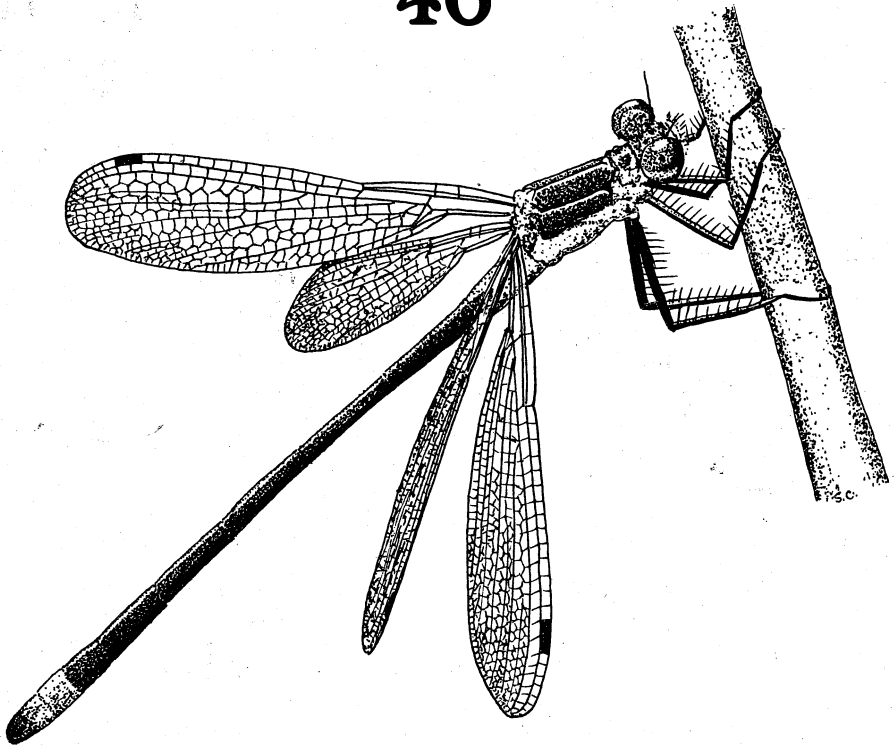


The Bedfordshire Naturalist 46



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for the year 1991

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BEDFORDSHIRE NATURAL HISTORY SOCIETY 1992

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Dr D. Allen

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Mr R. Cornes
Mrs J. Dickens
Mr D. Green

Dr P. Hyman
Dr P. Madgett
Mr P. Soper

Honorary Editor (*Muntjac*):

Ms C. Aldridge, 9 Cowper Court, Markyate, Herts AL3 8HR

Committees appointed by Council:

Finance: Mr J. Burchmore (Sec.), Mr D. Anderson, Ms J. Childs, Mrs M. Sheridan, Mr P. Wilkinson, Mr M. Williams.

Scientific: Ms J. Childs (Sec.), Mr D. Ball, Dr G. Bellamy, Miss R. Brind, Mr S. Cham, Mrs A. Myers, Dr P. Hyman, Mr J. Knowles, Mr D. Kramer, Dr B. Nau, Mr E. Newman, Mr A. Outen.

Development: Mrs A. Adams (Sec.), Mr J. Adams (Chairman), Ms C. Aldridge, Ms J. Childs, Mr P. Clarke, Mrs P. Clarke, Miss E. Clutton, Mr A. Dickens, Mrs G. Dickens, Mr P. Soper.

Programme: Mr J. Adams, Mr C. Baker, Mr D. Green, Dr. P. Madgett, Mrs M. Sheridan.

THE BEDFORDSHIRE NATURALIST

No. 46 (1991)

Edited by R.A. Brind

CONTENTS

Officers of the Society	cover ii
Report of the Council	2
Editorial	3
Proceedings	4
Report of the Treasurer	7
Statement of Accounts	7
Meteorology — Report of the Recorder	8
Geology and Palaeontology — Report of the Recorder	10
Mammals. Report for 1991 — R.A. Brind	14
Chinese Water Deer in Bedfordshire — B.S. Nau	17
Mammals. Bats — Report of the Recorders	28
Emergence counts at a Pipistrelle roost in a house in Haynes — J. Adams and J. Childs	33
Birds — Report of the Recorder	35
Bedfordshire Breeding Bird Atlas 1988-1992. Progress Report 1991 — R.A. Dazley	66
Birds new to Bedfordshire (1991)	
American Golden Plover — D. Odell	67
Bee-eater — D. Kramer	67
Radde's Warbler — E. Newman	68
Penduline Tit — D. Kramer	70
Arctic Redpoll — B. Nightingale	71
Arrival date of regular summer migrants to Bedfordshire. An update — R.A. Dazley	72
Iron Age Sand Martins in Bedfordshire — P. Trodd	74
Waterways Bird Survey — Addendum	74
Survey of introduced geese June-July 1991 — D. Kramer	75
Bird Ringing Report 1991 — Report of the Co-ordinator	77
Reptiles and Amphibians — Report of the Recorder	79
Fish — Report of the Recorder	80
Dragonflies — Report of the Recorder	86
Micro-moths — Report of the Recorder	90
Macro-moths — Report of the Recorder	91
Butterflies — Report of the Recorder	94
Bugs — Report of the Recorder	96
Bedfordshire Beetles in Fowler and Donisthorpe (1913) — B.S. Nau	96
Beetles — Report of the Recorders	99
Flowering Plants, Ferns and Fern Allies — Report of the Recorder	104
Mosses and Liverworts — Report of the Recorder	105
Lichens — Report of the Recorder	105
Fungi — Report of the Recorder	106
The Fungus Foray 1991 — D.A. Reid	108
Sites — Report of the Recorder	110
Recorders	cover iii
The Society	cover iii
Tetrad Map of Bedfordshire	cover iv

Front cover: Emerald damselfly *Lestes sponsa* — Steve Cham

The Society would like to thank Bedfordshire County Council for a grant towards the publication of this Journal.

REPORT OF COUNCIL FOR 1991

Once again members were able to enjoy an extensive and varied programme of meetings throughout the year, with eighteen indoor meetings, thirty-seven outdoor meetings, a mid-summer barbecue at Maulden Woods, and the one-day course (on a choice of subjects) at Shuttleworth. Siberia featured twice in the programme with a talk and slide show on central Siberia from Stephen Woolfall at the beginning of the year, and a further presentation on eastern Siberia by Peter Smith, who also enthralled members with accounts of his bird watching exploits in north-east Australia at another meeting. Other subjects covered during a varied indoor programme included Orchids and Sedges, Seals in Britain, Badgers and Conservation, and the Weather of Bedfordshire.

Field meetings were held outside the county at Elmley Marshes (Kent), Rutland Water (Leicestershire), Clumber Park (Nottingham), Thursley Heath (Guildford, Surrey) and Crab Wood (Winchester, Hants). Other halfday and evening meetings were held at more local venues. A highlight for many (and so popular that two separate visits were arranged) was badger watching at Tewin Orchard Nature Reserve in Herts. The Society is grateful, as always, to the many members who gave talks, led field meetings and chaired meetings, and not least to an excellent selection of guest speakers.

An appreciation of Dr John Dony, who died on 24th March 1991, has already appeared in the *Bedfordshire Naturalist* Volume 45. Council is sure that all members of the Society will join it in recognising the enormous contribution which John Dony made to the study of natural history (particularly botany) both within the county and nationally, and his great support of the BNHS from its inception. Much of John Dony's work was undertaken with the active support of his wife, Chris Dony, and Council were pleased to approve free life membership for her in recognition of her own contribution to John Dony's work.

The Society has also made two financial contributions to projects within the county. Nets to the value of approximately £500 have been purchased during the year and have been made available to the bird ringing group led by Errol Newman. The Bedfordshire and Cambridgeshire Wildlife Trust launched an appeal for the purchase and management of approximately 190 acres of chalk downland at Pegsdon Hills, and the Society has agreed to contribute £500 towards the purchase of this attractive and highly important area.

Council are pleased to note a growing co-operation between the Society and the BCWT, with the Society contributing its experience and expertise in the scientific field to the conservation efforts of the Trust, and indeed in other similar capacities throughout the county.

Finally, Council are much encouraged by the proposed formation of a Bird Club within the county as part of the Society. It is hoped that this will better meet the needs of all birdwatchers throughout the county, and enhance the county's (and the Society's) reputation as a leading organisation in the recording and study of a county avifauna.

MIKE WILLIAMS
Hon. Secretary

Table: Membership of the Society 1987-1991

	1987	1988	1989	1990	1991
Ordinary Members	378	362	356	360	348
Associate Members	55	43	42	52	46
Student Members	15	7	6	3	3
Corporate Members	9	9	9	8	10
Life Members	4	4	4	5	6
Honorary Life Members	2	2	2	2	1
Total	463	427	419	430	414

EDITORIAL

As the newly appointed Honorary Editor of the Journal, I would like to take this opportunity to acknowledge what a magnificent job Chris Boon has made of editing the Journal for the fifteen years 1976-1990, the first two as joint editor with John Dony. This amounts to one third of the Journals produced by the Society in its 45 year history. Chris made many improvements to the Journal over the years, bringing it to the high standard that it is today. I only hope that I can maintain the standard of production that he has set and thank him for the advice that he has given me this year.

The content, of course, depends entirely on members of the Society, particularly the Recorders, who study the different disciplines and collate the Society's records. I am very grateful to them for their efficiency in producing their annual reports so quickly, as these form the main body of the Journal. I would also welcome paragraphs or articles by other Society members, particularly if they cover the results of new studies or observations about the natural history of the county. Contributions to be considered for publication in the next issue should be sent to the Honorary Editor by the 31st January 1993.

Those Recorders and members of Scientific Committee who were able to attend a Recorders' Meeting in November 1991 are illustrated for posterity below. Since then there have been three changes: Beryl and Derek Rands have both stood down as Recorders having recently left the Society and their expertise will be greatly missed. They have both made numerous contributions to the Journal over more than 20 years; Paul Trodd has stood down as Bird Recorder after 5 years of collating all the numerous bird records into a highly readable annual report and Dave Ball has now taken on this role.



Recorders' Meeting, Bedford Museum, November 1991

Back row, L to R. — Wilf Powell (Beetles), David Manning (Micro-moths), Errol Newman (Scientific Committee), Paul Trodd (Birds), Chris Boon (Botany), Vic Arnold (Macro-moths), Joan Childs (Bats), Graham Bellamy (Scientific Committee), Bernard Nau (Bugs), Steve Cham (Dragonflies)

Front row, L to R. — Peter Smart (Geology and Palaeontology), Rosemary Brind (Sites), Derek Rands (Mammals; Grasshoppers and Crickets), Harvey Winter (Fish), David Anderson (Chairman).

(Photo: Steve Cham)

PROCEEDINGS

Indoor Meetings

- 630th Ordinary Meeting** 9th January, Bedford. "Siberian Summer" by Mr S. Woolfall of The British Trust for Ornithology. Chair: Mr D. Kramer.
- 631st Ordinary Meeting** 15th January, Dunstable: "Creating a nature reserve for common species" by Mr M. Clark, Warden of Tewin Orchard Nature Reserve. Chair: Mr D. Anderson.
- 632nd Ordinary Meeting** 24th January, Aspley Guise. "Local butterflies and moths" by Mr A. Martin and Mr V. Arnold. Chair: Mr C. Baker. Joint meeting with The Milton Keynes Natural History Society.
- 633rd Ordinary Meeting** 7th February, Bedford. Twitchers' evening. Chair: Mr P. Trodd.
- 634th Ordinary Meeting** 12th February, Luton. "Introduction to mushrooms and toadstools" by Mr A. Outen. Chair: Mr V. Arnold.
- 635th Ordinary Meeting** 19th February, Dunstable. "Orchids and sedges" by Dr A. Showler. Chair: Mr C. Boon.
- 636th Ordinary Meeting** 27th February, Luton. "Seals in Britain — the epidemic and after" by Dr S. Anderson. Chair: Mr S. Cham.
- 637th Ordinary Meeting** 6th March, Bedford. "Wildlife Gardening" by Dr N. Dawson. Chair: Miss R. Brind.
- 638th Ordinary Meeting** 19th March, Dunstable. "In pursuit of Australian birds" by Mr P. Smith. Chair: Mr B. Nightingale.
- Annual General Meeting** 26th March, Flitwick.
- 639th Ordinary Meeting** 9th October, Bedford. "The deer of East Anglia — past and present" by Dr N. Chapman. Chair: Dr A. Aldhous.
- 640th Ordinary Meeting** 15th October, Dunstable. "The wildlife of Florida" by Mr P. Symonds. Chair: Mr D. Anderson.
- 641st Ordinary Meeting** 24th October, Bedford. "Badgers and conservation" by Mr D. Hunford. Chair: Mr D. Anderson. Joint meeting with The Beds. and Cambs. Badger Group.
- 642nd Ordinary Meeting** 31st October, Luton. Members' forum. Chair: Mr D. Anderson.
- 643rd Ordinary Meeting** 7th November, Bedford. Slides from the Royal Photographic Society Nature Group Exhibition. Chair: Mr R. Revels.
- 644th Ordinary Meeting** 19th November, Dunstable. "A Siberian birdwatching experience" by Mr P. Smith. Chair: Mr R. Dazley.
- 645th Ordinary Meeting** 27th November, Maulden. "Weather" by Mr R. Beard, Geography lecturer at Luton College.
- 646th Ordinary Meeting** 4th December, Bedford. "The history of the birds of Bedfordshire" by Mr P. Trodd and Mr D. Kramer. Chair: Mr B. Nightingale.
- 647th Ordinary Meeting** 19th December, Aspley Guise. Christmas social evening and quiz. Organiser: Mr D. Anderson.

Field Meetings

- Elmley Marshes, nr. Sheerness, Kent** 20th January. Birdwatching. Leader: Mr D. Anderson.
- Rutland Water** 17th February. Birdwatching. Leader: Mr J. Burchmore.
- Stockers Lane, Rickmansworth** 3rd March. Leader: Mr C. Baker.
- Blows Downs** 21st April. To watch spring migrants. Leader: Mr P. Trodd.
- Maulden Churchyard** 28th April. Mosses and lichens. Leaders: Mrs F. Davies and Mr A. Outen.
- Barton Hills** 5th May. Pasque flower count. Leader: Dr G. Bellamy, NCC Reserve Warden.
- Tewin Orchard Nature Reserve, nr. Welwyn** 10th May. Badger watching. Leader: Mr M. Clark, Reserve Warden.
- Maulden Wood** 12th May. Dawn chorus. Leader: Mr P. Trodd.
- Minsmere** 19th May. Birdwatching. Leader: Mr P. Marshall.
- Northwood End, Haynes** 22nd May. Joint meeting with Beds. Bat Group. Leader: Mr J. Adams.
- Begwary Brook, Wyboston** 29th May. General natural history. Leader: Reserve Warden.



Mosses and lichens, Maulden Churchyard 28th April 1991

(Photo: Mary Sheridan)



Pasque flower count, Barton Hills 5th May 1991

(Photo: Mary Sheridan)

- Totternhoe Knolls** 2nd June. General natural history with botany and butterflies in particular.
Leader: Mr C. Jell, Reserve Warden.
- Bramingham Wood, Luton** 5th June. To look at coppice woodland under the management of The Woodland Trust. Leader: Mr T. Rhodes.
- Clumber Park, Sherwood Forest** 9th June. Birdwatching. Leaders: Ms J. Childs and Dr A. Aldhous.
- Potten End Green, nr. Berkhamstead** 12th June. General natural history. Leader: Mr P. Moles.
- Maulden Wood** 15th June. Student Group — General natural history. Leaders: Mr D. Anderson, Mr D. Rands and Mr J. Adams.
- Potton Wood** 16th June. Botanical exploration. Leader: Mr C. Boon.
- Maulden Wood** 22nd June. Midsummer barbecue. Organiser: Mrs B. Chandler.
- Wrest Park, Silsoe** 28th June. Joint meeting with Beds. Bat Group. Leaders: Ms J. Childs and Dr A. Aldhous.
- Thursley Heath, nr. Guildford** 30th June. Dragonflies, reptiles and botany. Leader: Mr C. Baker.
- Flitwick Moor** 5th July. Moth trapping. Leader: Mr V. Arnold.
- Harrod/Odell Country Park** 7th July. Bird ringing. Leader: Mr D. Woodhead.
- Mansgrove and Ravensdell Woods, Studham** 9th July. General natural history.
Leader: Mrs C. Horton.
- Crab Wood, Winchester** 14th July. Butterflies. Leader: Mr R. Revels.
- R. Ouse, nr. Pavenham** 17th July. General natural history. Leader: Miss A. Day.
- Woodwalton Fen, nr. Huntingdon** 21st July. Fenland wildlife. Leader: Dr B. Nau.
- The Lodge, Sandy** 30th July. Joint meeting with Beds. Bat Group. Leaders: Ms J. Childs and Dr A. Aldhous.
- Barton Hills** 11th August. General natural history. Leaders: Mr J. Adams and Mr D. Parsons.
- Stewartby Lake** 18th August. General natural history. Leader: Dr D. Allen.
- Leighton Buzzard to Ivinghoe Beacon** 1st September. A stretch of the Two Ridges Walk.
Leader: Mr J. Knowles.
- Felmersham Nature Reserve** 8th September. General natural history with dragonflies in particular. Leader: Mr S. Cham.
- Shuttleworth Agricultural College** 15th September. One day course on a variety of natural history subjects. Organiser: Mrs B. Rands.
- Maulden Wood** 22nd September. Small mammal trapping. Leader: Mr D. Rands.
- Potton Wood** 6th October. Annual fungus foray. Leader: Dr D. Reid.
- Woburn Park** 13th October. To watch the deer rut. Leader: Mr S. Cham.
- Norfolk coast** 20th October. Birdwatching for autumn migrants and early winter visitors. Leader: Mr M. Williams.
- Houghton Regis Chalk Quarry** 27th October. Birdringing at a bunting roost. Leader: Mr E. Newman.
- Willen Lake, Milton Keynes** 10th November. Birdwatching. Leader: Dr D. Allen.
- Chicksands Wood** 26th December. Boxing Day walk. Leaders: Mr J. Adams and Mr D. Parsons.

REPORT OF THE TREASURER

The current account shows a surplus for the year of £1,288 but we only made a stage payment towards the Journal. Had this have been fully paid during the year the surplus would have been very small. We received a grant towards the publication of the Journal from Bedfordshire County Council for £370. A grant of £300 from North Bedfordshire Borough Council and donations of £140 in memory of the late Mr George Pack will be used as part payment towards the leaflet 'Bats in Bedfordshire'.

The Worthing B.C. Bond for £3,000 was repaid to the Society and the City of Nottingham Bond which became repayable on the 30th June 1991 has been renewed until 30th June 1995. For long term investment the Society purchased 876 income units in the equities investment fund for charities (M & G Charifund) which, subject to Inland Revenue approval will be converted to accumulation units.

The assets of the Society at the year end stand at £38,167.

J.D. BURCHMORE
Hon. Treasurer

INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31st DECEMBER 1991

INCOME — Current Account

1990		1991
£		£
2211	Subscriptions	2485
76	Sales	20
375	Journal sales	154
—	Surplus on meetings	—
481	Sundries and donations	448
—	Surplus B/Fwd from previous year	521
<u>3143</u>		<u>3648</u>
EXPENDITURE — Current Account		
	ADMINISTRATION	
7	Postage	8
45	Sundries	45
50	Insurance	50
—	Officers' expenses	—
10	Auditors' honorarium	10
<u>112</u>		<u>113</u>
	MEETINGS	
79	Hire of halls, etc.	233
43	Lecturers	64
229	Programmes	289
<u>351</u>		<u>586</u>
	SCIENTIFIC	
1327	Journal	550
25	Recorders' expenses	—
26	Sundries	41
<u>1378</u>		<u>591</u>
	PUBLICITY/DEVELOPMENT	
412	Newsletter	298
65	Sundries	32
42	Advertising and publicity	76
207	Car stickers	—
<u>726</u>		<u>406</u>
	DEPRECIATION	
55	of equipment	143
<u>521</u>		<u>1809</u>
<u>3143</u>	Excess of income over expenditure	<u>3648</u>

PUBLICATIONS ACCOUNT

1990	1991
£	£
Brought forward	323
Income	297
Expenditure	25
<u>323</u>	<u>595</u>

INCOME—other than Current Account

Bank (H.I.C.A.)	219
Town and Country Building Society	2621
Worthing Corp. Bonds	330
City of Nottingham Bonds	484
Income Tax rebate	232
M & G Charifund	96
North Beds. B.C.	300
Donations in memory of the late Mr G. Pack	140
<u>3978</u>	<u>4412</u>

BALANCE SHEET AS AT 31st DECEMBER 1991

FIXED ASSETS		COST		DEPRECIATION	
		Total	Year		
15	Mammal traps	50	40	5	10
291	Display boards	371	100	20	271
—	Display table	69	7	7	62
—	Mist nets	555	111	111	444
<u>306</u>				<u>143</u>	<u>787</u>
CURRENT ASSETS					
271	Bank Current Account				122
2742	Bank High Interest Account				—
20772	Town & Country Building Soc. (at 10.25% variable)				27102
3000	City of Nottingham Bonds (to 30.6.95 at 12%)				3000
3000	Worthing B.C. Bond (repaid 28.11.91)				—
3000	City of Nottingham Bonds (to 30.6.91 at 8.77% then to 30.6.95 at 10.25%)				3000
—	M & G Charifund — Income 876 Units — Cost £5000				—
—	Bid price 31.12.91				4261
<u>32785</u>					<u>38272</u>
CURRENT LIABILITIES					
156	Creditors and uncleared cheques				105
<u>32935</u>					<u>38167</u>

J.D. Burchmore
Hon. Treasurer

M. and D. Reading
Honorary Auditors

METEOROLOGY

Report of the Recorder

Probably the most notable features of the weather year were a cold and snowy spell in February (after previous mild winters), a very cool, dull and wet June, and a dry, warm and sunny August. There was also a short, sharp cold spell in December.

January opened with wet and windy weather for the first ten days, but the month then became progressively colder but dryer. Maximum temperatures on the 29th and 30th were around freezing. The coldest night-time temperatures were from the 12th to 17th, but thereafter it was mainly cloudy.

The first half of February was cold and snowy, but the weather had turned distinctly mild by the last week. In the cold spell, there were 20 days with night temperatures below freezing. The main snowfall occurred on the afternoon and evening of 7th February (the annual Twitchers evening), and by the morning of the 8th there was up to 15cm of snow in the south of the county with drifting in more exposed areas. Generally there was less snow in the north of the county (Bedford) but even greater depths (20cm) in Hertfordshire to the south. Snow cover lasted some 8 days and the cold spell was the severest since January 1987 (but that was more pronounced).

Temperatures in March were above average by 2°C, but rainfall was below average, and particularly dry in the last week. It was also duller than usual.

The first half of April was pleasantly warm, but with winds predominantly from the east and north-east the second half was cold, with night frosts on 12 occasions. The total rainfall was a little above average, but over 50% of this fell on the 29th, and this was the wettest day since August 25th 1990 at Silsoe, the main source of records.

May was a very dry month indeed, with rain falling on just two days. The wind was generally from a northerly or north-easterly direction for the first half of the month and there were several ground frosts, and a sharp air frost on the 9th. Otherwise the month was rather dull.



Fallow deer in the snow, Woburn Park 1991

(Photo: Mary Sheridan)

June was very cool, dull and wet. The mean maximum was the lowest on record at Silsoe (1951 to 1990) but taking both minima and maxima into account only the coldest since 1977. The mean maximum was also lower than that recorded for May. There were two or three ground frosts, and Silsoe recorded only its third June air frost in 40 years.

More seasonable weather returned in July which was changeable with some hot days (24.6°C on 7th, 26.0°C on 11th, 26.8°C on 29th). Overall, temperatures were above average, but rainfall was close to the norm.

In 1991, August was undoubtedly the best of the summer months with daytime temperatures consistently in the range 21°C to 25°C (seventies Fahrenheit). The 1st of the month was exceptionally wet in central Bedfordshire, with 33.8mm recorded at Silsoe, and probably nearer 50mm just to the south at Barton. Localised flooding occurred as a result. That apart, rain fell on only four other days. Despite the warmth, the month did not quite match August 1990, which recorded the century's highest daytime temperature in Bedfordshire.

Warm and sunny weather continued into September with the highest temperature of the year on the 1st (28.7°C or 85°F), but gradually deteriorated as the month progressed. It was mainly dry, but wet in the last week, resulting in the month's rainfall being well above average.

October was mainly cool, but warmer in the first half of the month than in the second. The first air frost of the year occurred on the 21st and there were some ground frosts. Rainfall was below average and most of that fell at the end of the month.

November was changeable, with less frost and fog than usual. It was slightly wetter and warmer than normal. December was dry (50% of normal), and noticeably cold in the first half with extensive frost and fog. Night temperatures were as low as in the February cold spell, and the temperatures failed to rise above freezing on three days. It was less cold in the second half of the month and the year ended on a generally quiet note.

When fears of continuing and widespread drought continue to be voiced, it is worth noting that Silsoe recorded a total rainfall for the year quite close to normal, but in an area noted for its low average rainfall, a number of particularly heavy and probably localised falls made a significant contribution.

It is also unfortunate to note that the now fully automatic weather station at Wrest Park, Silsoe failed to record temperatures at all for a period of 9 days in September and for the whole of December, thus disrupting the continuity of recording at that site since at least 1951. Nevertheless, I am grateful for details of recordings from that station, and the summary reproduced below is from that site.

Table 1. Summary of the weather of 1991 for IER, Silsoe, Bedfordshire

	Mean Max °C	Mean Min °C	Highest Temp °C	Lowest Temp °C	Rainfall mm	Air Frost days	Ground Frost days
January	5.8	0.7	12.6	-4.4	45.2	12	23
February	4.0	-2.5	12.8	-9.5	39.0	21	24
March	11.4	4.0	17.0	-2.8	21.6	6	14
April	11.8	3.4	20.8	-2.4	54.8	6	13
May	13.9	6.2	22.4	-1.9	14.2	1	7
June	15.8	8.1	21.3	-0.1	79.8	1	3
July	21.6	12.3	26.8	8.7	52.6	0	0
August	22.9	11.4	26.7	5.6	48.4	0	0
September	*	*	28.7	1.9	83.3	0	3
October	13.4	5.7	20.2	-2.0	24.0	3	9
November	10.4	3.4	15.1	-3.8	57.6	5	15
December	*	*	*	*	10.8	*	17
Year	*	*	28.7	*	531.3	*	128

* Indicates figures unavailable or unreliable.

MIKE WILLIAMS

GEOLOGY AND PALAEOONTOLOGY

Report of the Recorder

This Report, for 1991, follows a similar trend to previous Reports in that it reports on the Recorder's own work and, for that reason, primarily relates to the Cretaceous beds in the southern part of the county. Until a feedback is achieved from other members, therefore, this situation is unlikely to change to any great extent.

Mundays Hill quarry at Leighton Buzzard (SP 936279) occupied the Recorder between 1st January until mid-March, as heavy rain in the latter part of 1990 caused a sand subsidence in the vicinity of the earlier Shenley Limestone exposure. This subsidence led to a fall of the sandstone and the capping of iron-pan and clays of the *Leymeriella tardefurcata* Zone that includes the limestone, and the end portion of a large lenticle could be seen protruding from the in-situ clays. The presence of this lenticle had been hitherto unsuspected, and several visits were necessary to excavate into the face of the low "cliff" for the purpose of removal.

This was eventually accomplished by levering it out with a crowbar, and the dimensions of the slab were 1.7 metres long, 1.1 metres wide and roughly 300mm thick. Severe weather prevented work in the quarry and the rock was broken into fourteen large pieces and a number of smaller blocks, the entire lenticle being thus transported away from the site for detailed study under better conditions. Unfortunately, the limestone proved to be almost totally unfossiliferous, a few nondescript brachiopods being the only fossils contained therein. It was, regrettably, one of the "reworked" lenticles containing fragments of iron pan, polished quartz pebbles and coarse sand, and worn breccia of ferruginous sandstone. This reworking is not uncommon in the Shenley Hill area, being the result of currents in the Cretaceous sea exposing and winnowing away deposited limestone and reforming it, the end result being limestone containing fragments of earlier limestone, pockets of clay, and other ocean floor detritus. Fossils in such lenticles are generally scarce and usually occur as worn or fragmented tests or casts. Very occasionally, well preserved specimens can be found and careful examination will indicate that these are contained in a matrix differing from the main mass, while the limestone surrounding such fossiliferous material will differ in lithology.

Some days after the removal of the lenticle, a visit was made with Rosemary Brind to an excavation at the Turvey Sewage Works (SP 938518). The Jurassic beds exposed consisted of clays and white or yellowish coloured limestone, the depth of the section exposed being 4.2 metres. It was not possible to study the strata in-situ due to timber shuttering, but gaps between the boards enabled measurements to be made as indicated in Figure 1.

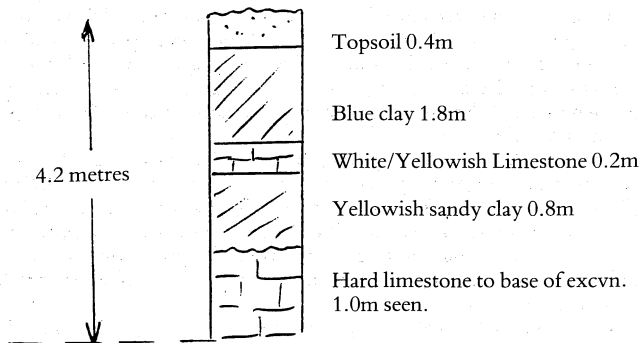


Figure 1. Section at Turvey Sewage Works, SP 938518. March 1991.

Despite thorough searching, fossils were not recorded from the clays that had been excavated prior to our visit and which formed a spoil heap alongside the construction site. The limestone, however, did prove to be sparingly fossiliferous and a number of crushed specimens of the lamellibranch *Lopha marshi* (J. Sowerby) were obtained from a thin band of sandy rock that formed a well defined stratum running through some of the larger limestone blocks. This lack of fossil material was disappointing, but stratigraphically the beds exposed could be ascribed to the Great Oolite series from which, in the Turvey area, much of the local building stone was obtained from many small quarries in the past.

The same day, 19th March, saw a short visit to the Great Oolite exposed in the disused gravel workings at Lower Farm Road, Bromham (TL 025520). This quarry, in the 1950s, yielded many well preserved fossils and was particularly rich in the lamellibranch *Modiolus imbricatus* (J. Sowerby). A few badly weathered specimens were picked up in the rubbly limestone by Miss Brind and myself, but nothing worth retaining was noted.

These two sites were the only Jurassic sections visited by the Recorder during the year, field work being concentrated on the Cretaceous beds in the south of the county. Several visits were made to the Upper Cretaceous exposures at Barton, Arlesey and Totternhoe (Lower Chalk) and a very brief visit after torrential rain was made to the large Rugby Cement quarry near Kensworth (Middle and Upper Chalk). This latter constituted a preliminary survey for a more thorough investigation in 1992, when it is to be hoped that the Upper Chalk (Chalk Rock) can be searched for teeth of the Upper Chalk Hexanchid shark *Notidanodon pectinatus* (Agassiz) recorded to date only from the Upper Chalk of Sussex (Ward and Thies 1987).

With regard to the Lower Chalk exposures visited during the year, the Barton Lime Works quarry (TL 078296) which yielded the large ammonites *Parapuzosia* (*Austini*) *austeni* when it was a working quarry in the late 1950s (Smart 1956) was filled in following the opening of the by-pass, the final remnant of the southern face being buried in December. This section survived rubbish tipping, and the ammonite horizon at the base was obscured merely by fallen chalk. Although this made the bed inaccessible to individuals, there had always been the hope that it would attract sufficient interest for it to be re-excavated and perhaps listed as a SSSI. Regrettably, this hope will never materialise and it is very doubtful if the Totternhoe Stone will again be encountered in this part of the county for many years to come.

The Lower Chalk (Chalk Marl) at Arlesey Brick Works (TL 187347) produced nothing other than a few indeterminate molluscs and several incomplete teeth of *Scapanorhynchus* sp., unfortunately without the roots necessary for identification. This quarry is, however, to be extended during the next twelve months or so and a fresh exposure of the Chalk Marl will result. The present quarry face that shows the complete sequence of Upper Gault, Cambridge Greensand and Chalk Marl has been virtually unchanged for many years and has been the study locality for many visiting palaeontologists. A new exposure of these beds is obviously eagerly awaited.

Totternhoe Lime Works (SP 982221) was visited once for the purpose of obtaining samples of the basal Totternhoe Stone for acid digestion. A few small fish teeth were obtained from in-situ rock but all showed strong evidence of rolling and were without roots. A small crushed portion of an ammonite whorl could also be observed high up in the Totternhoe Stone exposed, possibly a fragment of an *Acanthoceras* sp.

The main area of the Totternhoe quarry, above the Totternhoe Stone horizon, is stratigraphically in the "Grey Chalk" and, although fossils are generally uncommon in the Bedfordshire beds, teeth and molluscs can be found on searching through old weathered exposures. Unfortunately, many thousands of tonnes of the "Grey Chalk" and weathered Totternhoe Stone were used in the construction of the new Leighton Buzzard by-pass. The quarry will now need several years to recuperate so far as weathering is concerned, and this is a considerable loss to field workers in the South Bedfordshire Cenomanian.

As in previous years, however, the Lower Cretaceous of Leighton Buzzard has been the Recorder's study area, and this year the Gault has been systematically worked for vertebrate remains. Very little has been done in this direction compared to the Chalk, Woodward's monograph on Chalk fishes published in the early 1900s still being the classic treatise on the subject. No such work on the Gault has ever appeared, and there is a lamentable dearth of knowledge as a result.

Although teeth and bones have been obtained by the Recorder over the years, their discovery has been more by chance than otherwise. Commencing this year, selected exposures were searched by means of a grid in addition to samples being removed for bulk washing. Newly extended sections in various quarries both south and north of Leighton Buzzard were also closely inspected, despite their lack of weathering and, by the end of the year, a small but fairly characteristic Lower and Upper Gault collection had been obtained. The majority of the specimens were the recorded selachian species *Cretolamna appendiculata* (Agassiz) and *Scapanorhynchus subulatus* (Agassiz), with one or two teeth of rarer species of *Protolamna* and *Plicatolamna*. More important was the discovery over the twelve months of several teeth of *Notorhynchus aptiensis* (Pictet) with one specimen so different in certain characteristics that it could not be determined with any certainty. For this reason, among others, it is proposed to prepare a comprehensive review of the Leighton Buzzard Hexanchidae at a later date.

Several teeth of the teleost *Apatodus glyphodus* (Blake) were found during the year in the Lower Gault, but the most interesting Gault discovery was a fragment of an upper jaw of a species of *Belonostonus*. This genus, belonging to the family Aspidorhynchidae, had not previously been recorded and, in fact, the specimens in the Dept. of Palaeontology at the BM (NH) that were used for comparison did not originate from the UK. The Aspidorhynchidae are a family of teleosts that appeared during the Jurassic and became extinct by the end of the Cretaceous. Their characteristic features are a laterally compressed oval body, rhomboidal scales, homocercal tail and a long pointed snout with many sharp teeth. The Leighton Buzzard specimen, (PJS coll. 15001 M) from the Lower Gault of Munday's Hill quarry, is the rostrum of an upper jaw and is therefore too incomplete to determine specifically but Dr Colin Patterson of the Dept. of Palaeontology identified it as the rostrum of *Belonostonus* sp. The specimen measures 17.8mm in length with 7 teeth, and is illustrated in Figure 2.

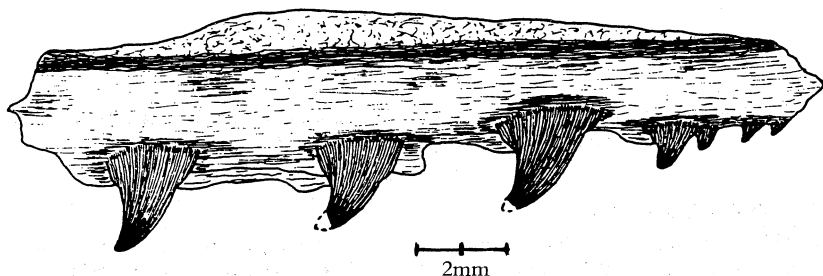


Figure 2.

Belonostonus sp.

Fragment of upper jaw (rostrum) from Middle Albian Lower Gault clay, Hoplitid Zone, Munday's Hill Quarry, Leighton Buzzard. (SP 936279).
P.J. Smart coll. No. 15001 M.

Another interesting teleost discovery, again from the Lower Gault of Munday's Hill, were two teeth of a *Pachyrhizodontoid*, one of which is illustrated in Figure 3. This extinct fish group is restricted to the Cretaceous, and the specimens were determined by Dr Patterson as the teeth of *Pachyrhizodus* sp. They were unfortunately isolated teeth, and for specific determination a jaw is essential. However, typical *Pachyrhizodus* teeth are stout, slightly curved, round or broadly oval in cross section and have a swollen base where there is a bony sheath attaching them to the jaw. An unexpected feature of the Munday's Hill specimens is that both are much larger than any previously recorded from the Gault, specimens from this formation being invariably small (C. Patterson, 1991, personal communication). Such large teeth are typical of Chalk (Upper Cretaceous) *Pachyrhizodus* species (*P. basalis*) and it is significant that the two specimens were discovered on the same stratum and within

15cm of one another, the tooth figured being the smaller of the two. One cannot help but wonder if they came from the same predator but, despite careful excavating and sieving of the clay in the vicinity, no other remains were found. There can be little doubt that these two teeth were the sole remnants of a possibly articulated jaw or skull that was destroyed in the process of extending the clay face with mechanical excavators some months previously.

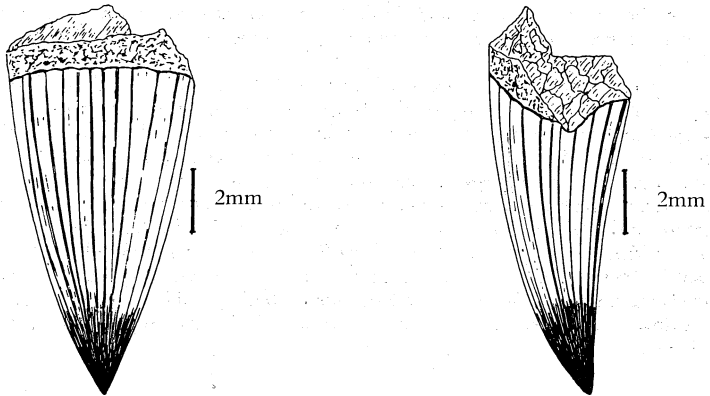


Figure 3. Tooth of *Pachyrhizodus* sp., from the Middle Albian Lower Gault clay, *Hoplites dentatus* Zone, Mundays Hill Quarry, Leighton Buzzard, (SP 936279).
P.J. Smart coll. No. 14727 M.

ACKNOWLEDGEMENTS

I should like to thank Dr Peter Forey, Dr Hugh Owen, Dr Colin Patterson and Miss Alison Longbottom of the Dept. of Palaeontology, The Natural History Museum, for their help in identifying many of the specimens and for allowing me access to the Museum collection, and Dr David Ward for related assistance. My sincere thanks also to the following for allowing me access to the various exposures:—

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P.J. SMART

MAMMALS

Report for 1991

by Rosemary Brind

As we are at an in-between stage with Derek Rands having resigned and a new Mammal Recorder not yet being appointed, I have produced this report based on the records which Derek received while he was in this post. Twenty-eight people have contributed records during the year and it is pleasing to note that the work for the Breeding Bird Atlas seems to have assisted with mammal records from some of the more out-of-the-way areas of the county that the survey workers visited.

Specific projects were undertaken by several members, providing interesting information about both sites and behaviour. A small live mammal trapping session at The Lodge, Sandy by Joan Childs has recorded five of our smaller mammals: Common Shrew and Pygmy Shrew, Bank Vole, Wood Mouse and Yellow-necked Mouse; Derek Rands visited one of the Water Vole sites on the R. Lea on a regular basis making observations on numbers of Water Voles and the times seen; Bernard Nau began a project to assimilate our knowledge of the history, distribution and behaviour of the Chinese Water Deer; Paul Madgett has been busy surveying the setts and routes used by Badgers along the line of the Leighton-Linslade Southern bypass following the high number of Badger deaths there after the road opened; the search to fill in the apparent gaps in the distribution of moles continues by Paul Madgett and Betty Clutten. Such defined projects, even if small in scope, provide important information on our county's mammals and I hope that other members will take up the challenge of proving our records of distribution and site lists incomplete! Records of Mink away from the R. Ouse appear to be increasing and I would ask all members to send in any records of Mink so we can monitor the spread of this species.

Hedgehog *Erinaceus europaeus* The majority of records were either from gardens or those seen by roadsides, dead and alive. The main exception to this was two seen at the top of Galley Hill, Luton (TL02Y) on 22nd June (LJ). Hedgehogs were observed during every month of the year. Courting behaviour was noted in a Luton garden (TL02R) on the 18th April (BC). An albino was seen in the road at Putnoe, Bedford (TL05Q) on 29th July (JC).

Mole *Talpa europaea* Numbers of records of mole hills are again high with over 50 observations largely thanks, once again, to Betty Clutten and Paul Madgett.

Common Shrew *Sorex araneus* Records were received from only three locations, Marston Thrift (SP94Q), near Milton Bryan (SP93Q) and at The Lodge, Sandy (TL14Y, Z).

Pygmy Shrew *Sorex minutus* Records were received from only two locations, The Lodge, Sandy (TL14Y) and near Linslade (SP82X).

Water Shrew *Neomys fodiens* It was encouraging to receive three live records of this elusive animal from Paul Madgett; one from the R. Ouzel (SP92K), one beside Brogborough Lake (SP93U) and one in the brook by the old mill at Salford (SP93J).

Rabbit *Oryctolagus cuniculus* Many records were received from across the county mainly either as road casualties or near roads. Rabbits with myxomatosis were noted near Great Barford (TL15G), East Hyde (TL11I), Luton Hoo (TL11E), The Lodge, Sandy (TL14Y, Z) and at Pegsdon Hills (TL12E). A black rabbit was seen at Barton Hills (TL03V).

Brown Hare *Lepus capensis* Good numbers of hare were recorded across the county. Several observers noted how obvious the hares were in February when seen against the snow covered fields. Highest numbers were noted on 10th February when over 70 were seen between Barton and Hexton (BS), 40 were counted in one field near Stafford Bridge (TL05C) and 32 were counted in nine fields along the Carlton to Felmersham road (SP95T) (RB BN). A national hare survey is being run over the two winter periods 1991/2 and 1992/3 and several sites are being monitored in Bedfordshire. One aim is to provide a quantitative assessment of the number of hares in Britain and to provide a means of assessing the effect of land use change on hare numbers. I hope that anyone taking part in the survey locally will send a copy of their records to the Society's Mammal Recorder.

Dormouse *Muscardinus avellanarius* No records were received.

Fat Dormouse *Glis glis* No records were received.

Bank Vole *Clethrionomys glareolus* A live trapping session at The Lodge Sandy (TL14Y) recorded five voles in four traps on 10th January (JC).

Short-tailed Vole *Microtus agrestis* Only one record was received, from Great Barford (TL15F).

Water Vole *Arvicola terrestris* Seen regularly on two stretches of the R. Lea. In one stretch (TL02W) Derek Rands made 35 visits between March and July and saw Water Voles on all but 4 days, with a maximum of 10 seen on the 22nd May. On the second stretch (TL02S) Betty Clutten had 25 sightings between March and October with a maximum of 9 seen on 29th May. One seen at Plain Pond, near Great Hayes Wood (SP96Q) is a new 10km record for Bedfordshire (RD). Water Voles were also recorded along the R. Ouzel near Leighton Buzzard (SP92B) and near Billington (SP92K), the latter being a new tetrad record (PM).

Harvest Mouse *Micromys minutus* A record was again received from the site along the R. Ivel Navigation (TL13P) that had, in 1973, provided the first live record in the county for nearly 15 years.

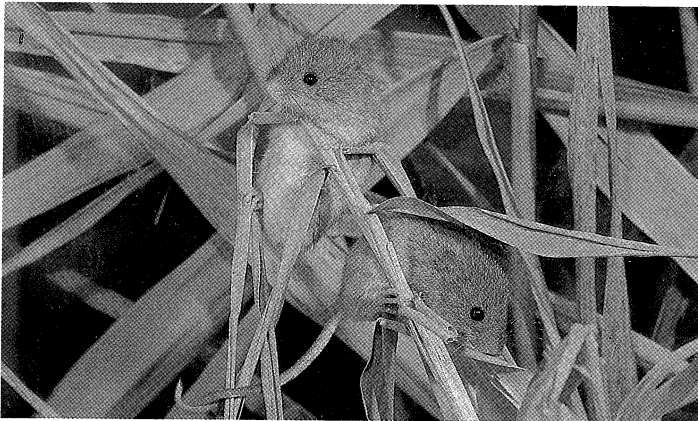
House Mouse *Mus musculus* No records were received.

Yellow-necked Mouse *Apodemus flavicollis* The Longworth traps at The Lodge, Sandy (TL14Y, Z) caught two mice in January (JC). There were no other records.

Wood Mouse *Apodemus sylvaticus* Two were caught in Longworth traps at The Lodge, Sandy (TL14Y, Z). There were six other records.

Brown Rat *Rattus norvegicus* Records were received from beside the R. Lea (TL02S) and the R. Ouzel (SP92B), and in addition there were a number of roadside sightings. Six were observed feeding on grain at Brownage Wood (SP96Q) (RD).

Grey Squirrel *Sciurus carolinensis* Records were made across the county including nine people with observations of the melanistic form or "Black Squirrel". The black squirrel sightings are as follows: Charle Wood (SP93G); Eversholt Lake (SP93Q); Milton Bryan (SP93Q); Woburn Park SP93L, R); Dunstable (TL02A); Toddington (TL02E); Clarendon School, Haynes (TL04Q); Meppershall (TL13I); Clifton (TL13U); the Lodge, Sandy (TL14Z); Fairfield Hospital (TL23C).



Harvest mouse

(Photo: Derek Rands)

Fox *Vulpes vulpes* Recorded from many localities. Five cubs were seen in Chicksands Wood (TL13Z) and three cubs at Dunstable Downs (TL01E).

Badger *Meles meles* Active setts were recorded from a number of localities but little information was received on breeding success. There were nine records of dead badgers as well as at least nine additional deaths on the Leighton — Linslade Southern bypass in the four months after its opening in November. This stretch of bypass is several kilometres long and a number of different setts may be involved with various crossing points. Much survey work on the routes used by Badgers is being undertaken in order to safeguard the populations by trying to provide safe crossing points (PM). In one place badger-proof fencing and the laying of peanut trails to a safe crossing point seems to have been successful. The lessons learnt here will hopefully be taken into account with further bypass schemes in the area, and elsewhere.

Mink *Mustela vison* Recorded in the north of the county from the R. Ouse and adjacent lakes at Felmersham (SP95Z) and Priory Country Park, Bedford (TL04U). They were also recorded from Southill Lake (TL14L) and Broom (where 17 were reported trapped), along the R. Ouzel near Leighton Buzzard (SP92F) and one was found dead on the A5120 near the Houghton Regis Chalk Pit (TL02B). An unusual record was one found dead on the bridge over the M1 at Junction 12 (TL02J) (TD AM).

Otter *Lutra lutra* No records were received.

Stoat *Mustela erminea* One was seen with a dead rabbit at Luton Hoo (TL11E), while one running across the wildfowl pens at Stagsden Bird Gardens (SP94U) was probably after rather more exotic fare — but it was perhaps heading for a similar fate to that seen on a keeper's gibbet at Snelson (SP95H). The best observation however must be that of Steve Cham, who saw a female with five young "caravanning" around Dunstable Sewage Works (TL02C) on 17th March. A total of 10 records were received.

Weasel *Mustela nivalis* One was seen on a keeper's gibbet at Snelson (SP95H) and the remainder were observed on or beside roads. A dead Weasel was seen on the road at Great Barford (TL15F) beside a dead Short-tailed Vole which had presumably attracted its attention, but to its own cost (JC). Seven records were received.

Chinese Water Deer *Hydropotes inermis* This deer attracted the attention of nine observers this year. The majority of records were from the area of land between the A418 through Woburn and the M1 to the east (Woburn — Battlesden — Milton Bryan — Toddington — Tingrith). Outside of this area one was found dead beside the Silsoe bypass (TL03X) (SC). An article by Bernard Nau summarising our present level of knowledge of this species, and including all previous records, is published elsewhere in this Journal.

Fallow Deer *Dama dama* Five males were observed by the road at the side of Dedmansey Wood, Studham (TL01I) on 6th January (DA). A herd of 11 females crossed the road near Wakes Farm (SP93X) on 18th March and seven females were observed feeding in scattered groups in a field near the M1 at Steppingley (TL03C) (JA).

Muntjac *Muntiacus reevesi* Records were received, mainly of ones and twos, from across the county. Fawns were observed in Chicksands Wood (TL14A) on 15th June and Maulden Wood (TL03U) on 3rd July.

Sika Deer *Cervus nipon* Recorded in ones and twos near Wakes Farm (SP93X) and Milton Bryan (SP93Q).

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CHINESE WATER DEER IN BEDFORDSHIRE

by B.S. Nau

INTRODUCTION

The Chinese Water Deer (*Hydropotes inermis*) in Bedfordshire offers a unique opportunity to observe the behaviour and population changes of a species similar in origin to the Muntjac. Both are of oriental origin and both species have established wild populations in Britain as a result of escapes, principally from Woburn Park during the middle decades of the 20th century. However, despite these similarities the Chinese Water Deer has been notably less successful than the Muntjac.

During the early months of 1992 the author carried out a census of wild Chinese Water Deer in the Woburn area. It is intriguing that these observations revealed a quite different habitat preference and behaviour compared with well-established populations at Woodwalton Fen National Nature Reserve, in the Norfolk Broads area and the native population in China. The expansion of range and population also show curious features which will be discussed later.

Literature on Chinese Water Deer in Britain is rather limited. Whitehead (1950, 1964) deals with this species in deer-parks. The earlier publication describes the biology and behaviour based on observations in deer-parks and the second details the history of the species in deer-parks in Britain. Cooke and Farrell (1983) give the most extensive account of the biology, ecology and behaviour in the wild, based on their observations of the Woodwalton population and information reported by Whitehead. The same authors are responsible for the more up-to-date, but less detailed, account of the species in *The handbook of British mammals* (Corbet and Harris, 1991). Additional information on the British distribution has been published on a 10km square basis by the Biological Records Centre (1984).

RECOGNITION

This deer is arguably our most attractive. It is often passed over as a Muntjac or a Roe Deer but is easily recognised once its distinctive features are known. In size it is a little larger than the more familiar Muntjac and a little smaller than the Roe Deer, which it more closely resembles but which we do not have in Bedfordshire. It has an alert appearance, *prominent rounded pricked-up ears with head held erect*. Unlike other deer (except the Musk Deer) neither sex has antlers. Like the Muntjac it has tusks, in males these are long enough to be visible in the field but the female's are inconspicuous. In winter the Chinese Water Deer is a paler, *grey-brown*, than the dark gingery-brown Muntjac, it sometimes appears quite silvery. In summer it has a rufous coat (May-September). Its tail is inconspicuous and it lacks both the white 'tail flag' displayed by fleeing Muntjac and the white rump patch of the Roe. Hence white on tail or rump at once eliminates Chinese Water Deer. A useful field character is the way the black nose is set off by the contrasting *whitish muzzle*, as in the Roe, this distinguishes it at once from Muntjac and is normally sufficient to identify the species in Bedfordshire.



Chinese Water Deer showing the distinctive facial pattern. (Photo: Michael Clarke)

Address: 15 Park Hill, Toddington, Dunstable LU5 6AW

BEHAVIOUR AND HABITAT

The Chinese Water Deer differs from the Muntjac in its feeding behaviour, it is predominantly a grazer rather than browser (Cooke and Farrell 1983). Like the Muntjac it is not a herd animal, usually it is seen in ones or twos, except during the 'rut' when three together is not infrequent. The literature gives the rut as taking place in November (parkland) or December (Woodwalton), the situation in the wild population in Bedfordshire is not known.

In Bedfordshire, but not in some other parts of the country, the habitat also distinguishes Chinese Water Deer from Muntjac. Unlike the Woodwalton and Broadland populations ours spend the daylight hours in open fields. There seems no particular preference for type of crop, they seem equally at home in winter wheat, rape, field beans, or bare cultivated fields. Food is said to include shoots of grasses, leaves of broad-leaved plants such as Chickweed and Carrot, and Potatoes if these are exposed on the surface, Bramble leaves are also eaten (Cooke and Farrell 1983). They will not eat hay even if starving.

The most populated areas in Bedfordshire are on the Lower Greensand but extend onto the Boulder Clay to north and south. Fields where the deer occur are typically about 5-10 hectares in size (12-25 acres) with well kept hedges. During the day the deer spend much of the time sitting chewing the cud, but they remain alert with head often erect to spot signs of danger. Sometimes they walk slowly along, grazing, or may occasionally trot or gallop for several hundred metres across country for no obvious reason. They will also feed along field margins where the vegetation is taller. Their resting place is usually well out in the middle of a field where it is easy to see possible danger, but in windy weather they sometimes seek shelter nearer a hedge or tree. They are very much creatures of habit and can be found regularly within one or two hundred metres of a favoured spot.

HISTORICAL BACKGROUND IN BRITAIN

The Chinese Water Deer is yet another member of the British fauna which has originated from Woburn Park. There is a flourishing population of this deer within Woburn Park and an established wild population in the immediate surrounding area due to escapes. They are notorious for their ability to escape from enclosures. Woburn Park is also the source of all Chinese Water Deer in British deer-parks in the 20th century, although sometimes indirectly, as summarised in Figure 1. There have been escapes from parks other than Woburn and these have sometimes resulted in established wild populations, usually however dying out after a few years.

The earliest recorded escapes from Woburn seem to have been during World War II, with more over subsequent decades (Whitehead 1950, 1964). Whitehead also reports escapes from Whipsnade Zoo but only gives details of one individual, in February 1954. On reviewing the available evidence it seems probable that there has never been an established population based on Whipsnade escapes.

The British distribution in 1967 is given as "Shropshire and Hampshire" by van den Brink. By 1984 the situation was very different, the 10km square distribution map published by the Biological Records Centre, Monks Wood, shows no post 1966 records from either of these counties. Isolated localities apart, the centres of population in 1984 are shown to be: a cluster of 10km square records centred on Bedfordshire; a smaller group in Hunts around Woodwalton Fen NNR; a similar group in the northern part of the Fens near Kings Lynn; and a slightly larger group in east Norfolk, in the Broads area.

It is not unusual for Chinese Water Deer to travel considerable distances. In Yorkshire, an escape from a park near Ripon in 1952 was found 15km away near Harrogate. In 1961 one, presumably from the Woburn area, was seen at Souldern, between Bicester and Banbury in Oxfordshire, 40km to the west. Whitehead, in 1950, describes seeing 'a few' Chinese Water Deer in Northants, again presumably wanderers from Woburn. A 1961 record from Weston Turville Reservoir, Bucks, may have been a wandering escape from Whipsnade Zoo. Clearly the species has considerable potential for colonising new areas and spreading widely across the country, but this has not happened.

It is not clear from the literature how the Woodwalton population in Hunts originated — the possibility of this having become established naturally by wanderers from Bedfordshire seems slight but just possible. The same comment applies more strongly to the Kings Lynn and Broadland populations.

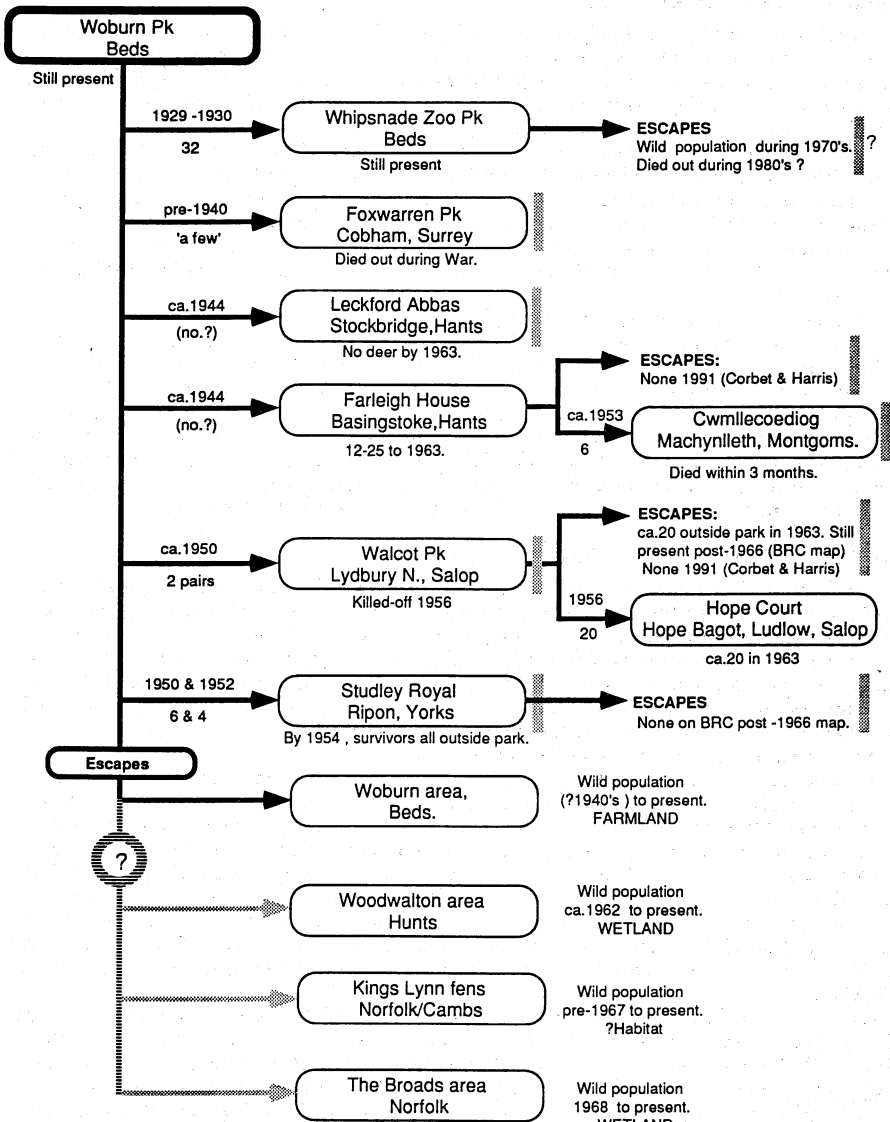


Figure 1 The dispersal of Chinese Water Deer from Woburn to other deer parks in Britain.
(based on Whitehead 1950)

HISTORICAL BACKGROUND IN BEDFORDSHIRE

Although the first recorded escapes from Woburn were during World War II, it seems that the present wild population in Bedfordshire originates from animals which escaped from Woburn Park in the late 1960's, perhaps with later additions. In a 25-year review of the mammals of Bedfordshire in 1971, the Society's Mammal Recorder commented as follows:

"The Chinese Water Deer in Bedfordshire are all escapes and comprise almost all the records for the entire country. The first record was for three animals in 1969, with small numbers recorded for each year since then. The species is probably more numerous than the records show, but still only recordable as rare." (Anderson 1972)

Nearly twenty years later, the same writer reports:

"Ten animals seen during the year, compared with the usual two or three..." (Anderson 1989)

This was an all-time high, equalled the following year, and refers to the population centred on Woburn. The year after that (1990) only three were recorded but with hindsight it is likely that this reflected under-recording rather than the actual population. A list of published records is given in part A of the Appendix.

At first sight it seems that there has been a second established centre of population around Whipsnade, but the balance of evidence is against this. It seems more likely that records from the Whipsnade region are either individual escapees (e.g. sightings at Studham, Whipsnade, and possibly Sewell, Totternhoe, and Thorn) or wanderers from the Woburn wild population (e.g. Thorn, Chalgrave, and Tebworth records). Sightings south of the main Woburn-based population are mainly from the period 1974 to 1978, although after a gap of several years there have been a few more: in 1985 one from Studham, another from Thorn about the same time, and one on Whipsnade Common in 1990. Joan Kemp-Gee, who has spent much time in the Whipsnade area throughout this period tells me that she has never seen wild Chinese Water Deer here, this would be unlikely if there were an established population. After reviewing all the evidence it must be concluded therefore, that the records close to Whipsnade Zoo are new escapees rather than relicts of an established wild population. Also, individuals recorded over the years near Tebworth and south of Toddington, to the Dunstable area, are from the Woburn population, which extends close to this fringe area at quite high density.

CENSUS TECHNIQUE

During the early months of the year, when fields are bare or crops very short, it is easy to spot Chinese Water Deer from a considerable distance, up to a kilometre, by scanning fields from an elevated vantage point using binoculars and telescope. Their pale colour stands out against green crops or darker soil. This makes censusing straightforward from January to early-April, by which time winter wheat and rape are higher than sitting deer and the animals are easy to miss.

When disturbed the deer may gallop a considerable distance before settling down again, typically four or five hundred metres. This makes accurate censusing difficult in rolling landscape as it can be hard to decide if an individual is 'new' or one previously flushed. For this reason it is best, where possible, to scan the countryside from a distance rather than traverse fields individually. This was the method adopted in the present survey.

Well-populated areas were censused first, then working outwards to cover apparently suitable country adjacent. Considerable time was spent in areas which eventually proved negative. Although it is likely that some deer were overlooked in such areas it is unlikely that significant populations were overlooked since similar effort in known populated areas invariably produced numbers of sightings. As a check, at the beginning or end of a session, repeat observations were often made at a well-populated locality. In fact it is likely that more deer were missed in the 'populated areas'.

The deer are easy to miss if one is not specially looking for them. A road along which the author has driven frequently for about twenty years without noticing Chinese Water Deer proved to pass through one of the most densely populated areas!

The deer do not seem unduly susceptible to disturbance. They have been observed sharing fields with such 'bird-scaring' devices as scarecrows, kites, and cannons. Others have been seen in a field beside a busy country road close to major road-works. They have been seen sharing a field with a tractor harrowing a large field, and returned to a smaller field after spraying operations.

BEDFORDSHIRE CENSUS RESULTS, SPRING 1992

The results are presented on the map in Figure 2. This indicates each probable territory by a shaded circle. Single animals without an obvious companion are indicated by an unshaded circle; these may be either unpaired animals or members of a pair where the mate was not seen. The symbols on the map are numbered to permit cross-referencing to the details listed in part B of the Appendix. Figure 2 shows 18 probable territories and a further 10 'single' animals.

Areas studied which produced null records are as follows:

- W of the A5 road: Heath and Reach, and Rammamere areas.
- N of the A418 road (Woburn to A5): fields between the woods.
- W of M1, to A5130 road (Woburn to Woburn Sands), between the county boundary and Woburn Park.
- M1 east to Westoning — Flitwick — Ampthill — Stewartby.
- Brogborough — Marston Moreteyne, north to Hardmead — Astwood — Stagsden.

The map in Figure 2 also includes some records from earlier years, these provide complementary information which is reasonably up to date (square symbols). They are sightings reported by BNHS members during 1989-1991 from sites from which there are no sightings in 1992. All but one of these records refer to single animals. The supplementary records represent a further 14 possible territories.

From the census and supplementary information, it is concluded that it is unlikely that there are fewer than twenty pairs of Chinese Water Deer in the survey area. At the other extreme it is unlikely that there are more than 50 pairs. This latter figure assumes most 'singles' were actually one of a pair and that gaps in the continuity of distribution would have been filled with more effort. If shooting is a major factor limiting population, as discussed below, then the larger gaps at least are real and simply indicate areas of more intense persecution.

Figure 3 shows the broader picture in the county over the past ten years, it includes all Bedfordshire records outside the 'core area' covered by Figure 2. In addition it shows records from those parts of the periphery of the core area from which there are no recent records. The map highlights the postulated expansion southwards from the core area, towards Whipsnade, which has subsequently faded away, and a decline in the adjacent southern corner of the core area. The map also reveals expansion eastwards along the Greensand Ridge, but the deer do not seem to have become established here. The status beyond the county boundary to the west and north is not clear, although in the 1950's the species was present in Northants, as mentioned earlier.

DISCUSSION OF FACTORS LIMITING POPULATION AND RANGE

The range and numbers of wild Chinese Water Deer in Britain show some curious features. The species is quite well established in four areas which are quite far apart: Woburn, Woodwalton, Kings Lynn and the Broads. On the other hand, for a species which is a prolific breeder and extensive traveller, its population centres seem strangely confined. For instance, in Whipsnade Zoo the population expanded sixfold in four years following its introduction and, in the wild, there are records of individual deer travelling tens of kilometres. However, although these factors would lead one to expect rapid expansion of range and numbers, this does not seem to have happened. The Woburn-centred population is quite dense where the deer is currently found but is curiously absent from apparently suitable blocks of country nearby. In addition the species has disappeared from country formerly occupied to the south of the present core area.

There are two conspicuous obstacles to the extension of its range from the Woburn area. In the east, the M1 motorway is a very major obstacle, with heavy traffic day and night. In the west there is the A5 trunk road, somewhat less busy by day and relatively quiet at night. Both these obstacles

have been negotiated. The first Chinese Water Deer seen beyond the A5 was one in January 1973, north of Double Arches Quarry at Heath & Reach; another was seen in the same place six years later, July 1979. This site is a few hundred metres beyond the A5. The larger obstacle presented by the M1 had been crossed by December 1975 when one was seen in the vehicle test site at Millbrook, 3km beyond the motorway. There is now a group of animals established east of the M1 towards Cranfield, near Salford. One must conclude that these apparent man-made obstacles do not in reality limit the spread of the deer.

There is a considerable casualty rate on roads, evident from local records and from the literature. All but two of the nine dead deer indicated in Figures 1 and 2 (dagger symbol) were road casualties — the other two were shot. Chinese Water Deer run across roads with little regard to possible traffic. Although this may be a significant cause of death, it does not seem capable of explaining the limited expansion of this species compared with Muntjac.

It might be thought that climate could be the major limiting factor. The British deer originated from China, in the Yangtze Kiang River region. This is a lowland area, heavily populated by humans, extending from the coast inland about 800km from Shanghai. It lies along the 5°C isotherm in January, which also happens to run N-S through England! In July it lies near the 27°C isotherm, which more closely resembles the south of Spain. It is also pertinent to point out that the Chinese Water Deer has a very thick coat in winter. In fact heat stroke is a more real risk than hypothermia; fatalities due to this have occurred when the deer have been chased or otherwise subjected to stress (Cooke and Farrell 1983). In view of this it seems unlikely that low temperature itself limits population and range in Britain.

Fatalities in the wild and in parks (including Woburn Park) are reportedly concentrated in hard winters, during periods of frost and snow, although corpses examined at Woodwalton have not shown signs of starvation (op.cit.). A combination of wet weather with low temperatures is apparently particularly associated with winter fatalities. Cold wet conditions may therefore be an important factor limiting population growth. Perhaps it is not coincidence that the species has become established in the driest part of Britain — although not generally distributed even there. However, climate cannot be the whole story.

Human factors provide a more plausible explanation of the curiously disjunct distribution, locally and nationally, and of the failure to expand in line with the apparent potential of the species.

Although there are few hard facts, Chinese Water Deer do seem very vulnerable to persecution. Where well established, one not infrequently surprises the deer at close range and they would present an easy target to the trigger-happy shooter. This must be a particular risk during organised shoots of hares or game birds, or when pigeon shooters operate from hides in fields. In frost or snow the deer would be even more conspicuous. It certainly seems suspicious that there are areas noticeably lacking in deer immediately adjacent to apparently similar country carrying a good population. For example, in Figure 2, there is a gap between the main population and that in the north, around Salford; there is also a sharp cut-off south of Potsgrove. Michael Clark (pers.comm.) reported having seen signs of the shooting of Chinese Water Deer in a woodland ride near Eversholt in the early 1980's. Near Woodwalton, ten were found shot during a five year period (Cooke and Farrell 1983); this takes no account of any which were shot and taken away or not found.

A second unanswered question is why the Bedfordshire animals live in open country whereas in their native China, and at Woodwalton and in the Broads area they live in wetlands with dense cover. Bedfordshire is, of course, singularly impoverished in woodland, wet or dry. In mid-April 1992 (a very early date) a doe was seen with a very young fawn in open fields well away from any extensive cover other than the strictly limited cover provided by well-trimmed hedgerows. This substantiates the view that the deer are not simply dividing their time between woodland and open country.

On reflection, it seems possible that open country is actually the *primary* habitat, *not* wetlands. In China, if open country had been their primary habitat then human pressure could well have driven them to seek whatever cover was available. In Britain they certainly thrive in open country in parkland. If this interpretation is correct then the original question is reversed and one must ask why they do not do the same around Woodwalton and the Broads?

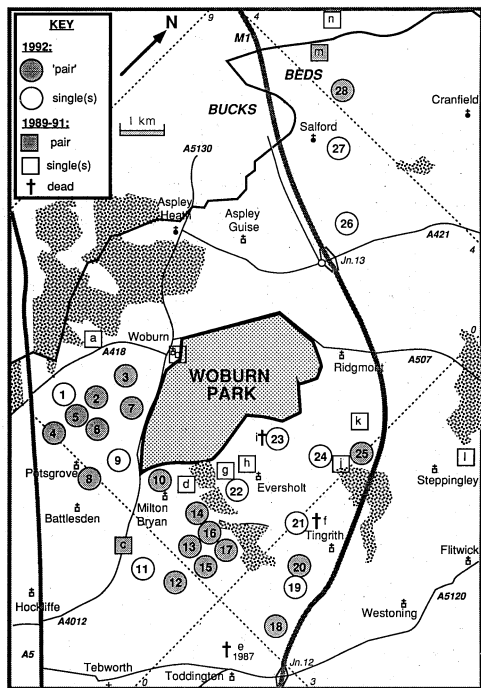


Figure 2 Distribution of Chinese Water Deer in Bedfordshire based on January-April 1992 survey, with complementary records from the 'core area' from the previous three years (BNHS records). Dead animals were road casualties, except ♂ which had been shot.

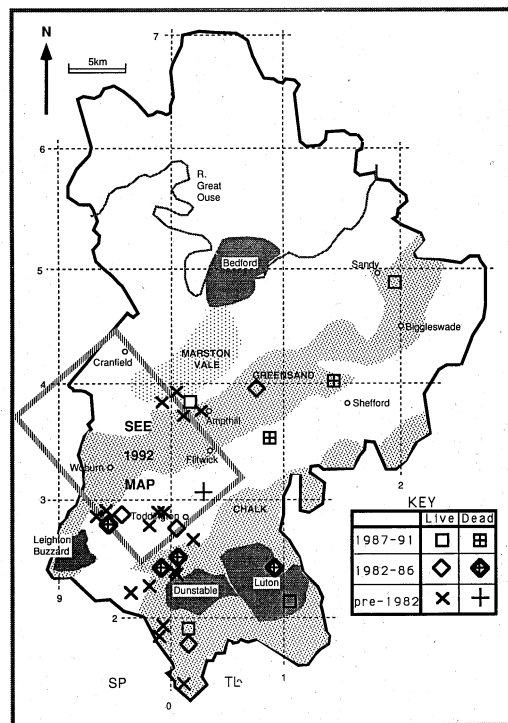


Figure 3 Distribution of Chinese Water Deer records in Bedfordshire outside the 'core area', up to 1991 (BNHS records).

CONCLUSIONS

The Bedfordshire wild population of Chinese Water Deer comprises 20-50 pairs, probably nearer the upper end of this range. The population is centred on Woburn Park; escapes from Whipsnade Zoo have not established a permanent population in the wild. The habitat of the Bedfordshire population is non-typical, being open fields rather than wetland scrub. This raises the question of which is the true natural habitat of the species.

Despite being prolific breeders and considerable travellers, the species' range is curiously limited and discontinuous. Also the deer have disappeared from areas previously occupied. It is likely that these facts are explained by variations in local attitudes to shooting the deer, whose behaviour makes them particularly vulnerable. Since the deer are grazers and to all intents and purposes innocuous, unlike Muntjac they do not damage trees and shrubs and they are unlikely to reach the population levels of rabbits, there seems no economic justification for preventing their wider dispersal or increase in population. As a game species they might actually become an asset to those who currently limit the population. There is a case for education of those responsible.

ACKNOWLEDGEMENTS

Thanks are due to Derek Rands and Rosemary Brind for making available BNHS records, and to Michael Clark for valuable help with the literature and making available the photograph of Chinese Water Deer. Thanks are also due to the BNHS members who have sent in records over the years.

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APPENDIX

A — Summary of BNHS file records to 1991

Date	Grid ref.	Map	Location	Notes
2.11.69	SP93Q		Eversholt	2-3
19.3.70	TL024304		Toddington: Redhill Fm	male, road casualty
17.1.71	SP989324		Eversholt	1
21.1.73	SP938294		Heath & Reach	1
27.8.73	TL00-37-		Amphill	1
1.1.74	TL001323		Tingrith	1
9.3.74	SP978315		Milton Bryan	1
31.3.74	SP982229		Totternhoe	1
10.4.74	SP995184		Whipsnade: Valence Fm	2 in field

Date	Grid ref.	Map	Location	Notes
13.4.74	SP99-28-		Tebworth: Spinney Wood	1
13.4.74	SP99-28-		Tebworth: Warmark	1 (the above?)
3.5.74	TL008142		Hudnall Common	1 in field
15.7.74	SP983171		Whipsnade: B4506 road	1 in field
31.3.74	SP999285		Toddington: Warmark Fm	1 dead, 1 alive
31.12.74	SP983285		Tebworth: The Lane	1
14.12.75	TL006396		Millbrook: Test Track	1 in scrub (E of M1!)
3.1.76	SP99-28-		Toddington: Warmark Fm	1
15.4.76	TL013268		Chalgrave	1
3.12.76	TL004241		Dunstable Sewage Works	1
13.5.77	SP99-31-		Toddington: Happyland Fm.	1
16.4.77	SP97-32-		Eversholt: nr Milton Wood	1
28.5.77	SP99-38-		Lidlington: Boughton End	1
-6.77	TL025385		Amphill Park: by pond	1
-.77	TL004241		Dunstable Sewage Works	1
15.1.78	SP977323		Eversholt: Linden Lake	2 marsh, 2 field
-.78	TL004241		Dunstable Sewage Works	1
16.10.78	SP97-23-		Totternhoe	1 in field
18.10.78	SP97-23-		Totternhoe	1 in field
18.7.79	TL001302		Toddington: Manor Lake	1
19.7.79	SP937284		Heath & Reach	1 in plantation
16.1.82	TL015302		Toddington: Long Lane	1 in rough pasture
11.2.82	TL095239		Luton	1 skinned, by road
21.3.82	SP977323		Eversholt: nr Milton Wood	2 edge of wood
25.9.82	SP9-3-		Eversholt	3 in field
7.11.82	TL072396		Maulden Wood	1
5.4.84	SP983329		Eversholt	pair in field
25.4.84	SP982329		Milton Bryan	1 in field
28.4.84	SP982329		Milton Bryan	1 in field
30.4.84	SP982329		Milton Bryan	2 in field
29.7.84	SP9-3-		Woburn	1 outside Park
-8.84	SP934335		Woburn	1 barley field by wood
-.12.84	SP978355		Ridgmont	3 in cereal field
3.2.85	SP93-33-		Woburn: nr Charle Wood	1
9.4.85	SP978317		Milton Bryan: nr Milton Wood	1 field edge
10.4.85	SP980313		Milton Bryan: Palmers Shrubs	1 roadside
26.5.85	TL005277		Toddington: Dropshort	1 in wheat
27.6.85	SP949286		Heath & Reach	1 dead by road
15.12.85	TL013170		Studham	1 outside Zoo fence

Date	Grid ref.	Map	Location	Notes
5.1.86	SP99-31-		Tingrith: Washers Wood	1+1+2
13.1.86	SP982345		Woburn	1 rape field
19.1.86	SP993245		Dunstable: A5 road	1 dead
16.2.86	SP99-33-		Eversholt	2
16.2.86	TL002329		Tingrith Lake	1
11.5.86	SP93-31-		Potsgrove: N of Sheep Lane	1 in field
ca.1986	TL003247		Thorn	1 dead by road
11.3.87	SP997296	e	Toddington: Park Road	1 dead, shot, by road
31.3.87	SP938398		Salford	1
14.1.88	SP993336		Woburn-Steppingley Rd	1 in road licking salt
22.8.88	SP982292		Hockliffe: Watgate Fm	1+ fawn(?) in field
20.9.88	SP981281		Hockliffe: Watgate Fm	2 feeding in field
21.11.88	TL001293		Toddington	1 by road
24.11.88	SP970305		Milton Bryan	1 in field
18.12.88	SP977323		Eversholt: nr Linden Lake	3
17.1.89	SP977323	g	Eversholt: nr Linden Lake	1 flushed from ditch
9.4.89	SP948308		Potsgrove	1 by field pond
16.4.89	TL001321	f	Tingrith	1 dead by road
22.6.89	SP981329	h	Eversholt	1 grazing in field
22.6.89	SP975316		Milton Bryan: nr Milton Wood	1 in field
8.9.89	SP988353	k	Ridgmont	1
11.5.90	SP923408	m	Salford	2
28.5.90	SP93-40-	n	Salford/Moulsoe: Lower Wood	1 nr wood
-5.90	TL197480		Sandy Warren	1
12.5.90	SP918414		Moulsoe (Bucks)	1
24.12.90	TL009178		Whipsnade Common	1
25.12.90	TL013380		Millbrook	1 by road, 0030 hrs
-.-.90	TL016363	1	Steppingley reservoir	1 various occasions
ca.1990	TL01-185		Whipsnade: Sallow Spring	1
2.1.91	SP994342		Eversholt: Wakes Fm	1 crossing road
9.1.91	SP952333	b	Woburn: church	1 on grass road verge
12.1.91	SP97-31-		Milton Bryan	1
13.1.91	SP994342	j	Eversholt: Wakes Fm	2+2
20.1.91	SP935322	a	Woburn: Jobs Farm	1 male
29.1.91	SP960310		Milton Bryan	1 in field
5.2.91	TL006319		Tingrith: Long Lane	3 in field
17.2.91	TL003319		Tingrith	3 feeding in field
25.2.91	SP97-31-		Milton Bryan	1
29.3.91	TL003319		Tingrith	3
30.3.91	SP98-29-	c	Battlesden: Woburn Rd	2 crossing road
10.3.91	SP98-34-?		Woburn-Steppingley	1
24.3.91	SP994342		Eversholt: Wakes Fm	1 in field
31.3.91	SP972315	d	Milton Bryan: Grange Fm	1
20.4.91	SP95-23-		Woburn	1 in garden

Date	Grid ref.	Map	Location	Notes
11.6.91	SP995338		Eversholt: Steppingley Rd	1 crossing road
26.6.91	SP979338	i	Eversholt: Steppingley Rd	1 dead by road
6.10.91	SP994342		Eversholt: Wakes Fm	3 feeding in field
6.10.91	SP987315		Milton Bryan: nr Washers Wood	2
10.10.91	SP994342		Eversholt: Wakes Fm	1 in field
29.10.91	SP97-31-		Milton Bryan	1
3.11.91	TL083353		Silsoe: bypass	1 dead by road
8.11.91	SP978289		Hockliffe: Watergate Fm	1 in ploughed field
29.11.91	SP978289	c	Hockliffe: Watergate Fm	3 in ploughed field
27.2.92	TL124406		Shefford: Rowney Warren	1 dead by A600 road

B — Summary of 1992 survey records (Jan-Apr.)

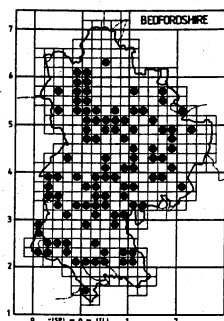
Map	Grid ref.	Location	Details
1	SP938312	Potsgrove: moat	pasture: 1
2	SP944316	Woburn: NE of Potsgrove moat	bare field: 2
3	SP944320	Woburn: Utcoate Grange	pasture & cereal: 2
4	SP943304	Potsgrove: Hill Fm	bare field: 2 twice
5	SP943313	Potsgrove: E of moat	pasture: 2
6	SP946313	Potsgrove: E of moat	bare field: 2
7	SP954318	Woburn: Speedwell	cereal: 2
8	SP953305	Potsgrove: Old Farm	cereal: 2 once, 1 once
9	SP957310	Potsgrove: Old Farm	cereal: 1
10	SP967308	Milton Bryan: Grange Fm	fallow: 3 (26Dec91)
11	SP980294	Milton Bryan: Watergate Fm, N	pasture: 1
12	SP988298	Toddington: Park Rd: Herne Fm	cereal: 2 four days
13	SP982306	Milton Bryan: Park Rd: Happyland Fm	cereal: 2 four days 1+ small fawn once
14	SP981311	Milton Bryan: S of Palmer's Shrubs	fallow: 3
15	SP988303	Toddington: Park Rd: Herne Willow Fm	cereal/pasture: 2,3 days
16	SP984309	Milton Bryan: Park Rd: Happyland Fm, N	cereal: 2
17	SP989310	Toddington: Park Rd: Herne Green, Fm	bare field: 2
18	TL012300	Toddington Manor	rape: 2/1, on 3 days
19	TL008314	Tingrith: Long Lane	rape: 1
20	TL006319	Tingrith: Long Lane	cereal: 1 twice
21	TL000325	Tingrith: Castle Farm	stubble/bare field: 1 twice
22	SP983317	Eversholt: N of Palmer's Shrubs	pasture: 1
23	SP982336	Eversholt: nr. Berrystead	pasture: 1
24	SP991337	Eversholt: Water End	cereal: 1
25	SP997345	Eversholt: Wakes Farm	pasture 2 several times
26	SP955382	Salford: Hulcote Farm	cereal: 1 twice
27	SP943392	Salford: Rectory Farm	rape: 1
28	SP935405	Salford: W of Holcotmoors	cereal: 2/1

(note: 'bare fields' mainly pre-emergent field bean crop)

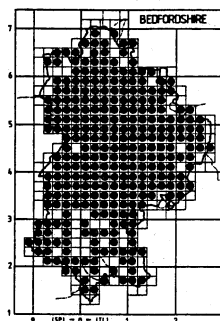
MAMMALS—BATS

Report of the Recorders

During 1991 bats were recorded in 101 tetrads (2km x 2km squares). This is consistent with 1990 when bats were recorded from 98 tetrads. Records came from across the whole of the county.



Bat Records 1991



Bat Records 1987 - 1991

The first records were made by Joan Childs at The Lodge, Sandy (TL188478) on 12 March. While watching outside the confirmed brown long-eared roost, chattering noises could be heard at 6.19 p.m. and a few bats were seen flying around the outside of the roost. A bat was also seen flying up to a confirmed Natterer's roost at The Lodge on the same night at 6.41 p.m. The latest flying bat was recorded by John Adams in his garden in Haynes (TL 100420) on 24 December. This bat was seen flying at dusk, approximately 4 p.m. As John has a confirmed pipistrelle roost behind wooden boarding on his house, it is most likely that the bat he saw was a pipistrelle. The known hibernation sites were checked by Tony Aldhous, David Anderson and Joan Childs (who hold winter roost visiting licences), and the results are shown in Table 1. As usual, Silsoe ice house was by far the best site. This hibernaculum has a long entrance tunnel and many cracks in the ceiling and doorways into which bats squeeze.

Table 1. Hibernation Records for 1991

Hibernation Site	Date	Species of Bat
Barton Lime Kiln Tunnel TL077297	11 Feb	No bats
	24 Feb	No bats
	22 Dec	1 brown long-eared
Silsoe Ice House TL085364	11 Feb	1 Daubenton's
		5 Natterer's
		1 brown long-eared
	24 Feb	1 Daubenton's
		7 Natterer's
	22 Dec	2 Daubenton's
		11 Natterer's
Woburn Ice House SP963319	11 Feb	No bats
	24 Feb	1 brown long-eared
	22 Dec	3 Natterer's
Shuttleworth Ice House TL145441	11 Feb	No bats
	24 Feb	No bats
	22 Dec	1 brown long-eared

Several projects have been carried out during 1991 for which details can be found in *The Annual Report of the Bedfordshire Bat Group*. These include:—

1. A bat survey at The Lodge, Sandy (TL14Y and TL14Z) by Joan Childs. The RSPB reserve is a unique site in Bedfordshire, being the roost site for five confirmed species of bats: pipistrelle, brown long-eared, Daubenton's, Natterer's and noctule.
2. Bat counts at Stockgrove Country Park (SP917291) by Philip Irving. This summarises weekly counts of bat species beside the lake from the beginning of April to the end of September and the results of monitoring of a Daubenton's roost.
3. The Braystone Hibernaculum, Aspley Guise (SP935371) by Philip Clarke. This describes briefly the opening of an artificial hibernaculum. A full description of the site and construction was given in *The Bedfordshire Bat Group Annual Report for 1990*.

Daubenton's Bat *Myotis daubentonii* Three active maternity roosts were present in the county during 1991. Two of these were previously known — the oak tree roost at Stockgrove Country Park and a similar oak tree roost with two access holes at The Lodge, Sandy. Both trees had extensive dark stains below the holes. A second oak tree was discovered at The Lodge with a dark stain issuing from a hole. Unfortunately it was discovered late in the season and no bats were present. It was however believed to be a Daubenton's roost. The third active roost was unfortunately only discovered because of its demise. This was an ash tree in Kempston. A limb of the tree fell in gales and was removed by the County Council to a site in Bedford. Baby bats began to emerge from a hole and Joan Childs was called to attend on 10 July. 13 dead baby Daubenton's bats were removed from the hole and surrounding area. They ranged in size from 2.5cm to almost full grown and there were 3 males and 10 females. The bodies were all sent to Bob Stebbings.

One hibernation site, Silsoe ice house, was found to contain one Daubenton's on 11 February, one on 24 February and two on 22 December.

All other records for Daubenton's bats were of unconfirmed animals in flight. There were nine such reports spread fairly evenly over the county and all associated with water: rivers, canals, lakes and pits. Most were recorded in small numbers but Amphill Park boasted approximately 15 and good numbers were reported from the River Great Ouse at Tempsford and Radwell. The latter were flying in constant rain but many insects were still about. The maximum count was at Stockgrove Country Park where 74 were counted out of their roost.

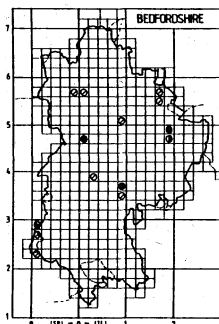
The last Daubenton's of the year were reported from Tiddenfoot where they were observed flying over both the pit and canal.

Whiskered/Brandt's Bat *M. mystacinus/brandtii* Bats believed to be Whiskered/Brandt's were seen and heard on bat detectors on 20 June and 18 September in the confirmed roost at Old Warden Tunnel. On 20 June, bats were observed flying at both ends of the tunnel. On 18 September bats were heard chattering from the roost discovered in 1988 but no bats emerged. Also on this date up to three bats were seen hanging from the tunnel roof. Although high, these bats were viewed through binoculars and showed characteristics of Whiskered/Brandt's bats. These bats were located by identifying echo-location calls on the bat detector that differed from those of bats flying through the tunnel. These calls consisted of slow pulses of sound rather than the constant clicks produced by flying bats. Old Warden Tunnel is private and permission is required to enter.

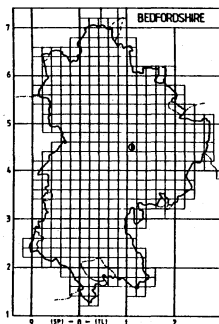
Natterer's Bat *M. nattereri* Good numbers of hibernating bats were found in 1991 at Silsoe ice house with 5 on 11 February, 7 on 24 February and 11 on 22 December. On the latter date, three were also present in Woburn ice house.

One traditional maternity roost was recorded as being active at Westoning Church when approximately 10 were observed. Natterer's droppings were also seen at Stevington Church, a traditional confirmed roost for this species. The record was written up however as unconfirmed as bats themselves were not seen.

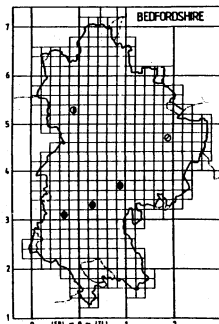
The only other record was a bat seen flying up to a confirmed roost at The Lodge, Sandy in March. This roost was not active during 1991 though an occasional Natterer's dropping was found in the vicinity.



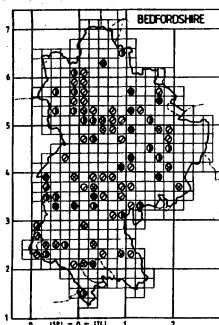
Daubenton's Bat
Myotis daubentonii



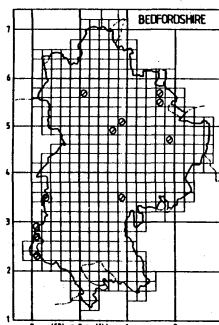
Whiskered/Brandt's Bat
Myotis mystacinus/brandtii



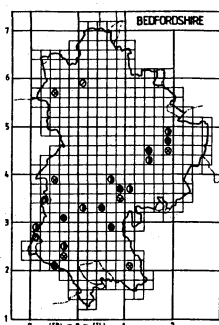
Natterer's Bat
Myotis nattereri



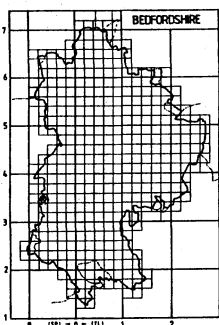
Pipistrelle
Pipistrellus pipistrellus



Noctule
Nyctalus noctula



Brown long-eared Bat
Plecotus auritus



Barbastelle
Barbastella barbastellus

Key:

- Confirmed roost
- Unconfirmed roost
- ⊗ Confirmed bat
- ⊘ Unconfirmed bat

Noctule *Nyctalus noctula* No roost sites for this species were recorded during 1991. Last year's roost in an old woodpecker hole in a Scots pine at The Lodge, Sandy was lost because of gales. No noctule roost sites are now known in the county.

The sightings of noctules this year increased and there is a fairly even spread across the county. Most records were of one or two bats, but three were reported from both Radwell Bridge and Begwary Brook in July. Five were recorded at Goldington Mill in April and the maximum count of eight was reported from Stockgrove Country Park by Philip Irving on 20 May.

As was the case in 1990, all sightings were over water. The weather was usually fine and mild but the bats at Radwell Bridge were flying in heavy rain. On this occasion however the air was still full of insects.

Pipistrelle *Pipistrellus pipistrellus* A total of 12 confirmed and 18 unconfirmed pipistrelle roosts in houses were reported. A further 2 confirmed roosts and 6 unconfirmed roosts were recorded in churches: Blunham, Eversholt, Haynes, Pavenham, Pertenhall, Stevington, Tilsworth and Westoning. Maximum bat emergence numbers at roosts were as follows: 2, 13, 14, 20, 30, 35, 36, 40, 43, 50, 54, 75, 76, 100, 116, 120, 186, 200. A bat box check at Priory Country Park by Carl Welch also turned up roosting bats. Of 20 boxes checked, 4 contained bats. One contained a single female pipistrelle and a second box had 6 pipistrelles inside. The other two occupied boxes contained one unidentified bat each (probably *Myotis* bats).

Baby bats were discovered inside two houses which had roosts. In a house in Woburn, a baby bat was found in the bath and returned to the roost. A house in Tempsford had a regular stream of baby bats into the house because of a damaged chimney breast. The bats were old enough to fly and were released outside. Six bats were also found inside an old people's home and were released outside.

Nineteen injured or abandoned pipistrelles were received through the year. Seven had unknown injuries, 4 had injuries caused by cats and two had broken wings. One bat found in a school between Stotfold and Arlesey had lost a thumb. Another was found on Bedford Embankment with a fishing hook through its elbow. The hook was removed but the wing was badly damaged and the bat later died. One female was picked up from Liddington in difficulties over birth. The vet assisted but this bat also died later. Adult pipistrelles were passed to Carl Welch for care. Three abandoned babies were also received which had to be taken into captivity. The roost sites of two were unknown and the colony of the third had moved sites. (The latter was returned to the roost in the hope that the mother would come back to it, but the baby was found back out of the roost the next day.) The babies were all very tiny and pink and were passed on to Linda Piggott. One, a particularly aggressive baby, survived. A total of 7 dead bats were received in varying states and these were passed on to Bob Stebbings for analysis.

Overall pipistrelles were well distributed across the whole county. Feeding numbers tended to be quite low, but good numbers were reported from Stockgrove Country Park and Priory Country Park (60 - 70). A further four roosts and eight sightings were recorded of unidentified bats. It is likely that most of these were pipistrelles.

Brown Long-eared Bat *Plecotus auritus* Bats were recorded in hibernation at the beginning of the year from both Silsoe and Woburn ice houses — one each on 11 and 24 February respectively. At the end of the year single long-eared bats were recorded from Barton lime kiln tunnel and Shuttleworth ice house.

Four confirmed summer roosts were recorded in 1991. The traditional roost at The Lodge, Sandy, remained active, though only small numbers of bats were counted emerging. The other confirmed roosts were in the lofts of houses. A dead bat was found in the loft in two cases — in houses in Pulloxhill and Eaton Bray. Eight live bats were seen in the latter. Five bats were seen roosting along the ridge beam of a house in Sandy despite it being 18 December. By the number of droppings in the roof space, this is a very large roost.

A dead bat was found on the High Street in Harrold on 6 September and an injured bat was found in Totternhoe Chalk Quarry on 13 November. This latter bat, a male, had a broken left wing and damaged left ear. The wing was removed and the bat taken into permanent

captivity. The other confirmed records all concerned bats entering buildings in autumn, presumably to hibernate. In each case the bat was checked over and then released. The bats were found in Wrest Park, in a public toilet in Biggleswade, in a house in Hulcote and in a Vauxhall building in Luton. This species appears to do this quite frequently.

The unconfirmed records were mostly identified from signs (droppings, moth and butterfly wing piles) in roosts. Four of these were from churches (Southill, Tingrith, Tilsworth and Aspley Heath) and three from the attics of houses (Biggleswade, Aspley Heath and Stockgrove). One was from Shuttleworth College, one from a farm in Silsoe, one from a barn in Maulden Wood and one from the attic of the Gatehouse, Sandy. One bat entered a house and was released by the owner who thought it was a long-eared bat and some bats, silent on the bat detector, were seen flying around the church at Linslade.

A total of 23 tetrad records were received making this bat, as usual, the second commonest in Bedfordshire. The distribution of the bats within the county shows a tendency to follow the SW-NE band of the Greensand Ridge across the middle of the county with some records in the far north-west and some down in the south. All the brown long-eared records were summed for the years 1987 to 1991, and they show the same pattern. This corresponds to large areas of woodland. Long-eared bats, being gleaners, require these areas of woodland to feed and roost in. The far north-west corner is the river valley on Cornbrash and Great Oolite Limestone. The central band is on Lower Greensand and the southern area is made up of chalk. Dividing these three sections are areas of clay — Oxford Clay in the north and Gault Clay in the south on which there is little woodland and hence few long-eared bats.

Barbastelle *Barbastella barbastellus* On 16 October a female barbastelle was picked up from Aspley Heath, SP928352 by Carl Welch. The bat was originally found alive, low on the outside wall of a house and was moved out of reach of cats by the householder. By the time Carl got to the bat, it was already dead. Weighing the bat shortly afterwards showed that it was light at 6.4g (normal range 6 - 13.5g).

There are only a few records for Bedfordshire and up to this discovery there had only been two this century. J. Steele Elliott, in the Mammals section of the Victoria County History of Bedfordshire (1904, vol. 1) writes about the barbastelle:

"Evidently uncommon, and personally I have never seen a local specimen. One was taken in 1868 in the bedroom of a house in the Clapham Road, another a few years after was knocked down by a boy with his cap near Brickhill Farm, and a third found dead in Fosterhill Road in Bedford about the same year. The most recent was one picked up alive in that road by Mr A. Covington in August 1901, which he retained for a while before liberating."

The most recent barbastelle was reported by Mammal Recorder David Anderson in the Journal for 1976 (Bedf. Nat. 1977 31 13):

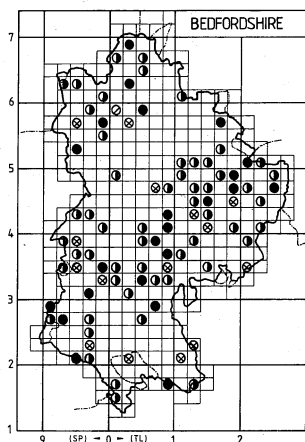
"... in May the body of a dead male barbastelle bat was found in the Shuttleworth Estate by the Greens — father and son. The barbastelle is one of Britain's rarer bats, so it is very exciting to find it is present in Bedfordshire."

ACKNOWLEDGEMENTS

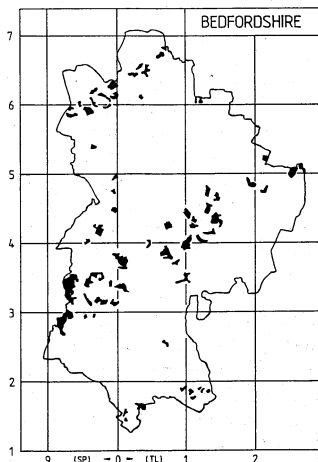
The following have all contributed records and information during the year, for which we are extremely grateful:—

Geoff Abbott, John Adams, Tony Aldhous, David Anderson, Linda Banfield, Mark Boyd, Joan Childs, Mrs P A Claridge, Philip, Pat and Brian Clarke, Nancy Dawson, Ann Durose, Mrs J. Estell, Jo Gold, John Green, Nick Hammond, Paul Hyman, Philip and Geraldine Irving, Geoff Kingsnorth, Pat Knight, Alan Martin, Kirsty Meadows, David and Di Miller, David Parsons, Linda Piggott, Phil Richardson, Trevor Tween, Aubrey Warren, Carl Welch, Harvey Winter, Alan Woodgate. Also many roost owners have reported bats and many people have brought in injured animals.

JOAN CHILDS and TONY ALDHOUS



*Brown Long-eared Bat records
1987 - 1991*



*Distribution of large areas
of woodland in Bedfordshire*

EMERGENCE COUNTS AT A PIPISTRELLE (*PIPISTRELLUS PIPISTRELLUS*) ROOST, IN A HOUSE IN HAYNES (TL100420)

by John Adams⁽¹⁾ and Joan Childs⁽²⁾

Pipistrelle bats were counted out on emergence at dusk from John Adam's house in Haynes between 1988 and 1991. It was confirmed as a pipistrelle roost each year by catching one or two bats (under licence from English Nature) as they emerged. The roost was only active during the summer and the presence of lactating females and juveniles confirmed it as a maternity colony.

The roost is located on the south facing wall of the seventeen year old house, exposed to prevailing winds and full sun. The bats roost behind wooden boarding between an upstairs and a downstairs window. The boarding is attached by battening to a breeze block wall with a clearance of 12.5mm.

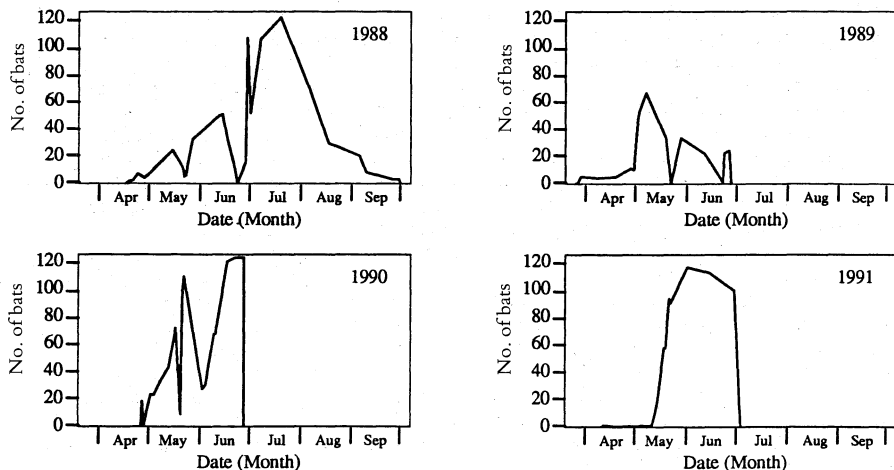
Access is gained via a gap (maximum of 20mm) between the top of the boarding and the underside of the windowsill.

Table 1 lists the arrival and departure dates of the bats each year, the date on which numbers peaked and the maximum count, and the Graphs show the emergence pattern each year.

Table 1. Roost data 1988-1991

Year	Arrival Date	Departure Date	Peak Date	Peak Number
1988	18 April	29 September	19 July	120
1989	27 March	26 June	7 May	66
1990	27 April	26 June	22/26 June	123
1991	12 April	3 July	1 June	116

Addresses: (1) 44 Northwood End, Haynes, Beds MK45 3QB
(2) 144 Queens Drive, Bedford, Beds MK41 9JG



Graphs. Emergence of bats 1988-1991

In 1988 bats were first seen in the garden on 10 April but not confirmed as being in the roost until 18 April when chattering could be heard.

In 1989 the bats left on 26 June during the day after unintentional disturbance caused by sanding down an interior wall near the roost.

In 1991 bats were recorded flying around the garden from 9 April to 24 December. On 24 June a dead female with a dead baby clinging on were found below the roost. On 21 September after the bats had left, the lower panel of the boarding behind which the bats roost was removed in order to clean out any debris. Despite the roost being active for four years with numbers often in excess of 100 bats, only 94g of droppings were removed. The dry remains of three pipistrelle skeletons were also found.

Arrival, peak number and departure dates showed a large amount of variability. The arrival date was the most predictable with only one month between the earliest and the latest dates. During occupancy of the roost, numbers varied enormously and the peak-number date varied by over two months. Departure dates varied by three months over the four year survey period. Sometimes the numbers dropped off slowly and other times all the bats left together. It is likely that many subtle factors influence the bat's use of this site.

Monitoring of the roost will continue and an automatic sensor and counter is being built to allow continuous recording in the future.

REFERENCES

CHILDS, J.E. 1988; 1989; 1990; 1991 *Annual Report of the Bedfordshire Bat Group*.

BIRDS

Report of the Recorder

INTRODUCTION

This year's bird report may appear to be as comprehensive as ever before, with over 200 species recorded from a record number of contributors, but sadly there were many records lost due to insufficient documentation of some of our scarcer species, despite repeated requests for details from myself. Even quite well-watched birds were not properly recorded, such as a Montagu's Harrier in August at Broom, and several species of rare waders, Curlew Sandpiper and Knot, to name but a few. Records of Peregrine, Black Kite, Ospreys, Merlin, Hen Harrier, White-winged Black Tern, Fulmar, Common Scoter, Temmincks Stint, Serin and Lapland Bunting were all reported to Birdline via local observers but with no subsequent submission to the recorder. I can only issue again a plea to everyone to submit their rare records throughout the year, as they are seen, and all other records on cards by the end of January of the following year: some observers who complained loudest about the lateness of the bird report were the worst offenders at non-submission of records. Other birdwatchers feel it is beneath them to submit a written record of a species they are so familiar with elsewhere in Britain and sadly there are still observers who take it personally if a record is rejected. Always remember if a record is rejected it's not because the Rarities Committee do not believe the observer, it's more often the fact that there is insufficient written evidence for an historical county record: if one likes it can still be included on one's own personal list.

The whole subject of rare records is long overdue for review and by the time this report reaches print the new Bird Recorder, Dave Ball, with the assistance of a records committee will have initiated a new policy, and list of species, through the Bird Club Bulletin.

For future students researching the county's birdlife, the following items, which were too detailed to include in the systematic list, are held in the recorder's files.

1. A daily chart of the spring passage in 1991 on Blows Downs by Rob Dazley.
2. A detailed account of the Bromham heronry during 1991 by Peter Almond.
3. Telephone records from the Bird Information Service, Birdlines, East Anglia and Midlands by Robin Chittenden, Dave Holman and Gavin Peplow.
4. BTO Waterways Bird Survey at Blunham 1981-1990 by Dr J.T.R. Sharrock.
5. Ivel Valley Ringing Group Newsletter for 1991.
6. County Birdwatch one day list (101) by K. Sharpe *et al.*

As always I would like to thank the Rarities Committee of A.J. Livett, B. Nightingale, M.J. Palmer, Dr J.T.R. Sharrock and D.S. Woodhead for their advice and comments on rare birds in 1991.

Thanks are also due to our artists, A.P. Chick, R.I. Bashford and Steven Northwood for supplying the line drawings and to Sue Johnson for word processing my 'illegible' script.

More so than in any of my previous reports I have sought the help of others. Barry Squires ably assisted with transposing records onto filing cards; Peter Smith wrote the waders, and larks to thrushes; Dave Ball the warblers to buntings; David Kramer the wildfowl; and Martin Palmer the gulls and terns. To them I am most grateful as without their help the report would have been very late indeed.

Finally thanks are due to the contributors who put 1991 on record:

P. Almond, S. Alliez, V. Arnold, D. Anderson, J. Adams, D.H. Ball, P. Barker, E.G. Baines, R.I. Bashford, L. Bull, Bird Information Service, R. Boughton, S. Banks, J. Bowler, B. Barrett, E.S. Binns, S. Barnes, M.J. Brandon, S. Blain, R. Brind, R.A. Beazley, L. Carmen, A.H. Chapman, G. Clarke, P. Campbell, N.A. & J.A. Clark, M. Clarke, J. Childs, R. Dazley, T. Donnelly, G. Dennis, I.K. Dawson, S.P. & D. Dudley, J. & R.E. Dumbleton, W. Drayton, Mr Davis, L.G.R. Evans, P. Fuller, T.E. Farley, N.R. Finan, B. Gibbs, D.W. Guntrip, G. Gibbs, C. & G. Goodall, D.E. Glue, M.J. Green, J. Guthrie, A. Graham, M.G. Green, T.C. Hextell, M. Holliman, R. Higginson, P. Horn, R. Hume, L.R. Jarrett, B. Jullion, D.S. Jennings, D. Kramer, J.P. Knowles, A.J. Livett, D.V. Manning, R.D. Moore, B. Mason, P. Marshall, G. Mellow, D. Mellor, L. Mayhead, P.A. Madgett, J. Marchant, J.R. Niles, R.A. Nye, E. Newman, B. Nightingale, S. Northwood, D.J. Odell, P. Oldfield, W. Olney, K. Owen,

G.D. Player, D. Parsons, A. Plumb, P. Plant, G. Peplow, M. Pocock, C. Pickup, T. Ploszajski, T. Peterkin, M.J. Palmer, J.C. Palmer, M.D. Russell, P.J. Reed, D. Rimes, T. Robson, A.L. Reeve, M.J. Stevens, R.A. Spain, P. Soper, P. Smith, D. Smith, K.M. Sharpe, B.R. Squires, R. Spicer, Dr J.T.R. Sharrock, R. Tombs, J.K. Trew, C.E. Tack, P. Tunnard, P. Trodd, J.B. Temple, D. Toomer, A. Whitney, S. Welch, S. Wilson, S. Warren, R. Wilson, S.G. Williams, M. Williams, A. White, M. Walker, R. Wooding, P.J. Wilkinson, Mr & Mrs Weeden, D.S. & M.A. & W.J. & K. Woodhead.

REVIEW OF 1991

Following the pattern of recent years much observer activity in January was concentrated on the Marston Vale clay pits with Stewartby and Brogborough Lakes receiving particular attention during late afternoon gull-roost studies. The now almost inevitable 'white-winged' species were discovered as well as occasional sightings of Mediterranean Gulls. Cormorant numbers continued to climb, interspersed with the odd Shag or two, and for wildfowl lovers Scaup, Red-crested Pochard, Brent Goose and Whooper Swan were all recorded amongst the hosts of commoner diving ducks, Coots and grebes.

In February a couple of Black-necked Grebes were at Stewartby Lake while nearby at Brogborough a grey Knot pecked its way around a hole in the ice. Also noted on the ice about that time was a species of gull originating from either the southern hemisphere, or Regents Park—a Grey-headed Gull. Not even on the British List, this bird continued its perplexing *tour de force* around the Shire counties attracting the nation's entire twitching fraternity wherever it appeared. Was it an escape, or was it a genuine vagrant? That decision will be left to the British Birds Rarities Committee. One thing is for sure, however, what ensued, following the news breaking onto the national grapevine, was the largest influx of birders ever into Bedfordshire. The lane at Brogborough was jammed with cars from the A421 to Common Farm!

In March attention moved away from the Marston Vale to the unlikely setting of the Greensand Ridge at Wavendon Heath with the discovery of a 'real' rarity, an Arctic Redpoll. This county first was found amongst a larger flock of Lesser Redpolls which eventually revealed another Arctic, and one or two Meales. As always when observers move into an area *en masse* other species come to light; Goshawk, Firecrest and Bedfordshire's first Woodlark since 1970 were among the highlights. Always a month of stark contrast, March continued to surprise with a Slavonian Grebe at Brogborough Lake, 150 White Fronts over Higham Gobion, a Red Kite at Luton Hoo, an Avocet at Rookery ClIP and three well photographed Waxwings at Biggleswade.

Moving south and into April, the locals at Dunstable continued their studies on Blows Downs for the last migration season before impending road, and/or factory development scars the ancient sward forever. Competition is always stiff for the first Wheatear sighting which arrived on 17 March and by mid-May birds had been recorded on 35 days. That great favourite, the Ring Ouzel, occurred on 19 days with Black Redstart on 6, Firecrest and Whinchat on 4, and Redstart on only one bird day. The south continued its monopoly of rarities with Rock Pipit at Houghton Regis ChP, and the county's fourth Black-winged Stilt at Dunstable SW, while further north migration was reaching its zenith around the wetlands with the arrival of terns, Little Gulls, hirundines and warblers.

Late spring is often referred to as the 'Quality Period' when all self respecting rarities are in pristine plumage. None more so than a 'trip' of nine Dotterel that strayed over the county boundary near Dunton in May; along with an equally rare Montagu's Harrier. Biddenham produced a back garden Wryneck and the much larger 'garden' at Southill attracted a long staying Osprey and a passing Honey Buzzard.

June belonged to Priory Country Park with the finding of two highly colourful visitors. A female Red-necked Phalarope was the first this century, and a Bee-eater the first ever; both birds unfortunately put in only brief appearances, but enough for the respective finders to submit high quality field notes. Meanwhile, in the Marston Vale waders were making news with Knot, Sanderling, Wood Sandpipers and Little Stint all recorded, along with an influx of Common Scoters at Rookery ClIP and Brogborough Lake.

Mid-summer atlas fieldwork continued apace with observers visiting those less than desirable habitats in the quest for completeness. Quail and Nightingale had a poor year and Nightjar churring

was regularly recorded at only one site. Lady Amherst's Pheasant numbers seemed to be stable but there is still much to learn about this enigmatic alien. Hobbies were widespread and at least two Goshawk ranges were confirmed. A pair of Garganey were present in the breeding season and Gadwall, Teal, Shoveler, Shelduck and Ruddy Duck all bred in small numbers. The Barnacle Goose consolidated its breeding status with three pairs attempting to breed.

July and August were enlivened by an Avocet at South Mills, a Black-necked Grebe at Brogborough Lake, and a Marsh Harrier over Potton Wood.

The autumn wader passage produced a fine Pectoral Sandpiper at Coronation CLP, and a Red Kite passed along the downs at Whipsnade. Meanwhile, in September at Priory CP the county's first Penduline Tit was located proving yet again the rewards of regular site coverage.

October is normally a quiet month as the majority of the county's birdwatchers visit western peninsulas and islands in search of vagrants. Imagine then the surprise, and for some the horror, of a 'classic' autumn 'sibe' occurring in deepest Bedfordshire when most county listers were elsewhere. A Radde's Warbler, mist netted at Priory Country Park (where else!) in mid-month was part of a small influx across Britain and the only inland record ever; much to the chagrin of many when the photographic evidence was proudly displayed at a later date! A Pomarine Skua continued the quality of October performing in the clay pits where it seemed to relish murdering different species of gulls and generally causing alarm and mayhem wherever it appeared.

Attention in November moved to Broughton, in neighbouring Buckinghamshire with the discovery of an American Golden Plover which eventually did the honourable thing and moved into the county at Cranfield Airfield, adding yet another species to the county list. Night Heron and Velvet Scoter were both noted by the fortunate few at Brogborough Lake, as further south Hen Harrier and Merlin moved around the Markham Hills.

December is traditionally another quiet month as birdwatchers tidy up their year lists and look forward to the New Year; however, four Smew and two Red-necked Grebes added diversity to gull watching at Brogborough Lake, while nearby Woburn attracted a count of 53 Mandarin. Long-eared Owls were reported from eight localities in what proved to be a good winter for observing this illusive species of owl. The year ended in grand style at Harrold CP with a most obliging Great Northern Diver remaining into 1992 and a Bittern noted on New Year's Eve.

To summarise, 1991 will long be remembered for the breaking of the 200 barrier in one calendar year, as a total of 202 species occurred within the county boundary. There were five additions to the county bird list (American Golden Plover, Bee-eater, Radde's Warbler, Penduline Tit and Arctic Redpoll) elevating the all time total to 275 species, with Marsh Sandpiper and Alpine Swift pending a decision from BBRC. Finally, I would like to thank the 124 contributors to this report who made 1991 a truly vintage year for Bedfordshire's Ornithology.



Great Northern Diver, Harrold

(Photo: P. Trodd)

SYSTEMATIC LIST FOR 1991

Nomenclature follows the 'British Birds' list of Birds of the Western Palearctic (1984).

The following abbreviations have been used in the text: BIS—Bird Information Service, BBRC—British Birds Rareities Committee, BTO—British Trust for Ornithology, CBC*—Common Bird Census, CES*—Constant Effort Site, ChP—Chalk Pit, CIP—Clay Pit, CP—Country Park, GP—Gravel Pit, NR—Nature Reserve, SP—Sand Pit, SW—Sewage Works. Place names for mineral excavations follow those by Nightingale (*Bedf. Nat.* 39 73-74) except for Barkers Lane (TL076493) which is now generally known as Priory CP.

- * Common Bird Census (CBC)—The British Trust for Ornithology's main scheme by which breeding population levels of common birds are monitored in the U.K.
Constant Effort Sites (CES)—A CES is one of more than 100 sites located throughout the U.K. and Ireland where birds are trapped in a series of mist nets during 12 morning visits spread evenly between May and August. Nets are erected in the same positions on each occasion, and from year to year, thereby allowing the BTO to monitor changes in the breeding success and survival of our common songbirds.

Non-passerines

- Great Northern Diver** *Gavia immer* An adult at Harrold CP on 22 December remained into 1992 much to the delight of many observers who were treated to close views of this confiding individual (DSW *et al.*). This is the fifth county record since 1946.
- Little Grebe** *Tachybaptus ruficollis* Breeding was recorded at South Mills NR, Houghton Regis ChP, Rookery CIP, East Hyde and Battlesden Lake, although it almost certainly went under recorded as a breeding species. The largest autumn count was at Rookery CIP with 22 on 13 October (PA).
- Great Crested Grebe** *Podiceps cristatus* Breeding occurred at Luton Hoo, Woburn Park, South Mills NR, Steppingley Reservoir, Stewartby and Brogborough Lakes, East Hyde, Grovebury SP, Coronation, Rookery and Chimney Corner CIPs, and Priory CP. At Stewartby Lake numbers peaked at 307 on 17 February, the highest ever count in Bedfordshire.
- Red-necked Grebe** *P. grisegena* A first-winter at Brogborough Lake from 21 November–15 December was followed by an adult from 22 December into 1992 (RAN *et al.*).
- Slavonian Grebe** *P. auritus* A single at Brogborough Lake from 9–31 March (PA *et al.*) and one at Stewartby Lake on 12 October (DJO).
- Black-necked Grebe** *P. nigricollis* One at Stewartby Lake from 15 February–12 March (PA *et al.*) followed by another in breeding plumage at Brogborough Lake on 31 July (AJL).
- Cormorant** *Phalacrocorax carbo* The increase in sightings continues across the county. One was seen carrying twigs at Southill Lake suggesting that breeding in the county may soon occur. In the Marston Vale counts of 70–90 were commonplace at Stewartby and Brogborough Lakes during the first-winter period, with the latter locality yet again breaking the county record when 112 were noted on 13 February. Other notable counts away from the clay pits were 17 at Blunham GP on 16 October, 23 at Grovebury SP on 3 January, and 47 over Priory CP on 15 December. A 'white-headed' bird was at Stewartby Lake on 13 February.
- Shag** *P. aristotelis* An immature recorded at Stewartby Lake on 1 January–16 March with two on 12 January and 3 February. Other sightings at Chimney Corner CIP on 12 January and Brogborough Lake on 29 January probably related to the Stewartby bird (DJO PA *et al.*).
- Bittern** *Botaurus stellaris* One at Harrold CP, briefly seen on 31 December, was the first since 1987 (RIB).
- Night Heron** *Nycticorax nycticorax* A sub-adult at Brogborough Lake on 28 November was only the third county record (RDM RED). This record has been accepted by BBRC.
- Grey Heron** *Ardea cinerea* Once again Peter Almond has supplied detailed records of the Bromham heronry which produced a total of 17 young from eight nests. At Southill Lake eight nests were occupied (BN) and at Luton Hoo two nests produced at least one juvenile (BRS AJL).



Great Crested Grebe

(A.P. Chick)

Elsewhere 20 were counted at Grovebury SP on 7 July, and in cold weather during February a bird was noted feeding in a garden at Caddington on dead mice and sardines!

White Stork *Ciconia ciconia* An adult at Haynes on 24 April (RB DP) was the first since 1988, although the status of this species is now uncertain due to captive reared birds being allowed to range freely. Sadly this particular individual was shot whilst it rested *en route* through our county. This deplorable act of mindless destruction should be a reminder to us all that this type of 'greeting' has not yet been firmly condemned to a past era.

Mute Swan *Cygnus olor* Bred at Chimney Corner CIP, Drakelow Pond, Millbrook CIP, R. Ouse near Bromham Bridge, Priory CP, Rookery North CIP, Rookery South CIP, near South Mills.

22 at Stewartby Lake in early February gradually increased to 49 in May, 89 in June, peaking at 105 in July. These had declined to 60 by the end of August (PA). 44 at Chimney Corner CIP on 15 December was an excellent number at this site. The wintering flock on the R. Ouse at Bedford usually remained at 60-65.

Bewick's Swan *C. columbianus* Two adults were observed by the A6 at Bletsoe on 31 January. One adult and two immatures were present at Elstow CIP on 17 February and three were at Chimney Corner CIP on 16-17 February. Four adults at Brogborough Lake on 1 March.

In the second winter period three adults were at Priory CP on 24 October; seven adults and one immature were recorded at Brogborough CIP on 26 October. One over Woburn, Barton Hills and Grovebury SP on 27 October probably involved the same bird. Four were observed passing over Coronation CIP on 27th, four were at Rookery on 29 October, two at Brogborough Lake on 19 November and six (two adults and four immatures) at Stewartby Lake on 20 November.

Whooper Swan *C. cygnus* One immature in the Stewartby/Millbrook area 10-13 February (PA *et al.*) and one immature at Millbrook Lake on 9 November (PA).

Pink-footed Goose *Anser brachyrhynchus* One at Blunham 24-27 January (DHB).

White-fronted Goose *A. albifrons* Two at Blunham on 24-27 January (TD DHB); two at Radwell on 1 January (DHB); nine flew SW over Stewartby on 10 February (LGRE); four at Luton Hoo Park on 17 February (AJL); c.150 noted at Manor Farm, Higham Gobion on 17 March (D&JT); two at Blunham on 29 December (TR).

Greylag Goose *A. anser* Small numbers (1-25) seen outside the breeding season at many gravel and clay pit lakes. The survey of introduced geese revealed that this species bred at four gravel pits, 2 clay pits and one parkland lake. The total number of adults present during the breeding season was 398 with 110 young. (See survey report for further details, p.75).

Canada Goose *Branta canadensis* Wintering in good numbers with maxima of 150 at Luton Hoo and 158 at Priory CP in January, 80 at Sandy GP, 287 at Stewartby Lake and c.370 at Millbrook CIP in February and 107 at Luton Hoo in March. Post breeding numbers involved 300 at Coronation CIP on 24 August, 650 at Chimney Corner CIP on 26 August, 294 at Grovebury Farm SP on 30 August and 330 at Coronation CIP on 21 September.

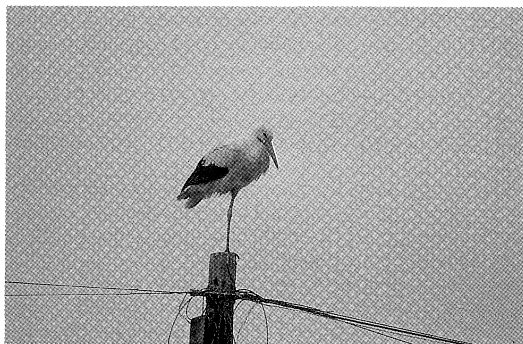
Maxima during the second winter period involved 166 at Brogborough Lake on 9 October and c.180 on 20 October; 99 at Luton Hoo on 17 November, 200 at Stewartby Lake on 26 November and 191 at Priory CP in December.

The survey of breeding introduced geese revealed a total of 1,019 birds of which 735 were adults and 160 were young (a further 125 were unaged). Breeding took place at seven clay pit lakes, five gravel pit lakes and three parkland lakes. (See survey report for further details, p.75).

Barnacle Goose *B. leucopsis* Recorded throughout the year in the clay pit lakes. Up to nine present at Stewartby Lake in January and 11 from 4-10 February (10 on 13th); between 7-10 recorded in the clay pit complex in mid-February. One at East Hyde in January and one noted at Clophill with a party of Canada Geese during April and early May.

Two pairs nested at Rookery CIP and produced a total of 4 young (broods of 1 and 3). One paired and nested with a Canada Goose but failed to raise any offspring.

Eight were present at Rookery on 4 August and 11 were observed in the clay pits intermittently from September-November, 12 at Millbrook CIP on 20 October.



White Stork, Haynes

(Photo: D. Parsons)

Brent Goose *B. bernicla* At Priory CP one present on 28 January, seven on 30 January and two on 8 March. A dark-bellied bird was recorded at Luton Hoo on 1-7 February. One at Stewartby Lake from 8-14 February and one at Brogborough Lake on 19-20 October.

Shelduck *Tadorna tadorna* Small numbers (less than 5) were noted in the Marston Vale clay pits throughout the year. Pairs were present during the breeding season at Dunstable SW, Grovebury SP, Rookery CIP and Willington GP. Outside the breeding season also recorded from Priory CP, South Mills and Round Close Pond, Whipsnade Zoo.

Mandarin Aix *galericulata* Recorded from Amphthill; R. Ouse, Bedford; Brogborough Lake; Clophill; East Hyde; Eversholt Lake; R. Ousel, Linslade; Luton Hoo; Priory CP; Southill Lake; Stockgrove Park and Woburn. Ten males and six females at Basin Pond, Woburn on 13 January was the largest number recorded during the first winter period and 11 were at the same site from 24 February until 3 March. A male and two females were present at Eversholt Lake from May onwards and two young were seen there in August. One pair produced 4 young at Luton Hoo. A pair was present in the breeding season at Coopers Hill, Amphthill. An unusual record was of one in a garden in Woburn on 9 and 29 May with a pair there on 1 June. At Luton Hoo five were present in July and seven in November. One male was recorded at Southill Lake in September and a male was seen at Brogborough on various dates in October and December. An astounding 53 at Basin Pond, Woburn on 14 December was the largest number recorded in the county.

Wigeon *Anas penelope* Large flocks during the first winter period involved 205 at Blunham Lake on 12 January and 239 there on 21 February; 105 at Stewartby Lake on 9 February; 130 at Millbrook CIP on 14 February and 247 there on 16 February. The first of the second winter period arrived during the last week of August. 150 were at Rookery on 27 September, 88 at Millbrook CIP on 9 November, increasing to 185 on 15 December, and 220 were present at Harrold CP on 22 December.

Gadwall *A. strepera* The two main sites were Dunstable SW and Luton Hoo with 17 at the former site on 13 January, 21 on 2 February, 18 there on 9 February and 17 on 16th.

The largest numbers were recorded at Luton Hoo as follows (BRS):

Jan	Feb	Mar	Apr	May	Jun	Sep	Oct	Nov	Dec
62	58	37	35	—	24	50+	—	26	43

At least two broods were produced at Luton Hoo (BRS) and one pair bred at Dunstable SW producing 7 young. One pair was present at South Mills throughout the breeding season. During the second winter period 17 were at Woburn on 24 November and 39 at Stewartby on 15 December.

Teal *A. crecca* The only breeding record was of two pairs at South Mills NR which produced six and two young of which five survived (PO). Maxima involved 53 at Priory CP in January, 28 at Millbrook CIP in February, 59 at Southill Lake in October, 67 at Luton Hoo in December, c.200 at Rookery CIP in November and 70 at Luton Hoo on 23 December.

Mallard *A. platyrhynchos* Breeding was reported at Brogborough CIP, a garden at Bromham, Coronation CIP, East Hyde, Priory CP and Stewartby Lake. Maxima involved 69 at Blunham, 76 at Felpersham, 84 at Luton Hoo and 15 at Southill in January; 180 at Southill Lake in February; in September, 210 at Woburn and 202 at Priory CP; 102 at Felpersham in October; 113 at Luton Hoo in November and 206 at Southill Lake and 110 at Grovebury SP in December.

Pintail *A. acuta* The February cold spell resulted in several records during this period involving four at Rookery CIP and three at Priory CP on 7 February, four at Stewartby Lake on 10 February; a male at Priory CP on 11-12 February; a male at Brogborough Lake on 10-13 February; two at Stewartby Lake on 15-16 February; two males at Priory CP on 19-21 February with 6 there on 28th. One male was present at Brogborough on 23 March, one at Dunstable SW on 24 March and one at Brogborough and a pair at South Mills on the same day. Two males at Luton Hoo on 25 March. Two at Rookery on 28 March. A pair at South Mills on 1 and 5 April.

During the second winter period a pair was observed at South Mills from 3-19 September

and one at Rookery on 27th. At Coronation CIP four on 6 October, one on 13 October, two on 17th, three there on 18 October, five on 19th October, two on 20th, one on 21-22, two on 26 October, two on 2 November with one there on 9th November. One at Brogborough on 15 December and two at Rookery CIP on 27 December.

Garganey *A. querquedula* A pair was strongly suspected of breeding in the Ivel Valley but absolute proof was not obtained. A female was present at Coronation CIP 17 August to 1 September with a male on 26-27 August, 2 and 9 September (SN PS DHB RD). A juvenile was present on 6, 10 and 12 September (DHB).

Shoveler *A. clypeata* One pair probably bred at Dunstable SW and a pair was present during the breeding season at South Mills. Larger numbers recorded during the first winter period included 20 at Woburn in January and 20 at Stewartby Lake in February. During the second winter period Southill Lake held 20 in September, 42 in November and 52 in December.

Red-crested Pochard *Netta rufina* One male at Chimney Corner CIP on 4-7 January and from 2-11 February. One at Priory CP and two at Brogborough CIP on 15 February. A male at Chimney Corner CIP on 10 and 23 February, at Stewartby on 24th and back at Chimney Corner on 25th. A male at Priory CP on 12, 15, 19-22 and 24 March. One at Longholme on the R. Ouse at Bedford on 19-22 March. None was recorded from April until October.

During the second winter period records involve a male at Drakelow Pond, Woburn on 20 and 22 October; a pair at Coronation from 2-24 November; a male at Brogborough CIP on 28 November; a female at Basin Pond, Woburn on 14 December and a male at Radwell GP on 23 December.

Pochard *Aythya ferina* No breeding records. Summer records involved four males and a female at Rookery North CIP on 20 June and two males at Priory CP on 29 June. Reported from most water areas during the winter months. Main wintering flocks included 200 at Brogborough CIP, 115 at Chimney Corner CIP and 128 at Southill Lake in January. c.100 at Brogborough, c.150 at Stewartby in February, 70 at Luton Hoo in October, 86 at Stewartby and 181 at Chimney Corner CIP in December. Regular counts at Priory CP are as follows (DK):

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
122	173	175	1	—	2	—	1	9	24	109	104

Tufted Duck *A. fuligula* Breeding noted at Brogborough CIP (2 pairs); Coronation CIP (1 pair); East Hyde (1 pair); Harrold/Odell (1 pair); Luton Hoo (1 pair); Millbrook CIP (1 pair); Rookery North CIP (1 pair); South Mills (4 pairs); Stewartby Lake (1 pair); Woburn (1 pair). Maxima included 170 at Brogborough CIP, c.25 at Luton Hoo in January and 54 at Priory CP in February, 95 at Millbrook CIP and 116 at Stewartby Lake in December.

Scaup *A. marila* Eight at Brogborough 7-8 February (DJO); one female at Brogborough Lake on 9 February and one adult male there on 10-13 February (DJO). A female was at Brogborough Lake on 23 November (DR TR PO).

Common Scoter *Melanitta nigra* A male at Stewartby Lake on 21 May (PA DJO). Eleven (8 males and 3 females) at Rookery CIP on 3 June and 9 (5 males and 4 females) at Brogborough Lake on the same day (DJO).

Velvet Scoter *M. fusca* Two males at Stewartby Lake on 21 November (PA).

Goldeneye *Bucephala clangula* Observed at Coronation CIP, Blunham GP, Brogborough Lake, Harrold/Odell CP, Houghton Regis ChP, New Road GP Sandy, Priory CP, South Mills, Stewartby Lake and Woburn. During the February cold spell singles were recorded on the R. Ouse at Willington and Castle Mill. A pair at Rookery CIP on 21 April were the last of the first winter period. A female at South Mills on 9 October was the first of the second winter period.

Brogborough was the main wintering site with monthly maxima as follows:

Jan	Feb	Mar	Apr	Oct	Nov	Dec
35	37	48	4	—	9	9

Smew *Mergus albellus* A pair at Priory CP on 29 January and two males on 6 February (GD). Two males at Brogborough Lake on 6 February (TD) and a female there the following day (KMS). A male at Brogborough 16-19 February (AJL MJP TR *et al.*). A female on 14 February at Stewartby Lake (CT) and a pair were on the river at East Hyde on 14 February (BRS). One at Blunham GP on 21 February. Three females and a male at Rookery on 15 December (DJO) were also seen at Stewartby Lake (PA MJP).

Goosander *M. merganser* Widespread during the winter months being recorded from Blunham GP, Brogborough Lake, Dunstable SW, Grovebury SP, Harrold CP, Houghton Regis ChP, Luton Hoo, Millbrook CIP, Priory CP, Rookery CIP and Stewartby Lake, usually in single figures. Woburn Lake provided the largest numbers with 10 on 1 January, 17 on 5th, 15 on 8-9th, 12 on 12-13th, 13 on 19-27th and 5 on 30th, followed in February by 17 on 23rd and 9 on 24th. During the second winter period 11 at Woburn Lake on 24 November was the largest number recorded.

Ruddy Duck *Oxyura jamaicensis* Present throughout the year at most of the clay pit lakes. A pair with one juvenile was observed at Luton Hoo on 28 June and a pair with 2 young seen there in mid-August. There were two pairs at Rookery CIP during the breeding season and 6 young during July and August. A second brood with eight young was observed during late August. A pair at Brogborough in May.

Numbers were generally significantly higher than in previous years with a scattering of records from the gravel pit lakes but at the clay pit lakes maxima were 19 at Stewartby Lake on 17-19 February and 18 there on 21-24 February. Up to 12 were present at Brogborough Lake in February and 11 at Rookery CIP in March. Good numbers were recorded at Luton Hoo from March onwards, when six were present, increasing to 14 in August, 13 in September and 14 during October and November.

Honey Buzzard *Pernis apivorus* One over Southill Lake on 18 May was the only record (SW).

Red Kite *Milvus milvus* One at Kidney Wood/Luton Hoo on 14 March (JBT) with another west over Whipsnade Zoo on 25 September (CET).

Harrier sp. *Circus* sp. A 'ringtail' at Keepers Warren on 9 August (ND).

Marsh Harrier *C. aeruginosus* A single sighting over Potton Wood on 24 August (RIB).

Hen Harrier *C. cyaneus* A female noted regularly in the Girtford/Barford area from 1 January-7 April (RIB PO *et al.*) followed by a first year male on 24 April at Brogborough Lake (RAN RAS). In the second winter period a ringtail noted from 28 October-10 November at Barton Hill NNR and Warden/Galley Hills (LRJ MC BRS *et al.*). Finally, another ringtail near Sewell on 23 December (AJL).

Montagu's Harrier *C. pygargus* A female near Dunton on 26 May (RAN LC) was the only acceptable record.

Goshawk *Accipiter gentilis* A pair noted displaying from February-April at a site on the Greensand Ridge, with evidence of another pair holding territory elsewhere in the county. At Whipsnade Zoo one-two birds noted on four dates from 26 April-1 June (CET). A single noted at Wharley End on 12 October (SWe).

Sparrowhawk *A. nisus* Recorded across the length and breadth of the county throughout the year and in all habitats from woodland to clay pit to town garden. D.J. Odell personally recorded it on 51 occasions in 1991. At South Mills NR five were ringed, and an adult male which was retrapped on 20 February had initially been ringed on 20 November 1990 (PO). In September four birds hunted an evening Starling roost at Rookery CIP (KO), whilst back garden 'bird-table visitors' continued to provide fascination for many observers. Prey items recorded ranged through the usual tits off the bird-table to finches, Starlings and House Sparrow; but pride of place goes to Joan Childs who witnessed a female Sparrowhawk fall to the ground with a Woodpigeon, the ensuing tussle, subsequent kill and pluck, and the eventual take off with prey!

Buzzard *Buteo buteo* A good year for this species with the usual preponderance of autumn passage birds. Two in the Warden Great Wood area remained until 2 March with probably the same two at Palmers Wood on 26th. In February singles noted at Luton Hoo, Maulden Wood and Whipsnade Downs. In the autumn as follows: three at Park Wood, Harrold on 15-16

September; up to three at Southill Park from September–November; four at Palmers Shrubs, talon grappling, on 6 October, with two (presumably from the same group) the same day at nearby Eversholt and one at Turvey; one over South Mills NR on 15 November; one at Cox Hill, Sandy on 18 and 21 November; two at Luton Hoo during November and finally one–two in the Barton Hills area ranging across to Hexton and Lilley.

Osprey *Pandion haliaetus* One at Grovebury SP on 28 April (PSm) with another staying at Southill Lake from 13–30 May (WS). At least seven potential records were 'lost' due to insufficient documentation.

Kestrel *Falco tinnunculus* Status remains stable. Nest box sites were successful at Eaton Bray and Grovebury SP.

Merlin *F. columbarius* Single male at Brogborough Lake on 23 February (DJO) and at Cardington on 28th (RDM). On 10 October a female at Brogborough No2 (DHB) with another at Dunton on 15 December (RDM). Also, in December an adult male at Rookery CIP on 21st followed by a 'brown' bird on 23rd at Coronation CIP (RAN).

Hobby *F. subbuteo* A good year with evidence of breeding from at least nine localities. At four sites breeding was confirmed with young raised, at two sites probable breeding occurred and at others it possibly bred. First and last dates were 21 April at Stewartby Lake and 1 October over Galley Hill respectively. Roost hunting was noted at Rookery CIP in September, and at Everton five were noted together hunting summer chafers over a wheat field on 27 July (AHC).

Red-legged Partridge *Alectoris rufa* The largest reported covey was 15 at Thorn on 13 January. A garden record in the middle of Kempston on 9 March was of note.

Grey Partridge *Perdix perdix* A record count of 67 on winter wheat at Battlesden on 26 October probably related to released birds (RD). Elsewhere recorded at Silsoe, South Mills NR, Willington, near Salford, Houghton Regis ChP, Thorn, Amphill, Harrold, Meppershall, Coronation CIP, Dunstable SW, Turvey, Hulcote (fledged young), Biggleswade, Old Warden and Steppingley. In the Warden Hills, Stopsley Common, Barton Hall Farm area small coveys were regularly noted with a top count of 18 on 16 February (LRJ).

Quail *Coturnix coturnix* Singing males at Swineshead on 16 June (DHB) and at Wiltstead Hill Farm on 6 and 13 July (RAN). Apparently not a Quail year.

Pheasant *Phasianus colchicus* Albinos recorded at Steppingley and Milton Bryan. A hen bird in Southill Park hatched a clutch of 21 young which was reduced by one after a cold, wet spell.

Lady Amherst's Pheasant *Chrysolophus amherstiae* Maximum calling males at the following localities: Maulden Woods—six, Chicksand Wood—five, Charle Wood—two, Millbrook Test Track—two, Moneypot Hill—one, and Woburn Park—one. Presence noted at Steppingley Wood with a top count of 11 males and four females on 5 January, and at Briars Stocking where a tail feather was found.

At Luton Hoo keepers estimated a total of 20–30 birds to be present on the estate. The overall status of this species therefore has changed little since last year. A dead male found at Steppingley Wood on 29 December is now at Bedford Museum.

Water Rail *Rallus aquaticus* Singles noted during winter periods at: Stewartby Lake, two in February and December; Brogborough Lake, two in February; Priory CP, two in February and November; Great Barford, South Mills NR, Harrold CP, Legrave Marsh, Houghton Regis ChP and Linslade. At Flitwick Moor it was recorded throughout the year with up to three 'sharming' in March, where it probably bred (JPK).

Moorhen *Gallinula chloropus* Top counts were 73 at East Hyde on 10 January (MDR) and 65 at Luton Hoo on 6 February (BRS).

Coot *Fulica atra* Top clay pit counts were c.500 at Brogborough Lake in October, 270 at Chimney Corner in February, 244 at Millbrook Lake in February and 204 at Stewartby Lake in November.

Oystercatcher *Haematopus ostralegus* Altogether recorded on 19 different bird days and involving a possible maximum of 27 birds. The species was recorded in every month apart from January, September and December. The earliest record was of a single at Chimney Corner CIP on 3 February and the latest at Cranfield Airfield on 11 November. The largest number was three at Rookery CIP on 18 May. Groups of two birds were at Rookery CIP 24 April, Rookery CIP 26 May, Rookery CIP and later Coronation CIP 1 August, Priory CP 3 August,

Coronation CIP 17 August and flying over Eaton Bray 12 October. Singles were at Stewartby Lake on 23 February, 31 March and 6 April, at Rookery CIP 23 May, 25 May, 30 July, 8 August and 25 August, at South Mills 2 June and Grovebury Farm SP 27 October.

Black-winged Stilt *Himantopus himantopus* A single adult male was found at Dunstable SW by the Manager, P. Reece Esq., during the afternoon of 26 April and was subsequently seen by many observers. The bird was present throughout 27 April and was seen roosting at 20.45hrs. Unfortunately the bird had disappeared the following morning (PT WD PSM *et al.*). This was the fourth county record and accepted by BBRC.

Avocet *Recurvirostra avosetta* A single bird was present at Rookery CIP on the 13 March (DJO TD RED *et al.*). Presumably the same bird was seen again for 15 minutes at Chimney Corner CIP on the 14 March before it flew off to the east (KMS). A further bird was found at South Mills NR on 31 July (GE). All three records have been accepted by the Rarities Committee.

Little Ringed Plover *Charadrius dubius* The spring passage was widespread, the earliest arrival being of two birds at Rookery CIP on 16 March with the latest departure being recorded at South Mills NR on 3 September. The largest concentrations were five at Willington GP on 3 April and 23 May, four at Dunstable SW 27 April and four at Rookery CIP 29 May. Pairs displaying were noted at South Mills NR, Coronation CIP, Willington GP and Clophill. The only proved breeding was a pair at a sand pit in Leighton Buzzard which produced one fledged young; the pair second brooded, laying three eggs, but were unsuccessful due to disturbance. A nest was flooded at South Mills NR.

Ringed Plover *C. hiaticula* Recorded throughout the County's wetlands from 16 January to 24 September, the highest count being 17 at Stewartby Lake on 4 March and 16 at Coronation CIP on 15 July. Successful breeding records were of two pairs with six fledged young in the Ivel Valley and one pair with three fledged young at a sand pit in Leighton Buzzard. The pair in Leighton Buzzard tried to second brood, with a clutch of four eggs, but were unsuccessful due to disturbance and it is interesting to note that this nest was within six metres of the Little Ringed Plovers' nest. There was also suspected breeding in the Marston Vale at Coronation CIP and Rookery CIP.



Black-winged Stilt

(Photo: W. Drayton)

- Dotterel** *Eudromias morinellus* Nine birds were seen on the Bedfordshire/Hertfordshire border at Dunton on 23 May (AP). This record has been accepted by the Rarities Committee.
- American Golden Plover** *Pluvialis dominica* A single first winter bird was found at Cranfield Airfield on 16 November amongst a flock of Golden Plover, having been previously seen over the County border at Broughton, Buckinghamshire. The bird was last seen at the Airfield on 30 November having delighted many County and National Listers. This was the first County Record for this species and it has been accepted by BBRC (DJO PSm *et al.*)
- Golden Plover** *P. apricaria* Notable wintering flocks were: 400 Grovebury Farm SP 3 January; 300 Cardington Airfield 4 January; 300 Kempston 5 January; 2,000 Palmers Wood 29 March; 430 Bidwell Field, Dunstable SW 30 March; and the latest for the first winter period 150 Dunstable SW 28 April. The return passage started early with three at Stewartby Lake on 15 August and 18 at Grovebury Farm SP on 31 August. The largest second winter counts were 400 at Grovebury Farm SP 16-24 November, 1,000 at Arlesley in November/December and 500 at Cranfield Airfield, 16-30 November.
- Grey Plover** *P. squatarola* The first bird of the year was a single in winter plumage with a flock of Golden Plover at Barton Cutting on 10 April (AJL). This was followed by one at Coronation CIP on 15 May (MJS) and at the same location from 31 May to 2 June (PT TR PO); during the same period presumably the same birds were seen at Rookery CIP (DJO PT). A separate record was made of four birds in intermediate plumage at Rookery CIP on 1 June, with two summer plumage birds on 2 June at the same site (RAN). It is difficult to ascertain exactly how many individuals were involved during the passage through Rookery CIP and Coronation CIP. Single birds were seen at Priory CP on 30 August and 29/30 November (DK).
- Lapwing** *Vanellus vanellus* Widespread breeding in farmland areas throughout the County. Breeding was particularly noted at Whipsnade Zoo (eight pairs plus), Marston Vale (several pairs) and South Mills NR (six pairs with 18 pulli ringed within recording area). Notable winter flocks between October to December were recorded at Grovebury Road SP 1,200, Coronation CIP 2-3,000 and Rookery CIP 2-3,000; the last two flocks could well have overlapped. A flock of 6-700 were noted moving during November at Priory CP.
- Knot** *Calidris canutus* Unfortunately there were only two acceptable records as several others did not have supporting notes. One seen pecking around hole in ice at Brogborough Lake 10 February (KO) and one in summer plumage at Coronation CIP 1 June (TR PT).
- Sanderling** *C. alba* Only three acceptable records, one pair in breeding plumage at Coronation CIP 26 May (PT), a single bird in non-breeding plumage at Rookery CIP 31 May (PT) and one bird in partial summer plumage at Rookery CIP on 7 June (DHB DJO).
- Little Stint** *C. minuta* Four records in all for the County, two birds in breeding plumage at Rookery CIP on 26/27 May with one bird remaining until 29 May (RAN LO KO). One in summer plumage at Coronation CIP 30 July (SDM) and a single bird at Coronation CIP between 27-30 September (TD).
- Pectoral Sandpiper** *C. melanotos* A single immature female was present at Coronation CIP on 15/16 September (PR TR *et al.*). This record has been accepted by the Rarities Committee and constitutes the seventh County Record for the species.
- (**Curlew Sandpiper** *C. ferruginea* It is a pity that no supporting notes were submitted with any of the records for this species in the County; undoubtedly some records were genuine but unfortunately cannot be accepted.)
- Dunlin** *C. alpina* Recorded throughout the County at suitable wetland habitats with the earliest record being of four at Priory CP on 6 February and the latest of seven birds at Dunstable SW on 27 November. Notable numbers during the spring and autumn passage were 17 at South Mills NR 18 March, 12 at Coronation CIP 17 May and nine at Rookery CIP 18 May.
- Ruff** *Philomachus pugnax* A good year for this species, the earliest record being one at Stewartby Lake on 9 February followed closely by one at the Suspension Bridge, River Ouse at Bedford, visiting Priory CP between 11-18 February. The last record for the County was of two birds at Coronation CIP on 20 October. Apart from a single bird at South Mills NR on the 14 March followed by a further single bird at the same location on 24 August all other records came from either Rookery CIP or Coronation CIP. Rookery CIP: May 9 two,

28 two, 29 one, 30 two, 31 two; there were singles on 31 August, 8 September, 13 October and two on the 20th October. Coronation CIP: 5 May one; August 16 one, 17 one, 21 one, 24 two, 25 two, 31 one; September 1 one, 2 one, 3 two, 4 two, 5 one, 6 three, 7 three, 8 three, 9 one, 10 three, 12 three, 14 three, 15 three, 16 three, 17 two, 30 two, and a single bird on 12 October.

Jack Snipe *Lymantria minimus* For the first winter period three at Houghton Regis ChP 23 January and 2 February, three at Stewartby Lake 10 February, one-two Leagrave Marsh 14-17 February, one-two Clophill January to 5 April, one-two birds South Mills NR with a notable late date of 6 May. Single birds were noted at Stewartby Lake, Dunstable SW, Grovebury Farm SP, Willington GP, East Hyde and Turvey. During the second winter period a maximum of five birds at Houghton Regis ChP 8 December, two at South Mills NR and two at Clophill, with birds staying until the end of the year.

Snipe *Gallinago gallinago* Possible breeding was reported from South Mills NR (two pairs) and Rookery CIP North (one pair), and a pair with four well grown young was seen at Houghton Regis ChP on 3 July. Peak numbers were at Fenlake 25 on 16 January and 42 on 3 February, eight East Hyde 11 January, nine Houghton Regis ChP 2 February, 70 South Mills NR 10 March and 33 at Luton Hoo 17 March, a record for this location. Between one and eight birds were seen at Stewartby Lake, Grovebury Farm SP, Rookery CIP, Bromham Lake Reserve, Felmersham NR, Leagrave Marsh, Dunstable SW and Hollington Marsh.

Woodcock *Scolopax rusticola* 'Roding' recorded at Home Wood (two), Maulden Wood (three), Clophill (one), Wilstead Wood (one), Little Wood, Old Warden (three), Aspley Heath (two), Tilbrook (one), Pegsdon Hill (one), Chicksands Wood (one), Southill (two) and The Lodge, Sandy (one). Outside the breeding season birds were noted at Moggerhanger, Harlington, Streatley, Bramingham Wood, Galley Hill Luton, Stewartby Lake, South Mills NR, Houghton Regis ChP and Priory CP.

Black-tailed Godwit *Limosa limosa* An impressive flock of 29 was at Rookery CIP on 25 August (JB MJP). Other records were five at Coronation CIP on 22 June (MJS), one over South Mills NR 20 September (PO) and one or two birds at Rookery CIP on dates between 13-31 August.

Bar-tailed Godwit *L. lapponica* Six moulting birds including at least three males at South Mills NR on 18 March (PO). The only other record was of a single bird seen a quarter of a mile south-east of Streatley on 1 May (MJS).

Whimbrel *Numenius phaeopus* During the spring passage five were seen over Brogborough CIP 28 March and a further four birds on 10 April (TD). There were two over Woburn Golf Course 4 May (PJW) and all remaining records were of single birds at Willington, Cuckoo Bridge GP and Priory CP on 25 April, over Woburn 2 May and at Rookery CIP on 28 April. Only two return passage records, four at Rookery 23 July (CDN) and a single at Priory CP 2 August.

Curlew *N. arquata* Records from Rookery CIP were one 14 March, seven 28 April, one 6 June, one 23 June, one 21 July and three on 1st September. There were two at Thurleigh Airfield 27 April and a further two 18 May. Singles were seen at Houghton Regis ChP 10 May, Brogborough CIP 1 April, one-two Blows Down 25 April, one at Priory CP 12 October and, the last record of the year, one at Coronation CIP on 21st October.

Spotted Redshank *Tringa erythropus* Apart from three records all others came from either Rookery CIP on Coronation CIP. A single adult was present at South Mills NR on 2 April followed by a further adult in June. One flew over Priory CP on 19 September and, presumably, the same bird was seen at Willington GP on 20 September. Two birds present at Coronation CIP on 27 August, one at Rookery CIP between 1-4 September which probably moved to Coronation CIP between 6-10 September. Two birds were present at Coronation CIP between the 10-15 September.

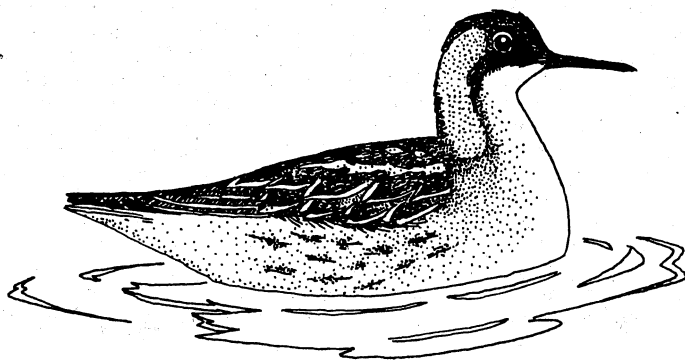
Redshank *T. totanus* Breeding was recorded at South Mills NR (three pairs with two juveniles seen), Dunstable SW (two pairs in Bidwell Field), Rookery CIP (one pair), Brogborough Lake (one pair in nearby field) and Houghton Regis ChP (one pair seen copulating). The first bird of the year was at South Mills NR on 21 January, the main passage being through mid-March to mid-April with a maximum count at South Mills NR of 17 on 21 March.

Double figure numbers were then recorded until 18 April. Between one and six birds were reported from suitable wetland sites throughout the County in every month of the year. A controlled bird was caught at South Mills NR which was originally ringed at Cliffe in Kent on 19 September 1982 making it nine years old, a record age for the species at the Reserve.

Greenshank *T. nebularia* The first record for the year was of a single bird at Dunstable SW on 26 April and the last of one bird over Bromham Lake Reserve on 13 October. Good numbers were recorded during both the spring and autumn passages, highlights being six Rookery CIP 5 May, eight Willington GP 23 May and four Rookery CIP 27 May. In all, the species was recorded on 45 different bird days throughout the year.

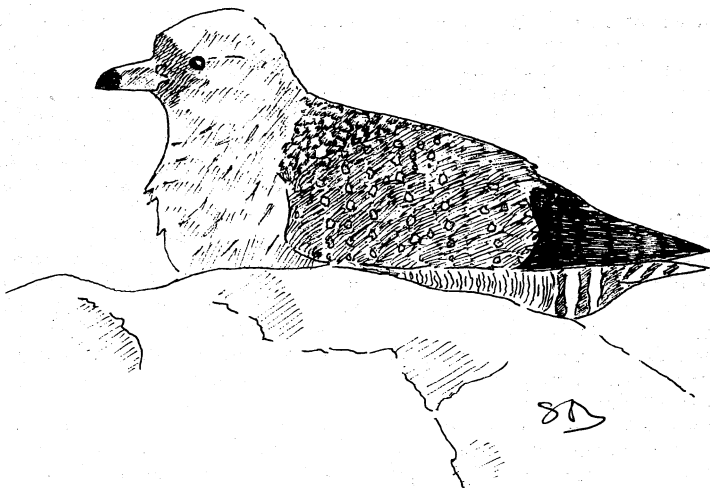
Green Sandpiper *T. ochropus* Recorded across the County in every month of the year with peak numbers being typically seen during August/September. Interesting records were of four at Bedford SF 17 February, four at Willington GP on 6 August, 19 August and 20 September, four at Rookery CIP on 1 August, three Grovebury Farm SP 6 October and three Houghton Regis ChP 13 October. The species was seen on a total of 107 bird days during the year and the monthly breakdown was January (eight), February (seven), March (six), April (16), May (six), June (three), July (11), August (19), September (20), October (seven), November (two) and December (two).

Wood Sandpiper *T. glareola* A much better year than last with the following records: South Mills NR, one in breeding plumage on 12 May followed by an immature on 24 July; Coronation CIP, one on 23 May, one 29 May to 3 June and one 6-8 August; Rookery CIP two 29-31 May, four 22 August and one 30 September; Dunstable SW one 26 May and one 29 May; Houghton Regis ChP one 25 May and one 29 May. The last two locations could have recorded the same bird.



Red-necked Phalarope

(A.P. Chick)



Pomarine Skua

(S. Northwood)

Common Sandpiper *Actitis hypoleucos* A common passage migrant seen regularly between April and October. The first record was a single bird at Priory CP on 22 April and the last of a single bird at South Mills NR on 30 October. Notable numbers throughout the year were five at Dunstable SW, three Willington GP 13 July, three at South Mills NR 24 August, three Coronation CIP 26 August and 15 September and three Grovebury Farm SP 8 September. During the year the species was seen on 83 bird days broken down monthly as follows: April (six), May (14), June (four), July (ten), August (25), September (20) and October (four).

Turnstone *Arenaria interpres* Another good year for this species in the County. All records were during either May or July. The first record of a single adult in winter plumage was at Rookery CIP on 6 May (DJO TB *et al.*). Presumably it was the same bird that was seen the next day at Stewartby Lake. A further single bird was at Rookery CIP on 10 May flying to Coronation CIP on 11 May (KO RIB). One bird was present at Stewartby Lake on 16 May and two birds were seen at Coronation CIP on 24th May and a single bird the following day at Rookery CIP (DJO RED JB). One bird at Coronation CIP 12 July (TD) and a summer plumage bird was present migrating between Rookery CIP and Coronation CIP between the 21-23 July (DJO SDN *et al.*). It is difficult to be absolutely certain of the number of individual birds involved but it was probably four or five.

Red-necked Phalarope *Phalaropus lobatus* A single female in breeding plumage was present at Priory CP during the morning of 30 May and was observed from a distance of two metres; this is the first record of the species in the County since 1890 when a female was shot on the Glebe Pond at Houghton Conquest on 1 June. Congratulations to the lucky finder Roy Tombs. The record has been accepted by the Rarities Committee.

Pomarine Skua *Stercorarius pomarinus* The fourth county record was found at Coronation CIP on 18th October (TD *et al.*). A juvenile, it remained in the vicinity, occasionally visiting Vicarage Farm tip or Stewartby Lake, until at least 26th October. (A single unsubstantiated report was received for 28th). The three previous records were from 18th October 1879 when shot at Ravensden; Stewartby Lake 14th to 18th November 1985, visiting Brogborough Lake on 16th; and Brogborough Lake and tip 20th to 28th November 1988. Both the two recent birds were also juveniles.

Mediterranean Gull *Larus melanocephalus* There were at least four birds in 1991, three of which were new, bringing the county total to at least 23—the first as recently as 1982. A first-winter bird, presumed that seen in December 1990 at Brogborough Lake on 23rd and over Priory CP on 24th, was seen at Elstow on 20th January (DHB), then at Brogborough Lake and was also reported from Stewartby Lake (per RAN). It was seen again on 26th January at Brogborough Lake (DHB) and again there on 21st–23rd February (LC DHB PT LGRE). A second-winter bird was found in the roost at Stewartby on 23rd February, well seen by several observers present (RHu *et al.*). An adult was fully described at Priory CP on 12th March (GD SGW). In the second period, 3 single first-winter sightings could all relate to the same individual; a record of one at Cranfield Aerodrome on 21st November, but no description supplied (DR), could have been that accepted for 13th October at Rookery CP (DJO), and may have been the same fully described at Elstow CIP on 25th December (DHB).

Little Gull *L. minutus* Another bumper year with at least 27 in spring and probably nine in autumn. The first was a first-winter bird at Brogborough Lake on 22nd March, seen there again on 23rd before moving to Stewartby Lake where it remained until 25th. An adult was at Brogborough Lake on 1st April. A first-winter bird at Brogborough Lake lingered from 2nd to 11th April and was presumed same as that at Stewartby Lake on 12th and 13th.

12 were at Priory CP on 25th April, seven adults and a first year remaining until evening and overnight. The first-summer bird stayed till 29th April being joined by an adult on that date, these same age birds being seen again on 2nd May.

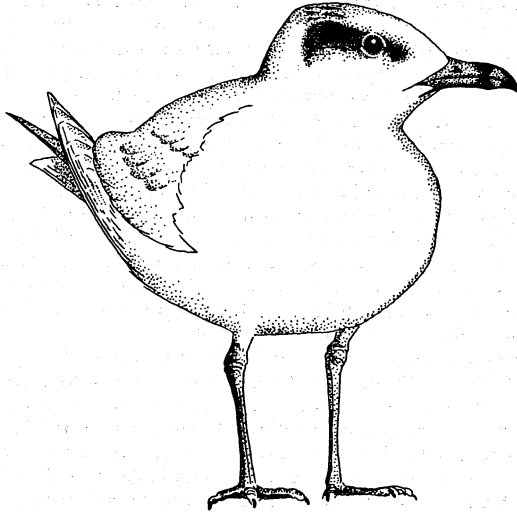
A first-summer and a second-summer were at Stewartby Lake on 28th April, one remaining till 29th. Two adults were at Stewartby Lake on 2nd May, moving to Coronation CIP later in the day, and were probably the same as seen at Coronation CIP on 5th and 6th. A single at Rookery CIP on 6th May was aged differently by 3 separate observers! Up to three adults and a first-winter were reported on 7th May at Stewartby Lake and two adults were there on 9th. A first-winter bird was at Stewartby Lake on 13th May lingering to 21st. Another first-summer was present at Stewartby Lake on 21st May and the last in spring was yet another first-summer seen at Rookery CIP and Stewartby Lake on 14th June.

A juvenile was at Stewartby Lake on 17th and 18th July and a first-winter from 22nd July till 4th August, occasionally visiting Rookery CIP where an adult was also seen on 22nd and 23rd July. A second-summer moulting to adult, a first-winter and a juvenile bird were at either Rookery CIP or Stewartby Lake from 22nd till 25th August.

Confliction over ageing with several reports has made accuracy of analysis much harder. The second-summer remained till 26th, seen at both sites. An adult and a juvenile were at Rookery CIP on 1st September, with presumably the same adult reported at one or other site on 2nd, 5th, 8th, 10th, 13th, 14th, 16th and 20th September. Lastly a first-winter was at Stewartby from 26th October–9th November, with two seen on 5th November. It was seen in Rookery CIP on 26th October and (presumably) this bird was reported at Brogborough Lake on 27th.

(Grey-headed Gull *L. cirrocephalus* An adult was seen at Wilstone Reservoir, Tring, Hertfordshire on 10th February. The same bird was refound at Brogborough Lake on 17th (JB), seen again there on 19th (LC PF), seen by several on 20th (JDS *et al.*) and was last seen there flying off at 8.35am on 21st (MJB RIB). All the Bedfordshire sightings were of the bird standing on the ice, or in flight, alongside Black-headed Gulls and Common Gulls for comparison. Although kept in captivity at Regents Park Zoo and at Bourton-on-the-Water, this is a potential first for Britain and is presently under consideration by the British Birds Rarities Committee.)

Black-headed Gull *L. ridibundus* Several thousand present at Stewartby Lake and Brogborough Lake roosts in both winter periods. Three counts were received: 1,300 to 1,400 were still present in the Stewartby roost on 21st April (MJP); 9,800 were counted there on 3rd November (S. Wel); 2,000 plus passed south over Priory CP on 10th November after a very cold night (DK). Breeding records came from Coronation CIP with 2 pairs at nests on 5th May, and from Chimney Corner CIP where 81 nests were occupied on 12th May (PT). An almost pure-white adult but for black primaries was seen at Brogborough Lake on 5th and 8th February, which had also been seen in 1990 (MJP RAN).



Mediterranean Gull

(A.P. Chick)

Common Gull *L. canis* A total of several thousand were present at the tips and roosts at each end of the year. Counts were received of about 250 on 13th January at Brogborough, c.375 at Stewartby Lake on 3rd February and approximately 400 on 24th February at Rookery, with 60 at Grovebury SP the same day.

The last in spring at Priory CP was on 30th April. Two first-winter and a second-winter were at Rookery CLP on 5th May and a second-summer there on the 6th had definitely gone by the 9th. The first in autumn was an adult at Priory CP on 29th July. One was at Coronation CLP on 5th August followed by a few at Stewartby Lake on 9th August.

Lesser Black-backed Gull *L. fuscus* As ever, scarce through January, with only one at Brogborough Lake on 3rd January and two at Elstow CLP the same day. Numbers had risen to 9 adults at the Stewartby Lake roost on 5th January, 13 adults at Brogborough Lake roost on 24th January, with a minimum of 82 at Stewartby Lake on 26th January. More than 75 moving north through Priory CP on 12th January were therefore noteworthy. Migration beings in earnest in February, becoming by far the most numerous large gull by April. Several hundred were in the Stewartby roost on 3rd April, 260 plus were there on 7th April with 700-800 counted at the same site on 21st April. 57 moved north through Priory CP on 6th May, c.1,000 on 29th May and c.1,500 on 31st May while c.700 on 14th June were noted in the Cranfield Area.

Two pairs were displaying at Coronation CLP on 5th May. A pair were at the nest at Millbrook CLP on 27th May and were still present on 29th June.

1,100 plus had returned to the Stewartby Lake roost on 9th August and 950 were estimated there on 7th September. Numbers had reduced by the year end to single figures once more.

Yellow-legged Gull *L. argentatus michahellis* During 1991 at least three examples were recorded of this bird that is now generally considered to be a separate species from the Herring Gull (but it has still to be officially split by the B.O.U.). Full details were accepted of two third-summer birds at Coronation CIP: one on 21st August and again on 22nd, two on 23rd and one again on 25th (DHB MJP DJO *et al.*). Leg colour was seen on an adult at Brogborough Lake on 10th October with a (different?) adult reported at Elstow CIP on 18th October (DHB). Additionally, leg colour was seen and bill described of an unaged single at Coronation CIP on 28th July (C&GG), presumably one of the foregoing.

Herring Gull *L. argentatus* Only 9 records were received. Very numerous in winter, numbers decline rapidly as Lesser Black-backs build up, migration evident from February/March. Under 80 were remaining at the Stewartby Lake roost on 21st April when 7-800 Lesser Black-backs were present. Two were moving north over Priory CP on 6th May and an adult was there on 30th June. The next was another adult, at Coronation CIP on 5th July. A third-winter bird was at Priory CP on 2nd August and a few had returned to Stewartby Lake on 9th August. Single *argenteus* adults were at Coronation CIP on 22nd and 23rd August, with one at Stewartby Lake also on 23rd, but none at either site on 24th and 25th, gave good comparison to the Yellow-legged Gulls present—see above.

No breeding records were received, especially from Chimney Corner CIP where a pair bred in 1990. Two minor typographical errors in last year's report were line 16: 'outer' not other, and line 20: 'aberrant' not apparent.

Iceland Gull *L. glaucoides* A second excellent year following c.6 in 1990. As for last year, sorting out exactly how many individuals were present from over 80 reports proved quite difficult, with some rogue ageings needing to be resolved.

In the first period there were certainly two first-winter birds (one remaining from 1990) and an adult. Also, a second-winter bird was seen from 17th February and is believed to have been different from that seen on 3 occasions between 8th November and 1st December 1990.

In the second period there was only one—a first-winter bird at Brogborough Lake on 25th December (RAN) seen there again on 26th (JB) and again lastly at this site on 3rd January 1992 (RAN AJL *et al.*). Thus there were four acceptably new birds in 1991 which take the county total to c.17 since the first in 1962, all the remainder being since 1985. An error in last year's report gave the Elstow bird on 5th-6th January 1987 as second-winter, and it should have read first-winter.

The adult was reported on eight dates, initially on 3rd January at Brogborough Lake (KMS) then on 10th, 13th and 16th February at Stewartby Lake (LGRE PT KMS), standing on the ice at Lidlington CIP on 17th, (RAN) back again at Stewartby Lake on 21st February (per Birdline) and lastly at Brogborough Lake on 13th and 14th March (TD). No formal description of this bird was received which is regrettable as acceptance is not normally possible without written evidence. All observers are urged to submit written descriptions of this, and the other white-winged species, even if several others were present during observations. 1990 and 1991 may have been boom years but, despite regular coverage, fewer examples of these species have been found during winter 91-92. A third-winter bird was reported from Brogborough Lake on 25th January by one observer but was not corroborated. Was it the same as the second-winter bird which was first seen at Brogborough Lake on 17th February (TR PA) and was in the Stewartby Lake roost on 18th? It was reported from Brogborough Lake on 3rd and 13th March (per TD), at Stewartby Lake on 5th April (LGRE) and possibly at Rookery CIP on 6th (S. Wn), then at Stewartby Lake on 10th April and Rookery CIP on 12th (Birdline) and in the roost at Stewartby Lake on 12th April (MJP MJG). The second-winter bird was not seen again till 6th May in Rookery (MJP) and was presumed that reported at Chimney Corner CIP on 11th (RIB) and at Woburn the same day (BB). On 12th, 13th, 17th, 18th May it was at Rookery CIP (DJO KB KO) and last seen there on 20th—a very late date (DJO).

The first-winter birds were seen around the clay pits on 31 dates from 1st January. Two were seen through to at least 10th February after which such descriptions as received seemed to refer to the paler bird but last reports at Stewartby Lake on 10th and 11th April and Rookery CIP on 12th were of the dingier bird again (MJP JB RAN KO TR *et al.*). Clearly, efforts to describe individuals more accurately are essential if a proper analysis is to be produced.

Glaucous Gull *L. hyperboreus* An adult, at least two first-winter and a second-winter bird were present during the first period and an adult and two first-winter birds in the second period. An adult and a first-winter had remained from December 1990, so 5 individuals are presumed added to the all-time total which now stands at around 40 birds and, remarkably, the third was as recently as December 1983.

The adult was seen at Brogborough Lake on 3rd, 13th January, 2nd, 16th February and 13th March (KMS RD RED Birdline TD). It was at Stewartby Lake on 20th January (KO), on fields near Lidlington on 20th January (RAN) and near Harlington on 23rd January (KMS).

An adult was also at Brogborough Lake in the second-winter period, on 17th November (MDR) and in December on 26th (KO), 29th (RAN RIB KO), 30th (MJP JB) and 31st (JDS KO). It was seen at Stewartby Lake on 27th (MJP RAN DJO) and 31st December (JB).

Presumably relating to the same bird, but differently aged by observers as third-winter and second-winter, was an individual at Stewartby Lake on 20th January (RAN SPD). It was identified as second-winter at Brogborough Lake on 12th February (RED) and at Stewartby Lake on 13th (PT), 16th (TD), 17th (RAN, but as 2nd/3rd winter by RD), 21st (Birdline) and 24th (MJP KO DJO *et al.*). It was at Brogborough Lake on 25th February (Birdline) and on 13th March (JD) and claimed as third-winter at Rookery CIP on 16th (RED). In April it was at Stewartby Lake on 4th (PA) and possibly at Rookery CIP on 13th. Finally, on 11th May, it was claimed at Brogborough No 2 CIP (RIB GG).

First-winter birds were noted at Brogborough Lake on 28th-30th January (KO TD), then in February on 1st (KO), 2nd (MJP DJO DHB JB), 10th (MJP LGRE KO), 12th (MJP), 14th, 15th (Birdline) and 25th (LGRE). In March one was seen on 11th (MJP), 14th (TD), 24th (RAN) and 28th (Birdline). Most, if not all of these records related to a rather dingy plumaged bird. It was seen at Kempston CIP on 3rd February (MJP JB PO TR) and Stewartby Lake on 6th February (Birdline), 11th and 25th March (MJP).

On 12th February a large pale first-winter Glaucous Gull was seen at Stewartby Lake (MJP DJO), presumed that claimed for 10th (PA LGRE KMS DHB) and 11th (JC RED DJO). It was seen again on 13th (SGW LGRE PA), 14th (DHB) and 16th (DHB KMS) and is probably that reported from Rookery CIP on 17th (RIB). On 21st it was again at Stewartby Lake (DHB). In March, a first-winter was in Rookery CIP on 15th-17th (PA KO GG). At Stewartby Lake both first-winter birds were seen in the roost on 16th March (MJP RAN PN) and the paler bird again on 17th (MJP).

The dingy individual was seen again at Stewartby Lake on 31st March and 2nd-5th April (MJP LGRE DR) though it was the paler bird reported on 13th April (DHB). 5 weeks later there was another, and last, first-winter bird claimed at Brogborough No 2 CIP on 17th May (RIB).

No descriptions were provided for many of the sightings which is unfortunate both from the authenticity aspect and in the considerable extra effort involved in working out just how many individuals were present and which was where. All records received have been included on this occasion in the hope that the next report can be written against validated descriptions accepted by the Local Rarities Committee. The writer is satisfied that there were seven individuals present during the year however.

In the second winter period, on 10th November a first/second winter was claimed over Priory CP (ECN) and an adult was at Brogborough Lake on 17th (MDR per PT). Lastly a first-winter was at Brogborough No 2 CIP on 26th December (RAN) and one was seen at Stewartby Lake on 27th (MJP RAN) at Brogborough Lake on 28th (JB) and Rookery CIP on 29th (RIB). A first-winter bird at Brogborough Lake on 29th was lighter than that of 26th (RAN) and was present again on 30th (MJP JB) and at Stewartby Lake and Brogborough Lake on 31st (JB JDS KO).

Great Black-backed Gull *L. marinus* Only 9 records were received. Large numbers were at the Stewartby and Brogborough Lake roosts in the early weeks of the year. Numbers declined during March and the last adult was at Stewartby Lake on 3rd April. There were under 30, mainly first-winter birds, there on 21st. 5 were at Coronation CIP on 5th May when there

were also 2 first-summer birds still at Rookery CIP and 1 was still present on 9th May. A few first-summer birds were at Stewartby Lake on 9th August and a sub-adult on 1st September at Coronation CIP. The first autumn returnee noted at Priory CP was not until 21st October. On 17th November, 202 were counted at Coronation CIP.

Kittiwake *Rissa tridactyla* Only one fully acceptable record this year. A typical spring-passage adult was at Brogborough Lake on 23rd February, seen by several observers (TR PS DHB MJP DJO PN *et al.*). A second was claimed at Stewartby Lake on 20th April (JB) but no description was provided.

Sandwich Tern *Sterna sandvicensis* The first was a report on Birdline of an individual along the R. Ouse near the Beds/Cambs border on 4th April. Three flew south at South Mills NR on 10th (TR). The only detailed report was of three at Priory CP on 29th April (DK DJO SGW MJP).

Common Tern *S. hirundo* Around 140 reports were received from c.20 sites with the first at Priory CP, Bedford on 10th April. Up to 32 were there on 25th and 30-50 were reported from Stewartby Lake on 30th (but including some Arctic Terns). A single at Dunstable SW on 28th April was the first this observer had recorded in many years of regular watching. A pair were displaying at Grovebury SP on the same date. 32 were at Stewartby Lake on 5th May and 47 on 21st. 31 were at Priory CP on 10th May. Five pairs were at Chimney Corner CIP on 12th.

A pair with 2 fledglings on a raft were seen at Grovebury SP from 19th May. 25 were noted as nesting at Rookery CIP on 21st and c.20 pairs were reported there on 31st and 2 pairs at Radwell GP. Two pairs were at Bromham on 8th June and a non-breeding pair regularly visited South Mills NR in June. Two juveniles were with an adult at Bromham Lake NR on 22nd and 16 plus were at Radwell GP. Three pairs of adults and three juveniles were seen at Grovebury SP on 7th July. Three juveniles were at Harrold CP the same day. Small numbers were regular at Tiddenfoot through July. Six adults and six juveniles were at Grovebury SP on 4th August, two at Luton Hoo, on 15th August were unusual. 20 were at Stewartby Lake on 22nd August. The last at Priory CP were five on 21st September and at Stewartby Lake an adult on 2nd October.

At Priory CP, only one week after the start of the fishing season, Common Terns were again observed feeding on casters, maggots and mealworms thrown out as groundbait by fishermen. This feeding behaviour was first observed in June 1987 and has occurred in every year since (DK).

Arctic Tern *S. paradisaea* Main spring passage was noted at Priory CP and Stewartby Lake. The first was very early at Priory CP on 6th April staying till 9th. 22 were at Stewartby Lake on 20th April and 24 were at Priory CP the same day. Four at South Mills NR on 26th were the only record in 1991, one was at Rookery on 28th and on 30th, 50 were at Stewartby Lake, 6 at Brogborough Lake, and c.44 at Priory CP. On 1st May there were 4 in morning at Priory CP rising to 14 in the afternoon with a similar pattern on 4th. The majority of 40 'Commie' Terns at Stewartby Lake on 5th were Arctic when 24 was the maximum at Priory CP. Passage peaked at Priory CP on 6th when 87 were present and groups of 13 and 11 passed through on 7th. Smaller numbers passed through these 2 sites on other dates. One was at Coronation CIP on 27th-28th May.

In autumn one was at Stewartby Lake on 29th September with two on 30th. Two juveniles were reported there from 1st-4th October with seven birds on 5th. One juvenile was at Harrold CP on 8th October, and on 10th a juvenile was in Rookery North CIP. Lastly, four juveniles were at Stewartby Lake on 18th October.

Little Tern *S. albigrons* An adult at Priory CP at 7 pm on 27th April was the 7th site record (DK) and was claimed again next day but not accompanied by a description (KMS). Two autumn adults were at Stewartby Lake on 22nd August and were fully described (MJP DJO *et al.*).

Black Tern *Chlidonias niger* 40 records were received, over half from Stewartby Lake where the first of the year were 3 on 25th April. A total of 29 were at Priory CP the same day, as was one at Cuckoo Bridge GP. One was at Priory CP on 26th and three on 28th. Elsewhere on 28th, 1-2 were at Rookery CIP and one was at Stewartby Lake. On 9th May, one was at Stewartby Lake, another on 15th, 16th and 19th. Two were at Priory CP on 15th May. Six were

reported on Birdline for Stewartby Lake on 22nd May and four in Rookery CLP on 23rd. On 24th May, a group of 11 were present in the evening at Stewartby Lake; one was at Coronation CLP on 26th and 7 were there on 27th. On 29th May, 10 were at Stewartby Lake and 9 at Wyboston GP. Seven were at Stewartby Lake on 31st May, 1-4 on 1st June, two on 2nd and one on 4th.

Two were at Stewartby Lake on 31st July and 9 at Brogborough Lake. The two at Stewartby Lake were seen again on 1st August and three were there on 8th. Two were at Priory CP on 20th and 21st. Two were at Coronation CLP on 23rd and also three at Stewartby Lake. Four juveniles were at Stewartby Lake on 24th August, two on 25th and the last record of the year was of three there on 26th.

Feral Pigeon *Columba livia* Flocks of 'several hundreds' on the fields around Barton Hill Farm were the largest reported. Both Luton and Bedford contain substantial populations.

Stock Dove *C. oenas* A flock of 70 at Luton Hoo was of note on 6 February (BRS), as were 25 at The Lodge, Sandy on 26 March (JC).

Woodpigeon *C. palumbus* The county continues to support a massive wintering population. At Clophill on 28 September an adult was noted at a nest with one egg.

Collared Dove *Streptopelia decaocto* At Stopsley Common a maximum of 110 was noted in September. A roost at Priory CP held 46 on 24 November.

Turtle Dove *S. turtur* The first was at Dunstable SW on 26 April followed by a light May passage at South Mills NR, where five were trapped and ringed. The last migrant was at South Mills NR on 29 September.

Ring-necked Parakeet *Psittacula krameri* An escaped bird in the Dunstable area all year. Also singles noted at Luton, Priory CP and Bromham in September.

Cuckoo *Cuculus canorus* First was one near Priory CP on 11 April, followed by singles at Clophill and Priory CP on 13th. The final migrant was at Stewartby Lake on 15 September.

Barn Owl *Tyto alba* Reported at the following localities: Bromham, Old Warden, Northill, South Mills NR, Willington Dovecote, Eversholt, Wootton, Clophill, Beeston, Knotting, Shuttleworth, Upper Caldecote, Houghton Conquest, Girtford GPs, Brogborough, Moggerhanger, Harlington, The Lodge, Sandy, Priory CP, Whipsnade, Tempsford, Cardington and Wrest Park. The status of this species remains confused due to random released birds from captive bred stock, but the county population is probably around 20 pairs.

Little Owl *Athene noctua* Reported from 24 localities across the county with the majority of records coming from farmland habitats.

Tawny Owl *Strix aluco* Remains the commonest owl across the county. A nest at Leighton Buzzard contained a three week old juvenile on 14 March, suggesting egg laying in February.

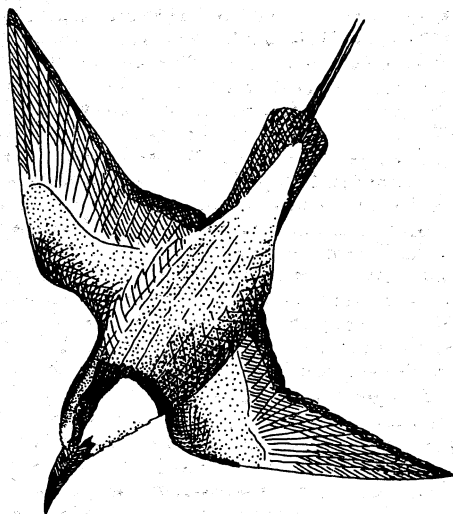
(**Eared Owl** *Asio* sp. Singles at Whipsnade Downs on 3 October, Broom on 12th and at Houghton Regis ChP on 27 December.)

Long-eared Owl *Asio otus* A traditional winter roost on the chalk held up to 11 birds in February and December, and a pair summered raising at least one juvenile despite, at times, an unacceptable level of disturbance from birdwatchers. At a wood on the Greensand Ridge an adult was heard in the breeding season. On 2 April one was noted on the Barton to Hexton road. In the second winter period the suggestion of an influx was recorded with roosting birds at the following localities in November-December: East Hyde, one; Harrold CP, one; South Mills NR, one; Luton Airport, four; Sewell, up to six; Houghton Regis ChP, one; and Dunstable Downs, up to ten.

Short-eared Owl *A. flammeus* Singles at South Mills NR in January, October and December; Clophill 5 January-5 April; Brogborough Lake on 18 April and 9 November; Barley Brow, Sewell and Coronation CLP, November-December.

Nightjar *Caprimulgus europaeus* From June-13 August, one-two at Aspley Heath. At Houghton Conquest 'churring' was recorded on 25 July and near Ridgmont a bird was disturbed off the Amptthill Road.

Swift *Apus apus* Priory CP had the first on 25 April with passage peaking on 16 May when c.100 were present. At Luton the arrival over the town on 13 May was about a week late, with the final sighting on 17 September.



Bee-eater

(A.P. Chick)

Kingfisher *Alcedo atthis* Reported from just about every wetland in the county with confirmed breeding at Rookery CIP, Bromham, Snelson and Ickwell.

Bee-eater *Merops apiaster* One over Priory CP on 29 June was a first for Bedfordshire (DK), although on 4 September 1971 a Bee-eater sp. occurred at Upper Stondon.

Wryneck *Jynx torquilla* A back garden bird at Biddenham on 3 May was the only record (BG).

Green Woodpecker *Picus viridis* Recorded commonly along the Greensand Ridge and even around the clay pits. A leucistic bird was of note at Barton Hills NNR on 24 April (MC).

Great Spotted Woodpecker *Dendrocopus major* Remains our commonest woodpecker with a widespread distribution.

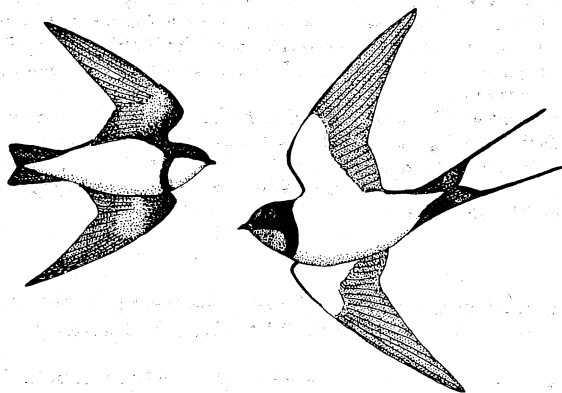
Lesser Spotted Woodpecker *D. minor* Recorded at the following localities: Bedford Town centre, Stockwood Park, Bramingham Wood, Battlesden Lake, Flitwick Moor, Blunham, Langford, Rushmere Park, Warren Wood, Clophill, Luton Hoo, Aspley Heath, Charle Wood, Home Wood, Hinwick, Rookery CIP, Wavendon Heath, Biddenham Hospital, Priory CP and Maulden Woods.

Passerines

Woodlark *Lullula arborea* One at New Wavendon Heath on 24th March (RIB TH), and probably the same bird was seen again on the 26th (DHB). This is the first county record for the species since 1970.

Skylark *Alauda arvensis* A flock of 3,000 on a snow covered field near Great Barford on 14th February and another flock of 500 being reported from Moggerhanger on the same day (possibly part of the Great Barford flock). 200 in a field near Great Oak Wood, Turvey 1st January, 200 at Stopsley Common 8th February and 144 at Priory CP 13th February. Breeding pairs on the Old Warden CBC plot increased from two pairs last year to eight pairs.

- Sand Martin** *Riparia riparia* The first two at Priory CP on 17th March were followed by three at Harrold CP on 18th, six over Blunham on 19th and a single at South Mills NR on 22nd. Peter Smith's annual census revealed: Grovebury Farm SP no pairs, A5 Heath and Reach SP 10 pairs, Aspley Heath two pairs, Arnolds SP Leighton Buzzard 40 pairs, Mentmore Road SP Leighton Buzzard 50 pairs and Leighton Buzzard Golf Course 15 pairs. A total of 117 pairs, 56% down on the 1990 total which was in itself 50% down on 1989. The figures unfortunately confirm that in line with the national trend there has been a massive drop in the number of breeding birds in the county. The final migrant was one at Priory CP on 3rd October.
- Swallow** *Hirundo rustica* The first record was one at Priory CP on 4th April followed by single birds at Brogborough Lake and Blunham on 5th. The main passage took place during the second half of April with a peak of 80 at Priory CP on 30th. A peak of 150 on the return passage was recorded at Priory CP on 12th September. Late records in October were one at Great Barford 20th, two at The Lodge, Sandy and four at Great Barford 22nd, one at Putnoe, Bedford and at Priory CP 26th and finally two over Brogborough Lake on 27th.
- House Martin** *Delichon urbica* An extremely early record of three at Priory CP on the 13th April followed by one at Brogborough on 21st. The main passage took place during the first two weeks of May with the return passage starting in late September. A peak of 1,000 at Priory CP on 25th September and 30 at Cranfield Airfield on 30th October. The last record of the year was a very late bird seen near Biggleswade on 10th November.
- Tree Pipit** *Anthus trivialis* A singing male at Aspley Heath on 11th April was the first record for the year and eventually three pairs bred in this area which was a 50% drop on the 1990 total. Elsewhere breeding was noted from Pegsdon Hills, Maulden Wood, Ampthill Park, Coopers Hill Ampthill, and Birchmoor near Woburn. Surely there must be other breeding pairs along the Greensand Ridge that have gone unreported. On the return passage two at Whipsnade Zoo on 7th September and finally one at Chaul End on 22nd.
- Meadow Pipit** *A. pratensis* Large non-breeding flocks were 50 Luton Hoo 10th January to 7th February, 50 South Mills NR 22nd March, 70 Pegsdon Hills and 73 Priory CP on 24th March, 100 Blows Downs 7th April, 100 Barton Hills 22nd September, 61 Stewartby Lake 8th October, 47 South Mills NR 9th October, 45 Houghton Regis ChP 14th December and 45 near Millbrook Railway Station 15th December. Breeding was only recorded at South Mills NR (four pairs) and Coronation CIP (three pairs). Surely there must be others in the county.



Sand Martin and Swallow

(A.P. Chick)

Water Pipit *A. spinoletta* A first winter/summer bird trapped and ringed on 16th May at South Mills NR (PO).

Rock Pipit *A. petrosus* A single bird at Houghton Regis ChP on 13th/14th April (NRF PT).

Yellow Wagtail *Motacilla flava* A very early record at Blows Downs with one on 19th March. As usual the species was widely recorded across the County from suitable habitats. Other early records were one at Priory CP 1st/2nd April, one at Stewartby Lake 1st April followed by three on the 2nd and a single male at South Mills NR also on 2nd. Large numbers of note were 19 Priory CP 20th April, 26 Dunstable SW 6th May, 20 South Mills NR 7th May, 30 Marston SW 9th May and on the return passage 20 Grovebury Farm SP 4th August and 25 Priory CP on 30th August. The latest record was of a single bird at Priory CP on 11th October.

Breeding was recorded across the County from suitable sites adjoining wetland areas. Birds of the Blue-headed race *M.f. flavissima* were noted at South Mills on 22nd-24th April and 3rd/4th May, Priory CP on 14th/17th April and again on the 30th July, Stewartby Lake 19th April and 17th May and finally at Stewartby Green 15th September.

Grey Wagtail *M. cinerea* Breeding noted at Broom, Old Linslade and Clifton with possible breeding at Dunstable SW, Clophill and Houghton Regis ChP. Regularly seen in ones and twos during the spring and autumn passage throughout the county at suitable wetland sites. Groups of three were seen at Chalton SW and at Stewartby Lake during the first winter period with three on Bedford Embankment on 22nd September.

Pied Wagtail *M. alba* The highest winter counts were at Priory CP with 124 on 16th February, Dunstable SW 120 between 1st-17th April, Luton Hoo 40 on 12th November and Marston SW 30 on 1st January. The spring passage through Priory CP peaked at 24 on 14th April, South Mills NR 20 on 6th March and Stewartby Lake with 16 on 21st March. The maximum autumn counts were 57 South Mills NR 16th October, 15 Priory CP 21st October and 12 Stewartby Lake 5th September. White Wagtails *M.a. alba* were noted at Priory CP, South Mills NR and Stewartby Lake.

Waxwing *Bombicilla garrulus* Between one to three birds were recorded at the St. John's Ambulance Station and Chestnut Avenue/Lawrence Street area of Biggleswade from the 25th February to 5th March (CG GG GDR).

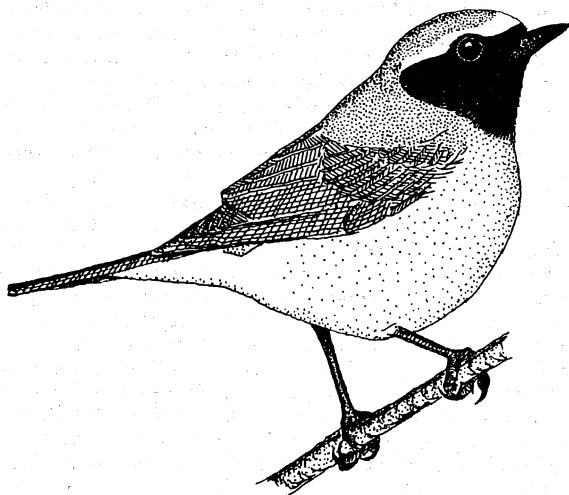
Wren *Troglodytes troglodytes* A decline in breeding population was noted at the Old Warden CBC from 48 pairs in 1990 to 35 pairs. The cold spell during the second week in February affected numbers at Priory CP where 36 pairs held territory. A drop of 54% in the numbers ringed at South Mills NR was reported.

Duncock *Prunella modularis* A massive drop in the breeding population at the Old Warden CBC; the number of pairs were 1989 35, 1990 25, and 1991 12, the total in 1975 was 108. An adult bird was seen feeding a fledged juvenile Blackbird at a garden in Bedford. Nine pairs bred at Priory CP.

Robin *Erithacus rubecula* The breeding population at the Old Warden CBC was virtually stable with 24 pairs, but this is a significant drop from the peak numbers of 50 pairs recorded in 1974. 16 pairs bred at Priory CP.

Nightingale *Luscinia megarhynchos* The earliest record was of three singing at Waterloo Thorns on 20th April with three/four pairs breeding. Both adults and fledged young were ringed at Waterloo Thorns with an adult still present on 17th August (EN). Singing males were also recorded at the Old Warden CBC (1), Home Wood (1), Clapham Park Wood (1), Marston Thrift (1), Wilsted Wood (1) and Tilbrook Bushes (3).

Black Redstart *Phoenicurus ochruros* A good year for this species, the earliest record being a female at Blows Downs on 13th March followed by a juvenile male on 20th, a female from 24th-26th and a male on 28th. Other spring records were a single at Tiddenfoot, Leighton Buzzard on 26th March, a male at Bedford SW 12th April, a female Priory CP 2nd May and a male at the same location on 11th May. The only autumn record was of a single bird at SKF Luton on 30th October (BN).



Redstart

(A.P. Chick)

Redstart *P. phoenicurus* The earliest record was of a single bird at Houghton Regis ChP on 11th April with another at Priory CP on 17th. Only two records from Blows Downs on 23rd and 28th April. Three singing males were heard at Wavendon Heath/Charle Wood complex on 12th May but the breeding population crashed from nine pairs to three pairs (RAN PSm). No other breeding records were received. The autumn passage began with two at Barton Hills on 26th August, one Blows Downs on 30th August, one Whipsnade 5th September with another on 8th, one Park Wood Harrold 15th September with one at Dungee Wood on the same date. The last for the year was of a first year male ringed at South Mills NR on 21st September which was last seen on the 23rd (PO).

Whinchat *Saxicola rubetra* The first record was from Houghton Regis ChP on 15th April followed by a female at Whipsnade on 28th. Other spring records were two at Galley Hills on 8th/9th May with singles on the same date at Whipsnade and Blows Downs, a total of four were seen at South Mills NR between 10th and 16th May, one at Priory CP on 14th and one at Clophill on 18th May. On the return passage birds were recorded at Barton Hills (1), Stopsley Common (2), Blows Downs (7), Grovebury Farm SP (1), Dunstable SW (1), Warden Hill Luton (1) and South Mills NR (1). The last record was of a single bird on Blows Downs on 9th October.

Stonechat *S. torquata* A pair were present at Stewartby Lake from 5th January up to 10th February. The records from South Mills NR were one male on 15th/16th January, one male on 26th February and a female on 10th March (PO). The only other spring record was of a single male at Houghton Regis ChP on 3rd March. Single immatures were present at South Mills NR on 12th September and 2nd October. A male was at Dunstable SW on 28th September.

- Wheatear** *Oenanthe oenanthe* The spring passage on Blows Downs began on 17th March with a single male and ended with two birds on 20th May. The species was recorded on 33 bird days with a peak of 19 birds on 7th April (RD). Elsewhere widely recorded in the County. There was a male at Pegsdon Hills on 17th March and the last of the spring passage was a female at Stockwood Park Luton on 19th June. The return passage began with a single bird at Biddenham on 12th August where a further bird was seen on 24th September which, together with a single bird at Flitwick Library on the same date, was the last for the year. A female of the Greenland race *O. o. leucorrhoa* was seen at South Mills NR on 3rd May.
- Ring Ouzel** *Turdus torquatus* The spring passage on Blows Downs began with a male on 7th April and ended with a female on 9th May. The species was recorded on 17 bird days with the main passage concentrated between the 26th of April to 5th May (RD). Elsewhere, two at Barton Hills on 6th April, one Warden Hill on 9th April then two on 28th, one Houghton Regis ChP 24th April, one Bison Hill 30th April and one Pegsdon Hills 4th May. The only autumn record was of a single bird at Barton Hills on 8th September (BRS).
- Blackbird** *T. merula* Breeding pairs on the Old Warden CBC were down from 38 in 1990 to 32, the peak year being 1976 with 65 pairs.
- Fieldfare** *T. pilaris* During the first winter period notable flocks were 150 Barton Hills, 20 Leighton Buzzard, 300 Steppingly Reservoir, 175 Stopsley Common and 100 Felmersham NR. The latest record was of a single at Pegsdon Hill on 12th May. The first autumn record was of three at South Mills NR on 1st October with high counts in the second winter period of 500 Stewartby Lake, 500 Woburn, 250 Coronation CIP and 200 Barton Hills.
- Song Thrush** *T. philomelos* A decline in breeding pairs at the Old Warden CBC down to ten from a peak of 46 in 1975. Numbers trapped at South Mills NR were down by 34% compared with 1990. Eight pairs bred at Priory CP which was constant with the previous year.
- Redwing** *T. iliacus* The last record for the winter was of two at Blows Downs on 10th April and the first for the second winter period was of eight at Whipsnade Zoo on 30th September. Large movements during October were noted at Woburn, Sandy, Priory CP and Dunstable.
- Mistle Thrush** *T. viscivorus* A count of eleven at Charlton SW on 16th February was the only record received. Breeding at the Old Warden CBC was constant at four pairs.
- Grasshopper Warbler** *Locustella naevia* As usual most records were of 'reeling' males. The first was on 18 April at South Mills NR where there were at least 3 more spring migrants, with others at Stewartby Lake (2) and Bedford SW. In the breeding season fewer than usual were recorded on the Lower Greensand—Home Wood (2), Palmers Wood (2), Warden Little Wood (2), Wilstead Wood (2) and Maulden Wood (1)—with others at Studham (2), Dunstable Downs, Brogborough, Coronation CIP, Blunham and Knotting. Returning migrants were at South Mills NR (a juvenile trapped 22 July) and Stewartby/Rookery where the last was on 15 August.
- Sedge Warbler** *Acrocephalus schoenobaenus* The first was at Priory CP on 10 April where a breeding survey found 45 males holding territory. At South Mills NR main spring passage was recorded from 10–16 May, at least 12 pairs bred and a total of 132 new birds were ringed, 78 during peak autumn passage in July. The last was at Priory CP on 2 October.
- Reed Warbler** *A. scirpaceus* The first were two at Houghton Regis ChP on 23 April, where 12 pairs bred. Other breeding colonies were recorded at Priory CP (10–15 pairs), South Mills NR (2), Southill Lake (7–19), The Airman GP Henlow (5), Battlesden Lake (3–4), Stewartby Lake (3) and Rookery CIP. This species also breeds in small numbers along waterways where suitable habitat occurs, and other singing males were recorded along the Ouzel, on the Lea at East Hyde and at Clophill. The last was one showing characteristics of the eastern race *fuscus* trapped on the late date of 18 October at South Mills NR (PO), 10 days after the penultimate bird.
- Lesser Whitethroat** *Sylvia curruca* The first was on 13 April at Priory CP, the earliest date for this site. In general numbers seemed to be well down. None were proved breeding at Priory CP (3 pairs in 1990) and there were none on the Old Warden CBC plot (3 pairs in 1990 were already down from a previous maximum of 8). Only 6 birds were trapped at South Mills NR all year, and 9 adults were trapped at Waterloo Thorns CES May–June (14 in 1990), though at the latter site higher numbers were recorded on autumn passage. The last was one trapped at Priory CP on 25 September.

- Whitethroat** *S. communis* The first was at Willington GP on 25 April. At South Mills NR 20 were ringed (2 in 1990) and at Waterloo Thorns CES 30 (58 in 1990). On the Old Warden CBC plot breeding numbers were down from 15 pairs in 1990 to 3, equalling the previous lowest figures for the site. The last was one at Whipsnade Zoo on 2 October, found freshly dead having flown into a window.
- Garden Warbler** *S. borin* The first was one at Priory CP on the exceptionally early date of 10 April, twelve days earlier than the previous earliest for the site and the earliest in East Anglia. At the same site 9 pairs held territory, a similar figure to 1990. At Waterloo Thorns CES numbers trapped were well down on 1991, but the total ringed at South Mills NR was considered high at 43 birds. The last was one trapped at Priory CP on the late date of 4 October.
- Blackcap** *S. atricapilla* A male and female in a Houghton Regis garden on several dates in February were obviously wintering, as probably was a male at Whipsnade 13 March. The first migrants were reported to BIS at Blows Downs 23 March and at Priory CP 29 March. At the latter site 8 pairs held territory, down on 1990, as were numbers trapped at Waterloo Thorns CES. Autumn passage continued into October, with eight ringed at Houghton Regis ChP on the 8th and one at Waterloo Thorns CES on 13th. Wintering birds were recorded at Clophill in November, and Luton and Kempston in late December.
- Radde's Warbler** *Phylloscopus schwarzi* A first winter male trapped, ringed and photographed at Priory CP on 12 October (EN DK) was the most remarkable of the trio of passerine rarities in the county during the year. This extremely well-documented individual was the first of this species to be recorded in the county and also the first inland in Britain, and its arrival coincided with an influx of some 10 others on the east coast. Unfortunately, many (initially shocked and disbelieving) observers missed the bird through being absent from the county on Scilly, where the species might be more expected! These three rarities may be the tip of an iceberg of undiscovered inland passerine vagrants, representing one of birding's final frontiers—surely other species are occurring in the county. (This record awaits acceptance by the BBRC, presumably a formality in this case.)
- Wood Warbler** *P. sibilatrix* The first was at Pegsdon Hills on 9 May (JCP). A singing male returned to the traditional site at Aspley Heath on 10 May and held territory throughout the summer (TD PS), but elsewhere only presumed migrants were recorded, at Ickwell on 13 May (BB), Coopers Hill Amptill on 17-18 and 24-28 May, possibly different individuals (KO), Clapham Park Wood on 18 May (JN), Bluebell Wood Whipsnade on 22 May (CT), Stockgrove CP on 26-27 May (PT RD) and The Lodge, Sandy on 5-10 June (RIB RD).
- Chiffchaff** *P. collybita* In January/February wintering birds were recorded at Blows Downs, South Mills NR and in Sandy (at least 2). An individual in Bedford gardens on 21 January showed features suggestive of the eastern race *tristis*, but was seen only briefly with the naked eye (DHB). A singing male at South Mills NR on 10 March may have been the wintering bird, with the next at Priory CP on 14 March probably the first migrant. Single pairs bred at both these sites, which have little typical habitat. In autumn, migrants were recorded until 25 October at South Mills NR, and presumed wintering birds were at Felmersham NR, Priory CP and Houghton Regis ChP in November.
- Willow Warbler** *P. trochilus* The first was at Harrold CP on 29 March. Fog and NE winds produced a fall of at least 100 on Pegsdon Hills on 13 April, and peak numbers at Priory CP were on 20 April with 34 singing males. At the latter site 22 pairs held territory, while breeding numbers at the Old Warden CBC plot were similar to 1990, (10 pairs; 11 in 1990), but were still well down long-term from total of nearly 30 pairs in the 1980s. The last was one at Barton Hills on 22 September.
- Goldcrest** *Regulus regulus* Numbers at Priory CP where the species is an uncommon winterer fell from about 10 in late 1990 to only 1-3 from January to March, and none were reported in the second winter period, whilst at South Mills NR only 7 were ringed all year (63% down on 1990), with none in autumn. These declines were presumably due to the hard winter weather, but on a brighter note four were fledged in a Bromham garden, and while at the Old Warden CBC plot numbers remained very low there was no further real decline from 1990. The absence from gravel pit sites in winter probably only means that a reduced population does not overflow from better woodland habitats.

Firecrest *R. ignicapillus* There were four records. On 26 January a wintering bird accompanied a tit flock at the Maulden Wood bird table (RAN). Another was heard amongst Goldcrests on Blows Downs on 13 March (PT). Spring brought two singing males, at New Wavendon Heath on 21 and 25 March (BN PO) and at Blows Downs 25-27 April (RD). (At such a well-watched site the latter was almost certainly not the March individual.)

Spotted Flycatcher *Muscicapa striata* First and last were at Priory CP, in late April and on 18 September respectively. Elsewhere most arrivals were late with typical first dates from 18-22 May.

Pied Flycatcher *Ficedula hypoleuca* There was only one record, a first winter found dead by Tennis Courts at Blows Downs 31 August (MP).

Long-Tailed Tit *Aegithalus caudatus* Only four pairs bred at Priory CP (5-10 in 1990) but success was good with parties of 32 juveniles on 9 June and 34 in a mixed tit flock on 30 August. Breeding numbers at the Old Warden CBC plot were down from 11 to 7 pairs.

Marsh Tit *Parus palustris* Again found mainly during atlas work with records from as far afield as Hinwick. At the Old Warden CBC plot numbers were up slightly from 5 to 8 pairs.

Willow Tit *P. montanus* Breeding season records from Hinwick, Great Hayes Wood, Maulden Wood, Battlesden Lake and East Hyde, with further winter records from Maulden Wood and also from Sheerhatch Wood, Home Wood, Breakheart Hill and Woburn. Movement was shown by unusual records at Priory CP (5 May) and Stewartby Lake (29 September), the former only the second record at that site since 1983.

Coal Tit *P. ater* Numbers at the Old Warden CBC plot were low but stable at 3 pairs. Results from atlas work show this species to be virtually absent from large areas in the east and north of the county, and this is reflected in its rarity at well-watched sites such as Priory CP. Though in larger woodlands its dependence on conifers does not seem total, it seems less able than other tit species to exploit small deciduous coppices and shelter belts in farmland.

Blue Tit *P. caeruleus* Hard winter weather and poor conditions early in the breeding season affected this species and several others, but at Priory CP replacement broods were very successful and at the Old Warden CBC plot numbers were up from 33 pairs in 1990 to 46 pairs (similar to the 44 in 1989).

Great Tit *P. major* At the Old Warden CBC plot the population was stable with 21 pairs (20 in 1990). Atlas work shows that this species remains widespread throughout the county.



Penduline Tit

(R.I. Bashford)

Nuthatch *Sitta europaea* Two together at Priory CP on 11 and 24 August were the first recorded for the site. These, and other records at Legrave Marsh in January and in a Sandy garden in September show that this species is not totally sedentary.

Treecreeper *Certhia familiaris* Atlas work produced confirmed breeding records from Amptill Park and Pavenham, while numbers at the Old Warden CBC plot remained stable at 7 pairs. Only one was trapped at South Mills NR all year. For most observers this unobtrusive species is seldom seen and considered unremarkable, and this can result in a lack of records.

Penduline Tit *Remiz pendulinus* The first for the county was a bird in adult plumage, thought by most observers to be a male, found at Priory CP early on 18 September (DK). Though sometimes elusive, it remained throughout the day and was also seen leaving its roosting place the next morning and reported again on the 20th. This westward-expanding species was perhaps the least unexpected of the new passerines found in the county during the year, as greatly increased numbers in Britain in the past few years (a total of 35 up to 1989 since the first in 1966) have included inland autumn records in Cambridgeshire and Berkshire. A Berkshire-ringed bird was recovered in Sweden the following summer, and this together with high numbers in western France in autumn suggests a possible origin and destination for our individual. From information provided by Paul Oldfield, it appears that Swedish first winters moult into adult-type plumage before departure making it difficult to age this bird. This species perhaps might not have been expected for a few years yet, but further records may follow, and as its habitat requirements seem to be met in the county it could even breed with us in the foreseeable future (the new County Recorder certainly hopes so, as he missed this one). This record has been accepted by BBRC.

Jay *Garrulus glandarius* As usual a few spring and autumn records from unusual sites showing movement or dispersal, with birds at Kempston Church and Stewartby Lake in early April and records on six dates from 18 October to 19 December at South Mills NR.

Magpie *Pica pica* The population continues to increase with Priory CP recording its largest ever party of 18 birds in September. Like the Sparrowhawk this species seems able to tolerate localised persecution, and only widespread environmental factors such as the pesticides which caused declines in the 1950/60s are likely to reduce numbers.

Jackdaw *Corvus monedula* A pair breeding at Houghton Regis ChP were the first at the site since 1974. In winter small numbers accompanied roosting flights of Rooks over Priory CP.

Rook *C. frugilegus* Winter roosting movements over Priory CP involved maximum numbers of 180 birds. These flights can be seen continuing WNW over Bedford late on winter afternoons, and it would be interesting to find whether the roost reported at Pavenham in the early years of the BNHS remains in use. How about it, someone?

Carriion Crow *C. corone* Of five pairs breeding at Priory CP, three out of four birds in one brood had white wing bars or grey markings on the nape. Such markings are not infrequent on Crows at this site and can also be seen on some birds frequenting the Ouse in Bedford (possibly the same individuals?). In the most extreme cases flying birds can show a broad white wing bar across the bases of all the flight feathers and some white can be seen when the bird is at rest. The concentration of birds in one brood suggests that genetic rather than environmental factors are responsible. Rooks can show similar plumage features.

Starling *Sturnus vulgaris* Roosting movements of over 10,000 birds occurred at Priory CP from 8 October with a maximum of 50,000 on 27 November. At Blows Downs two partial albinos were noted in June.

House Sparrow *Passer domesticus* Population stable.

Tree Sparrow *P. montanus* Breeding season records from Chalgrove, East Hyde (5 pairs), Galley Hill (7-8 pairs), Meppershall, Pulloxhill, Hulcote (3 pairs), Boughton End, Willington and Tempsford, with a number of records from the NW of the county in SP95 and SP96. In the first winter period recorded from Luton Airport, Boughton End and Lidlington, with an influx of up to 40 at Priory CP in mid-February, and in the autumn and second winter period small parties at Odell, Tiddenfoot and Grovebury SP and a flock of 200 reported at Dunton. Signs of recovery after the low numbers of the last two or three years?

Chaffinch *Fringilla coelebs* In the first winter period flocks of 100-400 noted in the Luton area at Galley Hill, Legrave Marsh, People's Park and Wardown Park. At Priory CP 19 males held territory.

Brambling *F. montifringilla* Most widespread in the first winter period, when reported at Leagrave Marsh on many dates from 1 January into April by many observers. A male here on 18 April, with another reported to BIS on 6 May, were the last in the county in spring. Birds were difficult to count in a large Chaffinch flock, but maximum estimates were in the range 20–40 during January and February with fewer thereafter. Elsewhere small parties were reported from The Lodge, Sandy, South Mills NR, Pegsdon Hills and Bramingham Wood with odd birds at a further 9 sites. The first in autumn was at Whipsnade Zoo on 28 September, and in the second winter period small numbers were reported from Tiddenfoot, Cranfield, Coronation CP, Kempston Mill and Whipsnade Zoo.

(Serin) *Serinus serinus* One was reported to BIS at the Blue Lagoon, Arlesey, on 29 July but no further details were received. Another possible individual at South Mills NR on 5 June was unfortunately seen too briefly for identification to be confirmed. The observer of the latter bird admitted that any description would have been of a generalised Serin rather than of this bird—honesty which is to be applauded. There remains only one acceptable county record, at Biggleswade in 1983.)

Greenfinch *Carduelis chloris* An influx of c.80 at Priory CP in mid-February, at the same time as Tree Sparrows, and in the autumn flocks of 100 noted at Stopsley Common and Warden Hill with c.300 near Cranfield.

Goldfinch *C. carduelis* The largest flock reported was 42 at Priory CP on 23 November.

Siskin *C. spinus* Good numbers in the first winter period, with flocks of 100 at Flitwick Moor in January and Southill Lake in February, other parties of over 20 at Clophill, Eversholt Lake, Woburn Park and Leagrave Marsh, and smaller numbers from a further 7 sites. The first in autumn was at Clophill on 21 July, where birds were recorded to December with maxima of 30 in September and December. Elsewhere in the second winter period more widespread than in the first winter period but in smaller numbers, with 50 at Flitwick Moor in December, 30 at Eversholt Lake and smaller numbers from 13 other sites. The last in spring were on 29 March at 3 sites with a singing bird at Steppingley, but less usual were two singing and displaying at Blunham in November!

Linnet *C. cannabina* The largest flock in the first winter period were 200 at Priory CP on 15–16 February, coinciding with hard weather influxes of Greenfinch and Tree Sparrow. Passage noted at Blows Downs in late April, and in autumn flocks of 100 at Priory CP and Grovebury SP. Two observers noted flocks feeding on playing fields, a not infrequent habit which is helpful when checking for rarer species!

Redpoll *C. flammea* In the first winter period a flock of about 90 were recorded at The Lodge, Sandy in January/February, and a second flock of about 60 at New Wavendon Heath in late March included the county's first two Arctic Redpolls and also a male Mealy Redpoll *C. f. flammea* (PO). Breeding records were received from Priory CP and Biggleswade.

Arctic Redpoll *C. hornemanni* A strikingly pale individual, probably an adult male, accompanied a flock of some 60–80 Lesser Redpolls at New Wavendon Heath from 21–28 March, and, though highly mobile and sometimes elusive, was seen by many observers (BJN). A second less well marked individual, possibly a female, also accompanied the flock on 23 and 24 March (PS PT). The first for the county (and first in order of occurrence, though last in Vouss order, of three new passerine species for the county during an amazing year), their appearance coincided with a widespread influx on and near the east coast, though these were probably the furthest inland records. (Both individuals have been accepted by the BBRC.)

Crossbill *Loxia curvirostra* There was a widespread influx during the first half of the year, with 7 at Potton Wood on 1 January, 7 at Maulden Wood on 3 January and 3 on the 23rd, 3 at Galley Hill on 23 January, 7 at The Lodge, Sandy from 25 January to 11 March with 30 on 20 May, parties of up to 30–40 recorded from the Charle Wood/Aspley Heath complex on many dates between 2 February and 31 May, 8 at Millbrook on 19 April and odd birds at Steppingley. At Whipsnade Zoo birds were recorded from 3 January to 2 July with 18 on 14 May. Later in the year, stragglers were at The Lodge, Sandy on 4 June and 12 August, Swineshead Wood (4 including a juvenile) on 6 June, Pegsdon Hills 7 July, Chicksands Wood in August (up to 7) and finally a juvenile at Bromham on 26 August. Song and display were noted at Charle Wood in April, and it is probable that breeding occurred at this site.

- Bullfinch** *Pyrrhula pyrrhula* The highest number reported at Priory CP was 13, and three pairs bred there. Noted as scarce at Barton Hills. At the Old Warden CBC plot six pairs were up from two in 1990, though still down long-term.
- Hawfinch** *Coccothraustes coccothraustes* In the breeding season recorded only from Luton Hoo in March/April (up to 6), Maulden Wood (January–April, up to 5), Birch Wood and Snelson Cobs in the north-west of the county, both the latter records in May. Winter records are scarce in the county, but birds at Galley Hill on 23 January and Barton Hills 24 November suggest some winter movement. This species normally flocks in winter, and our birds either move out of the county or have not been located.
- (Lapland Bunting** *Calcarius lapponicus* An adult male reported from South Mills NR, 18 October, would have been only the second record for the county, but unfortunately confirmatory details were not received in time for publication.)
- Yellowhammer** *Emberiza citrinella* A winter flock of 50 noted at Priory CP on 1 January, but only a maximum of 12 in the second winter period. Up to 10 pairs bred at Barton Hills.
- Reed Bunting** *E. schoeniclus* A roost of over 400 at Houghton Regis ChP in the first winter period, with numbers increasing to about 550 in the second winter period, when Dutch and Norwegian ringed birds were controlled on 27 October. At Priory CP maximum numbers recorded were 44 in hard weather on 14 February, and 12 pairs bred.
- Corn Bunting** *Miliaria calandra* Over 100 roosted at Houghton Regis ChP in the first winter period, with a maximum of 130 in the second winter period. At Priory CP roosting maxima of 104 (11 February) and 193 (7 December). There were no counts from other traditional roosts, but given the low density at which this species usually breeds (due to its unproductive habitat?), it must occur over wide areas of the county. Atlas work confirms this, but also shows that its distribution is still oddly patchy, as was noted in the original Breeding Atlas. Its exact habitat requirements are not clear, though an experienced observer can probably 'feel' whether an area is suitable. Interestingly, areas favoured by this species also sometimes attract Quail (e.g. as at Kempston Mill/Biddenham, a traditional Corn Bunting area where there were c.12 singing males in 1991 and Quail were recorded in two years in the 1980s). A BTO survey of Corn Bunting will take place in 1992/3, and may well show the county to be an important area for this species.

SPECIES AWAITING ADJUDICATION BY BBRC

- Marsh Sandpiper** *Tringa stagnatilis* One at Coronation CIP on 18 September (KO).
Alpine Swift *Apus melba* One over Sandy on 29 July (SB).

MISCELLANEOUS RECORDS

- Whooper Swan** *Cygnus cygnus* One in the South Mills NR area all year and three at Blunham Lake were all feral birds.
- Snow Goose** *Anser caerulescens* A white and blue morph around the clay pits all year.
- Swan Goose** *A. cygnoides* Noted at East Hyde in January and June.
- Bar-headed Goose** *A. indicus* One in the Stewartby area all year.
- Canada × Greylag Goose** *Branta × Anser* One at Stewartby Lake for most of the year.
- Ruddy Shelduck** *Tadorna ferruginea* Singles at Stewartby Lake on 20 February, Rookery CIP on 16 March, Woburn Lake on 17–19 August and Grovebury SP on 8 September.
- Cape Shelduck** *T. cana* One at Dunstable SW January–March.
- Wood Duck** *Aix sponsa* A drake present for most of the year along the Ouse in Bedford Town centre and a duck intermittently. In the clay pits at Stewartby and Brogborough two drakes noted in February and March.
 Two drakes also at Flitwick Moor on 29 December and one at Grovebury SP on 3 February. Records also received from Swiss Gardens and Priory CP.
- Eider** *Somateria mollissima* A drake at Bromham on 27 February had escaped from Stagsden Bird Gardens.
- Bahama Pintail** *Anas bahamensis* One reported around the clay pits January–October.

Red-tailed Hawk *Buteo lineatus* One at Chicksands Woods on 14 March.

Chukar *Alectoris chukar* One at East Hyde in April.

Scarlet Macaw *Ara macao* One in Bedford on 3 September and 28 December.

Cockatiel *Nymphicus hollandicus* One at Houghton Regis ChP on 23 June and in Biggleswade during July.

ADDITIONS TO 1990 REPORT

Goshawk *Accipiter gentilis* One in the Charle Wood area on 17 February (PSm).

Whitethroat *Sylvia communis* The first migrant was on Blows Downs on 28 April followed by a light passage into early May. Breeding pairs at Old Warden CBC (15) were the highest since recording began in 1973 (BN) and the Waterloo Thorns CES reported a good fledgling success rate (EN). The autumn passage finally finished at Priory CP on 22 September. A female at Leagrave Marsh on 4-9 December was one of the most unusual records of the year and the only winter record for the county (AW RD).

ADDITIONS TO 1983 REPORT

Lady Amherst's Pheasant *Chrysolophus amherstiae* A male seen at Wootton Wood in January and February.

Stone Curlew *Burhinus oediconemus* One at Deepdale, Pottton on 3 July (EN PJW).

Greenshank *Tringa nebularia* Three over Girtford GP on 25 January.

Nightingale *Luscinia megarhynchos* A female in moult at Girtford on 19 July.

PAUL TRODD

BEDFORDSHIRE BREEDING BIRD ATLAS 1988-1992 PROGRESS REPORT-1991

by R.A. Dazley

Fieldwork on the breeding atlas has proceeded according to plan through the 1991 breeding season and I can now report that of the 378 tetrads to be surveyed only one has had no coverage at all as we commence the final year of atlas work.

The sharp eyed will have noticed that we are now committed to surveying an extra tetrad — this is due to changes to the county boundary that were implemented from 20th March 1991. The practical effect of the changes was the straying of the county boundary line into SP94N for the first time, the inclusion of which moves the grand total of tetrads up to 378.

I would like to thank all the fieldworkers who continue to provide the data from across the county. We currently have accumulated over 19,000 records which, from a small county like ours, is very impressive. The current results have been subjected to various criteria to allow the quality of coverage to be judged and this has led to the conclusion that in 1992 there are still about 100 tetrads which warrant further attention. Of these target areas a total of over 60 are north of Bedford so many people will find themselves asked to travel north in 1992. A plan for a small group of fieldworkers to go on one-day saturation visits is also being considered.

The 1991 breeding season provided one unexpected record, a pair of breeding Lesser Black-backed Gulls in the brickpits and two of last years noteworthy events were repeated. Barnacle Geese reared young in the brickpits again, this year two pairs successfully raised young. The efforts of a third pair sadly came to nothing. Curlews again frequented the same airfield as last year till long after their normal departure date, although once again there was no evidence to suggest attempted breeding.

Once again may I extend my thanks to all the people who sacrifice their spare time to assist in this very worthwhile study.

Address: 71 Carterweys, Dunstable, Beds LU5 4RB

BIRDS NEW TO BEDFORDSHIRE (1991)

AMERICAN GOLDEN PLOVER *Pluvialis dominica*

Cranfield Airfield, 16th November 1991 — Dave Odell

I was leading a field course at Nether Swell Manor in the Cotswolds when I heard the news that an American Golden Plover *Pluvialis dominica*, had been seen at Broughton, Milton Keynes, Bucks. The same bird had also been seen in Northants (Pitsford Reservoir) and Warwickshire (Draycote Water). I thought that I had probably missed a very good bird from near to the county boundary.

On Saturday November 16th I went to look at the Broughton fields to see the bird. With the disappointed sea of faces it was apparent that it had not been seen. Paul Trodd said to me it could be on Cranfield Airfield and I went off in search of it. It was not in several likely looking fields but when I arrived at Cranfield I could see a few Golden Plover, *P. apricaria* in the distance. I met a car of Norfolk birders. We could see a large flock of Golden Plover on the Cranfield village side of the Airfield. Could this flock contain their American cousin? We eventually found that we could obtain good views of the flock of some five hundred birds, plus the same number of Lapwings, *Vanellus vanellus*, from the rear of Townsend Close by peering through the fence.

There in front of us was the American Golden Plover. Brilliant, a first for Bedfordshire. I spent a few minutes making mental notes and then Angela volunteered to fetch the other birders from Broughton. Twenty minutes later they arrived in a convoy of cars providing much amusement to the locals who couldn't see what the fuss was about.

Although the differences between Golden Plover and American Golden Plover are subtle the bird could be identified from its general grey, as opposed to a golden, tone. It looked more like a small Grey Plover, *P. squatarola*, rather than a Golden Plover. Other features of the bird were its long wings which extended beyond the tail and its white supercilium. The bird was smaller, and daintier, than its common cousin. The American Goldie stayed in the area, occasionally straying back to the Buckinghamshire side of the border, for the next three weeks or so. I submitted a fuller description of the bird to the British Birds Rarities Committee and the record has been accepted as a first for the county.

Address: 74 The Links, Kempston, Bedford MK42 7LT

BEE-EATER *Merops apiaster*

Priory Country Park, Bedford, 29 June 1991 — Dave Kramer

On Saturday 29 June I arrived at Priory C.P. at 09.50 BST, a little later than usual due to my taking part in the goose round-up at Harrold earlier that morning.

I walked along the north side of the main lake, turning left into the finger lakes. I had just come out from the north end of the finger lakes when I heard a distinctive call which I immediately recognised as being that of the Bee-eater (*Merops apiaster*). Thinking that a Bee-eater was too good to be true my first thought was that Errol Newman was playing one of his lure tapes! However, the calls, about seven of them at this time were getting louder and closer. The call was a loud, fairly high pitched, liquid 'prrrp'.....'prrrp' or 'prrrup', which was repeated at about 3 second intervals. It was totally different to the surrounding bird calls being very striking. One gets a similar impression when a low flying wader such as a Curlew or an Oystercatcher passes over calling.

I looked behind me over my left shoulder, a mistake as it turned out, for when I looked back it had just flown by on my right-hand side. By the time I focussed (naked eye) on the bird it was at about 30m away and about roof top height 25-30° to me flying NNE. Unfortunately, as the sun was still in the east the bird was almost totally silhouetted at this stage, not directly in front of the sun but in the bright area of sky below it. However, I did get excellent views of the bird in its distinctive silhouette including its fairly long, thin, slightly decurved bill. I then looked at the bird through binoculars (10 × 50) but it wasn't until it had flown a further 40m (approx.) that the bird moved into suitable lighting conditions which enabled me to pick out the colours on the upper surface of the back, nape, wings and tail, but not the head, throat and bill.

Its size was about the same as a Turtle Dove (*Streptopelia turtur*). To use the Turtle Dove analogy again, the Bee-eater had longer, narrower, pointed wings with almost isosceles triangular distal

sections. The tail was longer with a slightly wedged end and elongated (about 2-3cm) central tail feathers which, in the views I had, were always held together, making a single projection. The body was more slender, the neck shorter and the head held slightly down.

Its flight consisted of bursts of fairly rapid wing-beats followed by pauses on partially closed wings during which it did a short, undulating glide. The flight path was slightly erratic in that the undulating glide often did not follow the same direction as the flapping part, sometimes being slightly to the left and (more often) to the right. This brought it to the west bank of the river, which it followed until it flew over the sewage works bridge and was lost to sight.

Although a Bee-eater sp. was recorded at Manor Farm, Upper Stondon, on 4 September 1971 it was not specifically identified and so this constitutes the first county record.

Address: 7 Little Headlands, Putnoe, Bedford MK41 8JT

RADDE'S WARBLER *Phylloscopus schwarzi*

Priory Country Park, Bedford, 12th October 1991 — Errol Newman

At 06.30 BST on 12th October, I erected a standard line of 220ft (67m) of mist-netting across an area of the Park known as 'The Rough', in a dog-leg between the Hawthorn bushes. The haws were beginning to ripen but the elderberries had almost been stripped by the last Blackcaps and the first thrushes as they moved through on passage. A faint hint of autumn was in the air following light overnight rain, the leaves on the trees had a faint tinge of yellow but the weather was mild (12°C) for an October morning. By 09.00 BST I had caught only nine birds, including three continental-type Robins, a sure sign that winter was on its way. The light cloud cover had persisted and I decided to have some breakfast.

I had wandered a short distance with a coffee in my hand, when I suddenly heard a double 'tchik-tchik' call from some low bushes one hundred yards east of the nets. A small flock of Blue and Great Tits was moving along the Old Hedge and the young plantation opposite the Finger Lakes. I scrutinised the 'thorns, Dog-rose and long grasses for this elusive bird; was it a chat, warbler or something else? I came away empty-handed, not knowing what it was, and did a net round 'just in case'. Slowly the sun began to peep through the overcast sky and the birds became more vocal and active. It was around 09.15 BST and I expected Dave Kramer to come along within twenty minutes or so.

All of a sudden, there was this loud outburst of song to my left. Not familiar with it, I spun round in time to see two birds chasing each other round the top of a Bramble bush and disappear across the path. Straight away, this strange, musical song started up again. It had a Nuthatch-like quality but reminded me somewhat of Cetti's in its strength and energy. 'Quick-quip-tay-tayee-tyee-tee-ee' followed by a short trill, a rich, warm, warbling and resonant tune. I hurried off to the corner where they had disappeared. Then I saw it — a medium-sized, greenish warbler with a pronounced supercilium and eyestripe, just 10ft (3m) away!

It was foraging in a small Hawthorn, starting at the top and dropping down as it searched for insects. Then up again to a different perch and down to the base and so on. Several times, when it returned to the top, it stopped to sing again and flick its tail vigorously. Having examined one small bush, it moved on to the next until it flew into an extensive block of dense 'thorn and Bramble and was lost to view. This warbler seemed very active and not a tired migrant. It reminded me of an Arctic Warbler, with its flattened head, olive-green upperparts, longish tail and long pale legs. The underside was however quite yellow and the wings looked short and rounded, exposing most of the rump. The bill and head resembled a Dusky Warbler, which set me thinking.

As the bird was now moving away from the nets, I went back to my base, satisfied my dry throat, and got out my copies of Svenson and Williamson. These ringers' guides soon convinced me that it might be a Radde's. A quick check of the nets produced nothing, so I sat down to await Dave Kramer. The time was just after 09.30 BST. Suddenly, there was this loud burst of song again, this time from the centre of the area where the nets had been set. I slunk over to the group of three or four small bushes where I thought this 'explosion of sound' had come from. I looked carefully, but nothing was visible. 'Odd', I thought and moved forward a pace or two only to discover the bird singing in the net to my immediate right! It must have done a 'circuit' as it was in from the other side.

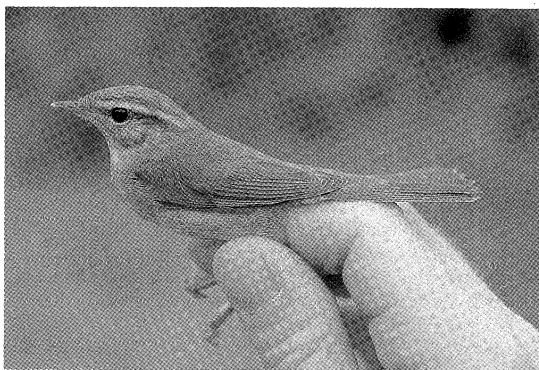
During the easy extraction, I noticed, first, the long yellowy legs and the amazing, golden-buff under-tail coverts. Putting it in a clean bird-bag, I also saw the subtle grey and buff pectoral band. Hanging it up inside my pick-up truck, it occurred to me that I ought to get a witness and I began to wonder what was keeping Dave's attention elsewhere on his morning rounds.

After what seemed an age, he appeared around the corner and I waved him on excitedly. I showed him the bird and he also thought it was a Radde's. Before I started to process the bird, we decided that he would rush home, get his camera and make a few telephone calls to local birdwatchers, most of whom happened to be on the Scilly Isles. Finally, we ringed the bird and took a description; the main features were as follows:—

Upper-parts brownish-olive, head browner, rump markedly greenish. Chin and throat clear white, bordered with sooty flecks. Rather broad (2.5mm), conspicuous supercilium, 23mm long, buffy in front of the eye, whiter at the rear, bordered by a faint eyebrow line and a wide (3mm) sooty-black eyestreak. Cheeks and ear-coverts were pale buff, mottled with dark brown. The pectoral band and flanks were brownish-buff washed with a subtle grey. The centre belly was off-white and washed pale yellow which showed as streaks. The undertail coverts appeared rich, golden-buff. Wings olive with pale yellow bend of wing. Tail, as head, olive-brown with the five outer tail feathers tipped pale buff and rather pointed. The tail shape was slightly rounded. The wing shape was rounded as in Chiffchaff with a similar length and formula. The bill was dark brown with a horn tip and cutting edges and very stout. The long legs were straw coloured and tinged pink at close range. There was a lower orbital ring to the dark eyes. The bird's total length was 122mm.

The bird was calculated to be a post-juvenile on tail shape and a female on colouration and wing length. However, it must be said that it sang vigorously and might possibly have been a small (second brood?) male.

Finally, the bird was photographed in some detail before it was released into the 'Old Hedgerow', where it settled in the dense, brambly bottom of an Elderberry and was lost to view. It was possibly seen again three days later by two birdwatchers who followed a bird making the same circuits of 'The Rough' as this had been.



High pressure had been centred over the northern Ural Mountains for the two previous weeks. This would have allowed the bird to move westwards in the light winds on the southern flank from its rather restricted breeding grounds along the north Chinese border east of the Altai Mountains (the Amur River valley). The species normally winters in Indo-China. From 5th to 18th October there were at least twenty-three Radde's Warblers in Britain, scattered along the entire North Sea coast. The Bedfordshire bird, however, is the *first ever recorded inland* (some 110 have been sighted in the last 35 years) and, Don Green informs me, this was also the first 'new for county' record to have been trapped.

Address: 15 Birchmead, Gamlingay, Sandy SG19 3ND

PENDULINE TIT *Remiz pendulinus*

Priory Country Park, Bedford, 18 September 1991 — Dave Kramer

At 06.00 GMT on Wednesday 18 September 1991 I was walking along the south side of the main lake of Priory Country Park looking in the reedy margins and amongst the willows for late Reed Warblers and, in particular, late Sedge Warblers. When I was about 15m from the hide I came across the usual party of four Reed Warblers which I had seen on previous days but noticed that there was a movement of vegetation about 2m in front of me, presumably caused by a bird. As the Reed Warblers were showing quite well I thought that this might be a Sedge Warbler and so decided to wait for it to show itself. The movement continued for between 5-10 minutes without me obtaining even a glimpse of this elusive creature but then it flew out and perched on top of a *Phragmites* stem about 6m from me in bright morning sunlight.

Even before my binoculars reached my eyes I could see that it was a small, slender, tit-sized bird with a pale grey crown, a large black eye patch, reddish-brown wings, and pale buff underparts; resembling a mini shrike. I immediately recognised it as an adult Penduline Tit (*Remiz pendulinus*) and I was somewhat stunned!

It perched on the top of the *Phragmites* for about eight seconds during which time I had a wonderful view of it through my binoculars. It moved slightly lower down and then flew about 25m to the other (west) side of the hide.

The time was 06.10 GMT. I made a hurried and appalling annotated sketch of the bird and ran round the lake to the visitors centre (each step making me more aware of my increasing age!), and tried to telephone other local birdwatchers.

Before putting the information on "Birdline" I assessed the suitability of the site for a possible large influx of birdwatchers. Just before 07.00 GMT I rang Birdline with the information and informed them that the site would be suitable for other birders so long as they remained on the path and did not enter the reeds. I also rang other local birdwatchers who I had been unable to contact earlier.

The bird was seen easily until 08.00 by several observers but then went for an extended excursion for a couple of hours before reappearing. After 10.00 good views were obtained at fairly frequent intervals. I returned in the late afternoon and saw the bird again at 15.30 GMT in a willow and again at 16.50 in the *Phragmites*. The bird went to roost in a willow, almost at the same spot where it was seen originally. Those birdwatchers who were there early the following morning heard the bird calling from the same bush but it flew off never to be seen again.

Breeding from Spain, southern France, Holland, Germany to the Balkans and eastwards to Manchuria, the Penduline Tit is mainly resident but is sometimes dispersive, eruptive and involved in cold weather movements. There has been a north-westwards spread of this species in recent years and doubtless it won't be long before it is proved breeding.

The first British record was of one at Spurn on 22-28 October 1966, but it was not recorded again until 1977. Since 1980 it has been recorded with increasing regularity, mainly between September and November, but occasionally in spring. Up to the end of 1987 there had been a total of 14 records (17 birds). From 1988-1990 there were 17 records (21 birds) and another 11 birds in 1991.

Address: 7 Little Headlands, Putnoe, Bedford MK41 8JT

ARCTIC REDPOLL *Acanthis hornemanni*

New Wavendon Heath, 21 March 1991 — Barry Nightingale

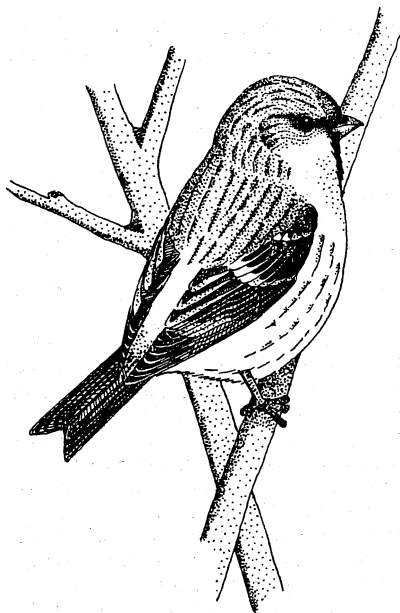
I had spent about two hours on Wavendon Heath without seeing very much at all, apart from a largish flock of finches feeding in Silver Birch some distance away. Deciding to go back to my car I had to pass the finch flock, by now more obviously about 70 Redpolls (*Acanthis flammea*). Flocks of this size in the county are unusual enough to warrant at least a second look.

Almost immediately I noticed a very pale grey individual among the brown Redpolls. My first reaction was "Mealy Redpoll" (*Acanthis flammea flammea*), but after a few moments of telescope views my thoughts turned to the possibility of it being an Arctic Redpoll. I was lucky enough to get excellent views of the bird as it fed in Silver Birch at the same height as the bank that I was standing on. I was able to note the bold, double white wing bars, the head and mantle streaked grey on white, the prominent unstreaked white rump, the white "trousers" extending well down the tarsus, the largely unmarked flanks and the white underparts right down to the undertail coverts.

After 15 minutes the whole flock took flight in a south-east direction. I then met up with Tony Donnelly, ignored a calling Firecrest (*Regulus ignicapillus*) in our excitement, and after about three hours relocated the flock, and the Arctic Redpoll, about 800 metres south-west from the original site.

It then stayed in the general area for the next few days and was seen by probably over 100 observers, and was later accepted by the British Birds Records Committee as an Arctic Redpoll, the first record for Bedfordshire.

Address: 7 Bloomsbury Close, Woburn, Beds MK17 9QS



Arctic Redpoll

(A.P. Chick)

ARRIVAL DATE OF REGULAR SUMMER MIGRANTS TO BEDFORDSHIRE. AN UPDATE

by R.A. Dazley

In the Journal for 1979 (*Bedf. Nat.* 1980 34 34) Barry Nightingale, who was the Recorder for Birds at the time, published an article which included a list of average arrival dates for summer migrants during the period 1946 - 1979. The results were grouped into two periods 1946 to 1959 and 1960 to 1979. Also included in the article was a list of the earliest accepted arrival dates for the species involved. This update groups together the years 1980 to 1990 to give a third period. As a result of the relatively short time span encompassed in this period extreme dates would have a major effect on the averages. To compensate for this the earliest and latest first arrival dates have been excluded from the calculation to derive the third period's average arrival date. It is suggested that any future revision (in perhaps 2000) would be better to enlarge the third period (1980 to 1999) rather than create yet another small group. By doing this the dates that have been omitted for this article could be reintroduced as their effect in a larger sample will be reduced.

It was conceded in the first article that there is little scientific value in noting such arrival dates. Although true this has done little to reduce the urge to find the first Swallow (or whatever) of the year. This enthusiasm is now being harnessed by the YOC who map the arrival of migrants nationwide as its membership phone in sightings thereby producing some valuable data at a national level.

Various factors may affect the arrival dates of migrants from year to year. In particular the weather systems between their winter quarters and their summer destinations can either delay or hasten arrival. We have seen in recent years individuals arriving weeks before the main body of returning migrants. Indeed, 1990 yielded no less than five earliest ever dates, a fact we will return to. It must be borne in mind when referring to the earliest dates that they pertain to exceptional birds and as such are not related to the mass return of the species concerned.

In the first article Nightingale suggested there may be a weekend bias in the arrival dates due to improved observer coverage. This bias is probably still present although perhaps not as important, because many migration sites are now watched daily during the spring passage, Blows Downs, Priory CP and the brickpits being prime examples. It is worth remembering that if the returning species is a common one it is far more likely to be discovered soon after its arrival than one that is arriving in low numbers — this is borne out by the earlier sightings of Hobby, a species that has become more numerous. Here too the increased number of birdwatchers who actively go seeking migrants in spring will probably result in quicker location. Nightingale showed a correlation between the number of species recorded within the county each year and the number of observers who submitted their records to the annual report, a fact which still holds true and is reflected in the continued increase in species reported (see Table 1). The 1987 report was contributed to by a record 121 observers.

Table 1. Average number of species recorded in the county

Period	1946-59	1960-69	1970-79	1980-90
Average number of species	138	147	162	181

I have taken this opportunity to increase the number of species included to bring this article in line with the "selected dates" list that has appeared in recent annual reports even though species such as Little Gull and Greenshank do not have enough sightings from the 1940s and 1950s to produce an average date; whenever this has been the case the relevant columns have been left blank. The average and earliest arrival dates for the three periods are given in Table 2.

Table 2. Average and earliest arrival dates

Species	1946-59	Average 1960-79	1980-90	Earliest since 1946
Garganey	12.4	1.4	5.4	11.3.64
Hobby		11.5	24.4	27.3.64
Little Ringed Plover	15.4	27.3	22.3	11.3.87
Greenshank		27.4	20.4	28.3.59
Common Sandpiper	23.4	13.4	14.4	23.3.54
Little Gull		1.5	23.4	12.4.88
Common Tern		30.4	12.4	4.4.85
Arctic Tern		29.4	19.4	11.4.83
Black Tern	8.5	7.5	26.4	12.4.47
Turtle Dove	30.4	27.4	16.4	10.3.90
Cuckoo	14.4	17.4	14.4	1.4.90
Swift	26.4	26.4	24.4	12.4.61
Sand Martin	1.4	2.4	22.3	3.3.90
Swallow	31.3	7.4	28.3	25.2.90
House Martin	10.4	9.4	6.4	14.3.65
Tree Pipit	21.4	12.4	11.4	25.3.67
Yellow Wagtail	8.4	6.4	2.4	21.3.78
Nightingale	23.4	1.5	20.4	7.4.87
Black Redstart			28.3	5.3.73
Redstart	19.4	23.4	9.4	23.3.86
Whinchat	30.4	30.4	19.4	10.3.90
Wheatear	28.3	23.3	18.3	5.2.67
Ring Ouzel		8.4	30.3	16.3.63
Grasshopper Warbler	21.4	21.4	15.4	2.4.77
Sedge Warbler	21.4	14.4	9.4	27.3.64
Reed Warbler	9.5	8.5	23.4	7.4.60
Lesser Whitethroat	25.4	29.4	19.4	12.4.47
Whitethroat	17.4	20.4	18.4	28.3.89
Garden Warbler	28.4	30.4	22.4	15.4.62
Blackcap	13.4	13.4	8.4	12.3.67
Wood Warbler		9.5	29.4	12.4.53
Chiffchaff	20.3	18.3	21.3	5.3.66
Willow Warbler	26.3	6.4	29.3	17.3.52
Spotted Flycatcher	8.5	5.5	4.5	11.4.65

Two other species that may be of interest, but for which there is not enough data to calculate average dates, are Quail and Nightjar. Their earliest dates are 26.4.88 and 20.4.49 respectively.

In the last couple of years we have seen very early arrivals for some species and this has made dramatic differences in the averages. Swallow, for example, would have an average date of 2nd April if the dates for 1989 and 1990 were not included. Turtle Dove is another species dramatically affected in this manner, if the same two years are again removed from the calculation the average date becomes 22nd April — a date that is rather more realistic.

If we look beyond the county boundary we see that 1990 was a remarkable year all over the country with many species being reported much earlier than usual. Reports were received of February sightings of Wheatears, Sand Martins and a House Martin followed by March records of Redstart, Cuckoo and Swift. This premature return was encouraged by an exceptional run of warm southwesterly winds that dominated March, sweeping migrants back across Europe with almost indecent haste.

There are some interesting comparisons to be made amongst the average dates; Cuckoo and Whitethroat both seem to have recovered from a population drop in the middle period, a factor that was blamed for their later arrival. Willow Warblers also seem to have been in trouble during the middle period when their arrival was ten days later, they too seem to have recovered to nearly the earlier levels. In general though the arrival dates have become earlier and the factors previously discussed (number of people and enthusiasm for migrant finding) must surely be contributing to this.

ACKNOWLEDGEMENTS

I would like to thank Barry Nightingale for not only inspiring this article but also for very constructive comments on an earlier draft. Thanks also to Paul Trodd who added his helpful comments at the first draft stage.

IRON AGE SAND MARTINS (*RIPARIA RIPARIA*) IN BEDFORDSHIRE by Paul Trodd

During the research period for *The Birds of Bedfordshire* (Trodd, P. and Kramer, D. 1991) many avenues were explored other than the obvious ornithological ones. General historical books of the county were gleaned for bird literature, as were the writings of John Bunyan and the county's archaeological journals, particularly the Manshead Archaeological Society based at Dunstable.

Despite our seemingly exhaustive labours there was always going to be something which evaded us, indeed, one of the benefits and stimuli of a county avifauna is a throwing-down-of-the-gauntlet, a kind of challenge to anyone for further information. Nobody is more delighted than Dave Kramer and myself when some such item of information comes to the fore. Of particular note was a recent correspondence from James Dyer of Luton informing us of the following:

"I thought you might be interested in the earliest recorded evidence of Sand Martins in the county. In 1969 I excavated the ditch of an Iron Age hill fort in the grounds of the RSPB at Sandy Lodge. In the steep sandstone face of the ditch were two narrow 'burrows', which the staff at The Lodge who visited us daily, excitedly identified as the nesting tunnels of Sand Martin, their modern descendants having nests in the adjoining quarry. I published the discovery in my report on the excavation (*Beds. Arch. Journal* 1971 **VI** 12) but I have no idea if anyone from The Lodge recorded the incident. One or two of them took photos of the holes. Unfortunately there were no skeletal remains."

James Dyer, 11 March 1992

Address; 17 Northall Road, Eaton Bray, Beds LU6 2DQ

WATERWAYS BIRD SURVEY by J.T.R. Sharrock

ADDENDUM

The following explanation should have been included in the article published in the Journal for 1990 (*Bedf. Nat* **45** 60):

The numbers in the table are pairs holding territory, determined by standard BTO Waterways Survey methodology, based on ten visits during late March and early July each year.

SURVEY OF INTRODUCED GEESE

JUNE — JULY 1991

by Dave Kramer

The Survey of Introduced Geese was a national survey which took place between June — July 1991. Twenty-four of Bedfordshire's water areas were surveyed. This total was composed of ten gravel pit lakes, nine clay pit lakes, three parkland lakes, one borrow pit lake and one river site. A total of 1,619 feral geese was recorded during the survey.

Greylag Goose *Anser anser*

Since the 1930s feral stocks of this species became established in many parts of Britain. By 1970 a similar state of affairs existed as with the Canada Goose and in that year 938 hand-reared Greylags were introduced at 33 sites in 13 English and Welsh counties (Ellwood 1971 Goose Conservation. *W.A.G.B.I. Rep. and Year Book 1970-71*).

In Bedfordshire there had been only six records between 1946 and the late 1960s. The first large flock was of c.60 near Bedford S.W. in January 1967. Even so, further reports were relatively few until the mid-1970s. During the 1980s the Harrold/Radwell complex and Blunham GP were the main sites with the highest winter numbers recorded in 1988 with 624 at Harrold/Radwell and 300 at Blunham. The first breeding was recorded at Girtford in 1971 but the Harrold/Radwell complex has been the best breeding site during the last 10 years.

During the 1991 census the Greylag was found breeding at 4 gravel pits, 2 clay pits and 1 parkland lake. Of the breeding population 488 out of the 508 (96%) occupied gravel pit sites. Interpretation of the data is complicated due to the pricking of 146 eggs at Harrold CP of which nearly all were of this species. Radwell was the other main breeding site where, of 257 birds present, 82 (32%) were young.

Summary:

Adults	Young	Unaged	
398	110	0	
			Total 508

Canada Goose *Branta canadensis*

The earliest mention of this species was of birds in the collection of Charles II in St. James's Park, London in 1665. It was breeding freely in some of the large estates and parklands in the 18th century and feral flocks were present by the middle of the 19th century.

The first Canada Goose census by the B.T.O. in July 1953 revealed that there were 2,600 to 3,600 birds present in Britain which included about 350 pairs and about 750 goslings.

In the early 1950s farmers began to complain of damage by Canada Geese which grazed on cereals and puddled the fields. Some control was carried out by such methods as egg destruction and winter shoots but one method was to transport portions of local flocks to other suitable sites. Although it was hoped that these birds would be kept in check by sporting activities they were not a success with wildfowlers as they did not present a sporting shot and lacked regular flight patterns.

By 1969 the population had trebled to 10,000 — 10,500 of which 9,000 were in England. By 1976 this total had nearly doubled to 19,400.

The first record of this species in Bedfordshire was of one shot in front of Oakley House by Lord John Russell in 1831. Since its first breeding in 1971 it increased rapidly being 'well established' in 1975 and Harding (1979) wrote that by 1977 'it was obvious that Canada Geese were becoming a pest in the north-east of the county causing concern to farmers and it may be necessary to impose some form of control on the rising population before the situation becomes out of hand'. In 1982 a cull of about 200 birds took place in the brick pit complex.

In 1976 the total number of wintering birds was about 212 and the largest single flock recorded was of 95. By 1989 the total number wintering in the county was about 1,600 and the largest flock recorded was 675, an increase of more than 600% in 13 years.

The 1991 breeding survey indicated a total of 1,019 birds present during the breeding season of which 735 were adults, 160 (about 18%) were young and 124 were unaged. Breeding took place at 15

Address: 7 Little Headlands, Putnoe, Bedford MK41 8JT

sites, (7 clay pits, 5 gravel pits and 3 parkland). With this species both gravel pit and clay pit sites were the ones most utilised for breeding. Although more clay pit sites were used for breeding, those at gravel pits showed a slightly higher success rate than those at clay pits. (In gravel pits 25.6% of the flock being young as compared with 19.6% of young in the clay pits. However, it must be noted that a further 24 clay pit birds were unaged.) Interestingly, although 224 adults were recorded at two parkland sites only 17 young were produced. (A further 100 unaged birds were noted at Luton Hoo). It is not known whether control measures already exist at parkland sites which would account for this anomaly or whether it is due to differences in habitat.

Summary:

Adults	Young	Unaged
735	160	124

Total 1019

Barnacle Goose *B. leucopsis*

This species has been recorded in the county since 1855 but it was not until 1977 that it occurred with any regularity. Free flying birds young were raised by feral birds in Hampshire since the late 1970s. The first breeding took place at Rookery CIP in 1990 where a pair raised one young. During the survey period 11 birds were present at Rookery CIP and, of these, two pairs bred raising 1 and 3 young.

Summary:

Adults	Young	Unaged
11	4	0

Total 15

Bar-headed Goose *Anser indicus*

Two were present at Langford GP during the census period but did not breed. One was present at Rookery CIP.

Snow Goose *A. cygnoides*

Two white phase adults bred at Radwell GP and produced 1 young. Another unaged bird was also present. This is the first breeding record for the county.

White (domestic) Goose *A. anser* (domestic variety)

44 were recorded of which 42 were on the river in the centre of Bedford. Of these one pair produced 4 young.

HYBRIDS:

Canada/Greylag *Branta canadensis* × *Anser anser*

Four adults were present in the clay pits and, of these, one pair bred producing 3 young at Brogborough CIP.

Barnacle/Canada *Branta leucopsis* × *B. canadensis*

Two adults were present at Rookery CIP.

Greylag/White (domestic) *Anser anser* × *A. anser* (domestic variety)

13 adults were recorded, 12 of which were on the river in the centre of Bedford. No young were observed.

ACKNOWLEDGEMENTS

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BIRD RINGING REPORT 1991

Report of the Co-ordinator

The year was dominated by totals and recoveries produced by the Ivel Ringing Group who remained ever active. The low ringing totals are not due to adverse conditions but entirely due to inactivity by the other County ringers. The Ivel Ringing Group produced a creditable total of 3,843 which you can see makes up the bulk of the report.

Amongst the list of common species ringed there were a number of unusual species, pride of place going to the Radde's Warbler trapped at Priory Country Park by Errol Newman, the sort of catch ringers dream of, but I bet Errol never thought that a Radde's Warbler would turn up in his net, especially at such an inland site. Other highlights include Pintail (not a common County species), Tufted Duck, Ruff, Long-eared Owl, Water Pipit and Whinchat. Goose totals were extremely low this year due to control measures that are taking place in order to reduce their numbers, particularly of Canada Goose which is fast becoming a pest species.

A number of interesting recoveries were received and there are also three more foreign recoveries from the Ivel Group which are awaited but will have to go into next year's report. Top of the list for recoveries goes to the Common Tern ringed as a nestling at Radwell Gravel Pits in June 1991 and recovered in December found dead in Senegal, most likely its wintering quarters. Interesting to know where our breeding Common Terns winter. There were two other foreign recoveries received during the period, a Blackcap F717080 ringed at Waterloo Thorns in 1990 and recovered the following autumn in Spain, and a Kestrel ER41390 ringed as a Pullus in Shortstown, near Bedford and controlled in Belgium, an interesting recovery for a species you would imagine is fairly sedentary, but one or two do cross the Channel.

Interesting movements within the British Isles include the Redshank CE98287 originally ringed at Cliffe in Kent in 1982 and controlled twice in 1987 and 1991 at South Mills, the Garden Warbler F725637 ringed at St. Albans Head on the 16th May 1991 and controlled three days later at Waterloo Thorns, a fairly rapid movement of 211km, and the Linnet F904597 ringed at Priory Country Park on the 19th January 1991 and recovered in Whitley Bay, Tyne and Wear in July, a species for which recoveries are few and far between.

RINGING TOTALS FOR 1991

Great Crested Grebe	1	Green Woodpecker	1	Blackcap	176
Mute Swan	10	Great Spotted Woodpecker	1	Radde's Warbler	1
Greylag Goose	25	Skylark	2	Chiffchaff	78
Canada Goose	18	Sand Martin	1	Willow Warbler	362
Teal	55	Swallow	40	Goldcrest	10
Mallard	4	House Martin	72	Spotted Flycatcher	5
Pintail	1	Meadow Pipit	20	Long-tailed Tit	142
Tufted Duck	1	Water Pipit	1	Marsh Tit	1
Sparrowhawk	5	Yellow Wagtail	3	Willow Tit	3
Kestrel	10	Grey Wagtail	2	Coal Tit	5
Moorhen	2	Pied Wagtail	25	Blue Tit	419
Coot	2	Wren	98	Great Tit	169
Little Ringed Plover	2	Dunnoch	131	Treecreeper	17
Ringed Plover	11	Robin	111	Jay	1
Lapwing	21	Nightingale	11	Magpie	1
Dunlin	1	Redstart	1	Starling	87
Ruff	1	Whinchat	2	House Sparrow	5
Jack Snipe	4	Wheatear	1	Chaffinch	118
Snipe	16	Blackbird	247	Greenfinch	419
Redshank	6	Fieldfare	5	Goldfinch	59
Common Sandpiper	1	Song Thrush	59	Linnet	66
Common Tern	6	Redwing	24	Redpoll	14
Woodpigeon	6	Mistle Thrush	2	Bullfinch	106
Collared Dove	8	Grasshopper Warbler	4	Yellowhammer	51
Turtle Dove	5	Sedge Warbler	226	Reed Bunting	229
Little Owl	2	Reed Warbler	161	Corn Bunting	31
Long-eared Owl	1	Lesser Whitethroat	59		
Swift	45	Whitethroat	77		
Kingfisher	7	Garden Warbler	118	Total	4291

SELECTED LIST OF RECOVERIES

Entries are arranged in Voous order. After species and ring number, ringing details are given in the first line and recovery details on the second. Abbreviations used are given below the recovery data.

Species	Ring Number	Age Code	Ringing and Recovery Dates	Ringing and Recovery Locations	Recovery Manner	Distance (km) and Direction
Kestrel	ER41390	1F	23.06.90 13.01.91	Shortstown Salles-Chimay, Hainaut, Belgium	V	399 SE
Ringed Plover	NV23763	4F	10.07.87 05.03.91 21.05.91	Tytenhanger, St. Albans, Herts. South Mills N.R. South Mills N.R.	V V=B	46 N
Redshank	CE98287	4	19.09.82 21.04.87 21.03.91	Cliffe, Kent South Mills N.R. South Mills N.R.	V V	93 NW
Common Tern	XR51913	1	24.06.91 09.12.91	Radwell G.P. M'Bour, Senegal	X	4454 S
Black-headed Gull	EP81593	4	15.12.90 21.02.91	Godmanchester, Cambs. Stewartby	X	37 SW
Kingfisher	SB32087	3J	29.06.91 31.08.91	Purwell, Hitchin, Herts. Wyboston	V=F	30 N
Sedge Warbler	F716543	4	28.04.90 03.05.91	Wyboston Rustington, Sussex	V	154 S
Reed Warbler	E241475	4M	15.06.89 27.05.90 01.09.91	Wilstone Reservoir, Tring, Herts. Houghton Regis Houghton Regis	V=M V	15 NE
	F655633	4	27.06.90 03.08.91	Walhamstow, London Houghton Regis	V=M	52 NW
	F674263	3J	05.08.90 03.08.91	Rye Meads, Herts. Houghton Regis	V=B	39 WNW
Garden Warbler	F725637	4	16.05.91 19.05.91	St. Albans Road, Purbeck, Dorset Waterloo Thorns	V=M	211 NE
Blackcap	F185346	3J	09.07.89 12.05.91	Harrold Waterbeach, Cambs.	V=M	54
	F717080	5F	07.05.90 22.10.91	Waterloo Thorns Castellon, Spain	X	1360 S
	F751903	3JM	28.06.90 10.05.91	Epping, Essex Waterloo Thorns	V	57 NW
Willow Warbler	6X2930	3J	24.06.90 04.08.91	Silverstone, Northants. Waterloo Thorns	V=F	34 W
Linnet	F904597	5M	19.01.91 20.07.91	Priory C.P. Whitley Bay, Tyne & Wear	X	320 N
Reed Bunting	F717668	4F	13.10.90 13.01.91	Chalton S.W. Calvert, Bucks.	V	34 W

Euring Age Code:

1. Pullus nestling or chick
2. Fully grown, but year of hatching unknown
3. Hatched during calendar year of ringing (J-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

Recovery Manner:

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

Sex:

- M — Male
F — Female
B — Breeding

ACKNOWLEDGEMENTS

Once again I would like to thank those ringers active in the County for their prompt submission of records and to wish them all the best for their efforts in 1992.

N. Finan, E. Newman, P. Oldfield, P. Wilkinson and R. Wooding.

D.S. WOODHEAD

REPTILES AND AMPHIBIANS

Report of the Recorder

The first event of the year was the Herpetofauna Recorders' Meeting, which was held on 2nd February 1991 at Leicester Polytechnic. As usual there was a very full programme with the morning being devoted to Habitat Management and the afternoon session being on Aliens, i.e. introduced species of reptiles and amphibians which have established themselves in this country. I gave a talk on The Midwife Toad in Bedfordshire during this session along with others who spoke on Wall Lizards, Pool Frogs in Norfolk, Introduced Newts and the NCC's View on Introductions.

General recording work in the county has continued through the year with the records going to the database at Bedford Museum as well as into my personal recording system. The year was disappointing with regard to reptile sightings and for a second year running no adders were seen or reported.

Rosemary Brind and I continued our research into the history of the Midwife Toad in Bedford and as a result of some of the publicity on our project we had a letter from Mrs Faith Brocklehurst, who is the widow of Robert Brocklehurst, one of the "boys" who took care of the toads as the first colony was becoming established. She invited us to her house to meet her brother-in-law, Percy, who was able to tell us about the colony in its early days. We were also able to borrow some of Robert's correspondence concerning the colony to photocopy for the Museum's archives.

In November a group of volunteers undertook more pond clearance at the Moat House, removing a skipful of reed mace, rubbish and overhanging branches from the site. It was noted that the water level was lower than in previous years but was not in danger of drying out. Several Great Crested Newts and Midwife Toad tadpoles were found during the removal of excess plants and these were returned to the water at the end of the operation.

I would like to thank all of those people who helped at the pond clearance and everyone who sent in records for the year.

HELEN MUIR-HOWIE



Midwife Toad Alytes obstetricans Bedford 1990

(Photo: Andrew Turner)

FISH

Report of the Recorder

As many existing fish records for the County are old and possibly outdated it has been decided to close the records at the end of 1989 and recommence recording for the ten years 1990 - 1999.

This report presents a good opportunity to review the ten years 1980 - 1989 and there follows a listing of all the twenty-seven fish species recorded during that period with some general observations on their status within the County and some indication of the records received for the years 1990 and 1991. Where relative abundance and biomass figures are quoted these have been extracted from Anglian Water Authority (now National Rivers Authority) fishery reports. Caution is needed when comparing these figures for like locations in different years as some fish species shoal and move around an area and thus may not be present at an exact site sampled on every occasion. Therefore, direct comparisons are difficult and these figures should be regarded as a general indication of population levels.

When referring to Bedfordshire linear water generally I have not included the River Lea as I do not consider this of significance until it leaves our County shortly after passing through the Luton Hoo estate.

Finally, of course, I am indebted to the previous County Recorders for much of the earlier information used in the preparation of this report.

Barbel *Barbus barbus* A species which in this country is restricted to the southern rivers and in Bedfordshire is found in the Great Ouse upstream of Bedford where a number of mature fish were introduced in 1972 by an angling society. It has also been recorded from the Ivel.

The species has been regularly recorded at a number of locations on the upstream Great Ouse since introduction and with the presence of young fish it is pleasing that the species has succeeded in becoming established. Early information from the NRA for the year 1991 indicates an appreciable increase in Barbel stocks in the upper Ouse.

The Barbel has not yet been recorded from the Ouzel in this County but has been recorded at Newport Pagnell in Buckinghamshire and thus it may put in an appearance here in due course.

This is a large handsome species regularly angled for and its numbers will probably be maintained by stocking if necessary.

Bleak *Alburnus alburnus* An attractive little species often found in large numbers in suitable habitat and frequently observed sporting and splashing at the water surface. Usually associated with slow flowing waters it is recorded in our County from the rivers Great Ouse and Ivel with only a few exceptions.

As was noted in the 1981 fish report by the recorder at that time, records of Bleak from still water in Bedfordshire are rare but do exist for the Longholme Lake at Bedford, dating from the early 1980s. This has not been recently confirmed but there is no real reason to suppose the species does not still exist at that site. The Bleak has also been recorded from the Grand Union Canal in nearby Hertfordshire but not yet from the Bedfordshire stretch.

Some question was also raised in 1983 regarding the status of the Bleak in the County and I shall attempt to assess this in the light of information gathered since then. At that time AWA survey of the downstream stretch of the Great Ouse revealed a relative abundance figure for the Bleak of 5%. The latest report available to the present recorder, dated 1989, quotes a figure of 6% abundance and 1% of total fish biomass for the Bleak downstream of Bedford; the position then remains much the same there.

Regarding the upstream Great Ouse, the Bleak there is much more abundant with a figure given of 12% in the 1985 AWA report. A later report of 1988, the most recent available of this stretch of the river, gives an abundance figure of 18% for the Bleak, an increase in this instance. The species was also recorded during 1989 by the AWA as present in the Bedford Ouse backwaters, found in the New Cut but not the Cardington Canoe Stream. It can be said therefore that the Bleak remains firmly established as a Bedfordshire species. It is also interesting to note that an AWA fishery report records the presence of the Bleak in the River Ivel but gives no further details as numbers of the species were found to be extremely low.

Common Bream *Abramis brama* By far the most abundant of the two Bream species and also the larger; a weight of seven pounds being not uncommon. Essentially a fish of still or slow flowing water it is well distributed throughout the County at numerous sites; river, canal and enclosed waters.

Water authority reports of the 1980s show a relative abundance figure of 3% for the Common Bream in the downstream stretch of the Bedfordshire Ouse. The contribution of the species by weight to the main biomass shows a widely different picture. A report of 1989 records that the most important change that had occurred since the early 1980s was the increased contribution of the species to the overall biomass of this section of the Ouse. In percentage terms this is an increase from 9% to 35% but the species was recorded from fewer sites of the total sampled. It must be pointed out however that the tight shoaling habit and movement of the Common Bream makes accurate monitoring difficult.

The species does not appear to be present in the Bedfordshire stretch of the Ouzel but has been recorded from the Ivel and Ivel Navigation during AWA surveys. It was not found in the minor rivers Hiz, Hit or Flit at this time. The species is well recorded from many still water sites throughout the County including the Grand Union Canal.

Hybrid fish occur in waters where the Common Bream and the Roach spawn together and are difficult to identify.

Records for the Common Bream have been received from several sites during 1990 - 91.

White or Silver Bream *Blicca bjoerkna* The smaller of the two bream species found in this country and of much more restricted distribution being confined to the eastern counties where the River Great Ouse is a stronghold. The mature fish rarely reaches a weight of a pound and a half and are often mistaken for young of the Common Bream and vice versa.

In Bedfordshire the species has been recorded from sites along the River Great Ouse appearing to be more abundant downstream of Bedford, although numbers are relatively low. AWA reports between 1980 and 1989 reveal a comparative species abundance for the Silver Bream of less than 1% for the downstream stretch of the Great Ouse with no increase in numbers recorded over that period. A report of 1988 noted the presence of the species in the upstream stretch of the Great Ouse but numbers of fish found were too low for an assessment of relative abundance to be made.

No new records have been received for this species during 1990 - 91.

Bullhead or Millers Thumb *Cottus gobio* A small species well distributed throughout the County at many differing sites including small streams but making a negligible contribution to abundance or biomass figures.

There is no record of the Bullhead from the River Lea from its source at Leagrave Marsh to Luton Hoo but presumably the water quality here is too poor to sustain this species.

Records have been received during 1990 and 1991 from several sites on the River Great Ouse.

Common Carp *Cyprinus carpio* This species is native to eastern Europe and Asia but was introduced into this country many centuries ago and has long been firmly established. It is widely distributed in our County; found in river locations, canal and many lakes and pools, generally preferring still or slow flowing water. Although it may appear an unlikely situation for this species it has been recorded by the AWA as present in the minor River Flit at a low density. The variety commonly known as Mirror Carp are frequently encountered but the form virtually without scales, known as the Leather Carp, has only been recorded once in recent years in the County; in 1978 from a site near Bedford.

This is an elusive sport species beloved of anglers and it is safe to assume that any loss of numbers would be made up at many sites by restocking. Records continue from several sites for the years 1990 - 91.

Crucian Carp *Carassius carassius* Another introduced species long established in this country but not as widely distributed as the Common Carp; a much smaller species usually preferring well weeded still water.

As might be expected Bedfordshire records are almost exclusively from enclosed still water sites, the exceptions being for the Ivel Navigation in 1983 and from one site on the

River Ivel during 1985. At both these locations a very low population level was recorded.

There are no further records from any of our linear waters including the Grand Union Canal and no records have been received for this species during 1990 - 91.

Grass Carp *Ctenopharyngodon idella* A species originating from China and with only one old record existing for a lake at Woburn Abbey where it was introduced to act as a natural control of aquatic plant growth. A new record is required to establish the present status of this species within the County.

Chub *Leuciscus cephalus* The Chub is essentially a river fish with very few records from still water in the County. It is recorded from the River Great Ouse and its backwaters and the Ivel but not the rivers Ouzel, Flit, Hiz and Hit.

In the Great Ouse the Chub appears to be more numerous upstream than in the downstream stretch although still recording low density figures. It is present in the New Cut at Bedford and the Cardington Canoe Stream in good numbers. In the Elstow Brook the Chub is the dominant species by weight accounting for 52% of the total fish biomass and 15% relative abundance. Records continue for 1990 - 91, all from sites on the River Great Ouse.

Dace *Leuciscus leuciscus* An active species usually associated with clear flowing streams and rarely found in still waters. The species is present in all of the County linear water except the Ouzel and minor River Hiz and it is not recorded from the Bedfordshire stretch of the Grand Union Canal.

In the minor rivers Flit and Hit and Elstow Brook it replaces the Roach and is generally the most numerically important species. It is interesting to note that an AWA fishery report of 1988 recorded an increase in the Dace population in the upstream stretch of the River Great Ouse since the previous survey in 1985, with the species present at all sites sampled. The relative density of the species there in 1988 was found to be 18% compared to 3% in 1985 with a corresponding increase in the total biomass figure.

A few records have been received for 1990 - 91, all from river sites.

Eel *Anguilla anguilla* A distinctive species with a complex but well known life cycle. In Bedfordshire the Eel is recorded from the north of the County, chiefly from the rivers Great Ouse and Ivel.

The species is recorded all along the Great Ouse from both upstream and downstream sections but at a relative density of less than 1%. It is also recorded from the Ivel but again in small numbers. The Eel is quite well represented in the Elstow Brook where it is the fourth most important species by weight, accounting for 9% of total fish biomass.

Records have been received for 1990 - 91, all from the Great Ouse.

Gudgeon *Gobio gobio* A small species represented well in the linear waters of Bedfordshire and also at many still water sites.

In the rivers Great Ouse, Ivel and Ouzel it is numerically well represented and in the minor River Flit it is the most prolific species with a relative abundance figure of 62%. It is also recorded in good numbers from the River Hiz and Elstow Brook, but is apparently not present in the Hit.

In the present recorder's experience this is often the species most encountered by anglers on the Bedfordshire stretch of the Grand Union Canal and at some locations is often present in large numbers, although the majority of fish are small.

Records continue from several sites during 1990 - 91.

Stone Loach *Noemacheilus barbatulus* By far the most common of the two loach species found in the County and widely recorded from river and stream locations. The Stone Loach is relatively prolific in the minor River Hiz with a recorded relative abundance figure of 33%. It is also present in the River Flit and the Elstow Brook and many other small streams as well as the major rivers Ouse, Ouzel and Ivel. There do not appear to be any records of the species from the River Lea where presumably it cannot tolerate the poor water quality and disturbance.

Records continue from several sites during 1990 - 91.

Spined Loach *Cobitis taenia* A rarely observed species in Bedfordshire with just a handful of records for the ten years 1980 - 89. The most recent record was of a number of specimens taken together from the River Great Ouse at Oakley during 1990 (*Bedf. Nat.* 1991 45 29). Any further reports of this unusual little species will be most welcome.



Minnow Phoxinus phoxinus

(Photo: Richard Revels)

Minnow *Phoxinus phoxinus* An attractive little species generally preferring moving streams and somewhat restricted in distribution within the County with the majority of records coming from the rivers Great Ouse and Ivel.

The present recorder has found the species to be relatively abundant at some locations on the upstream section of the Great Ouse in the Felmersham area.

Several records have been received for 1990, again from the upstream stretch of the River Great Ouse.

Perch *Perca fluviatilis* When in good condition this is a most handsome and colourful species and well distributed in the County at both still and flowing water sites. The Perch is present in all our linear waters with the exception of the minor rivers Flit, Hiz and Hit, but it is interesting to note that some old records exist from small streams in the Totternhoe area although these have not been recently confirmed.

An AWA fishery report of the Bedfordshire stretch of the Grand Union Canal records the Perch as being numerically the most important species at one site and present at all sites sampled. In the writer's experience the Perch is often encountered in large numbers by anglers along this section of the canal, although the fish tend to be of small size.

In waters such as the Great Ouse the Perch is well distributed with a relative density figure of 7% recorded for the downstream stretch where it is an important predator species, second to the Pike.

The Perch is recorded from many pools and lakes throughout the County and where the water area is small, stunted specimens sometimes proliferate.

Records continue for 1990 - 91 from several still water and river sites.

Pike *Esox lucius* A species preferring well weeded slow flowing or still water sites, the Pike is our most important predator species and widely distributed throughout the County. The Pike is present in all our major linear waters and also the minor River Hiz and Elstow Brook but apparently not the Flit or Hit.

Some interesting information regarding this species was revealed by two AWA fishery reports of the Elstow Brook dated 1986 and 1989. The 1986 report showed the Pike to be the dominant species in this water contributing 32% to the total fish biomass but apparently no predator/prey imbalance was caused. By 1989 the position had changed with the Pike no longer dominant and contributing only 12% to the total biomass figure and accounting for only 2% density.

The species has continued to be recorded during 1990 - 91.

Roach *Rutilus rutilus* It is probably true to state that this is the most widely distributed and the most abundant of the larger fish species found in the County and is recorded from many still water and flowing linear water sites.

AWA reports reveal this to be numerically the most important species in the major rivers Great Ouse, Ouzel and Ivel and also the Grand Union Canal, with a relative abundance figure exceeding 50% recorded from many sites. The species is not found in the minor rivers Hiz,

Hit and Flit, where it is replaced by the Dace or Rainbow Trout, but is recorded as present in moderate numbers in Elstow Brook. There are records from many enclosed still water sites in the County and an AWA report quotes a relative abundance figure of 81% for the Roach in the Longholme Lake at Bedford during the 1980s.

In waters where the Roach and the Common Bream both occur hybrid fish are occasionally produced which are often difficult to identify as characteristics of both parents are present.

The Roach is an important sport species and much stocking of angling waters takes place ensuring the species' survival, with numerous records received during 1990 - 91.

Rudd *Scardinius erythrophthalmus* The Rudd is very similar to the Roach in outward appearance, although more brightly coloured and on average tends to be the smaller fish. Usually considered to be a still water species, but it is not exclusively so as it is also found in suitable slow flowing stretches of river and backwaters. The Rudd is well distributed throughout the County at still water sites including the Grand Union Canal and is present in the rivers Great Ouse, Ouzel and Ivel at suitable locations, but at a low density.

Records have been received for 1990 - 91 but only from still water lake sites.

Ruffe or Pope *Gymnocephalus cernuus* A species closely resembling the Perch, although smaller and of a more secretive and less aggressive nature and with a more restricted distribution. In Bedfordshire the majority of records are from the rivers Great Ouse and Ivel, and also the Grand Union Canal where an AWA fishery report records the Ruffe as the most prolific species at one site sampled. This is not a species usually angled for and is rarely otherwise seen and thus probably under recorded.

The species has not been recorded during the period 1990 - 91.

Three-spined Stickleback *Gasterosteus aculeatus* The two stickleback species found in this country are both small but aggressive fish, the Three-spined Stickleback being slightly the larger and also the more common. It is widely distributed in the County but as it is of little interest to anglers is probably very much under recorded. Most types of water provide suitable habitat for this species and it can sometimes be found in the smallest of streams.

A survey of the River Lea from its source at Leagrave Marsh to the Moor in Luton town centre was conducted by the present recorder during 1990 and the species was found to be present at most accessible points along the entire length of the river including the Wardown Park lake. This stretch of river is intensively fished by children looking for 'tiddlers' and is sometimes littered with rubbish and yet the species survives. There are very old records of the species from the Luton Hoo lake further downstream but these have not been confirmed for many years.

Any further records of this species would be welcome.

Ten-spined Stickleback *Pungitius pungitius* Slightly smaller than the preceding species and although well distributed over the County does not appear to be quite so common. Again, this species is felt to be under recorded and any further records would be welcome.

Tench *Tinca tinca* A handsome species usually preferring slow flowing rivers and well weeded still water. The Tench is widely distributed in the County with the majority of records from still water sites. The species is represented in our linear waters at a low density at sites on the rivers Great Ouse and Ivel, but apparently not the Bedfordshire stretch of the Grand Union Canal or the River Ouzel.

Regarding the Great Ouse, AWA reports show the Tench to be present in the upstream stretch but in insignificant numbers and to be slightly more numerous downstream where it represents 3% of the total fish biomass but is still considered a relatively unimportant species. It was not recorded from the New Cut at Bedford at that time. AWA reports record the species as present in the River Ivel at two sites sampled, but again in insignificant numbers. The Tench is recorded from many enclosed stillwater sites in the County which provide a more suitable environment for this species.

A few records have been received during 1990 - 91.

Brown Trout *Salmo trutta* The native trout species of this country, and now widely introduced as a sport species in many areas of the country. One record exists for the County from a lake site but new records are required to establish the present status of this species.

Rainbow Trout *Salmo gairdneri* A North American species which has been widely introduced throughout Europe as a sport species, although it has not developed a self maintaining population everywhere, and also commercially farmed.

In Bedfordshire it is present at a number of commercially run fish farms but has also been recorded from small stream sites in the Totternhoe area, and an AWA fishery report shows it to be the dominant species in the minor River Hiz with a relative abundance figure of 40%. Of course, the species must have been introduced into the river at some time, it has been suggested as fish farm escapees, but appears to have become firmly established there.

No records have been received for this species during 1990 - 91.

Wels or European Catfish *Silurus glanis* This is an introduced species native to central and eastern Europe, one of only two European species of catfish. It was originally introduced in the latter half of the nineteenth century into lakes at Woburn Park and has since spread into other sites within and outside the County; a true Bedfordshire species.

This is a species preferring large areas of still water in this country where it attains a considerable weight and size, but has also been recorded occasionally from river sites, the Great Ouse at Bedford, presumably after accidental introduction. It has never been shown as present in the Ouse by any of the AWA fishery reports.

The species has been regularly reported from known sites over the years but also during 1991 from a pit at Houghton Regis which appears to be a new record, although it has been known to anglers as present there for some time.

Zander or Pike Perch *Stizostedion lucioperca* Another continental European species which was originally introduced into this country by way of Woburn Abbey lakes and subsequently spread in the County and elsewhere.

It has become established in the Great Ouse river system and during the 1970s concern was caused by the reduction of prey species there as the Zander is a voracious predator. It has not yet reached the Bedfordshire Ouse except for one report of a specimen taken at Bedford during 1980. This appears to be an isolated instance as the nearest location for this species in the Great Ouse known to the NRA is at Offord, near St. Neots, outside our County boundary. The Zander is well suited to the type of habitat found in the Norfolk broads and drains and it is felt that in the Bedfordshire stretch of the Great Ouse it would lose out in competition with the Pike.

No records for this species have been received for the years 1990 - 91.

To sum up the situation of the fish population of Bedfordshire during the years 1980 - 1989 it can be said that all the species to be expected in a small lowland county such as ours were recorded as present, with a sprinkling of the more unusual largely due to the stocking of lakes at Woburn Abbey in the past, i.e. the Catfish, Zander and Grass Carp.

The River Great Ouse may be considered an important habitat and provides a few species largely restricted to the south and south-east of the country, such as the Silver Bream and Barbel.

NRA fishery reports for 1990 - 91 are not yet available in detail but early indications are of an appreciable increase in fish stocks in the upper Great Ouse and Ivel rivers, particularly of the Barbel which is most encouraging.

The activity of the NRA and the high level of angling interests generally both help to ensure the maintenance of water quality and fish stocks and there is every reason to expect fish life in the County to remain buoyant and well recorded during the present decade.

NEW TETRAD RECORDS FOR 1991

European Catfish *Silurus glanis* — 1 tetrad. TL02C.

ACKNOWLEDGEMENTS

My thanks to the following people for their assistance, information and records:— J. Adams (NRA), P. Madgett, B. Nau, N. Perkins, R. Revels, R. Stainton, A. Taylor (NRA), E. Winter.

HARVEY R. WINTER

DRAGONFLIES (Odonata)

Report of the Recorder

Once again the weather patterns during the spring and summer had considerable influence on dragonfly numbers during the flight season. Spring emergence was very erratic due to the cool, wet weather and there were no records from Bedfordshire during April. The synchronised emergence which often occurs during May did not materialise. The weather deteriorated even further in June with wet conditions being experienced nearly every day of the month. Dragonfly activity is severely restricted under such conditions. On 23rd June the British Dragonfly Society held a field meeting at Sundon Springs quarry and members were able to observe the unusual sight of several *Ischnura pumilio* emerging in pouring rain. The normal period of emergence had probably been so delayed that an hour of early morning sun had triggered emergence.

July was warmer, yet still somewhat variable, but did provide more favourable conditions. The smaller damselflies were much in evidence during July but the variable conditions made the larger dragonflies less conspicuous. August and September were very good months and the Migrant Hawker *Aeshna mixta*, was particularly abundant across the county. It would be interesting to know whether such high numbers are all 'home bred' individuals or include an influx of migrants from the continent. Certainly one of the highlights of the year was the first county record of the Red-veined Darter *Sympetrum fonscolombei*, a rare migrant from Europe.

On 1st September a rather opportunistic Kestrel was observed taking Migrant Hawkers in flight along the edge of Kings Wood, Houghton Conquest.

During the year recording centred upon previously unvisited ponds which proved particularly productive for some of the county's scarcer species.

At Sundon Springs quarry one of the flooded ditches nearly destroyed by four wheel drive vehicles last year made a dramatic recovery. During the summer it was full of lush plant growth and the high numbers of *Lestes sponsa* larvae present in June clearly demonstrates the ability of some species to survive considerable disturbance.

SYSTEMATIC LIST

Tetrad records with a * indicate a new 10km record.

Zygoptera (Damselflies)

Banded Demoiselle *Calopteryx splendens* The very high numbers observed in previous seasons were not recorded this year. However, it was still common along most of the county's streams and rivers. As in previous warm summers it was again recorded along some feeder streams where it was previously unrecorded. Wandering males were observed on several lakes and ponds away from rivers and streams occasionally in association with females. It remains to be confirmed whether breeding occurs at any of these sites.

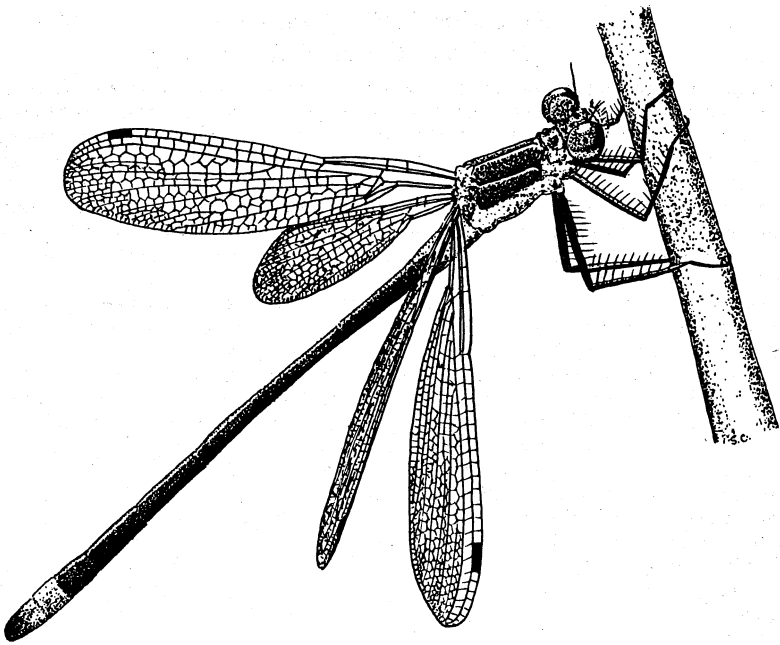
New tetrad records SP95J, TL04BN, TL05F, TL13C, TL14Q, TL15M (7).

Emerald Damselfly *Lestes sponsa* A number of new colonies were discovered on small ponds across the county, especially those with lush emergent vegetation. Sizeable colonies were found around the brick pits, notably the small pools in Rookery Pit and Marston Thrift ditch.

New tetrad records SP95J, SP96T, TL03Y, TL04FQ, TL05CT, TL13H* (8).

White-legged Damselfly *Platynemis pennipes* This species appears to have fared better than other damselflies this year and was present in very high numbers in August. At the BCWT reserve at Wyboston it numbered thousands. It is now recorded all along the River Ouse in Bedfordshire yet it exhibits a patchy distribution, occurring in colonies at intervals. There appears to be some association with the grass *Glyceria maxima*, but further study is needed before conclusions can be drawn. Although mainly a riverine species in Britain, it is also found on still waters close to the River Ouse. High numbers were recorded at Felmersham N.R. but as yet breeding has not been confirmed at any of the pits. At Wyboston one pair were observed ovipositing inside the flower head of a yellow water-lily.

New tetrad records SP95M, TL05CG, TL15MRU (6).



Lestes sponsa — discovered at a number of new sites in 1991

(Steve Cham)

Large Red Damselfly *Pyrrhosoma nymphula* This species is probably the most affected by poor spring weather. It is often the first species on the wing and has a synchronised emergence during April and May. The poor weather this year appears to have drastically reduced the number of sightings, and it remains one of the most underrecorded species in the county. New tetrad records SP92EP, TL03J, TL14B (4).

Blue-tailed Damselfly *Ischnura elegans* Widespread over most of the county but not in as high numbers as previous years. Along some stretches of the River Ouse, however, it reached high numbers especially at Clapham and Roxton Lock. At a small pond near Cranfield Wood, Roxton, a female of the variety *infuscans obsoleta* was observed taking a small black fly from a spider's web. It was an incredibly agile manoeuvre which could have easily led to a fatal end for the damselfly.

New tetrad records SP92K, SP95JM, TL03Y, TL04FNQT, TL13H, TL14A, TL15DHM (13).

Scarce Blue-tailed Damselfly *Ischnura pumilio* Emergence was delayed by poor weather in June. Several were observed emerging in pouring rain on 23rd June. Considerable disturbance to seepage areas at Sundon Springs, by four wheel drive vehicles, virtually obliterated the shallow runnels which are favoured by this species. Both males and females were seen several days later and hopefully they will have mated and egg-layed in the few surviving runnels. Its status is still very tenuous whilst this disturbance continues at Sundon. No sightings were reported from Houghton Regis quarry. At present this is the only key species in the county.

Common Blue Damselfly *Enallagma cyathigerum* Widespread and common.

New tetrad records SP95MU, TL01C★, TL04FNQR, TL05B, TL13JY, TL14F, TL15DM (13).

Azure Damselfly *Coenagrion puella* Several new colonies discovered at small ponds. At two flood overflow ponds just north of Oakley many pairs were observed ovipositing into floating leaves of *Potamogeton* sp. High numbers were observed at sand pits at Heath and Reach. At Trilley pond in Maulden Woods, John Adams and Dave Parsons photographed thousands of tandem pairs ovipositing on 14th July. The photographs clearly show the high density of individuals.

New tetrad records SP92P, SP95J, TL13J, TL15M (4)

Red-eyed Damselfly *Erythromma najas* Recorded at a number of new sites along the River Ouse as well as sand pits at Heath and Reach. On the River Ouse at Church Holme, Oakley, hundreds were observed ovipositing in floating vegetation.

New tetrad records SP92JP, SP95HM, TL04Q, TL05CEFG, TL15GLR (12).

Anisoptera (Dragonflies)

Brown Hawker *Aeshna grandis* Abundant across the county. At Felmersham N.R. in August, large numbers were observed quartering over thistle beds in search of insect prey.

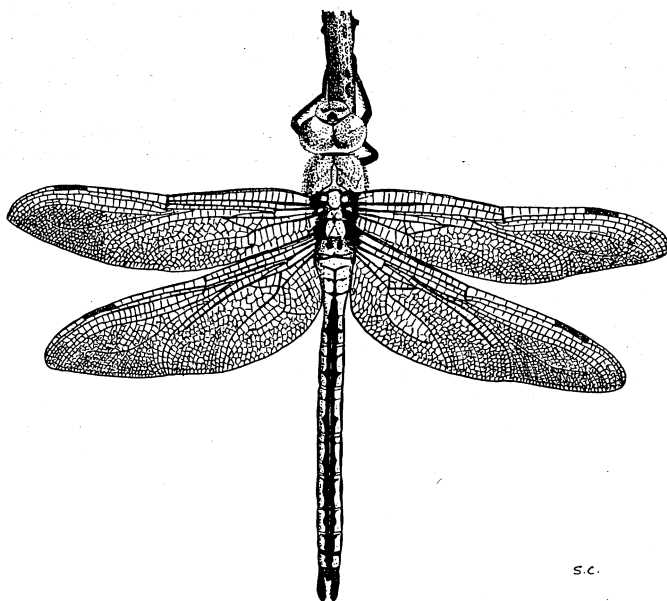
New tetrad records SP92K, TL03E, TL04FG, TL13HJ, TL14H, TL15GMU (10).

Southern Hawker *Aeshna cyanea* Reports of ones and twos from across the county but nowhere common. At the main pond in Bramingham Wood, Luton, several adults were observed hawking around the margins. Two exuviae were also found, confirming it as a breeding site. In Bromham one was brought in by a cat.

New tetrad records SP95J, TL02S, TL04F, TL15MW (5).

Migrant Hawker *Aeshna mixta* Another good year for this species, recorded in high numbers at many sites in late summer. The cold weather in October reduced numbers but it was still on the wing in early November.

New tetrad records SP92J, SP95J, TL02YZ, TL03EZ, TL04FGJKQT, TL15HM (14).



Emperor Dragonfly *Anax imperator* Widespread, being seen in higher numbers than in previous years. Dave Parsons observed a female ovipositing which had the bright blue colouration normally seen on males. This is an uncommon colour form for females which are usually apple-green in colour. There were also increased numbers of this form observed in other counties.

New tetrad records SP95TX, TL04BFQ, TL05CEG, TL13J (9).

Broad-bodied Chaser *Libellula depressa* Very few records, probably affected by the poor weather conditions early in the flight season.

New tetrad record TL14B (1).

Four-spotted Chaser *Libellula quadrimaculata* Another species which appears to have been affected by the poor weather conditions. Very few records.

New tetrad records SP92D, SP95JT (3).

Black-tailed Skimmer *Orthetrum cancellatum* A few records from the brick pit area but nowhere as abundant as the previous two years.

New tetrad records SP95U, TL04B (2).

Common Darter *Sympetrum striolatum* During the poor weather of June high numbers of final instar larvae were found in the seepages and ditches at Sundon Springs. High numbers of adults observed around the brick pits around Stewartby. In Stewartby village on 1st September large numbers of tandem pairs were observed flying very purposefully well away from water. It appears that these pairs were dispersing from their emergence sites. By forming copulating pairs when dispersing they would ensure fertilised eggs are laid when new habitat is found.

New tetrad records SP95J, TL02L, TL03E, TL04QRTV, TL05CTV, TL13J, TL14Q, TL15DGU (15).

Ruddy Darter *Sympetrum sanguineum* Recorded from a number of new sites across the county especially small ponds where emergent vegetation has reached high density. The series of warm summers which have led to low water levels and rapid plant growth has benefitted this species, which was thought to be on the decline a few years ago. Around the brick pits it was recorded in higher numbers especially at Rookery Pit. Along Marston Thrift ditch it was in very high numbers and this is probably the best site for the species in the county. A single teneral male observed at Sundon Springs was the first record for the site.

New tetrad records SP92J, SP95J, TL02N, TL04BFQW, TL05V, TL14ABG, TL15TU (13).

Red-veined Darter *Sympetrum fonscolombei* A rare migrant from the continent. A single male was observed by T. Sanderson along the edge of the lake at the Swiss Garden, Shuttleworth, on 7th September. It is a very distinctive species, slightly larger than *S. striolatum* but with bright red wing veins and body.

New County record TL14M.

ACKNOWLEDGEMENTS

As always this report is based on the observations and records of a number of fieldworkers and to them I extend my thanks:- J. Adams, R. Brind, J. Childs, J. Comont, J. Dixon, A. Donnelly, W. Drayton, Mrs. Greenall, A. Outen, P. Madgett, N. Milton, D. Parsons, S. Pittman, M. Rowland, T. Sanderson, Mr. and Mrs. K. Weedon.

STEPHEN CHAM

MICRO-MOTHS (Lepidoptera)

Report of the Recorder

Recording during 1991 has been mainly confined to the identification of specimens sent to me by members, and examination of the moths obtained from the Rothamsted trap operated by Ian Woiwod at Cockayne Hatley.

ADDITIONS TO THE BEDFORDSHIRE LIST

Choreutidae

Choreutis myllerana Felmersham Nature Reserve, SP59Z (4 September 1985)

This species has recently been confirmed by dissection. It was previously mis-identified as *Choreutis sehestediana*, which is deleted from the county list.

Yponomeutidae

Ypsolopha nemorella Cockayne Hatley, TL24P (July)

Coleophoridae

Coleophora albidella Coppice Wood, TL06H (16 June 1990)

C. clypeiferella Cockayne Hatley, TL24P (July)

Elachistidae

Cosmiotes stabilella Sharnbrook, SP95Z (26 July 1986)

Oecophoridae

Semioscopis avellanella Cockayne Hatley, TL24P (April 1990)

Gelechiidae

Isophrictis striatella Cockayne Hatley, TL24P (August)

Ptocheuusa paupella Cockayne Hatley, TL24P (August)

Scrobipalpa atriplicella Cockayne Hatley TL24P (October)

Blastobasidae

Blastobasis lignea Cockayne Hatley TL24P (August)

Olethreutinae

Endothenia quadrimaculana Tempsford, TL15R (25 July 1990)

ACKNOWLEDGEMENTS

I would like to thank the following for records and specimens sent to me during the year:
C. Baker, I.K. Dawson, M. Kemp, A. Outen, R. Passley, I. Woiwod.

D.V. MANNING

MACRO-MOTHS (Lepidoptera)

Report of the Recorder

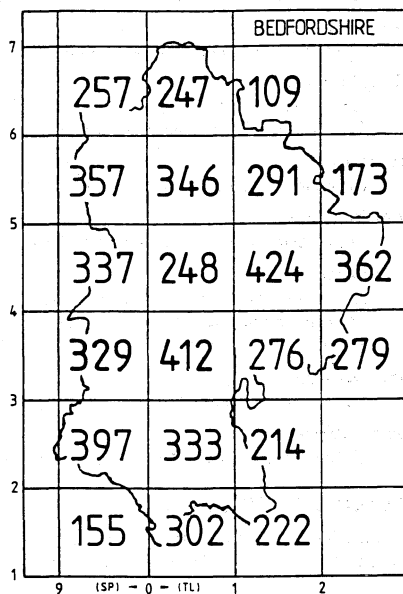
Once again the weather proved to be a key factor in the recording of moths in the County during 1991. The initial cold spell gave way to a generally cool season and this coupled with clear, cold evenings was not good for moths, or for recording. Some of my regular recorders were unable to trap in the County, others considered that the numbers of moths observed were down on the previous years.

Some new sites were investigated — these included Flitwick Plantation, Flitwick Wood and the under recorded northern section of Potton Wood. These were all looked at by Ian Woiwod and some of his colleagues from Rothamsted Experimental Station at Harpenden.

As an example of how the season was for moths, my field note book shows the following numbers of moths recorded from three locations; Maulden Woods, 22nd June, 18 species; Flitwick Moor, 5th July, 42 species; Old Warden Tunnel, 18th September, 9 species.

Every year interesting records are received from light traps situated in gardens. To illustrate the coverage that is received from these sites, the following is a list of the main locations for 1991. Mel Kemp, The Lodge, Sandy (TL14); Ian and Louise Dawson, Tempsford (TL15); Richard Bashford, Mogerhanger (TL14); Harvey Winter, Luton (TL02); Barry Squires, Barton le Cley (TL03); Alan Outen, Clifton (TL13); Mr and Mrs E. Bowskill, Stotfold (TL23); Charles Baker, Studham (TL01); Joan Kemp-Gee, Whipsnade and Kensworth (TL01) and Jim Barnwell at Aspley Guise (SP93).

The Bedfordshire Bat Group also provided some interesting records from piles of moth wings from various bat roosts throughout the County. They also provide information on the number of hibernating Herald Moths found during the winter from visits to various locations to check on hibernating bats.



Number of species recorded in each 10km square — as at 31.12.1991

SPECIES LIST

The following list contains new species, comments on species of particular interest and an update of the current status of some of the County's moths. Species marked * are new County records. All numbers and English names as per *A Recorder's Log Book or Label List of British Butterflies and Moths* by J.D. Bradley and D.S. Fletcher (Curwen, London 1979).

- 161 **Leopard Moth** A good year for this moth, normally only seen as singletons.
 370 **Hornet Moth** Last recorded from The Lodge, Sandy in 1989.
 1637 **Oak Eggar** A dead specimen found on 25/7/91 in a supermarket car park next to the parish church in Shefford. Record via D. Parsons. A scarce Bedfordshire moth.
 1657 **Common Lutestring** At light in J.B. Barnwell's trap, Aspley Guise, where it has occurred every year since 1986.

- 1662 **Light Orange Underwing** Flying around Aspen in Maulden Woods on 3/4/91. Recorded by A.J. Martin. Last recorded from the same site in 1983.
- 1693 **Cream Wave** An uncommon Bedfordshire moth, taken at light in June 1991 from Maulden Woods by the Recorder and at the northern section of Potton Wood by Ian Woiwod.
- 1702 **Small Fan-footed Wave** A common moth found throughout the County.
- 1705 **Dwarf Cream Wave** A common moth found throughout the County.
- 1707 **Small Dusty Wave** A common Bedfordshire moth.
- 1712 **Small Scallop** At light from a Rothamsted trap at Cockayne Hatley and from Ian Dawson's trap in Tempsford.
- 1749 **Dark Spinach** At light from Alan Outen's trap in Clifton.
- 1781 **Small Waved Umber** At light, Mr and Mrs Bowskill's trap in Stotfold, J.B. Barnwell's trap in Aspley Guise and I. Dawson's trap in Tempsford.
- 1788 **Scarce Tissue** At light from J.B. Barnwell's trap in Aspley Guise.
- 1791 **Brown Scallop** Only recorded once in 1991, from a Rothamsted trap at Cockayne Hatley.
- 1796 **Pale November Moth** Last recorded in 1989 from a Rothamsted trap at Cockayne Hatley.
- 1797 **Autumnal Moth** Last recorded in 1990 from a light trap at The Lodge, Sandy. Both this species and the previous one are probably common but can only be identified with certainty by genitalia examination.
- 1800 **Northern Winter Moth** At light 12th and 15th November 1990. The Lodge, Sandy. A very under recorded Bedfordshire species.
- 1802 **The Rivulet** A scarce Bedfordshire moth, last recorded from a Rothamsted trap in 1988, from Eaton Bray.
- 1807 **Grass Rivulet** An uncommon Bedfordshire moth, last recorded in 1989 from The Lodge, Sandy and a Rothamsted trap in Eaton Bray.
- 1809 **Twin-spot Carpet** At light from a Rothamsted trap in Cockayne Hatley in 1991. Found throughout the County but never in large numbers.
- 1816 **Toadflax Pug** A common Bedfordshire moth. Recorded from garden light traps at Studham by C. Baker and at Stotfold by Mr and Mrs E. Bowskill.
- 1817 **Foxglove Pug** At light in J.B. Barnwell's trap at Aspley Guise. Can be found where its food plant, foxglove, occurs.
- 1843* **Thyme Pug** Specimens of this moth, dated 25th June 1948, are in Adrian Riley's collection of pugs. No information is available of who captured them, apart from the fact that they were obtained at Sharpenhoe.
- 1893 **Tawny-barred Angle** A common moth found throughout the County — however it was not recorded at all in 1991.
- 1915 **September Thorn** An uncommon Bedfordshire moth — recorded at light from J.B. Barnwell's trap in Aspley Guise.
- 1944 **Pale Oak Beauty** A moth that is normally found in old woodlands. Recorded in 1991 at light in Maulden Woods and Flitwick Moor by the Recorder and at Potton Wood (northern section) by I. Woiwod and at Aspley Guise by J.B. Barnwell.
- 1950 **Brindled White-spot** At light 22/6/91 by the Recorder, Maulden Woods.
- 1951 **Grey Birch** At light by M. Kemp at The Lodge, Sandy.
- 1962 **Barred Red** At light in J.B. Barnwell's trap, Aspley Guise. Normally found in the vicinity of conifers.
- 1973 **Death's Head Hawk-moth** Pupa of this moth was found by Mr P.C. Collyer at Cranfield in the autumn of 1991. An adult subsequently emerged later in the autumn.
- 2044 **Dingy Footman** Recorded by A. Outen at Clifton and at a Rothamsted trap in Cockayne Hatley. An uncommon Bedfordshire moth.
- 2120 **Ingrailed Clay** This species has now been recorded from all of the 10km squares in Bedfordshire.
- 2138 **Green Arches** Taken at light in Potton Wood (northern section) by I. Woiwod on 25/6/91. This is the first record for the east of the County.
- 2147 **The Shears** At light, by the Recorder, Maulden Woods and also at Stotfold by Mr and Mrs E. Bowskill.

- 2158 **Pale-shouldered Brocade** At light 25/6/91 by I. Woiwod from Potton Wood (northern section).
- 2211 **The Wormwood** A rare Bedfordshire moth taken at light by Mr and Mrs E. Bowskill at Stotfold.
- 2225 **Minor Shoulder-knot** At light by Ian Dawson from his garden trap in Tempsford. Never a common moth.
- 2231 **Deep-brown Dart** At light, Tempsford by I. Dawson. Specimens taken by I. Woiwod at a Rothamsted trap at Cockayne Hatley are reported to resemble the Northern Deep-brown Dart, *Aporophyla lueneburgensis*.
- 2247 **Merveille du Jour** Recorded from Flitwick Wood; Palmers Scrub, Woburn Park; Tempsford, Aspley Guise and a Rothamsted trap at Cockayne Hatley.
- 2255* **Feathered Ranunculus** One, at light 11/10/91, Rothamsted trap at Cockayne Hatley. Normally a coastal species.
- 2300 **Old Lady** One, at light 16/8/91, Priory Country Park, Bedford by B. Dickerson. Never a common species.
- 2312 **The Olive** An uncommon Bedfordshire moth, last recorded at West Wood, Knotting in 1990.
- 2330 **Dusky Brocade** At light, I. Dawson's trap at Tempsford and Mr and Mrs E. Bowskill's site in Stotfold.
- 2339 **Tawny Marbled Minor** A common moth found throughout the County.
- 2340 **Middle-barred Minor** A common moth found throughout the County.
- 2342 **Rosy Minor** An uncommon Bedfordshire moth, last recorded at Mr and Mrs E. Bowskill's site in 1989 and 1990 in Stotfold.
- 2360 **Ear Moth** A scarce Bedfordshire moth last taken at light by M. Kemp at The Lodge, Sandy and Mr and Mrs E. Bowskill's site at Stotfold in 1990.
- 2348 **Vine's Rustic** Last recorded in 1980. This species reappeared in Bedfordshire at I. Dawson's light trap in Tempsford and at a Rothamsted trap in Cockayne Hatley on 1/9/91.
- 2489 **The Fanfoot** A common moth found throughout the County.

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V.W. ARNOLD

BUTTERFLIES (Lepidoptera)

Report of the Recorder

The year started cool and dry and it appeared that another mild winter was due. There was a good snow fall in February and many severe frosts, all seemed set fair! Lepidopterists normally welcome this type of winter weather as fewer pest species emerge at the end of a severe cold spell, but this one was not to last and in the end the winter proved to be yet another in the recent long spate of mild winters.

The other seasons came and went in much the same pattern as those of recent times, and the summer once more turned out to be damp and cool. The net effect of all this on the butterfly population was one of 'feast and famine', with some species doing well while others fared badly.

As the year came to a close the news that a working group was to be set up in the county to try to protect the last remnants of chalk grassland was welcomed. The work will be governed by the specific needs of the chalkland butterflies and will aim to not only stop the decay of these fragments but to recover some of that which has been lost.

Taking the groups one by one we can see that while some of the rarer species seemed to do well, many of the more common ones fared much worse.

Whites Green-veined and Small Whites had a good year, but the Large White numbers were well down on previous. One noteworthy event that took place in Ampthill was a plague of Large White larvae which invaded a housing estate. They came from an adjacent field header that contained Oil-seed Rape and had obviously missed the insecticide spray. Wood White numbers were similar to last year, but no new sites were found. Brimstone sightings in the spring were low but their numbers improved fairly well for their autumn brood, Orange Tip had a successful season and, after an absence of two years, the Clouded Yellow was seen in Stewartby and again in Turvey.

Vanessids Small Tortoiseshell numbers were low for the second year in a row and with only a few exceptions stayed that way for the second brood. It is highly likely that this highly parasitized species is currently at the stage where the parasite has the advantage. There were a few more Painted Lady sightings than last year but not enough to be really noteworthy. Peacocks, on the other hand, did very well on the summer brood, and once again the Bat group recorded good numbers in hibernation when they came to survey the winter Bat roost sites. The White Admiral was seen in its known locations but their numbers were disappointingly low, the Comma, on the other hand, did rather well for both broods and was recorded from a number of new sites in the northern half of the county. This, in my view, is a direct result of the series of mild winters of recent time.

Browns Wall Browns seemed to have suffered a serious set back this year and numbers were well down, and while Meadow Brown and Gatekeeper were by no means rare, their numbers were well below the normal concentrations for most sites and normal for a few depending on the local geography.

Marbled White and Ringlet numbers were normal but the Small Heath did not do so well as it has in recent years. The same seems to apply to the Speckled Wood, it too had a poor season.

Hairstreaks Black Hairstreak was seen in its usual site in the middle of the county but the numbers were down on the past. The site is to be improved during the coming year to benefit the species so a watch will be kept on the population density next year. There is a natural cycle in population density for this insect which it is hoped can benefit from the proposed conservation action. Purple and White-letter Hairstreaks were seen in large numbers this year especially at Chicksands Wood and the range of both species within the wood has increased enormously.

The only species not to do well was the Green Hairstreak, with only a few specimens seen in its old haunts.

Metal Marks and Coppers Small Copper numbers were generally low when compared with those of the last two seasons, only occasionally were sites found with normal numbers, but the Duke of Burgundy was recorded in far greater numbers than in the recent past. Largest numbers were seen in the west of the Chiltern Hills, the numbers becoming less to the east, until finally only two individuals were seen at Noon Hill.

Fritillaries The only fritillary species still known to exist in the county is the Dark Green and this year it put in three appearances, one individual seen at Pegsdon Hill, another at Bradgers Hill and two at Sharpenhoe Clappers. The status of the population that existed in the northern part of the county, at Sharnbrook Summit, is not known and its survival must now be in some doubt as there have been no reports of sightings for some years now.

Blues Following on the population explosion of last year, the Holly Blue once more had a good first brood but the second brood numbers were well down. Experiments carried out by Richard Revels and others had predicted this. From observations and captive breeding, they had found that the autumn 1990 brood was parasitized by the small wasp *Listrodomus nycthemerus*. This is the normal predator and some 7% of population was affected. Spring 1991 showed some 70% predation and it was concluded that this would result in some 90% predation in the 1991 second brood. This seems to be true as the numbers were well down.

There was even a bilateral gynandromorphic form of the Holly Blue found in Bedford (the proportion of male to female being 50/50).

The other blues seem to have enjoyed a normal season. A new site for the Brown Argus was discovered at Sandy, and the other important new site found near Reddings Wood last year was still found to be viable. Both of these sites are well away from old established ones. Once more the insect turned up in Chicksands Wood after an absence of a few years. Chalk-hill Blue numbers were fair but in comparison with recent history the situation has improved. This is not comparable with the Small Blue which at best can be said to be hanging on.

Skippers Large, Small and Essex Skippers all had a poor year with their numbers well down on what should have been expected. The Dingy and Grizzled, while being few in numbers, were seen in the Chiltern Hills but all in all the whole family had a very poor year all across the County.

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Once again it is my pleasure to list the many people who have contributed to this year's records:- J. Adams, A. Aldhous, P. Almond, D. Anderson, V. Arnold, C. Baker, J. Barnwell, R. Bashford, Mr and Mrs Bowskill, R. Brind, J. Childs, B. Clutten, J. Comont, A. Davies, I. Dawson, P. and G. Hooper, L. Jarrett, M. Kemp, J. Kemp-Gee, P. Madgett, Br. J. Mayhead, A. Outen, D. Parsons, S. Pitman, G. Player, M. Pocock, R. Revels, D. Smith, T. Smith, B. Squires, P. Trodd, Mr and Mrs Weedon, R. Wilson, H. Winter, I. Woiwod and finally the members of the Beds and Northants Branch of Butterfly Conservation Society.

ALAN J. MARTIN

BUGS (Hemiptera-Heteroptera) Report of the Recorder

The year 1991 was unusual in producing no new species for the County List. Furthermore, the usual early summer species were hard to come by, due to cool wet weather until late July. On the other hand, Jim Ashby continued to generate interesting records by trapping at sites scattered across the county, mainly pitfall traps. The arboreal shield-bug *Troilus luridus* mentioned in my report for 1990 continues to produce a trickle of new records, this year I found two on Birch at Simpson's Hill, Silsoe, on 29th September.

One record of Jim Ashby's was a pair of *Xylocoris galactinus* from his Dunstable garden. This is the 'Hot-bed Bug', a bug of manure heaps, stable straw and similar sites. In this instance the bugs were caught by a flight interception trap on his garage roof, on 22nd September. To my knowledge, this species has not been recorded in the county since 1955, when two were caught at Cardington during late August in suction traps suspended from a barrage balloon (Southwood 1960 *Trans. Roy. Ent. Soc., London* **112** 173-220); it was also caught at the same site on two occasions in August 1947 in nets similarly suspended, one at 50ft and one at an altitude of 2000 ft. (Johnson and Southwood 1949 *Proc. Roy. Ent. Soc., London* (A) **24** 128-130). This apparently makes the present record the lowest height above ground known for this species in the county!

Other interesting records from Jim Ashby include the shield-bug *Aelia acuminata* away from its known site, the former railway at the foot of Sandy Warren. Single individuals were recorded on 27th October and 10th November at the former sand quarry at Deepdale, Sandy Heath (TL207492). The 'Ground Bug' *Nysius thymi* was also found here. Two km to the east, pitfalls on the roadside verge at Potton Church produced a rich harvest of less frequent shield-bugs: 25 *Legnotus limbosus*, 6 *Podops inuncta* and 2 *Neottiglossa pusilla*. Pitfall traps on Blows Down, Dunstable, produced a useful series of *Eremocoris podagricus*, another 'Ground Bug' of the family Lygaeidae. This species is local in Britain, being recorded from only 15 counties, all in the southern half of England. As little is known of this bug's biology, it is worth summarising the seasonal distribution of the Blows Down records (including two from 1990):

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2	—	1	4	3	10	3	—	—	2	1	—

B.S. NAU

BEDFORDSHIRE BEETLES IN FOWLER AND DONISTHORPE (1913)

by B.S. Nau

In preparing the checklist of the Coleoptera of Bedfordshire published in *The Bedfordshire Naturalist* in the mid-1980s (Nau 1983-87) my starting point was the list published in the *Victoria County History of Bedfordshire* (Fowler 1902). This information was supplemented by subsequent lists published by a number of fieldworkers in the county, mainly from the period 1920-1950. Since 1989 the Society's joint Beetle Recorders have added further new species to the List (Ashby and Powell 1989-91).

Recently, I was referring to a back issue of the *Entomologist's Monthly Magazine* when I chanced upon a short paper reporting an addition to the British List (Allen 1988). I had not previously looked at this paper in detail and was interested to notice that one of the four British localities was in Bedfordshire. The beetle in question is a flea-weevil, *Rhynchaenus calceatus* Germ., its host-plant is believed to be birch but there is little reliable information. Until recently *Rhynchaenus calceatus* was regarded as a colour variety of another British species but it is now recognised as a distinct species.

Address: 15 Park Hill, Toddington, Dunstable, Beds LU5 6AW

Allen comments that its British distribution "must be very restricted indeed", only the Bedfordshire record is from the 20th century (probably) and even this dates back to the early years of the century. This insect is not listed in the Red Data Book (Shirt 1987) but appears to meet the criteria for the highest category, Category 1 "Endangered". The Bedfordshire record given by Allen is from Fowler and Donisthorpe's 1913 supplementary volume to Fowler's "*The Coleoptera of the British Islands*" (1887-1891).

The Bedfordshire record is due to The Rev. G.A. Crawshay and it was found in the Leighton Buzzard area. As was the practice at that time when detailed localities were rarely given, 'Leighton Buzzard' could mean anywhere within, say, 10km of that town. Crawshay is noted for his detailed life-history studies of beetles, these involved rearing larvae though to maturity and resulted in highly regarded publications reporting his findings (Crawshay 1903, 1907). Fowler comments that the latter publication is "a model of research in the life history of a single insect" (Fowler and Donisthorpe 1913). Crawshay studied beetles in both the Leighton Buzzard and Melchbourne areas of the county.

Having been directed to Fowler and Donisthorpe (1913) in search of further information on the above weevil, it became apparent that this volume contains other records from Bedfordshire, including species not on my Bedfordshire List. In view of this I have prepared the following list of all the Bedfordshire records mentioned. Except where otherwise stated, the records are those of Crawshay. I have given the currently accepted species name first, based on Kloet and Hincks (1977), but include the earlier name, and page number, to facilitate reference back to Fowler and Donisthorpe. There are 18 additions to my list, two of which have also recently been reported by Ashby and Powell (1989-90).

Finally, it may be remarked that a more complete record of Crawshay's Bedfordshire records may exist somewhere, if so this would be a valuable source of information on the county's beetles.

ACKNOWLEDGEMENT

The help of Bedford Museum in making available Fowler & Donisthorpe is gratefully acknowledged.

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Notation

- species addition to Bedfordshire List (Nau 1983-87).
- LB Leighton Buzzard.
- (A&P) listed in Ashby and Powell (1989-90) as an addition to Nau (1983-87).

Bedfordshire species listed

Species	page	Comments
CARABIDAE		
<i>Notiophilus rufipes</i> Curt.	202	LB
COCCINELLIDAE		
<i>Coccinella hieroglyphica</i> L.	254	LB
HISTERIDAE		
<i>Hister meridarius</i> Hoff.	257	●LB. (A&P)
<i>Saprinus virescens</i> (Payk.)	258	●LB
<i>Onthophilus punctatus</i> (Müller)	258	Sandy (by Crotch) (<i>O. globulosus</i> Ol.)
NITIDULIDAE		
<i>Nitidula carnaria</i> (Schaller)	259	●LB. (<i>N. quadripustulata</i> F.)
<i>N. rufipes</i> (L.)	259	●LB
CRYPTOPHAGIDAE		
<i>Cryptophagus populi</i> Payk.	265	●LB. Many bred, incl. dark varieties
MYCETOPHAGIDAE		
<i>Mycetophagus multipunctatus</i> F.	267	Melchbourne
ELATERIDAE		
<i>Ctenicera cuprea</i> F.	275	●LB & Melchbourne. (<i>Corymbites cupreus</i> F.)
<i>Selatosomus nigricornis</i> (Panzer)	275	●LB. Abundant on thistles. (<i>Corymbites metallicus</i> Payk.)
DRILIDAE		
<i>Drilus flavescens</i> (Fourcroy)	279	●LB. Life history study
ANOBIIDAE		
<i>Stegobium paniceum</i> (L.)	280	●Melchbourne. (<i>Anobium paniceum</i> L.)
CISIDAE		
<i>Cis alni</i> Gyllenhal	281	●Melchbourne in Jew's Ear Fungus
<i>C. festivus</i> (Panzer)	281	●Melchbourne. (A&P)
MELANDRYIDAE		
<i>Conopalpus testaceus</i> (Ol.)	297	●Melchbourne
<i>Ospya bipunctata</i> (F.)	297	●Melchbourne
RHIPIPHORIDAE		
<i>Metoeus paradoxus</i> (L.)	299	LB, Melchbourne in wasp nest.
CERAMBYCIDAE		
<i>Tetropium gabrieli</i> Weise	154-5	LB. In Larch. Life history study & "supplied most British collections"
<i>Strangalia quadrifasciata</i> (L.)	283	LB
<i>Molochrus minor</i> (L.)	283	LB & Melchbourne
<i>Callidium violaceum</i> (L.)	282	●Amphill (by Lucas)
<i>Anaglyptus mysticus</i> (L.)	282	Melchbourne. (<i>Clytus mysticus</i> L.)
CHRYSOMELIDAE		
<i>Cryptoccephalus coryli</i> (L.)	286	●LB
<i>Chrysolina oricalcia</i> (Müller)	288	LB & Melchbourne. including v. <i>hobsoni</i> Steph. from LB (<i>Chrysomela oricalcia</i> (Müller))
<i>C. brunsvicensis</i> (Grav.)	288	●LB.
<i>Phytodecta decemnotata</i> (Mar.)	289	(<i>Chrysomela didymata</i> Scriba)
<i>Chalcoides nitidula</i> (L.)	293	LB. (<i>P. rufipes</i> De G.)
<i>Cassida nobilis</i> L.	294	LB. (<i>Crepidodera nitidula</i> L.)
ATTELABIDAE		
<i>Apoderus coryli</i> (L.)	301	LB
CURCULIONIDAE		
<i>Magdalis barbicornis</i> (Latreille)	317	LB
<i>Curculio glandium</i> Marsham	316	LB. (<i>Balaninus turbatus</i> Gyll.)
<i>C. rubidus</i> (Gyll.)	316	LB. (<i>B. rubidus</i> Gyll.)
<i>Rhynchaenus calceatus</i> Germ. v. <i>semitruncatus</i> (Gyll.)	309	●LB, v. <i>semitruncatus</i> only. (<i>Orchestes scutellaris</i> v. <i>semitruncatus</i>)
<i>R. pilosus</i> (Fabricius) v. <i>nigripes</i> Fowler	309	●LB. (<i>O. ilicis</i> v. <i>nigripes</i> v. Fowler)

BEETLES (Coleoptera) Report of the Recorders

In 1991, a total of eleven sites have been surveyed to differing extents, using the techniques detailed in previous reports (Ashby, Powell; Recorders Reports 1989-91). However, one important addition to these methods has been the use of a flight interception trap, which is described more fully later in this report. A full species list for each site has been deposited with the Site Recorder, and a brief summary given below.

Dropshort Marsh (TL005277) SSSI

The final year of a two year survey. Investigations centred on the wettest areas of the marsh during 1990, but in 1991, mostly dry areas were examined (although the line of pitfall traps reached one boggy area).

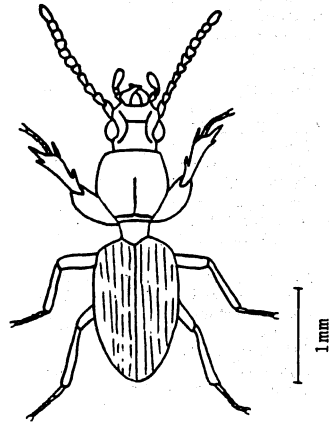
Total species recorded in 1991 = 211

Species new to Bedfordshire: *Phyllodrepa puberula* Bernhauer Na, *Tachyporus dispar** (Paykull), *Cis nitidus* (Fabricius), *Apion cerdo* Gerstaecker.

Nationally Notable species: *Elodes minuta* (Linnaeus) Nb, *Mordellistena humeralis* (Linnaeus) Nb.

* *Tachyporus dispar* has recently been split from *Tachyporus chrysomelinus* (Linnaeus), the two species differing externally on the number of setae on the hind margin of the elytra (Booth, 1988). Past records of *T. chrysomelinus* may therefore relate to *chrysomelinus* or *dispar*.

The carabid beetle, *Dyschirius globosus* (Herbst) was recorded from the boggy area, and as a genus the group has an interesting biology. They are subterranean in habit and dig burrows with their broad, toothed front tibiae. Generally, the adults and larvae prey on species of the staphylinid beetle *Bledius*, but *D. globosus* does not have this association. It has been observed preying on species of the staphylinid genus *Carpelimus* (Lindroth, 1985), and *Carpelimus corticinus* (Gravenhorst) and *C. elongatulus* (Erichson) have been recorded from Dropshort. It was also of interest to find the leaf beetle *Phyllotreta exclamationis* (Thunberg), which is a member of the group known as the flea beetles. They have enlarged hind femora which allow them to jump long distances. Although several specimens were found in pitfall traps, none were swept from foliage in the same area, and therefore the food plant at Dropshort has not yet been established.



Dyschirius globosus

Sallow Springs, Whipsnade (TL007185)

The work at Sallow Springs in 1991 completes the survey that was started in 1990. Although some samples were taken across the whole area, the majority of records have come from the strip of woodland and the hedgerows at the edges of the site.

Total species in 1991 = 190

Species new to Bedfordshire: *Phalacrus corruscus* (Panzer), *Stethorus punctillum* Weise.

Nationally Notable species: *Liocyrtusa vittata* (Curtis) Nb, *Acidota cruentata* Mannerheim Nb,

Bolitobius inclians (Gravenhorst) Nb, *Acalles ptinoides* (Marshall) Nb.

The single specimen of *Stethorus punctillum* was beaten from an oak tree growing in the hedgerow at Sallow Springs. The species is very small, 1.2 — 1.5mm long, and belongs to the ladybird family, Coccinellidae. This beetle is generally found on shrubs and deciduous trees, where it is a predator of plant mites. It was also interesting to find three species of beetle that develop in timber. *Sinodendron cylindricum* (Linnaeus) requires rotting hardwood (chiefly beech), whilst *Hylastes brunneus* (Erichson) and *H. opacus* (Erichson) are members of the group known as bark beetles. The majority of these species burrow under the bark of living trees.

Fox Corner, Heath and Reach (SP925289) Roadside verge

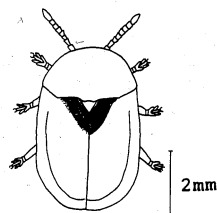
This Roadside Verge Nature Reserve was investigated during 1990, and having produced records of interest, was sampled again during 1991.

Total species in 1991 = 136.

Species new to Bedfordshire: *Oxyptoda spectabilis* Märkel, *Cassida prasina* Illiger Nb, *Ceutorhynchus terminatus* (Herbst) Nb.

Nationally Notable species: *Aleochara ruficornis* Gravenhorst Nb, *Staphylinus ophthalmicus* Scopoli RDB3, *Scaphidema metallicum* Nb.

The most important discovery at Fox Corner during the year was that of the rare Staphylinid beetle, *Staphylinus ophthalmicus*. This species was recorded from Sandy Quarry in 1990, and the fact that the roadside verge at Fox Corner is adjacent to a sand quarry may be more than coincidence. A heat extraction of moss from the verge produced a single specimen of *Cassida prasina*. *Cassida* species are commonly known as Tortoise beetles and have a wide body under which they can hide their head and legs. *C. prasina* is a uniform green colour except for the area round the scutellum, which is suffused with red.



Cassida prasina

Sandy Quarry (TL207492)

Sandy Quarry can broadly be divided into three main areas:—

- 1) The eastern end of the pit which has not been worked for a number of years. The excavated areas have been restored, leaving a smooth floor and slopes which have been naturally colonised by birch, willow and broom.
- 2) The western end of the pit — the working quarry.
- 3) A central, intermediate area. The floor and sides of the quarry have been excavated in the past, but no restoration work has taken place yet. There is very sparse vegetation growing in this part.

During 1991, four of the twelve pitfall traps that were in the restored area last year, were moved into the central intermediate area described above.

Total species in 1991 = 205

Species new to Bedfordshire: *Dyschirius politus* (Dejean) Nb, *Leiodes rufipennis* (Paykull) Na, *Cartodere constricta* (Gyllenhal), *Longitarsus dorsalis* (Fabricius) Nb, *Rhynchites tomentosus* Gyllenhal, *Apion fuscirostre* (Fabricius), *Gronops lunatus* (Fabricius) Nb, *Phloeophthorus rhododactylus* (Marsham).

Nationally Notable species: *Calathus ambiguus* (Paykull) Nb, *Laemostenus terricola* (Herbst) Nb, *Colon serripes* (Sahlberg) Na, *Leiodes gallica* (Reitter) Na, *Leiodes obesa* (Schmidt) Nb, *Olibrus pygmaeus* (Sturm) Nb, *Luperus flavipes* (Linnaeus) Nb, *Apion urticarium* (Herbst) Nb.

It was thought that the quarry should be a suitable habitat for the large carabid beetle *Brosicus cephalotes* (Linnaeus). This beetle occurs mostly on the coast in Britain (Harde, 1984), where it is typically found on sand dunes. The survey in 1990 failed to find it, but by moving the pitfall traps into the intermediate area in 1991, a colony was located. In total, 48 specimens were recorded, with only one having come from a trap just outside this area. This indicates how important it is to have a variety of habitats within a site, and that some habitats may not be as aesthetically pleasing as others, but just as valuable.

Blows Downs (TL040220) SSSI

This year's work is an extension of the studies that have been carried out on Blows Downs over the past few years. Initial investigations concentrated on the Skimpot Quarry area, but towards the end of 1990 traps were spread out over a larger part of the downs.

Total species in 1991 = 171

Nationally Notable species: *Leiodes badia* (Sturm) Nb, *Leiodes rugosa* Stephens Na, *Pltomaphagus varicornis* (Rosenhauer) Na, *Acidota cruentata* Mannerheim Nb, *Odontaeus armiger* (Scopoli) RDB3, *Cryptocephalus aureolus* Suffrian Nb, *Alophus triguttatus* (Fabricius) Nb, *Brachysomus echinatus* (Bonsdorff) Nb.

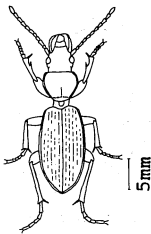
Once again, *Leiodes rugosa* has been recorded from this site, but numbers were greatly reduced from the high levels found in 1987 and 1988. Also, a single specimen of the rare beetle *Odontaeus armiger* has been recorded, after last being found on Blows Downs in 1988. Five specimens of *Cryptocephalus aureolus* were found in a small area of Skimpot Quarry on 25th May. Each of these metallic green, medium sized beetles was found in the centre of a fully open flower of the Bulbous Buttercup, *Ranunculus bulbosus*, where it was camouflaged against the greenish centre of the flower. Although the buttercups were widespread over Blows Downs, no other specimens were found outside the quarry area.

Milton Bryan (SP985302) Roadside verge

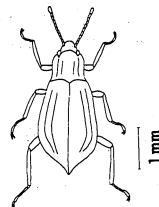
This roadside verge appeared to be of potential interest because of the ditch with flowing water that runs along its edge.

Total species in 1991 = 125

None of the records from this site were either new to Bedfordshire or of Nationally Notable status, but several species were good indicators of the habitat. The carabid beetle, *Agonum albipes* (Fabricius) is found at the edges of rivers and streams, the hydraenid beetle *Ochthebius dilatatus* Stephens found in mud at the edge of water, and the staphylinid beetle *Euaesthetus bipunctatus* (Ljungh) found in marshy places in plant debris. The most interesting example was *Elmis aenea* (Müller), which is found clinging to the undersides of stones and aquatic vegetation in streams. This group of beetles has a characteristic method of respiration, where oxygen is gathered from the water by a fine layer of hairs on the underside of the abdomen (Bílý, 1990).



Brosicus cephalotes



Elmis aenea

Potton Church and Hatley Road

These sites are roadside verges that are close together, but on different soil types which support differing flora. The verge outside Potton Church is on a sandy soil, but the verge at Hatley Road is clay.

Potton Church (TL231495)

Total species in 1991 = 75

Nationally Notable species: *Leiodes rugosa* Stephens Na, *Tachinus flavolimbatus* Pandellé Nb, *Magdalis barbicornis* (Latreille) Nb, *Otiorhynchus raucus* (Fabricius) Nb.

Three species of *Apion* were recorded from the verge which all feed on Common Mallow (*Malva sylvestris*). The larvae of *Apion malvae* (Fabricius) and *A. rufirostre* (Fabricius) develop in the fruits of this plant, whilst *A. radiolus* (Marshall) larvae develop in the stems.

Hatley Road (TL245495)

Total species in 1991 = 89

Species new to Bedfordshire: *Cryptolestes ferrugineus* (Stephens).

Nationally Notable species: *Phytoecia cylindrica* (Linnaeus) Nb.

The two most interesting species were those noted above. *P. cylindrica* is a cerambycid or longhorn beetle, and its larvae develop in living flower stems of some members of the parsley family (Bily & Mehl, 1989). Although *C. ferrugineus* is not listed as a rare beetle, experience has shown that it is not often encountered in surveys of sites. 'The beetle... is cosmopolitan... living in the company of man, in grain, flour and flour products, and in dried fruit; it is seldom encountered in the open' (Harde, 1984).

Maulden Church Meadow (TL059383) SSSI

This site has a range of habitats which vary from ponds to meadow and hedges. Only two brief visits were made to this site in 1991.

Total species in 1991 = 54

Species new to Bedfordshire: *Limnebius nitidus* (Marshall).

A single female specimen of the water beetle *Acilius sulcatus* (Linnaeus) was found in the pond. The appearance of the male and female of this species differ markedly, the male has very wide front tarsal segments and smooth elytra. The female has narrow front tarsi and the elytra are deeply grooved, these grooves are filled with thick hair.

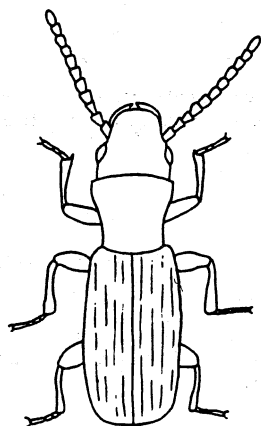
Duck End Nature Reserve, Maulden (TL050375)

Duck End Nature Reserve is a small site with ponds and associated marshy areas, surrounded by scrub on drier ground. The few brief visits have concentrated on the pond margins.

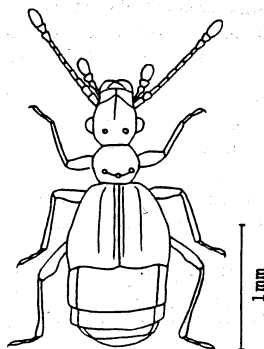
Total species in 1991 = 96

Species new to Bedfordshire: *Stenus boops* Ljungh, *Tachyporus dispar* (Paykull), *Anaspis pulicaria* Costa.

Many of the species recorded are typical of a marshy habitat, and included *Pterostichus diligens* (Sturm), *Cercyon ustulatus* (Preyssl) and *Alianta incana* (Erichson). A single female specimen of the pselaphid genus *Rybaxis* was found, but unfortunately only males can be determined with certainty. Also found at this site were *Scirtes hemisphaericus* (Linnaeus) and *Telmatoophilus typhae* (Fallén) which are dependent on the reedmace that grows at the pond margins.



Cryptolestes ferrugineus



Rybaxis sp.

10 Buckwood Avenue, Dunstable (TL035224)

The beetle fauna of my (JEA) garden has been monitored over the past few years using well established techniques. During 1991, a flight interception trap was used to assess the beetles that were flying over the garden. This is an adaptation of the window trap, where insects fly into a vertical sheet of glass or perspex, fall, and are trapped in a collecting dish placed underneath the glass. In the interception trap, the glass is replaced with a fine mesh net, which allows a larger trapping area to be used. The net measured 1.8m by 1.3m and the trap was operated between June and mid November.

Total species in 1991 = 148

Species new to Bedfordshire: *Cryptopleurum subtile* Sharp List 3, *Atholus duodecimstriatus* (Schrank), *Ptomaphagus medius* Rey, *Cartodere constricta* (Gyllenhal), *Scraptia fuscula* Müller Na, *Aderus populneus* (Creutzer) Na, *Xyleborus saxeseni* (Ratzeburg), *Pityogenes bidentatus* (Herbst).

Nationally Notable species: *Liocirtusa vittata* (Curtis) Nb, *Philonthus nitidicollis* (Boisduval & Lacordaire) Nb.

The interception trap was used for approximately five months. A total of 52 species were recorded which had not been found in the garden by other methods in previous years.

ACKNOWLEDGEMENTS

I would like to thank the following people who have helped me during the year:- Ian Woiwod, John Comont (Beds County Council), Ron Foster (Redland Aggregates), Marie Moreau (Wildlife Trust), Janette Plumridge and Jennie Massey (English Nature), Carol Aldridge, Charles Baker, Rosemary Brind, Tom Thomas and especially Jonathan Cooter for checking my *Leiodes* specimens.

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J.E. ASHBY, W. POWELL

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

1991 was a very sad year for the study of botany in Bedfordshire, and also in national botanical circles, with the passing of John Dony in March. The amount of work that he achieved, both in the recording of the flora and the using of the data in the service of conservation, was incredible. He is much missed and will be long remembered by all those who knew him. An appreciation of his work in the county (Boon 1991) and a list of his writings (Boon 1991) were published in the Journal for 1990.

During the year recording of sites progressed at a much slower rate than anticipated due to other commitments. However, there were three plants recorded as new to the county. Graham Bellamy informed me of Yellow Bartsia *Parentucellia viscosa* which had appeared in grassland at Stanbridge. I must assume that it had been introduced by some means as it normally grows in damp grassy places (usually near the coast) and the site here was neither damp nor near the coast. It will be interesting to see if it survives.

On 27 July a field meeting of the Botanical Society of the British Isles was held at Felmersham Nature Reserve, led by Alan Outen and myself. About a dozen people attended on what proved to be a day of glorious weather. With such a group of sharp-eyed botanists it was decided to make them work for their living and all plants seen were recorded—the total being 216. Of these 28 were new to the site, of which eight were new tetrad records and two were new to the county. One, Watersoldier *Stratiotes aloides*, appeared to be well established and must have been present for some time. I must assume that it had been either planted or thrown into the lake by someone clearing a pond. It could spread very quickly and become a menace. The other new species, which probably arrived the same way, delights in the name Parrot's-feather *Myriophyllum aquaticum*, a plant that is becoming naturalised in such habitats throughout the country.

ADDITIONS TO THE BEDFORDSHIRE LIST

HALORAGACEAE Water-milfoil family

Myriophyllum aquaticum Felmersham Gravel Pits NR SP95Z

SCROPHULARIACEAE Figwort family

Parentucellia viscosa Stanbridge SP92H

HYDROCHARITACEAE Frogbit family

Stratiotes aloides Felmersham Gravel Pits NR SP95Z

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CHRIS BOON

MOSSES AND LIVERWORTS (Bryophyta)

Report of the Recorder

I have now been Recorder for Bryophytes for the BNHS for twenty years. In this time there have been considerable revisions in the nomenclature of the group including changes in the species concept within some genera. Although the Bryophyte flora of the county is now among the best studied in the country, in a realistic assessment our knowledge remains no more than superficial.

Every tetrad in the county has been visited at least once and a total of over 15,000 tetrad records has been amassed. It is disappointing to report however that only 117 of these have come from specimens provided by other members of the BNHS and fewer than twenty members of the society have ever contributed.

Over the past winter many of the more important Bryological sites in the county have been surveyed again, in order to reassess the current status of their Bryophyte floras, whilst individual sites for many of the rarer species in the county have also been revisited. Despite the small size of the plants involved and the difficulties inherent in refinding the precise spot where perhaps an area 2cm × 3cm of a plant only 0.3cm high was previously seen, the success rate has been notably high. Despite the recent years of drought most of the species which have been involved in this study appear to have survived at their known sites.

Species of wetland sites do seem to have suffered adversely in the recent years of drought, though it remains to be seen whether this effect will be permanent. My evidence suggests, however, that there is a slow recovery in species susceptible to air pollution, particularly epiphytes.

There have been no additions to the county list over the last twelve months. I would like to thank George and Peggy Hooper for specimens and Mr Rod Stern of the British Bryological Society for supplying me with some records.

ALAN R. OUTEN

LICHENS

Report of the Recorder

Fieldwork during 1991 was restricted due to my frequent forays abroad to work on other countries' ecological problems. In 1992, however, it is expected that the Society will join and contribute to the National Churchyard Lichen Survey which is being run by the British Lichen Society.

The churchyard, as well as being an essential habitat for lichens, is also an essential landscape for lichenologists, especially the beginner. It is to be hoped that churchyard lichens will play an important role in the new National Curriculum for schools which encourages practical outdoor projects at all levels.

Nationally, the total number of lichen species recorded in churchyards has risen to 435. Of these, 344 are saxicolous, 73 lignicolous, 34 muscicolous, 30 terricolous and 30 growing on other surfaces such as metal and rubber — a number of species, of course, occur on more than one substrate. Some churchyards are especially species-rich, e.g. Mickleham in Surrey with 150 species. Bedfordshire has a long way to go to reach anything like this number, for our top churchyard, Sutton, has recorded only 45 species.

FRANCES B.M. DAVIES

FUNGI

Report of the Recorder

I am grateful to George Hooper and Alan Outen for sending me details of their records of unusual fungi collected in the County over the last few years. These records are listed below and with the exception of *Panaeolus subbalteatus*, all represent species new to the county. The details of the gathering of *P. subbalteatus* are included on account of its unusual habitat and due to there having been only one previous report from Bedfordshire i.e. from Sharnbrook in 1962.

BASIDIOMYCETES:

AGARICALES

Lentinus tigrinus Felmersham Gravel Pits. Alan Outen 27.7.91. A single specimen growing on stick in a wet hollow.

Lyophyllum connatum Willington Wood. George Hooper 29.10.91. Growing in a tuft of more than a dozen fruitbodies amongst sparse moss, grass and leaf litter. Fructifications entirely white with a Collybioid or Clitocybeoid aspect. In the field the diagnostic feature is a violet colour produced when the gills are rubbed with a crystal of iron alum.

Melanoleuca luteosperma The Clappers, Markham Hill Wood, George Hooper 19.10.91. A rather robust species, resembling *M. grammopodia*, with ochre-brown cap and cystidia of the *Urtica*-hair type, but with a cream-coloured spore print. The spores, with amyloid ornament, measure $7-8.5 \times 6 \mu\text{m}$.

Panaeolus subbalteatus In wet grass and *Sphagnum*, in dried up bog, Wavendon Heath. Alan Outen 5.10.91. A tall species with flattened to umbonate, dark hygrophanous red-brown cap drying coppery. Usually found on dung or in manured places.

Psathyrella typhae On stems of *Typha*, mainly dead but still standing erect in water, Henlow Pits. Alan Outen 14.7.91. The habitat is distinctive.

APHYLLOPHORALES

Subulicystidium longisporum below the lake, Shuttleworth Estate, Old Warden (TL147447), Alan Outen 21.4.91. A thin white resupinate fungus recognised by its peculiar long, narrow pointed cystidia, which are encrusted with flat rod-shaped crystals, and by its long, narrow boat-shaped spores $12-15 (25) \times (2) 2.5-3 \mu\text{m}$.

UREDINALES

Melampsora hypericorum On *Hypericum calycinum*, Alan Outen 17.9.1988.

Puccinia oxalidis On *Oxalis articulata*, in garden, Clifton. Alan Outen 26.7.1988 (O. I).

Uromyces viciae-fabae On *Vicia faba*, Clifton. Alan Outen 17.9.88 (O. I).

USTILAGINALES

Ustilago maydis On *Zea mays*, Summerfield's Pick-your-own Fruit Farm, Hammer Hill (A600), Near Haynes. Alan Outen. 8.10.89. Causes conspicuously enlarged galls on the cob.

ASCOMYCETES:

DISCOMYCETES

Albotricha (= *Dasyscyphus*) *acutipilus* On dead *Phragmites* stems in basal mat, Flitwick Moor, Alan Outen 15.6.91. (conf. B.M. Spooner. Kew).

Hymenoscyphus imberbis Flitwick Moor. Alan Outen 14.10.89. (det. B. Spooner. Kew).

Japhneadelphus amethystinus In garden, Manor Close, Clifton. Alan Outen 22.10.90 (det. B. Spooner. Kew).

Lamprospora dictydioila Amongst mosses and thalloid liverworts, Langford Garden Centre, Langford. Alan Outen 24.10.89. Subsequently recorded by Alan Outen in similar situations from garden centres at Willington 7.4.90, Lower Stondon 9.4.90, Flitwick 14.4.90, Toddington 14.4.90 and near Sandy 15.4.90. In addition it was also found among mosses on a bonfire site at Rowney Warren 6.5.90.

Neobulgaria lilacina Clifton Plantation. Alan Outen 26.10.88 (det. B. Spooner. Kew).

Orbilia luteorubella Clifton Plantation. Alan Outen 26.10.88 (det B. Spooner. Kew).

Pachyella babingtonii On sodden rotting log, Stockgrove Park. Alan Outen 7.9.91.

Rutstroemia conformata On decaying leaves of *Alnus*, Flitwick Moor, Alan Outen 15.6.91 (conf. B.M. Spooner. Kew).

Sepultaria sumneriana In grass under large *Cedrus*, Wrest Park, Silsoe. C.R. Boon & A. Outen 11.3.89 (conf B. Spooner. Kew). A large, very pale greyish cup-fungus found in association with cedar trees in spring. It develops just beneath the litter as a hollow brown sphere which becomes perforate and splits into a number of lobes to expose the pale hymenium. It is now sometimes referred to the genus *Geopora*.

Tapesia hydrophila On decaying *Phragmites* stems, Flitwick Moor. Alan Outen 15.6.91. (conf. B.M. Spooner. Kew).

Tapesia knieffii On dead *Phragmites* stems, Clifton Plantation. Alan Outen 30.6.91. (conf. B.M. Spooner. Kew).

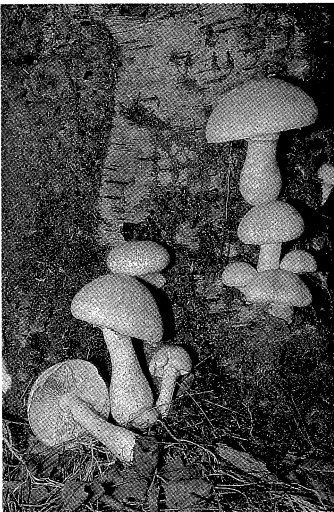
PYRENOMYCETES

Cucurbitaria laburni On *Laburnum*, Clifton. Alan Outen. 12.11.88 (conf. B.M. Spooner. Kew).

FUNGI IMPERFECTI

Cryptostroma corticale On *Acer*, Wrest Park, Silsoe 1990 (the cause of Sooty Bark Disease).

DEREK A. REID



Gymnopilus junonius



Daedaleopsis confragosa
(Photos: Alan Outen)

THE FUNGUS FORAY, 1991

POTTON WOOD

The annual fungus foray, held on October 6th at Potton Wood, in the north-east of the County, was led by Dr D. A. Reid, with about 30 members in attendance.

Potton Wood, while including an area of dense spruce plantation, comprises mainly deciduous woodland with oak, ash, hazel and a mix of other trees but with a dense shrub layer of hawthorn and sloe. Such woods do not usually support a wide variety of gill-bearing fungi. This and the long, hot, dry summer combined to make it difficult to find many of the larger agarics and explains why only 29 species, mostly common, were collected.

Of the agarics, mention should be made of the rare species *Tricholoma leucocephalum*, now often referred to the genus *Lyophyllum*. This small white fungus, with a rooting stem, when crushed has a smell of meal. It has unusual hyaline, broadly elliptic, warted spores, $7-10 \times 4-6 \mu\text{m}$. *T. leucocephalum* was last found in the County at Sharnbrook in 1962.

Mycena tenerima is another all white fungus, which grows on fallen trunks, logs etc. It is a minute species with the cap seldom exceeding 5mm in diameter. Distinctive features are the presence of a basal disc, by which the stem is attached to the substrate, and the cap appearing as if sprinkled with minute grains of sugar when examined under the lens. It is a very common fungus, but one which is often overlooked, and frequently collapses in the collection basket or tin before it can be identified.

A striking agaric which is nationally common, but seldom reported from Bedfordshire is *Pluteus umbrosus*. This very attractive fungus, found on stumps or fallen branches, is recognised from its beautiful velvety, dark brown cap and stem, and from the gills which are also edged with dark brown. It was last found in the county in 1986 by Alan Outen, at Barton.

The occurrence of the Giant Puff-ball (*Langermannia gigantea*) is also interesting since it is rarely found in the County. This species can easily reach a foot across, and since the old fruit bodies are very persistent, spore dispersal takes place over a long period.

In all a total of 91 species was collected, of which 20 represent new County records. The high total of novelties is largely the result of the identification by Dr Jerry Cooper of his collections of microfungi made during the foray, and shows clearly just how under recorded these inconspicuous species are in Bedfordshire.

SPECIES LIST

Agaricus campestris; *Collybia dryophila*; *Coprinus disseminatus*; *C. lagopus*; *Galerina unicolor*; *Gymnopilus junonius*; *Lepista saeva*; *Leptonia euchroa*; *Marasmiellus ramealis*; *Mycena galericulata*; *M. galopus*; *M. inclinata*; *M. leptocephala*; *M. speirea*; *M. tenerima*; *M. vitilis*; *Oudemansiella radicata*; *Paxillus involutus*; *Pleurotus cornucopiae*; *Pluteus cervinus*; *P. salicinus*; *P. umbrosus*; *Psathyrella candolleana*; *P. conopsea*; *Resupinatus applicatus*; *Rickenella fibula*; *Stropharia aeruginosa*; *Tricholoma leucocephalum*; *Tubaria furfuracea*.

**Ceriporia reticulata*; *Coriolus versicolor*; *Daedaleopsis confragosa*; *Heteroporus biennis*; *Hymenochaete rubiginosa*; **Hyphodontia subalutaea*; *Inonotus dryadeus*; *Leptotritum semipileatus*; *Mycoacia aurea* (= *stenodon*); *M. uda*; *Peniophora quercina*; *Phellinus ferreus*; *Radulomyces confluens*; *Schizopora paradoxa*; *Stereum hirsutum*; *Trechispora farinacea*; **Tyromyces albellus*; *Vuilleminia comedens*.

Calocera cornea; *Dacrymyces stillatus*.

Exidia glandulosa.

Auricularia mesenterica.

Bovista nigrescens; *Cyathus striatus*; *Langermannia gigantea*.

**Bispora antennata*; *Bisporella citrina*; *Chlorosplenium aeruginascens*; *Leptotrichia ranunculi*; *Orbilbia xanthostigma*; **Rutstroemia sydowniana*; *Scutellinia scutellata*.

Claviceps purpurea; *Daldinia concentrica*; **Dematiocypha dematiicola* (conidial); *Diatrype stigma*; *Erysiphe heraclei*; **Eutypa lata*; *Hypoxylon fuscum*; *H. rubiginosum*; *Lasiosphaeria ovina*; *Leptosphaeria acuta*; *Melanomma pulvis-pyrius*; **Tubeufia cerea* (anamorph); *Ustilina deusta*; *Xylaria hypoxylon*; *X. polymorpha*.

**Anungitea fragilis*; **Candelabrum spinulosum*; **Chalara hughesii*; **Codinaea britannica*;

**Colletotrichum dematium*; **Cryptocoryneum condensatum*; **Endophragma biseptata*; *Fusideum griseum*;

**Menispora ciliata*; **Oidium candicans*; **Phaeostalagmus cyclosporus*; **Pseudospiropes obclavatus*;

**Tripodsporium elegans*.

Lycogala epidendrum; *Physarum nutans*.

FLITWICK MOOR

On returning to the cars for lunch it was decided to visit Flitwick Moor in the afternoon and about 10 members made an extensive search of this locality.

Flitwick Moor provided a complete contrast to the dry exposed woodland explored during the morning, since it is a typical alder carr with swampy terrain dominated by alder, willow and birch, but with some oaks in the drier areas. However, while there was plenty of standing water, the locality had suffered from drought during the summer months.

Agarics were again infrequent and only 36 species were found. However, *Mycena pearsoniana* provided a new County record. This fungus is rather like a small version of *M. pura*, with similar lilac tints to the gills and cap, which is seldom more than 1.5cm in diameter. The gill attachment is distinctive, varying from horizontally adnate to decurrent. Like *M. pura*, it also has a weak smell of radish. Under the microscope the spores, which measure $5.0-7.5 \times 2.5-4.0\mu\text{m}$, are unusual in the genus in being non-amyloid.

The finding of *Laccaria purpureobadia* in its type locality was also a satisfying experience. It was first described, as a new species, based on a collection made at Folly Wood, Flitwick in October 1954. It is recognised by its dark purple-brown colours and its occurrence in acid swampy situations.

Hypholoma elongatum, *H. myosotis* and *Naucoria escharoides* are three species which are seldom reported from Bedfordshire, if only because they are typical of acid sphagnum bogs, *Naucoria escharoides* requiring in addition an association with alder. Such localities are infrequent in Bedfordshire.

A total of 79 species was collected at Flitwick Moor, of which 11 represent new County records, most of them representing microfungi determined by Dr Jerry Cooper, to whom special thanks are due for his species lists.

SPECIES LIST

Amanita fulva; *Armillaria mellea*; *Collybia cirrhata*; *C. dryophila*; *C. maculata*; *Coprinus micaceus*; *Gymnopilus junonius*; *G. penetrans*; *Hebeloma sacchariolens*; *Hypholoma elongatum*; *H. fasciculare*; *H. myosotis*; *Kuehneromyces mutabilis*; *Laccaria proxima*; *L. purpureobadia*; *Lactarius glycosmus*; *L. quietus*; *L. rufus*; *L. tabidus*; *L. vietus*; *Mycena acicula*; *M. candida*; *M. epipterygia*; *M. galericulata*; *M. galopus*; **M. pearsoniana*; *M. sanguinolenta*; *M. vitilis*; *Naucoria escharoides*; *Pleurotus ostreatus*; *Pluteus cervinus*; *Rickenella fibula*; *Russula betularum*; *R. ochroleuca*; *Tricholoma fulvum*; *Tubaria furfuracea*.

Bjerkandera adusta; *Byssomerulius corium*; *Coniophora puteana*; *Coriolus versicolor*; *Daedaleopsis confragosa*; *Ganoderma adspersum*; *Inonotus radiatus*; *Meripilus giganteus*; *Phlebia radiata*; *Piptoporus betulinus*; *Pistillaria setipes*; *Rigidoporus sanguinolentus*; *Stereum hirsutum*; *S. rameale*; *Tyromyces tephroleucus*; *Vuilleminia comedens*.

Melampsorium betulinum.

Lycoperdon foetidum; *L. perlatum*; *Scleroderma citrinum*.

* *Dasyyscyphus controversus*; *Encoelia furfuracea*; *Hymenoscyphus fructigenus*; * *Peziza limnaea*; *Claviceps purpurea* (on *Molinia*); *Diatrypella quercina*; *Diatryxylon multifforme*; *Microsphaera alphitoides* (with cleistothecia); *Nectria cinnabarina*; *Xylaria hypoxylon*.

* *Arthrrium phaeospermum*; *Candelabrum spinulosum*; * *Clathrosphaerina zalewskii*; * *Clavariopsis aquatica*; * *Flagellospora curvula*; * *Helicodendron triglitzensis*; *Paecilomyces farinosus*; * *Pseudogaearia viridis*; *Ramularia calcea*; * *Spirosphaera floriformis*; * *Verticillium rexianum*.

Lycogala epidendrum; *Trichia floriformis*.

* New County Record

In all a very successful day, in the course of which 31 species were added to the County List.

DEREK A. REID

SITES

Report of the Recorder

SITES OF SPECIAL SCIENTIFIC INTEREST (SSSI)

Although no new sites in the county have been designated as SSSI there has been a major extension to the Dunstable and Whipsnade Downs SSSI. The Bedfordshire & Cambridgeshire Wildlife Trust have made two important additions to their land holdings: they have extended their ownership of Flitwick Moor SSSI and acquired part of Deacon Hill SSSI with its rich downland flora.

Dunstable and Whipsnade Downs (1987) TL005205; SP998187; SP998180; area 73.3ha

The former SSSI area included a stretch of scarp extending 1.5km southwards from Dunstable and a second stretch of National Trust land extending over 0.5km northwards from the Whipsnade Road B4540, together comprising a total area of 52.6ha. The notified area has now been extended along the scarp to the south of the Whipsnade Road to include chalk grassland of Whipsnade Downs to the south-west of Whipsnade Zoo. Unlike the two areas further north, this area within Whipsnade Zoo has been grazed by a variety of animals including rabbit, hare, wallaby and deer and is largely free of scrub. A discussion of the natural vegetation of Dunstable and Whipsnade Downs was published in the Journal for 1979 (Dony 1980).

Bedfordshire Conservation Volunteers

Task work was carried out a number of SSSI during the year:

Coopers Hill, Ampthill TL0237 Bracken pulling with the assistance of Peterborough Conservation Volunteers. June 1991

Wavendon Heath Ponds SP9333 Rush and rhododendron removal. August 1991

Flitwick Moor TL0435 Invasive birch seedlings were removed from the sphagnum moss area. October 1991

Marston Thrift SP9741 Cutting bays in the rides and conifer removal. November 1991

Yelden Meadows TL0072 Hedgerow maintenance. December 1991

Planning controls

The Government has recently introduced additional planning safeguards to strengthen the protection of SSSI. The safeguards are i) to require a planning application before any temporary recreational uses of land within SSSI for war games, motor sports or clay pigeon shooting ii) to require local planning authorities to consult English Nature before deciding planning applications likely to affect land in an SSSI. The safeguards are implemented through the Town and Country Planning General Development (Amendment) (No. 3) Order 1991 and come into force on 2 January 1992.

The first measure means that nature conservation and other interests must be taken into account before the land is used for these purposes, even on a temporary basis. The second measure tightens the planning procedure regarding developments outside but close to SSSI. Such developments may seriously damage the natural history interest of the site through, for example, water abstraction, drainage, runoff or disturbance. Previously local planning authorities have been **advised** to consult English Nature if they felt a planning application might affect an SSSI. Now they are **required** to consult English Nature about planning applications within a consultation area defined by English Nature around an SSSI (upto a maximum of 2 kilometres).

ROAD SCHEMES

Leighton Linslade Southern Bypass

In last year's report it was noted that badger fencing had been erected to protect the badger populations in the area. Unfortunately the fencing and our knowledge of the tracks used by badgers have proved woefully inadequate. The road was opened in November 1991 and within four months there had been nine casualties. Local badger workers have been surveying the area to find out the tracks used by badgers in order to make any remedial measures effective. It is hoped that a full discussion of the problems and remedies will appear in a future Journal.



Flitwick Moor 8th August 1991

(Photo: Rosemary Brind)

COUNTRYSIDE INITIATIVES

Set-aside

Set-aside is a voluntary scheme designed to reduce the surplus of arable crops. The scheme began in 1988 offering both one- and five-year periods of participation, although under the latter scheme farmers could opt out, in whole or in part, after three years. In return for taking land out of production farmers receive annual compensation payments that vary according to the option of alternative land use chosen. The land could be used for permanent, rotational or grazed fallow, various permitted non-agricultural uses or woodland. Each of these schemes allowed for the management of land for environmental or conservation purposes and so the scheme had a certain potential for enhancement of the countryside and wildlife. Set-aside land could be either at least one hectare block of a field but could also include strips around the field edge, the headland, of at least 15 metres wide. Approved non-agricultural uses could include tourist facilities, golf courses, game and nature reserves among others. Under the woodland option there is either direct set-aside to woodland or participation in the Farm Woodland scheme.

Nationally the total area of land taken out of production is now just under 5% of the cereal land. By far the greatest percentage of land has been turned over to fallow land (c.87%), followed by non-agricultural uses (c.12%), with the woodland option lowest (2%). These figures are likely to be reflected in Bedfordshire and it is clear that the potential for nature conservation has not been realised. It must be remembered that the scheme is a commercial venture to assist farmers to take land out of production and is only a short term measure.

Countryside Premium

A scheme which offers more opportunity is the Countryside Premium Scheme for set-aside land and Bedfordshire was one of just seven counties involved in this scheme run by the Countryside Commission in which land accepted into permanent fallow may be eligible for additional payments for management for wildlife, landscaping and the community.

Berry Farm, Wootton is one site likely to benefit from this scheme. North Bedfordshire Borough Council have ceased farming operations on all its 600 acres. 454 acres is now managed within the set-aside programme and the remaining areas is managed as though it were, but does not attract grants. Of the official set-aside about 75% has gone into various forms of fallow. At Berry Farm, however, the Council have taken advantage of both the Countryside Premium Scheme and the Farm Woodland Scheme and turned over 100 acres of land to woodland under a 30 year agreement. The tree planting should be completed by 1994/5.

Countryside Stewardship

This scheme, which was introduced by the Countryside Commission in 1991, holds the greatest promise for the countryside. It offers incentives to conserve, enhance and restore classic English landscapes and their wildlife habitats, and to improve opportunities for people to enjoy those landscapes. The landscape types relevant to Bedfordshire are chalk and limestone grassland, lowland heath and waterways and several sites within the county are being nominated by various individuals and organisations. I hope that future reports can confirm that this scheme is successful in improving the management of those habitats and enhancing or recovering the interest in certain sites.

ACKNOWLEDGEMENTS

I would like to thank all members who have given me information during the year, and the following for providing me with information for this report: John Comont and Matthew O'Brian (Bedfordshire County Council), Jenny Massey (English Nature), David Turvey (North Bedfordshire Borough Council) and Richard Woolnough (Beds & Cambs Wildlife Trust).

REFERENCES

DONY, J.G. 1980 The Natural Vegetation of Dunstable and Whipsnade Downs *Bedf. Nat* 35 43-54

ROSEMARY BRIND

RECORDERS

Meteorology: Mr M.C. Williams, 2 Ivel Close, Barton-le-Clay, Bedford MK45 4NT

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Dr A. T. Aldhous, "Myotis", 144 Queens Drive Bedford, MK41 9JG

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Fish: Mr H. Winter, 39 Elgar Path, North Street, Luton LU2 7RJ

Harvestmen and Pseudoscorpions: Dr A.J. Rundle, 219 Mortlake Road, Kew, Richmond, Surrey TW9 4EW

Dragonflies: Mr S. Cham, 45 Weltmore Road, Luton LU3 2TN

Bugs: Dr B.S. Nau, 15 Park Hill, Toddington, Dunstable, Beds LU5 6AW

Lacewing Flies: Dr B. Verdcourt, The Herbarium, Royal Botanic Gardens, Kew, Richmond, Surrey TW9 3AB

Butterflies: Mr A.J. Martin, 18 Aragon Road, Ampthill, Bedford MK45 2TL

Moths (macro): Mr V.W. Arnold, 96 St. Augustines Avenue, Luton LU3 1QE

Moths (micro): Mr D.V. Manning, 27 Glebe Rise, Sharnbrook, Bedford MK44 1JB

Hoverflies: Dr N.F. Janes, 82 Marston Gardens, Luton LU2 7DY

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Mr J.E. Ashby, 10 Buckwood Avenue, Dunstable, Beds LU5 4PE

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Flowering Plants, Ferns and Fern Allies: Mr C.R. Boon, 7 Duck End Lane, Maulden, Bedford MK45 2DL

Mosses and Liverworts: Mr A.R. Outen, 15 Manor Close, Clifton, Shefford, Beds SG17 5EJ

Lichens: Mrs F.B.M. Davies, "Rose Cottage", 69 The Hill, Wheathampstead, St. Albans AL4 8PR

Fungi: Dr D.A. Reid, 38 Norfolk Way, Elmer Sands, Middleton-on-Sea, West Sussex PO22 6JF

Sites: Miss R.A. Brind, 46 Mallard Hill, Bedford MK41 7QS

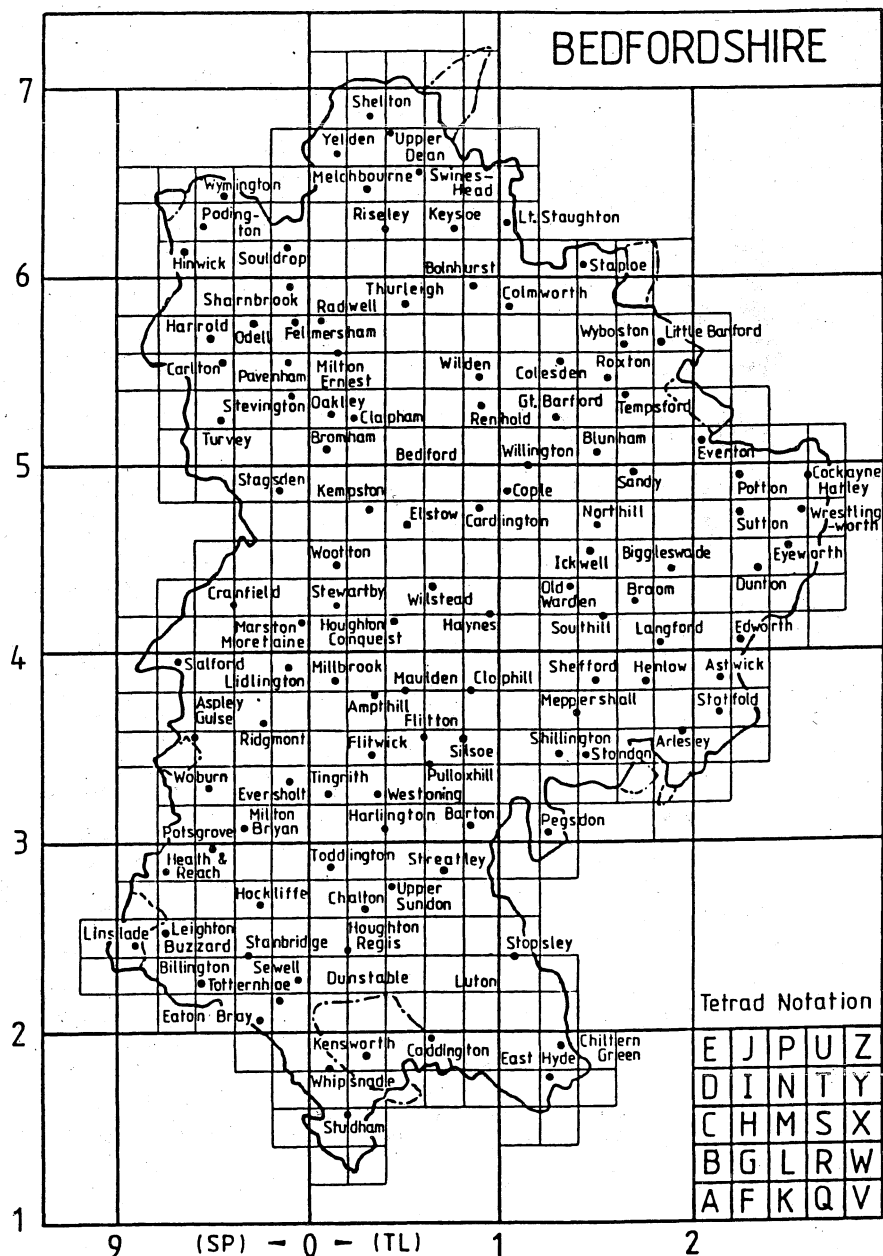
Bird Ringing Co-ordinator: Mr D.S. Woodhead, 81 The Causeway, Carlton, Bedford MK43 7LU

Where a species is not covered by one of The Society's Recorders, please pass the information on to Miss R.A. Brind, Bedford Museum, Castle Lane, Bedford MK40 3XD.

THE SOCIETY

The Bedfordshire Natural History Society was formed in 1946 and its main function is to record the flora and fauna of the county. For this purpose it has over twenty active recorders, listed above, who cover most branches of natural history study, and whose annual reports are published in this journal. Members also receive a quarterly newsletter, *The Muntjac*, and programmes of meetings. These latter include field meetings to sites having a natural history interest within the county and occasional meetings further afield. During the winter months there are illustrated lectures, normally held at one of the following places: Bedford, Dunstable, Luton, Aspley Guise or Flitwick.

The Society depends on the annual subscriptions which are devoted entirely to carrying out its work, as all officers are honorary. Membership is open to anyone, whether resident in the county or not.



Tetrad map of Bedfordshire showing the main towns and villages