

The Bedfordshire Naturalist

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NATURAL HISTORY SOCIETY
FOR THE YEAR
1981
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November 1982

BEDFORDSHIRE NATURAL HISTORY SOCIETY 1982

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Mr D. J. Odell
Mr M. C. Williams

THE BEDFORDSHIRE NATURALIST

No. 36 (1981)

Edited by C. R. BOON

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REPORT OF THE COUNCIL

The Council are very pleased to report that the steady increase in membership during 1981 has brought the total membership of the Society to 477, the highest since the Society was formed.

Much of this increase is due to the mini-exhibitions which have been displayed in Town and Country Building Society windows throughout the county and the Council would like to extend their thanks to Mr and Mrs Rands for preparing and transporting these exhibitions. It is hoped that with the continued use of these and the efforts of our recently appointed Publicity Officer, Mr S. Halton, this healthy trend will be maintained.

It was with regret that we received official resignation from Mr A. Guppy as Meteorological Recorder owing to ill health. Mr Guppy had contributed 34 consecutive reports to the *Bedfordshire Naturalist* and the Council are grateful to him for his service to the Society. Mr M. Williams was nominated as the new Meteorological Recorder and Mr D. Odell as the new Site Recorder. We wish them both well in their respective tasks.

The recent edition of the *Bedfordshire Naturalist* was an excellent one and the Council would like to congratulate the Honorary Editor, Mr C. Boon, on this achievement. They would also like to thank Mr R. Wagstaff for his continued work as Editor of the *Muntjac*. This newsletter depends on contributions from members and it is hoped that more people will consider sending in articles for publication.

The Society continues to receive requests from outside bodies for advice and information. One such request was from the County Council for information on the effects of stubble burning on wildlife in Bedfordshire. Another request from the County Council was for the Society to survey the land belonging to the Henlow Scout Group, list the species present and give advice on the management of the site.

The Council is grateful to the Officers whose work and contributions are essential to the smooth running of the Society and also to the Recorders who work so hard to produce their valuable records. The Membership, Scientific and Finance Committees continue to function efficiently. Occasionally the Membership Committee does require new members and anyone interested in sitting on this Committee who feels that they could make a useful contribution to it should contact the Membership Secretary, Mr R. B. Stephenson.

Finally, the Council would like to thank all members who support the Society and hope that they will find their membership fulfilling and rewarding.

MARY SHERIDAN

	1978	1979	1980	1981
Ordinary Members	311	298	326	363
Associate Members	52	60	57	62
Student Members	45	44	30	32
Corporate Members	9	9	10	11
Life Members	5	5	5	5
Honorary Members	4	4	4	4
	426	420	432	477

Table. Membership of the Society over the last four years.

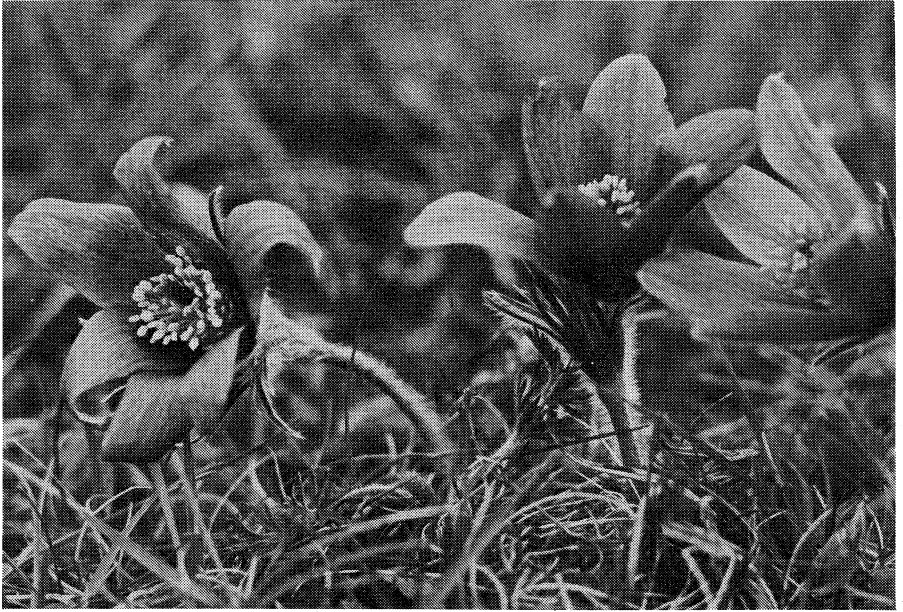
EDITORIAL

The first thirteen issues of the *Bedfordshire Naturalist* included a very important aspect of the recording of the county's flora and fauna with references to papers and articles relating to any aspect of the natural history of Bedfordshire being listed. Some of our Recorders still do this in their own fields but there must be much material scattered through many publications of both scientific and general natures which are known to only a few people. In future issues it is intended to reintroduce this feature and so I would ask Recorders to bear this in mind when producing their reports for 1982, noting that the last list appeared in the Journal for 1958. For anyone in the future who may be researching into the county's natural history this would be a very important source of information.

PROCEEDINGS

Indoor Meetings

- 442nd Ordinary Meeting 7th January, Bedford. "An introduction to Fungi" by Mrs S. Wells. Chair: Mr C. R. Boon.
- 443rd Ordinary Meeting 20th January, Dunstable. "Wildlife of an old canal" by Mr C. Banks and Mr B. Barton. Chair: Mr. D. Anderson.
- 444th Ordinary Meeting 5th February, Bedford. "Members' evening". Chair: Mr R. B. Stephenson.
- 445th Ordinary Meeting 10th February, Dunstable. The Chairman's evening, "Skulls and cross-bones - a close look at bird pellets", with Mr D. Green.
- 446th Ordinary Meeting 17th February, Luton. "Ladybirds" by Mr J. R. A. Niles. Chair: Mr A. B. Tomczynski.
- 447th Ordinary Meeting 26th February, Flitwick. "General natural history" by Mr W. J. Drayton. Chair: Mr R. V. A. Wagstaff.
- 448th Ordinary Meeting 4th March, Bedford. "Natural history at work" by Mr A. Brackenbury. Chair: Mr D. G. Rands.
- 449th Ordinary Meeting 10th March, Dunstable. "Bird studies in Bedfordshire", a forum with Messrs B. J. Nightingale, A. J. Livett and R. V. A. Wagstaff on the panel. Chair: Dr. D. Toomer.
- 450th Ordinary Meeting 19th March, Leighton Buzzard. "Learn more from fossils" by Mr K. G. Baker. Chair: Mr W. J. Drayton.
- Annual General Meeting 26th March, Flitwick.
- 451st Ordinary Meeting 7th April, Dunstable. "Spain in spring" by Mr M. Chandler. Chair: Dr B. S. Nau.
- 452nd Ordinary Meeting 7th October, Bedford. "Bird watching in Mexico" by Mr P. Smith. Chair: Mr B. J. Nightingale.
- 453rd Ordinary Meeting 20th October, Dunstable. "Enjoying natural history in the Isle of Wight" by Mrs E. B. Rands. Chair: Mrs B. Chandler.
- 454th Ordinary Meeting 29th October, Luton. "A close-up of Dunstable sewage farm" by Mr W. J. Drayton. Chair: Mr D. G. Rands.
- 455th Ordinary Meeting 5th November, Bedford. "Looking back to the Shuttleworth course". A discussion on the July course. Chair: Mr M. Sheridan.
- 456th Ordinary Meeting 10th November, Leighton Buzzard. "A naturalist's view of the USA" by Dr B. S. Nau. Chair: Mr C. R. Boon.
- 457th Ordinary Meeting 17th November, Dunstable. Members' evening. Chair: Mr D. Green.
- 458th Ordinary Meeting 24th November, Flitwick. Natural history films.



The Pasque Flower – one of Bedfordshire's specialities of chalk downland. (Photo: R.C. Revels)

459th Ordinary Meeting 9th December, Bedford. Members' evening. Chair: Mr R. B. Stephenson.

460th Ordinary Meeting 15th December, Dunstable. "The Yorkshire Dales". Film, slides and personal recollection. Chair: Mr V. W. Arnold.

Field Meetings

- | | |
|----------------|---|
| 25th January | Maulden Woods. Finding and plotting squirrel dreys. Leader: Mr D. G. Rands. |
| 7/8th February | Solway. Bird watching weekend. Leader: Mr W. J. Drayton. |
| 15th February | Ouse Washes, Cambridgeshire. Coach outing. |
| 1st March | Biggleswade Common. Leader: Mr J. J. Tirrell |
| 7/8th March | Peak District. To look for Mountain Hares with the Sorby Natural History Society. |
| 15th March | River Lea. Legrave Marsh – Luton Station. Leader: Mr J.P. Knowles. |
| 22nd March | Dunstable Downs area. Geology and fossils. Leader: Mr K. G. Baker. |
| 12th April | Flitwick Moor. An introduction to mosses. Leader: Mr A. R. Outen. |
| 26th April | Bedford Park. Signs of spring. Leader: Mr W. J. Champkin. |
| 29th April | Warden Hill, Luton. Leader: Mr R. V. A. Wagstaff. |
| 3rd May | Maulden Woods. Joint meeting with Huntingdonshire Flora and Fauna Society. Leaders: Mrs S. Wells and others. |
| 4th May | Amphill Park. Dawn chorus. Leader: Mr J. P. Knowles. |
| 8/10th May | Yorkshire Dales. Weekend trip. Leader: Mr V. W. Arnold. |
| 15th May | Northill. Listening to Nightingales. Leader: Mr B. J. Nightingale. |

- 17th May **Rushmere Park, Heath and Reach.** By kind permission of Mr Brough.
Leaders: Mr F. W. Atkinson and Dr J. G. Dony.
- 27th May **Lowe's Wood, Woburn.** Leader: Dr B. S. Nau.
- 31st May **Swineshead.** Leader: Mr C. R. Boon.
- 3rd June **Kempston.** Evening walk along R. Ouse. Leader: Mr D. Odell.
- 10th June **Ivel Navigation.** Leader: Mr D. G. Rands.
- 14th June **Cooper's Hill and Wood, Ampthill.** Leaders: Mrs B. Chandler and Mrs E. B. Rands.
- 16th June **Dunstable Downs.** Leader: Mr D. Green.
- 20/21st June **Maulden Woods.** Annual all-night meeting.
- 24th June **Lower Alder, Campton.** Leader: Mr J. Niles.
- 29th June **Kensworth.** Churchyard lichens. Leader: Mrs F. B. M. Davies.
- 1st July **Lidlington.** Evening walk. Leader: Mr N. J. Pollard.
- 7th July **Priory Fish Ponds and Marina, Bedford.** Leader: Mr R. B. Stephenson.
- 12th July **Cambridge Botanical Gardens.** Car trip. Leader: Mr J. P. Knowles.
- 15th July **Barton Hills.** Leader: Mr W. J. Drayton.
- 19th July **Shuttleworth College.** One day course on a variety of natural history subjects.
- 2nd August **Maulden Woods.** Plotting Wood Ants' nests. Leader: Mr D. G. Rands.
- 6th August **Stevington.** Evening walk along Country Park railway track. Leader: Mr D. P. Lawrence.
- 23rd August **Harrold and Odell.** Birdwatching. Leader: Mr B. J. Nightingale.
- 30th August **Linslade to Bletchley** along the Grand Union Canal. Leaders: Mr and Mrs M. Sheridan.
- 6th September **Stockgrove Park.** Grasshoppers and crickets. Leader: Mr D. G. Rands.
- 13th September **Melchbourne Park.** By kind permission of the Hon. H. Lawson Johnston. Leader: Mr. M. Chandler.
- 11th October **Waresley Wood.** Joint meeting with the Huntingdonshire Flora and Fauna Society. Leader: Mrs. S. Wells.
- 18th October **Norfolk Coast.** Car trip to watch seals. Leader: Mr D. G. Rands.
- 1st November **Ashridge Forest.** Fungus foray. Leader: Mr A. R. Outen.
- 13th December **Flitwick Moor.** Leader: Mr M. Chandler.
- 27th December **Blackwater Estuary, Essex.** Car trip. Leader: Dr B. S. Nau.

REPORT OF THE TREASURER

The increased membership has resulted in a subscription income of £1362 which, with an increase in the sales of journals, has raised our annual income to £1546 so that despite a general increase in expenditure costs we had a surplus for the year of £135, a considerable increase on that for 1980.

If we can hold our membership figures we can hold our subscription for the next year.

The Lichen Booklet was published during the year and this accounts for most of the expenditure in the Publications Account.

The Deposit Accounts show a lower income than for 1980, but the £6000 from the Nottingham Bonds were re-invested in July and the interest for the second part of the year (£275) was not received until early 1982.

The £6000 was re-invested as two £3000 amounts so that our capital is not all tied up for too long a period. You will see from the Balance Sheet that re-payments are due at fairly regular intervals to cover any possible need that the Society might have for capital. For example Council expect again to require some capital to fund our next publication. For this reason only a further £1000 has been invested (for two years) from February (at 14%) so that we do have some working capital available from our Bank Deposit Account.

MICHAEL R. CHANDLER

INCOME AND EXPENDITURE ACCOUNT FOR YEAR ENDED 31st DECEMBER 1981

INCOME – Current Accounts

1980	1981
£	£
1142 Subscriptions	1362
56 Sales	156
30 Surplus on meetings	28
4 Donations	–
1232	1546

EXPENDITURE – Current Accounts

1980	1981
£	£
ADMINISTRATION	
– Officers' Expenses	–
25 Postage	–
8 Sundries	15
20 Insurance	25
– Auditors' honorarium	10
53	50
MEETINGS	
144 Hire of Halls	155
10 Lectures and Films	12
99 Programmes	168
– Expenses	7
253	342
SCIENTIFIC	
601 Journal	623
13 Subscriptions to other Societies	13
34 Recorders' Expenses	–
17 Sundries	17
37 Site Recording	–
702	653
PUBLICITY	
170 Newsletter	94
– Application Forms	166
– Advertising	42
170	302
EQUIPMENT PURCHASE	
20 Screen	–
– Projector repairs, case, etc.	36
20	36
DEPRECIATION	
17 of equipment @ 10% on cost	29
17	29
17 Excess of Income over Expenditure (current accounts)	135
1232	1546

PUBLICATIONS ACCOUNT

-116	Brought Forward	148
307	Income	599
43	Expenditure	592
+148		155

GRANTS ACCOUNT

169	Brought Forward	129
—	Income	—
40	Expenditure	—
129		129

DEPOSIT ACCOUNTS

515	City of Nottingham Bonds	257
231	East Staffs. D.C. Bonds	219
30	Redbridge Borough Bonds	94
91	Bank Deposit Account	99
867		669

BALANCE SHEET AS AT 31st DECEMBER 1981

1980		1981	
	FIXED ASSETS	COST	DEPRECIATION
			Total Year
	35 Books and Journals		35
	10 OS Maps		10
	8 Bird Song Records		8
	15 Display Boards		15
	15 Microscope		15
	3 Tools		3
	2 Old Screen		2
	20 New Screen	20	2 18
	30 Slide Projector	60	36 6 24
	55 Duplicator and Stand	110	66 11 44
	100 Specimen Display Cabinets	100	10 10 90
	293		29 264
	CURRENT ASSETS		
	193 Bank Account		415
	721 Deposit Account		1296
	71 Cash in Hand		68
	6000 City of Nottingham Bonds 13% to 30/6/85		3000
	City of Nottingham Bonds 13¼% to 30/6/87		3000
	2500 East Staffs. D.C. Bonds 12½% to 10/9/84		2500
	1000 Redbridge Borough Bonds 13¼% to 5/8/86		1000
	67 Debtors – Subscriptions		—
	10552		11179
	CURRENT LIABILITIES		
	65 Creditors		22
£10,780	TOTAL		£11,421

P. J. HIGGINS A. M. SMITH
Hon Auditors

METEOROLOGY

Report of the Recorder

THE WEATHER OF 1981

For many the weather of 1981 will be remembered for the extreme wintery weather that occurred for much of December. The year began with a relatively mild and dry January, due mostly to the absence of any significant wintery spells rather than any exceptionally mild weather. By the 10th of February the weather became colder and frost, often severe, occurred nearly every night until the end of the month. It was often sunny and dry with a little snow on several days in the last week. In contrast, March was mild and very wet, with more than double the average rainfall.

April and May were both on the cold side, with winds from the East and North, although Bedfordshire escaped the heavy snowfalls of late April that affected much of the East and North of the country. Both months were generally wet and cloudy, though at least there were few night frosts.

June began with a warm day, soon followed by thunderstorms and a return to cool and cloudy weather with very few warm and sunny days. July produced more summery days, but on several occasions thunderstorms with heavy rain brought such spells to a quick end. August, the main holiday month, produced the best weather and was the warmest and sunniest since the memorable year of 1976.

The warm weather continued into September but from the 10th it became cooler with many cloudy and rainy days. The 19th of the month was particularly wet with strong winds



Bulrush in the grip of the ice – Wrest Park lake (Photo: B. A. Watt)

which caused much damage and some deaths in Wales and the West country. October was also a very wet month with rain on 22 days, and was unusually cold as well and frost occurred on several nights. November, however, was generally mild, and although rain fell on many days, it was not a particularly wet month. November often produces the first really cold spell of the winter, but in 1981 this did not happen.

December was an exceptional month, being the coldest and snowiest December since 1878. The cold spell started suddenly on the 8th and continued until the 30th, with only two brief, slightly less cold interludes. Snow covered the ground almost continually throughout this period with temperatures below freezing night and day. The coldest night was the 13th of December, when the temperature fell to -16.0°C (3°F) over most of Bedfordshire, while on both the 10th and 12th the temperature did not exceed -3.9°C (25°F). Significant new falls were on the 8th, 10th and particularly the 13th, when strong winds caused massive drifts, blocking many roads. This was followed by a partial thaw for the next two days, otherwise the chaos would have been much worse. Further light snow falls occurred, but the month finished on a milder note after some very wintery and foggy days.

I have included the weather record for Silsoe, kindly supplied by Mr. Alan Hunter of the National Institute of Agricultural Engineering. This is a very complete record, which has been maintained at the same site since 1950 and is fairly representative of much of Bedfordshire. I would also like to acknowledge help and information from the following:

Mr A. Guppy (the previous recorder), R.S.P.B. (Sandy), Anglian Water Authority, Lee Valley Water Company and Mr B. A. Cole (R.A.F., Thurleigh).

RAINFALL AND TEMPERATURE

	Rainfall mm	Temperature	
		mean maximum $^{\circ}\text{C}$	mean minimum $^{\circ}\text{C}$
January	28.7	7.2	1.1
February	15.9	6.1	-1.1
March	72.8	10.9	5.1
April	61.9	11.4	2.8
May	55.6	15.7	6.4
June	20.3	17.7	9.1
July	63.9	20.7	11.1
August	46.4	21.8	11.1
September	64.3	19.8	9.9
October	60.1	12.2	4.8
November	27.6	10.7	3.8
December	53.6	2.9	-3.4
Year	571.1	13.0	5.1
Mean (1951-80)	549.4	13.4	5.3
Highest maximum			27.4°C , 5 August
Lowest minimum			-16.5°C , 13 December
No. of days air min. below 0.0°C			78, 128% of mean
Wettest period of 24h, 09-09,			35.5mm, 6 August
No. of days rainfall 0.2mm or more			161, 103% of mean
Snowfall recorded (days)			31, 171% of mean
Hail recorded (days)			4, 66% of mean
Thunder recorded (days)			19, 159% of mean
Snow lying at 09 (days)			21, 201% of mean
			(Mean is for 1951-1980)

M. C. WILLIAMS

MAMMALS

Report of the Recorder

Following the example of the Chinese, who name each year after a type of animal, 1981 in Bedfordshire should be called the Year of the Mink. For many years this fur farm escapee has been well established in our neighbouring counties, but only present in one locality in Bedfordshire. Its sighting in Bedfordshire has therefore been expected, but has taken several years to happen. During 1981 we had four new records, all in the north of the county but well spread out, mainly along the length of the River Ouse. How much it will spread into the smaller rivers and lakes will be interesting to see. Its presence will not be welcome by many people for it is a very competent hunter taking a wide range of food types, mainly birds, mammals and fish. It will, no doubt, be controlled by man, but it is unlikely to be removed from the county list and its numbers will increase in the coming years. A problem with its presence is shown by one of the 1981 records — that of a dead animal reported to me as an Otter. As the Mink and Otter look similar and live in similar habitats, there is bound to be some confusion in identification. This makes any record of Otter even more dubious than in the past. Also, there may be some competition between the two species for territory, making any future recovery by the Otter even less likely.

Other species did fairly well, although it is getting increasingly difficult to obtain new tetrad records. The small mammal group had the most new records but this was the result of increased trapping activity by myself, which is being continued in 1982 by several other members. Although the Wood Mouse is by far the commonest small mammal, being found in every possible type of habitat, the Short-tailed Vole came second, with the Common Shrew third. I was pleased to get three new records for the Water Shrew as this is a particularly secretive species and must be more widespread than our records show. No new records were obtained for the Yellow-necked Mouse, but both the existing sites confirmed that these animals were still present in usual numbers. Why this species is not more widespread in Bedfordshire remains a mystery for in some local counties it is much more common, even up to 25% of the Wood Mouse density.

The bat species only produced three new tetrad records as no summer catching was done for a variety of reasons. However, a new approach was started during the early months of the year to check hibernation sites. Some species of bat hibernate in caves or, in the absence of these in Bedfordshire, in man-made underground chambers such as Ice Houses. The two known sites were checked, one of which contained 5 bats and produced two new and, hopefully, an increased understanding of the techniques had been learned. The requirements of a good hibernation cave are a stable temperature of $+2/3^{\circ}\text{C}$ (never lower and preferably not higher), with a rough but firm surface to cling to and with small cracks and holes that the bats can retreat into. Also the cave must be disturbance free. Any disturbance will wake the bat up, thereby causing it to use up critical body fat and lessening its chances of surviving the winter.

Stoats and Weasels seemed to have a successful year in 1981 with a good number of new records for both. The Badger also did well with some known setts going inactive but at least a similar number of old, disused setts becoming active again, in some cases after ten years or more. This shows that old, disused setts are always worth checking as they may, in time, be re-occupied. Also a few totally new setts were found, these being both setts that had not been known in the past although they existed, and newly excavated setts.

1981 did produce one record for Otter which, unfortunately, I have not been able to confirm. It is, however, a hopeful sign.

For the Deer group, the Muntjac continued to expand from its already good county distribution, but the Chinese Water Deer failed to produce a single sighting in any site. This would be very serious if 1982 had not started with two sightings, but the cold weather may have later taken its toll of these animals and I continue to be pessimistic about its status in

Bedfordshire.

For the year a total of 123 new tetrad records were obtained, compared to 184 in 1980. For 10 Km. squares six new records were obtained, which were sent on to the national distribution records centre at Monks Wood for inclusion in the U.K. maps. In 1980 the number obtained was 13. Of the tetrads that do not have any species recorded for them, we managed to delete two from the list but that still leaves 12 to work on.

The new tetrad records for 1981 are listed below and, if added to the distribution maps published in the *Bedf Nat* 29: 36-39 and the update lists published each year since then, will give a full record of the distribution of the mammal species to be found in Bedfordshire.

- Hedgehog *Erinaceus europaeus* – 2 tetrads. 92MS.
 Mole *Talpa europaea* – 8 tetrads. 92LM, 95V, 01GPY, 02S, 06S.
 Common Shrew *Sorex araneus* – 7 tetrads. 91Y, 95HR, 01Y, 02P, 05K, 24A.
 Pygmy Shrew *Sorex minutus* – 4 tetrads. 95HR, 01D, 02V.
 Water Shrew *Neomys fodiens* – 3 tetrads. 92M, 95R, 14H.
 Bat – 2 tetrads. 93H, 95K.
 Common Long-eared Bat *Plecotus auritus* – 1 tetrad. 03Y.
 Natterer's Bat *Myotis nattereri* – 1 tetrad. 03Y.
 Pipistrelle Bat *Pipistrellus pipistrellus* – 1 tetrad. 15F.
 Rabbit *Oryctolagus cuniculus* – 1 tetrad. 91X.
 Brown Hare *Lepus capensis* – 5 tetrads. 92G, 95H, 01G, 02W, 05K.
 Fat Dormouse *Glis glis* – 1 tetrad. 01D.
 Bank Vole *Clethrionomys glareolus* – 6 tetrads. 93W, 95R, 01Z, 03B, 04P, 24A.
 Short-tailed Vole *Microtus agrestis* – 9 tetrads. 94Q, 95HR, 02CPV, 04J, 15S, 24A.
 Water Vole *Arvicola terrestris* – 4 tetrads. 94Q, 04AM, 05K.
 Harvest Mouse *Micromys minutus* – 2 tetrads. 93V, 14H.
 House Mouse *Mus musculus* – 1 tetrad. 95R.
 Wood Mouse *Apodemus sylvaticus* – 12 tetrads. 91Y, 93W, 95HR, 01Y, 02PV, 04E, 05K, 11N, 12BC.
 Brown Rat *Rattus norvegicus* – 7 tetrads. 95KR, 04EIJ, 06SV.
 Grey Squirrel *Sciurus carolinensis* – 7 tetrads. 92IV, 95KY, 04I, 05P, 13H.
 Fox *Vulpes vulpes* – 6 tetrads. 95HK, 04FGP, 12A.
 Badger *Meles meles* – 4 tetrads. 01DG, 02DQ.
 Ferret *Mustela furo* – 3 tetrads. 95K, 03W, 14C.
 Mink *Mustela vison* – 4 tetrads. 95KZ, 04Z, 06R.
 Stoat *Mustela erminea* – 9 tetrads. 95F, 03NQ, 04GX, 12A, 13Y, 14J, 23J.
 Weasel *Mustela nivalis* – 5 tetrads. 91Y, 95K, 96R, 02L, 04J.
 Fallow Deer *Dama dama* – 1 tetrad. 91X.
 Muntjac Deer *Muntiacus reevesi* – 7 tetrads. 92J, 93H, 95RX, 03M, 06V, 13J.

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DAVID ANDERSON

A SUMMARY OF THE WADING BIRDS RECORDED IN BEDFORDSHIRE 1946-1981

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INTRODUCTION

Having produced a summary of the Birds of Prey of Bedfordshire in the 1979 issue of *The Bedfordshire Naturalist* it occurred to the writers that a similar summary of the Wading Birds would be of value and interest.

Bedfordshire has many varied habitats which attract waders throughout the year. Most of the habitats are man-made, either from the extraction of minerals such as clay, gravel and sand, or the marsh type environments of the sewage works serving the larger towns, but over the years the modernisation of the sewage farms have made them much less suitable. Also gravel pits can be extremely good one year, with exposed feeding areas at peak migration time, and the following year very poor due to the further extraction of gravel leaving the pit steep-sided with no feeding areas. Human disturbance will also make areas less attractive to birdlife and this has been clearly demonstrated at Wyboston Gravel Pits and Stewartby Lake where water sports interests now dominate. Fishermen also disturb breeding birds such as Lapwing and Redshank, albeit often unwittingly, as they make their way to the rivers.

Waders as a family are, compared with many birds easy to approach and identify and regular coverage of good areas have produced many interesting records. There are only two species on the county list which were not recorded during the study period; those are Red-necked Phalarope, a single in June 1890 and two further possibles in 1969, and Grey Phalarope, recorded on four occasions between 1866 and 1885.

The trend during the study period has been that some species such as Green Sandpiper, Snipe and Redshank have become less common due mainly to land drainage. For reasons which are not so clear other species have become more common including Turnstone, Oystercatcher, Grey Plover and Little Stint. Figure 1 shows the period when the more regular visitors to the county might be expected, based on occurrences in the survey period. It should be noted that the symbols used are relative to each species e.g. the numbers involved in a light passage of Sanderling cannot be compared with those for Golden Plover.

There are forty species of wader on the county list, thirty-eight of which are covered in the summary. The last new wader species added to the list were Kentish and Grey Plover, both in 1967. It is exciting to speculate what the next new wader will be and we would suggest Buff-breasted Sandpiper, or one of the rare plovers such as Sociable Plover; who will find it, where and what will it be?

SYSTEMATIC LIST

Oystercatcher *Haematopus ostralegus*

Irregular passage migrant. Though not an annual visitor, appearing in fifteen years of the review period, this species has occurred in every month except October and November. Most records have been of singles passing through quickly, but an exception to this was an injured bird which stayed at Stewartby Lake from 16th April to 6th May, 1981. In 1976 eight were seen at Brogborough Clay Pit on 22nd February, and ten were seen over Carlton 17th December. (In 1982 a remarkable influx took place on 2nd January with 21 at Grovebury Road Sand Pit, six at Blunham Gravel Pit and one over Old Warden.)

Black-winged Stilt *Himantopus himantopus*

Very rare vagrant. After the first in 1855 the only other record was 1978 - one at Houghton Regis Chalk Pit 6-7th July.

	J	F	M	A	M	J	J	A	S	O	N	D
OYSTERCATCHER	O	O	X	X X	X X	X	X X	X X	X X			O
LT. RINGED PLOVER			X O	B B	B B	B B	B O	O O	O O	X		
RINGED PLOVER	O O	O O	● ●	B B	B B	B B	B ●	● ●	● ●	O O	O O	O O
GOLDEN PLOVER	● ●	● ●	O ●	● O			X	X X	X X	X O	● ●	● ●
GREY PLOVER			X	X X	X	X	X	X	X	X		
LAPWING	● ●	● ●	● ●	B B	B B	B B	O O	O ●	● ●	O O	● ●	● ●
KNOT	X	X	X X			X		X X	X X	X	X X	X X
SANDERLING			X	X	O O			X X	X X			
LITTLE STINT					X X		X	X O	O ●	O X		
CURLEW SANDPIPER				X	X		X	O O	O O	X		
DUNLIN	O O	O O	O ●	● ●	● O	X X	X O	O ●	● ●	O ●	● ●	● ●
RUFF	X X	X X	X O	O O	O X	X X	X O	● ●	● ●	O X	X X	X X
JACK SNIPE	● ●	● ●	● ●	● ●	O X			X	O O	O O	O O	O O
SNIPE	● ●	● ●	● ●	● ●	O O	X X	X X	O O	O O	O ●	● ●	● ●
WOODCOCK	O O	O O	O B	B B	B B	B B	O O	O O	O O	O O	O O	O O
BLACKTAILED GODWIT	X	X	X X	X X	X X	X	X X	X	X			
BARTAILED GODWIT			X	X X	X				X			
WHIMBREL				O	● O	O	O	O O	O	X		X X
CURLEW	X X	X X	X X	O ●	X X	O O	O O	O ●	O O	X O	X X	X
SPOTTED REDSHANK				O ●	● X		X	O ●	● O			
REDSHANK	X X	O ●	● B	B B	B B	B B	● ●	● ●	O O	O O	O X	X X
GREENSHANK	X	X X	X	X X	● O	X X	O O	● ●	● ●	X X	X X	X
GREEN SANDPIPER	X X	X X	X O	● ●	O X	X X	O ●	● ●	● ●	O O	O ●	X X
WOOD SANDPIPER				X	O X	X X	X X	● ●	● ●	O X	X	
COMMON SANDPIPER	X X		X	X O	● O	X X	O ●	● ●	O O	X X	X X	X X
TURNSTONE			X	O	● O	X	X	O O	X			

Figure 1. Occurrences of the more regular wader species in Bedfordshire, 1946-1981.
Key: X - very irregular ● - main passage or peak numbers
O - light passage, or normal numbers B - breeding season

Avocet *Recurvirostra avosetta*

Very rare vagrant. Two county records:- 1963 – one Harrold Gravel Pits 30th May; 1971 – one Dunstable Sewage Works 29th March.

Stone-curlew *Burhinus oedicnemus*

Rare summer visitor, possibly breeds. During the 1950's was seen or heard regularly during the breeding season in the Pegsdon/Hexton area. However, there has only been one recent record, a bird seen on 9th June 1980 in Whipsnade Zoo Park. With its preferred habitat of chalk downland and, more recently, its adaptation to open cultivation there would still appear to be suitable areas in the county for future breeding to take place. However its nocturnal habits make it difficult to find and single pairs may not extensively advertise their presence with their eerie call. It is to be hoped that a concentrated effort might help to re-establish that the Stone-curlew is a breeding species in the county.

Little Ringed Plover *Charadrius dubius*

Summer visitor and passage migrant. First recorded in the county in 1951, when an unsuccessful breeding attempt took place, the first young were raised in 1956. Since then the number of pairs present in the summer has risen from 10-11 during the 1960's, to 17 by 1977 and a peak of 21-23 in 1979 and 1980. Relying almost entirely on man-made gravel workings this healthy status is not guaranteed, and human disturbance and fluctuating water levels at still active excavations can mean very low success rates. Arriving normally in the last week of March, passage is evident away from the breeding areas at Dunstable Sewage Works and Bedford Sewage Farm. Breeding birds leave their nesting areas in August and passage is usually over by the third week of September, with a few stragglers remaining into the first half of October.

Ringed Plover *Charadrius hiaticula*

Summer visitor, passage and occasional winter visitor. Coinciding with a very heavy passage in the spring of 1971, when a peak of 32 was seen at Dunstable Sewage Works in May, a pair laid three eggs at Wyboston Gravel Pits and this was the first breeding record for the county. Breeding activity has taken place every year since, with a maximum of 11 pairs in 1978 and 1979. Return passage starts in March and birds are evident at many wet habitats through to the end of September. In most years smaller numbers remain throughout the winter months. Clearly the Ringed Plover's status as a passage bird is safe but continuity as a breeding species will be entirely governed by availability of suitable man-made habitats. Unfortunately, both Harrold Gravel Pits and Radwell Gravel Pits, formerly the two main sites, have lost out to alternative water sport uses.

Kentish Plover *Charadrius alexandrinus*

Very rare vagrant. Only one county record: 1967 – a female and two juveniles were seen at Bedford Sewage Farm, 16th August.

Dotterel *Charadrius morinellus*

Very rare vagrant. Two records:- 1952 – one at Maulden, 4th May; 1971 – one at Pegsdon Hills, 8th May.

Golden Plover *Pluvialis apricaria*

Passage migrant and winter visitor. A national survey, organised by the B.T.O. in 1977/78, helped to establish the true status of the Golden Plover in Bedfordshire, (Livett 1979). The maximum count was 1,867 on 31st December, 1977 to 1st January, 1978, with flock sizes ranging from four to 540. A clear preference was seen for grassland and winter cereals, providing over 75% of the numbers, with the majority of sightings from the north and eastern parts of the county. Wintering birds tend to depart at the end of February, and then a passage of birds which have been further south and west move through in late March and early April. There was a heavy movement on 2nd December 1962 with 1000+ passing over Southill in one hour. Flocks of 600+ were not uncommon in the 1950's and 1960's but recently



Figure 2. Little Ringed Plover. This species is under threat from the destruction of its habitat. (Photo: W. J. Drayton)

highs of 2-300 have been more usual.

Grey Plover *Pluvialis squatarola*

Scarce passage migrant. Since the first in 1967 this species has been recorded in seven subsequent years. Sightings span all months from March to October, but surprisingly there have been no winter records. It does not show any particular site preference, with five of the records coming from gravel pits, three from sewage works, two from chalk pits and one from a clay pit. Most reports have been of single birds but two were heard in Houghton Regis Chalk Pit 23rd March, 1979 and two were at Blunham Gravel Pits 18th May, 1980. We can probably expect this species to remain no more than a scarce visitor, best searched for between mid-April and the end of May. Five were found during this period in 1980.

Lapwing *Vanellus vanellus*

Winter visitor, passage migrant and breeder. A familiar species, the Lapwing can be found in all seasons except in very severe weather when birds move south or south-west. Harding (1979) recorded that birds were present in 69% of the tetrads in the summer with breeding proved in 38% of those. Post breeding passage can start in June with numbers building up during August and September. In mild winters large flocks can be met with on pasture land, and at gravel pits and sewage works augmented in early spring by returning breeding birds. A fledgling ringed at Tempsford on 31st May, 1954 and recovered at Livorno, Italy on 27th February, 1957 helps to indicate one winter destination of our breeding birds. Unusually high numbers were 3000 in the Marston Valley 10th February, 1957, and more recently 2000 were found near Ridgmont Station on 6th February, 1977, and 1000 north of Carlton on 19th February of the same year.

Knot *Calidris canutus*

Rare and irregular passage migrant. Of the 18 records, ten occurred during the winter months, all were singles and the peak year was 1964 when three were found. There has been a preference for gravel pits, and in particular Wyboston, where four were recorded in the mid-sixties. This species is becoming scarcer and after 12 birds in the 1960's only three have occurred since, two in 1976 and one in 1981.

Sanderling *Calidris alba*

Scarce passage migrant. This wader is most likely to be found in May, when over half of the records have occurred. Dunstable Sewage Works has been a favourite locality in the past, but conditions are perhaps unlikely to be suitable in the future. Most reports refer to singles, but three appeared at Dunstable Sewage Works 23rd August 1971 and four were at Vicarage Farm Clay Pit 27th May 1974. Appearing in only eleven years of the review period this species has at best only been sporadic and is likely to remain so.

Little Stint *Calidris minuta*

Uncommon passage migrant. This species has been almost annual since the late 1960's. Occurrences are increasing, with the majority in the autumn, and the second half of September offers the best chance to find this tiny wader. Dunstable and Bedford Sewage Works have been particularly favoured, with fewer seen at gravel pits. Most records refer to twos and threes, but five were seen at Dunstable Sewage Works 26-27th September, 1970, four at Wyboston Gravel Pits 23rd September 1967, four 1st October 1978 at Bedford Sewage Farm and five at Radwell Gravel Pits 13th September 1981.

Temminck's Stint *Calidris temminckii*

Very rare vagrant. Three records: 1952 – one at Bedford Sewage Farm 23-25th August. This was the first county record. 1978 – one at Harrold Gravel Pits 4th June; 1979 – one at Dunstable Sewage Works 19-20th August.

Baird's Sandpiper *Calidris bairdii*

Very rare vagrant. Only one county record: 1961 – one at Wyboston Gravel Pits 13-24th September.

Pectoral Sandpiper *Calidris melanotos*

Very rare vagrant. Five records: 1956 – one at Dunstable Sewage Works 14th October was an addition to the county list. 1973 – one Dunstable Sewage Works 29th September to 6th October. 1978 – one Bedford Sewage Farm 15th September was joined by a second on 1st October, both staying until 4th October, with one still present on 8th October. 1981 – one Dunstable Sewage Works 19th-24th September.

Sharp-tailed Sandpiper *Calidris acuminata*

Very rare vagrant. One county record, which was only the sixth for Britain: 1961 – Bedford Sewage Farm 4-11th September.

Curlew Sandpiper *Calidris ferruginea*

Scarce passage migrant. August and September have been the best months for this species, with only two spring records in the review period. Most have been singles, but four stayed at Bedford Sewage Farm from 16th to 19th September, 1969. Few of the records have been away from the two main sewage works, and with records in only 13 years since 1947 this species is likely to remain a scarce visitor to the county.

Purple Sandpiper *Calidris maritima*

Very rare vagrant. One county record: 1954 – one at Barkers Lane Gravel Pit 1st May.

Dunlin *Calidris alpina*

Annual passage migrant, increasing. Recorded in all months, with peak numbers passing through in the last half of March, August and September. A trend during the last ten years has been an increase in winter records, perhaps displaced birds from the wintering population at Grafham Water. Showing no particular preference in choice



Figure 3: Pectoral Sandpiper. This bird at Dunstable Sewage Works in September 1981 was the county's fifth record. (Photo: W. J. Drayton)

of habitat they can be met with at gravel pits or sewage works. Unusual numbers were 16 at Bedford Sewage Farm 22nd March, 1969, 15 at Stewartby Lake 25th March 1973, 20 at Vicarage Farm Clay Pit 12th May 1974 and 10-15 at Harrold Gravel Pit 24th August 1977. Surprisingly, the highest number was in December, with 24 at Barkers Lane Gravel Pit in 1980.

Ruff *Philomachus pugnax*

Annual passage migrant, formerly more abundant. Ruff have been recorded in every month of the year. Sightings in the first winter period are however unusual and normally relate to single birds. Indeed, the spring passage numbers are eclipsed by those passing through in autumn, with August and September bringing the highest numbers. There have been a few June records of males resplendent in their full breeding dress. Peak numbers were seen in the 1960's and early 1970's with Bedford Sewage Farm providing attractive conditions, but since then records have been of smaller numbers from a wider range of habitats. In 1966 large numbers were seen throughout August at Bedford Sewage Farm, peaking at 27 on the 29th, and in 1965 at the same locality with 15 on 11th September. More recently at least ten were at Harrold Gravel Pits on 4th September 1977, and in 1978 11 at Bedford Sewage Farm 11th September.

Jack Snipe *Lymnocyptes minimus*

A regular winter visitor. The records of Jack Snipe during the study period range from early autumn to late spring. The earliest record was at Dunstable Sewage Works on the 16th September, 1972 and the latest at Bedford Sewage Farm on the 30th April, 1971. The birds are usually seen as singles or in very small parties, the maximum being 18 at Houghton Regis Chalk Pit during March 1975. Records have been received from all the usual wet habitats such as chalk pits, clay pits, gravel pits and sewage farms. The bird has been recorded every year during the period showing no marked variation in numbers. We do not see any dramatic change in the status of the species in future years.

Snipe *Gallinago gallinago*

Winter visitor and probable breeder. The Snipe is widespread throughout the county in suitable habitats during spring, autumn and winter with probably a few pairs remaining to breed during the summer months. The species has been specifically recorded in the Journal every year since 1950 and during every month in the year. "Drumming" was recorded in a variety of habitats throughout the county including Bedford Sewage Farm, Dunstable Sewage Works, Flitwick Moor, Biggleswade Common, Wyboston Gravel Pits, Heath and Reach, Linslade, Stewartby Lake, Potton Woods, Luton Hoo and Houghton Regis Chalk Pit. Positive breeding was reported in 1954 at Eaton Ford and in 1969 breeding was proved in four squares in the *Breeding Atlas* survey, with an estimated six to ten pairs in TL14. In 1972 two pairs bred, with one young found at Grange Mill, Heath and Reach. The Snipe is far more widespread during the winter months being found in flocks of 100 plus, with a maximum of 500 (circa) being recorded at Bedford Sewage Farm on the 12th November 1961 and a count of 500-600 recorded at Felmersham Nature Reserve on the 6th March 1969. As with all waders the Snipe greatly depends on suitable feeding habitat being available. As long as mineral extraction continues in the county then there should be no reason why large winter flocks will not be recorded in the future. With increased observer coverage hopefully an increase in the proved breeding records will also be achieved.

Great Snipe *Gallinago media*

Very rare vagrant. Only one confirmed record: 1967 – one at Stanford Gravel Pit 24th March. There were two more possible sightings of this difficult to identify species, one at Bedford Sewage Farm 20th August 1947, and one at Coronation Clay Pit 3rd February 1955.

Woodcock *Scolopax rusticola*

Resident with numbers being augmented in winter. The Woodcock is a regular breeding bird in Bedfordshire, breeding having been recorded from ten to 15 locations during the study period. The main concentration of breeding birds is along the Greensand Ridge which runs north-east south-west through the county, with additional records coming from other suitable woodlands such as Odell Wood. A nest with four eggs was found at Daintry and Washer's Wood in 1961. A bird shot near Toddington in December 1972 had been ringed as a juvenile in November 1972 in Denmark, indicating that the number of Woodcock in the county is increased during the winter months by immigrants from the continent. It may also be found in the future that our regular breeding birds move further west during the winter months. Apart from human disturbance and tree felling it would seem that the future of the species in the county is a fairly stable one.

Black-tailed Godwit *Limosa limosa*

Rare vagrant. The records in the county for the Black-tailed Godwit mainly occur during the spring and autumn wader passage. There was one winter record of a bird that stayed at Marston Moretaine from 28th January to 13th February in the harsh weather of 1979. During the study period the Black-tailed Godwit numbered 38 birds including eight godwit sp. that flew over Radwell Gravel Pit on the 27th July

1980. One in full breeding dress was recorded at Bedford Sewage Farm on the 17th April 1966, and three birds were recorded at Harrold Gravel Pits during 21st/22nd July 1979; however, the majority of records were of single birds. With the Black-tailed Godwit extending its breeding range in Cambridgeshire and Norfolk it is hoped that this very attractive wader will be seen more often on passage in the future.

Bar-tailed Godwit *Limosa lapponica*

Rare migrant. Out of the 25 records of Bar-tailed Godwit in the county during the study period 22 were in the spring and three in the autumn. Records were received for only nine years and outstanding records include one bird shot from a party of eight flying over Colesden during the first week of May 1957, and five present at Vicarage Farm Clay Pit on the 27th April, 1974. Since 1976, there has only been one recent occurrence, with one at Stewartby Lake from 4th to 8th May, 1981, which was joined by a second from 5th to 6th. The Bar-tailed Godwit is obviously the rarer of the two godwits recorded in Bedfordshire but hopefully it will continue to occur in small numbers in the future.

Whimbrel *Numenius phaeopus*

Scarce passage migrant. The Whimbrel is recorded most years and occasionally in good numbers. The majority of records are from the spring and autumn passage although there was one exceptional year in 1953 when a party of 30 were seen on the 11th December at Bedford Sewage Farm and a further party were heard in fog at the water meadows, Oakley on 15th December. Other years in which high numbers were recorded were in 1949, when a large passage occurred over Bedford on the 12th May, in 1952 when a further large passage took place over Bedford on 30th April, 1963 when 22 flew over Bedford Sewage Farm on 7th September, 1969 with 19 over Sandy Lodge on 3rd August, and finally 1980 with 15 over Whipsnade Downs on 6th May. It is worth while keeping ones eyes and ears open in the future for this attractive, relatively easily identified wader.

Curlew *Numenius arquata*

Regular passage migrant. The Curlew has been recorded in every month and almost in every year during the study period. Being a large, easily identified wader it is doubtful whether many birds go unnoticed. The vast majority of records are concentrated in the months of April, June, July, August and September with occasional wintering birds. Exceptional records of the Curlew were as follows: large passage over Leighton Buzzard 24th March 1949: 28 flying over Whipsnade 7th August 1953: eight/nine flying over Kempston 28th October 1956: eight/nine at Stewartby on the 30th April 1957: 21 at Stewartby on 28th August 1957: 25-30 over Bedford 15th March 1959: 30 over Blunham on 23rd August 1980 and 40 over Harrold Gravel Pits on 25th August 1980.

Spotted Redshank *Tringa erythropus*

Scarce passage migrant. The Spotted Redshank is a strict passage migrant in the county and has not been recorded outside the months of April, May, July, August and September. There are records for 20 years during the study period and maximum counts of four were recorded at Bedford Sewage Farm during August 1962 and at Wyboston Gravel Pits in August 1969. Hopefully Spotted Redshank will continue to be recorded in small numbers in the future.

Redshank *Tringa totanus*

A regular passage migrant and breeding bird. The Redshank has been recorded in every year throughout the study period and also in every month of the year. The breeding birds return to the county in the second or third week of March but as the known breeding areas have not been visited regularly the exact status of the species as a breeding bird in the county is difficult to ascertain. The number of breeding birds fluctuates greatly from year to year and are reported from a variety of locations. It would appear that this species almost certainly breeds every year in the county and the number of pairs recorded can vary from two or three to a maximum of 15

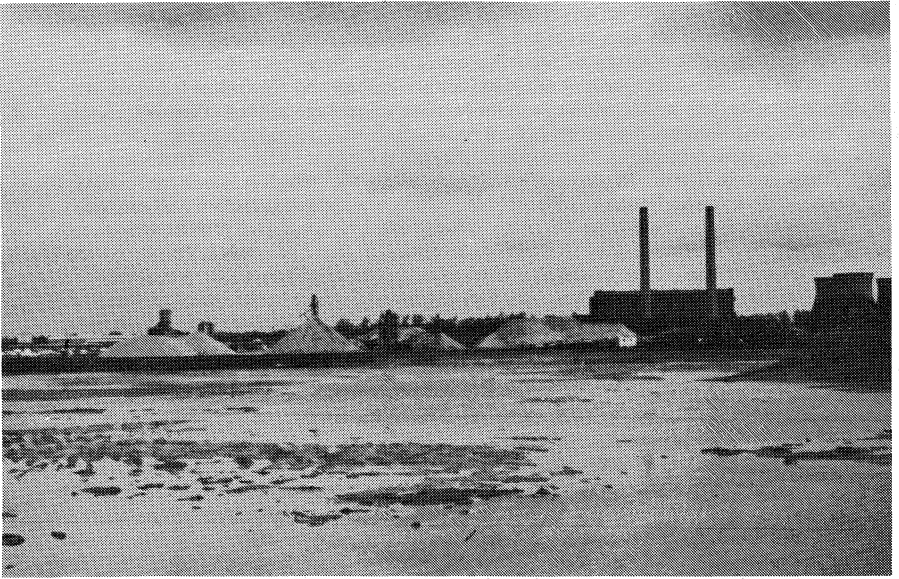


Figure 4 (above) and Figure 5 (below). Bakers Lane Gravel Pit.

The upper photograph shows the pit in April 1979 when it offered excellent feeding and resting areas for waders. Following flooding for recreation the site was rendered largely unattractive to wading species as shown below, in August 1979.

(Photos: D. P. Lawrence)



suspected breeding pairs in 1977. All the large flocks of Redshank have been recorded in the spring and are as follows: 45 at Bedford Sewage Farm – 24th March 1949, 50 at Bedford Sewage Farm – 18th March 1950, 18 at Bedford Sewage Farm – 10th April 1960, 15 at Stewartby Lake – 29th March 1967, 21 at Bedford Sewage Farm – 22nd February 1974. The Redshank is undoubtedly under recorded as a breeding species and the special survey in 1982 covering the water meadows may substantially increase the known number of breeding records.

Greenshank *Tringa nebularia*

Regular passage migrant. By far the largest number of records occur in August and there are several years during the study period when there were no spring records at all. Wintering birds are very unusual in the county but one was seen on the 27th December 1961 and even more impressively four at Bedford Sewage Farm on 28th January 1978. During the autumn passage large concentrations are rarely encountered but the following records are impressive: 6 at Dunstable Sewage Works – 8-12th August 1954, 5 at Bedford Sewage Farm – 10th August-2nd September 1958, 9 at Bedford Sewage Farm – 18-26th August 1962, 6 at Bedford Sewage Farm – 26th August 1963, 8 at Bedford Sewage Farm – 8th September 1974, 6 plus at Harrold Gravel Pits – 12th August 1979, 8 at Radwell Gravel Pit – 24th August 1980, 11 at Radwell Gravel Pit – 23rd August 1981. Apart from 1947 the Greenshank was recorded in every year of the study period and hopefully will continue to delight us with its presence.

Green Sandpiper *Tringa ochropus*

Regular passage migrant occasionally over-wintering. The Green Sandpiper has been recorded in every year during the study period in varying numbers. The pattern, as with most of the regular wader passage migrants, is that far more are seen in the autumn than in the spring. The following records are interesting: 22 at Bedford Sewage Farm – 12th August 1959, 25 at Bedford Sewage Farm – 4th August 1963, 16 at Bedford Sewage Farm – 21st August 1971, 16 at Bedford Sewage Farm – 21st August 1980. The Green Sandpiper has been recorded in every month throughout the year and whilst the largest concentrations are during the passage period, especially in August, there are numerous records of a few birds over-wintering. The Green Sandpiper passage is widespread throughout the county and birds have been recorded in all suitable habitats that are regularly visited.

Wood Sandpiper *Tringa glareola*

Uncommon but almost annual passage migrant. The Wood Sandpiper is far less common in the county during the spring and autumn passage periods than the Green Sandpiper. The Wood Sandpiper frequents similar habitats to the Green Sandpiper and they often occur together on passage. The Wood Sandpiper has been recorded in most of the years throughout the study period, again the largest concentrations being during August. The notable records were as follows: 4 at Willington Gravel Pits – 25th April, four more on the 4th August together with a further four at Dunstable Sewage Works on the 17th August all in 1952. 4 at Bedford Sewage Farm – 31st July – 2nd August 1962, 7 at Bedford Sewage Farm 11th August 1968, 5 at Bedford Sewage Farm – 21st-23rd September 1969, 4 at Radwell Gravel Pits – 9th August 1980, 4 at Radwell Gravel Pits – 15th August 1981.

Common Sandpiper *Tringa hypoleucos*

A common passage migrant. The Common Sandpiper is one of the most frequently seen waders on spring and autumn passage. Behaviour suggesting possible breeding was seen at Girtford Gravel Pit in May 1970 and again at Harrold Gravel Pits during spring/early summer 1978, yet positive proof of breeding has not been recorded in the county. The main spring passage takes place during late April until mid-May, the return passage starting strongly in late July, throughout August, into early

September. Small numbers of Common Sandpiper are seen in widespread localities throughout the county but some of the larger concentrations were as follows: 10 at Dunstable Sewage Works – 20th April and 11 at Stanford Gravel Pit on 25th June 1958. 15 at Bedford Sewage Farm – 6th August 1963. An exceptional autumn passage took place in 1966 with ten at Bedford Sewage Farm on 9th August, 15 at Wyboston Gravel Pits on 1st September, ten at Stewartby Lake on 5th September and six at Dunstable Sewage Works on 3rd September. 15 at Bedford Sewage Farm – 3rd August 1968, 12/15 at Dunstable Sewage Works – 17th August 1969, 12 plus at Harrold Gravel Pits – 10th August 1978, 20 at Radwell Gravel Pits – 15th August 1980, 16 at Radwell Gravel Pits – 10th August 1981. Extreme dates for the spring passage was one bird at Barkers Lane Gravel Pit, Bedford on 23rd March 1954, a bird at Dunstable Sewage Works on 26th March 1966, and one at Blunham Gravel Pits on 24th March 1972. Late birds were one at Bedford Sewage Farm on 5th November and another at Tiddenfoot Sand Pit, Linslade, Leighton Buzzard on 24th December, both in 1961, and a bird at Wyboston Gravel Pits on 5th December 1970. The Common Sandpiper has been recorded every month in the year apart from February, with one notable winter record at Bedford Sewage Farm on 20th January 1963.

Turnstone *Arenaria interpres*

An almost annual passage migrant. The Turnstone was recorded for the first time in the county at Bedford Sewage Farm on 8th May 1955. The Turnstone, since 1955, has been recorded 44 times in the county, just over half of which occurred in the spring. High counts were recorded as follows: 5 or 6 at Bedford Sewage Farm 7-10th August 1961, 3 at Stewartby Lake – 14th May 1967, 3 at Dunstable Sewage Works – 7th May 1972, 3 at Vicarage Farm Clay Pit – 2nd May 1974, 3 at Harrold Gravel Pit – 27th April 1976. The Turnstone can now be considered an annual passage migrant likely to be found on a variety of wet habitats.

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BIRD RINGING REPORT

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The table below includes the total number of birds ringed during the year. The report is based on data submitted by seven ringers whose totals varied from 107 to 2857.

A total of 6031 birds which included 75 species were ringed. This is a great improvement on the previous year being mainly due to increased activity by certain ringers.

Table I includes the more interesting recoveries that were received. The Mute Swan (Z13780) is of particular interest due to its age – at least 18 years old when it was killed by a fox only 17Km from its original ringing location. The Pochard (GK45462) is the first British recovery of that species in Switzerland.

There are dangers in making direct comparisons between annual totals as many factors influence population levels. The first requirement, if ringing is to be used as a monitoring technique, is to ensure that the time spent in the field is the same each year and that the ringer uses the same number of nets over the same period of time at a particular site. I do not think any ringers use this method rigidly in Bedfordshire and therefore comparisons over a two year period would not mean a great deal. However, Chiffchaff numbers do seem to have dropped from the previous year, perhaps being due to hazardous conditions on their migration route or severe conditions in their wintering range. Reed Warblers had a very poor breeding season; however totals were increased due to a good autumn passage.

The majority of Sand Martin recoveries fell within the usual pattern with birds dispersing to breed at colonies in the Midlands. The one exception to this was A819457 which was recovered as breeding at a colony near Dusseldorf in West Germany suggesting that it may have migrated north along a slightly different route.

RINGING TOTALS FOR 1981

Great Crested Grebe	1	Skylark	2	Willow Warbler	218
Shelduck	1	Sand Martin	345	Goldcrest	29
Wigeon	2	Swallow	317	Spotted Flycatcher	8
Gadwall	58	House Martin	43	Long-Tailed Tit	56
Teal	10	Meadow Pipit	2	Marsh Tit	1
Mallard	4	Yellow Wagtail	4	Willow Tit	20
Pintail	1	Pied Wagtail	17	Coal Tit	7
Shoveler	16	Wren	85	Blue Tit	311
Pochard	569	Duncock	210	Great Tit	192
Tufted Duck	376	Robin	119	Jay	1
Lapwing	3	Nightingale	3	Jackdaw	1
Little Ringed Plover	3	Whinchat	2	Rook	1
Ringed Plover	5	Stonechat	1	Carrion Crow	2
Ruff	2	Blackbird	420	Starling	330
Jack Snipe	3	Fieldfare	16	House Sparrow	524
Snipe	7	Song Thrush	100	Tree Sparrow	39
Woodcock	1	Redwing	1	Chaffinch	93
Green Sandpiper	4	Grasshopper Warbler	7	Greenfinch	637
Common Sandpiper	14	Sedge Warbler	57	Goldfinch	69
Black Tern	1	Reed Warbler	111	Linnet	97
Turtle Dove	1	Lesser Whitethroat	49	Redpoll	35
Cuckoo	1	Whitethroat	15	Bullfinch	92
Swift	8	Garden Warbler	13	Yellowhammer	68
Kingfisher	4	Blackcap	44	Reed Bunting	115
Green Woodpecker	1	Chiffchaff	18	Corn Bunting	8

SPECIES	RINGING DETAILS				RECOVERY DETAILS					
	RING NUMBER	AGE CODE	SEX	DATE	LOCATION	DATE	LOCATION	RECOVERY MANNER	DISTANCE km	DIRECTION
Mute Swan	Z 13780			9.11.63	Bedford	9.10.81	Flitwick	X	17	S
Pochar	GK 45462	4	♂	21. 1.79	Blunham	11.12.80	Bellvue, Switzerland	X	805	SE
Sand Martin	A 819457	3	J	10. 8.80	Radwell G.P.	5. 7.81	Kalkar-Wisselkieve, Dusseldorf W. Germany	V	468	E
	B 148224	3	J	14. 7.81	Ancaster, Sleaford, Lincolnshire	29. 7.81	Radwell G.P.	V	85	S
Swallow	A 963527	3		8. 9.80	Radwell G.P.	26. 5.81	Hawarden, Clwyd, Wales	V	201	W
	A 855816	1		13. 8.81	Wallsend, Tyne and Wear	30. 9.81	Harrold G.P.	V	319	S
Blackbird	XK 13610	3	♂	21.10.81	Happisburgh, Norfolk	24.11.81	Cranfield	X	169	SW
Reed Warbler	A 881754	4	♀	24. 8.80	Harrold G.P.	13. 6.81	Saddington Reservoir, Leicestershire	V	44	SE
Greenfinch	NH 71873	5	♂	21. 2.81	Sheyd Park, Bristol, Avon	25.11.81	Cranfield Institute	V	154	NE
	NJ 50765	4	♀	17. 2.81	Cranfield Institute	19. 7.81	Joydens Wood, Dartford, Kent	V	92	SSE
	NE 67605	5	♀	12. 1.80	Southbrook, Swindon, Wiltshire	17.11.81	Cranfield Institute	V	99	ENE
	NJ 71601	5	♀	7. 4.81	High Wycombe, Buckinghamshire	20. 4.81	Maulden Woods	V	49	NNE
Redpoll	A 513010	4		20. 4.81	Maulden Woods	7.11.81	Epping Sewage Farm	V	55	SE

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

Sex: ♂ - male
 ♀ - female

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

Table 1. Details of selected ringing and recovery records.

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BIRDS

Report of the Recorder

INTRODUCTION

By any standard 1981 will be remembered as an exceptional year, particularly highlighted by two quite remarkable events. The first of these occurred at the end of April, was caused by severe weather conditions and involved large numbers of seabirds. The second was a demonstration of what can happen when attractive feeding conditions coincide with peak migration times, with the result that, over a period of six weeks in the autumn, 22 species of wader were seen at Radwell Gravel Pits.

But in January, with the weather mild and unseasonal, the situation was rather settled with only the left-overs from 1980 to arouse much excitement. However these included Bewick's Swan, Ferruginous Duck, Bearded Tits and Great Grey Shrike – all quality birds. The first new event occurred on 6th January when 42 Kittiwakes, an unprecedented number, passed through Blunham Gravel Pits, to be followed later in the month by 16 White-fronted Geese. February remained quiet but Blunham continued to dominate the scene with a Slavonian Grebe on the 7th. In fact it was the arrival of some very out of season summer visitors that caused the most surprise when four Wheatears were found on Barton Hills on the 22nd. March, which normally lacks the interest of other months, this time did well and visits from Whooper Swan, Knot, Black-tailed Godwit and another Great Grey Shrike were all unusual. Generally the weather was wet and unsettled but two short periods of high pressure systems to the south proved suitable for migration and six species of summer visitors were seen by the month-end. In addition Firecrests, rare visitors, appeared in two localities.

In April warm southerly winds around 8th to the 12th encouraged further migration and many species arrived on record or near record dates and by the 15th a further ten species of summer migrant had been reported. On view from the south were also Black Redstarts, Little Gull and Blue-headed Wagtails.

It was however movement from a different direction that stole the limelight when, during 26th-27th April, severe north-easterly gales forced seabirds from the North Sea inland into many counties of southern England. Two Gannets, our first since 1955, large numbers of Kittiwakes and Arctic Terns, a Fulmar, only our third, and Red-breasted Merganser were all involved, as well as a petrel whose specific identity will remain a mystery. Passerines were also grounded by the storms and Redstarts, Whinchats, Ring Ouzels and Black Redstarts all occurred in unusual numbers. Perhaps not connected with this movement but which nevertheless rounded off a splendid month was an Osprey which appeared over Biggleswade on the 30th.

May by comparison was quieter, but Whimbrel, Bar-tailed Godwits and a heavy passage of Black Terns, encouraged by winds from the south, moved through. By June passage had virtually ceased although five Common Scoter were seen at Stewartby Lake on 14th. However, by now the successes and failures of the breeding season were being counted. Long-eared Owls bred near Millbrook, both Grey Wagtail and Wheatear bred in localities near Luton, Shelducks raised young for only the second time and Sparrowhawks increased to ten pairs. Whinchats, which have remained absent as a breeding species since 1974 almost certainly bred near Dunstable and a B.T.O. survey, albeit hindered by the dull, wet weather, still managed to locate nine churring Nightjars in the county. Tantalising rumours of Cirl Buntings breeding were not confirmed. Disappointments that must be registered include Hobbys which failed to breed and were discouraged by the bad weather, and Little Ringed Plovers, where only two young were raised, and which found their former strongholds unsuitable.

By August the autumn passage had gathered momentum and wader migration was particularly impressive. Radwell, offering excellent conditions, attracted Turnstone, Grey Plover, Sanderling, Little Stints, Curlew Sandpiper, Spotted Redshank and Wood Sandpiper.

Elsewhere a Marsh Harrier was watched near Chicksands Wood by two lucky observers. The wader passage continued into September, a month dominated by strong westerlies, which undoubtedly brought our fifth Pectoral Sandpiper to Dunstable Sewage Works. The excitement was sustained by the arrival of both Red-necked and Slavonian Grebes, more Little Stints, Curlew Sandpiper and Garganey.

Impressive numbers of Black Tern and a single Sandwich Tern passed through Stewartby Lake, and Pied Flycatchers were widespread. October was quieter but during November Black-necked Grebe, a Merlin and the year's third Great Grey Shrike were found.

The admirers of wildfowl had their appetites fully satisfied when a Long-tailed Duck and Whooper Swan appeared, in a year which had also been excellent for Pintail and Gossander, had seen record numbers of Canada Geese, a wide scatter of Ruddy Duck and a good breeding season for Mandarin.

Finally into December and with it the start of some very severe weather which did not bring the expected crop of unusual species. However, it is certain that the populations of small birds were effected and initial indications from the B.T.O. Winter Atlas, which started in November, showed that Wrens and the tit family in particular were badly affected. More immediately obvious were visits from Bewick's and Whooper Swans, no doubt both displaced from the Ouse Washes, and Brent and White-fronted Geese which ended a breathtaking year in which 171 species were identified.

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SYSTEMATIC LIST FOR 1981

Species recorded in Bedfordshire during 1981 in usual numbers and not included in the systematic list are:-

Little Grebe, Kestrel, Red-legged Partridge, Grey Partridge, Pheasant, Black-headed Gull, Common Gull, Lesser Black-backed Gull, Herring Gull, Great Black-backed Gull, Stock Dove, Woodpigeon, Little Owl, Tawny Owl, Green Woodpecker, Great Spotted Woodpecker, Lesser Spotted Woodpecker, Wren, Dunnock, Robin, Blackbird, Song Thrush, Mistle Thrush, Goldcrest, Long-tailed Tit, Marsh Tit, Willow Tit, Coal Tit, Blue Tit, Great Tit, Nuthatch, Treecreeper, Magpie, Carrion Crow, House Sparrow, Tree Sparrow, Chaffinch, Greenfinch, Goldfinch, Linnets, Bullfinch, Yellowhammer.

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

The following abbreviations are used in the text:-

BTO = British Trust for Ornithology; CHP = Chalk Pit; CLP = Clay Pit; GP = Gravel Pit, L = Lake; SP = Sand Pit; SW = Sewage Works; R = River.

Great Crested Grebe *Podiceps cristatus* Breeding took place at Barkers Lane GP, Chimney Corner CLP, Elstow CLP, Grovebury SP (Leighton Buzzard), Luton Hoo L, Roxton GP and Southill L, with perhaps 11 pairs raising no more than 14 young. Probably bred at another five sites and possibly at another one. The largest winter flock was

as usual, at Stewartby L, with 79 on 24th December.

- Red-necked Grebe** *P. griseogena* One, staying at Barkers Lane GP from 14th September to 2nd October, was in partial summer plumage when it arrived (MJP, LE et al).
- Slavonian Grebe** *P. auritus* Singles at Blunham GP 7th February and 23rd September (ECN).
- Black-necked Grebe** *P. nigricollis* Single Brogborough CLP 8th November (PT).
- Fulmar** *Fulmarus glacialis* Only the county's third was seen near Biggleswade 26th April (JC).
- Gannet** *Sula bassana* One flying west over Renhold 27th April (DK) and one at Brogborough CLP 28th – 29th April (MJP et al) were the first since 1955. Both were adults and were part of an influx throughout southern England at this time.
- Cormorant** *Phalacrocorax carbo* One or two seen on many occasions between April and June, and again from August to December. Groups of three frequented Dunstable SW/Houghton Regis CHP and Luton Hoo during August, and Radwell GP in mid-September.
- Grey Heron** *Ardea cinerea* Four nests were occupied in Luton Hoo, and at Southill L, eight nests certainly occupied, four probably and one possibly. No details received from the other heronry, at Bromham Park.
- Mute Swan** *Cygnus olor* The largest flock was 37 at Blunham GP 8th November.
- Bewick's Swan** *C. columbianus* Three, which had arrived in November 1980 at Dunstable SW, were still present on 1st January with two then remaining until 24th January (AL et al). Four were seen at Harrold GP on 10th January (DSW). During December ten visited Dunstable SW on 6th, and on the 12th eight flew over Radwell GP, 13 were seen over Harrold GP and probably the same 13 were later seen at Barkers Lane GP (AL, DSW, DJO). Finally four were seen at Blunham GP on the 23rd (JTRS). These birds had probably been displaced from the Ouse Washes during the freezing weather.
- Whooper Swan** *C. cygnus* One flew east over Blunham on 6th March (JTRS). In the second winter period one was seen at Blunham GP 29th – 30th November and two at Dunstable SW on 5th December (DJO, MJP, PT). Two were seen at Blunham GP 17th December (JTRS). These records are the first since 1976 and form a remarkable sequence for this otherwise scarce visitor.
- Pink-footed Goose** *Anser brachyrhynchus* One, wandering with feral Greylag Geese, was seen sporadically at Blunham GP from 13th February to 14th April. It must be of suspect origin.
- White-fronted Goose** *A. albifrons* 16 were seen circling over Blunham GP on 16th January before departing to the east (JPL). About ten were seen near Stanbridgeford on 15th December (LE).
- Greylag Goose** *A. anser* Breeding noted at Roxton GP, where seven pairs reared 20 young, Felmersham GP, where two or three pairs bred, Blunham GP, where four young were seen and Harrold GP, where ten young were seen. The level of the county population is difficult to ascertain because of flock movement but in the Harrold/Radwell area up to 100 were present throughout the year with peaks of 150+ in January and 163 in June. At Blunham GP up to 61 were seen in the first half of the year after which numbers dropped. Smaller flocks were seen at Southill L, Barkers Lane GP, Grovebury SP, Stewartby L, Dunstable SW, Great Barford GP, Coronation CLP, Girtford GP and Shuttleworth College. It is clear that the county's population is increasing.
- Snow Goose** *A. caerulescens* Up to four feral birds were seen in the county between February and November, normally associating with the Canada Geese.
- Canada Goose** *Branta canadensis* Young birds were seen at the following localities: Battlesden L (five), Brogborough CLP (three), Eversholt L (14), Harrold GP (three), Southill L (42). Two nests were found at Luton Hoo, but success unknown. There were non-breeding summer records from many waters. On 19th September 430 were counted on Chimney Corner CLP, the largest single flock ever in the county. As the Snow Geese were not among them it is safe to assume that this gathering did not represent the total county population. Large numbers were regular at Harrold GP

with a peak of 139 in November, Luton Hoo, reaching 134 in October, Grovebury SP with 65 in October, Brogborough CLP with 150 in December, Southill L with 58 in February and Barkers Lane GP with 339 in November. However large scale movement invariably occurred, as illustrated by a series of counts at Barkers Lane GP where in October 197 were present on 10th, increasing to 306 12th - 13th, dropping to 60 on 14th. However it is obvious that the population continues its rapid increase.

Barnacle Goose *B. leucopsis* A single, presumably an escape, associated with Canada Geese at Barkers Lane GP in October and November.

Brent Goose *B. bernicla* One was seen near Silsoe 22nd December (MJP).

'Grey' Goose *Anser* sp. 70 flew over Charle Wood 11th December.

Shelduck *Tadorna tadorna* Only the second county breeding record was proven when five young were found at a locality in the west of the county. One reached maturity. It is probable that breeding took place at this locality in 1980. In the spring, passage was noted from six sites with a maximum of four at Barkers Lane GP on 3rd April. Less frequent in the autumn, with singles at Radwell GP and Girtford GP in August and Barkers Lane GP in October.

Wood Duck *Aix sponsa* Up to three males and two females frequented Shuttleworth College L during the year.

Mandarin *A. galericulata* Breeding confirmed at Eversholt L with three broods totalling 18 young. Away from this locality four on Woburn Park L 30th May, a pair on the canal near Leighton Buzzard 20th May, and one flying north over Linslade 16th October.

Wigeon *Anas penelope* In the first winter period numbers reached peaks of 120 at Harrold GP on 17th January and 100 on 8th February. 60 were present at Radwell GP on 1st February and up to 35 were seen at Blunham GP and 27 at Barkers Lane GP during this period. The latest spring record was on 11th May at Barkers Lane GP, which also saw the earliest autumn return on 16th August. The same locality attracted the highest numbers during the latter part of the year reaching 221 on 13th December. Elsewhere 50 at Harrold GP on 5th December was the only other noteworthy flock. Smaller numbers were reported from Brogborough CLP, Stewartly L, Bedford SW, Southill L, Dunstable SW and Luton Hoo L.

Gadwall *A. strepera* As usual the highest counts came from Blunham GP with peaks of 123 on 20th January and again 3rd February, and then 78 on 21st October, increasing to 133 on 15th November. However pinioned birds were seen there in April. Elsewhere good numbers were seen at Barkers Lane GP with up to 63 in November and 81 in December. Records also received from Stewartby L, Dunstable SW, Brogborough CLP, Harrold GP and Vicarage Farm CLP.

Teal *A. crecca* Wildfowl counts continued at selected waters during the winter months on specific dates and the totals are shown below and elsewhere for the species concerned.

	18/1	15/2	15/3	13/9	18/10	15/11	13/12
Total	221	157	65	106	175	309	355

Reasonable numbers present throughout the count periods. Individual flocks worthy of note included 159 Barkers Lane GP 15th November, c100 Bedford SW 5th December and 150+ Harrold GP 11th December.

Mallard *A. platyrhynchos*

	18/1	15/2	15/3	13/9	18/10	15/11	13/12
Total	1144	1087	214	1095	543	1407	717

Numbers of this species are now consistently lower than in former years. Flocks in excess of 400 were seen at Southill L (452) and Luton Hoo L (455) both on 11th January, Coronation CLP (420) on 13th September, and on four dates between 15th November and 5th December at Harrold GP peaking at 510.

Pintail *A. acuta* Two at Blunham GP 31st January, one there on 7th February, 25 south over Blunham 6th March and two at Fenlake Meadows 21st March. Singles were then seen

at Dunstable SW 14th August, Barkers Lane GP 19th October, Blunham GP 21st October, Southill L 21st November and Harrold GP 5th December. These records represent an excellent year for this species.

Garganey *A. querquedula* For a species which has been recorded only infrequently in recent years the following are exceptional. A single at Radwell GP on 9th August was joined by a second on 10th August both staying until 25th August. (MP, BN et al.) Singles were also seen at Barkers Lane GP 13th August, a different bird on 26th September and another on 5th October which stayed until 11th. Four were seen at Elstow CLP 21st August (TT, JPL. et al).

Shoveler *A. clypeata* An increase in records this year. As usual the highest numbers were from Dunstable SW with a peak of 92 on 15th September, Brogborough CLP with 52 on 2nd November and Barkers Lane GP with 50 on 7th December. Double figures were also reported from Eversholt L, Radwell GP, Southill L and Blunham GP. Smaller numbers were seen at seven other localities.

Shoveler X Gadwall X *Anas* A bird showing features of both Shoveler and Gadwall was present at Blunham GP 15th February.

Pochard *Aythya ferina*

	18/1	15/2	15/3	13/9	18/10	15/11	13/12
Total	446	700	119	128	79	515	118

Apart from October, numbers were consistently high. The most important water was Blunham GP where a peak occurred of 382 on 15th February and throughout the first winter period numbers were around 200. Other localities to regularly attract over 100 were Barkers Lane GP, Brogborough CLP, and Southill L. Breeding occurred on Luton Hoo L where three young were seen 9th July.

Ferruginous Duck *A. nyroca* The drake present at Blunham GP at the end of 1980 stayed until 7th March, being seen during its stay by many observers.

Tufted Duck *A. fuligula* Breeding records from Barkers Lane GP, Battlesden L, Brogborough CLP, Girtford GP, Luton Hoo L and Stewartby.

	18/1	15/2	15/3	13/9	18/10	15/11	13/12
Total	314	533	407	107	93	589	99

Record numbers in February, March and especially November when the normal influx was particularly emphasised. The highest numbers were from Brogborough CLP, with a peak of 250 15th November, Barkers Lane GP, with a peak of 198 on 2nd February, Blunham GP, with a peak of 216 on 15th February and Harrold GP, with a peak of 190+ 10th August.

Tufted X Pochard X *Aythya* A drake showing features of both Tufted Duck and Pochard was seen at Blunham GP 3rd May.

Long-tailed Duck *Clangula hyemalis* A female found at Brogborough CLP on 2nd November was still present on 4th December (AT, MJP et al).

Common Scoter *Melanitta nigra* Five were seen Stewartby L 14th June (TP).

Goldeneye *Bucephala clangula* Maximum of 11+ at Harrold GP 29th November and 14th December. Numbers at Blunham GP confused by the presence of six pinioned birds. Reports were received from eight other sites, usually between one and three birds. Away from Blunham GP the latest to depart in spring was one at Harrold GP 2nd May and the earliest to return were three at Brogborough CLP 3rd November.

Red-breasted Merganser *Mergus serrator* A single drake Stewartby L 26th April (MJP).

Goosander *M. merganser* A definite influx in the early part of the year with singles at Harrold GP and Radwell GP 1st January with two there on 1st February, Brogborough CLP 1st January, Barkers Lane GP 11th January and 1st February, Blunham GP 12th January, 18th January, 2nd to 7th February, 31st March and two on 1st April. Less frequent in the second winter period with two at Brogborough CLP 17th November, two at Radwell GP 22nd November with one there 29th November, and one at Barkers Lane GP 30th December. A tame duck on R. Ouse in Bedford 18th - 19th

September was thought to be an escape.

- Ruddy Duck** *Oxyura jamaicensis* Away from Blunham GP, where eight were released, singles were seen at Barkers Lane GP in January, August, September and December, Tiddenfoot GP in April, Radwell GP in August and September, and Brogborough CLP in December.
- Marsh Harrier** *Circus aeruginosus* A female near Chicksands Wood 11th August was only the county's fourth record, and the first since 1974. It occurred at a time of wide dispersal throughout eastern England (GRD).
- Sparrowhawk** *Accipiter nisus* Over 100 separate sightings were reported, compared with just 12 in 1978, from 39 localities. An estimated ten pairs bred, or at least were present throughout the breeding season. A noticeable influx took place during October and November.
- Buzzard** *Buteo buteo* One in Luton Hoo 12th February and again 15th March. The same bird or another was present from August to early September and finally one was seen 18th October (AJL). One at The Lodge, Sandy on four dates between 18th September and 7th October (RP-J).
- Osprey** *Pandion haliaetus* One seen heading north over Biggleswade 30th April (PO).
- Merlin** *Falco columbarius* One west over The Lodge, Sandy 20th November (RAH).
- Hobby** *F. subbuteo* A disappointing year with no evidence of breeding. The first in spring was one over Barkers Lane GP 4th May and the last, at Odell, on 1st October. A bird was seen on six dates in the autumn at Radwell GP preying on the Sand Martin colony. Single records received from five other localities.
- Lady Amherst's Pheasant** *Chrysolophus amherstiae* Records from Luton Hoo, Charle Wood, where a maximum of 12 were seen, Apsley End, Maulden Woods and Wootton Wood.
- Water Rail** *Rallus aquaticus* Breeding season records received from Flitwick Moor where a maximum of five was located on any one date. Winter records from 13 other localities.
- Moorhen** *Gallinula chloropus* A winter gathering of at least 100 in Luton Hoo 14th January.
- Coot** *Fulica atra* Worthy of note were 450 at Brogborough CLP, and 457 at Barkers Lane GP 15th November. At Blunham GP 376 were present on 18th January.
- Oystercatcher** *Haematopus ostralegus* In the spring a bird with an injured leg stayed at Stewartby L from 16th April to 6th May (MJP et al). In the autumn singles at Grovebury SP 12th July, Radwell GP 9th August and over Barkers Lane GP 10th August (PS,DSW,TT).
- Little Ringed Plover** *Charadrius dubius* Very poor breeding season with only four pairs raising two young at one site, with display but no young seen at a second. The first arrival was on 31st March at Girtford GP where a maximum of 16 occurred on 3rd May. Smaller numbers seen at another eight sites with the last on 22nd September at Radwell GP. Birds were absent from Harrold GP, one of the former strongholds, and birds also failed to breed at Radwell GP.
- Ringed Plover** *C. hiaticula* Winter records from Blunham GP, Fenlake, Girtford GP and Harrold GP. Seven pairs raised 11 young at two sites with a single pair probably successful at a third. It is likely that this species is proving more dominant than Little Ringed Plover where competition for breeding sites occurs. Passage noted from ten sites with a particularly strong movement at Radwell GP in August with a maximum of 20 on 15th.
- Golden Plover** *Pluvialis apricaria* The largest flocks were present in January with 285 near Cardington, 350 near Old Warden and then in November 300 at Southill and 150 near Eaton Bray. Smaller numbers, usually under 50, were reported from many localities.
- Grey Plover** *P. squatarola* Single Radwell GP 8th August (DSW).
- Lapwing** *Vanellus vanellus* Following the freezing weather in December this species was virtually absent from the county but by the end of the month, following the thaw, 4000 had gathered near Tempsford.
- Knot** *Calidris canutus* Single at Radwell GP 29th March (MJP,DSW).
- Sanderling** *C. alba* Singles at Radwell GP 1st August and 20th September (DSW).

- Little Stint** *C. minuta* Strong passage at Radwell GP with five on 13th September, three on 14th, one on 15th. A different bird which arrived on 18th was joined by two others by 20th, with one staying until the 22nd. At Bedford SW one on 28th September, two on 11th October and one on 13th October (MJP et al).
- Correction to 1980: The single at Houghton Regis CHP was on 30th May not June.
- Pectoral Sandpiper** *C. melanotos* A single bird staying at Dunstable SW from 19th to 24th September was the fifth county record (PT et al).
- Curlew Sandpiper** *C. ferruginea* Two at Barkers Lane GP 13th August and a single at Radwell GP 4th September (TT,DSW).
- Dunlin** *C. alpina* Winter records from Barkers Lane GP, Bedford SW, Fenlake and Grovebury SP with never more than two together. Spring passage lasted from 4th April to 11th May from four sites, the peak being 13 at Radwell GP on 8th April. In the autumn a prolonged passage took place at Radwell GP from 4th July to 4th October with a peak of nine on 23rd August. Smaller numbers were seen at five other localities.
- Ruff** *Philomachus pugnax* Three were at Fenlake 19th April. In the autumn very strong passage at Radwell GP with the first on 26th July and the last 4th October. The peak was 20 on 9th August, and between seven and ten were present on several days. Elsewhere seven were seen at Dunstable SW 10th August with singles 13th and 18th August, and four on 23rd September. There were two interesting winter records; four at Barkers Lane GP 13th December and one at Stewartby L 24th December.
- Jack Snipe** *Lymnocyptes minimus* Present at Houghton Regis CHP from 2nd January until 28th April with maximum of six on 5th April. At Harrold GP seen between 11th January and 28th March with four on 22nd March. Elsewhere singles Bedford SW 11th January and 5th April, and Radwell GP 8th April, Biggleswade Common 2nd January, 12th January and 1st February. In the autumn the first to return was one at Harrold GP on 18th October, and then at Radwell GP on 31st October, where there were seven on 29th November. Two had returned to Houghton Regis CHP by 23rd November and four were seen at Blunham GP 13th December. 1981 was a very good year for this species.
- Snipe** *Gallinago gallinago* During January and February the flooded meadows at Fenlake provided attractive conditions, peak numbers being 175 on 18th January. 75 were found near Barkers Lane GP 8th March. In the autumn Radwell GP held good numbers during October with 60 on 31st.
- Woodcock** *Scolopax rusticola* Roding was noted at nine sites mostly on the Greensand Belt. A few winter records but no evidence of any influx or passage.
- Black-tailed Godwit** *L. lapponica*: One was seen flying west along R. Ouse west of Bedford 22nd March (MJP).
- Bar-Tailed Godwit** *L. lapponica* One at Stewartby L on 4th May was joined by a second on 5th and 6th, one remaining until 8th (DJO, MJP et al).
- Godwit** sp *Limosa* sp. Three flying over Harrold GP 22nd August were thought to be probably Bar-tailed (DSW).
- Whimbrel** *Numenius phaeopus* Typical passage with two over Flitwick 2nd May and singles at Stewartby L 6th May, Pegsdon 27th July and Radwell GP 10th August (JPK, AJL, CWB,DSW,DJO).
- Curlew** *N. arquata* Spring passage at Radwell GP 3rd April, Barkers Lane GP 27th April and Great Barford GP 1st May. In autumn strong passage at Radwell GP from 29th July to 31st August with peak of 16 on 23rd August. Also seen at five other sites, all singles apart from four at Stewartby L 21st September and three at Barkers Lane GP 10th August. Winter records of singles from Totternhoe 28th February and over Charle Wood 7th November. With the recent upsurge in passage numbers, and breeding in neighbouring counties, the possibilities of breeding in Bedfordshire should not be overlooked.
- Spotted Redshank** *Tringa erythropus* Singles at Radwell GP 15th and 23rd August and Bedford SW 1st to 4th September (DSW,MJP et al).

- Redshank** *T. totanus* Evidence was received that nine pairs bred at seven sites. Present throughout the year with peaks of nine at Radwell GP 4th April and seven at Girtford GP 28th March. The spring influx started on 8th March.
- Greenshank** *T. nebularia* The strongest passage was seen at Radwell GP lasting from 11th July to 4th October, with a peak of 11+ on 23rd August. Four were seen at Girtford GP on several dates in August, and smaller numbers were seen at seven other sites, mainly in August. There were no spring records.
- Green Sandpiper** *T. ochropus* Seen each month except, surprisingly, May and June. Winter records from Bedford SW, Girtford GP and The Lodge Sandy with never more than two together. Spring passage lasted from 8th March to 22nd April, recorded at six sites with a maximum of three at Bedford SW 11th March and Houghton Regis CHP 21st April. Birds were more numerous during the autumn, passage lasting from 2nd July to 11th October and noted at ten sites, the best of which was Radwell GP which peaked at seven on 12th August.
- Wood Sandpiper** *T. glareola* Passage noted at Bedford SW, Girtford GP and Radwell GP lasting from 29th July to 28th August. Presence was virtually continuous at Radwell during this period with a peak of four on 15th August.
- Common Sandpiper** *Actitis hypoleucos* The first in spring was on 12th April and passage then lasted until 17th May. Records were received from 13 sites, all singles apart from two at Roxton GP 7th May and two at Girtford GP 8th May. An early returning bird was seen at Blunham GP on 21st June but the main autumn passage occurred between 7th July and 18th October, reported from 17 localities. Radwell GP held the highest numbers with 15 on 26th July, 1st – 2nd August and 16 on 11th August. Elsewhere the maximum was seven at Girtford GP 10th August.
- Turnstone** *Arenaria interpres* Singles Barkers Lane GP 10th August and Radwell GP 29th July and a different individual 9th August (TT, DSW et al).
- Correction to 1980 report: Two were present at Radwell 3rd May. Observers should be DSW, MJP not DSW, DJO.
- Little Gull** *Larus minutus* Following good numbers in 1980 another excellent year involving 11 birds. In the spring an adult was present at Stewartby L on 29th–30th April (BN et al) and a different adult on 3rd May (TP). In the autumn three at Stewartby L 9th August (TP), three more there 31st August (DJO), singles at Grovebury SP 22nd August (PT), Blunham GP 20th September and Barkers Lane GP the same day (BN).
- Correction to 1980 report: the bird 12th–14th September was at Barkers Lane GP and not Radwell GP.
- Iceland/Glaucous Gull** *L. glauciodes/hyperboreus* One 'White-winged gull' at Brogborough CLP 8th February was either one of these difficult species (TP).
- Kittiwake** *Rissa tridactyla* Two remarkable influxes. The first on 6th January involved at least 42 at Blunham GP (BT), and the second was part of the seabird invasion in April. 16, mostly adults, were present at Stewartby L on 26th April with only one remaining by 27th April, when one was also seen at Chimney Corner CLP (MJP, BN, BRS et al). Singles were also seen at Barkers Lane GP 10th October and Grovebury SP 15th November (MJP, SGW, AL).
- Sandwich Tern** *Sterna sandvicensis* A single was heard at Stewartby L 13th September (DJO).
- Common Tern** *S. hirundo* A total of six pairs bred at four localities, with display seen at one other. Breeding success is not known. In spring the first was at Barkers Lane GP 10th April and the last in autumn 11th September at Stewartby L. Passage was widespread, the maximum numbers being eight at Stewartby L 9th May, nine at Barkers Lane GP 17th July and eight at Radwell GP 25th August.
- Arctic Tern** *S. paradisaea* Strong spring passage at Stewartby L with five 26th April, two 27th, ten 28th, 12 29th, one 30th and 30 4th May. At least 32 *Sterna* sp. passed through on 28th April but could not be specifically identified as either Arctic or Common. Elsewhere a single at Barkers Lane GP 10th May and in the autumn one at Radwell GP 15th August.

- Black Tern *Chlidonias niger*** Strong passage in both spring and autumn. The first of the year was a single on 26th April at Stewartby L, with one on 29th April, five on 7th May, nine on 8th, seven on 9th, two on 10th and one on 11th May. Two were seen 14th June. Elsewhere four were seen at Barkers Lane GP 10th May when there were also two at Harrold GP, with one remaining at Barkers Lane GP until 11th. In the autumn again Stewartby L proved attractive with a single on 9th August, three on 16th, one on 30th, ten on 10th September, eight on 11th September and again eight 20th – 21st September. Elsewhere singles at Barkers Lane GP from 10th – 13th August, with two on 12th, and 6th – 13th October. A single was at Radwell GP 9th August and at Blunham GP singles 13th, 20th and 23rd September.
- Collared Dove *Streptopelia decaocto*** Several impressive gatherings were recorded during the year. 68 roosted near County Hall, Bedford 22nd January with 63 near Barkers Lane GP 3rd February. In the autumn a flock of 110 at Bedford SW 2nd September had reduced to 25 on 3rd. This number was eclipsed however by a roost of 360 at Well Head, Totternhoe on 8th November.
- Turtle Dove *S. turtur*** The first, which was early, was on 21st April on Sundon Hills followed by one at Brogborough CLP 28th April. The last in autumn was a very late bird at Barkers Lane on 20th October.
- Ring-necked Parakeet *Psittacula krameri*** No reports of the Harlington group. One was seen in Wardown Park, Luton 11th August.
- Cuckoo *Cuculus canorus*** The first arrival was on 12th April on Dunstable Downs which was early, followed by the second at Roxton GP on 17th April, a more typical date. Birds were not widespread until the first week in May.
- Barn Owl *Tyto alba*** Slight increase in observations with summer records from three localities, with breeding likely at two of these. Winter records from seven other sites.
- Long-eared Owl *Asio otus*** An injured juvenile found at Millbrook on 24th July was picked up and taken into care (LE, MJP).
- Short-eared Owl *A. flammeus*** Regular roost at Coronation CLP held three in January, two in February and five in March. One had returned by 15th November. Elsewhere singles were seen near Pegsdon during January – March and again in November, Sundon Hills on 1st September, the outskirts of Luton 28th September and Brogborough CLP 8th November. Two were seen between Millbrook and Marston on 13th February. A very good year for this species.
- Nightjar *Caprimulgus europaeus*** As a result of a B.T.O. survey a total of nine “churring” males were located at the following sites: Chicksands Wood, Gastlings (Southill), Home Wood, Keepers Warren, Pedley Wood, Rushmere, Warden Warren and Millbrook.
- Swift *Apus apus*** The first, and equalling the earliest ever, was one at Husborne Crawley on 12th April. The next, rather more typically, was on 30th April, over Bedford. The last was a late bird over Potton on 5th October.
- Kingfisher *Alcedo atthis*** Breeding activity noted at four sites. Present during the summer at another 14 sites, and in the winter at another nine. These records indicate a continued increase.
- Skylark *Alauda arvensis*** In the early part of the year two flocks of 300 were seen, at Beadlow on 10th January and Stanbridgeford 17th January. During the cold spell in December 300 gathered at Radwell GP on 5th, 150 at Sandy 13th, 250 moved north west over Ickwell on 20th, and on 22nd 550 were seen at Moggerhanger, 2300 at Dunton and 1800 passed over Sutton.
- Sand Martin *Riparia riparia*** Generally arriving early the first were 20 at Harrold GP 22nd March. 200 had gathered there by 4th April. The last was one at Barkers Lane GP 10th October. Breeding colonies were found at Radwell GP, with 250 occupied nest holes, near Bedford town centre with eight birds present, Grovebury SP with colonies of 100 and 150 and Leighton Buzzard golf course. Some activity was also seen at a pit just north of Potton.
- Swallow *Hirundo rustica*** The first, about a week earlier than usual, was one at Roxton GP on

31st March, and the last was one over Whipsnade Zoo Park on 22nd October.

House Martin *Delichon urbica* Arriving 11 days earlier than the average date were seven at Dunstable SW on 29th March, followed by one at Roxton GP 31st March. A heavy passage took place in October including 150 at Blunham GP on 10th. The last was a straggler at The Lodge, Sandy on 17th November.

Tree Pipit *Anthus trivialis* Breeding display noted at 11 sites, mostly on the Greensand Belt. The first arrival was on 14th April and the last a passage bird on Blows Downs 29th September.

Meadow Pipit *A. pratensis* Passage noted at Harrold GP with 300 moving south on 3rd October and 100 at Radwell GP on 4th October.

Yellow Wagtail *Motacilla flava* First arrivals were on 8th April with a single at Barkers Lane GP, three at Radwell GP and four at Dunstable SW. Worthy of note was a flock of 50 at Harrold GP on 18th September. Birds showing characteristics of the race *M. flava flava*, known as the Blue-headed Wagtail, were seen at Barkers Lane GP 23rd April, Biggleswade Common 30th April, Stewartby L 5th May and Girtford GP 20th August (DJO,PO,BN,MJP,TT).

Grey Wagtail *M. cinerea* During May a pair held territory in Luton Hoo and was later seen carrying food, a pair was present for five days in June at another site in Luton, again in May a pair was seen on the R. Ouzel near Leighton Buzzard, a single was seen near Rushmere Park L, and a pair was seen near Blunham. In all other seasons a good scatter of records, particularly from October onwards with reports from 14 localities by the year-end.

Pied Wagtail *M. alba* A roost at Harrold GP numbered 150 on 14th October and a minimum of 597 were counted near Queens Park, Bedford 14th November. Birds showing characteristics of the continental race *M. alba alba*, the White Wagtail, were seen at Radwell GP on 12th April and again on 17th, Stewartby L on 13th April and Girtford GP 3rd May.

Nightingale *Luscinia megarhynchos* 17 singing males were found at ten localities. The earliest was at Potton Wood on 14th April.

Black Redstart *Phoenicurus ochruros* Excellent spring passage with singles in Houghton Regis CHP 26th March, 20th and 23rd April. Dunstable SW 7th April, Blows Downs 9th April, Whipsnade Zoo Park 13th and 15th April and Barkers Lane GP 28th April. The possibility of breeding should not be ruled out for at least two of these sites.

Redstart *P. phoenicurus* Breeding proved with single pairs in Charle Wood and Wavendon Heath/Apsley Heath. Also present in the breeding season in Warden Wood and Potton Wood; all sightings were of single birds. A party of six was seen at Barkers Lane GP on 26th April. In the autumn passage was noted at Whipsnade Downs in August, Blows Downs and Stewartby L in September and Linslade in October.

Whinchat *Saxicola rubetra* A pair was present at a site throughout the summer near Dunstable where they almost certainly bred. A juvenile was located with the adults in September. In spring an early bird was in Houghton Regis CHP on 15th April followed by two at Blunham GP 26th April and Stanbridgeford 9th May. Autumn passage lasted from mid-July, when about 18 were present at Bedford SW, until 13th October; records were received from 12 localities. Four birds stayed on until October which is unusual.

Stonechat *S. torquata* Between 11th January and 26th March birds were seen at seven sites, but in the autumn at only Bedford SW on 2nd and 6th September. At this latter site in February a pair followed a mechanical digger in the manner more characteristic of Robins.

Wheatear *Oenanthe oenanthe* A pair bred again near Luton. There was a remarkable record of four on Barton Hills on 22nd February, the earliest for many years (one was seen in Northamptonshire on 28th February). The next was one at Coronation CLP on 15th March but the main arrival was on 22nd March at three sites. Spring passage was widespread until 24th May. Autumn passage was lighter, lasting from 29th July to 6th October.

- Ring Ouzel** *Turdus torquatus* Very strong spring passage. The first was at Girtford GP on 28th March followed by one in Houghton Regis CHP from 3rd to 7th April. On 9th two were on Bison Hill, and singles were seen on Barton Hills and Bedford SW. Two were seen near Husborne Crawley on 13th April followed by one at Blunham GP on 20th, where it or another appeared on 26th April. Between 24th April and 4th May birds were seen in Houghton Regis CHP, Sallowsprings, Dunstable Downs, Ampthill Park, Sewell Quarry and Bison Hill, the latter site involving at least three birds. One on 13th October on Whipsnade Common was, typically, the only autumn record.
- Fieldfare** *T. pilaris* The first autumn arrival was one at Harrold GP on 5th September, followed by six in Bedford on 20th September. Not widespread until the end of October. In the spring a late gathering was seen at Stanbridge Wood with 125 on 24th April, where the last stayed until 6th May. No really impressive flocks this year, the largest being 350 near Cardington on 13th November.
- Redwing** *T. iliacus* The last in spring was one in Whipsnade Zoo Park on 28th April, and the earliest in autumn were two near Sandy on 30th September. The largest flock was 500 near Biggleswade on 21st October.
- Grasshopper Warbler** *Locustella naevia* The earliest was one in Potton Woods 11th April. A total of 44 to 46 singing birds were heard in 18 localities. Additional 1980 record: the earliest record was in Maulden Woods 14th April.
- Sedge Warbler** *Acrocephalus schoenobaenus* The first, about nine days earlier than average, was at Barkers Lane GP on 5th April.
- Reed Warbler** *A. scirpaceus* The first, and equalling the earliest ever, were singles at Barkers Lane GP and Harrold GP 25th April. Breeding colonies found at nine sites.
- Lesser Whitethroat** *Sylvia curruca* First in spring was one on Dunstable Downs 15th April and the last, on 13th September, was at Harrold GP.
- Whitethroat** *S. communis* The first and earliest ever in the county was one in Stockgrove Park on 4th April. The next, still eight days earlier than average, was one on Barton Hills 12th April, and the last was one on Dunstable Downs 29th September.
- Garden Warbler** *S. borin* The first, about two weeks earlier than average, was one in Potton Wood on 17th April which was part of a widespread influx into southern England. The next were in Maulden Woods and near Old Warden on 2nd May, a more typical date.
- Blackcap** *S. atricapilla* Five days earlier than usual was one near Dunstable on 8th April, followed by one near Barkers Lane GP on 9th. One found dead at Northill on 25th March could have been a wintering bird but there was a substantial arrival on the south coast the day earlier. In view of the extreme weather at the year-end the following records of single wintering birds are particularly worthy: The Lodge, Sandy 7th November, Blunham between 11th and 23rd December and Sandy 29th to 31st December.
- Wood Warbler** *Phylloscopus sibilatrix* Three singing in Charle Wood on 10th May and two in Stockgrove Park on 30th May were the only records; no evidence of breeding.
- Chiffchaff** *P. collybita* The first was one in Maulden Woods 21st March, followed on the next day by birds at Warden Warren and Harrold GP. One wintering was seen at Stewartby 29th January.
- Willow Warbler** *P. trochilus* The first was one in Stockgrove Park on 27th March followed by two in Blunham and one on Dunstable Downs on 28th, all about a week earlier than expected.
- Chiffchaff/Willow Warbler** *Phylloscopus* sp. Singles in Bedford on 23rd February and at The Lodge, Sandy on 2nd December were probably Chiffchaffs.
- Firecrest** *Regulus ignicapillus* A female and two or three males were seen at two sites in the west of the county on 28th March. They were part of an influx into southern England at this time. These were the first records in the county since 1976 (RJH).
- Spotted Flycatcher** *Muscicapa striata* The earliest was one near Biggleswade on 6th May. A late bird was seen in Rushmere Park on 4th October.

- Pied Flycatcher** *Ficedula hypoleuca* Unusually no spring birds, but in August a single was seen near Biggleswade on 27th and in September singles in Dunstable on 7th, The Lodge, Sandy 9th – 10th and near Totternhoe on 15th (PO, JLT, DKT, RP-J, LSH).
- Bearded Tit** *Panurus biarmicus* The pair that arrived in Houghton Regis CHP in December 1980 stayed until 8th February.
- Great Grey Shrike** *Lanius excubitor* The Stanbridgeford individual, first seen in November 1980 stayed until 22nd March but remained elusive to many people. One was seen at Coronation CLP on 15th March, and another at Blunham GP on 1st November which stayed in the Blunham – Girtford area until the year-end (AL, BN, SI).
- Jay** *Garrulus glandarius* A flock of 17 was seen in Whipsnade Zoo Park 6th October.
- Rook** *Corvus frugilegus* 1000+ were seen on Sundon Rubbish Tip 13th December.
- Rook/Jackdaw** *Corvus* sp. A mixed flock of 1300 were seen near Totternhoe 24th November.
- Starling** *Sturnus vulgaris* A massive roosting movement over Carlton on 29th November was estimated to be in excess of 100,000.
- Brambling** *Fringilla montifringilla* Small flocks were very widespread in both winter periods. The latest in spring was one at Radwell GP 26th April and the first to return was one at The Lodge, Sandy on 26th October. The largest flocks were 75 at Houghton Hall 1st February and 100 in Sundon Park 3rd January. In March one was seen in a Luton garden feeding from a red plastic peanut holder.
- Siskin** *Carduelis spinus* The first autumn arrival was on 3rd October at Harrold GP and the last in spring was one at The Lodge, Sandy 14th April. Seen in 14 localities in the first winter period, and 12 in the second. The largest flock was one of 125 at Eversholt L 13th December.
- Redpoll** *C. flammea* The largest flocks, of 50 birds, were seen at Shuttleworth 27th November and Maulden Moor 6th February. An example of the race *C. flammea flammea*, known as the Mealy Redpoll, was seen at Barkers Lane GP 22nd March.
- Crossbill** *Loxia curvirostra* A pair was seen in Maulden Woods 12th April and one frequented Apsley Heath in the same month. A female was seen at Whipsnade Farm on 20th July. At The Lodge, Sandy a small party of up to five stayed throughout the summer with a female remaining until 12th December.
- Hawfinch** *Coccothraustes coccothraustes* Birds were seen on Whipsnade Escarpment in January, February and December. Milton Bryan in January, Maulden Woods in May, and Luton Hoo in May and October, with never more than two seen together.
- Reed Bunting** *Emberiza schoeniclus* A roost of 250 was seen at Harrold GP 18th September.
- Corn Bunting** *Miliaria calandra* A flock of 200 was present at Kempston Mill 2nd April.

ESCAPES

- Black Swan** *Cygnus atratus* One at Radwell GP 13th September until 29th November. It paid a brief visit to Harrold GP 3rd-4th October.
- Flamingo** *Phoenicopterus* sp. One was seen at Dunstable SW 18th April.
- Bar-headed Goose** *Anser indicus* One was at Harrold GP 16th August.
- Blacksmith Plover** *Vanellus armatus* First found at Eyebrook Reservoir (Leics) in June this immaculate bird arrived at Radwell GP on 15th August, stayed for eight days then visited Barkers Lane GP and Bedford SW before returning to Radwell GP on 13th September. It then commuted between Bedford SW and Barkers Lane GP until 12th October. It was last seen at Dunstable SW on 7th November, having completed its tour of the county. Being a southern African species and normally sedentary it is highly unlikely to have been anything but an escape.

BARRY NIGHTINGALE

REPTILES AND AMPHIBIANS

Report of the Recorder

1981 was a very important year for the Reptiles and Amphibians of Great Britain, for it saw the passing of The Wildlife and Countryside Act (1981). Under this Act the Great Crested Newt *Triturus cristatus* joined the Natterjack Toad *Bufo calamita*, the Sand Lizard *Lacerta agilis* and the Smooth Snake *Coronella austriaca* as a fully protected species. This new Act also makes it illegal to sell or offer for sale the remaining eight species of British Reptiles and Amphibians.

AMPHIBIANS

Common Frog *Rana temporaria*

There was some loss of spawn in the spring due to a few late frosts, but most survived to become tadpoles. During the year 36 records were taken of which 16 were new tetrads. At the end of the year came some very severe weather and this meant many ponds froze right to the bottom. As a consequence many frogs died during hibernation.

Common Toad *Bufo bufo*

The toads did not suffer as badly as the frogs in the harsh conditions at the end of 1981, possibly because they hibernate underground rather than underwater.

Of the 29 records for Common Toad in 1981 eleven were in new tetrads.

Smooth Newt *Triturus vulgaris*

Twenty one records were obtained of which 6 were in new tetrads. Possibly the strangest record of this species came from Whipsnade Zoo where two adult newts were found in the hippo pond when it was emptied. Thank you to Mr C. Tack for this record.

Great Crested Newt *Triturus cristatus*

There were only 3 recorded sightings of this newly protected species. However two were in new tetrads, these being Ravensden near Bedford and Cowslip Meadow, Luton.

REPTILES

Grass Snake *Natrix natrix*

There were 6 locations for Grass Snake sightings. The finding of a dead one on the road at Potton gave a new 10 Km square record. Thank you to Mr J. Tirrell.

Mr G. Dennis provided 2 new tetrad records for this species. They were TL 05 R (Mowsbury Hill) and TL 05 S (Great Wood Ravensden).

Common Lizard *Lacerta vivipera*

There were only 3 records during this year. One from Dunstable (TL 02 A), was a new tetrad.

Slow Worm *Anguis fragilis*

One record was received. This was in a previously recorded tetrad TL 02 A (Dunstable).

ACKNOWLEDGEMENTS

I would like to thank everyone who submitted records during the year. Their help is very much appreciated and I look forward to their 1982 records.

HELEN M. MUIR-HOWIE

FISH Report of the Recorder

First of all I must draw attention to a statement in the Fish Report for 1978 (*Bedf. Nat.* 33: 43) in which I said that the Bleak is "a very common species in virtually every stretch of our linear waters". Certainly, Bleak are a common species and that statement, based on my personal experience, was issued in good faith. However, it may well be that my own experience alone was insufficient to justify making such a statement with that degree of confidence, for David Anderson subsequently pointed out that his fishing friends have never found Bleak in either the Ouzel or the canal at Leighton Buzzard – and, of course, both of these are "linear waters". Theoretically, I see no reason why the species should not exist in either location, other than the possibility that the water may be too turbid (particularly in the case of the canal) or the vegetation too dense. The Bleak's main habitat is near the surface of slow-flowing streams, although in winter they seem to prefer deeper water than other cyprinids. Also, on the Continent they are known to be numerous along the shores of some lakes and in dammed-up streams, although so far I have never heard of "still water" Bleak in this country. In any event, I would be grateful for all records of Bleak – particularly in areas away from the Rivers Ouse and Ivel where they do, indeed, seem to be abundant.

Last year produced a new species for the county with the occurrence of Barbel in the River Ouse. I pointed out that these were "probably part of a group of 49 individuals which were introduced in 1972". Well, subsequent information, kindly passed on by David Anderson, indicates that these fish were indeed transferred to the Ouse from the River Severn by a local angling club. The average weight of the introduced stock was 1 – 3 lbs. with some larger fish of 3 – 4 lbs., the largest known specimen at the time being 8½ lbs. It is extremely pleasing to note that the Barbel turned up again in 1981 with a single specimen weighing 12 ozs. being caught from the Ouse. Indeed, this is most exciting news for the specimen in question may well be a locally bred fish. Of course, it is impossible to be 100% certain of this as the growth-rate of fish is a complicated subject dependent upon several variable factors. However, as the available information indicates that the "smallest" individuals amongst the original stock weighed around the 1 lb. mark, it is reasonable to assume that any surviving members weigh a good deal more than that now. Therefore, unless someone introduced another batch of comparatively small specimens at a later date, it is very likely that the 1972 stock have produced some progeny. Whether or not this will result in a fully naturalized local breeding population is open to speculation. As I have said before, the rivers of our county do not provide an ideal habitat for this species – but you never know!

The number of species recorded in 1981 was about average with a total of 16. However, only the six species listed below were found in new tetrads although the following ten were all reported during the year in known locations: Perch, Rudd, Dace, Chub, Gudgeon, Bleak, Common Bream, Barbel, Crucian Carp and Minnow.

Finally, my sincere thanks to the following (BNHS members indicated thus *) for their records and assistance:

D. Anderson*, B.M. Inns and D.G. Rands*.

NEW TETRAD RECORDS FOR 1981

Pike *Esox lucius* – 1 tetrad. 04C.
Roach *Rutilus rutilus* – 1 tetrad. 13U.
Tench *Tinca tinca* – 1 tetrad. 15K.
Carp *Cyprinus carpio* – 1 tetrad. 92R.
3-Spined Stickleback *Gasterosteus aculeatus* – 1 tetrad. 92B.
Rainbow Trout *Salmo gairdneri* – 1 tetrad. 92R.

TONY PETERKIN

SLUGS AND SNAILS (Mollusca)

Report of the Recorder

In the spring of 1981 I forecast, because of the very wet weather we had been having, that 1981 would be 'The year of the Slugs'. My forecast proved accurate. Nationally, farmers were complaining bitterly of the amount of slug damage to crops. In Bedfordshire I was very pleased to see slugs begin to make a healthy recovery after the previous dry seasons.

Milax gagates was first found by me in 1979 but during 1981 it began to turn up in various localities, especially in and around Luton. Mark Bates, Graham Rowe and Paul Spittal all produced very useful records for this slug and many others from derelict town plots and gardens in Luton. I have found it in several localities in the county including the churchyard at Stevington.

Dave Guntrip, however, found the 'Slug of the Year'. This was a specimen of *Boettgerilla pallens* in a marshy habitat in Flitwick. This constitutes a New Vice County Record. This slug is of S.E. European origin but it has recently been spreading rapidly in N.W. Europe. The first record for Britain was in 1972 when it was discovered in the Lake District near some nursery gardens. Since then it has been recorded from several other counties in England. I have since found another specimen on a most unpromising roadside verge near Houghton Conquest.

Another slug, new to the county, was found during useful forays into Garden Centres and Luton Corporation greenhouses. With permission from the authorities many useful records were obtained by investigating under, around and in plant pots and rubbish, especially in heated greenhouses. The slug *Limax valentianus* was found in the Willington Garden Centre and the Luton Stockwood Park greenhouses. The snail *Zonitoides arboreus* was also found in the Stockwood Park greenhouses. Both species are classified as greenhouse aliens and are frequent in hothouses at Kew Gardens, Oxford Botanic Gardens and Cambridge Botanic Gardens.

The large keeled slug *Limax cinereoniger* with its distinctive ash grey body and black and white striped sole is an indicator species for ancient woodland. Specimens were found on a field meeting to Shire Oak, Heath and Reach. The species was already known to exist in Kings Wood, Heath and Reach and shows that this must once have been a very extensively wooded area although somewhat fragmented today.

I would like to thank everyone who helped to contribute to the knowledge of the distribution of molluscs in Bedfordshire, by giving me specimens or permission to collect them myself.

E. BERYL RANDS

SPIDERS (Araneae)

Report of the Recorder

Surveying for the spider fauna of the county is continuing steadily with 66% of the tetrads now having been entered. Three new spiders were captured during the year bringing the county list to 290 which, including 16 species given in the literature not yet taken by me, is 47.4% of the British list. *Antistea elegans* (Blackwall), previously noted in the literature, has now been taken.

ADDITIONS TO THE COUNTY LIST

Family LINYPHIIDAE

- Walckenaera melanocephala* O.P.—Cambridge
- Bolyphantes luteolus* (Blackwall)
- Lepthyphantes tenebricola* (Wider)

T.J. THOMAS

GRASSHOPPERS AND CRICKETS (Orthoptera/Saltatoria) Report of the Recorder

This year did not produce many new records. As stated in my last report this is to be expected. The distribution of the Orthoptera in the county is so well covered now that new records become difficult to find.

The first and last dates in any year when each species has been found gives some indication of their maximum life span. This can vary year by year depending on weather conditions. The dates that have been published in previous reports are to indicate when Orthoptera can be expected to be found in Bedfordshire. Mary Sheridan reported a female Meadow Grasshopper on Nov. 13th, previous published record was Nov. 6th 1977 and a male Common Field Grasshopper on Nov. 24th, previous published record was Nov. 20th 1977.

The species I am particularly interested for records are the Groundhoppers. These are difficult to find and may be an indication of their rarity within this county. This year three new sites were found for the Slender Ground-hopper. These were a flooded pit at Lidlington, SP997401, an old flooded cutting, SP989407 and Felmersham nature reserve, SP987583. The first two sites are in the same tetrad and therefore would not show as such on a distribution map.

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

Oak Bush-cricket – 3 Tetrads 93Z, 92J, 13Z.

Dark Bush-cricket – 1 Tetrad 92J.

Lesser Marsh Grasshopper – 1 Tetrad 93Z.

Slender Ground-hopper – 2 Tetrads 94V, 95Y.

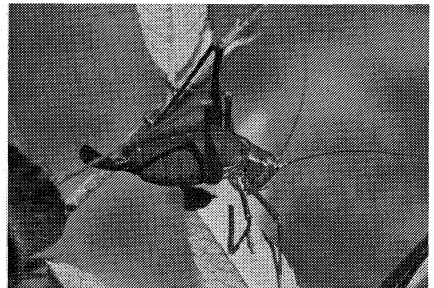
The Latin names for all species were published in the Journal for 1976 (*Bedf. Nat.* 31: 49-50).

ACKNOWLEDGEMENTS

I would like to thank V.W. Arnold, B.S. Nau and Mrs M. Sheridan for their records.
D.G. RANDS



Lesser Marsh Grasshopper
Chorthippus albomarinatus



Speckled Bush Cricket
Leptophyes punctatissimus

DRAGONFLIES (Odonata)

Report of the Recorder

In 1981 the national Odonata recording scheme made it clear to recorders that it was the individual "site" that was of prime interest, and not the 10 km square or tetrad. It was vital to have details of the best dragonfly sites in each county, i.e. the ones which contain the greatest number of species, and the ones that contain the less common species. Using these two criteria the best sites in Bedfordshire are Felmersham GP (16 species recorded since 1960), the ditch south of Marston Thrift wood (11 species), the pond in 40-acre Wood (nine species with possibly four more) and Cople Pits (TL 099491 with 11 species). Other excellent sites are the gravel pits at Henlow (eight species), the new pond at Sandy Lodge (nine species), the sandpits at Heath and Reach (eight species) and the Houghton Regis chalkpit (eight species).

What do these places have in common? They are open, shallow and sunny with plenty of vegetation in the water and round the edges. In all except the last there are sheltered tree clad areas nearby, much favoured by dragonflies for hunting insects. The most surprising thing is that all these sites are less than 50 years old, the pond at the Lodge, Sandy being the youngest – it has been in existence just 11 years.

I am grateful to Mr Inns and Mr Izzard for supplying two new 10 km square records in 1981. Could I ask members of the Society who send me records in 1982 to give me details of the site as well as grid reference and date.

The Worcester Nature Conservation Trust has recently published a useful booklet on dragonflies that reproduces Cynthia Longfield's key to identification. This is available for 80p (including post and packing) from me at the Beds and Hunts Naturalists' Trust office at 38 Mill St., Bedford.

We await two events with interest in 1982 – the formation of a British Odonata Society and the production of an updated set of distribution maps. All we now need is a cheap field guide.

NANCY DAWSON

BUGS (Hemiptera-Heteroptera)

Report of the Recorder

This year saw the death of Dennis Leston, co-author of the standard work on bug identification. He collected in the county, especially about 1960 when his fieldwork led to a useful publication on the Mirid plant bugs of Bedfordshire. He also lived in the county for a time about 1975, after eight years studying tropical ecology in Ghana and before moving on to the USA, where he died. On the three occasions when I met him he was an entertaining and informative character. He also showed me a ledger containing considerable records of Bedfordshire plant bugs which he hoped to use as a basis for updating inadequate information on biology of Miridae in *The Land and Water Bugs of the British Isles*. This work was not completed but it is to be hoped that these records will be among those which are being deposited with the Hope Entomological Collections at Oxford.

My own distribution study has continued actively, filling gaps and adding some new species. One of the latter was *Psallus albicinctus* an Oak species whose British status was in need of confirmation. Another came during a BNHS field meeting to study lichens in Kensworth churchyard, appropriately a lichen bug on a gravestone, *Loricula elegantula*. On 8th July at Totternhoe Knolls I found a female of *Charagochilus gyllenhali* on Lady's Bedstraw, this was the first I have seen in Beds so this species is clearly less common in this county than elsewhere in Britain. Two of the Flitwick Moor specialities – *Tytthus geminus* and *Teratocoris antennatus* – were seen again on 25th July, and the next day at Henlow

Scout Camp I found a second locality for the pondskater *Gerris argentatus*.

Another field meeting, at Odell gravel pits, was the occasion of the year's best find: *Monosynamma sabulicola* a very local coastal species here on colonising White Willow saplings but normally found on Creeping Willow. This year I made a particular search for another willow species which I felt should be in the county since it is a Fen species, this is *Anthocoris limbatus*. On 28th Aug at Cityfield, Henlow, I found it for the first time then I went on to find it at Linslade and at Odell. The third BNHS meeting to yield a new county record was that at Melchbourne Park on 13th Sept. Here I found a Mistletoe species, *Orthops viscicola*, on its host plant, which was growing on a Maple tree near the lake. The leafhopper *Psylla visci* was also present in numbers.

On the negative side, this was the first year since 1977 that I have not found *Plachochilus seladonicus* at Leighton Buzzard. The host plant was still there on 31st Aug but I could not find the bug. The Osier bug *Campylomma annulicornis*, on the other hand, was found at several new sites.

Finally, I would like to thank my regular contributors once again and Dr Verdcourt for records and specimens, and Ian Woiwod for bugs from his moth trap.

ADDITIONS TO THE BEDFORDSHIRE LIST

CIMICIDAE

Anthocoris limbatus Fieber – two males (dissected) at Henlow on 28th Aug, several at Tiddenfoot gravel pit Leighton-Linslade on 31 Aug, and at Odell gravel pit on 5th Sep. Mostly on Osier (*Salix viminalis*). None in apparently suitable habitat at Fenlake on the latter date.

MICROPHYSIDAE

Loricula elegantula (Barensprung) – one on 29th June at Kensworth Church amongst lichens (*Physcia caesia* and *P. grisea*) on a gravestone.

MIRIDAE

Psallus albicinctus (Kirschbaum) – a male (genitalia checked) swept from a roadside Oak at Gt Ion Fm, Lower Gravenhurst.

Monosynamma sabulicola Wagner – numerous on *Salix alba* saplings 1-2m high colonising sand washed from gravel at Odell gravel pits, 23rd Aug and 5th Sep. Ground vegetation comprised *Equisetum*, *Juncus* and Gypsywort. A female at Radwell on 5th Sep in similar habitat. None found elsewhere in the county in similar sites. Dr W.R. Dolling determined the species.

Orthops viscicola (Puton) – common on Mistletoe on Maple, Melchbourne Pk, 13th Sep.

The above brings the County List to 313 species.

B.S. NAU

LACEWING FLIES (Neuroptera) Report of the Recorder

I have been able to make several visits to the county during 1981 and this has resulted in three species being added to the county list bringing it up to 29 species which is about half of the British list. The order of the records and abbreviations used are as given in the Bedfordshire Naturalist No. 33 and once again I am indebted to Dr. P.C. Bernard for identifying specimens or confirming my own identifications.

Conwentzia pineticola Enderlein. Henlow Scout Camp, on isolated oak, 1.8.81, B.V. (first record for county).

Coniopteryx tineiformis Curtis. Deadmansey Wood, oak, 6.6.81, B.V.; Henlow Scout Camp, on isolated oak, 1.8.81, B.V.; ditto in *Prunus cerasifera* thicket, 1.8.81, B.V.

- Micromus variegatus* (Fabr.). Henlow Scout Camp, on vegetation beneath thicket of *Prunus cerasifera*, 1.8.81, B.V. (first record for county).
- Hemerobius simulans* Walker. Studham, Mansgrove Wood, mixed wood, 23.9.81, B.V. (first record for county).
- H. nitidulus* Fabr. Maulden Wood, oak and Scots Pine, 27.6.78, B.S.N.
- H. micans* Oliv. Studham, Ravensdell Wood, oak, ash, hazel, beech, hawthorn and *Prunus* etc., 23.9.81, B.V., D.G.R. and E.B.R.
- H. lutescens* Fabr. Roadside verge on A 418 at 52/009381, 2.8.81, D.G.R. and E.B.R.; near Swineshead, Tilbrook Bushes, 52/069675, oak, 31.5.81, D.G.R.
- Wesmaelius subnebulosus* (Stephens). Studham, Ravensdell Wood, 23.9.81, B.V.
- Chrysopa flava* (Scop.). Flitwick Moor, near Folly Wood, on *Betula*, 28.6.81, B.V.; Roadside verge on A418 at 52/009381, 2.8.81, D.G.R. and E.B.R.; near Swineshead, Tilbrook Bushes, 52/069675 oak, 31.5.81, D.G.R.
- C. vittata* Wesmael. Studham, Deadmansey Wood, Oak, 6.6.81, B.V.
- C. ciliata* Wesmael. Studham, Deadmansey Wood, oak and larch, 6.6.81, B.V. (this confirms old records made in 1946 and 1948).
- C. carnea* Stephens. Studham, Mansgrove Wood, 23.9.81, B.V. abundant and some show the aberrant wing venation where the basal cross-vein between Rs and M 1+2 is not beyond the apex of the median loop as is usual but at or just slightly before the apex of the median loop; I commented on specimens showing this self-same aberration (*Ent. Mon. Mag.* 85: 90 (4949)) which I had taken at Luton, (27.9.46) and in Ravensdell Wood, 10.10.48; Ravensdell Wood, 23.9.81, B.V., D.G.R. and E.B.R.; Henlow, isolated oak and in *Prunus* thicket, 1.8.81, B.V.; near Swineshead, Tilbrook Bushes, 52/069675, on oak, 31.5.1981, D.G.R.; Coppice Wood, Melchbourne, 20.9.81, D.G.R. and E.B.R.; Potton Wood, 13 Oct. 1981 (the only species in the wood on day following first frost, in both tetrads).
- C. perla* (L.). near Husborne Crawley, SP (42)/953354, roadside verge by stream, 7.6.80, D.G.R. and E.B.R.
- Apart from the Neuroptera a few records of Megaloptera, Mecoptera, Psocoptera (identified by D. Hollis) and Trichoptera (identified by P.C. Barnard) are mentioned.
- Sialis lutaria* L. Felmersham Nature Reserve, SP (42) 989582, 23.5.81, D.G.R. and E.B.R.; St. Neots Riverside Park, Cambs. [v.c.30], TL (52) 181603, on nettles in more or less wooded area of wild ground just N. of bridge over R. Great Ouse, 23.5.81, D.G.R. and E.B.R.
- Panorpa communis* L. Near Flitwick Mill, 28.6.81, B.V.
- P. germanica* L. Studham, Deadmansey Wood, on oak, 6.6.81, B.V.; Henlow, dense vegetation by river, 1.8.81, B.V.
- Trichadenotecnum fasciatum* (Fabr.). Deadmansey Wood, on oak, 6.6.81, B.V.
- T. sexpunctatum* (L.). Ravensdell Wood, 23.9.81, B.V.
- Mesopsocus immunitus* (Stephens). Flitwick Moor, 28.6.81, B.V.
- Stenopsocus immaculatus* (Stephens). Ravensdell Wood, 23.9.81, B.V.
- Limnephilus flavicornis* (Fabr.). Henlow Scout Camp, on oak. 1.8.81, B.V. (bright green body).
- L. auricula* Curtis, near Swineshead, Tilbrook Bushes, 52/069675, oak, 31.5.81, D.G.R.

B. VERDCOURT

BUTTERFLIES (Lepidoptera) Report of the Recorder

With the cold, wet and late spring, the sightings of the early Brimstones and later the Peacocks, Commas and Small Tortoiseshell were very poor indeed. One species that seemed to suffer very badly was the Orange Tip, so much so that many observers did not even see one specimen of this normally common butterfly in their area.

Ironically during this period of gloom the International year of the Butterfly started with the issue in May by the Post Office of four postage stamps depicting British Butterflies designed by Gordon Benningfield. The object of this year is to draw public attention to the gradual decline of butterflies, and to promote more thought towards conservation of habitat and species.

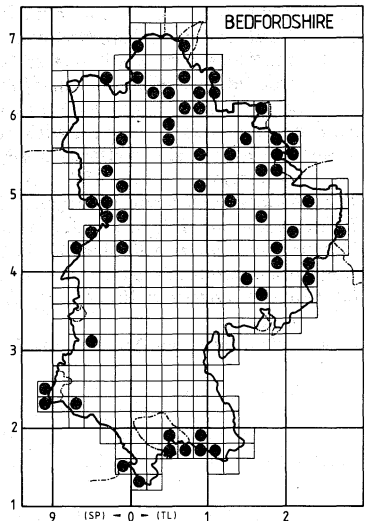
The summer, however, did eventually become warm and sunny and at last a number of species started to appear. Too late for some, but the Wall Brown and the second brood of the Comma had a very productive year indeed. In its known sites, Marston Thrift and West Wood, the White Admiral appeared to do well, but the Holly Blue had a very poor second brood. Among the migrant species the Painted Lady and Red Admiral were not very common but to replace the excitement of last year's large influx of Painted Ladies (*Bedf. Nat.* 35:35), there were two separate sightings of the Clouded Yellow. This now rare visitor was last reported in Bedfordshire in 1958. I hurried over to a field of the lucerne, the favourite larval food plant, that was growing near the London Flying Club at Dunstable just in time to see the farmer cutting the crop for cattle feed, and while I searched the remaining plants on the headlands, could find no sign of the insect.

Despite all the unfavourable conditions considering the year as a whole, the tetrad recording scheme was very well supported once again, and now half of the black dots shown on the status map for 1979 (*Bedf. Nat.* 35:35) were wiped out in 1980. The persons who contributed to the records this year are listed at the end of this report in the usual manner, but it should be noted that everyone was able to record at least one species new to a specific tetrad. Some of the regular contributors were only able to send in a few sightings but even so everyone was able to contribute to the records, so to encourage them and any one else who would like to contribute I publish here the latest tetrad status map showing the areas from which less than five species have been recorded.

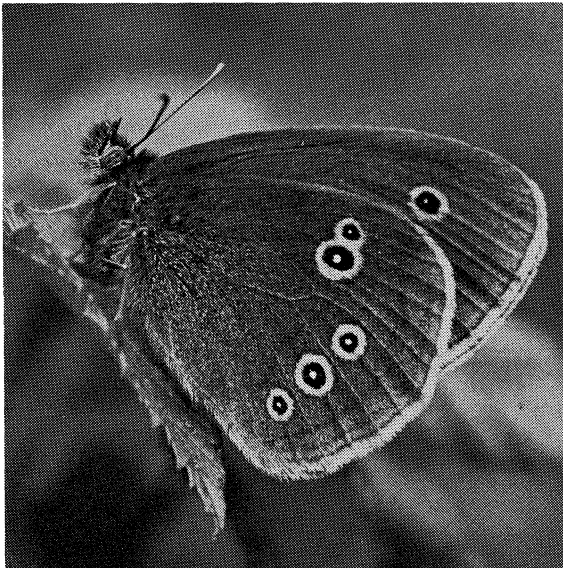
The Year of the Butterfly will run up to the late Summer of 1982 but as 1981 closed with extremely severe weather, very heavy frosts followed by excessive flooding, it will be a formidable task that faces the surviving butterflies to ensure the continuance of their species.

Many observers tell various amusing stories of their experiences during the year, and I feel I cannot finish this Report before retelling one of the best of these tales to come my way.

While hunting for wildlife in the dark recesses of the railway tunnel at Old Warden Nature Reserve in mid-October, one recorder was very alarmed by a hissing and creaking sound coming from the darkest shadows. His thoughts were of unnatural beings in this eerie place, but his worse fears were allayed when he found that the sound was made by Peacock butterflies disturbed by the light from his torch. These beautiful creatures rustle their



Tetrads with fewer than 5 records.



Two Bedfordshire butterflies. The White Admiral (top) and the Ringlet. (Photos: R. C. Revels)

wings as a defence when disturbed and with the exception of the Deaths Head Hawkmoth, which squeaks when attacked, is the only member of the British Lepidoptera which deliberately uses sound as a defence mechanism. This is indeed a very loud and blood-chilling noise when heard in the dark damp recesses of a disused railway tunnel!

My thanks to the following who sent me records for 1981: D. Anderson, V. Arnold, C. Burton, V. Chambers, G. Clarke, Mrs F. Davies, J. Dony, Anne Doody, Mr and Mrs J.G. Headon, R. Henry, Mr and Mrs G. Hooper, A. Horder, B. Inns, M. Izzard, E. King, Mrs D. Mucklestone, B. Nightingale, D. Odell, J. Payne, A. Riley, M. Rowland, Joan Schneider, Mrs M. Sheridan, A. Smith, B. Stephenson, T. Thomas.

ALAN J. MARTIN

HOVERFLIES (Diptera – Syrphidae) Report of the Recorder

Even more strikingly than in 1980, some commoner species were suppressed, but not the less common ones. Notably, the drone-fly, *Eristalis tenax*, was much rarer than others of its genus, until very late in the season, and *Scaeva pyrastris*, a suspected migrant among the ten commonest species in syrphid-abundant years, was only seen once. In contrast, *Xylotomima nemorum* and *Pyrophæna granditarsa* (one and two previous county records respectively) were recorded in some numbers. These fluctuations were strongest in the open-habitat species, but barely affected the woodland genera, such as *Baccha*, *Rhingia* and *Volucella*.

With little increase in field work, but with some concentration on poorly studied squares, 112 new 10 Km. records (more than twice the 1980 total) were obtained. Two hours at Flitwick Moor at the peak of the season (21/6) yielded 29 species, many uncommon, emphasising the outstanding quality of this site.

NEW SPECIES FOR THE COUNTY

- Sericomyia lappona*, at Stockgrove Park (neither found in 1944-49)
Neoscia aenea, at Flitwick Moor
Anasimyia lineata, at Flitwick Moor (recorded also in 1944-49)
Anasimyia contracta. *A. transfuga* (sensu lato) has recently been divided into *A. transfuga* and *A. contracta*. The Flitwick Moor specimens (1978) proved to be *A. contracta*.
A. transfuga (sensu stricto) was recorded this year near Blunham.

I am indebted to Mr. V.W. Arnold, Mr D. Guntrip, Dr B.S. Nau, Mr D.G. and Mrs E.B. Rands and Mr P. Spittle for samples.

N.F. JANES

MOTHS (Lepidoptera) Report of the Recorder

In a letter from D.V. Manning, he summed up 1981 as "not a very inspiring year", bearing in mind the weather, I was at first inclined to agree with him. It was not until starting this report after going through records from members and sorting out my note book, it became apparent that in spite of the weather a lot of field work had been done, and it had been far from an uninspiring year.

Together with K.F. Webb, 52 field visits were made to a variety of sites including: Maulden Wood, Flitwick Moor, Aspley Heath, Marston Thrift, Kings Wood, Heath and Reach and Lower Alders, Campton. Other members of the Society ran moth traps in the following places: D.V. Manning at Sharnbrook and Felmersham Nature Reserve; S. Sheridan at Linslade; S.F. Halton and T. Barker at Dunstable; P. Green at Biggleswade; R.B. Stephenson at Bedford and K.F. Webb at Luton. W.J. Champkin, making a welcome return to field work in the county, together with S. Finney, produced an interesting list of species from Judges Spinney, Oakley, while A. Muir-Howie started a new site at Great Barford and also continued to trap at Bromham. At the end of the year T. Hollingworth returned from living in Germany and produced information from a site at Cranfield, which looks very promising. While in Germany, Terry continued his work with moths and recorded a very varied and interesting list for Munich - his return to the county is very welcome.

During the year the list of species for Maulden Wood was pushed to 333, making this the top site in the county. The Lodge, Sandy and Shuttleworth Agricultural College coming in second and third places.

A look at the species list, at the end of the report, shows quite a number of new records for that very confusing family of moths, the Pugs. The reason for this is that many specimens were taken to Adrian Riley at Rothamsted, who provided invaluable assistance with their identification. A book published by the British Entomological and Natural History Society - *An Identification Guide to the British Pugs* was produced during the year, which also provided help with this difficult group.

In view of the weather during 1981, the following extract from Peter Waterton's Lepidoptera report for Hertfordshire, for 1977, makes interesting reading. This quote comes originally from a paper published in 1955 by Beirne, on the natural fluctuations of British Lepidoptera, in view of what it says, it will be interesting to see what 1982 brings.

"Beneficial conditions. giving a 'good' season.

1. Severe cold in the previous winter which cuts down parasites and predators.
2. Dry warm conditions in summer, which affect the rate of development and reduce disease associated with humid weather.

Adverse conditions. giving a 'poor' season.

1. Mild winters, which allow a build up in the number of predators and parasites.
2. Relatively high rainfall over a number of years associated with an increased incidence of disease.
3. Markedly variable spring conditions with frosts following mild spells."

SPECIES LIST

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

Species marked * are new county records.

Species marked ● see *Bedf. Nat.* 34:48.

Species marked ■ see *Bedf. Nat.* 55:42.

- 87 Pine Hawk Quite common at Aspley Heath during July – four being seen on 8/7/81.
- 104 Lobster Prominent At light, Kings Wood, Heath and Reach on 15/7/81. Not a common insect.
- 114 Great Prominent One at light on 13/5/81 by J.B. Barnwell and K.F. Webb, Aspley Heath.
- 118* Scarce Prominent At light on 29/4/81 at Aspley Heath and 30/4/81 at Flitwick Moor. As the larvae feeds on birch, this species probably awaits discovery at other suitable sites in the county.
- 131 Lesser Lutestring It was estimated that well over 200 moths came to light on 7/9/81 at Kings Wood, Heath and Reach. I have only seen them in ones and twos before.
- 132● Yellow Horned Lutestring Flitwick Moor, at light on 27/3/81 – a very local species.
- 193* Water Ermine Several specimens in J.B. Barnwell's collection taken in the Aspley Heath – Woburn Sands areas in the 1950's. To be looked for again, in 1982.
- 197 Ruby Tiger D.V. Manning reported one on a lighted window in Sharnbrook on 13/2/81 – normally not on the wing until May.
- 268 Map-winged Swift At light 5/6/81, Aspley Heath, as the larvae feed on bracken, this moth should be more common than the records show.
- 375* Bordered Gothic Taken by A. Muir-Howie, at light on 18/7/81, Chapel Field, Great Barford. More records are needed for this species.
- 415● Mere Wainscot All taken at light and identified by Rothamsted. Kings Wood, Heath and Reach on 27/7/81, Lower Alders, Campton on 4/8/81 and Maulden Wood on 10/8/81.
- 449* Small Clouded Brindle Taken by K.F. Webb at light on 15/6/81 from Kingsdown Avenue, Luton, the identification being confirmed by Rothamsted.
- 489* Butterbur Ear On the 11/9/81 a deliberate attempt was made to find this rare insect at Flitwick Moor. Trapping took place amongst its abundant food plant, and one male was obtained. Could be found from other sites where butterbur is abundant.
- 543 Grey Shoulder-knot At light, Flitwick Moor on 27/3/81 – another under-recorded moth.
- 582 Orange Sallow Several at light on 7/9/81 Kings Wood, Heath and Reach. Also taken from Judges Spinney, Oakley by W.J. Champkin and S. Finney. As the larvae feed on lime, this attractive moth should be more common than it appears.
- 617 Nut-tree Tuffet At light during May 1981 at Aspley Heath. This very attractive moth has only a very local distribution in the county.
- 704* Silky Wave Recorded in 1979 from a Rothamsted trap at Shuttleworth Agricultural College, Old Warden. This species has almost certainly been misidentified before.
- 716● Plain Wave At light, Kings Wood, Heath and Reach on 27/7/81 – another very local species, with its only other known site at The Lodge, Sandy.
- 821 Local Chalk Carpet Normally associated with the chalk downlands, but one came to light on 27/7/81 at Kings Wood, Heath and Reach. It is interesting to note that taken on the same night, from the same site was (289) True Lovers' Knot – a moth normally found in acid conditions.
- 834 Dinky Shell At light, Lower Alders, Campton on 31/7/81 and 4/8/81. Only third known site.
- 839■ Shaded Pug A. Muir-Howie took a specimen at light from Great Barford on 12/7/81 – identified by Rothamsted.
- 840 Plain Pug At light, 25/7/81, Marston Thrift. K.F. Webb also recorded this species from his moth trap in Kingsdown Avenue, Luton.
- 844* Maple Pug All at light, and identified by Rothamsted. Lower Alders, Campton, 4/8/81; Maulden Wood, 10/8/81 and Kingsdown Avenue, Luton on 12/8/81.
- 857* Edinburgh Pug At light on 18/6/81, Aspley Heath and 19/6/81 from Kingsdown Avenue, Luton. Identity confirmed by Rothamsted.
- 863 Currant Pug Missed from previous lists in the Journal – taken from Maulden Wood in 1975 and from Luton in 1979 and 1980.

- 869 **Ochreous Pug** Aspley Heath on 22/6/81 – identified by Rothamsted. Also recorded from Judges Spinney, Oakley by W.J. Champkin and S. Finney.
- 878* **Oak-tree Pug** First taken at light on 15/5/81 from Marston Thrift and then subsequently from Maulden Wood and Flitwick Moor – identity confirmed by Rothamsted.
- 880■ **Juniper Pug** Recorded in 1979 from a Rothamsted trap at Shuttleworth Agricultural College, Old Warden. Also taken by K.F. Webb on 19/7/81 from his trap at Kingsdown Avenue, Luton – identity again confirmed by Rothamsted.
- 882■ **Larch Pug** Maulden Wood on 20/6/81 and 8/7/81 – confirmed by Rothamsted.
- 926* **Little Thorn** At light on 30/4/81 at Flitwick Moor. J.B. Barnwell has taken this in the past from the Aspley Heath – Woburn Sands area.
- 949● **Brindled White-spot** At light on 29/5/81 and 5/6/81, Aspley Heath.

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ADDENDUM

- 811 **Small Seraphim** This was recorded at Flitwick Moor and not Maulden Wood. (*Bedf. Nat.* 33:53).

V. W. ARNOLD

SITES

Report of the Recorder

As the new Site Recorder it was thought that it would be a good idea to have a Site Report. This is the first ever such report to appear in the *Bedfordshire Naturalist* and a main intention of it is to encourage more members to submit details of sites of Natural History interest in Bedfordshire.

As was to be expected 1981 was a year of change and, as far as the ornithologists were concerned, some of these changes were beneficial in the short term. At the Radwell Gravel Pit the drainage of the main lagoon, prior to opening a marina there, resulted in excellent numbers of birds, especially waders, rare and unusual in Bedfordshire. At Barker's Lane Gravel Pit (Priory Marina to the planners) a growth of water weed encouraged waders and ducks to roost and feed on this temporary habitat; it had the side effect of discouraging the boating fraternity who found it impossible to make any progress through this watery jungle. The Harrold Gravel Pit has now been designated a nature reserve and a rare bug, previously known from only a few coastal localities, was found on the sand wash area.

On the Chalk hills the invasion of hawthorn scrub results in many of the more interesting chalkland flowers disappearing or becoming more scarce. There has been increased public pressure on site such as Barton Hills, which has become a National Nature Reserve. Here I witnessed motor cyclists riding their machines over the pasque flower slopes.

As natural historians it is up to us to monitor the changes affecting Bedfordshire. This is one important function of the Site Recorder's role. So more records please!

DAVE ODELL

UNUSUAL TREES IN BEDFORD

by A.W. Guppy, 22 Poplar Avenue, Bedford

The following notes, compiled over several years, provide a preliminary list of trees growing in Bedford's parks, streets and open spaces which are either uncommon species or are unusual varieties of common ones. Such a list can never be definitive, and depends, to a great extent, on personal choice. However, it is hoped that it may be of interest to some members and encourage them to develop an eye for the unusual. The writer would welcome further information on species or varieties listed, or reports of local oddities.

The western half of Bedford Cemetery was opened in 1855 and contains some fine trees which must date from then. The Park was laid out and planted 30 years later and opened in 1888. The firm responsible for tree-planting, Messrs W. Barron & Son of Borrowash, near Derby, provided an impressive list of species with their tender in 1882, but it is impossible to find many of these today, especially amongst the conifers, and it must be doubted whether they were ever supplied in the first instance.

The planting of Mill Meadows and the Embankment dates from 1888. Russell Park was presented to the town in 1896 and its layout and planting were entrusted to Mr Richard Ashwell, a retired landscape gardener, who gave his services gratuitously. Castle Close and St Mary's Gardens were originally private gardens, later acquired by the Corporation, the second of these as long ago as 1891; both have been subsequently altered in lay-out.

Mowsbury Park and Putnoe Park are both post-war developments and none of the trees in either has yet attained maturity. St John's Close, on the other hand, must have many centuries of history, and its trees would repay closer study.

The writer would like to acknowledge here the enthusiastic assistance at all times of Mr L.A. Speed, particularly in connection with the discovery and identification of trees in Bedford Park and Bedford Cemetery.

Abbreviations used:

BC Bedford Cemetery	PP Putnoe Park
BP Bedford Park	RP Russell Park
CC Castle Close	SJC St John's Close
EG Embankment Gardens	SMG St Mary's Gardens
MP Mowsbury Park	SPG St Peter's Green

Acer cappadocicum Gleditsch Cappadocian Maple

3 mature trees, BP; some young trees recently planted, MP. A species seen at its best in autumn, the whole of the foliage turning to a brilliant golden-yellow in late October.

Acer negundo L. Ash-leaved Maple, Box Elder

At least 5, BP; a few street plantings.

Mostly var. '*variegatum*', but several have wholly or partially reverted to type, due to failure to cut out green-leaved shoots. A tree along the southern edge of BP, felled a year or two ago, put up new shoots from the base in 1981 with violet blooming and was thus apparently var. '*violaceum*'.

Acer platanoides L. Norway Maple

Var. '*cucullatum*': 1 specimen in BP. The crinkled, fan-shaped leaves are quite unlike those of any other maple species.

Acer saccharinum L. Silver Maple

Extensive street planting in post-war period, e.g. Polhill Avenue; Greyfriars. Many are of the form '*laciniatum*'.

Aesculus x plantierensis Andre Hybrid Horse Chestnut

At least 40 young trees planted along main road round BP, early 1982. This hybrid between *hippocastanum*, the familiar Horse Chestnut, and *x carnea*, the hybrid Red Chestnut, has rose-pink flowers but is entirely infertile and provides no incentive for small boys in search of 'conkers'. The botanical name is derived from Plantieres, near

Metz, where a French firm first produced the 'cross'.

Ailanthus altissima (Mill.) Swingle Tree of Heaven

As far as is known, there is only one mature tree in the town, alongside the lock on Mill Meadows, probably dating from 1888. More recent plantings include: 2 in BC; 2 in BP; 1 in CC; 1 in MP; 1 in PP; a few street plantings, e.g. Roise Street, Arrow Leys.

Alnus glutinosa (L.) Gaertn. Common Alder

The large tree overhanging the river in front of the boathouses is var. '*laciniata*'. In the shrubbery nearby is a small tree of the var. '*imperialis*', with leaves deeply cut into linear pointed lobes, reaching almost to the midrib.

Arbutus unedo L. Strawberry Tree

A huge bush at the north end of BC presumably dates from 1855. A small tree in RP was felled some years ago. Another in the front garden of Graylaw House in Goldington Road.

Betula pendula Roth. Silver Birch

A young tree at Brickhill Drive Shopping Centre is of var. '*dalecarlica*', originally discovered in Sweden in the mid-18th century. The trunk is particularly white and smooth.

Carpinus betulus L. Hornbeam

Infrequent in the Bedford area. 3 mature trees in BP; many more in RP. Var. '*fastigiata*' used in a few street plantings, e.g. All Hallows, Greenhill Street, Tweedsmuir Road.

Catalpa bignonioides Walt. Indian Bean-Tree

1 at north end of BC; flowered particularly well in 1981. 4 young trees planted in BP in 1979, of which at least 1 is already dead and another vandalized.

Cedrus deodara (Roxb.) Don. ex. Loud. Deodar

A mature tree in SMG. A small specimen recently planted in an unimaginative position in BP.

Cercis siliquastrum L. Judas Tree

One alongside main (western) entrance to BP. It flowered profusely in 1980 but was completely flowerless in 1981.

Cornus mas L. Cornelian Cherry

4 in BP; 2 in SMG. Several show a mixture of plain green and variegated foliage.

Cotoneaster frigidus Wall. ex Lindl. Himalayan Tree Cotoneaster

1 small tree, Grey friars, near Patteshull Court. The dense white flower heads and subsequent scarlet berries are very striking and attractive.

Crataegus crus-galli L. Cock-Spur Thorn

At least 2 in BP.

Crataegus x lavalleyi Herinca. Hybrid Cock-Spur Thorn

At least two mature trees in BP. Modern street plantings in north Bedford e.g. Hartshill, Aspen Avenue. The speckled orange berries persist through the winter, but are not, in general, attractive to birds, although blackbirds were seen stripping a tree during the severe weather in January last.

Crataegus orientalis Ucria Oriental Thorn

At least 2 in BP.

Fagus sylvatica L. Common Beech

Var. '*heterophylla*' Cut-leaved Beech. A very fine large tree in SJC near the fish-ponds. 4 small trees planted BC in 1979 have mixed types of foliage.

Var. '*pendula*' 2 in RP, one a very odd-looking tree, with all the branches hanging on one side of the main trunk.

Fraxinus excelsior L. Common Ash

Var. '*diversifolia*' Single-leaved Ash. 1 in BP, near bandstand.

Juglans regia L. Common Walnut

A young tree recently planted in BP, Foster Hill Rd car-park.

Metasequoia glyptostroboides Hu & Cheng. Dawn Redwood

Introduced into England only in 1948. Several small trees planted in recent years in

- both BC and BP.
- Morus nigra* L. **Common or Black Mulberry**
1 very old, shattered tree in SJC. Mature specimen in CC and a vigorous young tree in garden at Moat House, Conduit Road.
- Pinus wallichiana* Jacks. **Bhutan Pine**
At least 12 in BP; 1 in garden of 88 Kimbolton Road. Easily recognized by its long lax leaves in bundles of five, and by its pendent banana-like cones.
- Platanus orientalis* L. **Oriental Plane**
A large and splendid tree in SJC, near the King's Ditch.
- Populus x candicans* 'Aurora' **Hybrid Balsam Poplar**
This Poplar has dark green leaves, white on the back, blotched with light green, cream and pink. It retains the typical balsam fragrance in its terminal buds. 2 at south-east corner of Longholme; several at west end of MP.
- Pseudotsuga douglasii* Franco **Douglas Fir**
Var. 'glauca': Blue Douglas Fir. 1 in BP has lost all its lower branches and is now a mop of foliage on a tall bare pole. Identifiable by the bracts on the shed cones.
- Pterocarya fraxinifolia* (Lamb) Spach. **Caucasian Wing-Nut**
3 in BP. The specimen alongside the road in the north-east of the park is one of its finest trees, but the other two, in shrubberies, have been allowed to 'sucker' too freely.
- Pyrus salicifolia* Pall. **Willow-leaved Pear**
1 outside RP cafe on south side.
- Quercus borealis* Michx. **Red Oak**
1 mature tree in BP, alongside Park Avenue; several young trees recently planted in north-east of BP to replace lost elms; group of young trees in MP, west of Putnoe Wood; line of young trees along Embankment, south of RP.
- Quercus cerris* L. **Turkey Oak**
None was originally planted in BP, but a group of 6 was planted about 20 years ago in the north-east of the Park. There are some splendid mature trees in BC at the north end, which must date from 1855 when BC was opened.
- Quercus ilex* L. **Holm Oak**
Infrequent in the Bedford area. None in BP, but several in BC. A much-branched old tree in Hartop Close is a relic of Putnoe Farm. Specimens also in CC and SMG.
- Quercus robur* L. **English Oak**
Var. 'filicifolia', Fern-leaved Oak. 2 in BP. In this rare variety, the tree is much smaller and slower in growth than the normal species and the leaves are cut almost to the midrib into narrow wavy lobes in no way resembling a normal oak.
- Quercus frainetto* Ten. **Hungarian Oak**
1 young tree recently planted in BP.
- Quercus canariensis* Willd. **Mirbeck's Oak**
A large mature tree in BP north shrubbery, but far too close to neighbouring pines. In mild winters the lower branches retain their leaves without change of colour.
- Robinia pseudoacacia* L. **Locust or False Acacia**
1 only in BP but over a dozen in RP. A group on Longholme near Newnham Bridge. Var. 'inermis' 'Mop-headed Acacia'. Surrounding the flower-beds in the EG. Street planting e.g. West Grove.
- Sequoiadendron giganteum* (Lindl.) Buchholz. **Wellingtonia**
At least 12 mature trees in BP and one or two recent plantings; 1 in BC.
- Sorbus intermedia* (Ehrh.) Pers. **Swedish Whitebeam**
Frequent street plantings in recent years and in MP.
- Sorbus x thuringiaca* (Ilse) Fritsch. **Bastard Service Tree**
Frequent street plantings, e.g. George Street, Kimbolton Avenue, Queen's Drive; 1 in MP. A hybrid between Whitebeam and Mountain Ash.
- Sorbus cuspidata* (Spech) Hedl. **Himalayan Whitebeam**
2 trees recently planted in MP appear to be var. 'mitchellii' with enormous orbicular leaves up to 7 – 8 inches long.

***Tilia cordata* L. Small-leaved Lime**

1 formerly in BP, felled in 1977; 1 in RP.

***Tilia euchlora* Koch. Caucasian Lime**

At least 2 mature trees in BP. The long greenish-white bracts are conspicuous features after flowering.

***Tilia platyphyllos* Scop. Large-leaved Lime**

Var. '*laciniata*': 1 in BP between main gates and baths. There is also one specimen in BP of the 'unnamed form with very small dark leaves held densely in level layers' (see Mitchell, *Field Guide to the Trees of Britain Northern Europe*, p.358).

***Tilia tomentosa* Moench. Silver Lime**

1 in BP to the west of the Café. It flowers late, at the end of July, and has very fragrant flowers, highly attractive to insects.

***Ulmus x hollandica* Mill. Dutch Elm**

Var. '*vegeta*', Huntingdon Elm. Planted excessively in many roads and avenues in Bedford during the period 1885-90 e.g. De Parys Avenue, Park Avenue, Goldington Road as well as in considerable numbers in BP. The effects of elm disease during the past ten years has been correspondingly devastating. A few sickly specimens survive to the west of St. Peter's Church.

***Ulmus carpiniifolia* Gleditsch. Smooth-leaved Elm**

Var. '*sarniensis*', Jersey or Wheatley Elm. An avenue of these striking conical trees was in existence up to ten years ago in BP, between the Café and the band-stand, with others in the northern shrubberies, but all have since died or have been removed.

***Ulmus laevis* Pall. European White Elm**

One small tree in BP, near the band-stand, which appears to belong to this species. The leaf is remarkably asymmetrical at its base, with three veins more on one side than on the other.

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

This has been another year of active recording. The total number of records for all tetrads now stands at 93,194 and for the tetrads having the whole of their area within the county an average of 277 records, representing an estimated cover of 91% compared with that of 86% in *Bedf. Nat.* 30: 61-2.

The most noteworthy record was that of Fragrant Orchid (*Gymnadenia conopsea*) made independently by Graham Dennis and by my wife and me in an old pasture near Thurleigh. This species is well known on the Bedfordshire chalk downland but was last recorded in the county other than on the chalk by John McLaren, c.1880. On a roadside nearby Graham Dennis also found Autumn Gentian (*Gentianella amarella*) similarly not recorded for many years in the county otherwise than on chalk downland. It would appear that there is an especially calcareous deposit of Boulder Clay in this neighbourhood. Other additional records of orchids included Southern Marsh-orchid (*Dactylorhiza praetermissa*) found in a wet pasture near Luton by Paul Spittle. This species, not uncommon in the county 50 years ago, had become almost extinct making this, with another recent record also from near Luton, of great interest. Graham Dennis also reported Bird's-nest Orchid (*Neottia nidus-avis*) from Kings Wood (Heath and Reach), an extension of its range.

Water Dropwort (*Oenanthe crocata*) is a species we have long hoped to re-find in the county as James Saunders apparently knew it a hundred years ago in Luton Hoo Park. A healthy plant was found this year by H.B. Souster on the towpath of the canal at Leighton Buzzard, well within the county but in a part previously in Buckinghamshire. I was pleased to see a colony of Dog Violet (*Viola canina*) at Rushmere during a field meeting of the

Society. It is some years since this was last recorded in the county. Another interesting record was Blunt-leaved Pondweed (*Potamogeton obtusifolius*), the second for the county, by John Morris from Mermaids Pond. It is especially pleasing to me, always grateful for the many records sent to me, that most of the above were from comparatively young naturalists.

A record of an entirely different nature came from Bernard Nau who reported Large-flowered Hemp-nettle (*Galeopsis speciosa*) growing for a length of about 2km. on an earth thrown up in the laying of a pipe line by the roadside between Woburn and Milton Bryan. For many years this was a feature of an arable field adjacent to Flitwick Moor, where it has not been seen for about twenty years. Otherwise there has been one recent record from the Hardwick Spinney nature reserve. It is difficult to find any explanation of its abundance in this new site where one fears that it may not be permanent.

There were once more additions to the alien flora, with one wool alien in *Psoralea bituminosa* (Leguminosae), an attractive species. Two additional aliens were found on the banks of the Fullers Earth workings near Woburn Sands which had been sown with a grass-seed mixture. One, *Downingia elegans* (Campanulaceae) is a delightful delicate species: the other is a grass (*Agrostis castellana*), which we have been expecting to find sooner or later in the county. It was nearly on the margin of Aspley Wood that John Morris drew our attention to another alien, Pokeweed (*Phytolacca acinosa*). An unusual record was made by the recorder in the company of H.B. Souster, his companion in the field for 40 years, of a fern, *Pteris cretica*, growing in the brickwork of a garden in a Luton street. This fern, which has become popular as a pot plant in recent years, has similarly been found growing spontaneously elsewhere.

The year has been of great importance with the addition of 41 plant species to the 21 already fully protected by the passing of the Wildlife and Countryside Act, 1981. We had no great disappointment that no Bedfordshire species were on the original very short list but note that we now have one – Field Cow-wheat (*Melampyrum arvense*) on the new extended list. This has been known in recent years in at least five sites in the county. It was abundant, with several hundred plants, when it was first observed in one site near Bidwell in 1944 by W.D. Coales. It gradually diminished in number, being last seen there about 1968. Small colonies at Higham Gobion and Streatley at about the same time were even more short-lived. It was long known on a roadside verge at Stagsden, a roadside nature reserve for its protection, where the number of plants fluctuated, being greater after the periodic clearing of the roadside ditch and in one year after the laying of a telephone cable. There were no plants in 1980 or 1981, making it doubtful if it will now return. The remaining site is near Lidlington, being first reported by our member Alan Martin in 1974 when estimates of the number of plants varied from 5,000 to 2,000. In 1981 only 125 plants were seen. Its behaviour elsewhere in the British Isles has been the same and there are now known to be only two other colonies, each with fewer than ten plants: one is in Essex and the other in the Isle of Wight. Members may wish to be reminded that they are liable to a fine of up to £500 if they knowingly pick this plant! We previously had two other species now protected. Small Alison (*Alyssum alyssoides*) was abundant on a platelayers' track by the side of the railway at Flitwick but diminished in number once the track was no longer used. It was last seen here in 1970. There was also a thriving colony of Lizard Orchid (*Himantoglossum hircinum*) on Sundon Hill until the site was ploughed in 1953. Had we known that these plants would one day be so precious we could have acted to try to conserve but if we had been successful there is every probability that they would not now be protected.

A fifth species on the new list could have an interest for us. In the Bedfordshire Plant Atlas (1976) I recorded Childling Pink (*Petrohagia nanteuillii*) as a newcomer to the county. The new protection of this species caused me to secure an expert determination of the plants forming the Bedfordshire colony, which has remained constant for eight years. This was necessary as there are two very closely allied species needing specialist opinion regarding their differentiation. The Bedfordshire plants prove to be *P. prolifera* which is not protected and it may now be even more necessary to continue to monitor and protect this colony.

JOHN. G. DONY

PLANT EXTINCTIONS IN BEDFORDSHIRE

by J. Robertson, 55 Akeman Street, Tring, Hertfordshire

THE COUNTY

Bedfordshire was chosen for study because it is a comparatively small, lowland county which is intensively farmed and has an expanding population. Most of the county lies below the 100 m contour, with only a small area in the south above 220 m. It is an extremely well-recorded county, boasting probably the best 18th century county flora in the form of Charles Abbot (1798) and having benefited from the indomitable efforts of John Dony over the last sixty years. The geology of the county is very varied and includes Lower Greensand, which gives rise to heaths and in the wetter places, bogs, Chalk (downland), Boulder Clay (woods) and Clay-with-Flints (heaths and woods), the most extensive of the geological areas. Although Bedfordshire was selected to demonstrate what has happened to the native flora of a typical lowland county, it has probably fared worse than most of its neighbours. There may still be time to put into practice in other counties the lesson learnt from Bedfordshire – that for conservation to meet the needs of local communities, all semi-natural habitats in lowland Britain must be brought within the planning regulations – but there is not much time left. All the species lost to Bedfordshire have suffered elsewhere, 25% having become extinct in Hertfordshire, all but one this century.

THE SPECIES

The table gives the 80 plant species that have apparently become extinct in Bedfordshire during the last three centuries, based upon Dony (1953), Dony (1976), Dony (1977), Dony (1977-1981). A few species which have probably been recorded in error are excluded. In addition at least 40 garden escapes, cornfield weeds or colonists have disappeared as well as a number of casuals which have made only a brief appearance. Whilst the lost introductions have been easily compensated for by the great number of recent arrivals, no such compensation operates in the case of the native species. The table gives the dates for first and last records, where known, and an indication of their habitat requirements (see habitat key). The results show that out of the 80 native species lost to the county, 50 are wetland plants (62½%), ten are found in grassland (12½%), eight in heathland (10%) nine in woods and shady places (9¼%) and three in cornfields (4%). The final group appears under-represented because most cornfield species cannot be included as natives.

THE HABITATS

Wetlands

The majority of species lost to the county fall into the broad category of wetland plants. This includes species of wet meadows, moors, marshes and fens, bogs, open water, ditches, streams and rivers. Most of these species were highly localised when first recorded, although they may have been abundant at individual sites. Their disappearance can be attributed to a variety of causes, particularly drainage and afforestation. As particular sites provided the right conditions for several of these localised species together, the destruction of a single site could account for the extinction of several species. The area around Ampthill, drained by the river Ivel, provided the most important group of wetland sites, including: Gravenhurst Moor, Flitton and Flitwick Moors, Ampthill Bogs, Maulden Moor, Westoning Moor, Tingrith Marsh, Shefford and Shillington. Of these only a small fragment of Flitwick Moor is left, now a County Trust nature reserve. Other important sites included Totterhoe Mead in the south-west of the county, drained in the 1880's, and Potton Marshes, near Sandy in the North-east. As many of the species listed belong to the same plant communities, it seems likely that, without careful protection, other species associated with them will suffer

SPECIES	FIRST RECORD	LAST RECORD	HABITAT	SPECIES	FIRST RECORD	LAST RECORD	HABITAT
<i>Lycopodium clavatum</i>	1798	1907	W	<i>Pedicularis sylvatica</i>	1798	1953	W
<i>L. inundatum</i>	1798	1953	W	<i>Melampyrum pratense</i>	1798	1950	S
<i>Thelypteris palustris</i>	1798	1798	W	<i>Pinguicula vulgaris</i>	1795	1921	W
<i>Botrychium lunaria</i>	1798	1798	W	<i>Utricularia vulgaris</i> *	1795	1889	W
<i>Equisetum sylvaticum</i>	1795	1932	W	<i>U. minor</i>	1798	1798	W
<i>E. hyemale</i>	1795	1798	W	<i>Mentha pulegium</i>	1802	1907	W
<i>Juniperus communis</i>	1798	1889	W	<i>Stachys germanica</i> *	1801	1801	G
<i>Ranunculus lingua</i>	1795	1886	W	<i>Campanula patula</i> *	?	1889	S
<i>Aquilegia vulgaris</i>	1798	1926	S	<i>Pulicaria vulgaris</i>	1795	1864	W
<i>Ceratophyllum submersum</i>	1887	1887	W	<i>Pilago lutescens</i>	1798	1930	G
<i>Hypericum elodes</i>	1798	1798	W	<i>F. pyramidata</i>	1875	1890	G
<i>H. montanum</i> *	?	1921	S	<i>Antennaria dioica</i>	1840	1926	G
<i>Dianthus deltoides</i>	1690	1798	G	<i>Arnoseris minima</i> *	1793	1930	C
<i>Moenchia erecta</i>	1795	1930	H	<i>Hypochoeris glabra</i> *	1795	1932	C
<i>Stellaria palustris</i>	1798	1968	W	<i>Hydrocharis morsus-ranae</i>	1795	1856	W
<i>Sagina nodosa</i>	1795	1926	W	<i>Potamogeton polygonifolius</i>	1886	1886	W
<i>Genista anglica</i>	1795	1884	H	<i>P. alpinus</i>	1845	1953	W
<i>Potentilla palustris</i>	1795	1970	W	<i>F. trichoides</i>	1930	1930	W
<i>Chrysocephalum alternifolium</i>	1844	1844	W	<i>Narthecium ossifragum</i>	1795	1798	W
<i>Parnassia palustris</i>	1640	1925	W	<i>Maianthemum bifolium</i> *	1835	1835	S
<i>Drosera anglica</i>	1795	1798	W	<i>Fritillaria meleagris</i>	1798	1960	G
<i>D. intermedia</i>	1798	1798	W	<i>Colchicum autumnale</i> *	1795	1798	G
<i>D. rotundifolia</i>	1798	1942	W	<i>Epipactis palustris</i>	1795	1971	W
<i>Epilobium lancoletatum</i>	1943	1943	S	<i>Hammarbya paludosa</i>	1792	1798	W
<i>Myriophyllum alternifolium</i>	1889	1889	W	<i>Ophrys ephogodes</i>	1788	1788	G
<i>Apium graveolens</i>	1798	1950	W	<i>Himantoglossum hircinum</i>	1932	1953	S
<i>Cicuta virosa</i>	1798	1798	W	<i>Dactylorhiza maculata</i>	?	1962	W
<i>Carum carvi</i> *	1795	1970	G	<i>Lemma polyrrhiza</i>	1798	1953	W
<i>Oenanthe silaifolia</i>	1796	1886	W	<i>Eleocharis acicularis</i> *	1802	1802	W
<i>O. fluviatilis</i>	1875	1889	W	<i>E. uniglumis</i>	1802	1972	W
<i>Salix repens</i>	1798	1911	W	<i>Scirpus caespitosus</i>	1798	1798	W
<i>Erica tetralix</i>	1798	1886	W	<i>Schoenus nigricans</i>	1798	1798	W
<i>E. cinerea</i> *	1838	1900	H	<i>Blyemus compressus</i>	1802	1972	W
<i>Vaccinium oxycoccos</i>	1795	1798	W	<i>Rhynchospora alba</i>	1798	1798	W
<i>Pyrola minor</i>	1795	1840	S	<i>Carex hostiana</i>	?	1955	W
<i>Anagallis minima</i>	1798	1798	H	<i>C. demissa</i>	1864	1950	W
<i>Gentianella anglica</i>	1923	1930	G	<i>C. divisa</i>	1920	1920	W
<i>Cynoglossum germanicum</i>	1926	1944	S	<i>C. elata</i>	1802	1890	W
<i>Cuscuta epithymum</i>	1798	1953	H	<i>C. dioica</i>	1805	1805	W
<i>Pedicularis palustris</i>	1798	1926	W	<i>Nardus stricta</i>	1798	1953	H

the same fate; e.g. *Menyanthes trifoliata*, *Hydrocotyle vulgaris*

Heaths

Heathland plants have also sustained significant losses. As fewer species belonged to this category in the first place, the rate of species loss for heathlands is probably comparable with that inflicted on wetlands, although heathland species only comprise 10% of the total list. As the few heaths left in the county are still under threat, more species (such as *Hypericum humifusum*, *Polygala serpyllifolia* and *Viola canina*) are likely to be added to the list. Most of the heathland in the county lies on the Lower Greensand, as at Aspley Heath and Heath and Reach, on the western edge of the county. These heaths are now largely occupied by conifers. A different fate has befallen some of the Clay-with-Flint heaths, for example Whipsnade Heath. Here absence of grazing has converted the heath into embryonic woodland, with birch/hawthorn scrub and *Pteridium* dominating large areas.

Woodland

Woodland plants seem to have fared comparatively well, partly because few species of primary woodland were rare in Charles Abbot's day, so that subsequent coniferisation and the wholesale destruction of some woods have not yet been sufficient to eliminate many species. However a number of woodland species are now vulnerable, being reduced to a handful of sites, and their position resembles that of wetland plants two centuries ago. Bedfordshire's primary woodlands are considered to be of little value in economic forestry terms, and some of the best examples have been destroyed in recent years. For example, in the south west of the county, two former sites for *Helleborus viridis* are now partly occupied by houses, (Whipsnade and Oldhill Woods), the nearby Deadmansey Wood has been coniferised by the Forestry Commission, and a large wood at Stanbridgeford has disappeared altogether. Unless action is taken more of Bedfordshire's ancient woods will disappear, and with them plants such as *Polystichum aculeatum*, *Frangula alnus* and *Epipactis purpurata*.

Grassland

The chalk grassland of the county has lost relatively few species and maintains a high degree of interest. Several nationally rare plants are present, and the National Nature Reserve at Knocking Hoe safeguards some of them, including *Seseli libanotis*, *Orchis ustulata* and *Hypochoeris maculata*. Unfortunately there is no public access to the site, which is held under a management agreement. Few permanent pastures remain except for the daisy-clad meadows that belong to horse-owners and the ploughing of old meadows has led to a dramatic decline for some species. In 1953 Dony described *Orchis morio* as frequent and well distributed throughout the county. Once recorded from 21 tetrads, it had become extinct in 19 of them by 1976 but has been recorded in three new tetrads since then. There is a considerable overlap between grassland and wetland plants. *Carum carvi* could be classified as a wetland species, and several wetland species have been found on the downs. One example of this is *Parnassia palustris*. Originally known from 10 different localities, only a single downland site remained by the 1920's. Although carefully watched over, this sole surviving

Table (opposite). Plant species which have apparently become extinct in Bedfordshire during the last three centuries.

- Habitat key: C — cornfield.
 G — grassland.
 H — heath.
 S — woods and shady places.
 W — wetland (including wet heaths).

colony was uprooted in 1925 by a "naturalist" who wanted to be the last person to see *Parnassia* growing wild in Bedfordshire. Other wetland plants to have been found on the chalk include *Pinguicula vulgaris* and *Epipactis palustris*. However these unusual sites only occur where flushes provide sufficiently wet conditions and are often transient.

Cornfields

The aesthetic and cultural value of some of our cornfield flowers belies any rigorous distinction between the loss of native and non-native species. For example Woad, *Isatis tinctoria* played a part in man's history in these islands. Thorow-wax, *Bupleurum rotundifolium*, has disappeared from 14 stations to become extinct this century, and it has suffered similarly elsewhere. These and other species have been associated with man for more than two thousand years but are now succumbing to a system of agriculture that is breaking the continuity of management essential to the maintenance of our natural heritage.

CONCLUSIONS

Over the past three hundred years only a small number of plants have become extinct in the British Isles. The measures necessary to prevent a species being lost to the British Flora are usually straightforward — site protection and careful management of the plant in a few stations will safeguard a token population to keep the species on the British "list". However over the same period the number of local extinctions has been enormous. This analysis has looked at the disappearance of wild flowers from one of the intensively-managed lowland counties of Britain to see which ecological groups of plants have suffered most and what course of action is needed to prevent further losses. The results show that the greatest losses have been sustained by wetland plants, and in addition to the 50 species that have become extinct in the county, there is an almost endless list of diminishing species which could suffer the same fate. *Nymphoides peltata*, *Triglochin palustris*, *Viola palustris*, *Samolus valerandi*, *Veronica scutellata*, *Valeriana dioica*, four *Potamogeton* spp and various *Carex* spp provide a few examples. However all semi-natural habitats have suffered. Several heathland species have declined disastrously, *Cuscuta epithymum* having disappeared from all of its 22 Bedfordshire stations. Woodlands, with all their three-dimensional richness, look particularly vulnerable. The rate of extinctions has accelerated in the last 30 years, even though an analysis of the dates when species were last recorded underestimates the more recent losses. 41 species are known to have become extinct this century, which compares with 39 last records for the 17th, 18th and 19th centuries together. Of these, at least 18 species have disappeared since 1950, the highest rate of loss ever known. All this evidence can only point in one direction. If people now and in the future are going to be able to enjoy the plant and animal communities that belong in their neighbourhood, then in lowland counties like Bedfordshire, where semi-natural habitats occupy only a small fraction of the total area, all such habitats must be given a degree of protection, so that the community can at least call into question the benefits presumed when land use is changed. Otherwise many midland and southern counties will increasingly lose species and habitats. until only a few isolated nature reserves remain to speak of the natural heritage which has been sold so cheaply.

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LICHENS

Report of the Recorder

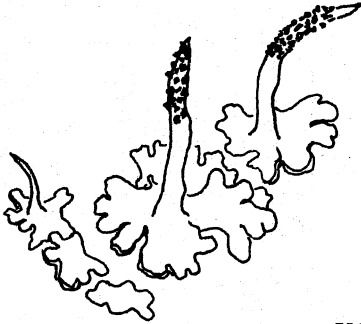
Apart from the usual lichen substrates of stone, wood, tree-bark and soil, some lichens in the county have been found colonising unusual and seemingly inhospitable materials. These substrates and the lichens found growing on them are listed below.

Bone; *Xanthoria parietina* found growing on an old sheep's femur in a large undisturbed garden in Biggleswade.

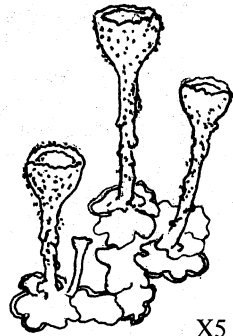
Leather; *Lecanora conizaeoides* on a well-weathered shoe in a ditch at Barton and *Caloplaca citrina* on an old satchel in a rubbish dump outside Caddington.

Iron; *Lecanora conizaeoides* on flaking iron railings around Luton, Barton and Meppershall churchyards and memorials, *Candelariella vitellina* on the iron hinges of a farm building at Streatley, *Lecanora polytropa* on painted iron guttering on Kensworth Church and *Lepraria incana* on an iron bootscraper outside a cottage at Woburn Sands.

Cinders; *Cladonia coniocraea* and *C. fimbriata* on undisturbed cinders on the embankment of the disused railway line near Old Warden.



X1



X5

Cladonia coniocraea

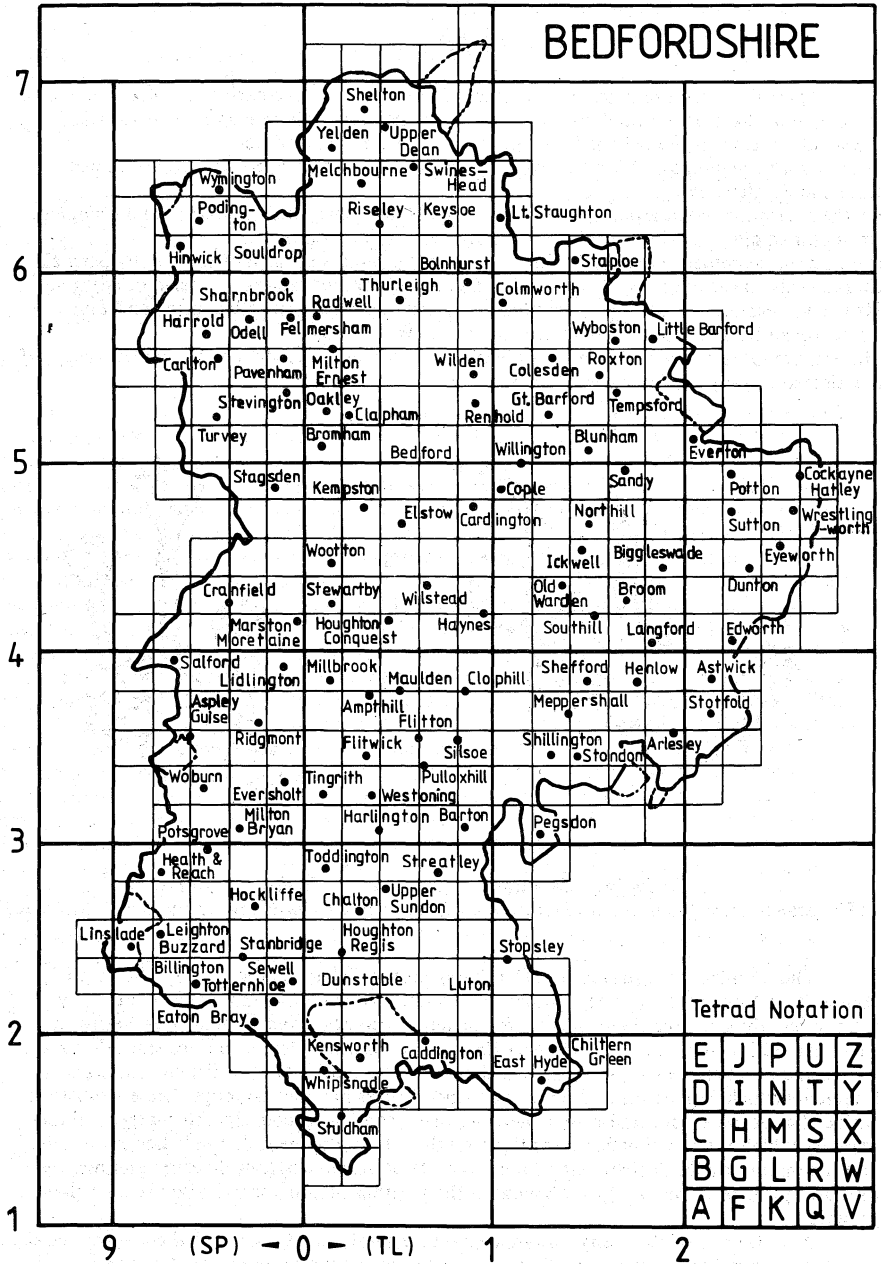
Cladonia fimbriata

(The drawings are taken from *The Common Lichens of Bedfordshire* by Francis B. M. Davies)

These unlikely substrates are often important to lichens as they offer little or no competition from other species, and have often undergone considerable modification by weathering, thus making them suitable for lichen colonisation and growth. Weathering of these materials often drastically changes the surface texture, allowing a once smooth surface to become roughened and pitted. This is ideal for the establishment of lichen spores and fragments which depend on finding crevices and fissures in which to lodge. Once a substrate surface has become open and pitted then it is often-capable of considerable water retaining capacity which is important again for the growth and development of the lichen propagules, and the mature thalli. Enrichment of the substrate by leachates from the surroundings, by bird droppings or farmyard dust, along with the weathering process will also favour lichen growth.

As yet, none of the many non-biodegradable plastic containers and sheeting materials, with their shiny, hard, resistant surfaces, have been found with any traces of lichen growth.

FRANCES B.M. DAVIES



Tetrad map of Bedfordshire showing the main towns and villages.

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