipes* (H); *Radulomyces confluens* (H); *Schizopora paradoxa* [= *Xylodon versiporus*] (H); *Stereum gausapatum* (H); *S. hirsutum* (H, A); *S. rameale* (H); *S. sanguinolentum* (H); *Trechispora (Cristella) farinacea* (H); *Typhula erythropus* (H); *Tyromyces lacteus* (H); *Vuilleminia comedens* (H).
Calocera cornea (H, A); *C. viscosa* (H); *Dacrymyces stillatus* (H, A).
Tremella mesenterica (A).
Auricularia auricula-judae (H, A); *A. mesenterica* (H, A).
**Puccinia caricina* v. *ribesii-pendulae* (H); *P. lagenophorae* (H).
**Bovista nigrescens* (A); *Lycoperdon perlatum* (A); *L. pyriforme* (H, A);
Scleroderma citrinum (A); *S. verrucosum* (H).
**Ascobolus* cf. *furfuraceus* (A); *Chlorosplenium aeruginascens* (H); *Coryne sarcoides* (H);
Cyathicula coronaria (H); *Hymenoscyphus scutulus* (H); *Phialea cyathoidea* (H); *Polydesmia pruinosa* (H); *Rhytisma acerinum* (A).
Daldinia concentrica (H, A); *Diatrype stigma* (H); *Erysiphe tortilis* (H);
Nectria cinnabarina (H, A); *Xylaria hypoxylon* (H).
Cystopus candidus (A).
**Fusidium griseum* (H); *Ozonium auricomum* (H).
Mucilago spongiosa (A).

* = New county records.
A = Tunnel Wood, Ampthill.

H = King's Wood, Houghton Conquest.

DEREK A. REID



Cyathicula coronaria

A cup fungus about 2mm across



Pleurotus cornucopiae

Occurs on dead elms and is apparently increasing

SITES

Report of the Recorder

The site recording scheme has made good progress in 1983. The increased number of records from many different members has been most welcome, however I would like to receive even more records especially from some of the under-recorded areas. One idea that proved moderately successful in 1983 was contacting each leader of a B.N.H.S. field meeting and persuading them to complete a site record for their meeting.

A site that has been intensively surveyed is Priory Marina (Barker's Lane Gravel Pit) where Dave Kramer and others have clocked up over 200 visits in the year. Given this blanket coverage many of the rarer migrant birds have been found to be regularly using this site. The dragonflies, butterflies and the botany of Priory Marina have also been studied. By zoning off part of the lake in the winter and restricting walkers to a part where the wildfowl cannot see them the North Beds. Borough Council have created an area of the lake that is relatively quiet and undisturbed. Tree planting continues to increase the attractiveness of the site.

Luton Hoo, a site of restricted access, is another area that has been visited on a regular basis, this time by Arthur Livett. This site has also provided many interesting bird records and 91 species of birds have been recorded here in the breeding season. Parkland like Luton Hoo and Woburn tends to suffer from less change and disturbance than most other sites.

The lack of suitable habitat in Bedfordshire means, that unlike our adjacent counties where there are much better areas, that the recent record of wading birds have been rather scarce. One site that is attractive to waders is at Girtford and here, because of ammonia pollution, the future of the small suitable area is in doubt. Houghton Regis Chalk Pit started to be infilled in 1983 and so another excellent marshy area is lost forever.

Harold Country Park has had some of its management plan carried out. Perhaps in the future the water level will be reduced at the right time of year making a muddy area attractive to migrating birds. This site suffers from members of the public walking round the edges. It needs some cover so that wildfowl have some quiet undisturbed areas. At Brogborough Clay Pit the disturbance by windsurfers has had a positive effect on the observers of the duck population, by concentrating the ducks to one end of this large lake they become much easier to count.

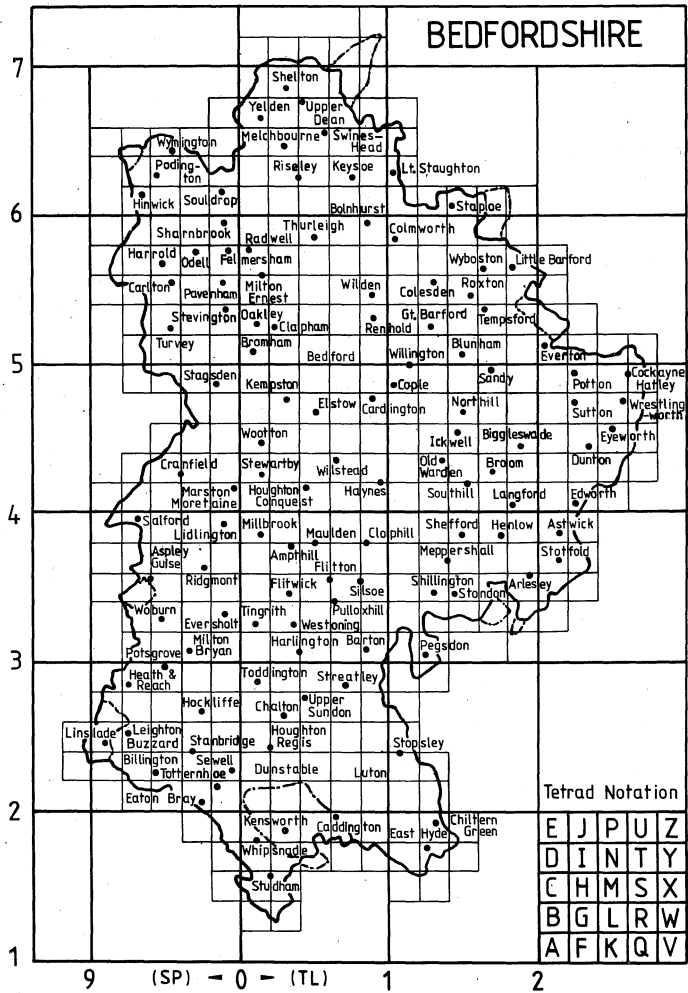
Stewartby Country Park has had some work carried out along its banks and there are other plans to make this site more attractive to wildlife. At the present moment Stewartby suffers from excessive disturbance by boating enthusiasts. The clay pits of Stewartby and Brogborough attracted a good number of rare birds this year and they were also favourite haunts of the migratory Clouded Yellow butterfly.

In Maulden Woods there are plans to increase the forested section quite considerably. The small area of natural history interest that will be affected will hopefully be left. The "Matchstick Wood" at Willington has reached maturity and it is, at the present moment, being felled and excavated as yet another gravel pit.

Many trees have been planted along the River Ouse in Kempston. Many of the older meadows here have been developed as a new housing estate. In Queen's Park, Bedford the small reeded and disused allotment site that contained a colony of Grizzled Skippers and several reed birds has been landscaped. How this affects the considerable natural history interest of this small urban site remains to be resolved.

The Naturalists' Trust have continued to increase their reserves in the county at several sites. It is hoped that in the future there are enough sites of natural history interest left to be worth recording!

DAVE ODELL



Tetrad map of Bedfordshire showing the main towns and villages

RECORDERS

Meteorology: Mr M.C. Williams, 2 Ivel Close, Barton-le-Cley, Bedford.

Geology and Fossils: vacant.

Mammals: Mr D. Anderson, 88 Eastmoor Park, Harpenden, Herts.

Birds: Mr B.J. Nightingale, 9 Duck End Lane, Maulden, Bedford.

Amphibians and Reptiles: Mrs H.M. Muir-Howie, 19 Molivers Lane, Bromham, Bedford.

Fish: Mr T. Peterkin, 129 Manor Road, Barton-le-Cley, Bedford.

Slugs, Snails and Leeches: Mrs E.B. Rands, 51 Wychwood Avenue, Luton, Beds

Spiders and Harvestmen: Mr T.J. Thomas, 142 Selbourne Road, Luton, Beds.

Dragonflies: Dr N. Dawson, The Old House, Ickwell Green, Biggleswade, Beds.

Grasshoppers and Crickets: Mr D.G. Rands, 51 Wychwood Avenue, Luton, Beds.

Bugs: Dr B.S. Nau, 15 Park Hill, Toddington, Dunstable, Beds.

Lacewing flies: Dr B. Verdcourt, The Herbarium, Royal Botanic Gardens, Kew,
Richmond, Surrey.

Butterflies: Mr A.J. Martin, 18 Aragon Road, Amptill, Bedford.

Moths (macro): Mr V. W. Arnold, 96 St. Augustines Avenue, Luton, Beds.

Hoverflies: Dr N.F. Janes, 82 Marston Gardens, Luton, Beds.

Bees, Wasps, Ants etc.: Dr V.H. Chambers, 50 Shefford Road, Meppershall, Shefford, Beds.

Ladybird Beetles: vacant.

Woodlice, Centipedes and Millipedes: Dr A.J. Rundle, 29 Burlington Avenue, Kew,
Richmond, Surrey.

Flowering Plants, Ferns and Fern Allies: Dr J.G. Dony, 9 Stanton Road, Luton, Beds.

Mosses and Liverworts: Mr A.R. Outen, 15 Manor Close, Clifton, Shefford, Beds.

Lichens: Mrs F.B.M. Davies, "Rose Cottage", 69 The Hill, Wheathampstead, St. Albans,
Herts.

Fungi: Dr D.A. Reid, The Herbarium, Royal Botanic Gardens, Kew, Richmond, Surrey.

Site Recorder: Mr D.J. Odell, 78 Laurel Walk, Kempston, Bedford.

Bird Ringing Co-ordinator: Mr D.S. Woodhead, 79 The Moor, Carlton, Bedford.

Price: £2.50 (including postage) from The Membership Secretary, 17 Pentland Rise, Putnoe,
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