

The Bedfordshire Naturalist

**JOURNAL OF THE
BEDFORDSHIRE
NATURAL HISTORY
SOCIETY
FOR THE YEAR
1973**

No. 28 ONE POUND

**PUBLISHED BY THE
BEDFORDSHIRE NATURAL HISTORY
SOCIETY**

THE BEDFORDSHIRE NATURALIST

THE JOURNAL OF THE

THE BEDFORDSHIRE NATURAL HISTORY SOCIETY

Edited by R. V. A. Wagstaff

No. 28 1973

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BEDFORDSHIRE NATURAL HISTORY SOCIETY 1974

Chairman:

H. A. S. KEY

Hon. Secretary:

D. GREEN, Red Cow Farm Cottage, Bidwell, Dunstable.

Hon. Treasurer:

J. M. DYMOND, 91 Putnoe Lane, Bedford.

Hon. Programme Secretary:

D. G. RANDES, 51 Wychwood Avenue, Luton.

Hon. Librarian:

R. B. STEPHENSON, 17 Pentland Rise, Putnoe, Bedford.

Committee:

D. Anderson
A. Ford

C. Banks
B. S. Nau
Miss R. Smart

P. F. Bonham
A. R. Outen
P. Smith

W. J. Champkin
Mrs E. B. Rands

RECORDERS

BOTANY:

Fungi: Dr. D. A. Reid, The Herbarium, Royal Botanical Gardens, Kew.

Flowering Plants and Vascular Cryptogams:

Dr. J. G. Dony, 5 Stanton Road, Luton.

Bryophytes: A. R. Outen, 55 Arundel Road, Luton.

GEOLOGY: P. J. Smart, 1 Laburnum Avenue, Queens Park, Bedford.

METEOROLOGY: A. W. Guppy, 22 Poplar Avenue, Bedford.

ZOOLOGY:

Mollusca, Leeches and Flatworms:

Mrs E. B. Rands, 51 Wychwood Avenue, Luton.

Spiders: T. J. Thomas, 142 Selbourne Road, Luton.

Bees, Wasps and other Hymenoptera:

Dr. V. H. Chambers, 50 Shefford Road, Meppershall, Shefford.

Butterflies and Moths:

W. J. Champkin, 59 Rosamond Road, Bedford.

Dragonflies:

Dr. N. Dawson, The Old House, Ickwell Green, Nr. Biggleswade.

Bugs (Hemiptera-Heteroptera)

Dr. B. S. Nau, 15 Park Hill, Toddington.

Fish: P. W. Moles, 37 Cemmeas Court Road, Hemel Hempstead, Herts.

Amphibians and Reptiles:

C. Banks, 72 Spencer Road, Luton.

Birds: P. F. Bonham, 32 Heronscroft, Bedford.

From July: B. D. Harding, 26 Woodlands Avenue, Houghton Regis, Dunstable.

Mammals: D. Anderson, 51 Springfield Crescent, Harpenden, Herts.

RECEIPTS AND PAYMENTS ACCOUNTS FOR THE YEAR ENDING 31st DECEMBER 1973

<u>1972</u>	<u>RECEIPTS</u>	<u>£</u>	<u>1972</u>	<u>PAYMENTS</u>	<u>£</u>
	Cash in Hand and in Bank		112	Printing Postage & Stationary	112 - 29
172	1st January 1973	304 - 54	-	Beds. Naturalist. No. 26	273 - 85
	<u>Subscriptions</u>		5	Subscriptions to Societies	8 - 00
219	for 1973	339 - 37	25	Hire of Halls and Rooms	51 - 17
22	New Members	<u>47 - 87</u>	21	Sundry Expenses	2 - 20
12	Sale of Journals	387 - 24	2	Auditors, Honorarium	2 - 00
243	Yorks Trip	16 - 80	---	Refunds of overpaid subscriptions	4 - 12
---	R. S. P. B. Film Show Society's share of proceeds	-----	6	Lecturers' Expenses	10 - 00
5	Donations and Collections	6 - 30	220	Yorks Trip	-----
10	Donations for Insurance	9 - 40	429	To Deposit A/C (Transferred from Current A/C)	200 - 00
409	To Deposit Account	-----	22	Xmas Social	21 - 25
37	Xmas Social and Teas at Luton	1 - 00	7	Insurance Premium Dayson & Co.	7 - 50
57	Publication Fund and Raffles	40 - 53	13	Recorders Expenses	-----
3	Putnoe Wood Brochures	17 - 07	23	Putnoe Wood Notice Board	-----
		1 - 45	303	Cash at Bank 31st December 1973	81 - 88
			1	Cash in Hand 31st December 1973	10 - 07
<u>1189</u>		<u>784 - 33</u>	<u>1189</u>		<u>784 - 33</u>

Balance of Monies in Deposit A/C including interest as at 31st December 1973 - £672 - 79p.

I have examined the above Receipts and Payments Accounts which are in agreement with the books and vouchers of the Society.

19th February 1974.

P. SMITH
Honorary Auditor.
Leighton Buzzard.

REPORT OF THE COUNCIL

1973 was another active and eventful year. Despite few notable innovations, the society broadened its outreach, involved more people in its activities and covered more ground than, probably, in any other year of its history.

With 53 new members enrolled the total was only slightly up on 1972 but more significant was the encouraging increase in the percentage of our membership actively involved in practical natural history. In furtherance of our policy to cover as many branches of natural history as possible, four additional recorders were appointed during the year.

Despite the need for some economies in our programme of indoor meetings, those arranged were well attended and equally well received. Field meetings continued to be instructive and a source of many valuable records.

Student activities were most encouraging, giving the Society a new dimension. Much credit is due to the untiring efforts of all those involved in the organisation of this section.

The late appearance of the 1972 Journal was much regretted. After delays in the early stages due to prolonged efforts to effect economies, the selected printers were held up by the power crisis. It should be recorded that our Editor was in no way responsible for these delays. It is hoped that the change of print style, found necessary to reduce costs, was completely acceptable.

The Council wishes to thank the many individuals who have supported the Society in so many ways in 1973.

D. GREEN, Hon. Secretary.

PROCEEDINGS. INDOOR MEETINGS

294th ORDINARY MEETING, 8th January, Luton. "Trapping and Identification of Moths" by Mr Ian Woivod. Chairman: Mr A. J. Livett.

295th ORDINARY MEETING, 18th January, Bedford. "Members Evening". Chairman: Mr. J. M. Dymond.

296th ORDINARY MEETING, 25th January, Luton. "Birds of Point Pelee (Canada)" by Mr B. D. Harding. Chairman: Mr D. Green.

297th ORDINARY MEETING, 31st January, Dunstable. "Natural History as Seen by a Photographer" by Mr D. Romer. Chairman: Mr A. Ford.

298th ORDINARY MEETING, 8th February, Bedford. "Botanical Illustrations Through the Ages" by Mr L. E. Perrins. Chairman: Mr A. W. Guppy.

299th ORDINARY MEETING, 15th February, Luton. "Wintering Birds on the Ouse Washes" by Mr Jeremy Sorrensen. Chairman: Mr P. F. Bonham.

300th ORDINARY MEETING, 21st February, Dunstable. "The Study of Hedges" by Dr Max Hooper. Chairman: Dr J. G. Dony.

301st ORDINARY MEETING, 1st March, Bedford. "History of the Vegetation of Bedfordshire" by Dr J. G. Dony. Chairman: Mr. R. B. Stephenson.

302nd ORDINARY MEETING, 8th March, Dunstable. "Bird Recognition" by Mr P. F. Bonham. Chairman: Mr P. Smith.

ANNUAL GENERAL MEETING, 15th March, Luton. Chairman: Mr H. A. S. Key.

303rd ORDINARY MEETING, 22nd March, Bedford. "Butterflies" by Dr D. M. Jeffreys and Mr W. J. Champkin.

304th ORDINARY MEETING, 18th October, Bedford. "My Experiences in

Sierra Leone by Mr C. Banks. Chairman: Miss R. Smart.

305th ORDINARY MEETING, 24th October, Dunstable. "How to Set About Identifying Plants" by Dr J.G. Dony. Chairman: Mrs E.B. Rands.

306th ORDINARY MEETING, 29th October, Luton. "The Mosses in my Life" by Mr A.R. Outen. Chairman: Dr J.G. Dony.

PUBLIC FILM SHOW, 31st October, Corn Exchange, Bedford.

307th ORDINARY MEETING, 7th October, Dunstable. "Members Evening" Chairman: Mr D.G. Rands.

PUBLIC FILM SHOW, 13th November, Queensway Hall, Dunstable.

308th ORDINARY MEETING, 15th November, Bedford. "Identification of Skulls and their Teeth" by Dr Nancy Dawson. Chairman: Mr W. Champkin.

309th ORDINARY MEETING, 22nd November, Luton. "An Introduction to the Study of Less Familiar Insects" by Mr T.W. Gladwin. Chairman: Dr B.S. Nau.

310th ORDINARY MEETING, 29th November, Bedford. "How to Catch Fleas" by Mr R.S. George. Chairman: Mrs E.B. Rands.

PUBLIC FILM SHOW, 3rd December, Corn Exchange, Bedford.

GRAND CHRISTMAS SOCIAL EVENING, 6th December, Holy Trinity Hall, Bedford. M.C.: Mr H.A.S. Key.

311th ORDINARY MEETING, 12th December, Dunstable. "Wading Birds and Estuary Ecology" by Mr A.J. Prater. Chairman: Dr B.S. Nau.

FIELD MEETINGS

- 14th April, WYBOSTON GRAVEL PITS. Leader: Mr P.F. Bonham.
29th April, HARDWICK SPINNEY, STAGSDEN. Leader: Mr H.A.S. Key.
6th May, STUDHAM COMMON. Leader: Dr J.G. Dony.
22nd May, CARDINGTON MILL. Leaders: Mr C. Banks, Dr B.S. Nau.
27th May, HANGER WOOD, STAGSDEN. Leader: Mr A.W. Guppy.
30th May, R.S.P.B., THE LODGE, SANDY. Leader: Mr P. Smith.
2nd June, BROMHAM HALL. Leader: Mr R.V.A. Wagstaff.
6th June, CLIFTON TO SHEFFORD, evening walk along the River Ivel navigation. Leaders: Mr and Mrs D.G. Rands.
16th June, WHITE WOOD, GAMLINGAY. Leader: Mr A.W. Guppy.
20th June, CAINHOEPARK WOOD, CLOPHILL. Leaders: Dr and Mrs J.G. Dony.
27th June, WHARLEY END. Leader: Mr A. Ford.
8th July, CRANFORD ST. JOHN, NORTHAMPTONSHIRE. Leader: Mr G. Osborn-Northants. Natural History Society.
19th July, ELSTOW, Central Electricity Generating Board Storage Depot. Leader: Dr and Mrs J.G. Dony.
22nd July, FLITWICK MOOR, with Northants. N.H.S. Leaders: Mr and Mrs D.G. Rands.
4th August OAKLEY BRIDGE. Leader: Mr W.J. Champkin.
5th September, MAULDEN WOOD. Leader: Mr T.J. Thomas.
9th September, SOUTHILL LAKE. Leader: Dr Nancy Dawson.
22nd September, THETFORD CHASE, NORFOLK. Leaders: Mr C. Banks and Mr M. Ferrero.
7th October, STOCKGROVE COUNTRY PARK, Fungus Foray. Leader: Dr D.A. Reid.
14th October, MAULDEN WOOD AREA, Mammals in bottles. Leader: Mr D. Anderson.

28th October, NORFOLK WILDLIFE PARK, GREAT WITCHINGHAM.

Leader: Mr D.G. Rands.

4th November, APSLEY HEATH, Winter walk. Leader: Mr P. Smith.

18th November, CHICKSANDS WOOD. Leader: Mr H.A.S. Key.

STUDENT ACTIVITIES

The student group formed in the south of the county in January 1972 has continued to flourish throughout 1973. In an attempt to establish a similar group in the north of the county an inaugural meeting was held in Bedford on Wednesday 18th April 1973 at the Grosvenor Club. A separate programme was drawn up for the student section with at least one meeting organised for every month. During the Winter an indoor meeting was held both in Bedford and in Luton and a wide variety of subjects was covered. Our thanks must go to those lecturers from outside the Society who so generously gave talks, Mr. Osborn on Dinosaurs and Mr Clark on Mammals.

One of the highlights of the year was a camping weekend in the New Forest. A total of 33 students and adult members participated, in glorious weather conditions. An equally successful weekend was spent at Dell Farm, Whipsnade. This farm centre belongs to Luton Corporation and is normally used as a field centre for school parties from Luton. It is hoped that similar weekend activities will be possible during 1974.

A winter field meeting was arranged for December 2nd. to see the seals at Blakeney, Norfolk. Due to the national fuel crisis it was impracticable to travel by private car and a coach was organised at very short notice. The trip was so popular that it was decided to try and organise a similar winter meeting in 1974.

A serious attempt has been made at all meetings of the student section to teach the students, as well as provide entertainment for them. Many of the students are now doing interesting field work projects on their own, with occasional help and supervision from adults. In this way they not only enjoy themselves but are laying the foundations for their own future in the natural history world.

Calendar of Events (students) for 1973

- 2 January - Luton - The Natural History of the New Forest
by C. Banks & M. Ferrero
- 6 February - Luton - Mammals by M. Clark
- 6 March - Luton - Dinosaurs by G. Osborn
- 31 March - Field Meeting to Ickwell Green & Home Wood
- 8 April - Field Meeting to Cranford St. John with the Northants N. H. S.
- 12 April - Toddington - An Evening with the Microscope
- 18 April - Bedford - Inaugural Meeting for Students in the North of the County
at the Grosvenor Club
- 20 May - Field Meeting to Apsley Heath
- 23/24 June - Camping weekend in the New Forest
- 30 June - Field Meeting to Souldrop Tunnel
- 26 July - Field Meeting to Maulden Wood
- 2 August - Mothing evening - 59 Rosamund Road, Bedford
- 23 August - Field Meeting to Putnoe Wood

- 1/2 September Weekend at Dell Farm, Whipsnade
- 23 September - Field Meeting to Bedford Boating Lake
- 2 October - Luton - Members Evening
- 12 October - Bedford - Members Evening
- 6 November - Luton - Wildfowl of the World by R. Wagstaff
- 11 November - Field Meeting to Ashridge
- 14 November - Bedford - Practical Dissection by Miss R. Smart
- 18 November - Work Party in Maulden Wood
- 25 November - Work Party in Maulden Wood
- 2 December - Field Meeting to Norfolk
- 4 December - Luton - The Camargue by C. Banks & M. Ferrero
- 8 December - Work Party in Maulden Wood
- 12 December - Bedford - The Birds of Scotland by W. Champkin
- 16 December - Work Party in Maulden Wood
- 30 December - Work Party in Maulden Wood

THE FUNGUS FORAY

The fungus foray, attended by about 50 people, was held at Stockgrove Country Park on 7th October, and was led by Dr D. A. Reid of Kew.

This year (1973) will go down in the memory of mycologists as being one of those outstanding seasons when fungi appeared both in exceptional abundance and variety. This being so it is not surprising to find that no fewer than 137 species were collected, and of these 13 were new county records, while a further 10 confirmed existing records. However, most of these novelties represent small agarics, forms of well-known species, resupinate corticioid fungi, or fungi of various other groups easily overlooked because of their small size. This indicates that we may be approaching the stage where most of the more conspicuous agarics of the county are now reasonably well known. Additions are to be expected from time to time but their numbers will no doubt continue to decline in the future.

Because most of the new county records are of small, insignificant species, it is difficult to comment on them. However mention must be made of Cortinarius delibutus since this is a striking fungus of deciduous woodland, with a yellow cap, tall white stem covered with sparse yellowish gluten below the cortinate zone, and with lilac colour at the stem apex. The young gills are also tinted with lilac. Another interesting member of the same genus was C. helvelloides which occurs in boggy areas in association with alder. This is a small species, up to 2 cm diam, in which the cap is covered while in bud like the stipe with yellowish fibrils of the veil. As the cap expands, the surface breaks up into minute fibrillose squamules. The gills are at first dull violaceous and the stem apex is also tinged with violet.

Mycena bulbosa is a minute species found on rushes and sedges, with a very pale grey-brown cap, and one of its chief features is that the stem is attached to the substrate by a prominent basal disk. Phaeomarasmius horizontalis is another minute agaric in which both cap and stipe are densely covered with squarrose, fibrillose scales formed of thick-walled, pointed, septate, clamped hyphae. The spores, which are amygdaliform, are rather large and measure 14-18 x 6-7 μ .

Attention must also be drawn to the collection of Platygløea peniophorae, since although not uncommon in Britain, I know of no other report of its parasitizing species of Tulasnella, either in this country or elsewhere.

I think it can be claimed with justification that this was a most successful meeting, with plenty of fungi for the numerous enthusiastic participants.

It is with gratitude that I have to thank Mr Stanley Carter for the list of Myxomycetes, most species of which confirm ancient records for the county.

The list of species follows:-

Amanita citrina [Schaeff.] S.F. Gray; A. fulva [Schaeff.] Secr.; A. muscaria (L. ex Fr.) Hooker; A. rubescens (L. Pers.) Fr.) S.F. Gray; Armillaria mellea (Vahl ex Fr.) Kummer; Bolbitius vitellinus (Pers. ex Fr.) Fr.; Boletus badius Fr.; B. chryserteron Bull. ex St Amans; B. scaber Bull. ex Fr.; Cantharellus cibarius Fr.; Clitocybe clavipes (Pers. ex Fr.) Kummer; C. ditopus (Fr. ex Fr.) Gillet; C. fragrans (Sow. ex Fr.) Kummer; Collybia cirrhata (Schum. ex Fr.) Kummer; C. dryophila (Bull. ex Fr.) Kummer; C. fusipes (Bull. ex Fr.) Quéf.; C. maculata (Alb. ex Schw.) Kummer; C. peronata (Bolt. ex Fr.) Kummer; C. tuberosa (Bull. ex Fr.) Kummer; *Conocybe plumbeifincta (Atk.) Sing.; Coprinus comatus (Mull. ex Fr.) S.F. Gray; C. micaceus (Bull. ex Fr.) Fr.; *Cortinarius delibutus Fr.; C. elatior Fr.; *C. helvelloides (Fr.) Fr.; Galerina hypnorum (Schränk ex Fr.) Kühn.; Gymnopilus hybridus (Fr. ex Fr.) Sing.; Hebeloma crustuliniforme (Bull. ex St Amans) Quéf.; H. sacchariolum Quéf.; Hohenbuehelia atrocaerulea (Fr. ex Fr.) Sing.; Hygrophoropsis aurantiaca (L. Wulf.) Fr.) Maire apud Martin-Sans; Hypholoma fasciculare (Huds. ex Fr.) Kummer; Inocybe geophylla (Sow. ex Fr.) Kummer; Laccaria laccata (Scop. ex Fr.) Cooke; L. proxima (Boud.) Pat.; Lactarius glyciosmus (Fr. ex Fr.) Fr.; L. quietus (Fr.) Fr.; L. rufus (Scop. ex Fr.) Fr.; L. tabidus Fr.; L. torminosus (Schaeff. ex Fr.) S.F. Gray; L. turpis (Weinm.) Fr.; L. vietus (Fr.) Fr.; Lepiota procera (Scop. ex Fr.) S.F. Gray; Lepista nuda (Bull. ex Fr.) Cooke; Lyophyllum decastes (Fr. ex Fr.) Sing.; Marasmius erythropus (Pers.) Fr.; M. oreades (Bolt. ex Fr.) Fr.; M. undatus (Berk.) Fr.; *Mycena bulbosa (Cejp) Kühn.; M. epipterygia (Scop. ex Fr.) S.F. Gray; M. galericulata (Scop. ex Fr.) S.F. Gray; M. galopus (Pers. ex Fr.) Kummer; M. galopus var. alba Rea; M. sanguinolenta (Alb. & Schw. ex Fr.) Kummer; M. speirea (Fr. ex Fr.) Gillet; M. polygramma (Bull. ex Fr.) S.F. Gray; Nolanea cetrata (Fr. ex Fr.) Kummer; Oudemansiella longipes (Bull. ex St Amans) Moser; O. radicata (Relh. ex Fr.) Sing.; (*Panus torulosus (Pers. ex Fr.) Fr.; Paxillus involutus (Batsch ex Fr.) Fr.; *Phaeomarasmius horizontalis (Bull. ex St Amans) Kühn.; Pleurotellus acerosus (Fr.) Konrad & Maubl.; Pleurotus cornucopiae (Paulet ex Pers.) Rolland; Pluteus cervinus (Schaeff. ex Fr.) Kummer; Psathyrella gracilis (Fr.) Quéf.; P. hydrophila (Bull. ex Mérat) Maire; P. squamosa (Karst.) Moser apud Gams; Russula atropurpurea (Krombh.) Britz.; R. betularum Hora; *R. densifolia (Secr.) Gillet sensu Romagnesi; *R. emetica var. sylvestris Sing.; R. fragilis (Pers. ex Fr.) Fr.; R. ochroleuca (Pers. ex Secr.) Fr.; R. parazurea J. Schaeffer; R. vesca Fr.; R. xerampelina (Schaeff. ex Secr.) Fr.; Stropharia semiglobata (Batsch ex Fr.) Quéf.; Tricholoma fulvum (DC ex Fr.) Sacc.; Tricholomopsis rutilans (Schaeff. ex Fr.) Sing.

Bjerkandera adusta (Willd. ex Fr.) Karst.; Coriolus versicolor (L. ex Fr.) Quéf.; Daedalea quercina L. ex Fr.; Daedaleopsis confragosa (Bolt. ex Fr.) Schroet.; Fistulina hepatica Schaeff. ex Fr.; Grifola frondosa (Dicks. ex Fr.) S.F. Gray; Heterobasidion annosum (Fr.) Bref.; Hirschioporus abietinus (Dicks. ex Fr.) Donk; Phellinus igniarius (L. ex Fr.) Quéf.; Piptoporus betulinus (Bull. ex Fr.) Karst.; Pseudotrametes gibbosa (Pers.) Bond. & Sing.; Strangulidium rennyi (Berk. & Br.) Pouz.; Xylodon versiporus (Pers.) Bond.

Chondrostereum purpureum (Pers. ex Fr.) Pouz.; Coniophora puteana (Schum. ex Fr.) Karst.; Cristella candidissima (Schw.) Donk; C. confinis (Bourd. & Galz.) Donk; C. farinacea (Pers. ex Fr.) Donk; Epithele typhae (Pers. ex Fr.) Pat.; Hyphoderma setigerum (Fr.) Donk; H. tenue (Pat.) Donk; Phlebia merismoides Fr.; Radulomyces confluens (Fr.) Christ.; Stereum gausapatum (Fr.) Fr.; S. hirsutum (Willd. ex Fr.) S.F. Gray; S. rugosum (Pers. ex Fr.) Fr.; S. sanguinolentum (Alb. & Schw. ex Fr.) Fr.; Thelephora terrestris Fr.; Vuilleminia comedens (Nees ex Fr.) Maire.

Calvatia utriformis (Bull. ex Pers.) Jaap [= C. caelata]; Lycoperdon foetidum Bon.; L. perlatum Pers.; Phallus impudicus L.; Scleroderma citrinum

Pers. [= S. vulgare] ; S. verrucosum [Bull.] Pers. ; Vascellum pratense
(Pers.) Kreisel. [= Lycoperdon depressum]

Dacrymyces deliquesens (Bull. ex Mérat) Duby

*Platyglœa peniophorae Bourd. & Galz. on Tulasnella sp.

*Puccinia cnici-oleracei Pers. ex Desm.

Ustilago violacea (Pers.) Fuckel on Lychnis flos-cuculi

*Cfr. Chrysothallus spiralis Vel. ; Hymenoscyphus fructigenus (Bull. ex
Mérat) S.F. Gray ; * Trichophaea bicuspis Boud.

Aegerita candida Pers. ex Fr. ; *Helicoma muelleri Corda ; Isaria farinosa Fr. ;
*Speira toruloides Corda.

(*) Arcyria cinerea (Bull.) Pers. ; (*) A. incarnata (Pers.) Pers. ; (*) A.
pomiformis (Leers) Rost. ; (*) Comatricha nigra (Pers.) Schroet. ; (*) Mucilago
spongiosa (Leyss.) Morgan ; (*) Physarum leucophaeum Fr. ; (*) P. nutans Pers. ;
(*) Reticularia lycoperdon Bull. ; Trichia varia (Pers.) Pers. ; (*) Tubifera ferruginosa
(Batsch) J.F. Gmel.

* = New County Record

(*) = Confirmation of existing record

DEREK A. REID

Footnote:- In addition to the species collected during the foray, specimens of
Hypholoma marginata (Pers. ex Fr.) Schroet. were brought from Woburn by Dr. F.
Rauter. This species is new to the County.

DEREK A. REID

REPORTS OF RECORDERS Botany (Flowering Plants)

Tetrad recording has continued, with the basic work finished as virtually all
tetrads have a minimum of 200 records, making it possible for the first time to show
the distribution patterns of the plants of the county. The two coming seasons should
see the completion of the survey. Noteworthy additions to the flora are three grasses-
various-leaved fescue (Festuca heterophylla Lam.), reflexed saltmarsh-grass
(Puccinellia distans (Jacq.) Parl.) and dense silky-bent (Apera interrupta (L) Beauv.).

My wife and I thank fellow workers who have assisted with the survey -
P.M. Benoit, Mrs A. Berens, C. Boon, Dr N. Dawson, Miss G. Elwell, A.W. Guppy
and above all, H.B. Souster.

J.G. DONY
21 March 1974.

BRYOPHYTES

Despite the very dry summer, the last twelve months have been very interesting
from a Bryological viewpoint.

I now have at least some records for all the Bedfordshire grid squares ranging
from 140 species in TL/03 down to 23 species in TL/25.

The more northerly grid squares are still generally badly under-recorded and
any material from the north especially would be greatly appreciated.

A summary follows of the number of species so far recorded in each grid square:

SP/96	51	TL/06	33	TL/16	31		
SP/95	50	TL/05	45	TL/15	37	TL/25	23
SP/94	43	TL/04	57	TL/14	92	TL/24	49
SP/93	69	TL/03	140	TL/13	61	TL/23	39
SP/92	109	TL/02	97	TL/12	44		
SP/91	43	TL/01	71	TL/11	42		

The total number of species ever recorded for the county now stands at 283 of which 234 are mosses and 49 are liverworts.

Among the more interesting new county records over the last year are Scapania aspersa found by Miss F. Woollon at Barton, Bryum flaccidum which I found at Souldrop and Cephaloziella stellulifera, a tiny liverwort species not recorded for any neighbouring county and generally rather uncommon, which I found at Rowney Warren.

A visit to Warden Warren by the Cambridge Botany School produced the first record in the county of Tortula papillosa since 1856 and a further record of Bryum flaccidum.

Possibly the best find of the year, however, was a small moss on the banks of the river Ivel at Tempsford Mill which I very nearly overlooked. Closer scrutiny showed that it was not the species I had believed it to be and on examination under the microscope, it became apparent that although closely related to Dicranella cerviculata, there was a number of distinct differences, most especially in the presence of purple rhizoids.

Unfortunately, the material was without capsules and a search of similar habitats within the county produced the same "species", again sterile, from the banks of the river Ouse, just outside Bedford.

I then sought the opinion of other Bryologists and those who have seen it agree that it does not fit any other of the species previously recorded for Britain. Checks of Dicranella species from other parts of the world have failed to reveal any with purple rhizoids. There remains the possibility that the plant may be an unusual variation, or a species hitherto unknown to science.

I would like to express my thanks to those Bryologists who have visited the county in the past year and others who have contributed records, especially Dr H. J. B. Birks, Mr R. Dove, Mr M. Fletcher, Mr J. Gardiner, Mr B. Goater, Dr F. Rose, Dr H. Whitehouse and Miss F. Woollon.

Also to those who have checked and corrected my identifications especially Mrs J. Appleyard, Mr M. Corley, Miss E. M. Lobley, Mrs J. Paton and Mr. R. Perry.

ALAN R. OUTEN

METEOROLOGY

1973 was another very dry year, and one has to go back over seventy years, to 1901 - 02, to find two successive years with combined rainfalls as low as those of 1972 - 73. Monthly totals were below average in 17 of the 24 months, and without some exceptionally heavy rain which accompanied last summer's storms many places would have had one of the driest years ever recorded.

January was a rather cloudy and misty month, very deficient in rainfall, and February was little better in this respect, with a preponderance of winds from a northerly quarter and a 'mini-winter', with some snow, which lasted for four or five days in mid-month. March was very dry, with some pleasant sunny days towards the close, but an intense depression on 2nd April, with gale-force winds, marked a change to less settled conditions. Much of the second half of the month was dominated by winds from a north-easterly and easterly direction and these continued into the

first few days of May. The latter month, however, was unsettled, and the 'thunder-storm season', which usually begins in the third week, was marked by a severe storm with very exceptional rain in the Bedford area.

The first half of June gave a prolonged spell of warm dry weather and the first absolute drought of the year, but the second half was less settled, with two or three severe thunderstorms at most places. Another fine warm period extended into July, but collapsed on the 6th with a prolonged thunderstorm. The remainder of the month was rather cloudy and cool, and summer weather did not return until the 30th. The middle of August was almost rainless and included the hottest days of the year, from 11th to 16th inclusive, while the first half of September, too, was unusually dry and warm. The third week of October was very calm, sunny and mild and was followed by the usual fogs of autumn.

A very intense anticyclone produced a cold spell from 25th November to 2nd December, with very low night minima, but the rest of the year was unsettled and cloudy, although deficient in rainfall.

TEMPERATURES

There were no prolonged spells of either very cold or very warm weather, but days of greater extremes than in 1972 were recorded. The four days 13th to 16th August provided the only real 'heat-wave', with a reading of 32.5 deg. C. on the last day in Bedford; the first four days of July were somewhat less warm. A reading of 30.0 deg. C. on 5th September was unusually high.

The lowest night minima occurred during the cold spell at the end of November, falling to -6.7 deg. C. on the two nights of 27th and 30th November.

There were no days during the year on which the temperature remained below freezing-point; the four coldest were 13th January, 28th and 30th November and 2nd December, all with 2.2 deg. C.

RAINFALL

In the north of the county, rainfall totals for the year were remarkably close to those of 1972, the figures for Sandy Lodge, for example, differing by less than one-half per cent, but the south had more extreme deficiencies, Dunstable recording barely three-quarters of the 1972 total. June was, in general, the wettest month at most stations, due to the heavy thunderstorms, but the May rainfall at Husborne Crawley reached the phenomenal total of 111 mm. due to the intensely local rain of 20th May, when 54 mm. were recorded in central Bedford. There were two absolute droughts of 14 days or more; from 3rd to 18th June inclusive - 16 days - and from 7th to 20th August - 14 days.

SNOW

Snowfall during the year was very infrequent. Heavy sleet and snow showers occurred on 13th and 14th February and remained unmelted overnight, and there were showers of snow and soft hail on 8th April, but otherwise amounts were insignificant.

THUNDER

Thunder was heard on 15 occasions and storms were more severe, and with heavier rainfall, than for several years past.

In Bedford, the severe storm on the afternoon of 20th May was accompanied by very heavy rain and flooding in central Bedford; 54 mm. was recorded by Messrs. Taylor Brawn & Flood in High Street, although this intensity was very local.

The thundery activity on the afternoon of 26th June was associated with two tornadoes in the Cranfield area which occurred in the afternoon at 14.30 and 15.00 hrs. respectively; a gust of 95 miles/hour was recorded during the second one.

Another severe storm on the evening of 27th June gave 23 mm. of rain in Bedford, while the prolonged afternoon and evening storm of 6th July gave 41.6 mm. at Cardington, of which 25.2 mm. fell in two and a quarter hours. South-east England experienced very heavy storms on the evening of 15th September, but Bedford

escaped comparatively lightly on that occasion.
SUNSHINE

In contrast to 1972, the sunshine hours recorded at the Woburn Experimental Farm were nearly 5 per cent above average. June was exceptionally sunny (27 per cent above average), and so was November, but July was about 20 per cent below normal.

A.W. GUPPY

RAINFALL FOR 1973								
	Cardington	Dunstable	Husborne C.	Luton A	Luton B	Sandy	Silsoe	
January	16.0	24.6	20	15.6	21.1	19.3	15.5	
February	19.7	21.7	19	20.1	23.3	21.8	20.5	
March	10.1	16.1	11	10.8	12.4	11.7	9.2	
April	38.9	47.5	46	52.6	57.6	41.4	35.0	
May	57.4	43.2	111	46.9	52.1	53.3	46.3	
June	62.6	70.6	71	81.9	73.6	67.1	67.9	
July	60.0	39.4	37	40.1	45.2	69.9	64.5	
August	36.6	26.6	32	44.4	53.0	18.8	33.3	
September	32.6	53.4	36	56.5	54.4	46.4	42.8	
October	21.5	45.2	30	33.1	34.0	22.1	18.6	
November	31.6	37.4	32	30.4	35.1	23.1	32.3	
December	28.6	42.0	32	—	41.3	42.2	30.2	
Total 1973	415.6	467.7	477	(All figures in mm.)	—	503.1	437.1	416.1
1972	432.9	628.6	494	540.4	600.2	435.4	459.3	

Rainfall Stations.

Cardington (R.A.F. Station per Mr. L. A. Speed)

Dunstable (Periwinkle Lane, per Mr. K. J. Reynolds, Chief Engineer, Lee Valley Water Company)

Husborne Crawley (Woburn Experimental Farm, from 'Rothamsted Experimental Station, Report for 1973'.)

Luton A (Crescent Road, Lee Valley Water Company.)

(Record incomplete owing to breakage of gauge, 4th December.)

Luton B (Runley Wood, Lee Valley Water Company.)

Sandy (R.S.P.B., Sandy Lodge, per Mr. Ray Hawley, Warden.)

Silsoe (N.I.A.E., Wrest Park, per Mr. Alan Hunter.)

MOLLUSCA

Work on recording the mollusca of Bedfordshire progressed steadily during 1973. Only one new species was added to the county list, viz. Limax cinereoniger Wolf from Dedmansey Wood, Nr. Studham on May 6th 1973. This is our largest British slug and one specimen was found under rotten wood.

The following species have now been recorded from every 10 Km. square in Bedfordshire:-

Lymnaea truncatula (Müller)

Lymnaea peregra (Müller)

Cochlicopa lubrica (Müller)

Clausilia bidentata (Ström)

Cepaea nemoralis (L)

Hygromia striolata (C. Pfeiffer)

Hygromia hispida (L)

Hygromia liberta (Westerlund)

Monacha cantiana (Montagu)

Discus rotundatus (Müller)

Arion intermedius Normand

Arion circumscriptus Johnston

Arion hortensis Férussac

Oxychilus cellarius (Müller)

Oxychilus helveticus (Blum)

Retinella nitidula (Drapernaud)

Vitriina pellucida (Müller)

Agriolimax reticulatus (Müller)

I would like to thank all those who sent specimens to me during the year and I hope that more members will contribute during 1974, especially those living in the north of the county.

E. B. RANDS

LEECHES AND FLATWORMS

During 1973 many leeches and flatworms have been examined during extensive field work in river, pond and ditch habitats in the county. The following checklist has been compiled as a result of this field work.

Phylum : ANNELIDA

Class : HIRUDINEA

Piscicola geometra (L)

Theromyzon tessulatum (O. F. Müller)

Hemiclepsis marginata (O. F. Müller)

Glossiphonia heteroclita (L)

Glossiphonia complanata (L)

Helobdella stagnalis (L)

Haemopsis sanguisuga (L)

Erpobdella octoculata (L)

Phylum : PLATYHELMINTHES

Class : TURBELLARIA

Order : TRICLADIDA

Dugesia polychroa (Schmidt)

Planaria torva (O. F. Müller)

Polycelis nigra (O. F. Müller)

Polycelis tenuis Ijima

Polycelis felina (Dalyell)

Dendrocoelum lacteum (Müller)

References

- Mann, K. H. 1961 Leeches (Hirudinea) Their structure, Physiology, Ecology and Embryology. Pergamon Press.
- Mann, K. H. 1964 A key to the British Freshwater Leeches with notes on their Ecology. Freshwater Biological Association, Scientific Publication No. 14.
- Reynoldson, T. B. 1967 A key to the British species of freshwater Triclad. Freshwater Biological Association, Scientific Publication No. 23.

E. B. RANDS

SPIDERS (Araneae)

The British list of spiders contains 611 species of which 181 have been found in Bedfordshire. A detailed report is being prepared for the 1974 Journal, and will include a literature survey of previous work in this county on spiders and other arachnids.

T. J. THOMAS

LEPIDOPTERA

The summer of 1973 was certainly an improvement on 1972 and more butterflies were in evidence. (31) Painted Lady Vanessa cardui L. was still scarce but (30) Red Admiral Vanessa atalanta L. were about in hundreds. Several records of (58) Small Copper Lycaena phlaeas L. were sent in to me and it is to be hoped that this species is about to improve its status. I saw two very worn specimens feeding at Ivy blossom along with Red Admirals which were in their prime on August 14th.

The recording of the moth population of Hardwick Spinney, Stagsden continued and a total of 134 species has now been recorded. Included in this total was (592) Green Silver Lines Bena prasinana L. which was my first county record for this species. An unexpected species was (111) Iron Prominent Notodonta dromedarius L. whose larvae are Birch feeders.

The mothing evening of Saturday 4th August at Oakley Bridges was well attended, but unfortunately it turned out to be a wet evening and this affected the operation of the generator, so it was decided to abandon the meeting early.

I received three species not previously recorded by me from Mr D. Manning of Sharnbrook; these were (411) Large Wainscot Rhizedra lutosa Hübn. (648) Straw Point Rivula sericealis Schiff. (918) Lilac Thorn Apeira syringaria L. The latter was a female, so I 'sleeved' her out on a Privet bush in my garden where she laid some eggs and I now have a few overwintered larvae which I hope may eventually produce some moths to release in the garden.

I am indebted to the following members who kindly sent in Records:- Mrs N. Dawson, B. Rands, V. Sharman, and Messrs N. Burns, D. Silver, R. Wyatt, M. Seaman, V.W. Arnold, D. King, A. Ford, C.W. Burton, R. Frith, H. Felce.

Bracketed numbers refer to Check list of British Macrolepidoptera by I. R. P. Heslop 1961.

In Journal No. 27 1972 a list of 116 species recorded from July to October 1972 was given. Trapping was continued into 1973 to complete a period of 12 months. The following additional species were recorded:

111.	Iron Prominent	Notodonta dromedarius L.
120.	Pale prominent	Pterostoma palpina Clerck.
162.	Barred Hood-tip	Drepana cultraria F.
323.	Red Chestnut Rustic	Cerastis rubricosa Schiff
382.	Common Hebrew Character	Orthosia gothica L.
384.	Small Quaker	Othosia cruda Schiff.
385.	Common Quaker	Othosia stabilis Schiff.
387.	Clouded Drab	Othosia icerta Hufn.
388.	Twin-spot Quaker	Othosia munda Schiff.
473.	Large Angle-shades	Phlogophora meticulosa L.
488.	Rosy Ear	Gortyna micacea Esp.
494.	Lesser-spotted Pinion	Cosmia affinis L.
502.	Copper Underwing	Amphipyra pyramidea L.
580.	Brown Spot Chestnut	Anchoscelis litura L.
592.	Green Silver-lines	Bena prasinana L.
631.	Beautiful Golden Y	Plusia pulchrina Haw.
669.	March Usher	Alsophila eascularia Schiff.
832.	Yellow Waved carpet	Hydrelia flammeolaria Hufn.
866.	Grey Pug	Eupithecia castigata Hübn.
874.	Ash Pug	Eupithecia fraxinata Crewe.
899.	Barred Light Green	Campaea margaritata L.
907.	Dotted Border	Erannis marginaria F.

W. J. CHAMPKIN

DRAGONFLIES

Forty three species of dragonfly are known to breed in Great Britain. Of these about twenty eight species have been recorded in the past for the Vice County of Bedfordshire. Although big and gaudy they are rather tricky to identify in the field as the 'young' and 'old' adults differ in colour, as well as the males and females, and colour varieties are often common.

This has been my first season as recorder, and with the help of Dr Bernard Nau and Mr W. Champkin I have managed to get eighty records of fourteen species. Many former pits and ponds that harboured rare species have now gone, and some species, notably the two green damselflies of the genus Lestes, have suffered accordingly, but it is heartening to see how quickly many species colonise newly created habitats. For instance the Lodge Lake at Sandy which was dug out in December 1968, now has five breeding species including the rare and beautiful Emperor Dragonfly, Anax imperator and the powder blue darter dragonfly, Orthetrum cancellatum. This last species has become very common on the Ouse, east of Bedford, males holding territories every twenty yards or so. Another uncommon dragonfly that was plentiful everywhere this autumn was the Scarce Aeshna, Aeshna mixta.

I would much appreciate help from the Society in two ways. First I would like bodies - however mangled - of dragonflies knocked down by cars. Just the remains with a good reference would be sufficient. Secondly, while verbal descriptions cannot be used for identifying dragonflies, coloured slides or photographs are often easily named. Two records in 1973, from Alan Outen and Mrs Walker were obtained in this way.

NANCY DAWSON

BUGS

Some additions to the list of Bedfordshire bugs (Hemiptera-Heteroptera)

Since the compilation of the list of bug species known from Bedfordshire (ref.1) eight new species have come to notice as follows:

Peritrechus geniculatus (Hahn) - this is a ground bug of the family Lygaeidae and a single specimen was found on the verge of the A6 road adjoining Maulden Wood during a field meeting on 5th September 1973.

Cymus melanocephalus Fieber - a specimen of this stilt bug (Berytinidae) was found in ground litter in a partially dry pond in Maulden Church meadow, by Mr T. Thomas in September 1973.

Empicoris culiciformis (Degeer) - said to occur in disused sparrow nests and amongst faggots, single specimens of this assassin bug (Reduviidae) were found in the author's bathroom on 5th August and 5th September 1973.

Dicyphus constrictus (Boheman) - a specimen of this plant bug of the family Miridae was collected from Hedge Woundwort (Stachys sylvatica) in Toddington on 8th June 1973. This plant is the bug's usual host.

Lygocoris contaminatus (Fallen) - a single specimen of this plant bug was taken by sweeping Birch at Flitwick Moor on 22nd July 1973, Birch is this bug's usual host.

Mesovelia furcata Mulsant and Rey - discovered on the lake in Ampthill Park by Mr C. Banks on 3rd August 1973. There was subsequently found to be a considerable population of this delicate surface dwelling bug amongst the leaves of Fringed Water-lily (Nymphaoides peltata).

Aphelocheiris aestivalis (Fabricius) - this was the find of the year. It is an aquatic bug living its entire life under water and able to breathe oxygen from the water by means of a film of air retained in a pile of fine hairs covering the body. Having searched in vain in various suitable-looking fast flowing rivers in the home counties in recent years it was most pleasing to find a colony in the wier pool on the River Ouse at Bromham, this was during the field meeting on 2nd June 1973. Possible sites exist east of Bedford but have not been searched, they are in danger from planned canalisation of the river.

Arctocoris germari (Fieber) - several found in a concrete pool on the lawns of Sandy Lodge. This waterboatman (Corixidae) is a species which occurs in upland waters but also in Hertfordshire in waters containing treated sewage effluent.

ref.1: Nau, B.S. 1974. A checklist of Bedfordshire Hemiptera-Heteroptera.
Beds. Nat. Hist. Soc. Ann. Rep. No. 27.

B.S. NAU

BIRDS

INTRODUCTION

Although the volume of records was about the same as in each of the previous two years, slightly fewer species were recorded in Bedfordshire in 1973 - about 159, of which seven were recently feral or probable escapes. Regular coverage of most of the wetland areas in both winters produced rather low numbers and variety of

waterfowl, due to the mildness of the weather; and once again wader and tern passages were unexciting, despite good coverage. During the summer, Black Redstarts bred successfully in the county for the first time, and Canada Geese and Ringed Plovers continued to spread as breeding birds. On the other hand, there were no breeding records of Firecrest and Red-backed Shrikes seem to have permanently deserted us.

Unusual records of local significance for which descriptions are required continued to be adjudicated by the county Records Committee (see Bedfordshire Naturalist for 1971, pp. 24-26, for details of recording, list of unusual species, etc.). Field-work for the tetrad survey of breeding birds continued, and a complete exchange of records with the Hertfordshire N. H. S. (which has a similar project) was effected for tetrads shared with that county. Other censuses in which Society members participated included those on winter roosting gulls, nesting gulls, migrant waders, wintering wild-fowl and Common Birds Census.

An article on the five-year Atlas of Breeding Birds project of the British Trust for Ornithology appears elsewhere in this issue.

A number of additions and corrections to previous annual reports are given in the appropriate places in the main body of the Systematic List.

LIST OF CONTRIBUTORS (Non-members underlined)

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SYSTEMATIC LIST FOR 1973

Species recorded in Bedfordshire during 1973, and not included in the systematic list, are: Kestrel Falco tinnunculus (0-2-19), Red-legged Partridge Alectoris rufa (0-0-21), Pheasant Phasianus colchicus (0-0-21), Stock Dove Columba oenas (0-1-20), feral pigeon Columba livia (2-3-11), Woodpigeon Columba palumbus (0-0-21), Great Spotted Woodpecker Dendrocopos major (4-4-13), Lesser Spotted Woodpecker Dendrocopos minor (5-7-9), Skylark Alauda arvensis (0-0-21), Carrion Crow Corvus corone corone (0-0-21), Rook Corvus frugilegus (0-0-21), Jackdaw Corvus monedula (0-0-21), Magpie Pica pica (2-2-17), Jay Garrulus glandarius (1-1-19), Great Tit Parus major (0-0-21), Blue Tit Parus caeruleus (0-0-21), Coal Tit Parus ater (1-1-19), Marsh Tit Parus palustris (0-3-18), Willow Tit Parus montanus (0-1-20), Long-tailed Tit Aegithalos caudatus (0-0-21), Nuthatch Sitta europaea (5-1-11), Treecreeper Certhia familiaris (0-2-19), Wren Troglodytes troglodytes (0-0-21), Song Thrush Turdus philomelos (0-0-21), Blackbird Turdus merula (0-0-21), Dunnock Prunella modularis (0-0-21), Meadow Pipit Anthus pratensis (1-3-13), Pied Wagtail Motacilla alba yarrellii (0-0-21), Starling Sturnus vulgaris (0-0-21), Greenfinch Carduelis chloris (0-0-21), Goldfinch Carduelis carduelis (0-0-21), Linnet Acanthis cannabina (0-0-21), Chaffinch Fringilla coelebs (0-0-21), Yellowhammer Emberiza citrinella (0-0-21), Corn Bunting Emberiza calandra (0-4-17), Reed Bunting Emberiza schoeniclus (0-0-21), House Sparrow Passer domesticus (0-0-21), and Tree Sparrow Passer montanus (0-0-21).

The following abbreviations are used in the text: SF = Sewage Farm, ChP = Chalk Pit, CIP = Clay Pit, GP = Gravel Pit, SP = Sand Pit, L = Lake, NR =

Nature Reserve. All records are of single birds unless otherwise stated.

Great Crested Grebe Podiceps cristatus

0-0-15

A good breeding season, with at least 40 young raised by 24 pairs at ten localities, these and a further seven sites holding some 30 other birds during early summer. The largest post-breeding counts were of c 50 at Vicarage Farm CIP on 29th July, and c 45 at Stewartby L on that date and on 16th December.

Additional 1968-70 records: One pair raised young at Tingrith L in 1968 and birds were seen there in 1969 (WGS). One pair raised young at Cityfields GP, Henlow, in 1970 (AH).

Little Grebe Tachybaptus ruficollis

1-4-15

Ten pairs raised at least 17 young at seven localities, and these and seven further places held about 20 more adults during April-July, of which some almost certainly nested (this species being very elusive in the breeding season). The largest recorded gathering involved 27 at Blunham GP on 18th February (AZ).

Manx Shearwater Puffinus puffinus

One was picked up exhausted at Biggleswade Common on 4th September and released on the Norfolk coast the following day (per RGH).

Cormorant Phalacrocorax carbo

An unprecedented series of records at Wyboston GP, as follows: four immatures on 14th and 21st January, three immatures on six dates from 25th February to 14th April, two on 25th April, an adult on six dates from 22nd June to 8th July, a first-summer bird on 21st July and both on 13th August, and two adults and a second-winter bird on 18th November and 15th December. There were also up to five in early 1974. These birds appear to be part of a small population becoming established in the lower Ouse Valley and based on Grafham Water (Hunts). The only other records were of one flying south-east over Houghton Regis ChP on 14th May (SW) and one, possibly two, at Blunham GP on 8th August (DJA).

Grey Heron Ardea cinerea

12-0-4

Ten occupied nests at the Southill L heronry on 18th March (MRS). A pair was also reported to be attempting to nest at Ickwell Bury in both 1972 and 1973 (Keeper, per JTRS).

Purple Heron Ardea purpurea

An adult was found shot at Caddington in August (date unknown); the head was preserved (per CB). This record has been accepted by the Rarities Committee of British Birds.

Flamingo Phoenicopterus ruber

One at Wyboston GP on 9th December (AT) had almost certainly escaped from captivity; it had gone by the following morning.

Mallard Anas platyrhynchos

0-0-21

The maximum monthly counts at selected localities from January to March and from September to December are tabulated. In this and the following tables ' - ' indicates that no count was received.

	Jan	Feb	Mar	Sept	Oct	Nov	Dec
Brogborough CIP	36	20	3	-	130	80	400
Chawston GP	70	-	-	-	-	170	35
Harrold L & GP	52	65	42	150	120	162	96
Luton Hoo L	213	100	20	300	230	206	350
Southill L	410	115	40	165	600	340	340
Vicarage Farm CIP	190	-	15	-	-	17	150

The highest concentration during the breeding season was of c50 pairs (and young) at Brogborough CIP in June. The only other three-figure counts were of more or less tame birds at Bedford Park (200 in January), R. Ouse in Bedford (245 in January, 284 in September), Wardown Park, Luton (307 in September; 292 in October) and Woburn Park (260 in January, 283 in November). Totals of less than 100 were recorded at many other localities in all months. The highest monthly county total was about 2,000 in January.

Teal Anas crecca

9-1-1

The maximum monthly counts at selected localities from January to March and from September to December are tabulated.

	Jan	Feb	Mar	Sept	Oct	Nov	Dec
Bedford SF	80	-	41	5	8	60	130
Harrold L & GP	14	20	26	30	5	8	11.
Luton Hoo L	45	22	7	30	18	25	3
Southill L	60	20	21	110	160	57	19
Vicarage Farm CIP	6	-	-	30	-	6	15
Wyboston GP	23	2	5	-	3	24	28

Summer records involved a drake at Sandy north GP on 24th June and one at Luton Hoo L on 17th-18th July. Totals of up to 20 were recorded during January - May and September - December at 13 other localities, and there were up to 15 at Bedford SF in August. The highest monthly county total was about 275 in January.

Garganey Anas querquedula

1-0-0

The only record was of a drake on floodwater near Sandy SF on 7th April, which had gone by 9th (PNH).

Additional 1971 record: Five at Stagsden in late August and September (SEBJ).

Gadwall Anas strepera

1-0-1

One or two at three sites in March, and up to six at three sites from 23rd October. All localities were in the lower Ouse/Ivel Valley except Brogborough CIP (single bird on 16th December).

Wigeon Anas penelope

Two remarkable summer records were of pairs at Brogborough CIP on 24th June (AJL) and at Dunstable SF on 26th July (AJL, MRS). Otherwise there were up to nine at eleven localities between 1st January and 4th April, and up to seven at five sites from 30th September. The highest county total by far was 32, very widely spread over ten localities, in January.

Pintail Anas acuta

The only records were of a pair at Dunstable SF from 22nd to 24th April (BJN, BS, MRS, SW) and what was probably a female at Bedford SF on the unusual dates of 29th-30th July (PFB, AJL, MRS).

Shoveler Anas clypeata

4-1-3

Single pairs bred at Sandy SF (4 - 5 young) (PNH) and Luton Hoo L (12 young) (AJL). Otherwise one to five at eight localities up to 21st April. Up to seven at Dunstable SF during 26th-31st July, and up to eight at Bedford SF between 29th July and 6th August. Recorded at seven places from 2nd September, with maxima (all in mid-November) of 17 at Eversholt L/Battlesden L, 15 at Luton Hoo L and 12 at Blunham GP.

Mandarin Aix galericulata

A pair raised at least five ducklings from a clutch of ten eggs at the Old

Linslade site of the previous year, and a second adult female was seen there on 15th May (HMG et al.). Five drakes and two ducks in Woburn Park on 7th January (probably introduced stock present all year), and a drake at Luton Hoo L, a new site, on 16th December (AJL, MRS).

Wood Duck Aix sponsa

A tame female on R. Ouse in Bedford from at least 21st January, still present in spring 1974 (PFB et al.).

Tufted Duck Aythya fuligula

2-2-13

An excellent breeding season, with 81 young in 17 broods seen at nine localities, and pairs present during May - July at seven other places. In addition c20 pairs bred at Felmersham NR. The largest summer gathering was of c120 at Vicarage Farm CIP on 29th July. Outside the breeding season the only counts of more than 150 were of 272 at Blunham GP on 14th January and 226 at Wyboston GP on 25th February, and the highest monthly county total was only about 675 in January.

Additional 1970 record: One pair laid eggs at Cityfields GP, Henlow (AH).

Pochard Aythya ferina

3-0-9

Broods of two young seen at Luton Hoo L and of three at Southill L; also present in the breeding season at Battlesden L, Brogborough CIP, Vicarage Farm CIP (where a very large concentration of c200 on 21st July) and Wyboston GP, but no proof of breeding. The maximum monthly counts at selected localities from January to March and from October to December are tabulated.

	Jan	Feb	Mar	Oct	Nov	Dec
Blunham GP	150	25	123	36	48	-
Brogborough CIP	60	200	3	150	25	80
Southill L	52	115	3	80	70	9
Stewartby L	3	-	-	-	-	204
Vicarage Farm CIP	80	-	-	120	7	-

The highest monthly county total was 450 in January.

Additional 1970 record: One pair raised young at Cityfields GP, Henlow (AH).

Goldeneye Bucephala clangula

Up to six at Stewartby L/Vicarage Farm CIP up to 13th May, and then at four localities from 23rd October, maximum ten at Stewartby L on 30th December.

1972 correction: For 26th March read 26th February.

Goosander Mergus merganser

A male and female at Stewartby L on 14th January (BDH) and a female at Southill L on 18th November (MRS).

Shelduck Tadorna tadorna

1-0-2

A pair at Dunstable SF on 11th, 16th and 25th March, four there on 22nd July and three immatures from 26th to 29th (many observers); an adult at Luton Hoo L on 16th and 23rd September (AJL, MRS); three south-west over Sandy Lodge on 28th November (TPI); and two at Wyboston GP on 3rd December (CSR, JTRS).

Grey geese Anser sp

A flock of about 100 at Heath and Reach on 12th October were considered to be probably White-fronts (PS).

Greylag Goose Anser anser

4-0-3

Introduced stock or birds descended from them were seen at ten localities,

breeding occurring at Blunham GP (at least 30 young from four pairs), Felmersham NR (one pair, two young), Girtford GP (one pair, five young), and R. Ouse at Wyboston GP (domestic stock: clutch of 12, but nest robbed).

White-fronted Goose Anser albifrons

Single birds with feral Greylags at Blunham GP in February and March (AZ) and at Felmersham NR on 11th March (JTRS).

Canada Goose Branta canadensis 4-0-6

At Luton Hoo L, 14 birds in January decreased to two pairs in the summer, which raised broods of one and five, and these were augmented by more birds during the autumn to make 20 in November and December. Single pairs bred successfully at Battlesden L (five young) and Eversholt L (no details available). Up to 12 seen at seven other waters, plus up to 55 artificially introduced birds in Woburn Park and up to 30 in Wrest Park, the latter including two apparent Greylag X Canada hybrids.

Mute Swan Cygnus olor 0-0-17

A total of 24 young reported and a winter population of about 100 birds.

Bewick's Swan Cygnus bewickii

An adult at Southill L on 16th December (BJN, MRS) was the only report.

Buzzard Buteo buteo 2-0-0

At Luton Hoo Park, what was presumably the bird overwintering from 1972 was reported on 9th March (Head Keeper, per AJL), then two from 16th September onwards (AJL, MRS, PS and Head Keeper). One over Milton Wood, Woburn Park, on 11th November (BDH, AJL, MRS).

Buzzards not specifically identified were seen at Sandy Lodge on 17th October (TOJ) and 6th November (AC, HM).

Rough-legged Buzzard Buteo lagopus

One at Pegsdon Hills on 26th October (MT) coincided with a large influx on the east and south coasts.

Sparrowhawk Accipiter nisus 8-4-3

The only accepted record was of a female near Ravensden on 24th March (DL). This species does not seem to be maintaining a foothold in Bedfordshire and all records (with field notes) are required.

Osprey Pandion haliaetus

An immature bird on autumn passage stayed at Luton Hoo Park from 16th September to 17th October (AJL et al.).

Hobby Falco subbuteo 6-1-2

A probable migrant at Sandy Lodge on 1st May (RGH), and one in suitable breeding habitat in the north-west of the county on 18th May (JTRS). A pair, which may have bred, was seen in the north-east during June-July and was often watched hawking for Summer Chafers Amphimallon solstitialis (many observers).

Partridge Perdix perdix 0-0-21

A gathering of c50 in one field near Bedford SF on 21st January was quite exceptional (PFB).

Quail Coturnix coturnix 2-8-1

One calling from a field of mignonette Reseda near Streatley on 17th June (MRS)

and two heard calling from wheat and barley fields near Dunstable from 26th June to 18th July (WEG, CLM).

Additional 1971 record: A male heard calling at the second locality above on 13th June (CLM *et al.*).

Golden Pheasant Chrysolophus pictus 2-0-0

Feather found at Moneypot Hill, Millbrook, in June (JTRS).

Lady Amherst's Pheasant Chrysolophus amherstiae 1-1-5

About ten pairs of feral birds in Luton Hoo Park raised a total of five young (*per* AJL). Up to three males, including a young bird, seen in Charle Wood (EMPA, KKH, PS *et al.*). Also known to be present in Maulden Wood and the Old Warden area.

Water Rail Rallus aquaticus 4-4-3

Up to four at Flitwick Moor during January - April and September - December; one there on 22nd July (BSN). Elsewhere, one or two at Harrold GP, Langford GP and Stotfold up to 27th March, and at Bedford SF, Chalton SF. East Hyde, Harrold GP, Luton Hoo L, Luton SF and Wyboston GP from 16th September.

Moorhen Gallinula chloropus 0-0-21

A very large concentration of c180 at Blunham GP on 14th January (AZ).

Coot Fulica atra 0-0-21

On 24th June about 160 adults were seen at Blunham GP, and at nearby Girtford and Sandy GP's 11 pairs had 40 young (PFB). The highest monthly county total was c1,700 in January, but the largest flocks were of c465 at Wyboston GP and c450 at Chimney Corner CIP in December.

Lapwing Vanellus vanellus 0-0-21

About 1,000 at Copt Hall, Luton, in late January and February (MRS). A west to south-west cold weather movement during 27th November - 4th December produced a peak passage of c250 south-west over Pulloxhill, Westoning and Toddington in only 35 minutes on the morning of 29th (JPK).

Ringed Plover Charadrius hiaticula 0-0-2

Spring passage and breeding: Harrold GP, one on 4th March, two by 10th, three by 25th; two pairs up to late June but breeding not proved. Wyboston GP, two from 29th March; two pairs in June and a nest with four eggs, but these failed to hatch and all birds had left by 21st July (this was the site of the 1971 and 1972 breeding). Stewartby L, a pair on 20th and 28th May. Sandy GP, a pair vigorously defending territory in June and July, and a nest with four eggs reported, but the birds had left by 12th July. This species is rapidly becoming established as a breeding bird at gravel pits etc. in south Hunts and north Beds, where it occupies the same sites as Little Ringed Plovers.

Autumn passage: A juvenile at Houghton Regis ChP on 26th July, then up to five in that area (mainly at Dunstable SF) during 19th - 30th August. One at Harrold GP on 16th September.

Little Ringed Plover Charadrius dubius 0-2-8

Spring passage and breeding: Wyboston GP, two on 29th March, three by about 6th April, two pairs in May; during June - August two pairs each raised two young to the flying stage, but a third pair with a clutch of four eggs hatched only one and this died; at least one other adult summered. Harrold GP, up to six adults from 4th April to 22nd August; three clutches laid but no sign of young. Houghton Regis ChP, a pair present from 23rd April reared one young. Sandy GP, up to five pairs in June and July, one of which raised two young. Also single birds or pairs at Bedford SF,

Blunham GP, Dunstable SF, Heath and Reach SP and Stewartby L during 15th April - 20th May.

Autumn passage: Singles at three localities during 22nd - 29th July, four at Bedford SF on 27th July and up to three until 5th September, and two at Cityfields GP, Henlow, in September.

Golden Plover Pluvialis apricaria

Recorded at 11 localities up to 31st March and from 6th October. The only flocks of more than 50 were of up to c400 at Copt Hall, Luton, in January and February (AJL, MRS), and c180 at How End, Ampthill, on 14th January, with c220 there on 18th November (DG, BDH, BJN).

Turnstone Arenaria interpres

One at Houghton Regis ChP on 29th July (BJN, BS).

Snipe Gallinago gallinago

5-6-7

Again extremely scarce during the breeding season, the only May - June reports being of one or two in the Linslade area, at Sandy Lodge and at Wyboston GP; the persistent dry weather was probably the cause. Widespread outside the breeding season when recorded from about 25 localities. The highest numbers were at Bedford SF - c50 in January, most leaving in mid-March, and in late summer the first bird on 22nd July, numbers increasing steadily to c45 by late October.

Jack Snipe Lymnocyptes minimus

Up to four at Bedford SF in January and singles there and at Chalton SF and Dunstable SF between 8th March and 1st April. First in autumn, one at Bedford SF on 22nd September and two on 30th, increasing to three on 4th November, which stayed into 1974. Four at Chalton SF on 2nd December, and singles at seven other sites.

Additional 1972 record: One by R. Ivel at Stotfold from 6th October (MT).

Woodcock Scolopax rusticola

2-6-9

Reported during March - July at seven localities; several pairs bred at Maulden Wood and three pairs at Sandy Lodge (at least one successful). Up to six shot in a day on autumn shoots at Luton Hoo Park.

The bird shot near Toddington in December 1972 (see last report) had been ringed as a juvenile on 5th November 1972 at Kaergård Plantage (Jutland), Denmark.

Curlew Numenius arquata

0-1-0

Three at Biggleswade Common on 28th April (DJK et al.), one south over Maulden Wood on 22nd July (BSN), two at Bedford SF briefly on 12th August (CA) and one at East Hyde on 19th August (MRS).

Whimbrel Numenius phaeopus

One north at Sandy Lodge on 1st May (RGH) and one over Dunstable SF on 21st August (MRS).

Black-tailed Godwit Limosa limosa

One at Wyboston GP on 6th August (MT).

Bar-tailed Godwit Limosa lapponica

Two at Luton Hoo L on 16th September (AJL).

Green Sandpiper Tringa ochropus

One at Astwick SF and two at Bedford SF and Stotfold up to 7th February. No spring records, but at ten sites from 24th June; no more than three birds at any site

except at Bedford SF where up to seven in July, October and November.

Additional 1972 record: Two at Stotfold from 6th October into 1973 (see above) (MT).

Wood Sandpiper Tringa glareola

One at Dunstable SF on 22nd July (BJN, BS) was the only report.

Common Sandpiper Tringa hypoleucos 2-1-0

Spring passage: Singles at Houghton Regis ChP on 8th April and 1st May, at Dunstable SF on 17th April and 17th - 20th May, and at Harrold GP on 6th May.

Autumn passage: Bedford SF, from 21st July to 5th September, maximum seven on 2nd and 23rd August. Dunstable SF, from 22nd July to 30th September, maximum eight on 23rd August. Up to four (but mainly single birds) at 12 other localities from 12th July to 30th September, plus a late migrant at Houghton Regis ChP on 24th October.

Redshank Tringa totanus 2-3-10

Between 4th March and 9th August up to eight were recorded at 17 localities. Breeding was suspected at most of these and proved at Houghton Regis ChP (2 - 3 young). Subsequent records were of one at Stewartby L on 21st September, two at Vicarage Farm CIP on 25th September and one on 30th December, and singles at Chalton SF on 11th November and at Luton SF on 30th November.

Greenshank Tringa nebularia

No spring records. In autumn single birds at Vicarage Farm CIP on four dates between 29th July and 25th September, up to two at Bedford SF during the same period, three at Stewartby L on 9th August and two there on 1st September, and one flying over Chalton SF on 4th September.

Little Stint Calidris minuta

Bedford SF, two on 15th September (DMC) and one on 30th (PJT). Dunstable SF, two on 18th September, three on 19th, one on 22nd and 23rd, and two on 29th and 30th (AJL, MRS et al.).

Dunlin Calidris alpina

Spring passage: Harrold GP, up to four between 10th March and 29th April. Stewartby L, an exceptional spring flock of 15 on 25th March. Dunstable SF, two on 1st April. Bedford SF, one on 29th April.

Autumn passage and winter: Seen at seven localities from 21st July, notable records being 14 at Wyboston GP on 6th August, 12 at Vicarage Farm CIP on 21st October and 14 there on 30th December, and one at East Hyde on 2nd December. All the winter records are unusual.

Pectoral Sandpiper Calidris melanotos

One at Dunstable SF from 29th September to 6th October (PFB, BDH, AJL, BJN, MRS et al.).

Ruff Philomachus pugnax

Winter: One at Whipsnade Zoo from 25th to about 31st January (GJB, AJP).

Spring passage: Single birds at Bedford SF on 17th March and at Harrold GP on 25th March.

Autumn passage: Bedford SF, from 27th June to 4th November, maximum six on 5th and 12th September. Dunstable SF, from 22nd August to 6th September, maximum four on 27th, then one on 30th September. Stewartby L/Vicarage Farm CIP, two on 21st September and three on 29th. Brogborough CIP, one on 23rd September.

Gulls Larus spp

During winter 1972/73 the British Trust for Ornithology organised a national census of roosting gulls. On 14th January a count by about a dozen observers at the county's only large roost, at Stewartby L, was arranged by AJL. This amassed an overall total of almost 25,000, made up of about 24,000 Black-headed and Common (in an estimated ratio of 8 or 9 to 1) and 1,000 Herring and the two black-backs together (about 7 Herring to 3 black-backs). A similar count on 11th March 1962 produced only about 11,000 gulls, though some 1,500 of these were of the three large species.

Great Black-backed Gull Larus marinus

A high count of c200 at Brogborough CIP/rubbish tip on 16th December (MRS).

Lesser Black-backed Gull Larus fuscus 0-0-1

At Brogborough CIP four to seven pairs held territories in May, and among 146 adults counted on 24th June one was feeding a well-grown juvenile (AJL). Autumn peak at Dunstable SF was c400 on 24th October (BDH).

Black-headed Gull Larus ridibundus 0-0-5

A special effort was made by AJL and helpers to census breeding pairs in the clay pits, as part of a national BTO enquiry. On 13th May pairs with nests were found at Chimney Corner (21), Millbrook (8 - 9), Vicarage Farm (c35) and Brogborough (150 - 200), and at the last locality many young birds were seen on 24th June. There was no evidence of breeding in the Ouse/Ivel Valley.

Other records of interest were of a bird at Harrold GP on 20th May with a hooked, decurved bill at least $1\frac{1}{2}$ - 2 times normal length (AJL), and of an albino at Vicarage Farm CIP on 29th July (MRS).

Little Gull Larus minutus

An adult at Stewartby L on 29th September (PFB, MRB, MRS).

Black Tern Chlidonias niger

Five at Stewartby L on 29th April and six on 28th May (AP). At this locality in autumn, two on 3rd - 5th August, three on 27th, two on 29th and one on 1st September, and four on 29th September (PFB, AJL, AP, MRS, JTRS); two at Wyboston GP on 6th August (MT), one at Dunstable SF on 21st August (AJL, MRS), and one north over Girtford GP on 29th September (DJK, TS).

Common Tern Sterna hirundo 0-0-2

Clapham GP, one on 7th May. Wyboston GP, two pairs on 13th May, one of which later raised two young (which fledged at the end of June); seven, including five juveniles, on 21st July, and five on 13th August. Harrold GP, one on 20th May and 21st June, and two on 22nd July. Blunham GP, a pair in June but no evidence of breeding. Sandy GP, a pair on eggs on 24th June but nest apparently flooded; three adults over south on 12th July. Stewartby L/Vicarage Farm CIP, two adults and a juvenile in late July and early August, the juvenile staying to 29th September.

Common/Arctic Tern Sterna hirundo/paradisaea

At Stewartby L, 18 on 29th July, two on 29th August, six on 13th September and four on 21st. Seventeen at Wyboston GP on 6th August and four south-west low over Luton on 5th September.

Guillemot Uria aalge

One found moribund at Pulloxhill on 15th September died the same day (per RGH).

Turtle Dove Streptopelia turtur 0-1-20

First, an exceptionally early one at Sandy on 5th April (supported by field notes)

(SH), followed by one flying north at Wyboston GP on 14th (PFB). Last at Luton Hoo Park on 23rd September (MRS).

Collared Dove Streptopelia decaocto 0-5-15

An unusual flock of 44 at Dunstable SF on 28th October, including one bird of the buff variety (see British Birds, 66: 373 - 376) (MRS).

Cuckoo Cuculus canorus 0-2-19

First at Sandy Lodge (MJE, MM) and Streatley (WR, per MRS) on 24th April; very soon widespread. Last, an adult at Dunstable SF on 19th August (BS, MRS).

Barn Owl Tyto alba 6-4-10

An encouraging increase in records. Nesting pairs were located at Caddington (young reared) and in the Astwick/Stotfold and Ravensden/Thurleigh areas, and single birds or fresh pellets found at 12 other widely spaced localities, mostly during the breeding season.

Little Owl Athene noctua 0-1-20

Recorded at 20 widespread localities, though little evidence of breeding.

Tawny Owl Strix aluco 0-1-20

Widespread. In 15 - 20 square miles from Bedford north to Ravensden and west to Stagsden, including the town itself, birds were recorded at 17 sites and four nests found (eggs, two young, two young and one young) (DL, PCP et al.). Seven pairs known in the Stotfold/Astwick/Arlesey area (MT et al.).

Short-eared Owl Asio flammeus

One at regular wintering site south of Upper Stondon in both January - February and December (CWB).

Nightjar Caprimulgus europaeus 2-9-1

Single pairs bred at three localities on the greensand belt, and two birds were heard churring on several dates at a fourth site; records extended from 30th May to 26th July (AGF, RGH, BSN, JTRS, foresters et al.).

Swift Apus apus 1-0-20

First, three at Dunstable SF (AJL) and one at Sandy Lodge (RGH) on 2nd May; c200 at Stewarby L by 6th (AP) and e1,000 passing over this water in 40 minutes on 13th (PS). Last at Shefford on 2nd September (MRS).

Kingfisher Alcedo atthis 1-1-16

Recorded at 23 localities, but little evidence of breeding.

Hoopoe Upupa epops

One at Houghton Regis ChP on 1st May (JP, SW et al.).

Green Woodpecker Picus viridis 0-7-14

An unusual record was of one flying over Luton town centre on 4th August (BJN).

Swallow Hirundo rustica 0-0-21

First, about 12 over Longholme, Bedford (RBS) and one at Sandy Lodge (JPK) on 15th April; last at the Lodge on 29th October (RGH).

House Martin Delichon urbica 0-0-21

First over Longholme, Bedford, on 12th April (RBS); last at the Lodge on 28th

October (RGH).

Sand Martin Riparia riparia

3-0-15

First, about 12 at Stewartby L on 8th April (AP); last at Southill L on 22nd September (MRS).

Golden Oriole Oriolus oriolus

A male heard continually for 35 minutes at Sandy Lodge on 21st May (TPI et al.).

Hooded Crow Corvus corone cornix

One at Brogborough rubbish tip on 16th December showed the characters of this subspecies (BJN, MRS).

Bearded Tit Panurus biarmicus

Two males and a female remained at Dunstable SF from 1972 until at least 17th February (RD, BJN, MRS, KRW); two at Wyboston GP on 19th April (MT) and one at Sandy GP on 17th October (PFB, DAC).

Mistle Thrush Turdus viscivorus

0-0-21

A flock of c60 feeding on rowan berries Sorbus aucuparia near Shire Oak, Heath and Reach, on 1st September was considered exceptional (MRS).

Fieldfare Turdus pilaris

Scarce both winters. Last in spring, two at Old Warden on 27th April (JTRS). First in autumn, c25 over Putnoe, Bedford, on 22nd September (DL); largest flock reported, c200 at Pegsdon Hills on 9th December (BS).

Redwing Turdus iliacus

Like Fieldfare, generally scarce. Last spring migrant at Sandy Lodge as late as 8th May (JCS), though very few anywhere after early April. First in autumn, c5 over Putnoe, Bedford, on 23rd September (DL); peak movements noted by RGH at Sandy Lodge on 1st and 3rd October (total nearly 900), but largest feeding flock reported was only 60 at Wyboston GP on 18th November (PFB).

Wheatear Oenanthe oenanthe

2-1-1

Spring passage: First, two at Houghton Regis ChP on 8th April (RD) and one at Toddington on 9th (BSN); then 14 at seven localities, last at Stewartby L on 13th May (BS, MRS).

Autumn passage: Very weak, only eight birds recorded at four places. First at Biggleswade Common on 4th August (DJK), last at Stewartby L on 12th September (MRS).

Stonechat Saxicola torquata

0-0-1

In the early part of the year, single males at Newmill End, East Hyde, on 5th March and at Streatley on 19th May (a very late migrant) (MRS). At Dunstable SF, a male on 18th September, a first-year male on 21st October and a pair on 28th (BJN, BS, MRS). Other autumn/winter records were of a male at Little Bramingham Wood, Luton, on 4th October (BJN), two at Cranfield on 16th (BSN), and a male at Brickhill, Bedford, from 13th November to 1st December (EMS, JTRS, PJT).

Whinchat Saxicola rubetra

3-2-6

The only spring record was of a male at Holcot, Cranfield, on 3rd May (BSN); please note that all records of this species are required. In autumn, first at Harrold GP on 24th July (MAW), then nine at four places, last at Dunstable SF on 22nd September (MRS).

1972 correction: Delete 'on' in line 2.

Redstart Phoenicurus phoenicurus 1-1-5

First not reported until 27th May at Jackdaw Hill, Lidlington (KRW) and 28th near Putnoe Wood (DL); last, a first-year male in Luton on 25th September (MRS). Probable breeding pairs at Aspley Heath (3), Charle Wood (2), Luton Hoo Park (1) and New Wavendon Heath (2) (RGH, BJJ, MRS, PS). All records are required.

Black Redstart Phoenicurus ochruros 2-0-1

At the 1972 site in Luton, a pair hatched four young, but two died. The two surviving young emerged from the nest on 16th June and the family left the site about two weeks later (MB, PFB, MRS et al.). This was the first county record of successful breeding. A singing male was later reported in the centre of Luton in July (per AJL) but this could not be confirmed and it is not known whether there is any connection with the breeding birds.

Nightingale Luscinia megarhynchos 2-14-5

Records were received only from Old Warden, where four males were recorded on 6th May and four pairs subsequently held territories in 200 acres (JTRS). It is hoped that this lack of records does not indicate a marked decrease. All records for 1974 are required.

Robin Erithacus rubecula 0-0-21

On 2nd December a notable influx, with up to 50 at three localities (BJJ, MRS).

Grasshopper Warbler Locustella naevia 0-11-10

First at Galley Hill, Streatley, on 30th April (MRS); no relevant departure dates. Singing birds during the summer were recorded at only five places, and again all records are required in order to assess the present abundance of this species.

Reed Warbler Acrocephalus scirpaceus 1-3-15

First as late as 2nd June, at Bromham Mill (BSN); no relevant departure dates.

Sedge Warbler Acrocephalus schoenobaenus 0-1-21

First at Luton Hoo Park on 23rd April (AJL); last at Dunstable SF on 18th September (MRS).

Blackcap Sylvia atricapilla 0-1-20

First at Sandy Lodge on 8th April (per RGH) and last there on 4th October (RGH, TOJ).

Garden Warbler Sylvia borin 0-6-15

First at Sandy Lodge on 28th April (SHE, RIT); last at Stockgrove, Heath and Reach, on 1st September (MRS).

Whitethroat Sylvia communis 0-0-21

First, two at Higham Gobion on 27th April (AJL); last at Chalton SF on 21st September (MRS).

Lesser Whitethroat Sylvia curruca 0-2-19

First at Brickhill, Bedford, on 29th April (JTRS); last at Vicarage Farm CIP on 29th September (MRS). Eight pairs in 200 acres of agricultural land at Old Warden (JFL, JTRS).

Willow Warbler Phylloscopus trochilus 0-0-21

First, three at Sandy Lodge on 12th April (RIT); last at Southill Park on 22nd September (MRS).

Chiffchaff Phylloscopus collybita 0-1-21

First at Sandy Lodge on 22nd March (RGH) and at Brickhill on 23rd (JTRS); last at Sundon Park, Luton, on 26th - 27th October (AW).

Wood Warbler Phylloscopus sibilatrix 1-3-4

The only report was of one singing on the Bucks boundary near Kiln Ground, Bow Brickhill, on 6th June (RGH). All records are required.

Goldcrest Regulus regulus 0-1-20

An unusual report was of eight flying low south-west over Park Square, Luton town centre, on 5th October (MRS).

Firecrest Regulus ignicapillus 0-1-0

A female (not in suitable breeding habitat) at Tebworth on 1st and 6th April (BDH, RJW). None found in the principal 1972 site, despite searching.

Spotted Flycatcher Muscicapa striata 0-0-21

First, two at Old Warden (JTRS) and one at Sandy Lodge (RGH) on 6th May; last at Flitwick Moor on 29th September (MRS) and at the Lodge on 1st October (RGH).

1972 correction: Last emigrant, Flitwick Moor, 23rd September (MRS).

1971 correction: Last emigrant, Woburn Park, 27th September (BJN).

Pied Flycatcher Ficedula hypoleuca

At Sandy Lodge, one to two from 25th August to 6th September, and one on 30th (RGH, TOJ). One in a Luton garden on 26th September (MRS).

Tree Pipit Anthus trivialis 1-5-10

First at the Lodge on 23rd April (RGH, RIT) and last there, two on 7th September (TOJ).

Rock/Water Pipit Anthus spinoletta

A bird showing the characters of the Rock Pipit A. s. petrosus at Dunstable SF on 1st April, and indeterminate birds thought to be Rock Pipits there on 22nd April and 28th October (MRS). One showing the characters of the Water Pipit A. s. spinoletta at Chalton SF on 11th November (MRS), and one of indeterminate subspecies at Sandy SF on 18th November (PFB).

White Wagtail Motacilla alba alba

Birds showing the characters of this subspecies were noted at Dunstable SF from 17th to 24th April and on 7th May, and at Bedford SF on 20th May (AJL, BS).

Grey Wagtail Motacilla cinerea 0-3-3

In the early part of the year, singles at East Hyde, Sandy Lodge and Stewartby L, up to two at Dunstable SF and Luton SF, and up to three at Chalton SF; last flying high north-west along the Lea Valley over Luton SF on 27th April (MRS).

One pair raised three young at a site in the southern part of the county (fledging in late June) and two birds remained there until the end of the year (MRS et al.).

A considerable influx during 16th - 30th September when 11 newly arrived birds recorded at ten places; during October - December singles at five further sites and up to four at Luton SF.

Additional 1971 record: One pair held territory at a site on the Bucks border in the extreme south of the county, but further details not obtainable (per CJM).

Yellow Wagtail Motacilla flava

3-2-14

First, four at Dunstable SF on 20th April (BS); last at the same place on 30th September (PS). One showing the characters of the Blue-headed Wagtail M. f. flava at Wrest Park on 10th June (AP).

Great Grey Shrike Lanius excubitor

One found dead at Gamlingay Great Heath on 11th January (DDN, per RGH); specimen preserved at Sandy Lodge. One on Herts border near Hexton on 17th February (GDH, PJW). One south of Pulloxhill on 20th October (BSN). One found drowned in a water butt on the Whitbread estate, Old Warden area (exact location unknown) on 22nd October (DB, per NT); specimen preserved at Barham's Gunsmiths, Hitchin. One on Bucks border one mile south-west of Linslade on 14th November (RS).

Red-backed Shrike Lanius collurio

1-2-2

The only report was of an adult between Husborne Crawley and Brogborough on 16th August (AJL). Several former breeding sites were searched without success.

Hawfinch Coccothraustes coccothraustes

5-1-7

Two pairs in 200 acres of agricultural land at Old Warden, and single birds at a different site at Shuttleworth in November and December (JTRS et al.). The only other report was of one flying into Luton Hoo Park from East Hyde on 30th November (MRS). All records are required.

Additional 1971 record: A family party in Bedford Park in early August (JTRS).

Siskin Carduelis spinus

2-1-1

The late winter garden-feeding habit (see British Birds, 66: 91-99) spread to Bedfordshire in 1972 and increased in 1973, judging from four reports of eight, six, one and one feeding from peanut bags in a Leighton Buzzard and three Luton gardens respectively from mid-February to late March. Recorded at eleven other localities early and late in the year, maximum c50 at Eversholt L on 7th January (AJL, MRS). Last at Sandy Lodge on 2nd May (RGH); first, four at both Eversholt L and Woburn Park on 11th November (AJL, MRS).

Redpoll Acanthis flammea

1-5-15

The largest flock was of c140 at Sandy Lodge on 2nd April (RGH). At this locality, birds showing the characters of the Mealy Redpoll A. f. flammea were noted as follows: six on 25th January, four on 24th March and fewer on four other dates that month, and one on 9th - 10th April (RGH et al.).

Bullfinch Pyrrhula pyrrhula

0-0-21

A juvenile ringed at Newport Pagnell on 13th August 1972 was found dead near Cranfield about 12th January (per HMG).

Crossbill Loxia curvirostra

1-0-2

All records were from Sandy Lodge where a number remained from the 1972 influx. The highest count was of 37 on 24th March (RIT). Breeding occurred and odd juveniles were seen in June, but it is not known how many pairs bred. The last sightings involved a single male on four dates in August up to 27th (RGH et al.).

1972 correction: For 5th August read 5th July.

Brambling Fringilla montifringilla

0-1-0

Reported from only six localities early and late in the year; largest flocks c30 near East Hyde Park on 23rd March, at least 100 at the Lodge on 7th April and c60

there on 3rd November (RGH, MRS et al.). Last, two singing males at the Lodge on 2nd May; first, two there on 1st October (RGH, TOJ).

Snow Bunting Plectrophenax nivalis

What appears to have been a male was reported at Stagsden by SEBJ (manager of the Bird Gardens) from 23rd to 26th December; however, without written notes this can be regarded only as a 'probable'. The observer had some previous experience of this species and his verbal description (to PFB on 6th January) was convincing. Albino sparrow ruled out by black primaries.

P. F. BONHAM

MAMMAL REPORT FOR 1973

The number of records obtained for the 1973 year has been very good and shows a continuing interest by many members. As the total amount of records held is now high, I have changed the method of recording from a year to year basis to a cumulative form. This means that the distribution maps for each species are added to by new records and not all replotted for each year.

In 1973 I received records for 29 species, four of which were new to the county. These new species were Daubenton's Bat, Dormouse, Yellow-necked Mouse and Fallow Deer. Although none of these was unexpected for the county it is very welcome to have the actual records. The only species not recorded in 1973 that has been recorded since 1971 was the Otter. This must remain our rarest mammal, with only two sightings in three years. The total number of tetrad records for all species was 485, which is very high. The number of new 10 Km. square records which are forwarded to the national recording scheme was 74, which is an increase of 34 on our 1972 figure and is an unexpected increase. This shows that workers are recording in less well covered areas of the county and with the more difficult species. For 1973 our most recorded species were Rabbit and Harvest Mouse, both with 51 new records. Total records for the last three years show Rabbit as our commonest mammal followed by Hedgehog and Mole. The Harvest Mouse falls to seventh place in that table. At the bottom end of the list there are total tetrad records of only one for Dormouse, Otter, Fallow Deer and Daubenton's Bat and only two for Noctule Bat, Yellow-necked Mouse and Chinese Water Deer. The density of records is highest in the centre of the county and slightly higher in the south than in the north. The edges of the county in all directions are very low on records with the exception of the Leighton Buzzard area, but I suspect this reflects the lack of coverage by members rather than actual levels of mammal population.

Records were submitted to the national Harvest Mouse survey for 63 sites. This must be the highest number for any county in Britain and recognition of our contribution was made in an article about the survey in the 'Sunday Times'. Unfortunately this level of records was not repeated in our contribution to the national Badger survey, which is an area we obviously need to work on.

There are still several new species that can be expected to be found in Bedfordshire, mainly among the Bats and perhaps the Edible Dormouse and Roe Deer. These species, and all the low recorded species listed above, are well worth searching for and I encourage all members to try and obtain records, as well as for the other more common mammals.

My thanks go to the following list of contributors, non-members underlined, all of whose records are very welcome.

D. Anderson, C. Banks, E. Buckley, B. Clutton, E. M. Davies, N. Dawson, J. Dony, A. Ford, R. Frith, D. Green, P. Green, J. Harris, R. Hawley, D. King, J. P. Knowles, D. Lawrence, J. Messer, B. Mills, E. Mills, B. Nau, A. Outen, A. Peterkin, P. Pilcher, B. Rands, D. G. Rands, P. Roberts, M. Seaman, B. Squires, A. Summerfield, T. Thomas, D. Winsland, R. Woolnough, D. Wright, R. Wyatt.

NEW COUNTY TETRAD RECORDS FOR 1973:-

Hedgehog

SP - 93PU/95VY
TL - 02GHKTZ/03CI/04INQY/13EPT/14AFGKPKSTVXY/15FGKL/24DELJ

Mole

SP - 92EY/93FKNY/94PVZ/95Z/96H
TL - 01HL/02U/03ADEMPQTWX/04KUZ/05BT/06TV/12J/13DZ/14IKLPVZ/16B/
24I/25BK

Common Shrew

SP - 92DYZ
TL - 01DU/02UVW/03JKUZ/05RT/06X/13DU/14BCLY/16F/24C

Pygmy Shrew

SP - 92Y
TL - 01I/05R/13D/15G

Water Shrew

SP - 95V
TL - 03U/04Q/14Y/15Q

Bat (Sp.)

SP - 95Y
TL - 01I/02CEU/03KUX/04Q/05Q/11D/12A/14MNYZ

Daubenton's Bat

TL - 03J

Long-eared Bat

TL - 02L/14Y

Noctule Bat

TL - 04Z

Pipistrelle Bat

TL - 02BN/03U/04U/14MY

Rabbit

SP - 92VZ/93FM/94LMX/95PQRVZ/96V
TL - 01IU/02AD/03KMPV/04AGKYZ/05BEGS/06ITV/12E/13DZ/14BEKPV/
15LQUVX/24CJJP/25B

Brown Hare

SP - 92YZ/93NUVW/94KW/95UVZ/96H
TL - 01IY/02DI/03VYZ/04BGHUVY/06T/11I/12E/13DUZ/14ADFIRY/15A/24C/
25B

Dormouse

TL - 01I

Bank Vole

SP - 92Y
TL - 01I/03JV/04Q/05RT/13D/14CIMY/24C

Short-tailed Vole

SP - 92EY/95V
TL - 02L/03UZ/05RT/13DEU/14ILNX/15A/24C/25B

Water Vole

SP - 92C/95VY
TL - 03MTX/04U/05S/14VY/24C

Harvest Mouse

SP - 91Z/92DR/93J/94FZ/95H/96GHQRW
TL - 01DEHI/02C/03ABDTUY/05ABCLR/06FGIL/13DEJY/14ACFIMVY/
15AEFNRTY/25F

House Mouse

SP - 95V
TL - 01U/03X/04R/05R/14Y

Yellow-necked Mouse

TL - 14MY

Wood Mouse

SP - 92Y/95V
TL - 01DI/02ER/03JU/04R/05RT/13DE/14AY/16F/24C

Brown Rat

SP - 92DV/94U/95Z
TL - 01I/02AISY/03DIWY/04Q/05ST/06I/12BF/13UZ/14CEGNXZ/24C

Grey Squirrel

SP - 92EPTZ/93L/95V
TL - 01I/03CDHM/04J/05S/12A/13D/14AF/15V/25B

Fox

SP - 92EJWZ/94Z/95V
TL - 01PU/03NPX/04BZ/05DLR/13DZ/14EHIYZ/15S/24CE

Badger

TL - 01E/05S

Stoat

SP - 92Z/93NU/94Z
TL 03MUX/04BZ/05G/11J/12J/13Z/14APYZ

Weasel

SP - 92Z/93JP/94Z
TL - 03MUX/04GUZ/05LR/14YZ/15A/24D

Chinese Water Deer

SP - 92J

Fallow Deer

TL - 01I

Muntjac Deer

SP - 92EPZ/93Q/94Z
TL - 01I/02C/03XZ/04M/05LR/12B/13DEZ/14AGLMYZ

Red Deer

TL - 03WX/13E/24E

DAVID ANDERSON

THEED PEARSE

To most members of the Society the name of Theed Pearse has only come to mean anything in the last year or so. A short paragraph appeared in the September 1971 newsletter outlining his generous bequests to the Society and this was referred to again in more detail in my report as Treasurer at the last Annual General Meeting. It is perhaps fitting therefore that we should now look a little closer at the man himself and at his family which for nearly 100 years played such a prominent part in the public life of Bedfordshire.

The Pearse family seems to have originated in Harlington where they are recorded as living in the early part of the 17th century. Later they moved to Marston Moretaine and early in the 18th century a George Pearse of that village married Ann Theed, a member of a well-known family from Mentmore, Buckinghamshire. As a result of this union between the two families the fore-name Theed was given to the eldest son of each generation and our benefactor was in fact the fifth eldest son in succession to bear it. His great-grandfather, grandfather and father all in turn held the offices of Town Clerk of Bedford and Clerk of the Peace for Bedfordshire.

Theed Pearse was born on the 26th October, 1871 at Rye Close, Kempston Road, Bedford, a house which now forms part of the Bedford General Hospital (South Wing), and this was the family home from about 1835 until the death of his father in 1890. He was educated at Bedford School and then became articled to his father who practised as a solicitor in the town. He remained in the family business until he was 35 when he left England to join an obscure venture in Virginia, USA, which however turned out to be a failure.

He next went into fruit farming in Nova Scotia with his younger brother Ernest William but within three years they had decided to move west to British Columbia where they arrived in 1909. His brother soon moved on but Theed Pearse, impressed no doubt with the opportunities presented by the North Pacific coast of America not least probably in the field of natural history, remained behind to practise law, first at Vancouver and later at Comox, Vancouver Island where he stayed for the rest of his life.

In 1941 he retired and became increasingly absorbed in his lifelong hobby of ornithology and at the advanced age of 97 he published a book, a copy of which is in the Society's library, entitled 'Birds of the Early Explorers in the Northern Pacific'. To be fair, in his acknowledgements at the end of the book he expresses his indebtedness to Dr. Clifford Carl of the British Columbia Provincial Museum for 'taking over the superintendence of the printing and publishing of the book when, owing to age and infirmities, it became impossible for me to carry on'.

In July 1888 before he was 17 Theed Pearse joined the old Bedford Natural History Society, later to become the Bedford Natural History and Archaeological Society, and he read a paper on 'Egg collecting in 1898' on the 2nd November of that year. Later he gave another talk on 'Bird nesting in Ireland'.

His interest in our own Society was sparked off by a visit he paid to this country in 1954. During his stay in Bedford he made it known that he would very much like to hear again the nightingale singing and through the good offices of one of our members, Mr. Dennis Elliott of Stagsden, this was made possible. With one or two other members of the Society including our present Chairman he was invited up to Mr. Elliott's farm, Burdley's Manor, and there in Hardwick Spinney one evening they listened enthralled to the song of a nightingale perched only a few yards away from where they were standing. Theed Pearse was of course delighted and said that this experience in itself fully justified his visit to England. Before returning to Canada he joined the Society and remained a member up to his death. Over the years he corresponded with several members of the Society and maintained a very lively interest in our activities.

During his lifetime he was a member of both the British and American Ornithologists' Unions and was an honorary member of the Pacific Northwest Bird and Mammal Society and of the Cooper Ornithological Society. A tolerant partner in his natural

history pursuits was his wife Elizabeth Margaret Llewelyn whom he married in 1919. He died on the 24th May, 1971 only a few months before his one hundredth birthday.

J. M. DYMOND.

THE DOORMOUSE (*Muscardinus avellanarius*) IN A SOUTH BEDFORDSHIRE WOOD

On 30th June 1973 Mr. W. Drayton noticed some interesting small mice, which looked like Dormice, in a South Bedfordshire wood, and he asked me to investigate.

I visited the area every evening from about 18.00 hours until dark for a period of one week during which time no mice were seen by me. I decided to continue the investigation and on the 7th July, whilst sitting quietly in a wide ride where the mice had been originally sighted, a family of dormice suddenly appeared and proceeded to feed on the seeding grasses. These mice, eight to nine in number, were hanging on the seed heads and feeding with their tails swinging like pendulums. They showed no fear at my presence and I was able to approach to within two or three feet of them. This makes me feel that they are perhaps particularly vulnerable to predators, especially owls. By using a large butterfly net I was able to catch three very easily, and this enabled me to observe them more closely. Immediately after this close observation they were released back into the grasses. These three mice were all immature, each having a body length of 46 mm and tail length 50 mm. I watched the mice until it was too dark to see them and I then visited Mr. Drayton to tell him what I had seen and to confirm for him the presence of dormice in this wood. We both decided to visit the site again the next evening and asked Mr. D. Green, to go with us. On this visit we only managed to obtain a sighting of one solitary dormouse but I was fortunate enough to be able to photograph this one.

I re-visited the area throughout the summer but no further sightings of dormice were made. I had a long talk with a local forester and during this talk I learnt that various woods in the Studham area are said to be noted for dormice.

To further our information on dormice throughout the county it would be most helpful if any member making similar observations would get in touch with Mr. D. Anderson, Mammal Recorder.

CLIVE BANKS.

THE HARVEST MOUSE *Micromys minutus* IN BEDFORDSHIRE INTERIM REPORT

An intensive survey of the Harvest Mouse *Micromys minutus* (Pallas) was started in December 1972 by members of the Bedfordshire Natural History Society, to establish its present status within the County.

This mammal is our smallest British rodent, weighing 4 - 7 grams. It is rufous in colour, especially around the rump, with a sharp demarcation of white on the underside. The ears are relatively small, rounded and thick, the eyes small and black. The tail is partly prehensile and the animal lightly wraps it around the vegetation to control its balance when on the move.

The mouse was first discovered in this country by Gilbert White of Selbourne in

1767, but its description was not published until the first edition of his book 'The Natural History of Selbourne' (1789). In recent times it was thought that this animal had become rare. Quote 'In Bedfordshire it was not uncommon, about 1830 at Benham, although not met with in recent times by Steele Elliot' (Hist. Br. Mam. 1916 pp. 557) - (Benham should read Blunham? - Palmer R. 1946 Beds. Nat. No. 1 p. 49 - Elliott D. W. 1954 No. 9 p. 23). Our own Society Journal gives the same impression. The mouse has always been associated with cereal crops and was usually encountered at harvest time, hence its name. This association is now given as a reason for its decline, as farming has changed from hand to mechanised sowing. Hand sowing gave a random distribution of seed resulting in patches of dense vegetation. Mechanized sowing gives a more uniform spread of seed and the crop, not being as dense, is not as suitable for nest building. Another reason given for its decline has been that mechanisation results in a shorter stubble than that produced by hand reaping. The last live County record was in 1959 although remains were found in a Barn Owl pellet in 1968.

We were inspired to start this survey through finding a Harvest Mouse nest at Rymeads Ringing Station in Hertfordshire. This habitat indicated that the animal could be a wetland species, as the nest was found in Phalaris arundinacea in a marshy area. In Bedfordshire two or three sites along the River Ouse were visited but nothing was found. On January 1st 1973 we discovered our first site in the derelict Ivel Navigation near Clifton (TL 164398). Nests were found in Reed Canary-Grass Phalaris arundinacea, Common Reed Phragmites communis and Pond Sedge Carex acutiformis. The search was continued alongside the River Ivel and Ivel Navigation from Sandy to Shefford and on through Clophill to Flitwick. Nests are now recorded for every tetrad along that route. At Beadlow (TL 103378) nests were abundant and live trapping was undertaken to confirm the presence of Harvest Mice. As a result of the trapping, seven were caught, five males and two females. The trapping took place between February 11th and March 3rd 1973. This site was a large arable field that had been left fallow for a number of years and had become overgrown. Through the middle was a ditch choked with P. arundinacea in which the nests were situated. This site has since been ploughed and the ditch filled in.

The search was next extended to cover the whole of the County, but concentrating on sites with P. arundinacea. The bleached colour of this grass in winter makes it easy to locate. Our success in finding these nests was incredible and we began to wonder how the Naturalist of the past had overlooked them.

P. arundinacea is not always associated with wet places, therefore the wetland theory has not yet been proved. The quantity of P. arundinacea was found not to be important, even a small clump could hold a nest. However no nests were ever found within the shade of a tree. We discovered nests on roadside verges, in a ditch along the side of a main railway line embankment and even in sites where there was appreciable public pressure. On Studham Common and at Whipsnade it was found in Cocksfoot Grass Dactylis glomerata. On Dunstable Downs, one of the highest points in the County, we found it in a cereal crop that had been cut and left lying.

Maulden Wood covers an area of 480 acres and in the course of a general mammal survey there, during February 1974, Harvest Mice were live trapped in three distinct areas. In one area seventeen were caught during four trap nights, three were females and the rest males. Except for one, all were caught in overnight trapping. This area had been clear-felled in 1972 and replanted in 1973. The ground vegetation was a mixture of Tufted Hair-Grass Deschampsia caespitosa, Bramble Rubus spp. and Bracken Pteridium aquilinum. A thorough search of this area did not produce any nests, which was surprising. Trapping in an open area of young self-seeded conifers situated on the side of a hill resulted in a single capture. The ground cover here was of brambles, gorse Ulex europaeus and bracken, liberally strewn with dead branches. There was no grass present and the whole area was surrounded by woodland. In the third area, clear-felled in 1969, two were caught and a nest was found in Drooping Sedge Carex pendula. In other cleared areas, no Harvest Mice were caught although nests were found in Tufted Hair-Grass. The duration of the trapping in each area was four days and nights, with morning and afternoon inspections each day.

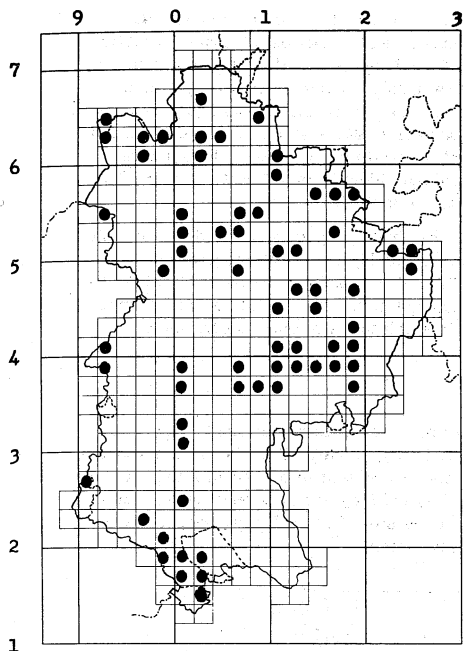


Fig. 1

Distribution of the Harvest Mouse

Micromys minutus (Pallas)

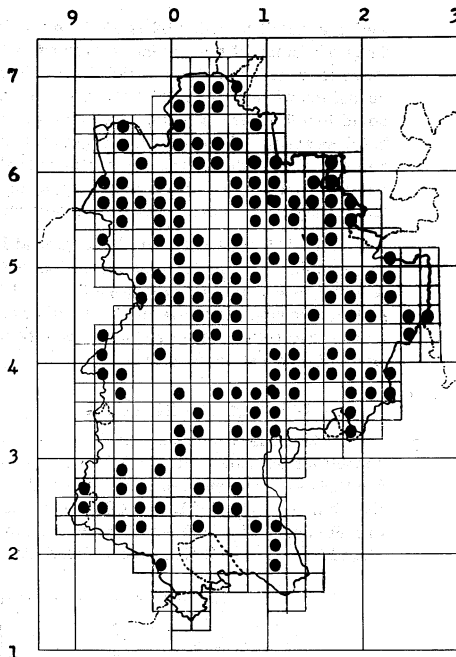


Fig. 2

Distribution of Reed Canary-Grass

Phalaris arundinacea L.

The current status of the Harvest Mouse in the County is shown on the tetrad map of the County, Fig.1, while Fig.2 shows the distribution of P.arundinacea for comparison. There are no Harvest Mouse records in 10Km. square TL 24 except where Potton Wood overlaps into it. This can be accounted for by the intensely agricultural nature of the area. The distribution on the West side of the County is also sparse but we believe that further field work may yet bring results in this area.

It can be seen that the Harvest Mouse is present in squares where P.arundinacea is absent. This could mean that it is even more widely distributed, unless other factors, unknown at present, are involved. As we have never found nests within the shade of trees the local temperature variation could be a factor.

Throughout this survey no determined study has been made of the cereal crops, apart from one place where the crop had been cut and layed on the ground. Perhaps local farmers could supply information about these habitats.

The following table (split for convenience) analyses the results from 80 sites. The table classifies the habitat in one group and the specific plant in which the nest was found in another. The 'Plant associates' columns have been added to indicate where other plants were entangled with the nests. Finally we have tried to indicate the state of the site as wet or dry. A blank indicates that the normal condition of a site could not be assessed.

Harvest Mouse Nests

These are constructed from living vegetation which has been shredded and

Summary

The following conclusions are based on present field work within the County but may have to be modified in the light of further study.

- (1) The distribution of the Harvest Mouse within the County is widespread but the animal cannot be classed as common compared with other small rodents. There is no evidence that this mouse has been on the decline, although of course there may have been fluctuations in its numbers. Also the recent mild winters may have been in its favour. If there had been a decline, the present distribution would have been in local isolated areas. Just before the turn of the century reports stated that it was 'abundant' 'not uncommon' in various parts of the country. (Hist.Br. Mam. 1916 pp.556-560). In all cases they appear to be referring to local isolated areas and even down to specific fields. This present 'so-called' decline could have been a gradual dispersal and they are in fact more evenly distributed now. If their numbers have not changed much, it would account for this apparent scarcity to the casual observer. Naturalists in the past may not have been aware of its habitat or may not have been diligent enough in their search.
- (2) The nests appear to be built in any grasses or reeds that grow in clumps and in which the leaves can be longitudinally shredded.
- (3) Its habitat appears to be biased towards wetland and some sites have even been liable to flooding.
- (4) Altitude within the County has no effect.
- (5) The animal is not shy and retiring and will withstand road and rail traffic and a certain amount of human pressure at close quarters.
- (6) Nests have never been found under the shade of trees, which may indicate that temperature or sunlight is a relevant factor. It has been found beside hedgerows, but the degree of shade has not been recorded.
- (7) Nests have never been found at the waters edge by wide, exposed rivers, although it has been found in similar habitats in backwaters and streams where the reeds are actually growing in the water, necessitating wading to find them.
- (8) It has been found in clear-felled areas of woodland that have been replanted, and along woodland rides.
- (9) It can be assumed that cereal crops still provide a habitat.
- (10) Nests have never been found closer than three metres from each other.

Only one nest has been found with young and this was on August 27th 1973.

Some interesting questions are still to be answered and we hope that further field work may give a deeper understanding of the ecology of this mammal.

One question is 'When do they first start building nests?'

Spring and early Summer nests are very difficult to find. If breeding commences April - May, then the vegetation at this time is not far enough advanced for nest building. Where in fact are they breeding at this time of year? Could it be that it breeds underground and only 'camps out' in the summer when it is warmer?

Our survey is still in progress. As a Society we are among the first to do serious field work on this particular mammal. A National Survey has been started by the Mammal Society since our work began. It will be interesting to see how widely distributed it is on a National Scale.

Acknowledgements

Thanks must go to the many members of the Beds. Nat. Hist. Society that are giving assistance in this survey and to our junior members who have helped and learned so much. We especially thank Mr. R. S. George, an expert on fleas who has patiently extracted these parasites from the many nests that have been sent to him, and to Dr. J. G. Döny for compiling the map in Fig. 2 from his botanical records.

References

- (1) Barrett-Hamilton, G. E. H. and Hinton, M. A. C. 1916 'A History of British Mammals' Pt 18 pp.554-574, Gurney & Jackson, London.
- (2) The Bedfordshire Naturalist, Journal of the Bedfordshire Nat. Hist. Society.
Palmer, R. 1946 No.1 p.49
Vevers, G. M. 1947 No.2 p.44
Palmer, R. 1948 No.3 p.38 1949 No.4 p.49
Elliott, D.W. 1954 No.9 pp.22-24 'An article on the Harvest Mouse'.
Key, H.A.S. 1955 No.10 p.29 1956 No.11 p.42 1957 No.12 p.41
1958 No.13 p.45 1959 No.14 p.44
Ferguson-Lees, I.S. & Sharrock J.T.R. 1969 No.23 pp.30-31 'Flood of Barn Owls in Bedfordshire'.

D.G. RANDS and C. BANKS

FLEAS OF THE HARVEST MOUSE (*Micromys minutus*)

There has been a remarkable lack of information concerning the fleas of the harvest mouse in the literature. Smit (1957) mentions *Ctenophthalmus nobilis* s.l. from *Micromys minutus* and this clearly refers to 9♂ 14♀ *C.n. nobilis* (Rothschild) from *Mus minutus*. Horton Kirby, nr. Dartford, Kent, June 1906, J.D. Hale as given in Hopkins and Rothschild (1966). Devlin and Lloyd-Evans (1967) reports a single *Ctenophthalmus nobilis* taken from a harvest mouse drowned in the River Stort near Rye Meads on 1.ii.64.

Clark (1973) published the following list which had been compiled for him by G.B. Thompson:-

<i>Ctenophthalmus n. nobilis</i>	(Rothschild)	- England
<i>Ctenophthalmus c. congener</i>	(Rothschild)	- Austria
<i>Ctenophthalmus a. agyrtes</i> x <i>a. smitianus</i>	Peus	- Austria
<i>Megabothris turbidus</i>	(Rothschild)	- Austria
<i>Ceratophyllus p. penicilliger</i>	(Grube)	- U.S.S.R.
<i>Nosopsyllus consimilis</i>	(Warner)	- Ukraine

Of these the first, second and fourth are members of the British List. *Nobilis* is a very common flea of our small rodents and insectivores and is generally present in greater numbers than the other species carried by these hosts, excepting, of course, on occasion those which are host-specific, e.g. *Palaeopsylla soricis* on shrews.

The *agyrtes* range of sub-species takes the same places as *nobilis* on the continent.

Congener has been taken from voles, mice and shrews but voles certainly seem to be the preferred hosts.

Turbidus has always been considered to be a microtine flea and, in Great Britain at least, has preferred drier sites than *Megabothris walkeri* (Rothschild) another vole flea.

Penicilliger - now put into *Malariaeus*, is generally considered to be a flea of *Clethrionomys* though it is not infrequently taken from other voles. Our subspecies is *M. p. mustelae* (Dale).

Consimilis is a euro-asian flea of voles.

None of these fleas has been considered to be regularly associated with harvest mice.

During the past few years I have examined two interesting collections from this host and as a result the old view of the harvest mouse as an almost flea-less rodent is shown to be quite wrong. In 1968 Geoffrey Abbott, collecting at Flatford Mill Field Centre, gathered two fleas from the bodies of hosts and ninety three fleas from nests.

My notes, made at the time, read:

<u>From bodies - Micromys</u>			
Sea Wall	Willetts	11. v. 68	1♂ <u>n. nobilis</u>
Sea Wall	Willetts	7. v. 68	1♂ <u>turbidus</u>

From nests, etc.

nests, collecting bag	1968	(17♂ 6♀	<u>turbidus</u>
		(
		(1♂	<u>fasciatus</u>
nests, collecting bag	1968	(13♂ 16♀	<u>turbidus</u>
		(
		(1♂ 4♀	<u>n. nobilis</u>
nests, 2, 3, 21, 22, 26, 30	1968	1♂ 1♀	<u>turbidus</u>
nests 27, 28, 29	1968	1♀	<u>turbidus</u>
nests 17, 18, 19	1968	(1♂	<u>turbidus</u>
		(
		(1♀	<u>nobilis</u>
nest	1968	1♂	<u>turbidus</u>
nests 34, 35, 36	1968	2♂ 2♀	<u>turbidus</u>
nests 23, 24, 25	1968	2♂ 10♀	<u>turbidus</u>
Threshed nests	1968	(5♂ 7♀	<u>turbidus</u>
		(
		(1♀	<u>nobilis</u>

of 95 fleas 86 were Megabothris turbidus, 8 were Ctenophthalmus nobilis and 1 was Nosopsyllus fasciatus (Bosc). There was, therefore, a very strong suggestion that there is a close relationship between the harvest mouse and turbidus. Such a relationship was totally unexpected, partly because of the previous paucity of information on the siphonapterous parasites of the host and partly because the apparent unlikelihood of a microtine flea being strongly associated with a murinid host.

It is unfortunate that the tubes of specimens carried no further data than that given above and no more details have become available. However, in his letter of 11. xii. 70 to me, Abbott wrote: "I have found a few fleas on Micromys caught in the spring. It has been suggested to me that they might be commoner in the summer but unfortunately, for reasons I have not yet been able to work out, Micromys does not turn up in the traps in the summer. However, I was able one year to examine a large number of summer nests and many of these contained fleas, both adults and larvae of all stages, which were not Ctenophthalmus. Obviously either too few nests have been examined in the past, or conditions are critical and this was a particularly favourable site and year, but it would appear that Micromys does have fleas and they are certainly capable of breeding in the nests."

At least this narrows down the period of the year into the few summer months. I have only examined one summer nest, found at Wicken Fen, Cambridgeshire on 30. v. 1970, and this was so dry that, as I expected, it contained no fleas. This suggests that the summer nests may well only support a flea population if they are able to stay sufficiently moist.

During 1973 and early 1974, Derek and Beryl Rands have gathered for me considerable number of nests from both wet and 'normal' areas but generally where Phalaris arundinacea has been the dominant plant. Most of the nests have been moist, many have contained fleas, in a few flea larvae have been seen but rarely were fleas found in dry nests. Unfortunately critical remarks cannot be made as frequently two, three or more nests were put together in the same bag and I failed to record water contents. Therefore, no objective assessment of flea population per nest/humidity and/or percentage water content is available. In any case such studies are clearly suitable for someone with both more time and better laboratory facilities than I have.

Eight species of fleas were obtained, there were:

3♂	3♀	<u>Ceratophyllus garei</u>	Rothschild
6♂	17♀	<u>Ctenophthalmus n. nobilis</u>	(Rothschild)
13♂	17♀	<u>Dasypsyllus g. gallinulae</u>	(Dale)
1♂	3♀	<u>Hystrichopsylla t. talpae</u>	(Curtis)
1♂	2♀	<u>Malaraeus penicilliger mustelae</u>	(Dale)
76♂	112♀	<u>Megabothris turbidus</u>	(Rothschild)
2♂		<u>Megabothris walkeri</u>	(Rothschild)
31♂	32♀	<u>Nosopsyllus fasciatus</u>	(Bosc)

a total of 319 (134♂ 185♀) fleas considerably extending the range of fleas from this host in Britain. The actual nest details and extraction data are:

Locality	Date	Fleas
1. Nr. Clifton, bank of R. Ivel Navigation Canal	31. xii. 72	(1♂ <u>turbidus</u> , 1♂ <u>talpae</u> , (1♂ <u>penicilliger</u> , (1♂ 9♀ <u>n. nobilis</u>)
2. Nr. Clifton, bank of R. Ivel Navigation Canal	31. xii. 72	5♂ 1♀ <u>turbidus</u> , 2♀ <u>nobilis</u>
3. Beadlow Manor	28. i. 73	1♂ <u>turbidus</u>
4. Keysoe	28. i. 73	1♂ 1♀ <u>turbidus</u> , 1♀ <u>garei</u>
5. Melchbourne	28. i. 73	1♀ <u>nobilis</u>
6. Beadlow Manor	28. i. 73	1♂ 1♀ <u>turbidus</u> , 1♂ <u>n. nobilis</u>
7. Beadlow Manor	28. i. 73	1♀ <u>turbidus</u> , 1♂ <u>n. nobilis</u>
8. Stafford Bridge, Oakley	28. i. 73	2♀ <u>turbidus</u>
9. Langford Mill	- i. 73	3♂ 2♀ <u>turbidus</u>
10. Colmworth	3. ii. 73	(7♀ <u>turbidus</u> , 1♀ <u>t. talpae</u> (2♂ 1♀ <u>n. nobilis</u>)
11. Cainhoe Castle	13. ii. 73	1♀ <u>turbidus</u>
12. Clifton, by the R. Ivel Navigation Canal	13. ii. 73	(1♂ 5♀ <u>turbidus</u> , 2♀ <u>t. talpae</u> (2♀ <u>penicilliger</u> , 1♀ <u>nobilis</u> (1♂ <u>garei</u>)
13. Langford Mill	13. ii. 73	8♀ <u>turbidus</u> , 1♂ 1♀ <u>fasciatus</u>
14. Clophill	18. ii. 73	2♂ <u>walkeri</u>
15. Stepingley	3. iii. 73	2♀ <u>turbidus</u>
16. Stepingley	3. iii. 73	1♀ <u>nobilis</u>
17. Souldrop	25. iii. 73	1♀ <u>nobilis</u>
18. Souldrop	25. iii. 73	1♂ <u>n. nobilis</u>
19. Sealford Ford	20. iv. 73	20♂ 24♀ <u>fasciatus</u>
20. Wyboston Gravel Pits	22. iv. 73	1♀ <u>gallinulae</u>
21. Wyboston Gravel Pits	22. iv. 73	13♂ 15♀ <u>gallinulae</u> , 2♂ 2♀ <u>garei</u>
22. Wyboston Gravel Pits	22. iv. 73	1♀ <u>turbidus</u>
23. Whipsnade	1. ix. 73	64♂ 79♀ <u>turbidus</u>
24. Ickwell Green	31. iii. 74	10♂ 6♀ <u>fasciatus</u>

The figures are distorted by nests 21, 19 and 23. Though bird fleas may frequently occur as stragglers in mammal nests, the total of 52 fleas, all bird fleas in nest 21 clearly indicate that either the nest was misidentified or that a bird had taken it over. The former possibility seems the most likely. The 44 fleas of nest 19 are

of a species normally associated with Rattus norvegicus. Fasciatus does occur in small numbers in the nests of our small mammals but when the numbers are at the level we have in this case the nest is usually close to human habitation and therefore not in a natural habitat. The number of turbidus in nest 23 is outstanding both in comparison with the populations of other nests and because no other species were present. If we eliminate these three nests we have 21 nests providing 99 fleas, or about 5 per nest, certainly not a great number, and the percentage of each species in this total is:

garei - 2%, n. nobilis - 23.2%, gallinulae - 1%, t. talpae - 4%
penicilliger - 3%, turbidus - 45.5%, walkeri - 2% and fasciatus - 19.2%
Thus, over a considerable area and in a variety of habitats turbidus appears as the most frequent flea, about twice as numerous as nobilis which would normally be expected to be the dominant species. Megabothris turbidus therefore has shown itself to have Micromys minutus as a true host. The isolated instance of a very large number of turbidus and hardly any other species in one year from one locality, viz. Flatford Mill, has clearly been shewn to be an exaggerated example of the normal pattern.

Two main lines of enquiry now present themselves. In all probability there is a similarity in some aspects of the micro-habitat conditions existing in Micromys nests and Microtus nests which render them favourable to successful development of turbidus larvae. And there may be factors in the 'chemical' make-up (to use a very loose phrase) of Micromys which cause it to be just as much a suitable host for adult turbidus as is Microtus. These points also raise the questions of what differences in host and nests are there between Micromys and Microtus on the one hand and, in this country, Clethrionomys and Apodemus on the other hand.

REFERENCES

- CLARK, M., 1973. The Harvest Mouse (Micromys minutus) in Hertfordshire. Symposium on Research and Management in wild-life conservation (9th December 1972). Herts. & Middx. for Nature Conservation Ltd.: 32 - 51.
- DEVLIN, T.R.E., and LLOYD-EVANS, L., 1967. Mammals at Rye Meads and analysis of Barn Owl pellets. The Fourth Report of the Rye Meads Ringing Group: 22 - 26
- HOPKINS, G.H.E., and ROTHSCCHILD, M., 1966. An illustrated Catalogue of the Rothschild Collection of Fleas (Siphonaptera) in the British Museum (Natural History). IV.
- SMIT, F.G.A.M., 1957. The recorded distribution and hosts of Siphonaptera in Britain. Ent. Gaz., 8: 45 - 75.

R.S. GEORGE.

HARVEST MICE (Micromys minutus) UNDERGROUND BREEDING IN CAPTIVITY

In March 1972 I installed in my garden shed a glass tank 30" long by 24" wide and 30" high. The floor of the tank was covered to a depth of 12 inches with a compost of shredded Phalaris and soil, and the remaining space was loosely filled with Phalaris arundinacea standing vertical in a natural manner. Into this habitat I introduced three Harvest Mice, one male and two female.

Almost immediately the mice started weaving their nests in the standing Phalaris and around mid-April two young mice were observed climbing among the grass.

When first observed out of the nest (about 12 days after birth) the body length was 35 - 40 mm and tail length 30 - 35 mm. The young mice were a greyish brown

colour at this age and did not appear to develop the reddish shade of the adult mice until six weeks old. The adults and subsequently the young continued to breed throughout the summer.

The temperature in the shed often reached 95 - 98F during the summer but this seemed to have no ill effect on the mice, there being no apparent reduction in their activities both during the day and night revealed the fact that the periods of greatest activity for the mice were just after dark and again just before dawn. During these periods the whole colony was in a state of intense animation. At other times the activity seemed to be solely in connection with feeding.

It was considered necessary to ensure that no particular mice dominated the food source and so, during this observation period, the feeding arrangements consisted of three pots filled with a mixture of canary seed, various millets, sunflower seed and peanuts, which were spaced out around the floor of the tank. A high protein tropical fish food (Tetramin) was also mixed with the seeds to ensure a balanced diet. Large bunches of seeding grasses and reeds were provided daily throughout the summer. These also contained various insects, beetle and moth larva etc., which appeared to be consumed by the mice. Water founts were also provided and these had to be replenished frequently as the mice appeared to consume appreciable quantities of water.

Towards the end of September, I noticed that the mice were leaving their haunts in the standing Phalaris and burrowing into the layer of compost. Early in October all the mice, a total of about twenty-five had disappeared from the surface and were spending all their time underground, except when coming to the surface to feed and drink at the water pots.

On the seventh of October I observed two small mice appear from holes in the compost. These I estimated to be 12 - 13 days old and their body length was 35 mm and tail length 30 mm. Deciding to investigate further I moved the tank away from the wall against which it was standing and I was able to see a section of the compost layer through the rear glass panel. This section was riddled with tunnels and nests of shredded grass; some of these nests were constructed just below the surface of the compost, whilst others were constructed at depths up to twelve inches below it. One of the observed nests was seen to contain at least five adult mice at a time.

On the eighteenth of October four more very young mice estimated to be 12 - 13 days old were noticed above ground. I then decided to investigate one of the tunnels further by excavating at the side of one of the surface holes. I then discovered a nest ten inches below the surface, containing six mice, which I estimated to be about one week old. Unfortunately, it appeared that as a result of my disturbance of the nest, these young mice were subsequently abandoned by their parents, and I now have them preserved in formalin.

By the beginning of November the tank was becoming too damp and was overcrowded so I decided to establish two new colonies dividing the mice equally from the original colony between the new ones. The new tanks, containing nineteen mice in each, were filled with Phalaris, this time packed into a flat layer, none standing erect. The mice have again started breeding below the surface, a litter of four being seen on the twelfth of November.

The resulting colonies will be released into various reserves during the latter end of Spring 1974. Four adults have already been passed to Mr. Michael Clark the Hertfordshire N. H. S. mammal recorder to enable him to develop a colony.

A colony is also to be established, in a field leased to and behind the home of Brian Barton. It is hoped that we will be able to exercise some control over this colony and observe the mice in natural surroundings more satisfactorily. By this means it is hoped to establish a record of the yearly life cycle of the Harvest Mouse.

CLIVE BANKS.

THE B.T.O. ORNITHOLOGICAL ATLAS 1968-72

It has been estimated that well over 8,000 observers were involved in field-work for the five-year project known as the Atlas of Breeding Birds of Britain and Ireland, organised by the British Trust for Ornithology and Irish Wildbird Conservancy. It was almost certainly the most comprehensive ornithological survey ever undertaken in Britain and Ireland. A short article on the Atlas by J.N. Dymond (the regional organiser for Bedfordshire from 1968 to 1970) was published in the Bedfordshire Naturalist for 1968 (pp.29 - 30), and progress reports have appeared in subsequent journals.

The aim was simple: to record, on a 'presence or absence' basis only, all breeding species in each of the 3,860 10-km National and Irish Grid squares during 1968-72, and to try to prove breeding wherever possible, without causing unnecessary disturbance. To all intents and purposes, coverage was complete in a geographical sense, though inevitably in most squares a very few species will have bred unnoticed. From the results a full series of accurate, up-to-date and meaningful distribution maps has emerged, and these will soon be published, with accompanying text, in book form. These maps will be invaluable to ornithology and conservation and will provide an essential baseline for future changes in populations and distributions.

The records of each species were categorised as follows:

- (1) Possible breeding. Bird or pair recorded in breeding season in possible nesting habitat, but no other indication of breeding noted.
- (2) Probable breeding. Singing, holding territory, courtship, display, anxious behaviour from adults suggesting nest or young nearby; nest-building in certain species.
- (3) Confirmed breeding. Distraction display, used nest, recently fledged young, adult with faecal sac, adult with food for young, occupied nest with or without eggs or young; nest-building in most species. (It was not necessary actually to find the nest in order to confirm breeding.)

Dr. J.G. Dony contributed a most useful article on grid recording to the Bedfordshire Naturalist for 1971 (pp.12 - 15), to which readers are referred. Briefly, Bedfordshire lies within 21 10-Km squares which form a more or less rectangular pattern. The number of species found or proved nesting within a square depends partly on coverage, partly on the variety of habitats. Fig. 1 shows Bedfordshire and adjoining counties, and the number of species found and (in brackets) proved breeding in each square. On average, 89 species were found and 73 proved, but over the 21 squares as a whole no fewer than 126 species were found and 114 proved nesting. Garganey, Red-crested Pochard, Buzzard, Reeves's and Golden Pheasants were recorded only as possibly breeding; and Black-necked Grebe, Corncrake, Curlew, Common Sandpiper, Stone Curlew, Firecrest and Brambling only as probably breeding. Sixty-three species were found in all the squares, and 37 were proved to be nesting throughout the area.

As in previous bird reports, the figures against the species' names in the 1973 report elsewhere in this issue indicate the number of squares in which they were recorded in each of the three categories of breeding evidence during the five years 1968-72. For example, the 1-4-15 against Little Grebe means that in one square it was recorded as possibly breeding, in four more it was recorded probably breeding, and in 15 of the remaining 16 squares breeding was confirmed (in the 16th square, TL24, it was not recorded at all). The figures for other species recorded during the Atlas project were Black-necked Grebe (0-1-0), Red-crested Pochard (1-0-0), Ruddy Duck (0-0-1), Reeves's Pheasant (1-0-0), Corncrake (3-2-0), Stone Curlew (1-1-0), Long-eared Owl (3-3-3), Woodlark (1-0-2) and Cirl Bunting (0-0-1); many of the relevant records, however, came from parts of these squares just outside the county boundary.

Fig. 2 shows Tree Pipit distribution from Sussex to Lincolnshire and how the Bedfordshire squares fit in. Fig. 3 shows the provisional distribution map for the Black-headed Gull, and one can see at a glance how this species has spread inland along the Ouse valley into our area. Fig. 4 illustrates 12 other interesting local distributions and comments briefly on them. In all these maps, the largest dot means confirmed breeding; the next size, probable; and the smallest, possible.

Thanks are due to the following observers who helped with the project in the Bedfordshire area (I apologise to any that might have been inadvertently omitted): P. H. Addington, D. Anderson, D. J. Armitage, R. B. Bailey, J. R. Burley, C. W. Burton, G. J. Buss, R. Chrystal, G. M. A. Clark, P. J. Conder, D. R. Cook, J. Crudass, R. E. Dimsdale, K. R. Dugmore, D. Elias, D. W. Elliott, Dr. A. W. Ferguson, I. J. Ferguson-Lees, R. Frith, P. A. M. Gepp, D. Green, J. Harrison, R. G. Hawley, P. N. Holden, A. Horder, T. O. James, A. J. Livett, R. L. Longland, H. Mayer-Gross, C. J. Mead, H. J. M. Messer, Sqn. Ldr. P. G. Murton, P. Oxenham, C. S. Payne, R. F. Porter, Mrs E. B. Rands, Mrs J. Read, M. Rogers, M. R. Seaman, Dr. J. T. R. & Mrs E. M. Sharrock, P. Smith, Miss R. Smart, Dr. D. W. Snow, B. R. Squires, K. J. Summerfield, P. Trengrove, R. V. A. Wagstaff, K. R. Weeden, G. O. Wilson and M. A. Woodhead. I am particularly indebted to J. N. Dymond, who organised the bulk of the field-work so efficiently; and to Dr. J. T. R. Sharrock (the project's National Organiser) for much valuable help in various ways.

P. F. BONHAM

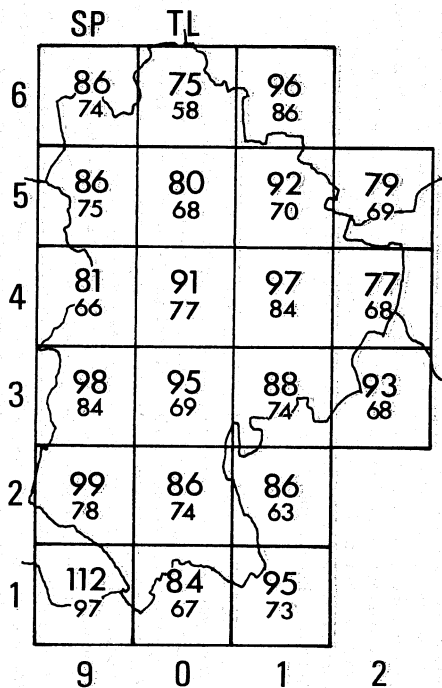
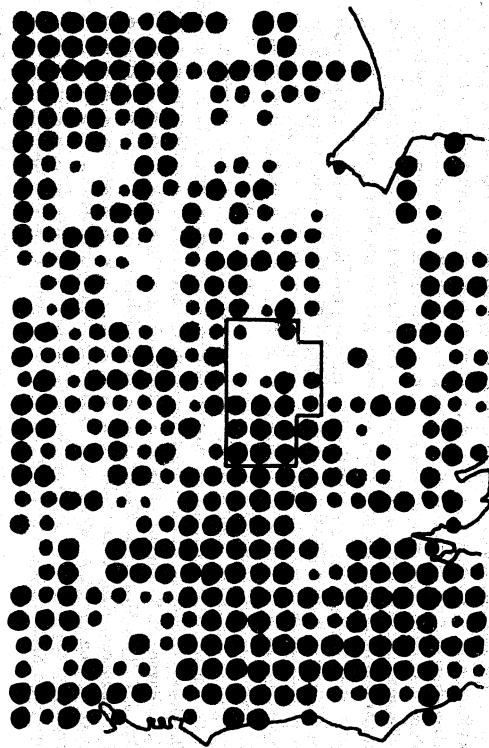
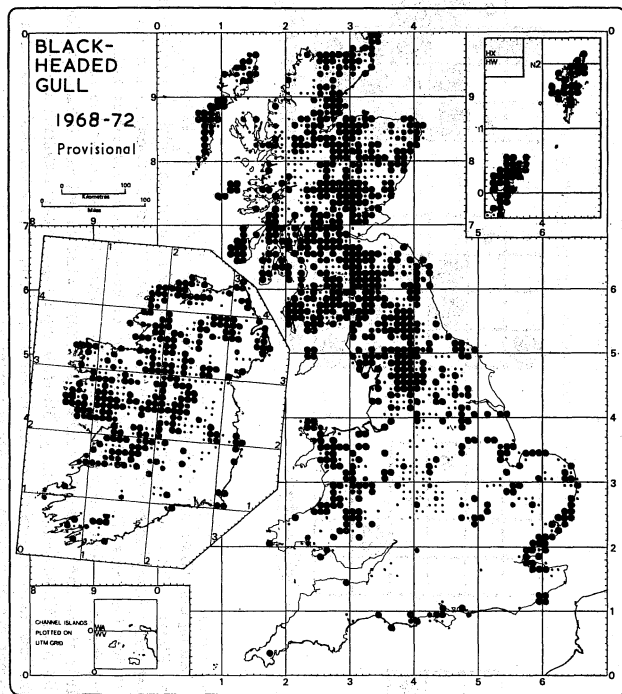


Fig. 1 (left). Map of Bedfordshire and adjoining counties, with 10-km squares superimposed. The large figures in the square give the number of breeding species found during 1968-72; the small ones the number proved to be nesting.

Fig. 2 (right). Breeding distribution of Tree Pipit, 1968-72, from the Sussex coast north to Lincolnshire. The Bedfordshire area is framed in the centre. Tree Pipits prefer sandy and heathy woodland, hillsides with scattered trees, bushy commons, etc., and are rare or absent in the Fens, Ouse and lower Thames valleys, for example.

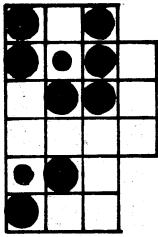




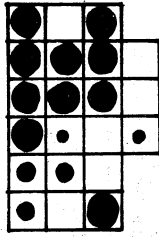
BLACK-HEADED GULL

A comparison with the map of the 1938 census published in the *Handbook of British Birds* (Witherby *et al*) shows that there has been little change in the location of colonies in southern England or the southern quarter of Wales since 1938. The spread into the Midlands and East Anglia, especially along the coasts of Suffolk and Essex, noted between 1938 and 1958 is continuing. The large number of small dots, indicating presence in a suitable habitat in the breeding season, show that in much of central and eastern England there are sites where new colonies could be founded. It seems strange that the species has not yet colonised the many gravel pits of the Thames Valley which are similar in character to those of the Midlands and East Anglia. The presence of adult birds in the next two months should be followed up by a systematic search of possible localities, such as gravel pits, ponds and wet, boggy meadows, as in several instances in the Midlands the birds have established themselves without the local birdwatchers being aware of the colony until it has been in existence for a year or two.

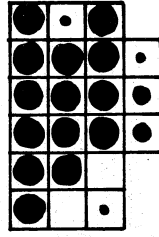
Fig. 3. Provisional Black-headed Gull breeding distribution, 1968-72 (map and text reproduced from *BTO News* no. 58, May 1973). This species has spread inland from the Wash along the Ouse valley. In northern Britain, Wales and Ireland many colonies are found on moorland pools. Similar maps for all breeding birds will be published in a book *The Atlas of Breeding Birds of Britain and Ireland*.



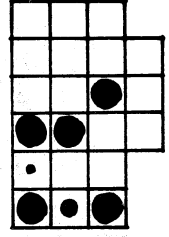
Little Ringed Plover



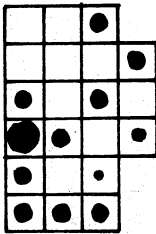
Redshank



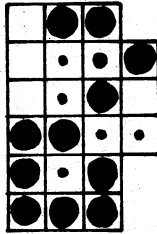
Yellow Wagtail



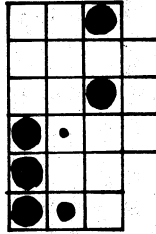
Lady Amherst's Pheasant



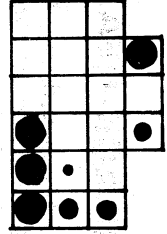
Nightjar



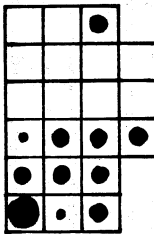
Nuthatch



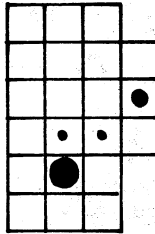
Redstart



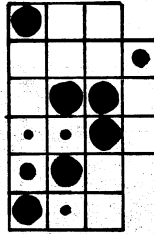
Wood Warbler



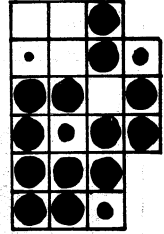
Quail



Wheatear



Whinchat



Meadow Pipit

Fig. 4. Breeding distributions of 12 species in the Bedfordshire area, 1968-72. Little Ringed Plover, Redshank and Yellow Wagtail are all associated with river valleys and other wetlands; Lady Amherst's Pheasant, Nightjar, Nuthatch, Redstart and Wood Warbler with various types of woodland (especially on sandstone in our area: note absence from the north-west and much of the east). Quail and Wheatear are rare breeding birds of the chalk ridge; Whinchat (scarce) is similar but also found occasionally in uncultivated lowlands. Lastly, Meadow Pipit has a curious distribution on upland chalk, lowland river meadows and in the clay basin, but not on sandstone, nor on the limestone and clay uplands of the north-west.

MISTLETOE SURVEY AT WREST PARK

To anyone driving towards Luton along the A6 just south of Silsoe, during Winter, a glance left will show a skyline of trees with an abundance of Mistletoe Viscum album which probably represents the most concentrated distribution of this semi-parasitic plant in Bedfordshire. The majority of the trees supporting the Mistletoe are situated within the area bounded by the lakes and mansion of Wrest Park. Whether it was originally introduced by human agency I do not know but, in general, it is confined to the old Lime trees Tilia x vulgaris, some of which are at least 200 years old. These may well date from the alterations to the gardens by Philip, Earl of Hardwicke and Jemima Marchioness Grey with the assistance of 'Capability' Brown in the years 1758-60.

Viscum album is not technically a complete parasite, it does have chlorophyll and thus manufactures some of its requirements. Water and other raw materials it obtains from its host via suckers.

The number of plants on individual trees exceeds 20 in some cases, each bush being of the order of 1 metre across. Recently the old Lime was blown down during Winter gales and it was interesting to see that the large bosses on the trunk, which are a common feature of this species of Lime, were covered with short sprigs of the Mistletoe of about 10 cm. in length.

The survey of the Mistletoe at Wrest Park and its environs was carried out during the period November 1972 to November 1973. If a circle of radius 1.5 km. is taken from the North end of the Long Canal in the centre of Wrest Park all but three records are contained therein - these three being the Lime trees near Home Farm to the North. The total number of trees of all species detected with Mistletoe was 170 and it is most likely that some have been missed. In the following list the numbers in brackets indicate those trees within the confines of the Wrest Park lakes and bounded to the north by the mansion itself, this area accounting for 73.4% of the records.

<u>Tilia x vulgaris</u> (Lime)	122 (90)
<u>Populus x canadensis</u> (Italian Poplar)	11 (3)
<u>Acer campestre</u> (Field Maple)	8 (7)
<u>Acer pseudoplatanus</u> (Sycamore)	7 (7)
<u>Populus tremula</u> (Aspen)	6 (6)
<u>Malus sp.</u> (Apple)	5 (5)
<u>Crataegus monogyna</u> (Hawthorn)	5 (1)
<u>Aesculus flava</u> (Yellow Buck-eye)	2 (2)
<u>Aesculus hippocastanum</u> (Horse-chestnut)	1 (1)
<u>Carpinus betulus</u> (Hornbeam)	1 (1)
<u>Tilia platyphyllos</u> 'Aurea' (Large-leaved Lime)	1 (1)
<u>Salix caprea</u> (Goat Willow)	1 (1)
	<hr/>
	170 (125)

Of the total of affected trees Lime accounted for 71.7%, whilst for Wrest Park itself the figure was 71.9%

From the foregoing it is clear that Lime (Tilia x vulgaris) is a popular host for Mistletoe. It might be expected that there would be a greater spread over the surrounding countryside to other species of tree but this is not the case. I have noticed one or two isolated instances such as one Ash (Fraxinus excelsior) in Maulden Woods. The nearest old Lime trees that I have found with Mistletoe are in Ampthill Park where there are about 12 affected trees in an avenue on the north eastern edge of the woodland.

C.R. BOON

FIELD WORK IN MAULDEN WOOD

In June 1973 the Society was approached by the Forestry Commission, through Mr. J. Gould, Head Forester for Bedfordshire, with a view to gaining the help of the Society in maintaining bird boxes in Rowney Warren and Maulden Wood. The Society readily agreed, and it was decided that the Student Section, under adult supervision, would be responsible for inspecting the boxes regularly and keeping accurate notes on the status of each box, following the principles laid down in the B. T. O. nest record scheme. It was decided that the Maulden Wood Area would provide as much work as the Society could tackle in the first season, and that Rowney Warren would have to wait until more manpower was available.

In view of the diversity of habitats and geology it was decided that the boxes would be erected in four selected areas, two conifer plantations on the greensand and a conifer plantation and a deciduous plantation on the boulder clay. The areas selected were sited away from the Nature Trails in the wood in an effort to minimise the disturbance to the nesting birds. Additional bird boxes were provided along the Nature Trails for the benefit of the public, but it was not planned to monitor these.

103 boxes were manufactured by members of the Society from wood provided by the Forestry Commission. 18 were placed in each of the four areas chosen, the rest being placed on the Nature Trails. All the boxes were in situ well in advance of the nesting season so that the birds could become familiar with them. Each area was placed in the care of two adults plus student members.

In addition to the nest box scheme it was suggested that the Society should clean out two ponds in Maulden Wood, Trilley Pond on the greensand and Tom's Pond on the boulder clay. Both ponds had suffered from neglect, being choked with an accumulation of rubbish and dead leaves.

It was hoped that any work carried out on the ponds would be merely the beginning of a programme of work centred around the ponds, and that the work begun in 1973 would be continued for many years to come, by members of the Society. It was therefore essential that a survey of the ponds and the life in them be carried out before any cleaning operations were started. In this way it would be possible, during successive seasons, to gauge the effect upon the life in the ponds. The survey data is summarised in figs. 1 - 5.

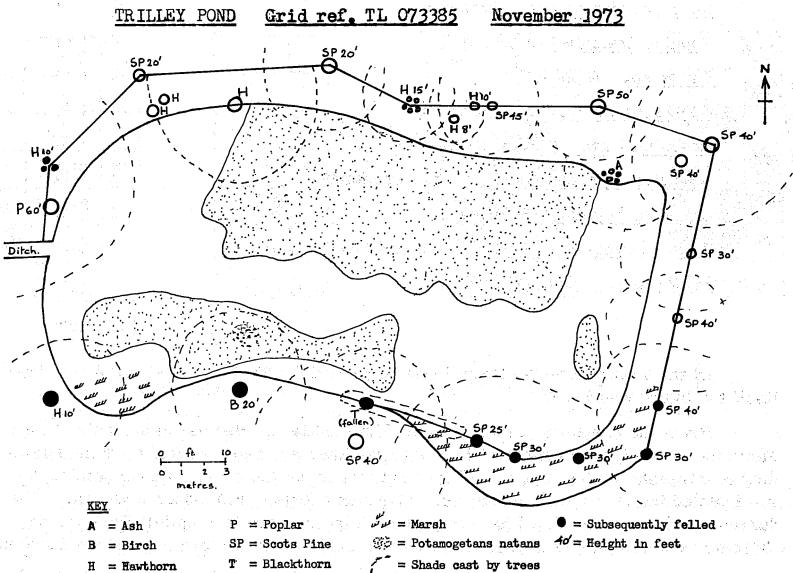


Figure 1 - showing shade pattern and rafts of vegetation.

PHYLUM	CLASS	ORDER	SPECIES		STATUS		
			(Latin)	(English)			
Spermatophyta			Ceratophyllum	Hornwort	Dominant		
			Elodea canadensis	Canadian pondweed	uncommon		
			Potamogeton natans	Broad-leaved pondweed	locally common		
			Lemma minor	Common duckweed	common		
			Lemma trisulca	Ivy duckweed	common		
			Alisma plantago-aquatica	Water plantain	few		
Vertebrata	Mammalia	Insectivora Rodentia	Neomys fodiens	Water shrew	one		
			Mustela erminea	Stoat	one		
	Amphibia		Triturus cristatus	Crested newt	fairly common		
			Rana temporaria	Frog	few		
	Aves		Gallinula chloropus	Moorhen	one pair breed		
			Erithacus rubecula	Robin			
			Parus caeruleus	Blue tit			
			Parus ater	Coal tit			
			Regulus regulus	Goldcrest			
Pyrrhula pyrrhula			Bullfinch				
Phylloscopus trochilus	Willow warbler						
Mollusca	Gastropoda		Lymnaea stagnalis	Great pond snail	few		
			Lymnaea peregra	Wandering snail	fairly common		
			Planorbis contortus	Twisted ram's-horn	few		
			Planorbis crista	Nautilus ram's-horn	few		
			Acroloxus lacustris	Lake limpet	fairly common		
	Lamellibranchia		Sphaerium lacustre	Lake orb mussel	fairly common		
			Sphaerium corneum	Horny orb mussel	few		
			Pisidium obtusale	Pea mussel	few		
			Annelida	Oligochaeta Hirudinea	Stylaria spp. Helobdella stagnalis	Fresh water worm Fresh water leech	fairly common few
			Platyhelminthes	Turbellaria	Tricladida	Polycoelis tenuis	Flatworm
Arthropoda	Crustacea		Simocephalus vetulus	Common water flea	common		
			Cyclops spp.				
			Canthocamptus spp.				
	Insecta	Ephemeroptera		Cloëon depterum	May-fly nymph	few	
				Odonata	Aeshna cyanea	Dragon-fly nymph	few
		Aeshna grandis		Dragon-fly nymph	few		
		Hemiptera		Coenagrion puella	Damsel-fly nymph	few	
				Gerris lacustris		common	
				Notonecta glauca		one	
				Corixa punctata		one	
		Trichoptera		Hesperocorixa sahlbergi		one	
				Sigara nigrolineata		one	
				spp.			
Diptera	Chironomus spp. x 3		Mosquito larvae	common			
	Coleoptera	Hyphydrus ovatus	Water beetle	few			

Figure 2 - showing plant and animal life found in November 1973.

Cleaning operation on Trilley Pond began towards the end of November 1973, adult and student members participating. Work was restricted mainly to the south side of the pond in order that a reservoir of life, on the banks and in the water, should be left for re-colonisation. About 30% of the extensive growths of Potamogeton natans and Ceratophyllum demersum were removed. The rubbish removed consisted of dead timber and decaying leaves as well as a certain amount of man-made litter i.e. tin baths, bricks, bottles, tin cans etc.

The pond was very overhung by trees and bushes, which cast dense shade in some areas. Many of these were cleared in order to allow sunlight to penetrate and also to cut down the amount of leaf fall into the water, most of the accumulation in the pond was leaves from Scots Pines and Poplars. The oxygen demand of decaying leaves is high and even in late January the dissolved oxygen in the water was found to be as low as 75% of saturation with a water temperature of 6°C. This, however, compared favourably with the amount of dissolved oxygen in Tom's Pond, 45 - 55%, which was almost completely overhung by trees and shrubs.

Due to the advanced state of de-oxygenation in Tom's Pond there were almost no large animal organisms or plants to be found, just a little Potamogeton natans and Chara globularis.

Water samples were taken from five areas in Tom's Pond and analysed in the laboratory, the results are shown in Figure 4.

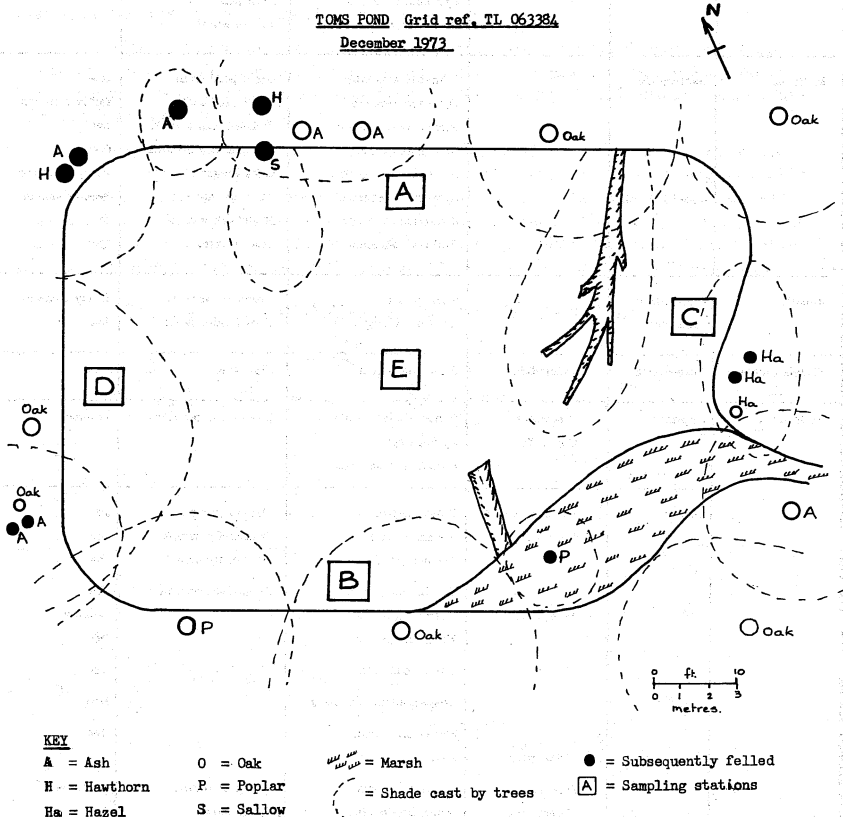


Figure 3 - showing shade pattern and sampling stations.

	pH	total solids ppm	soluble solids ppm	B.O.D. ppm	Na ppm	K ppm	Ga ppm	Mg ppm	Fe ppm	P ppm	GI ppm
maximum value	7.25	479	-	5.9	15	22	71	2.5	-	-	-
minimum value	6.80	362	-	0.78	10	13	62	2.4	-	-	-
mean value	7.05	413	406	3.12	11	19	67	2.4	0.2	1	23
number of samples	24	12	24	24	24	24	24	24	24	24	24

Figure 4 - Summary of analytical results. 500ml samples were taken from the areas shown in Figure 3. These were sealed in jars previously rinsed with pond water.

PHYLUM	CLASS	ORDER	SPECIES		STATUS
			(Latin)	(English)	
Spermatophyta Charophyta Chlorophyta			Potamogeton natans	Broadleaved pondweed	Few
			Chara globularis spp.	Filamentous algae	Few
					Few
Mollusca	Gastropoda		Planorbis crista	Nautilus ram's-horn	Few
Amelida	Hirudinea		Helobdella stagnalis	Fresh water leech	Few
Arthropoda	Crustacea	Cladocera Copepoda	spp. spp.	Water fleas	Fairly common Present
	Insecta	Ephemeroptera Hemiptera Diptera Coleoptera	spp. Hesperocorixa sahlbergi Sigara nigrolineata Chironomus spp. Gyrinus sp. Hydroporus palustris	Mosquito larvae Whirligig beetle Water beetle	Fairly common Few Few Common Few Few Few

Figure 5 - Showing plant and animal life found in December 1973.

During the cleaning out of Tom's Pond no aquatic vegetation was removed at all and the main effort went into clearing overhanging trees and bushes, to let in the sunlight and reduce the leaf-fall into the water. Large quantities of dead leaves and branches were removed from the pond itself - as were two members of the Society. It is hoped that two of the largest trees whose leaf-fall into the pond is particularly deleterious to the water life will be felled next winter to further improve the situation.

For both practical and amenity reasons, access to the pond was improved by cutting steps into the steep approach from the adjacent woodland ride. Some attractive banks providing good cover for animals and birds were carefully preserved during all these operations. Some bush pruning was carried out to encourage a growth of thicker cover for animals and birds approaching the pond from the wood.

Following this major surgery it is expected that regular work on a lesser scale will enable these ponds to be kept in a healthy state in future years. It will be interesting to keep a careful check on the effect of these improvements, which have already resulted in added interest for both Society members and the general public.

Acknowledgements

The authors wish to thank Mr. J. Gould and Mr. A. Butcher of the Forestry Commission for their encouragement and practical assistance, the many members of the Society who helped with the physical work and Mr. T. J. Thomas for making the water analysis. Also Mr. J. Pattinson for permission to work on Tom's Pond.

B.S. NAU and E.B. RANDS

PUTNOE WOOD 1973

Activities in Putnoe Wood on the part of both the Society and the Corporation were at a lower level than in previous years. Some more diseased Elms were felled in Area A and, once again, a large number of Sycamore seedlings were uprooted in the same part of the wood. The Society's main contributions, however, were in levelling the depressions in the Long Ride with top soil and in planting a number of young Hazel seedlings in one of the areas cleared two years earlier, with a view to establishing a better shrub layer.

Members of the Society again acted as wardens in the wood during the spring bluebell period, drawing the attention of would-be transgressors to the by-law forbidding the picking of wild flowers. Vandalism showed a welcome decrease, but the wood is now under continuous public pressure for much of the year and litter inevitably results; the southern ditch seems particularly unsightly and the Park staff appear quite indifferent to the situation.

A number of species of flowering plants was added to the list, bringing the total recorded for the wood to 125. The most interesting addition was probably that of the Wood Spurge, Euphorbia amygdaloides, which is a typical species of Boulder Clay woodlands. Some seem to have entered the wood from the neighbouring Mowsbury Hill and Park, such as the Dyer's Rocket, Reseda luteola, and the Hemlock, Conium maculatum, while others were water-plants which were probably always present in the stream but had merely escaped notice; these included the Fleabane, Pulicaria dysn-terica, the Marsh Woundwort, Stachys palustris, and the Wild Angelica, Angelica sylvestris. The wood's speciality, the hybrid between the Wood-and Water-Avens, continued to flourish in certain localities.

Our misgivings concerning the future of Putnoe Lane expressed in last year's article (Journal 27:46) have been fully realized. The grass verges bordering the ditches on both sides, which the Society's representatives endeavoured to save, have all disappeared beneath the 'blanket' of soil, and a survey carried out during the summer showed only a number of common annual weeds but none of the more interesting perennials previously recorded. The whole affair illustrates how the official craze for 'tidying-up' a site needs constant supervision if a wholesale loss of species is not to occur during the carrying out of otherwise quite desirable projects.

LIST OF NEW MEMBERS WHO JOINED DURING 1973

c - Corporate a - Associate s - Student

- Allsopp, Mrs E. M. P., 4 Cromwell Hill Road, Luton.
- s Arnold, P. R., 1a Linden Road, Dunstable.
- Arnold, V. W., 96 St. Augustine Avenue, Luton.
- Barton, B. F., 12 Osborne Way, Wiggington, Tring.
- s Berg, M., 23 Riddy Lane, Luton.
- s Blades, A., 71 Saywell Road, Luton.
- s Blades, S., 71 Saywell Road, Luton.
- s Bosworth, M. J., 8 Rectory Close, Slapton, Leighton Buzzard.
- Bradshaw, R. E., 31 Miletree Crescent, Dunstable.

- Brown, R. E., 55 Fallowfield, Ampthill.
- s Brown, N., 55 Fallowfield, Ampthill.
- Butcher, A.J., Apple Tree Cottage, Haynes West End, Bedford.
- s Case, Miss R. O., Swan Laundry Bungalow, Bromham, Bedford.
- s Champkin, W.G., 31 Barkers Lane, Bedford.
- s Churchill P., 5 Prinknash Road, Bedford.
- Curl M.R., 98 Katherine Drive, Dunstable.
- c Dunstable Teachers Centre, Beecroft School, Dunstable.
- Evans A. R., 103 Bishops cote Road, Luton.
- s Gouldby P., 107 Chiltern Road, Dunstable.
- s Green Miss S., The Cottage, Dell Farm, Bidwell, Dunstable.
- a Green Mrs M., Red Cow Farm Cottage, Bidwell, Dunstable.
- s Green Miss D., Red Cow Farm Cottage, Bidwell, Dunstable.
- s Green J., Red Cow Farm Cottage, Bidwell, Dunstable.
- s Green R., Red Cow Farm Cottage, Bidwell, Dunstable.
- Green J.M., 77 London Road, Biggleswade.
- s Gulson, T., 132 Bedford Road, Kempston, Bedford.
- a Hamilton Mrs. G., 16 Spenser Road, Harpenden.
- s Hamilton C., 16 Spenser Road, Harpenden.
- s Hamilton I., 16 Spenser Road, Harpenden.
- Hollingworth T.S., 4 The Coppins, Stotfold, Hitchin.
- s Kawka R., 8 Marne Street, Kempston, Bedford.
- Knapp G.W., 102 High Street North, Dunstable.
- Knowles J.P., Dairy, The Grange, Pulloxhill, Bedford.
- s Leech Miss B., 49 Alexandra Avenue, Luton.
- McLeod Mrs. D., 95 Sundon Road, Harlington, Dunstable.
- s McMenamin T.P., 47 Carterways, Dunstable.
- Main Mrs J.W., 117 Chester Avenue, Luton.
- Marshall A., The Cottage, Oakway, Studham, Dunstable.
- Marshall Mrs F.I., The Cottage, Oakway, Studham, Dunstable.
- s Mascall S., 7 Marlborough Road, Luton.
- Monk Mrs C., Greenacres, Harlington Road, Toddington, Dunstable.
- s Mulcahy P.L., Elmslee, Church End, Hockliffe, Leighton Buzzard.
- Outen A.R., 55 Arundel Road, Luton.
- Peacock N.R., 23 Morrision Road, Bedford.
- Peterkin T., 129 Manor Road, Barton-le-Clay, Bedford.
- s Purcell I.R., 14 Pebblemoor, Edlesborough, Dunstable.
- s Rands Miss P.J., 51 Wychwood Avenue, Luton.
- Redgewell G.E., 11 Overstone Road, Luton.
- Selden Mrs. S.J., 8 Turnberry Walk, Bedford.
- s Sewter P.B., 8a Newnham Avenue, Bedford.
- Thompson D., 57 The Crescent, High Holme Road, Louth, Lincs.
- Tilstone Miss M.E., 6 Station Road, Toddington, Dunstable.
- Wood A. C., Struan, Speen, Aylesbury.

It is with deep regret that we record the deaths during 1973 of the following members of the Society:

In January, Miss A. Cranfield, a member since 1957.

In May, Mrs. E.M. Muris, a member since 1970.

In January, Miss G.M. Tattam, a member since 1948 and for many years a member of the Council.

ERRATUM

Journal No.27 1972

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