

# **The Bedfordshire Naturalist**

**JOURNAL OF THE BEDFORDSHIRE  
NATURAL HISTORY SOCIETY  
FOR THE YEAR 1975**

**No. 30**

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THE BEDFORDSHIRE NATURALIST  
 THE  
**JOURNAL**  
 OF THE  
 BEDFORDSHIRE NATURAL HISTORY SOCIETY

Edited by R. V. A. Wagstaff

No. 30 1975

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# BEDFORDSHIRE NATURAL HISTORY SOCIETY 1976

Chairman:

P. SMITH

Hon. Secretary:

MRS E.B.RANDS, 51 Wychwood Avenue, Luton.

Hon. Treasurer:

M.CHANDLER, 11 Orchard Way, Flitwick, Bedford.

Hon. Programme Secretary:

J.P. KNOWLES, 26 Bush Close, Toddington.

Hon. Librarian and Membership Secretary:

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

Hon. Editor:

R.V.A.WAGSTAFF, 29 Grasmere Avenue, Luton.

## Committee

V. Arnold

A. Ford

Miss H. Webb

W.J. Champkin

D. Green

Mrs.F.B.M.Davies

H.A.S. Key

W. Drayton

B.S. Nau

## 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, 26 Lyall Close, Flitwick, Bedford.

Lichens: Mrs F.B.M. Davies, 4 Chaul End Road, Caddington.

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

GEOLOGY & FOSSILS: P.J.Smart, 1, Laburnum Grove, Bedford.

### ZOOLOGY:

Mollusca, Leeches and Flatworms: Mr.E.B.Rands, 51 Wychwood Avenue, Luton.

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

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.Nancy Dawson, The Old House, Ickwell Green, nr. Biggleswade.

Bugs (Hemiptera-Heteroptera):Dr.B.S.Nau, 15 Park Hill, Toddington.

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

Fishes: A.Peterkin, 129 Manor Road, Barton-le-Clay.

Amphibians and Reptiles:C.Banks, 72 Spenser Road, Luton.

Birds: B.D.Harding, 66 Salters Way, Dunstable.

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

INCOME AND EXPENDITURE ACCOUNT  
FOR THE YEAR ENDING 31st DECEMBER 1975.

Year to  
31.12.74

£	£	£	£
			<u>INCOME</u>
			<u>SUBSCRIPTIONS</u>
324	Current Year 1975		560
65	New Members 1975		83
17	Arrears 1974	-	32
			<u>611</u>
406			
			<u>OTHER INCOME</u>
10	Donations and Collections	4	
7	Sale of Journals and Brochures	10	
38	Surplus on Christmas Social	--	
46	Surplus on Coach Trips and Meeting	48	
22	Profit on Coffee Mornings	18	
5	Sundries	8	
--	Refund from Publicity Committee	31	
--	Sale of pens	4	
128			<u>123</u>
			<u>INTEREST</u>
102	Interest on deposit account	157	
139	Interest on City of Peterborough Bonds	176	
241			<u>333</u>
775	<u>Total Income</u>		<u>1067</u>
			<u>EXPENDITURE</u>
			<u>ADMINISTRATION</u>
81	Stationery	45	
66	Postage	70	
8	Insurance	10	
17	Auditors Fee	22	
--	Sundries	1	
			<u>148</u>
172			
			<u>MEETINGS</u>
75	Hire of Hall	47	
7	Lecturers Fees and Expenses	3	
31	Printing of programmes	45	
--	Loss on Lectures	27	
			<u>122</u>
113			
			<u>SOCIETY PUBLICATIONS</u>
225	Printing Journal	152	
3	Printing Newsletters	---	
			<u>152</u>
228			

<u>MISCELLANEOUS</u>		
14	Subscriptions to other Societies	30
5	Recorders expenses	--
30	Float to Publicity Committee	--
<hr/>		<hr/>
49		30
562		<hr/>
<hr/>	<u>TOTAL EXPENDITURE</u>	<hr/>
£213	Excess of Income over Expenditure	£615
<hr/>		<hr/>

BALANCE SHEET AS AT  
31st DECEMBER, 1975

<u>FIXED ASSETS</u>		
35	Books and Journals	35
10	O.S. Maps	10
8	Bird Song Records	8
15	Display Boards	15
15	Microscope	15
3	Tools	3
2	Screen	2
--	Slide Projector	60
<hr/>		<hr/>
88		148
<u>CURRENT ASSETS</u>		
56	Bank Account	81
687	Deposit Account	4215
15	Cash in Hand	16
2000	City of Peterborough Bonds	2000
16	Debtors (1976 Subs. in advance)	- 61
<hr/>		<hr/>
2774		6251
2862		6399
<u>CURRENT LIABILITIES</u>		
23	Creditors	22
<hr/>		<hr/>
2839	<u>NET ASSETS</u>	6377
<u>REPRESENTED BY CAPITAL ACCOUNTS</u>		
853	Balance brought forward	1066
--	Capital Introduced - refund of Income Tax	68
--	Capital Introduced	60
<hr/>	Excess of income over expenditure	<hr/>
213		615
1066		1809
1773	Theed Pearse Legacy	4568
<hr/>		<hr/>
2839		6377

O. Morgan  
S.M. Cross  
Honorary Auditors.

# REPORT OF THE COUNCIL

1975 has proved to be a year of change. Mr. Don Green resigned as Hon. Secretary due to increased pressure of business. He had been Secretary since 1969 and the Society owes much of its present prosperity to his careful guidance of affairs and we would like to express our thanks to him. After 20 years of service as Hon. Treasurer Mr. J. Dymond resigned from the post in September and was replaced by Mr. M. Chandler. A vote of thanks was expressed to him by the Council on behalf of the Society and Council will be proposing him for Hon. Life Membership at this A.G.M. under 'Any other business'. A new post was created, that of Membership Secretary, and has proved a very successful innovation with Mr. R. B. Stephenson as our first Membership Secretary.

A new sub-committee structure was also brought into operation. Instead of having a sub-committee for every separate interest in the Society this was streamlined into 3 main committees which included many non-Council members who, in turn, have appointed small working parties as and when required, to deal with special events and problems. On the whole this new structure has worked well, although some teething problems were inevitable.

The Society has taken part in active survey work for a number of bodies. The Bedfordshire County Council has asked for information on many occasions, the Luton Corporation has welcomed our scrub clearance help on the Warden Hills, a long term survey at Shuttleworth Agricultural College has been under way over the past 3 years and will continue with increased participation by the Society and the Beds. & Hunts Naturalists Trust continues to ask our help in supplying expert information on reserves.

On the social side, the Christmas Social and the Barbecue in Maulden Wood were enjoyed by all who attended. The coach trips instituted 2 years ago continue to be very popular. It is interesting to note that the coach to the Norfolk coast in February 1976 cost exactly double what it cost in December 1973.

An encouraging number of 90 members was enrolled during 1975 in the following categories:-

ordinary members 50; student members 28; associate members 11; corporate members 1.

This brings the total membership of the Society at the 31st December 1975 to 386 members as follows:-

Ordinary members	263 (O.A.P.'s 39)
Student members	66
Associate members	41
Corporate members	8
Life members	5
Honorary life members	3

All members are asked to recruit as many additional new members as possible.

The Council wishes to thank all members for their support and especially to thank all those who gave active and practical help during 1975, whether it was by serving on one of the committees, by scrub clearance or any other activity.

E. Beryl Rands.

# PROCEEDINGS

## Indoor Meetings

330th ORDINARY MEETING, 9th January, Luton. Members Evening.  
Chairman: Mr.D.G.Rands.

331st ORDINARY MEETING, 13th January, Bedford. "Management of  
Chalk Nature Reserves" by Mr.T.C.Wells, Nature Conservancy. Chairman:  
Dr.V.H.Chambers.

PUBLIC FILM SHOW, 21st January, Luton. In conjunction with the  
Wildfowl Trust.

332nd ORDINARY MEETING, 24th January, Bedford. "Hedges" by  
Dr.Max Hooper, Nature Conservancy. Chairman: Mr.A.W.Guppy.

333rd ORDINARY MEETING, 29th January, Dunstable. "A Scottish  
Experience" by Mr.D.Green and others. Chairman: Mr.R.Woolnough.

334th ORDINARY MEETING, 7th February, Bedford. "Nature Through  
the Colour Camera" by Mr.H.A.S.Kay. Chairman: Mrs.E.B.Rands.

THEED PEARSE MEMORIAL LECTURE, 12th February, Bedford.  
"Ornithology and Conservation" by Mr.Peter Conder, Director of R.S.P.B.  
Chairman: Mr.H.A.S.Key.

335th ORDINARY MEETING, 20th February, Luton. "Touring in Thailand"  
by Mr. and Mrs. M.Chandler. Chairman: Dr.B.S.Nau.

336th ORDINARY MEETING, 27th February, Ampthill. "The Wild  
Flowers of Bedfordshire" by Dr.J.G.Dony. "The Natural History of Maulden  
Wood" by Dr.B.S.Nau. Chairman: Mrs.E.B.Rands.

337th ORDINARY MEETING, 5th March, Dunstable. "Trees in Winter  
and Summer" by Mr.A.W.Guppy. Chairman: Mrs.E.B.Rands.

338th ORDINARY MEETING, 14th March, Bedford. "The Birds and  
Butterflies of Malaya" by Dr.D.Manning. Chairman: Mr.W.Champkin.

ANNUAL GENERAL MEETING, 20th March, Luton.

339th ORDINARY MEETING, 26th March, Dunstable, "Problems of a  
Railway Flora" by Dr.J.G.Dony. Chairman: Mr.A.Outen.

340th ORDINARY MEETING, 9th April, Dunstable. "Any Questions on  
Birds" by a panel consisting of Messrs. B.Harding, A.J.Livett, R.V.A. Wag-  
staff and D.G.Rands. Chairman: Mr.P.Smith.

341st ORDINARY MEETING, 6th November, Bedford. "Prehistoric  
Mammals of the Tertiary Period" by Mr.G.Osborn. Chairman:Mrs.E.B.Rands.

342nd ORDINARY MEETING, 14th November, Luton. Members Evening.  
Chairman: Mr.D.G.Rands.

THEED PEARSE MEMORIAL LECTURE, 20th November, Luton. "Food  
for Free" by Mr.Richard Mabey. Chairman: Dr.J.G.Dony.

343rd ORDINARY MEETING, 27th November, Luton. "Bird Flight"  
by Mr.Edward Eastwood. Chairman: Mrs.E.B.Rands.

344th ORDINARY MEETING, 1st December, Ampthill. "Flitwick Moor" by Mr.M.Chandler and "Birds of Bedfordshire" by Mr.H.A.S.Key. Chairman: Dr.B.S.Nau.

GRAND CHRISTMAS SOCIAL EVENING, 5th December, Bedford.  
M.C. : Mr.H.A.S.Key.

345th ORDINARY MEETING, 11th December, Bedford. Demonstration and exhibition of some of the work of the students. Chairman: Mr.W.Drayton.

346th ORDINARY MEETING, 16th December, Dunstable. "Internal Parasites of Animals" by Mr.Philip Kingsbury. Chairman: Mr.A.Ford.

## Field Meetings

- 26th January, BLACKWATER ESTUARY. Coach trip.  
9th March, GRAFHAM WATER AND PEAKIRK. Coach trip.  
13th April, WOBURN PARK, a walk along public footpaths. Leader: Dr.B.S.Nau.  
20th April, GRAND UNION CANAL, STARTOPSEND. Joint Meeting with the Conchological Society. Leader: Mrs.E.B.Rands.  
23rd April, BARTON HILLS. Leader Dr.J.G.Dony.  
3rd/4th May, BROMHAM HALL. Special meeting to commemorate the centenary of the foundation of the original Bedfordshire Natural History Society.  
11th May, POTTON WOOD. Leader: Mr.J.Green.  
16th May, FLITWICK WOOD. Leader: Dr.J.G.Dony.  
21st May, HOME WOOD, NORTHILL. Leader: Mr.J.Gould  
28th May, AMPTHILL PARK. Leaders: Mr.D.Anderson and Mr.V.Arnold.  
1st June, STOPSLEY AREA, long adventurer walk. Leader: Mr.A.Ford.  
4th June, MARKHAM HILLS, Leader: Dr.B.S.Nau.  
7th June, BARTON MILLS, Suffolk Naturalist Trust Reserve. Coach trip.  
15th June, WILSHAMSTEAD WOOD. Leader: Mr.D.G.Rands.  
25th June, TINGLEY WOOD AND PEGSDON HILLS. Leader: Mr.A.Ford.  
28th/29th June, MAULDEN WOOD. All-night meeting.  
1st July, CARDINGTON MILL, bat catching. Leader: Mr.C.Banks.  
5th/6th July, HOLLESLEY, SUFFOLK. Camping weekend. Leader: Mr.R.Woolnough.  
9th July, FLITWICK MOOR. Leader: Mr.M.Chandler.  
13th July, ODELL GREAT WOOD. Joint meeting with the Northampton Natural History Society. Leader: Mrs.E.B.Rands.  
17th July, RIVER IVEL NAVIGATION. Leader: Mr.A.Outen.  
20th July, MONEYPOT WOOD, MILLBROOK. Leader: Mr.A.Ford.  
26th July, MARSTON THRIFT.  
30th July, SEWELL QUARRY. Leader: Mr.C.R.Boon.  
8th August, Badger watching at various setts in the county. Organiser: Mr.R.Woolnough.  
10th August, YELNOW LANE. Leader: Dr.J.G.Dony.  
14th August, STOCKGROVE PARK. Leaders: Mr.C.Banks and Mr.V.Arnold  
30th August, WREST PARK. Leader: Mr.J.Knowles.  
3rd September, SHUTTLEWORTH COLLEGE. Leader: Mr.W.Champkin.  
7th September, GIBRALTAR POINT, LINCOLNSHIRE. Coach trip.  
14th September, MAULDEN WOOD OPEN DAY.  
21st September, NORTHILL AREA, long walk. Leader: Mr.A.Ford.  
5th October, ASPLEY HEATH. Leader: Mr.P.Smith.  
12th October, BARTON HILLS, fungus foray. Leader: Dr.D.A.Reid.  
20th October, SELBORNE, HANTS. Coach trip.  
2nd November, MAULDEN WOOD, fungus foray. Leader: Dr.D.A.Reid.  
Joint meeting with the British Mycological Society.  
16th November, HARDWICK SPINNEY. Leader: Mr.W.Champkin.  
28th December, LEIGHTON BUZZARD, canalside walk. Leader: Mr.R.Woolnough.



# The Fungus Forays

## Barton Hills

The first of the two fungus forays was held at Barton on October 12 with Dr .D .A .Reid as leader, and was attended by about 30 members.

The Barton Hills are never very rewarding from the mycological view-point, and following the unusually hot dry summer collecting was poor. However, a total of 76 species was found, of which 9 were new to the County and 2 confirm old County records.

The most exciting find was undoubtedly that of Spongipellis spumeus on elm logs. This is a white bracket fungus with a soft cottony surface contrasting with a firmer fibrous flesh. It is difficult to distinguish in the field but is easily recognized microscopically by its large oval spores measuring 6.5 - 9.0 x 5.0 - 7.0  $\mu$ . There are very few British records of this species.

The agarics were mostly small and insignificant. However, fruitbodies of Pleurotus dryinus and P. ulmarius were collected, so confirming the old County records of these fungi. P. dryinus differs from P. ostreatus in having a ring-zone on the stem and pale indistinct squamules on the cap. P. ulmarius has a cream to buff coloured pileus, a central stipe, and a strong smell of meal when bruised.

Agrocybe cylindracea, another lignicolous agaric, also has a whitish to cream coloured cap although often tinged with ochre at the centre. It has a central stalk with a well developed ring and brown gills. This fungus, which is a good edible species, is rare in Bedfordshire. The two small species of Conocybe collected for the first time in the County are rather similar in having an ochraceous brown convex-campanulate cap, but whereas C. percineta has a well-developed pale yellowish membranous ring, which is plicate above, C. vestita lacks an annulus and merely has a few remnants of the veil hanging from the margin of the pileus.

Mycena clavularis is a small lignicolous fungus. The cap, 2-4 mm across, is whitish with a brown centre and pale brown striae. Careful examination with a lens shows the stalk to arise from a well-marked disc. This fungus has large globose spores 8.0 - 10.5  $\mu$  in diam. In contrast, M. mairei is a small delicate terrestrial species found amongst grass and like the previous fungus is also new to the County. The cap is greyish and the gills more or less decurrent. Miss Holden drew attention to the fact that when chewed for a few moments the fruitbody has an unpleasant taste of bad cabbage that persists in the mouth for some time.

Another interesting fungus new to the County was Thecaphora seminis-convolvuli in the ovules of Calystegia sepium. This smut attacks the anthers and ovules of Convolvulus and Calystegia spp. Infected flowers may be recognized by their very short anthers in which are produced masses of powdery white conidia. However as the black powdery spore balls develop in the ovules they are very seldom reported since the capsules look perfectly normal. Indeed, even when the capsules are broken open the ovules may appear sound until crushed, when the smut spores are liberated.

A list of species follows:-

Agrocybe cylindracea (DC ex Fr.) Maire; Armillaria mellea (Vahl ex Fr.) Kummer; Clitocybe cerussata (Fr.) Gillet; C. dealbata (Sow. ex Fr.) Kummer; C. infundibuliformis (Schaeff. ex Weinm.) Quél.; C. obsoleta (Batsch ex Fr.) Quél.; Collybia cirrhata (Schum. ex Fr.) Kummer;

\*Conocybe percineta Orton; \*C. vestita (Fr.) Kühn.; Coprinus atramentarius (Bull. ex Fr.); C. comatus (Müll. ex Fr.) S.F. Gray; C. disseminatus (Pers. ex Fr.) S.F. Gray; C. impatiens (Fr.) Qué!.; C. lagopus (Fr.) Fr.; C. micaceus (Bull. ex Fr.) Fr.; C. niveus (Pers. ex Fr.) Fr.; C. plicatilis (Curt. ex Fr.) Fr.; Crepidotus pubescens Bres.; Flammulina velutipes (Curt. ex Fr.) Karst.; Galerina unicolor (Vahl ex Sommerf.) Sing.; Lepiota cristata (Fr.) Kummer; Mycena acicula (Schaeff. ex Fr.) Kummer; \*M. clavularis (Batsch ex Fr.) Sacc.; M. flavo-alba (Fr.) Qué!.; M. galericulata (Scop. ex Fr.) S.F. Gray; \*M. mairei (Gilb.) Kühn.; M. olida Bres.; M. pura (Pers. ex Fr.) Kummer; M. speirea (Fr. ex Fr.) Gill.; Oudemansiella radicata (Rehlan ex Fr.) Sing.; Paxillus panuoides (Fr. ex Fr.) Fr.; † Pleurotus dryinus (Pers. ex Fr.) Kummer; † P. ulmarius (Bull. ex Fr.) Kummer; Pluteus thomsonii (Berk. & Br.) Dennis = P. cinereus Qué!.; Psathyrella candolleana (Fr.) Maire; P. gracilis (Fr.) Qué!.; P. obtusata (Fr.) A.H. Smith; P. spadicea (Schaeff. ex Fr.) Sing.; Stropharia aeruginosa (Curt. ex Fr.) Qué!.; S. coronilla (Bull. ex Fr.) Qué!.; S. inuncta (Fr.) Qué!.; Tubaria autochthona (Berk. & Br.) Sacc.; T. furfuracea (Pers. ex Fr.) Gillet.

Bjerkandera adusta (Willd. ex Fr.) Karst.; Coriolus versicolor (L. ex Fr.) Qué!.; Daedaleopsis confragosa (Bolt. ex Fr.) Schroet.; \* Spongipellis spumeus (Sow. ex Fr.) Pat.

Chondrostereum purpureum (Pers.) Pouz.; Coniophora arida f. flavo-brunnescens Bres.; C. puteana (Schum. ex Fr.) Karst.; Gloeocystidiellum lactescens (Berk.) Boid.; Hyphodontia sambuci (Pers. ex Pers.) Erikss.; Phlebia merismoides Fr.

Calocera cornea (Batsch) Fr.; Dacrymyces stillatus Nees ex Fr.  
= D. deliquescens

Auricularia auricula-judae (Bull. ex St Amans) Wetts.; A. mesenterica Fr.

Coleosporium tussilaginis Tul.; \*Puccinia brachypodii Otth.

\*Thecaphora seminis-convolvuli (Duby) Liro.; Urocystis anemones (Pers.) Wint.

\*Anthracobia macrocystis (Cooke) Boud.; A. melaloma (Alb. & Schw. ex Fr.) Boud.; Calycella citrina ([Hedw.] Fr.) Bud.; Coprobria granulata (Bull. ex Fr.) Boud.; \*Peziza varia (Hedw.) Fr.; Scutellina scutellata (L. ex St Amans) Lamb.

Claviceps purpurea (Fr.) Tul.; Daldinia concentrica (Bolt. ex Fr.) Ces. & de Not.; Diatrype disciformis (Hoffm. ex Fr.) Fr.; D. stigma (Hoffm. ex Fr.) Fr.; Hypoxylon fuscum (Pers. ex Fr.) Fr.; Nectria cinnabarina (Tode ex Fr.) Fr.; Sphaerotheca pannosa (Wallr. ex Fr.) Lévl.; Xylaria hypoxylon (L. ex Fr.) Grev.; X. polymorpha (Pers. ex Fr.) Grev.

Derek A. Reid.

\* = new County record

† = confirmation of existing record.

N.B. It is perhaps worth mentioning here that specimens of Morchella esculenta Pers. ex St Amans, were collected near the side of a brook, with Ivy and Mercurialis, Barton Hills, Spring 1975 by A.G. Ford.

Maulden Wood.

The second fungus foray of the season, attended by about 60 members, was held at Maulden Wood on November 2, again with Dr. D.A. Reid as leader. However, the two areas visited were different from those parts of the wood in which we collected in 1974. The morning was spent on the clay while the afternoon was devoted to the greensand, and at the request of the Secretary the lists from these two regions have been kept separate. However, there is little to be gained from this separation from the mycological viewpoint, when so many species occur on fallen wood or alternatively are mycorrhizal with various trees, and hence independent of direct pH values of the soil. The fact that some species were found in one area and not in the other should not be taken as indicative of a preference for one soil to another. In general there is little evidence to suggest this type of preference amongst the fungi although some agarics are confined to woodland or pasture on chalk soils.

On this occasion a total of 127 species were collected of which 14 were new to the County. Notes on some of the more interesting novelties follow:

Lepiota konradii is easily mistaken for L. procera since both species have similar pale caps with conspicuous broad brown scales, but L. konradii lacks the brown snake-like markings on the stem which characterize the Parasol Fungus. Another very similar fungus is L. mastoidea which has small uniformly distributed brown granular scales over both cap and stipe. However the scales on the stipe are rather pale and never aggregated into snake-like bands.

Entoloma nidorosum has as its name suggests a strong nitrous smell, but is otherwise very like E. rhodopolium with a pale grey buff cap and pink gills. Rhodocybe caelata is another small agaric with pink spores, but while species of Entoloma, Nolanea, Leptonia and Eccilia all have distinctly angled spores the species of Rhodocybe have spores which are smaller and merely slightly rugulose. R. caelata is easily recognized under the microscope by the presence of conspicuous cystidia with yellowish granular contents. This rare fungus is dark grey brown to almost blackish and has similar dirty grey brown gills. In the field it could easily be mistaken for a Clitocybe or Eccilia. By coincidence the writer had also collected the species a few weeks earlier in Inverness-shire, near Loch Garten, although never having seen it previously.

Melanoleuca cinerascens differs from the common M. vulgaris in its ashy grey cap which is often tinged brown at the disc. Mycena leptocephala is a common fungus, despite not having been found in the County hitherto. It has a nitrous smell, dark brown cap and grows on the ground. Coprinus miser is a minute coprophilous species with a glabrous red brown cap, 7 - 8 mm in diam., but as this expands the colour fades and appears greyish.

Amongst the Aphyllophorales or non-gill-bearing Basidiomycetes mention must be made of Ischnoderma resinatum which is a bracket fungus with thin imbricate velvety pilei zoned in shades of brown and with pale brown flesh. Another interesting species was Serpula pinastri, which belongs in the same genus as the causative fungus of Dry Rot (S. lacrymans). S. pinastri produces resupinate rusty brown fructifications on the undersides of conifer logs and nearby debris, but instead of simple merulioid folds the hymenium is thrown up into spines. The very similar S. mollusca was also collected at the same time. This has paler fruitbodies with the yellowish or orange coloured surface ornamented with a merulioid reticulum. This fungus, already known from the County was abundant on the undersides of fallen branches of pine and also under the litter of dead bracken fronds.

Typhula quisquiliaris is a very common clavarioid fungus restricted to dead bracken stems. Its small white clubs up to 5 mm high burst out from the

rachis in a row. Each club arises from a small brown discoid sclerotium buried in the host tissue. *T. sclerotioides* also produces small white club-shaped fruitbodies which arise from a sclerotium but is distinguished on microscopic characters and host.

*Bovista nigrescens* is a globular puff-ball about 2 inches across which when old becomes black and papery and persists in this condition for a considerable time. It is quite common but occurs in fields and pastures.

The remaining novelties are resupinate fungi which can only be distinguished by their microcharacters. However mention should perhaps be made of *Puccinia lagenophorae* on groundsel. The aecidia of this rust occur as groups of minute yellowish cups on the leaves and stems of the host. It is remarkable that this fungus which is now so widespread in the British Isles, although hitherto unrecorded from Bedfordshire, was first found in Britain as recently as 1961.

Species	Clay	Greensand
<i>Agaricus campestris</i> L. ex Fr.	✓	
<i>Amanita citrina</i> (Schaeff.) S.F.Gray	✓	
<i>A. citrina</i> f. <i>alba</i> (Gillet) Gilb.	✓	
<i>A. rubescens</i> (Pers.) Fr.) S.F.Gray	✓	
<i>Armillaria mellea</i> (Vahl ex Fr.) Kummer	✓	✓
<i>Bolbitius vitellinus</i> (Pers. ex Fr.) Fr.		✓
<i>Boletus badius</i> Fr.	✓	
<i>B. chrysenteron</i> Bull. ex St Amans	✓	
<i>Clitocybe dicolor</i> (Pers.) Lange	✓	✓
<i>C. fragrans</i> (Sow. ex Fr.) Kummer		✓
<i>C. geotropia</i> (Bull. ex St Amans) Quéf.		✓
<i>C. vibecina</i> (Fr.) Quéf.	✓	✓
<i>Collybia cirrhata</i> (Schum. ex Fr.) Kummer	✓	✓
<i>C. dryophila</i> (Bull. ex Fr.) Kummer	✓	
<i>C. fusipes</i> (Bull. ex Fr.) Quéf.	✓	
<i>C. maculata</i> (Alb. & Schw. ex Fr) Kummer	✓	
<i>C. peronata</i> (Bolt. ex Fr.) Kummer	✓	
<i>C. rancida</i> (Fr.) Quéf.	✓	
<i>Coprinus atramentarius</i> (Bull. ex Fr.) Fr.		✓
<i>C. disseminatus</i> (Pers. ex Fr.) S.F.Gray		✓
<i>C. lagopus</i> (Fr.) Fr.		✓
* <i>C. miser</i> (Karst.) Karst.	✓	
<i>C. niveus</i> (Pers. ex Fr.) Fr.	✓	✓
<i>Cystoderma amianthinum</i> (Scop.) Fr.) Fayod	✓	
* <i>Entoloma nidorosum</i> (Fr.) Quéf.	✓	
<i>Galerina hypnorum</i> (Schrank ex Fr.) Kühn.	✓	
<i>Gymnopilus penetrans</i> (Fr. ex Fr.) Murr.	✓	✓
<i>Hebeloma sacchariolum</i> Quéf.	✓	✓
<i>Hygrophoropsis aurantiaca</i> (Von Wulf.) Maire	✓	✓
<i>Hygrophorus hypothejus</i> (Fr. ex Fr.) Fr.	✓	
<i>Hypoholoma fasciculare</i> (Huds. ex Fr.) Kummer	✓	✓
<i>Inocybe geophylla</i> (Sow. ex Fr.) Kummer	✓	✓
<i>I. geophylla</i> var. <i>lilacina</i> Gillet	✓	✓
<i>Laccaria laccata</i> (Scop. ex Fr.) Cooke	✓	✓
<i>L. proxima</i> (Boud.) Pat.	✓	
<i>Lactarius blennius</i> (Fr. ex Fr.) Fr.	✓	
<i>L. hepaticus</i> Plowr.	✓	
<i>L. quietus</i> (Fr.) Fr.		✓
<i>L. rufus</i> (Scop. ex Fr.) Fr.	✓	
* <i>Lepiota konradii</i> Huijs.	✓	
<i>L. rhacodes</i> (Vitt.) Quéf.	✓	
<i>Lepista nuda</i> (Bull. ex Fr.) Cooke	✓	
<i>Marasmius androsaceus</i> (L. ex Fr.) Fr.	✓	

<u>Species</u>	<u>Clay</u>	<u>Greensand</u>
<u>M. epiphyllus</u> (Pers. ex Fr.) Fr.	✓	
<u>M. ramealis</u> (Bull. ex Fr.) Fr.		✓
* <u>Melanoleuca cinerascens</u> Reid	✓	
<u>M. melaleuca</u> (Pers. ex Fr.) Murr.	✓	
<u>Mycena alcalina</u> (Fr. ex Fr.) Kummer		✓
<u>M. epipterygia</u> (Scop. ex Fr.) S.F.Gray	✓	
<u>M. fibula</u> (Bull. ex Fr.) Kühn.	✓	
<u>M. filopes</u> (Bull. ex Fr.) Kummer		✓
<u>M. galericulata</u> (Scop. ex Fr.) S.F.Gray	✓	✓
<u>M. galopus</u> (Pers. ex Fr.) Kummer	✓	✓
<u>M. galopus</u> var. <u>candida</u> Lange	✓	✓
<u>M. inclinata</u> (Fr.) Qué1.	✓	✓
* <u>M. leptcephala</u> (Pers. ex Fr.) Gill.	✓	
<u>M. leucogala</u> (Cooke) Sacc.	✓	
<u>M. polygramma</u> (Bull. ex Fr.) S.F.Gray	✓	✓
<u>M. sanguinolenta</u> (Alb. & Schw. ex Fr.) Kummer	✓	
<u>Panaeolina foenicisecii</u> (Pers. ex Fr.) Maire	✓	
<u>Panaeolus sphinctrinus</u> (Bull. ex Fr.) Karst.		✓
<u>Paxillus involutus</u> (Batsch ex. Fr.) Fr.	✓	✓
<u>P. panuoides</u> (Fr. ex Fr.) Fr.	✓	✓
<u>Pholiota gummosa</u> (Lasch) Sing.		✓
<u>Pluteus cervinus</u> (Schaeff. ex Fr.) Kummer	✓	✓
<u>Psathyrella gracilis</u> (Fr.) Qué1.		✓
<u>P. squamosa</u> (Karst.) Moser	✓	✓
* <u>Rhodocybe caelata</u> (Fr.) Maire		✓
<u>Russula cessans</u> Pearson	✓	
<u>R. ochroleuca</u> (Pers. ex Secr.) Fr.	✓	
<u>R. parazurea</u> Romagn.	✓	
<u>Stropharia aeruginosa</u> (Curt. ex Fr.) Qué1.	✓	✓
<u>Tricholomopsis rutilans</u> (Schaeff. ex Fr.) Sing.	✓	✓
<u>Tubaria furfuracea</u> (Pers. ex Fr.) Gill.		✓
<u>Volvariella speciosa</u> (Fr. ex Fr.) Sing.		✓
<u>Antrodia mollis</u> (Sommerf.) Karst.	✓	
<u>Bjerkandera adusta</u> (Willd. ex. Fr.) Karst.	✓	✓
<u>Coriolus versicolor</u> (L. ex Fr.) Qué1.	✓	✓
<u>Cristella candidissima</u> (Schw.) Donk		✓
<u>Daedalea quercina</u> L. ex Fr.	✓	
<u>Heterobasidion annosum</u> (Fr.) Bref.	✓	
<u>Hirschioporus abietinus</u> (Dicks. ex Fr.) Donk	✓	
* <u>Ischnoderma resinatum</u> (Fr.) Karst.	✓	
<u>Polyporus squamosus</u> Huds. ex Fr.		✓
<u>Tyromyces gloeocystidiatus</u> Kolt. & Pouz.		✓
<u>Xylodon versiporus</u> (Pers.) Bond.	✓	✓
* <u>Athelia galzinii</u> (Boud.) Donk	✓	
<u>Botryobasidium botryosum</u> (Bres.) Erikss.	✓	
<u>B. subcoronatum</u> (Hohn. & Litsch.) Donk		✓
<u>Chondrostereum purpureum</u> (Pers.) Pouz.	✓	
<u>Corticium laeve</u> Pers.	✓	
<u>Phlebia gigantea</u> (Fr. ex Fr.) Donk	✓	
<u>P. merismoides</u> Fr.		✓
* <u>P. pubera</u> (Fr.) Christ.	✓	
<u>Radulomyces confluens</u> (Fr.) Christ.		✓
<u>Serpula mollusca</u> (Fr.) Donk		✓
* <u>S. pinastri</u> (Fr.) Bond.		✓
<u>Stereum gausapatum</u> Fr.		✓
<u>S. hirsutum</u> (Willd. ex Fr.) S.F.Gray	✓	✓

<u>Species</u>	<u>Clay</u>	<u>Greensand</u>
<u>S. sanguinolentum</u> (Alb. & Schw.) Fr.	✓	
<u>S. sulphuratum</u> Berk. & Rav.		✓
<u>Vuilleminia comedens</u> (Nees ex Fr.) Maire		✓
<u>Typhula erythropus</u> (Bolt. ex Fr.) Fr.	✓	
* <u>T. quisquiliaris</u> (Fr.) Corner	✓	
* <u>T. sclerotioides</u> (Pers.) Fr.		✓
* <u>Bovista nigrescens</u> Pers. ex Pers.	✓	
<u>Lycoperdon pyriforme</u> Schaeff. ex Pers.		✓
<u>Mutinus caninus</u> (Huds. ex Pers.) Fr.	✓	
<u>Phallus impudicus</u> L. ex Pers.	✓	
<u>Scleroderma citrinum</u> Pers. = <u>S. aurantium</u>	✓	
<u>S. verrucosum</u> [Bull.] Pers.	✓	
<u>Dacrymyces stillatus</u> Nees ex Fr. = <u>D. deliquescens</u>	✓	✓
<u>Calocera cornea</u> (Batsch ex Fr.) Fr.	✓	✓
<u>Auricularia auricula-judae</u> (Bull. ex St. Amans) Wetts.	✓	✓
<u>Coleosporium tussilaginis</u> (Pers.) Lév.	✓	
on <u>Tussilago farfara</u>		✓
* <u>Puccinia lagenophorae</u> Cooke		
I on <u>Senecio vulgaris</u>	✓	
<u>Puccinia poarum</u> Niels.		
O and I on <u>Tussilago farfara</u>		✓
<u>Chlorosplenium aeruginascens</u> (Nyl.) Karst.		✓
<u>Coryne sarcoides</u> (Jacq. ex S.F.Gray) Tul.		✓
<u>Melastiza chateri</u> (W.G. Smith) Boud.	✓	
<u>Rhytisma acerinum</u> (Pers. ex St. Amans) Fr.	✓	
<u>Daldinia concentrica</u> (Bolt. ex Fr.) Ces. & de Not.		✓
<u>Diatrype disciformis</u> (Hoffm. ex Fr.) Fr.		✓
<u>Nectria cinnabarina</u> (Tode ex Fr.) Fr.	✓	✓
<u>Xylaria hypoxylon</u> (L. ex Fr.) Grev.	✓	✓
<u>Ptychogaster albus</u> Corda	✓	
<u>Arcyria denudata</u> L. Wetts.		✓

DEREK A. REID

\* = New County Record

N.B. A collection of Geastrum limbatum Fr. was made by Mrs. Rands on December 7th at Pennyfather Hill, Maulden Wood, under a hawthorn hedge. Although previously known from the County it is a rarity.

Another species of the same genus i.e. G. fornicatum (Huds. ex Winch. et al.) Hook., was collected in Wrest Park by A.G.Ford on October 12th, 1974. This is new to Bedfordshire.

Coriolellus serialis (Fr.) Murr., also new to the County, was collected by D.A.Reid at Stockgrove Country Park, February 9th, 1975.

D.A.Reid.

## REPORTS OF RECORDERS

### Flowering Plants and Vascular Cryptogams

The publication of the Bedfordshire Plant Atlas (1976) marks another stage in plant recording in the county. My attention has been drawn to very few errors:-

- P.9 - (The Administrative County). For districts read districts.
- P.85 - For Glechoma nederacea read ... hederacea. This arose from a fault in the plate making.
- P.94 - For Tripleurospermum maritima read ... maritimum

My reports in future will include only records of plants new to the county and new ten-kilometre grid square records or confirmation of earlier similar records made before the survey.

J.G.DONY.

### Lichens

As this was my first season as lichen recorder, the list of lichens for the county is still very small. Despite the attention given to the "Highlands and Islands" in the mapping scheme, there has been little work in the "Lowlands and Midlands" and Bedfordshire in particular has received little attention in recent years.

The number of species to be found in Bedfordshire is low, due to a number of contributory factors: high local levels of atmospheric pollution and lack of suitable substrates due to the intense cultivation of land for agricultural and industrial use.

The total number of species for the county stands, so far at 58, and most of these are the encrusting or crustose lichens to be found growing on stone walls, roofs, fence posts and the base of trees. Grid squares for the North Bedfordshire area are generally under-recorded and I would be grateful for any specimens from members in this region.

I would like to thank Richard Porter, Alan Outen, Beryl Rands and Jill Read for the specimens and records they have contributed.

FRANCES B.M.DAVIES.

### Woodlice, Centipedes and Millipedes

Tetrad recording of these three groups of generally neglected invertebrates was started in April, 1975. Previous records for the county were, to say the least, poor. The better known was the woodlice and water lice (Crustacea - Isopoda), thirteen species having been found between 1960 (the base date for the National Recording Scheme for the group organised by the Biological Records Centre) and May of this year. In contrast, the centipedes (Chilopoda) and millipedes (Diplopoda) were far less well recorded. Barber (1972, p.39) sums up the situation very well: "This part of England (the South East) is one of the better known areas of the British Isles, at least as far as the chilopod and diplopod fauna is concerned. Out of the 47 species of centipede described from Britain 34 are known from Kent, Surrey or Sussex. However other counties in the South East are much less well known especially those North of London. Thus for instance only three species are recorded from Bedfordshire." Although an additional species of centipede had been added to this list by April, 1975 the situation was still very poor. The position with the millipedes was just as bad with only three species being recorded up to April, 1975.

Going by what has been said above this first report is bound to add many species to the County List. A provisional report covering records obtained between April and July of this year which appeared in the Society's Newsletter (Rundle, 1975) listed 2 woodlice, 11 centipedes and 3 millipedes all new to the vice-county. Between July and the end of the year four centipedes and five millipedes were added to these provisional lists. All records given in this report are from the vice-county of Bedfordshire (No.30).

Each of these three groups is treated separately below with complete up to date records for both the Isopoda and Chilopoda and with incomplete records for the Diplopoda. The reason for the incomplete nature of the records for the latter is the difficulty experienced by the Recorder in naming certain groups of fairly closely related species of these.

#### WOODLICE AND WATER LICE (ISOPODA)

This year's recording has resulted in the addition of two species to the Vice-County List and only two of the previously recorded species were not re-found. As more species of woodlice are ubiquitous and are easily recognised and/or caught there are far more records of this group than of either the centipedes or the millipedes. 405 tetrad records were obtained during the year, distributed in 112 tetrads (see figure 1). On a larger scale this represents 145 10 km. square records, including records from every one of the 22 10 km. squares covering the vice-county (see table 1).

All the species of isopod known from Bedfordshire are listed below. Species preceded by an \* are new to the vice-county. The number in parentheses after each name denotes the number of tetrad records so far accumulated.

<u>Platyarthrus hoffmannseggi</u>	(13)
<u>Oniscus asellus</u>	(92)
<u>Philoscia muscorum</u>	(77)
<u>Porcellio dilatatus</u>	( 2)
<u>Porcellio scaber</u>	(66)
* <u>Metoponorthus pruinosis</u>	( 4)
<u>Armadillidium nasatum</u>	( -)
<u>Armadillidium vulgare</u>	(49)
<u>Trichoniscus pusillus</u> agg.	(57)
* <u>Trichoniscus pygmaeus</u>	(11)
<u>Trichoniscoides sarsi</u>	( -)
<u>Androniscus dentiger</u>	( 9)
<u>Haplophthalmus danicus</u>	( 7)
<u>Asellus aquaticus</u>	(13)
<u>Asellus meridianus</u>	( 5)

Oniscus asellus was the most frequently recorded species and is the only one in the present report known from every 10 km. square (see figure 3). The myrmecophile woodlouse Platyarthrus hoffmannseggi has been found in the nests of three species of ant: five records from nests of both Lasius niger and Lasius flavus and three from nests of Myrmica rubra. The 'farmyard' woodlouse Metoponorthus pruinosis was recorded twice from old manure heaps and twice from amongst human rubbish. The two trichoniscids Haplophthalmus danicus and Trichoniscus pygmaeus proved to be rather more common than their generally accepted 'rare' status would have indicated. Their apparent rarity is almost certainly due to the combination of their small size, retiring habits and white colouration. Although both species rarely occur in large numbers a site near Stevington yielded abundant H. danicus and common T. pygmaeus living in a pile of roadside tarmac rubble! Four species (Philoscia muscorum, Armadillidium vulgare, Trichoniscus pygmaeus and Androniscus dentiger) seem to prefer roadside rubbish habitats to natural ones ( see Rundle, 1976).



## CENTIPEDES (CHILOPODA)

Our knowledge of Bedfordshire centipedes increased dramatically this year with the addition of fifteen new vice-county records. 164 tetrad records were obtained, distributed in 69 tetrads (see figure 2). At the 10 km. square level there were 100 records, and only three of the squares are still unrecorded (see table 2).

All the species of centipede known from Bedfordshire are listed below (format as before).

* <u>Schendyla nemorensis</u>	(13)
* <u>Chaetechelyne montana</u>	
<u>oblongocribellata</u>	(1)
* <u>Strigamia crassipes</u>	(2)
* <u>Strigamia acuminata</u>	(5)
<u>Geophilus carpophagus</u>	(3)
<u>Geophilus insculptus</u>	(1)
* <u>Necrophloeophagus longicornis</u>	(10)
<u>Brachygeophilus truncorum</u>	(5)
* <u>Cryptops hortensis</u>	(4)
* <u>Lithobius variegatus</u>	(13)
<u>Lithobius forficatus</u>	(45)
* <u>Lithobius melanops</u>	(12)
* <u>Lithobius lapidicola</u>	(1)
* <u>Lithobius atalacopus</u>	(1)
* <u>Lithobius muticus</u>	(1)
* <u>Lithobius calcaratus</u>	(1)
<u>Lithobius crassipes</u>	(17)
* <u>Lithobius microps</u>	
= <u>L. duboscqui</u>	(30)
* <u>Lamyctes fulvicornis</u>	(1)

It is noteworthy that records of seven of the species listed above are based on single specimens only. Four species (Schendyla nemorensis, Cryptops hortensis, Lithobius forficatus and Lithobius microps) seem to prefer roadside rubbish habitats to natural ones (Rundle, 1976). The small lithobiid Lithobius microps is often found in ant nests.

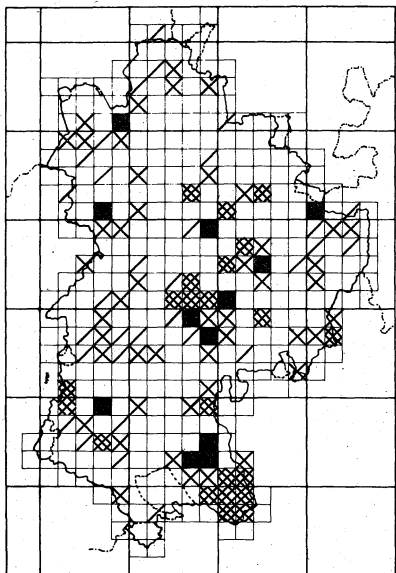
## MILLIPEDES (DIPLOPODA)

As mentioned earlier this part of the report is incomplete and only definitely determined species are referred to. Eight species new to the vice-county are listed below although about another four species still await identification. 108 tetrad records were obtained during the year, distributed in 66 tetrads. On the larger scale there are 62 10 km. records and only one of the twenty-two squares lacks records (see table 3).

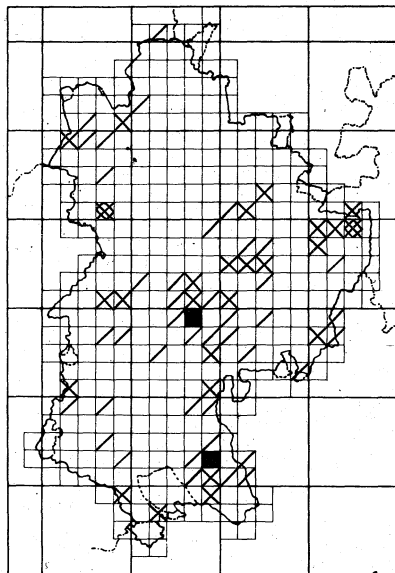
The format remains the same in the list below.

* <u>Glomeris marginata</u>	(24)
* <u>Polymicrodon polydesmoides</u>	(11)
* <u>Brachydesmus superus</u>	(6)
<u>Polydesmus angustus</u>	(16)
* <u>Ophiodesmus albonanus</u>	(1)
* <u>Blaniulus guttulatus</u>	(5)
* <u>Proteroiulus fuscus</u>	(4)
* <u>Cylindroiulus teutonicus</u>	(2)
<u>Cylindroiulus punctatus</u>	(15)
<u>Ommatoiulus sabulosus</u>	(1)
* <u>Tachypodoiulus niger</u>	(23)

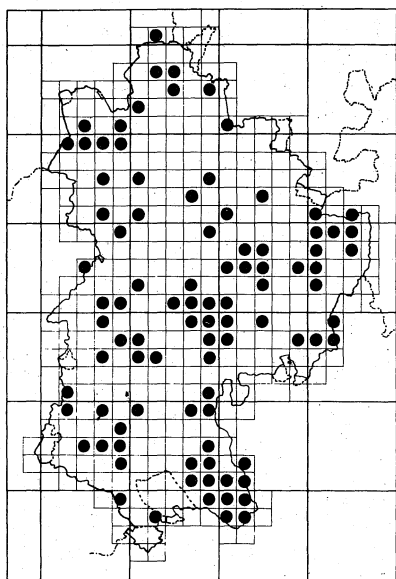




**Figure 1**  
**ISOPOD SUMMARY MAP**



**Figure 2**  
**CHILOPOD SUMMARY MAP**



**Figure 3**  
**MAP OF Oniscus asellus**

**KEY TO FIGURES 1 & 2**

	No. of Species
◻/	1-2
◻X	3-4
◻X	5
◼	6 →

TABLE 2: DISTRIBUTION OF CHILOPODS BY 10 KM. SQUARES

Grid Square	TL	SP	TL	TL	SP	TL	TL	TL	SP	TL	TL	TL	SP	TL	TL	TL	SP	TL	TL	SP	TL	TL
	07	96	06	16	95	05	15	25	94	04	14	24	93	03	13	23	92	02	12	91	01	11
<u>Schendyla nemorensis</u>	.	.	.	.	x	.	x	.	x	x	x	.	x	x	.	x	.	.	.	.	.	.
<u>Chaetechelyne montana oblongocribellata</u>	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	x	.	.	.	.
<u>Strigamia crassipes</u>	.	.	x	.	.	.	.	.	.	.	.	.	.	.	.	.	x	.	.	.	.	.
<u>Strigamia acuminata</u>	x	.	.	.	x	.	.	.	.	.	.	.	.	x	.	.	.	x	.	.	.	.
<u>Geophilus carpophagus</u>	.	.	.	.	x	.	.	.	.	.	x	.	.	x	.	.	.	.	.	.	.	.
<u>Geophilus insculptus</u>	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	x	.	.	.	.
<u>Necrophloeophagus longicornis</u>	.	.	.	.	.	.	x	x	.	.	.	x	x	x	x	.	x	x	.	x	.	.
<u>Brachygeophilus truncorum</u>	.	.	.	.	.	.	.	.	x	.	.	x	.	x	.	.	.	x	.	.	.	.
<u>Cryptops hortensis</u>	.	.	.	.	x	.	.	.	x	.	.	.	.	.	.	x	.	x	.	.	.	.
<u>Lithobius variegatus</u>	.	.	.	.	.	.	.	x	x	x	x	x	x	x	.	.	x	.	.	.	x	.
<u>Lithobius forficatus</u>	x	x	.	.	x	.	x	.	x	x	x	x	x	x	x	x	x	x	x	x	x	x
<u>Lithobius melanops</u>	.	.	.	.	.	.	.	.	.	x	x	.	.	x	.	.	.	x	x	x	.	.
<u>Lithobius lapidicola</u>	.	.	.	.	.	.	.	.	.	.	.	.	.	x	.	.	.	.	.	.	.	.
<u>Lithobius aulacopus</u>	.	.	.	.	.	.	.	.	.	.	.	.	x	.	.	.	.	.	.	.	.	.
<u>Lithobius muticus</u>	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	x	.	.	.	.
<u>Lithobius calcaratus</u>	.	.	.	.	.	.	.	.	.	.	x	.	.	.	.	.	.	.	.	.	.	.
<u>Lithobius crassipes</u>	.	x	.	.	x	.	.	.	x	x	x	x	x	x	.	x	.	x	.	.	x	.
<u>Lithobius microps</u>	.	x	.	.	x	.	x	x	.	x	x	.	x	x	x	x	x	x	x	x	x	.
<u>Lamyctes fulvicornis</u>	.	.	.	.	.	.	.	.	.	.	.	.	.	.	x	.	.	.	.	.	.	.

TABLE 3: DISTRIBUTION OF DIPLOPODS BY 10 KM. SQUARES

Grid Square	TL	SP	TL	TL	SP	TL	TL	TL	SP	TL	TL	TL	SP	TL	TL	TL	SP	TL	TL	SP	TL	TL
	07	96	06	16	95	05	15	25	94	04	14	24	93	03	13	23	92	02	12	91	01	11
<u>Glomeris marginata</u>	.	x	x	x	.	x	.	x	.	x	x	x	x	x	.	.	.	x	.	.	.	.
<u>Polymicrodon polydesmoides</u>	.	.	.	.	.	.	x	.	.	x	.	.	.	.	.	.	.	x	x	x	.	.
<u>Brachydesmus superus</u>	.	.	.	.	.	.	.	.	.	.	x	.	x	.	.	.	.	x	x	.	.	.
<u>Polydesmus angustus</u>	.	.	.	.	x	.	x	.	.	x	x	.	x	x	x	.	.	x	x	.	.	.
<u>Ophiodesmus albanus</u>	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	x	.	.	.	.
<u>Blaniulus guttulatus</u>	.	.	.	.	.	.	.	.	.	.	x	.	.	.	.	.	.	.	.	.	.	x
<u>Proteroiulus fuscus</u>	.	.	.	.	.	.	.	.	.	.	x	x	.	.	.	.	.	.	.	.	.	.
<u>Cylindroiulus teutonicus</u>	.	.	.	.	.	.	.	.	.	x	x	.	.	.	.	.	.	.	.	.	.	.
<u>Cylindroiulus punctatus</u>	x	x	.	x	.	.	.	.	.	x	x	x	.	x	.	x	.	x	.	.	x	.
<u>Ommatoiulus sabulosus</u>	.	.	.	.	.	.	.	.	.	x	.	.	.	.	.	.	.	.	.	.	.	.
<u>Tachypodoiulus niger</u>	x	.	.	.	x	.	x	.	.	x	x	x	x	x	x	x	x	x	x	.	x	.

## ACKNOWLEDGEMENTS

The Recorder would like to thank the Rands family, and especially Mrs. E.B.Rands, who not only contributed greatly to the records presented above but also made my collecting trips to the county possible. In addition to the above I would like to thank the following for records and specimens: Dr.N. Dawson, Dr.J.C.Dony, Dr.B.S.Nau, Mr.J.I.Sander and Mr.T.J.Thomas. I would also like to thank Mr.P.T.Harding of the Monks Wood Experimental Station for help with the identification of the woodlice and Dr.J.G.Blower of the Zoology Department of Manchester University for help with the identification of millipedes.

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- RUNDLE, A.J. 1975. Recording Woodlice, Centipedes and Millipedes in Bedfordshire. The Bedfordshire Natural History Society Newsletter, no. 20, p. 2.
- RUNDLE, A.J. 1976. Some Notes on Roadside Rubbish and Invertebrate Distribution. The Bedfordshire Natural History Society Newsletter, no. 22, p. 6.

A.J. RUNDLE.

## Meteorology

### THE WEATHER OF 1975

Continuing a tendency which began in June 1974, the first five months of 1975 were generally wetter and duller than average, with a preponderance of winds from an easterly quarter. The cumulative deficiency of rainfall, dealt with at length in last year's article and illustrated graphically, continued to fall and was nearly eliminated by the end of May.

An abrupt change in the weather then occurred and the following three months were notably hot, sunny and dry, giving a summer comparable in these respects to those of 1911, 1921, 1933 and 1959.

An unusually wet September followed, but, during the remainder of the year, the deficiency of rainfall was once more increasing, in sharp contrast to the autumn of 1974, and the year ended with this tendency unchanged.

### RAINFALL

Taking the year as a whole, the rainfall was about ten per cent below average, the excess of the first five months failing to balance the deficiencies of the remaining seven. August was everywhere the driest month, with less than 11 mm total rainfall in the north of the county. Against this, March gave 25 wet days at Cardington, and, in the south of the county, there were only two dry days in the seven weeks between 1st March and 20th April.

For the county as a whole, the wettest day of the year was 13th September, with 46 mm at Luton, 42 mm at Dunstable and 29 mm in Bedford.

There was, however, a singularity at Sandy Lodge, where, unlike any other known station in the county, January was the wettest month, largely due to very heavy falls on the 7th and 8th which were not paralleled elsewhere.

The longest wet period at Cardington was from 14th to 31st January - 18 days. Strangely enough, there was no period of absolute drought during the year, despite the summer; the nearest approximation was from 24th June to 5th July, a period of 12 days.

#### SNOW AND HAIL

Snow was observed on 7 days during the year in Bedford but the only appreciable fall took place early on 28th March; it rapidly melted later the same morning. Heavy showers of snow and sleet, and of soft hail, were frequent at the end of March and the beginning of April, notably on the afternoon of Easter Sunday, 30th March.

#### TEMPERATURE

The three summer months produced periods of exceptionally high temperatures. There were 32 days on which the temperature exceeded 27 deg.C. or 80 deg.F. and 5 on which it exceeded 32 deg. C or 90 deg.F. July and August were thus directly comparable with similar periods in 1959 (Bedf. Nat. 14:27).

The hottest period was that from 26th July to 15th August - 21 days, of which 19 had maxima over 80 deg.F. and 5 over 90 deg. The hottest day of the year was 8th August, with 34 deg.C or approximately 93 deg.F. This, by the way, was also the date in August 1911 which produced the highest temperature of the century - 97 deg.F.

The coldest days were 13th and 14th December, with maxima of 2 deg.C or about 36 deg.F. but there were no days wholly below freezing-point. The coldest night was that of 9th December, with a minimum of - 3.5 deg.C. or 24 deg. F.

The mean temperature for the whole year was about 9.65 deg.C. or 49.4 deg.F., not far from the average. Here again, the high values of the three summer months were balanced against the rather low figures for the early part of the year. May was a particularly chilly month, with half-a-dozen ground frosts and a mean temperature nearly 1.5 deg.C. below average, whereas the August mean was up by nearly 3 deg.C.

#### THUNDERSTORMS

The high temperatures of the three summer months not unnaturally triggered off an unusually large number of storms, and thunder was recorded on 19 days. Most of the storms were sporadic and there was no exceptional accompanying rainfall, although it seems likely that some of the heaviest falls were local and thus escaped record. A good example of this occurred on the evening of 17th July when very heavy storms along the Bedfordshire-Buckinghamshire border left Bedford and Cardington unaffected. The tremendous north London storm of 14th August which gave a phenomenal 170 mm of rain at Hampstead hardly affected even the extreme south of the county.

#### SUNSHINE

Figures kindly supplied by Rothamsted for the Woburn Experimental Farm at Husbourne Crawley give numerical confirmation of one's general impressions of the spring and summer; all five months from January to May inclusive were well below average for duration of sunshine, March, in particular, having less than one-half the average. By contrast, the three summer months were well above the average in sunshine duration, June exceeding its normal quota by nearly 32 per cent. and August by 26 per cent.

A.W. GUPPY.

RAINFALL FOR 1975

	Bedford	Cardington	Dunstable	Husborne Crawley
January	46.5	55.0	77.5	63
February	21.1	22.8	30.8	33
March	82.5	78.5	89.3	106
April	71.0	66.2	78.6	71
May	51.2	57.3	49.9	62
June	23.9	20.0	9.7	34
July	32.2	31.3	24.5	30
August	11.3	10.7	17.6	10
September	74.1	77.8	98.1	94
October	26.8	16.8	13.4	19
November	33.0	32.5	49.1	35
December	27.5	27.6	35.4	32
Total mm	501.1	496.5	573.9	589
(1974)	677.2	674.0	854.0	788

	Luton	Sandy	Silsoe
January	81.8	104.7	54.1
February	34.0	25.2	26.3
March	91.4	77.2	70.9
April	78.1	81.0	63.7
May	55.4	69.3	42.5
June	17.0	34.6	28.8
July	27.5	18.5	9.4
August	13.7	12.7	16.1
September	106.2	68.8	74.3
October	14.5	21.1	14.8
November	48.4	43.9	31.0
December	35.7	24.9	30.4
Total mm	603.7	581.9	462.3
(1974)	869.6	715.0	690.8

Bedford (Chaucer Road) : Dr.D.M.Jeffreys

Cardington (M.o.D.): Per Mr.L.A.Speed

Dunstable (Periwinkle Road): Per Mr.K.J.Reynolds, Lee Valley Water Co.

Husborne Crawley (Woburn Experimental Farm): Rothamstead Experimental  
Station, Report for 1975.

Luton (Runley Wood): Lee Valley Water Company

Sandy (Sandy Lodge): Per Mr.J.N.Dymond, Warden, R.S.P.B.

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

# Lepidoptera

After a cold wet start 1975 turned out to be a good butterfly year.

The dry sunny summer was enjoyed by the butterflies, although their greater activity shortened their life span and, in some cases, their larvae had to contend with rather dry and stunted food plants.

One highlight in the year was the discovery of (10) Wood White Leptidea sinapsis, L. in Maulden Wood and D. Rands reported seeing and photographing a female laying eggs. This site is possibly the only one in the county and it is hoped that it will flourish there. (65) Chalk Hill Blue Lysandra coridon, Poda. was more in evidence this year and was reported from several localities on the chalk. Members who attended the field meeting at Sewell Quarry on 30th July were fortunate to see freshly emerged males and females at close hand in what seems to be quite a thriving little colony.

(30) Red Admiral Vanessa atalanta, L. and (31) Painted Lady Vanessa cardui, L. were both reported but only in small numbers.

(58) Small Copper Lycaena phlaeas, L. was reported in good numbers and enjoyed a long season. I saw a female basking in the late sunshine on a flower head of Ragwort Senecio jacobaea on 28th October and found 21 small green larvae on the same day on the undersides of Dock leaves Rumex obtusifolius

Moth traps were run at Maulden Wood as part of the continuing survey and some interesting species were recorded viz. (106) Light Marbled Brown Drymonia dodonaea, Schiff. (309) Autumnal Rustic Amathes glareosa, Esp. (365) White Spot Coronet Hadena albimacula, Borkh. (429) Treble Line Meristis trigammica, Hufn. (464) Rufous Minor Procus versicolor, Borkh. the last three of which are new records. Some species were on the wing at odd times, possibly due to the dry conditions which tend to delay emergence from the pupa.

Alan Outen using his wife's health lamp in his garden recorded 81 species, which I think was a very good effort and shows what can be achieved. I am indebted to him and the following observers for sending in records:- Vic Arnold, Alan Martini, Derek & Beryl Rands, Richard Woolnough, Tom Thomas, Dr. B. Nau, Betty Chutter, Tony Peterkin, Robert Wyatt and D. Manning.

Bracketed numbers and English names as Entomologists' Gazette Vols 10 and 11 (I.R.P. Heslop M.A. Published 1960).

W.J.CHAMPKIN.

# Dragonflies

1975 with its long hot summer, was an excellent year for this group and records for 10Km squares now stand at over 100 for 17 species (since 1973). Some rare species have been unusually abundant - these include the magnificent Emperor Dragonfly Anax imperator recorded in 3 new squares (TL03, SP94 and SP95) and two species not previously seen by me, the Green Lestes Damselfly Lestes sponsa and the Ruddy symptetrum Darter Symptetrum sanguineum both present in the pond east of Forty Acre Wood (SP95) and at Cople Hts (TL04). This last site is unfortunately being filled with industrial waste, and we may have to mount a rescue operation next summer, and move some of the adults to some similar small pits a few hundred yards to the east where the Naturalists' Trust is negotiating a reserve agreement. Another exciting episode was a migratory swarm of the beautiful Golden-ringed Dragonfly Cordulegaster boltonii that arrived at Felmersham gravel pits.



I am very grateful to Bernard Nau, Beryl Rands, Tom Thomas, Tony Peterkin and Andrew Darrington for records, several of which were new 10 Km squares.

In the hope that more members of the Society will become interested in this small and attractive group I have drafted an illustrated key to the Bedfordshire species, with much help from Beryl Rands. Dr. Adrian Rundle has kindly agreed to duplicate it, and it will be available hand-coloured to members.

This season I have attempted a tentative grading of dragonflies sites. The grades are based both on quantity - how many different species are present, and - quality - how many rare and uncommon species are present. The definition of "rare" and "uncommon" is restricted to Bedfordshire and is quite arbitrary - "rare" species are those that I have found in one or two sites only, and uncommon in five or less. It is obvious that this system is wide open to mis-grading at this early stage, in that certain dragonflies, especially those that are difficult to identify, may well be more widespread than I have found so far, and certain sites may have more dragonflies than I give them credit for on the basis of only a few visits.

The provisional grade 1 sites make a very interesting list in that they are all recent man-made sites, and two of them (Cople Pits and Marston Thrift ditch) are very small. This I find quite cheering. It indicates that dragonflies - even the poor flying damselflies - are good colonisers, and that although older good sites are lost through filling and shading out with trees, members of the group - including rarities - seem able to establish themselves fairly quickly in new sites.

NANCY DAWSON

## Bugs

(Hemiptera-Heteroptera)

Fieldwork during 1975 resulted in the addition of six species to the Bedfordshire list given in this Journal for 1973, 74, 75. Also, Dr. M.G. Morris and Dr. B. Verdcourt have kindly drawn attention to references in the literature concerning a number of other species which are additions to this list. The net result is that 22 species are to be added and 2 species deleted, the list total now becomes 254; approximately 50 percent of the total for the British Isles.

The Recorder's fieldwork has been concentrated at Maulden Woods; in addition Dr. D. Leston has been working on Miridae in the county, extending earlier work which followed on from that reported in Leston (1961).

In the following list, records with no details refer to a manuscript copy of Masee (1955) with additions entered by Woodroffe in 1973. Unattributed records with date and location details are the Recorder's.

### Additions and deletions to the Bedfordshire list

(deletions, and one other, are in brackets)

- LYGAEIDAE: Macrodemia micropterum (Curtis)  
Stygnocoris rusticus (Fall.)  
Gastrodes grossipes (Degeer)
- BERYTINIDAE: Gampsocoris punctipes (Germar)
- TINGIDAE: Derephysia foliacea (Fall.)
- NABIDAE: Aptus mirmicoides (Costa)
- CIMICIDAE: Anthocoris butleri Le Quesne - one on Buxus sempervirens

- in the terminal bud gall of the psyllid Psylla buxi, at  
 Wilstead Wood 16 March 1975.
- Tetraphleps bicuspis (H.-S.)  
Acompocoris alpinus Reuter  
A. pygmaeus (Fall.)  
Lycocoris campestris (Fab.) - one swept from Glyceria  
fluitans s.l. in dried pond adjoining south edge of Odell  
 Great Wood 13 July 1975.
- MIRIDAE: Alloeotomus gothicus (Fall.) - one at UV light Maulden  
 Wood 9 August 1975.
- (Psallus variabilis (Fall.) - Leston (1961) questions  
 the record in Massee (1955) suggesting it is (P. perrisi  
 Musant, the species would therefore be deleted how-  
 ever two males were collected by T. Thomas (det.BSN)  
 in Maulden Woods 23 June 1974, so the species still stands.)
- Salicarus roseri (H.-S.) - Leston (1961), Scudder (1955).  
 (Orthotylus flavinervis (Kirsch.) - Leston (1961) considers  
 that owing to the revision of this genus the species in  
 Massee (1955) is probably O. marginatus, the species is  
 therefore deleted.)
- Orthotylus adenocarpus (Perris) - two females on Broom,  
 Maulden Wood 9 August 1975.
- Lygus maritimus Wagner-Leston (1961)  
 (L. pratensis (L.) - Leston (1961) points out that owing to  
 revision of the genus the records in Shaw (1945) and  
 Verdcourt (1950) probably relate to either maritimus or  
rugulipennis, and this applies also to Johnson and  
 Southwood (1949). The species is therefore deleted).
- Lygocoris spinolai (M. - D.) - two on 27 July and one on  
 Rumex on 9 August 1975 in Maulden Woods.
- Megacoelum becker (Fieber) - Leston (1961)  
M. infusum (H. - S.) - Southwood (1960) and Leston (1961).  
Phytocoris dimidiatus Kirsch. - Leston (1961)  
P. reuteri Saunders - Southwood (1960), Leston (1961).  
P. ulmi (L.) - Verdcourt (1950), Leston (1961).
- CORIXIDAE: Sigara concinna (Fieber) - one female at UV light in Maulden  
 Woods 9 August 1975; one male at UV light Stockgrove  
 Pk 14 August 1975.

B.S.NAU.

## Birds

### INTRODUCTION

Approximately one hundred and sixty species were recorded in the County during the year which is around the annual average. In early Spring a Rook survey was carried out in conjunction with the British Trust for Ornithology. The final results have proved that numbers are greatly reduced compared with the 1945 totals. A Great Crested Grebe survey at the end of May showed an increase over the previous survey.

As in previous years contributors have failed to report on the breeding success of our more common species. This information is most important as numbers could reflect downward trends in populations. The highlights of the year included good numbers of Cormorant including three present from November to date at Brogborough CLP, one hundred and thirty-three Wigeon at Harrold GP's in February, one hundred and twenty-three Grey Geese over Clapham in March, seventeen Bewick's Swan at Harrold GP's in December,

four sightings of Common Buzzard, two Rough-legged Buzzard on Pegsdon Hills during January/February, six Sparrowhawks records including summering, female Montagu's Harrier on outskirts of Luton, Osprey at Southill in October, five sightings of Hobby but no proven breeding, a Spotted Crane at Dunstable SF in August, at least four Short-eared Owls at Millbrook in December, a good crop of Stonechat records, a continuation in the increase in breeding population of Nightingale, Firecrest in breeding territory, Waxwing in Barton during January, the first breeding record of Red-backed Shrike since 1971 and a further expansion of the Redpoll population. Sand Martin and Whitethroat still have relatively low breeding populations. Wildfowl counts continued in conjunction with the Wildfowl Trust but numbers were low due to the mild Winter. The common bird census was continued by some observers.

#### LIST OF CONTRIBUTORS

Thanks are due to all contributors as follows:-

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#### SYSTEMATIC LIST FOR 1975

Species recorded in Bedfordshire during 1975 and not included in the systematic list are: Mute Swan Cygnus olor, Kestrel Falco tinnunculus, Red-legged Partridge Alectoris rufa, Partridge Perdix perdix, Pheasant Phasianus colchicus, Moorhen Gallinula chloropus, Coot Fulica atra, Lapwing Vanellus vanellus, Great Black-backed Gull Larus marinus, Common Gull Larus canus, Stock Dove Columba oenas, Woodpigeon Columba palumbus, Collared Dove Streptopelia decaocto, Green Woodpecker Picus viridis, Great Spotted Woodpecker Dendrocopos major, Skylark Alauda arvensis, Carrion Crow Corvus corone, Jackdaw Corvus monedula, Magpie Pica pica, Jay Garrulus glandarius, Great Tit Parus major, Blue Tit Parus caeruleus, Coal Tit Parus ater, Marsh Tit Parus palustris, Willow Tit Parus montanus, Long-tailed Tit Aegithalos caudatus, Nuthatch Sitta europaea, Treecreeper Certhia familiaris, Wren Troglodytes troglodytes, Mistle Thrush Turdus viscivorus, Song Thrush Turdus philomelos, Blackbird Turdus merula, Robin Erithacus rubecula, Goldcrest Regulus regulus, Dunnock Prunella modularis, Meadow Pipit Anthus pratensis, Starling Sturnus vulgaris, Greenfinch Carduelis chloris, Goldfinch Carduelis carduelis, Linnet Acanthis cannabina, Bullfinch Pyrrhula pyrrhula, Chaffinch Fringilla coelebs, Corn Bunting Emberiza calandra, Yellowhammer Emberiza citrinella, Reed Bunting Emberiza schoeniclus, House Sparrow Passer domesticus.

The order is as set down in the "Species List of British and Irish Birds" by the British Trust for Ornithology 1971.

The following abbreviations are used in the text: SF = Sewage farm, CHP = chalk pit, CLP = Clay Pit, GP = Gravel Pit, L = Lake, NR = Nature reserve.

Great Crested Grebe Podiceps cristatus

The British Trust for Ornithology organised count on May 31st/June 1st produced a total of one hundred and five adults actually counted with an estimated total of one hundred and nineteen. Although the County was well covered during the survey a total of only twenty-nine young were reported. As in prev-

ious years breeding success was under-reported. Winter counts include thirty-six at Stewartby L in February, fifty-eight there in March and twenty-five in December.

Little Grebe Tachybaptus ruficollis

Breeding proven in four localities although true status not known.

Cormorant/Shag Phalacrocorax Sp

One over Luton Hoo L. 26th March and four circling over same locality 17th October.

Cormorant Phalacrocorax carbo

Nine at Harrold GP's on 27th April, one there on 26th October, and two 23rd November. Single at Blunham GP's on 12th October and three flying WSW over Mogerhanger 22nd November. Singles at Stewartby L on 12th January, 2nd and 9th November. One immature at Brogborough CLP on 31st August increasing to three by the year end.

Heron Ardea cinerea

At least six pairs Southill L, six pairs Bromham Hall, one pair Luton Hoo L. Did not breed Ickwell Bury but may have done so nearby.

White Stork Ciconia ciconia

The bird recorded in late 1974 recorded until March in Studham/Whipsnade Zoo area and presumably same bird at Linslade in February.

Mallard Anas platyrhynchos

The maximum at selected waters from January to March and from September to December are tabulated. In this and the following tables ' - ' indicates that no count was received or no birds were seen.

	Jan.	Feb.	March	Sept.	Oct.	Nov.	Dec.
Southill L.	400	215	45	550	550	310	350
Stewartby L/ Vicarage Farm CLP	82	15	9	320	97	8	45
Brogborough CLP	63	14	15	12	40	95	110
Luton Hoo L	43	21	20	106	-	24	35
Odell/Harrold GP's	174	117	30	292	633	125	248
Blunham GP's	-	-	-	10	75	64	65

Teal Anas crecca

The maximum monthly counts Jan/March and Sept/Dec. are listed below.

	Jan.	Feb.	March	Sept.	Oct.	Nov.	Dec.
Southill L.	65	44	-	45	80	70	55
Stewartby L./ Vicarage Farm CLP	-	25	14	8	45	94	48
Brogborough	-	-	-	-	2	-	-
Luton Hoo L	2	4	4	6	-	6	10
Odell/Harrold GP's	16	12	-	4	30	24	60
Blunham GP's	-	-	-	-	-	-	4

Maximum sixty at Bedford SF during February with a peak of one hundred and twenty there on 26th December. Twenty eight Dunstable SF 21st December. Two males Southill L 2nd June.

Garganey Anas querquedula

Eclipsed drake Luton Hoo L 4th September.

Gadwell Anas strepera

Singles at Harrolds GP's 5th and 12th January, two there 2nd February and singles 8th September, 12th October and 26th December. Single at Stewartby L 21st December.

Wigeon Anas penelope

Maximum one hundred and thirty-three at Harrold GP's on 2nd February decreasing to twenty by 2nd March. Eighteen there 14th December. Thirty-three Brogborough CLP 14th December. Lesser numbers recorded at five localities during Winter months.

Pintail Anas acuta

Single drakes Harrold GP's 26th January and 9th February. Pair there 26th March and 21st May and drake 2nd November. Pair Bedford Marina Pits 30/31st March.

Shoveler Anas Clypeata

Reported during breeding season from Battlesden L. Maximum Winter counts thirty-three at Dunstable SF 19th August and nineteen Southill L 16th November.

Mandarin Duck Aix galericulata

Recorded throughout year in Woburn Park and on River Ouse at Bedford. Drake shot near Maulden 26th December.

Tufted Duck Aythya fuligula

Eighty young reported but probable figure far greater. Winter counts from selected water as follows:-

	Jan.	Feb.	March	Sept.	Oct.	Nov.	Dec.
Southill L	9	16	11	-	-	18	10
StewartbyL/ Vicarage Farm CLP	2	8	1	4	6	11	10
Brogborough CLP	46	30	8	16	30	48	89
Luton Hoo L	57	12	10	7	-	11	10
Odell/Harrold GP's	34	40	36	78	29	90	170
Blunham GP's	-	-	-	104	34	81	135

Pochard Aythya ferina

Present in breeding season Southill L, Brogborough CLP and Luton Hoo L where three young raised. Tabulated counts as follows:-

	Jan.	Feb.	March	Sept.	Oct.	Nov.	Dec.
Southill L.	96	34	15	-	13	54	51
Stewartby L/ Vicarage Farm CLP	31	-	-	-	-	74	111
Brogborough CLP	83	20	2	-	24	59	94
Luton Hoo L	22	7	6	-	-	12	27
Odell/Harrold GP's	24	25	4	53	151	78	103
Blunham GP's	-	-	-	23	27	25	51

Goldeneye Bucephala clangula

Good numbers at Stewartby L with five drakes, four ducks 1st January, five drakes three ducks 23rd February, two drakes six ducks 2nd March, one drake twelve ducks 6th April and one drake 13th April. One drake four ducks 14th December. One drake two ducks Harrold GP's 9th February. Two ducks there 26th December. Singles Southill L 16th February, Langford Pits 23rd March and Blunham GP's 22nd December.

Goosander Mergus merganser

Singles Luton Hoo L and Harrold GP's 16th March and 21st December respectively.

Shelduck Tadorna tadorna

Singles at Harrold GP's from 5th January until 11th May and 12th October 23rd November and 7th December. Single Dunstable SF 10th January to 6th April. Two there 14th April. Two Southill L 16th February. Singles Vicarage Farm CLP 20th July and in Stewartby L/Brogborough CLP area 14th September to 22nd November.

Grey Geese Anser sp.

One hundred and twenty-three flying NE over Clapham 9th March and twenty NE over Luton 11th November.

Greylag Goose Anser anser

Five young raised Girtford GP. Reported from six localities throughout the year with maximum seventy four at Blunham GP's 21st January.

Canada Goose Branta canadensis

Five young raised Battlesden L, five young Southill L, six young Luton Hoo L, five young Brogborough CLP, two young Wrest Park. Well established in County.

Bewick's Swan Cygnus bewickii

Seventeen at Harrold GP's 14th December decreasing to five by 21st.

Buzzard Buteo buteo

Two in Pirton area on Beds/Herts border until 12th April. Single on 13th May and during June. Singles in same area during October and Maulden Wood 14th September. One over The Lodge, Sandy 17th September and at Tebworth 20th September. Usual one reported in Luton Hoo Park in latter part of year.

Rough-legged Buzzard Buteo lagopus

Two present in Pegsdon Hills area into February.

Sparrowhawk Accipiter nisus

Present Woburn Park and Totternhoe Knolls during Summer months. Singles The Lodge, Sandy 10th and 29th January, 17th February and Pirton area 18th January and 31st March. Singles Luton Hoo Park 27th October, 14th and 24th December.

Harrier sp. Circus sp.

Single "ring-tail" Flitwick Moor 13th October.

Hen Harrier Circus cyaneus

Single Old Warden 6th April.

Montagu's Harrier Circus pygargus

Female Luton 9th June (same date and locality as 1974 record).

Osprey Pandion haliaetus

Single Southill L 11th October.

Hobby Falco subbuteo

Singles Streatley 3rd May, Toddington 13th July, The Lodge, Sandy 18th July, Harrold GP's 5th September and Stagsden West End 11th September.

Golden Pheasant Chrysolophus pictus

Present Maulden Wood, Pedley Wood, Luton Hoo Park throughout year.

Lady Amherst's Pheasant Chrysolophus amherstiae

30 present in Luton Hoo Park during year. Ten to twelve pairs in Maulden Wood with five pairs Charle Wood. Also present Woburn Park.

Water Rail Rallus aquaticus

Recorded at Flitwick Moor (at least seven in September), The Lodge, Sandy, Harrold GP's, Houghton Regis CHP, Tebworth, Dunstable SF, Girtford GP and Broom Mill.

Spotted Crake Porzana porzana

Single Dunstable SF 12th/13th August.

Ringed Plover Charadrius hiaticula

Spring passage and breeding: one pair raised two young at Harrold GP's. One pair present Vicarage Farm CLP but breeding not proven. Singles Stewartby L 30th March and 4th May. Three Bedford SF 13th April, two Girtford GP 17th April, three Houghton Regis CHP 27th April and ten Harrold GP's 16th May.

Autumn passage: maximum four Bedford SF 18th August. Singles Dunstable SF 13th August and Blunham GP's 23rd November,

Little Ringed Plover Charadrius dubius

Breeding proved at Houghton Regis CHP, Sandy SF, Bedford SF, Vicarage Farm CLP and Harrold GP's.

Golden Plover Pluvialis apricaria

Last recorded 20th April with two hundred and fifty near Cardington. Large concentrations as follows:- one hundred Tempsford Aerodrome 11th January, two hundred and fifty-four Copt Hall, Luton 12th January, thirty nine Biggleswade Common 10th February and four hundred Luton Airport 17th February. Autumn records of fifty Biggleswade Common 9th November with forty-one there 1st December. One to two hundred in Pirton area during October/December. Smaller numbers elsewhere.

Snipe Gallinago gallinago

Drumming observed Stewartby L, Wyboston GP's and Potton Wood. Maximum count one hundred and eighty Bedford SF on 25th January. Smaller concentrations elsewhere.

Jack Snipe Lymnocyptes minimus

Spring maximum eighteen Houghton Regis CHP 8th March with ten Bedford SF 14th April. Recorded at two other localities. Five Bedford SF 25th October and five Houghton Regis CHP 28th December.

Woodcock Scolopax rusticola

Recorded roding in ten areas. Autumn shoots reported very high numbers.

Curlew/Whimbrel Numenius sp.

Five flying south over Barton 9th September.

Curlew Numenius arquata

Singles over The Lodge, Sandy 31st May, Harrold GP's 29th June and Stewartby L 31st August.

Whimbrel Numenius phaeopus

Single Houghton Regis CHP 4th to 6th June.

Green Sandpiper Tringa ochropus

Winter records: maximum three Bedford SF, single Cople 18th February, single Wrest Park 16th November, single Flitwick Moor 22nd December. Spring and Autumn passage very obvious with maximum seven at Bedford SF - recorded at eight other localities.

Wood Sandpiper Tringa glareola

Singles Dunstable SF/Houghton Regis CHP 19th to 24th April, Stewartby L 20th April, Bedford Marina Pits 2nd May, Dunstable SF 14th July and 11th August.

Common Sandpiper Tringa hypoleucos

Spring passage: two Houghton Regis CHP 22nd April, single Luton Hoo L 4th May, singles Stewartby L 27th April, 4th to 18th May, single Bedford SF 16th May, two Harrold GP's 18th to 19th May.

Autumn passage: started 13th July and last recorded 26th October. Recorded with maximum three at ten localities.

Redshank Tringa totanus

Fourteen pairs reported during breeding season although apparently only eight young raised.

Spotted Redshank Tringa erythropus

Singles Bedford SF 11th and 14th April with two there 13th. Single Vicarage Farm CLP 20th April. Single Stewartby L 1st to 7th August, 13th September and two there 8th August. Singles Barkers Lane GP 25th August and Houghton Regis CHP 27th August.

Greenshank Tringa nebularia

Spring passage: singles Brogborough CLP 13th April, Harrold GP's 18th May.

Autumn passage: singles Vicarage Farm CLP 20th July, Dunstable SF 27th July, 14th to 19th August. Two Blunham GP's 25th August, single there 13th September remaining until 14th December.

Little Stint Calidris minuta

Three Harrold GP's 31st August.



Dunlin *Calidris alpina*

Spring passage: singles Stewartby L 30th March, 27th April with one there 4th May and three 8th June. Three Bedford SF 11th April. Two Dunstable SF 24th May. Single Vicarage Farm CLP 4th May. Four Harrold GP's 11th to 18th May.

Autumn passage: three Bedford SF 19th August; two 15th November with four 22nd. Single 7th December with eight 23rd fluctuating to seven by month end. Eight Vicarage Farm CLP 19th October, two 16th November. Four Stewartby L 14th December. Single Harrold GP's 28th September, with three 26th December.

Curlew Sandpiper *Calidris ferruginea*

Single Stewartby L 11th May.

Sanderling *Calidris alba*

Single Dunstable SF 21st May.

Ruff *Philomachus pugnax*

Singles Vicarage Farm CLP 13th April, Wyboston GP's 17th August, Bedford SF 19th August and two there 26th September.

Lesser Black-backed Gull *Larus fuscus*

Present Brogborough CLP during breeding season. 320 Harrold GP's 7th September and 325 Dunstable SF 15th September.

Herring Gull *Larus argentatus*

Present Brogborough CLP during breeding season.

Black-headed Gull *Larus ridibundus*

One hundred pair Vicarage Farm CLP with fifty pair Brogborough CLP during breeding season.

Black Tern *Chlidonias niger*

Two Stewartby L and Brogborough CLP 18th May. Two Arlesey 14th August and singles at Harrold GP's and Girtford GP 31st August and 13th September respectively.

Common/Arctic Tern *Sterna sp.*

Seven Stewartby L 27th April, singles Stewartby L and Brogborough CLP 11th May. Six Stewartby L and Brogborough CLP 18th May. Single Stewartby L 25th May. Two there 26th May, three 1st June, two 15th June, two 4th August and single 31st August. Four Dunstable SF 15th August.

Common Tern *Sterna hirundo*

Breeding suspected at Wyboston GP's. Single Tempsford 18th May. Eight Harrold GP's, 18th May and four Brogborough CLP 8th June. Five Harrold GP's 25th-27th July with two on 31st August. Fifteen Wyboston GP's 19th August.

Arctic Tern *Sterna paradisaea*

Two Stewartby L 6th August.

Little Tern *Sterna albifrons*

Singles Stewartby L 11th and 18th May.

Turtle Dove Streptopelia turtur

First 30th April Old Warden and last 6th October Bedford SF.

Cuckoo Cuculus canorus

First 19th April Potton Wood and last 23rd August Bedford SF.

Barn Owl Tyto alba

Recorded in only seven localities with no relevant breeding details.

Little Owl Athene noctua

Eighteen pairs located but vastly under-reported.

Tawny Owl Strix aluco

Widespread but breeding success unknown.

Long-eared Owl Asio otus

Single found decomposed in February near Streatley and single near Great Barford in December.

Short-eared Owl Asio flammeus

Two Stanford 12th January and Pirton area 18th January. Singles Biggleswade Common 26th March and near Chalton 13th October. At least four Millbrook 14th December.

Nightjar Caprimulgus europaeus

Present during breeding season in Charle Wood, Maulden Wood, Chicksands Wood and Warden Wood. Unusual record of one flying over Sewell Quarry 30th July.

Swift Apus apus

First East Hyde SF 30th April. Main influx from 4th May. One hundred Luton Hoo Park 6th July and Dunstable SF 15th, two hundred Dunstable Downs 16th July. Last single Biggleswade 29th August.

Kingfisher Alcedo atthis

Recorded at twenty-one sites but breeding activity at only two.

Hoopoe Upupa epops

Singles at Fenlake 4th May and Tempsford 11th May.

Lesser Spotted Woodpecker Dendrocopos minor

Recorded in thirteen localities.

Swallow Hirundo rustica

First arrivals 14th April at Arlesey with main influx 19th onwards. Last recorded 29th October with single at East Hyde SF.

House Martin Delichon urbica

First and last records at East Hyde SF - 16th April and 29th October.

Sand Martin Riparia riparia

Very late arrival with 13th April being earliest recorded date. Numbers still very low at breeding colonies. Last three at Dunstable SF 30th September.

**Hooded Crow** Corvus corone cornix

Singles on road between Carlton and Turvey 25th October and Chelveston Airfield 18th November.

**Rook** Corvus frugilegus

The British Trust for Ornithology organised census produced two hundred and one rookeries with a total of four thousand four hundred and twenty-two nests. The 1945 survey produced three hundred and twelve rookeries with nine thousand nine hundred and seventy-two nests.

**Fieldfare** Turdus pilaris

Three hundred Sewell 1st January. Recorded to 17th April with two at Willington. First recorded in Autumn on 5th October at Old Warden. One hundred Pegsdon Hills 9th November.

**Redwing** Turdus iliacus

One hundred Sewell 1st January and two hundred Luton Hoo Park 12th January. Last recorded 8th April with a single at Bedford. First Autumn arrivals 5th October at Old Warden. Two hundred and eighty roosting Flitwick Moor 18th October.

**Ring Ouzel** Turdus torquatus

Singles Pirton area 22nd March and Barton Hills 6th April.

**Wheatear** Oenanthe oenanthe

Spring passage: first recorded at Dunstable SF on 4th April and then at eleven localities to 16th May. Maximum nine Streatley 3rd May.

Autumn passage: commenced 17th August and last recorded 21st September on Barton Hills. Maximum six at Dunstable SF 20th August. One pair reared three young in Houghton Regis CHP.

**Stonechat** Saxicola torquata

Good crop of records: single East Hyde SF 8th - 10th January; one pair 3rd - 5th January near Biggleswade; male Streatley 16th February; female Chimney Corner CLP 21st January; one pair Newnham Allotments, Bedford 25th January; two Dunstable SF 10th January - 21st February. Single Dunstable SF 23rd September and then two from 25th October to year end. Male Bedford SF 26th December and then a pair 31st December. Male Blunham GP's 16th November, male Streatley 2nd November, two Millbrook 14th December and one pair The Lodge, Sandy 30th December.

**Whinchat** Saxicola rubetra

Only one breeding season record east of Luton. Single male Dunstable SF 1st May. Good Autumn passage commencing 13th August with three at Dunstable SF. Maximum six at latter locality. Last recorded 1st October in Pirton area.

**Redstart** Phoenicurus phoenicurus

Breeding record only from Charle Wood where one pair raised two broods. Singles seen 21st May Dunstable SF, 27th July The Lodge Sandy and two in area between Warden and Galley Hills 30th August.

**Black Redstart** Phoenicurus ochruros

Breeding not attempted at Vauxhall Motors site. Female East Hyde SF 4th April. Singles 28th April Houghton Regis CHP and 7th September The Lodge, Sandy.

Nightingale Luscinia megarhynchos

Sixteen singing males reported from Maulden Wood, Old Warden, Potton Wood, Home Wood Northhill, Marston Thrift, Yelnow Lane and Sutton Fen.

Grasshopper Warbler Locustella naevia

Thirteen pairs recorded from nine localities.

Reed Warbler Acrocephalus scirpaceus

Only nine singing birds reported with no relevant arrival/departure dates.

Sedge Warbler Acrocephalus schoenobaenus

First recorded 14th April at Arlesey and last 13th September at Felmersham NR and Girtford GP.

Blackcap Sylvia atricapilla

First recorded 27th April Mowsbury Hill with main influx first week of May. No relevant departure dates. Two males feeding on berries in a Luton garden 17th December and a female in a Maulden garden 25th-27th December.

Garden Warbler Sylvia borin

First records on 4th May at three localities. No departure dates.

Whitethroat Sylvia communis

First arrival 3rd May Potton Wood and last Bedford 1st October. Appears to be on a recovery course.

Lesser Whitethroat Sylvia curruca

First arrival Mowsbury Hill 26th April and last 18th October Brickhill, Bedford. High breeding density.

Willow Warbler Phylloscopus trochilus

First arrivals 19th April at three localities. Last recorded 6th September.

Chiffchaff Phylloscopus collybita

First recorded 6th April and last 24th September.

Wood Warbler Phylloscopus sibilatrix

No breeding records but singles Sutton Fen 22nd April, Dunstable SF 13th August and Bromham Mill 17th August.

Firecrest Regulus ignicapillus

Single Dunstable Downs 8th March and singing male Warren Wood 8th-9th June.

Spotted Flycatcher Muscicapa striata

First recorded 4th May Maulden Wood and last Flitwick Moor 18th September.

Pied Flycatcher Ficedula hypoleuca

Singles The Lodge, Sandy 8th - 15th August and 2nd September.

Tree Pipit Anthus trivialis

Twelve pairs resident during breeding season.

**Water Pipit** *Anthus spinoletta spinoletta*

Single East Hyde 16th April.

**White Wagtail** *Motacilla alba alba*

Singles Dunstable 1st April and Dunstable SF 22nd April. Singles East Hyde SF 1st - 3rd, 9th and 12th September.

**Grey Wagtail** *Motacilla cinerea*

Breeding proved in Luton Hoo Park with one pair raising two broods of two and five. Recorded in all months in ones or twos from ten localities.

**Yellow Wagtail** *Motacilla flava*

First recorded Brogborough CLP 28th March. Main influx around 20th April. Last recorded 28th September. A single of the race Blue-headed *Motacilla flava flava* on Biggleswade Common 3rd May.

**Waxwing** *Bombycilla garrulus*

Single in gardens at Barton 7th - 12th January.

**Great Grey Shrike** *Lanius excubitor*

Singles The Lodge, Sandy 24th February, 28th - 30th March. 1st - 2nd April, 6th April, 27th October, 29th - 30th October, Harrold GP's 24th March and Wyboston GP's 10th April.

**Red-backed Shrike** *Lanius collurio*

One pair raised three young in the east of the County. First breeding record since 1971.

**Hawfinch** *Coccothraustes coccothraustes*

Recorded during year in Wrest Park, Old Warden, The Lodge, Sandy and Streatley.

**Siskin** *Carduelis spinus*

Flocks in early part of year minimal. The Lodge, Sandy produced maxima twenty-five during October, thirty-five November, sixty-five December. Fifty Kings Wood, Heath and Reach 24th December. Twenty Aspley Guise 22nd December and ten Warren Wood 31st December. Smaller flocks elsewhere during Winter months.

**Redpoll** *Acanthis flammea*

Continues to expand as a breeding species with more urban colonisation and even breeding in scrub on Dunstable Downs. Two hundred Eversholt Lake 12th January, forty Warren Wood 29th December and forty Flitwick Moor 30th December.

**Crossbill** *Loxia curvirostra*

Male The Lodge, Sandy 16th - 18th April.

**Chaffinch** *Fringilla coelebs*

One hundred and fifty Woburn Park 19th January

**Brambling** *Fringilla montifringilla*

Twenty Barton Hill Farm early January, one hundred and ten Biggleswade 31st January, fifteen The Lodge, Sandy 11th February, twenty-five Studham 16th March and fifty Pirton area during December.

Tree Sparrow Passer montanus

Two hundred Kensworth 10th January.

#### Escapes

Bar-headed Goose Anser indicus

Singles Eversholt Lake 12th January and Harrold GP's 15th June .

Flamingo sp. Phoenicopterus sp.

Single flying west over Luton 26th September .

#### Additional 1974 records.

Sandwich Tern Sterna sandvicensis

Ten to fifteen flying south-west over Biggleswade 17th September .

Wryneck Jynx torquilla

One found dying in Luton 3rd September .

B.D.HARDING

## Mammals

1975 has been another year of high numbers of new mammal records, adding much information to our species distribution maps. The year also produced a record for a new species, that of Natterer's Bat, which was caught at Amptill Lake in May. The catch was made on a visit to check the site, one week before a Society meeting. Unfortunately, the meeting itself was held on a cold and rainy evening, and although a few bats were seen, none was caught. The Amptill Lake site must be one of the best bat locations in the county, for although bats are not present in large numbers, we have now caught Natterer's Bat, and Daubenton's Bat from the site, and in both cases it is their only known location in the county. It is probable that Pipistrelle and Noctule Bats are also present at the site, but so far they have eluded capture. The only other time that Natterer's Bat has been recorded in Bedfordshire, was in 1901 when J. Steele Elliot reported, in the Zoologist, that one was taken (shot?) and several others seen at Turvey. It is interesting to note that in the recently published mammal distribution maps for Hertfordshire, neither Natterer's nor Daubenton's Bats appear.

The total number of species having new tetrad records was 26, as against 24 in 1974. There were repeat records for three species - Daubenton's Bat, Yellow-necked Mouse and Fallow Deer, leaving only four species previously recorded since 1971, that were not seen at all during the year. These species were Dormouse, Fat Dormouse, Otter and Red Deer. The Dormouse is probably still in its earlier location, as well as others in the same general area. There is also a possibility it is present at a location in the centre of the county. The status of the Fat Dormouse is very uncertain, and the Otter can only be considered as a species that passes through Bedfordshire with no resident population. The Red Deer is probably no longer with us, as all the animals previously in the county were almost certainly escapes, and have either been killed or moved on to more suitable areas.

The most new tetrad records for 1975 were :-

Stoat 25, Rabbit 24, Weasel 23, Fox 20, Brown Rat 20 and Common Shrew 20. The total number of new records was 301. Interesting records obtained were: six for Pygmy Shrew, three for Water Shrew, one for Long-eared Bat, one for

Noctule Bat, three for Pipistrelle Bat, three for Harvest Mouse, six for House Mouse, and one for Chinese Water Deer.

Work on Badgers reached a new high in 1975, with ten new tetrad records being obtained. Many new sets have been located, watched and mapped as well as information gathered on cub sightings, road deaths and territorial behaviour. All this information has been passed on to the National Badger Survey. Several sites have been trapped for their small mammal contents - mice, shrews and voles, as well as a lot of work on Owl pellets and bottle remains. These last two methods give details of the small mammals present in an area, either as caught and eaten by the Owls, or by becoming trapped in odd bottles lying around, which they enter and are then unable to get out.

A Society meeting was held in Dunstable on the Owl pellet subject, and the members present had the chance to work through pellets and identify the species in them. My thanks go to all the people involved in these projects that take a lot of time and patience.

Early in the year a deer catch was organised at Maulden Woods and nine Muntjac Deer were caught and marked, but very little has been seen of them since! However, it did give information on the number of deer present in a known area.

67 new 10 Km. records have been sent in to the National Record Centre at Monks Wood. This is a high number and more than were submitted in 1974. The number shows both the amount of records that can still be obtained, as well as the amount of work that people are doing on mammal records. The National Centre are very grateful for these records, and I would like to pass on their thanks for all the work put in by our members. The total records obtained for 1975, are the work of 35 people listed below, seven of whom were non-members. I would like to thank them all for their efforts:-

D. Anderson, V. Arnold, C. Banks, B. Barton, C. Burton, C. Carpenter, B.M. Clutton, A. Darrington, D. Davies, N. Dawson, B. Drayton, A. Ford, J. Green, M. Green, P. Green, J. Harris, C. Hill, H. Key, D. King, D. Lawrence, J. Messer, B. Munn, B. Nau, A. Peterkin, A. Phillips, R. Powney, B. Rands, J. Roberts, M. Seaman, V. Sharman, A. Summerfield, T. J. Thomas, J. Tirrell, R. Woolnough, D. Wright.

DAVID ANDERSON.





# A COMPARATIVE STUDY OF HEDGES ON THE BOULDER CLAY AND THE LOWER GREENSAND IN THE MAULDEN AREA

by B.S. NAU and E.B. RANDS

## INTRODUCTION

During recent years there has been an upsurge of interest in hedges, culminating in the book by Pollard, Hooper and Moore (1974) which dealt with the historical aspects, management practices, and the fauna and flora. Key factors brought out were (i) individual hedges can be of great antiquity and (ii) the older the hedge the greater is the diversity of shrubs in it. Historical evidence shows that some hedges date back to Saxon times and an approximate formula giving the age of a hedge in terms of the number of shrubs per unit length is one species per century per 30 metre length sampled. The reference quoted above gives the details of the basis for these conclusions.

Much of the interest in hedges has been stimulated by the recent high rate of destruction of hedges, in Bedfordshire this has been especially rapid in the last ten years. Hedges are removed to increase farm efficiency, by forming larger more easily worked fields and reducing maintenance costs. Many regret this process on aesthetic grounds, for a varied landscape of hedges makes for scenic interest where otherwise monotonv would prevail, any who have travelled in countries lacking England's richness of hedges can attest to this. However, a more crucial role of a hedge is its function as a reservoir of fauna and flora, which disappear if the hedge is destroyed. This does not just mean the shrubs, trees, and climbers forming the structure of the hedge but includes all the other plants and the birds, mammals and invertebrates which require the protection, or micro-climate or the food supply which a hedge can provide.

Some hedges are more diverse than others and these provide for a richer variety of needs for the dependent plants and animals, and consequently have a richer dependent fauna and flora. Clearly, if some hedges can be saved from destruction it is these rich ones which should have priority. However, in Beds there is little published information on which to base an objective assessment of the relative value of a particular hedge. For instance, a hedge with a given 'shrub count' figure may be considered rich for a Greensand area but not in a Boulder Clay area. The intention of this paper is to take the first step towards providing an objective basis for hedge conservation in Bedfordshire.

## HEDGE COUNTS IN MAULDEN STUDY AREA

A series of some 190 counts were made of 30 metre sample lengths of hedges in the Maulden Woods area during 1975, this comprises virtually all accessible hedges in the area. The area in question lies on a ridge of Lower Greensand with a cap of calcareous Boulder Clay. The 91 metre contour is a fairly accurate dividing line between the calcareous, damp and sometimes poorly drained clay soils (1) of the plateau on the one hand and the mainly non-calcareous and well-drained soils (2) of the sandy slopes on the other. Where possible duplicate sample counts were made at approximately 200 metre intervals along each hedge, with additional samples where there was evidence of a change in the character of the hedge. This procedure was adopted because present field boundaries may encompass those of a number of former smaller fields, which could have differing histories.

### Footnotes:

- (1) Soil Survey Map (1968) : Hanslope Soil Series, calcareous gley soil derived from chalky Boulder Clay, imperfect to poor drainage. age.
- (2) Soil Survey Map (1968) : Cottenham Soil Series, brown earth soil derived from Lower Greensand, free to imperfect drainage.

## INTERPRETATION OF RESULTS

Two kinds of analysis are presented here, one from the point of view of the species-richness of the hedge and the other from the point of view of the species distribution over the study area, with special reference to the underlying geology.

In considering the results it is important to bear in mind that the patterns emerging will also reflect the distributions of invertebrates in particular, and also birds, mammals and herbaceous plants. To emphasise this point one may quote from Southwood (1961) the numbers of British species in several insect orders which are associated with some of the trees and shrubs in the study area, Table 1. This brings out very clearly the extent to which different trees and shrubs differ in their potential richness of insect life. For the few orders tabulated the totals range from 7 species for Holly, to 284 species for Oak. Ornithologists will be aware of not dissimilar ordering of preference based on bird species, for instance Oak and Willow being generally richer in bird species (and numbers) than Holly and Sycamore. Southwood showed that, among other factors, the associated insect fauna of a tree depends on the length of time for which the tree has been established in Britain. The 'most native' trees have the richest fauna.

TABLE 1

Numbers of species of British insects, in certain Orders, associated with specific trees or shrubs (based on Southwood (1961)).

	Oaks	Birches	Hazel	Willows	Hawthorns	Ash	Holly	Blackthorn	Poplars	Elms	Beech	Field Maple	Hornbeam	Apples	Sycamore
Heteroptera	37	12	16	22	17	10	-	4	8	11	4	2	1	18	1
Homoptera (Auch.)	10	4	2	20	1	2	-	2	11	4	3	2	-	3	-
Lepidoptera	187	178	46	173	117	25	4	91	59	59	40	20	23	63	13
Coleoptera	50	35	9	51	14	4	3	12	19	10	17	2	4	9	-
TOTAL	284	229	73	266	149	41	7	109	97	82	64	26	28	93	15

## RESULTS

In the analysis it was required to distinguish between 'clay' hedges and 'sand' hedges. The 91m contour is a good first approximation but some samples could not be categorised by this means. The problem was overcome by making a first analysis of the hedges which were clear-cut, then having identified a series of plants characteristic of one or other soil type the species in the unclassified hedges were examined for the presence or absence of the key species. It was found that hedges in doubt could then be clearly allocated to either 'sand'

or 'clay'. At least two key species were used for any given hedge treated in this way.

The list of species counted in the survey calls for comment as Pollard et al (1974) do not specify the criteria for including a species in the count. Hooper (pers. comm) indicated that the criterion used by the Nature Conservancy is that the plant should be capable of forming a hedge on its own. Hewlett (1973) added species to the list used by the Nature Conservancy as he found that certain climbers/ramblers formed hedges although not in the original list. In the present survey the list has been further generalised by the inclusion of all climber / ramblers other than purely herbaceous species such as Cleavers. Thus the following were included: Ivy, Clematis, Honeysuckle, Woody Nightshade, White Bryony, Black Bryony, as well as all the usual trees and shrubs.

### Species richness

The species richness is illustrated geographically in Map 1, four richness grades have been used. It can be seen that richness is by no means uniformly distributed, the high grades are concentrated on the clay, especially at the boundaries of the woodland and woodland compartments. One hedge is a notable exception, not only is it notably rich for a hedge away from the clay plateau but also contains several 'clay' species. This isolated hedge is apparently on a local clay outlier (Soil Survey: gleyed brown earth) but may have been planted up with species taken from the clay. The hedge does not conform to the boundaries marked on the enclosures map of 1797 so is probably of recent origin. The likelihood is that this anomalous hedge is accounted for by the second of the alternative explanations put forward above, the presence of the clay ensuring survival of the 'clay' species.

The histograms in fig.1 show the richness spectra for the Boulder Clay and the Lower Greensand separately. The greater richness of the clay hedges shows very clearly.

In fig.2 histograms show hedges of the woodland edge and woodland compartments only. These account for many of the richest hedges. Most of the richest hedges not so accounted for align with field boundaries shown on the 1797 enclosures map and are therefore probably relatively old hedges. The relative richness of the clay hedges is shown by the fact that the richest clay hedge has 18 species while the richest sand hedge has only 9 species. Viewed another way, a Boulder Clay hedge with 14 or more species will be in the richest 10 percent of clay hedges, a Greensand hedge with only 9 or more species will be in the top 10 percent of sand hedges. These figures provide a basis for conservation decisions on hedges situated on the Boulder Clay or Lower Greensand.

### Species distribution

To show the preference of various species for sand or clay, a scatter diagram has been plotted with axes showing the proportion of clay hedge records and sand hedge records for each species, fig.3. For clarity, species which occurred in less than 10 percent of the hedges are not shown. Species close to the horizontal axis, like Sallow, Wayfaring Tree, Field Maple, and Field Rose, are truly 'clay species'. Either because of a soil dampness requirement or because the species demands a calcareous soil, for example Sallow and Wayfaring Tree respectively. It is noticeable that there are considerably fewer species with an extreme sand preference, as compared with clay preference species; English Elm, Elder and Ivy are the most sand biased but none occurs solely on the sand.

The overall picture is best seen by reference to the histograms in fig.4, these show the proportion of hedges in which each species was recorded.

Notice that while 17 species were found in 20 percent or more of the clay hedges only 7 species were found in 20 percent or more of the sand hedges, this is an indication of how much more varied the clay hedges are. It is noticeable too that the total number of species is greater for the clay (39) than the sand (27). Plotting these cumulative totals against percentage frequency gives the curves in fig.5.

From these results it might be argued that the clay hedges are older than the sand hedges, in general. However, the scatter diagram, fig.3, shows that there are species which rarely or never occur in the sand hedges although fairly frequent in clay hedges. When the rarer species are included (i.e. those with frequencies under 10 percent) there are even more of these 'clay species'. It is concluded that there cannot be a universal age-species relationship which is valid for both the Boulder Clay and the Lower Greensand, otherwise one must make the implausible assumption that, given enough time, even the most extreme 'clay species' will appear in the sand hedges.

In order to appreciate some of the finer points of the species distributions it is necessary to examine the species distribution maps, a selection of these are therefore included. These have been selected to show some examples of distributions which are in line with expectation as well as some which are more surprising. For convenience these are dealt with by explanatory captions facing the individual maps. The captions also include, for reference, the brief habitat notes given by Clapham, Tutin and Warburg (1959), these are given in brackets.

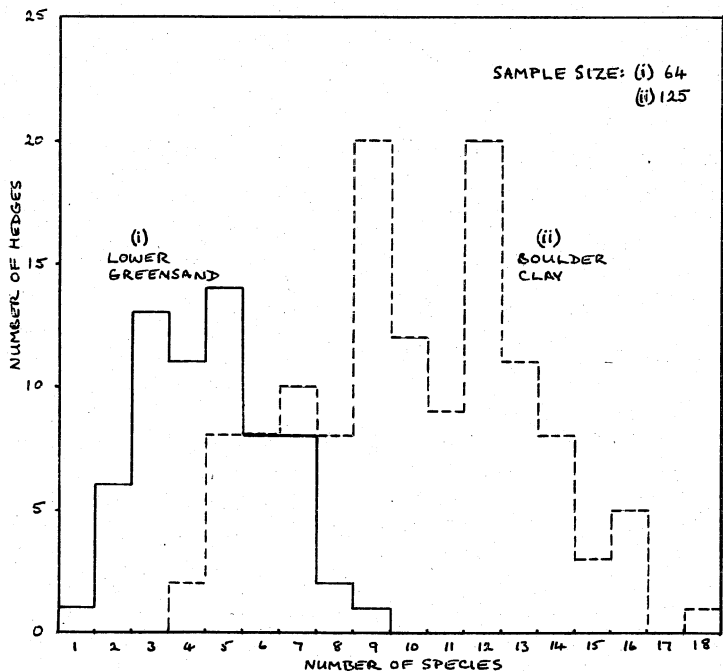


Fig.1 : The distribution of species numbers in hedges on Boulder Clay and Lower Greensand.

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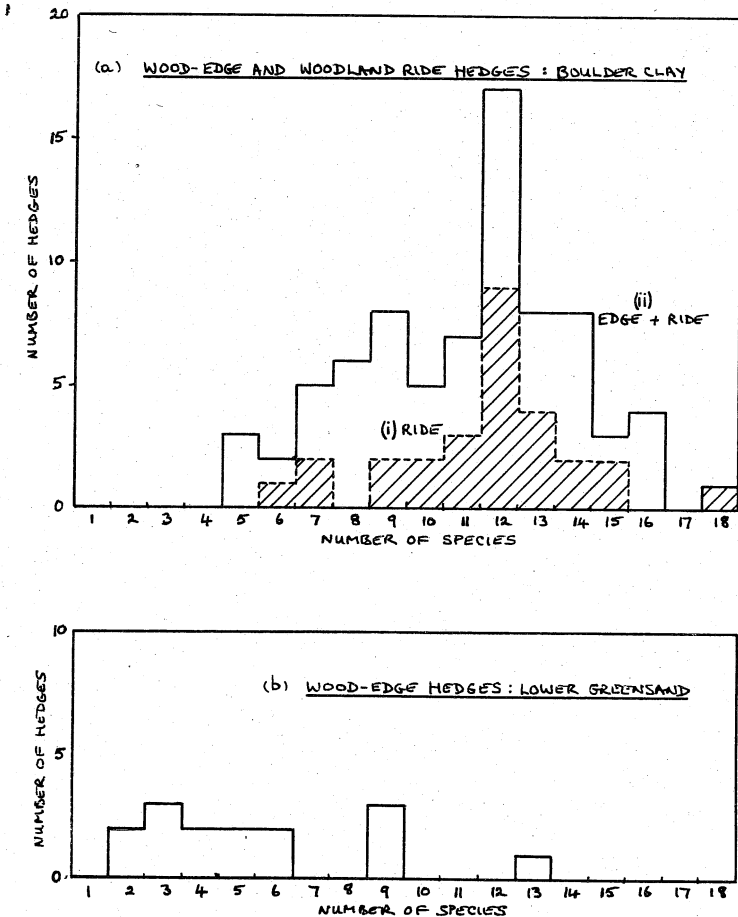


Fig.2 : The distribution of species numbers in hedges on woodland edge or woodland rides for Boulder Clay and Lower Greensand.

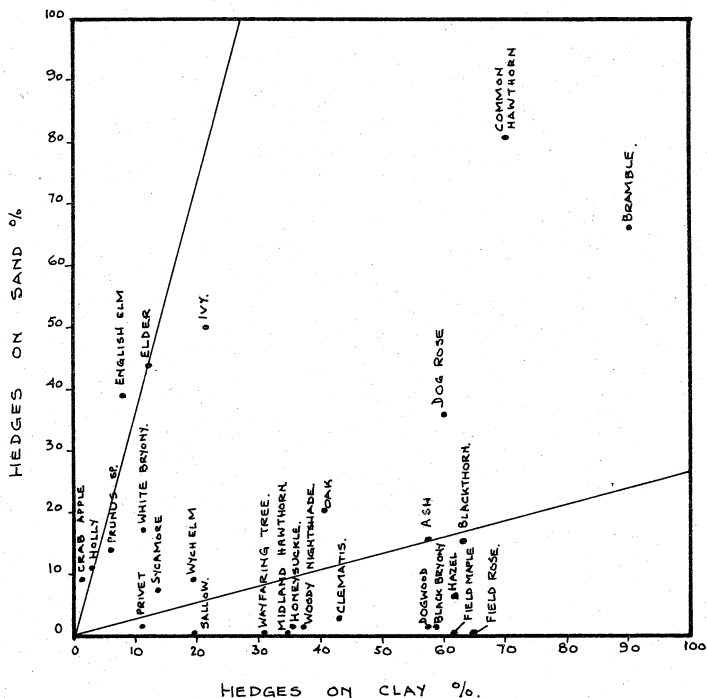
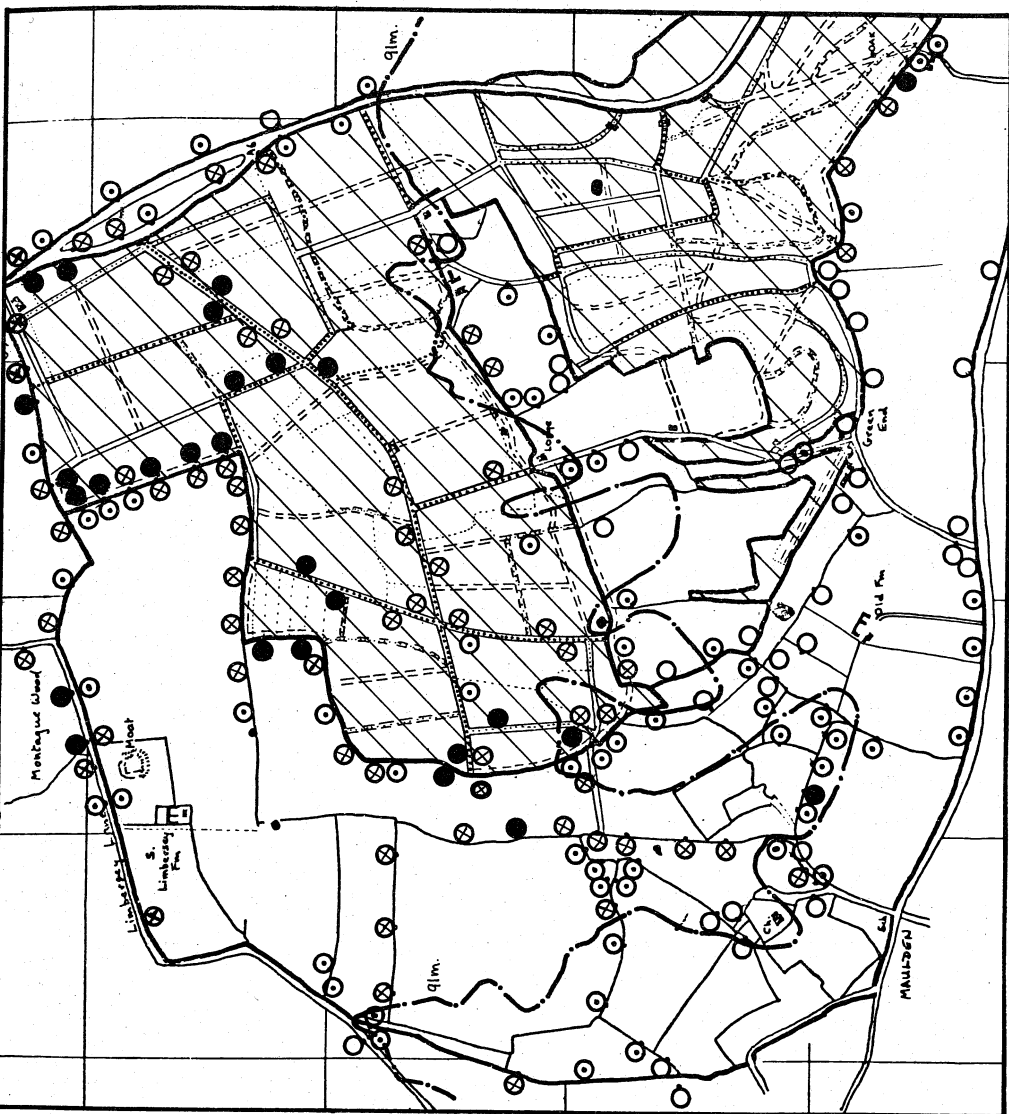


Fig.3 : Species scatter diagram showing preference for sand or clay. The line drawn through Ash is an approximate limit for species preferring calcareous soils, a line at the same angle to the sand axis has been drawn for reference.

Map 1 : Map showing the richness of hedges in the study area, graded as follows:

- 1 - 4 species
- 5 - 8 ..
- ⊕ 9 - 12 ..
- 13 + ..

The woodland area is cross hatched.



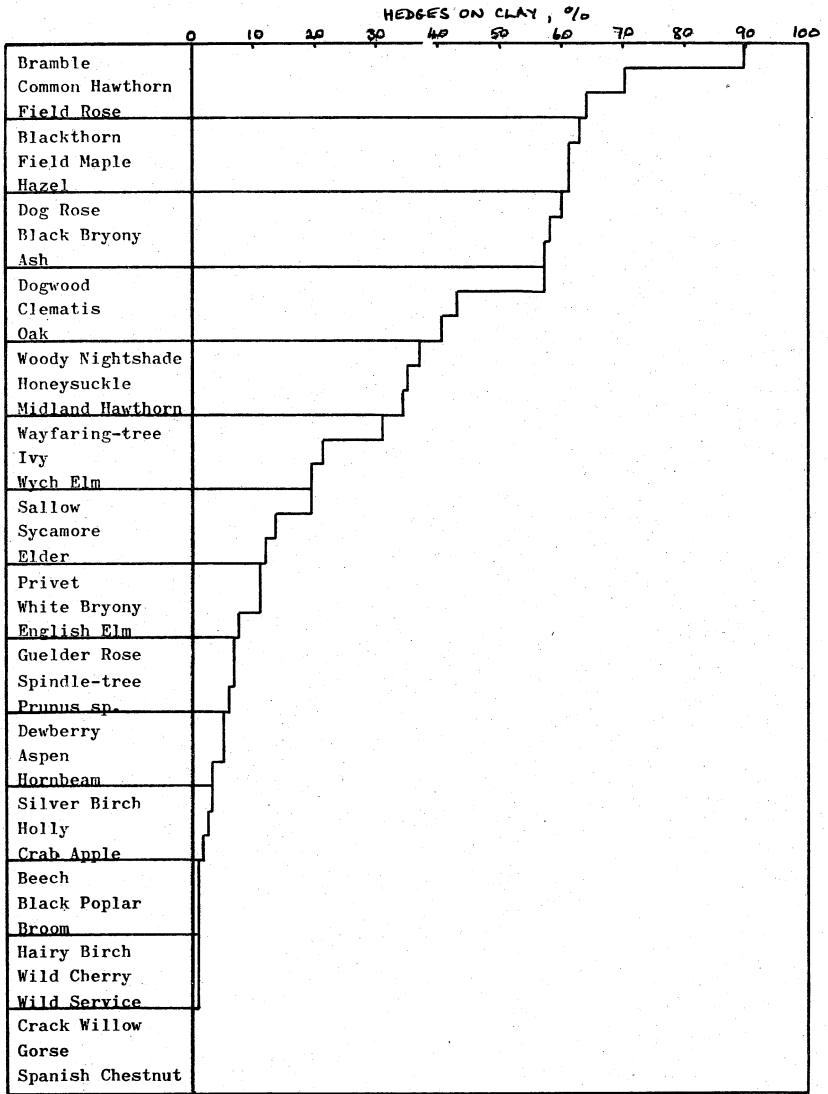
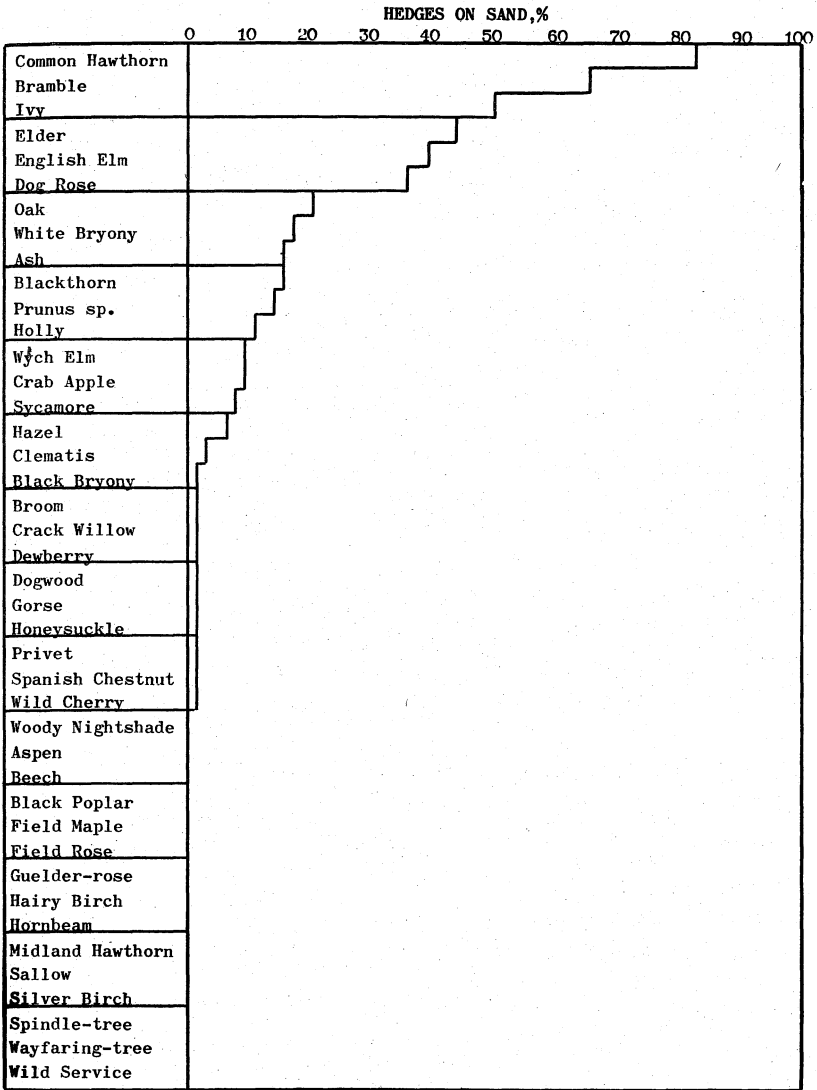


Fig. 4 : Relative frequency of species in hedges on Boulder Clay and Lower Greensand.





Map 2 : Midland Hawthorn

(Woods, less frequently scrub or hedges; more shade tolerant than C. monogyna; mostly on clay or loam)

The Maulden hedges show a distribution consistent with the notes above: the species is absent from the Lower Greensand hedges: hybrids with monogyna occur but were not studied in detail.

Map 3 : Hazel

(Woods, scrub and hedges on damp or dry basic and damp neutral or moderately acid soils)

Slightly more widespread than the Midland Hawthorn: absent from the well-drained non-calcareous hedges of the Lower Greensand.

Map 4 : Blackthorn

(Scrub, woods and hedges on a great variety of soils)

Compared with Hazel, less widespread in the hedges within the woodland area but more extensive in the field hedges on clay. Scarce on the sand.

Map 5 : Field Maple

(Woods, hedges and old scrub, mainly on basic soils)

Widespread on the clay but scarce on the sand, similar distribution to Blackthorn.

Map 6 : English Elm

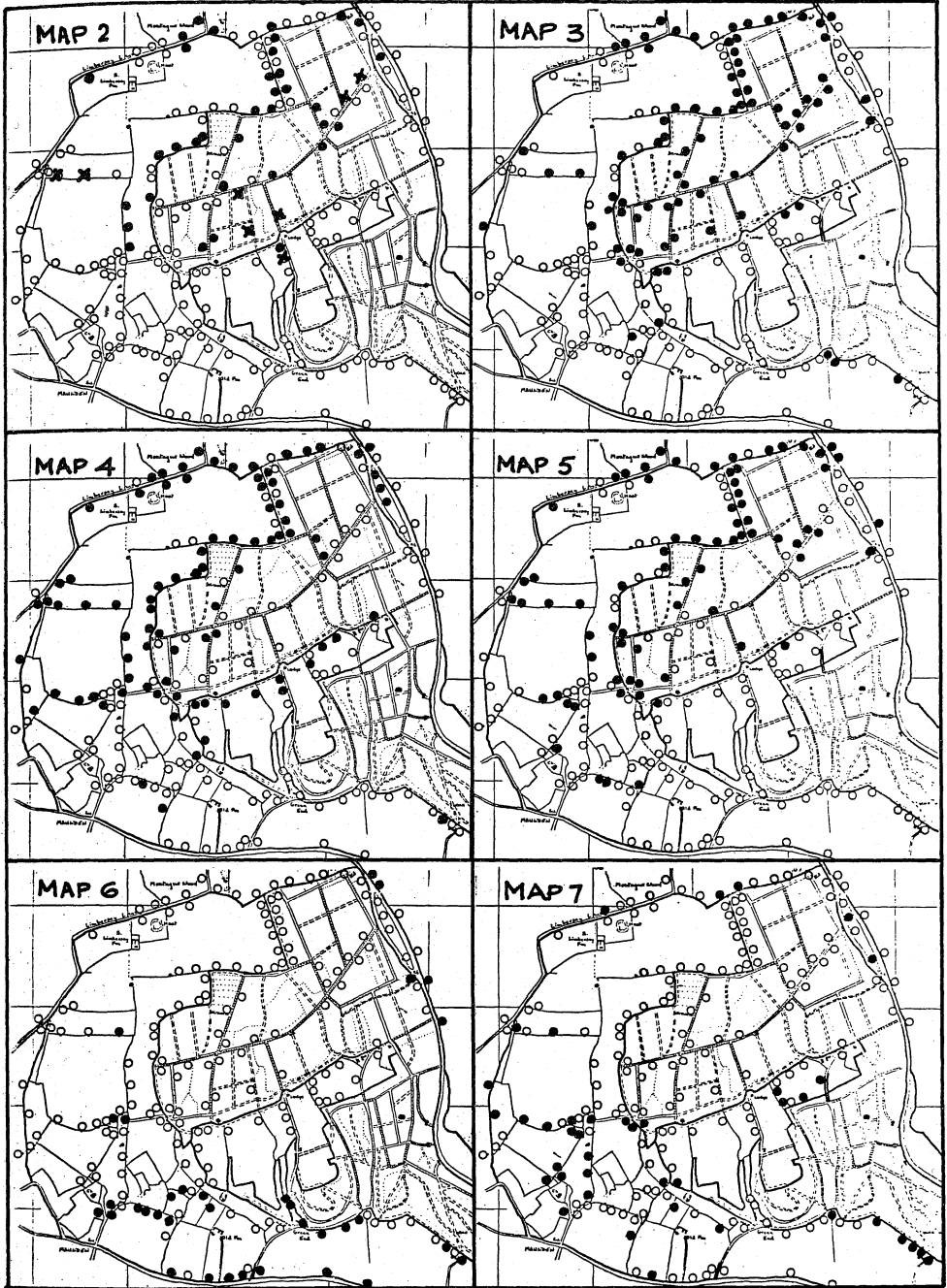
(In hedges and by roads)

This is the Elm of the Lower Greensand hedges where it is one of the commonest species.

Map 7 : Elder

(Woods, scrub, roadsides and waste places: especially characteristic of disturbed, base-rich and nitrogen-rich soils: rabbit resistant)

The survey shows Elder is largely absent from the base-rich clay soils but is widespread on the drier sandy soils.



Map 8 : Field Rose  
(Woods, hedge-banks and scrub)

The survey shows this to be a species of the damp clay hedges in and around the woodland, not extending on to the sand at all - apart from the anomalous hedge discussed earlier.

Map 9 : Dog Rose  
(Woods, hedges, scrub, etc.)

It appears from the survey that this rose is less demanding than the Field Rose, as it occurs extensively in hedges on the sand; it is less extensive than the Field Rose in woodland hedges.

Map 10 : Black Bryony  
(Wood margins, scrub, hedgerows, etc., in moist well-drained fertile soils)

Extensive on the clay and scarce on the sand; absent from both the wettest and driest hedges.

Map 11 : White Bryony  
(Hedgerows, copses, scrub; avoided by rabbits)

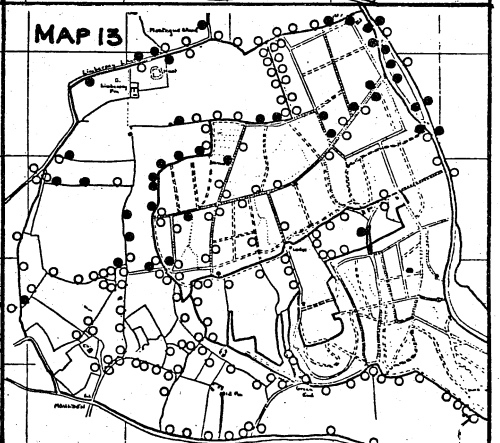
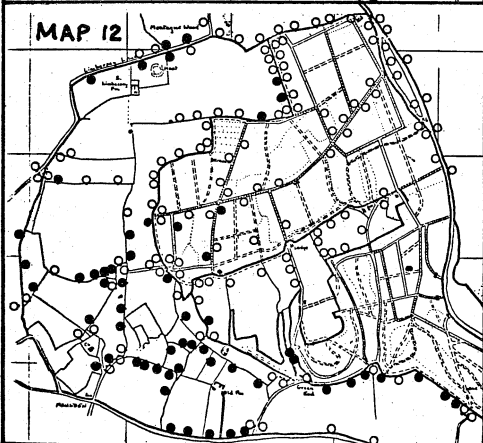
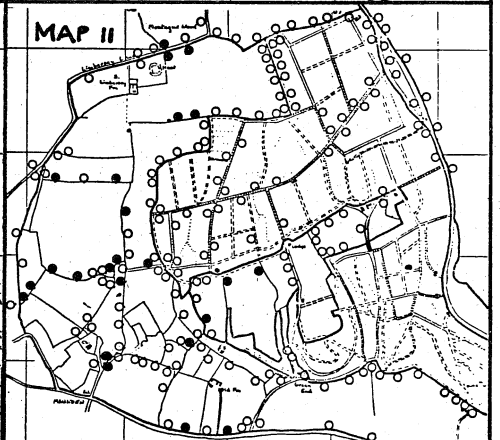
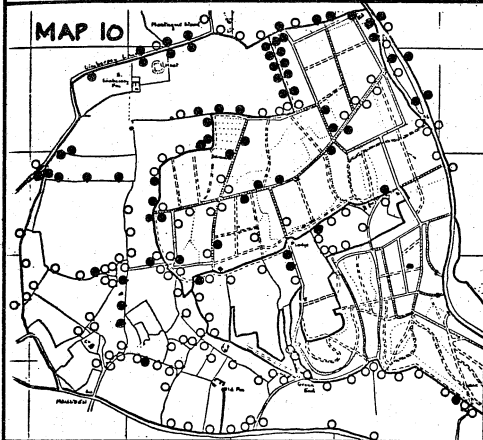
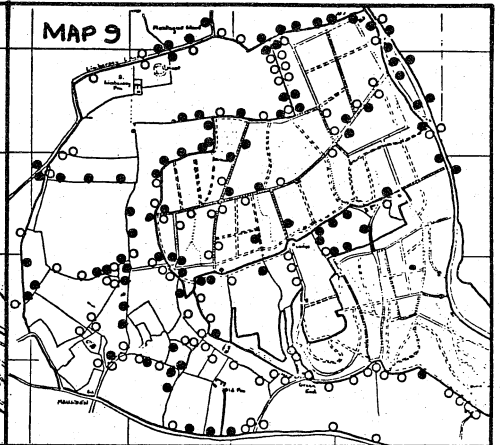
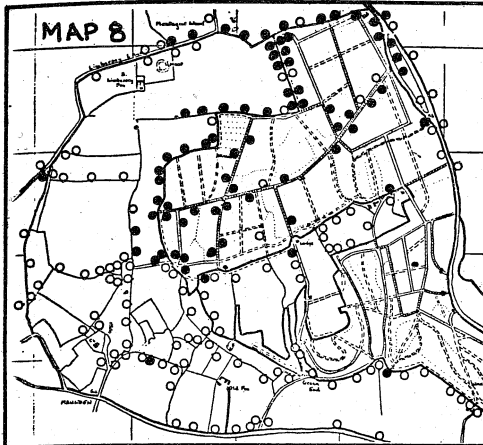
Unrelated to Black Bryony this species has a very limited distribution in the study area; it is largely absent from the clay hedges and very patchy on the sand.

Map 12 : Ivy  
(Climbing in woods, hedges, walls, etc., or creeping in woods; on all but very acid, very dry or water-logged soils)

Widespread and common in the sand hedges but scarce in the clay hedges, this is surprising since Ivy is widespread in the woods themselves - on the ground and on trees - it is possible that competition from other species - is limiting in the clay hedges.

Map 13 : Woody Nightshade  
(Hedges, woods, on waste ground and shingle beaches)

Restricted to the clay hedges but not universal even there: possibly soil moisture and shade are limited factors.



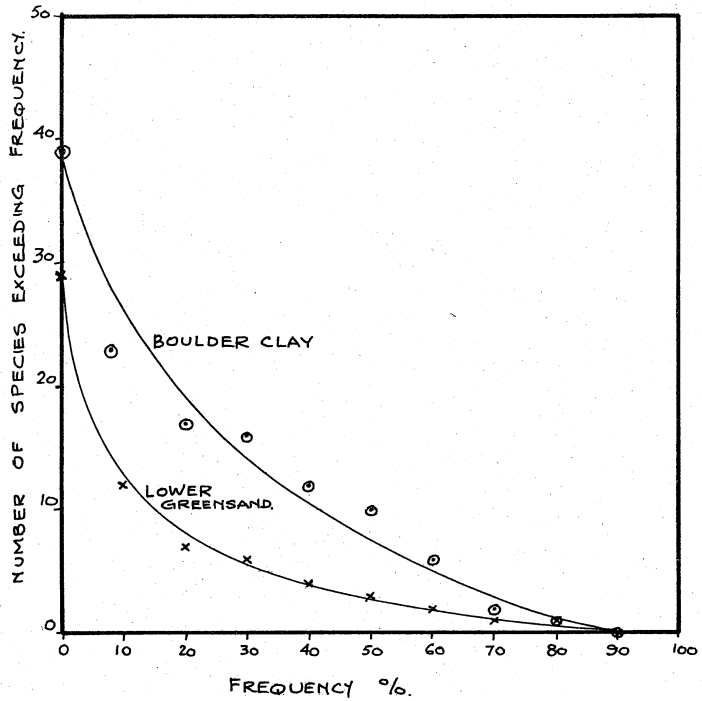


Fig 5 : Numbers of species occurring in various percentages of hedges on the Boulder Clay and Lower Greensand.

# A CENSUS OF THE GREAT CRESTED GREBE IN BEDFORDSHIRE 1975

by A.J.Livett

The British Trust for Ornithology repeated the successful 1965 survey in which several members of the Bedfordshire Natural History Society took an active part. The 1975 census was also the first attempt at a co-operative survey covering as much of Europe as possible.

The principal objective was to census the total number of Great Crested Grebes (*Podiceps cristatus*) present in England, Scotland and Wales. Apparently non-breeding birds move from one locality to another and due to this it was important that the survey should take place, as far as possible, on the same weekend. The chosen weekend was the 31st May 1975 and the 1st June 1975, and with the valuable help of the members of the British Trust for Ornithology, The Royal Society for the Protection of Birds, and the Society, very full coverage was obtained in Bedfordshire.

Basically, the information required, other than the name and address of the observer, was the site location, or grid reference, the actual date of the count if other than the 31st May and 1st June 1975, and the total number of adult Great Crested Grebes counted. In addition an estimate of the birds thought to be out of sight on nests or in surrounding vegetation was also required.

From the details supplied, it is apparent that there has been a significant increase in the total population of adult Great Crested Grebes within the County of Bedfordshire. Also there does appear to be a trend to reduced numbers of adult Great Crested Grebes in their traditional sites within the County and this is particularly noticeable at Southill, Woburn Park and Felmersham Nature Reserve. However, there was an increase in the total numbers recorded in Luton Hoo Park and it is interesting to speculate on the reasons for the alteration in numbers.

The main increase in numbers appears to have taken place in newly formed sand and gravel pits and it would seem that this species increase owes much to the activities of man and his creation of suitable habitats.

A schedule of the total number of adults recorded at each locality is appended below, together with additional information relating to previous surveys. Waters in close proximity have been grouped together eg. 6 lakes in a park are given as Woburn Park Lakes - 6.

## ACKNOWLEDGEMENTS

This survey could not have taken place without the valuable help of the following observers, to whom I would like to express my sincere thanks:-

P.R.Davis, J.Day, D.Elliott, I.J.Ferguson-Lees, B.D.Harding, N.Hammond, D.J.King, J.Knowles, A.J.Livett (Local Organiser) P.Nicholls, B.J.Nightingale, J.R.A.Niles, M.Rogers, Mrs.E.M.Sharrock, Dr.J.T.R. Sharrock, G.P.Smith, P.Smith.

## REFERENCES

- A Census of Great Crested Grebe in Britain 1965. Bird Study  
Volume 13 No. 2 Pages 163 - 203
- British Trust for Ornithology News Number 77 Pages 3 - 4
- Bedfordshire Bird Bulletin No.27 Page 6

## Great Crested Grebe Survey in 1975.

LOCALITY	Counted	Estimated
<u>Parks</u>		
Battlesden Park	2	2
Luton Hoo Park - 2	12	14
Southill Park	4	4
Woburn Park Lakes - 6	2	2
<u>Clay Pits</u>		
Brogborough	6	6
Coronation	2	2
Elstow - 2	6	6
Kempston Hardwick - 2	8	8
Millbrook	2	2
<u>Sand and Gravel Pits</u>		
Barker's Lane	2	2
Blunham	6	10
Cityfield Farm	2	2
Felmersham Nature Reserve - 4	2	2
Harrold - 3	8	8
Henlow Camp (The Airman Public House)	2	2
Henlow (The Grange)	2	2
Girtford - 2	9	12
Grovebury Farm	3	3
Jones	2	2
Langford	-	2
Sandy	2	3
Tiddenfoot	8	8
Wyboston - 5	12	12
<u>Chalk Pit</u>		
Houghton Regis	1	1

19 additional waters and including the River Ouse from Bedford town bridge to the County boundary at Wyboston had no Great Crested Grebes present.

1931	4 groups of waters held 36 adults
1946 - 1955	Average annual count 27 adults (min 10 max 48)
1965	16 groups of waters held 54 to 63 adults
1975	24 groups of waters held 105 to 117 adults



# WINTER MOTH TRAPPING IN MAULDEN WOOD

by V. Arnold, A. Martin, D. Rands

Moth trapping began in Maulden Wood during 1974 but stopped for the winter and continued again in 1975. It was evident that this area was rich in species but to obtain a comprehensive list, trapping would have to continue throughout the winter.

Very little information is available on the winter moths in the County and this was an opportunity to add to the records.

Trapping during the winter is very much dependent on the weather but it was hoped to trap twice a month from November to February inclusive, however in December only one session was possible and in February an extra session was included. This was due to weather conditions.

## Trapping Methods

The capture and release method was adopted using Robinson and sheet traps fitted with mercury vapour lamps. Two generators were available.

The Robinson type trap is basically a lamp over a funnel that leads into a capture box. This type of trap can be left unattended.

The sheet trap is simply a white sheet spread on the ground with a lamp suspended over it. Moths are then captured on the wing with a hand net or by hand after settling on the sheet.

The Robinson trap was very effective during the summer but by late October although the lamp was attracting the moths, very few were entering it. This type of trap was abandoned for the winter in favour of the sheet trap. In fig. 1 where two trap sites are shown on the same night, two generators were in use.

## Trap Sites

The location of each trap site is shown on the map (fig. 2), all sites are situated on the boulder clay except site K which is on greensand.

- Sites - B, C, D, E, J, are beside young plantations (trees approx. 3ft. high) but otherwise surrounded by coniferous and/or deciduous woodland. The rides having grass verges.
- Site A - Wide cross rides with grass verges surrounded by coniferous and deciduous woodland.
- Site F - Surrounded by coniferous and deciduous woodland.
- Site G - Bridle track with tree canopy, coniferous and deciduous wood with ivy on deciduous trees.
- Site H - Cottages and barn backed by a coniferous wood with a meadow in front.
- Site I - Meadow backed on one side by a deciduous wood.
- Site K - A ride with a coniferous wood on one side, arable land on the other.

The sites were chosen for variation of habitat, accessibility during winter months but more important for their sheltered conditions prevailing on

the night of the trap. When two trap sites were operating on the same night the light from one was not visible to the other.

In 'Moths of the British Isles' by Richard South (1961), approximately 40 species are on the wing in the British Isles during the period November to February inclusive. This figure includes rarities together with Autumn species flying late and Spring species flying early. However, for this report the interest was in the truly Winter species that were on the wing for the period December to January inclusive.

### Results

The summer had been dry and the winter generally mild.

It can be seen from fig.1 that a total of 17 species were recorded, 7 of which marked thus\* are expected on the wing during December - January. It will be noted that not all 7 species were recorded during this period, due no doubt to the spacing of the trap dates.

Two moths expected for this period, but not recorded, were (591) Dark Chestnut Conistra ligula Esp. and (595) Large Marbled Tort Nycteola revayana Scop.

On the night of November 24th no moths were seen flying but two were recorded, namely (148) December Eggar Poecilocampa populi L. and (550) Common Sprawler Brachionycha sphinx Hufn. Both species were observed walking on to the sheet having no doubt crawled out from the adjacent vegetation.

(908) Mottled Umber Erannis defoliaria Clerck and (929) Pale Brindled Beauty Phigalia pendaria F. showed remarkable variations in colour from pale buff to all black. The latter moth has a fully melanistic form ab. monacharia Staud. and 'occurs chiefly in South Yorkshire, but is also found around London' (Richard South) (1961).

\* Indicates moths expected on the wing during Dec. - Jan.  
Numbers refer to Check List of British Macrolepidoptera  
by I.R.P.Heslop 1961

		1975			1976				
		Nov. 11th	Nov. 24th	Dec. 22nd.	Jan. 5th.	Jan. 13th.	Feb. 2nd.	Feb. 20th.	Feb. 26th.
* 148	December Eggar <u>Poecilocampa populi</u> L.		●						
* 550	Common Sprawler <u>Brachionycha sphinx</u> Hufn.	●	●						
557	Green Brindled Crescent <u>Allophyes oxyacanthae</u> L.	●							
571	Satellite <u>Eupsilia transversa</u> Hufn.							●	●
575	Red Line Quaker <u>Agrochola lota</u> Clerck	●							
576	Yellow Line Quaker <u>Agrochola macilenta</u> Hüb. n.	●							
* 590	Common Chestnut <u>Conistra vaccinii</u> L.			●					●
651	Herald <u>Scoliopteryx libatrix</u> L.						●		
669	March Usher <u>Alsophila aescularia</u> Schiff.							●	●
738	Shoulder Stripe <u>Eareophila badiata</u> Schiff.								●
826	November Carpet <u>Oporina dilutata</u> Schiff.	●							
* 828	Common Winter <u>Operophtera brumata</u> L.			●					
* 904	Early Umber <u>Theria rupicaprararia</u> Schiff.						●		
905	Spring Umber <u>Erannis leucophaearia</u> Schiff.							●	●
* 908	Mottled Umber <u>Erannis defoliaria</u> Clerck			●	●	●			
* 929	Pale Brindled Beauty <u>Phigalia pendaria</u> F.						●	●	●
930	Small Brindled Beauty <u>Apocheima hispidaria</u> Schiff.								●
		A&B	D&E	J&K	F	G	H	H&I	C&D
		Trap Site Ref.- See Map							

Fig. 1 - Trap Sites and Dates

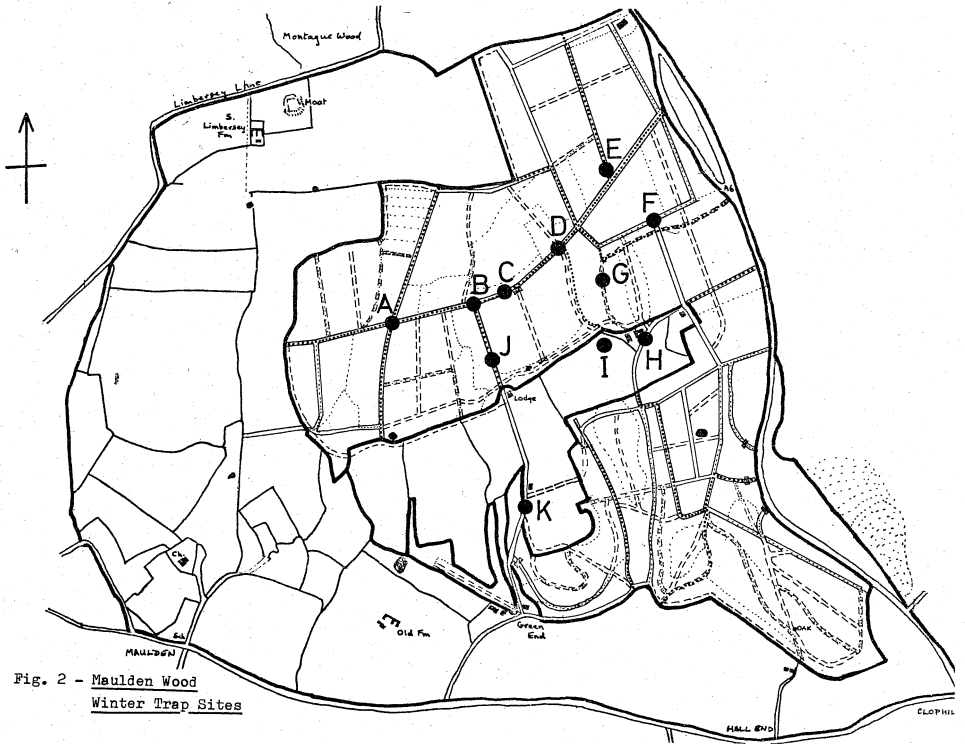


Fig. 2 - Maulden Wood  
Winter Trap Sites

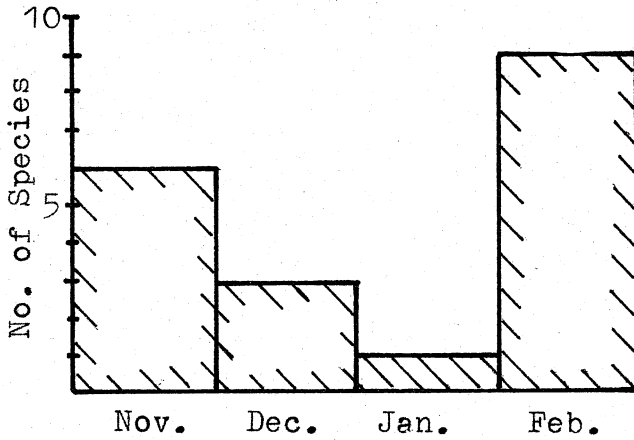


Fig. 3 - Relative Species Abundance

No analysis has been given between trap sites operating on the same night as there was no significant difference between them.

Fig.3 shows the relative species abundance from the trapping on a monthly basis. It is seen that the number of species is at its lowest ebb during January.

### Conclusions

Ideal mothing nights are mild, still and cloudy. Insects do not seem to fly well on cold clear moonlight nights; this fact is confirmed from results obtained during the rest of the year when there are many more species on the wing. To obtain maximum results the trapping must be done on a regular basis at short intervals and during the winter be prepared to trap at a moment's notice when weather conditions appear correct.

## A Plant Atlas of Bedfordshire

An important landmark in the study of natural history in Bedfordshire was reached with the publication in March 1976 of Dr. J. G. Dony's Bedfordshire Plant Atlas.

The main part of the work consists of a series of maps of the county showing the distribution of the flora, based on tetrads, a black dot indicating that the species was found in the tetrad at some time in the period of the survey i.e. 1970-1975 inclusive. Although tribute is paid to a number of workers for assistance given, it is clear that the task of recording has been primarily that of Dr. Dony and his wife, who visited each tetrad a number of times during the six years of the survey.

The first part is a section dealing with the topography of the county including altitude, rainfall, geology, wetlands, woodlands, downland and also more direct man-made aspects such as railways, built up areas and mineral workings. A series of maps illustrating these aspects is included. This is followed by the species maps which are placed in the sequence adopted by J. E. Dandy (1958) List of British Vascular Plants. The English name is given priority over the scientific name "in the hope that the Atlas may be more readily acceptable to readers who are not botanists". A brief note of the habitat preference of the plant appears against each map and six overlays are supplied separately, illustrating some of the aspects detailed in the first section. Finally there is a list of species for which maps are not provided. These are mainly garden escapes, casuals and wool aliens.

The Atlas is published by Luton Museum and Art Gallery with which Dr. Dony has been associated for forty years as honorary keeper of botany. He is to be heartily congratulated on this very fine achievement which he has generously dedicated to the Society "with happy memories of a long association".



# SPECIES- AREA RELATIONSHIP IN BEDFORDSHIRE

by John G. Dony

The Bedfordshire Plant Atlas (1976) was the result of a survey made during the six years of the vascular plants of the county.

It is now possible to make an analysis of the records made during the survey which are shown in a table for the larger areas of the county. This shows that the number of species recorded increases as the size of the area to which they refer is increased. The results are shown in a diagram with the logarithms of the species plotted on the vertical scale and the logarithms of the areas on the horizontal scale. A linear regression has been made with the items evenly placed on either side. Assuming that few if any species were not recorded during the survey for the larger areas it is now possible to establish the relationship between plant species and area within the county in the period 1970 - 1975. This may be expressed as

$$\log y = \log a + n \log x \quad \text{or} \quad y = ax^n$$

y = number of species

x = area in km<sup>2</sup>

a = a constant

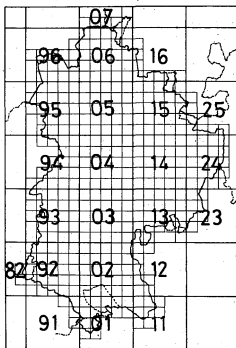
n = an index of regression

I am indebted to Dr .B.Nau for providing a calculated fit to the data giving a = 230.0 and n = 0.2219

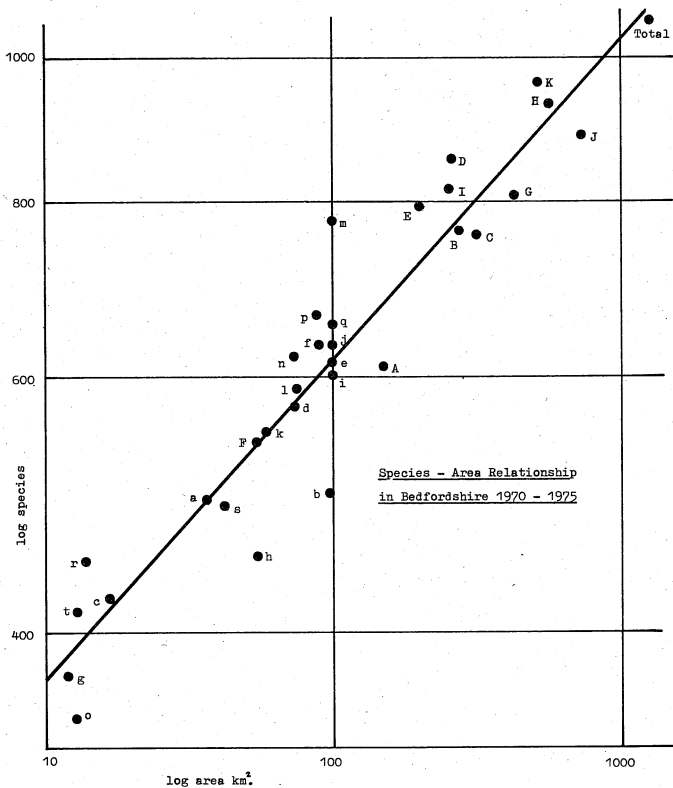
The relationship thus established is based on there being an average of 10.4 species in one square metre which is very close to what one would expect there to be.

Extended to an area equal to that of the British Isles it gives a total of about 3,700 species compared with the number of taxa of 2,895 accounted for by Dandy in his List of British Vascular Plants (1958). Comparison is difficult as microspecies of Rubus were not recorded in the Bedfordshire survey which, however, did account for a large number of aliens, mainly wool adventives, not included in Dandy's list. Dandy included extinct species in his list not accounted for in the Bedfordshire totals. On the other hand Bedfordshire, being a southern county, is floristically rich leaving no reason to suppose that the relationship established is a wrong one.

With regard to Bedfordshire the relationship gives an expectation of the average number of species in a tetrad of 303.4 compared with an average 262 made in the survey. This represents a cover of 86% which may be considered most satisfactory. It also means that additional records may be expected. These will be indicated in an annotated copy of the Atlas which will be housed at Luton Museum and Art Gallery.



Bedfordshire 10km. Grid Squares



10km. Grid Square within County (see map)	Area km <sup>2</sup> within County	No. of Species recorded
96 (a)	37	494
06+07 (b)	98	498
16 (c)	17	421
95 (d)	74	572
05 (e)	100	615
15 (f)	91	627
25 (g)	12	373
94 (h)	55	451
04 (i)	100	604
14 (j)	100	642
24 (k)	59	552
93 (l)	76	590
03 (m)	100	771
13 (n)	74	621
23 (o)	13	348
82+92 (p)	87	688
02 (q)	99	653
12 (r)	14	448
91+01 (s)	42	487
11 (t)	15	415
a+b+c (A)	152	609
d+e+f+g (B)	277	758
h+i+j+k (C)	314	751
l+m+n+o (D)	263	848
p+q+r (E)	200	790
s+t (F)	55	541
A+B (G)	429	801
C+D (H)	577	950
E+F (I)	255	815
A+B+C (J)	743	881
D+E+F (K)	518	966
Total J+K	1261	1061



# SOME AMPHIPOD RECORDS FROM BEDFORDSHIRE AND NEIGHBOURING COUNTIES

by B.S.Nau

As rather few records have been published of freshwater shrimps in this area it seems worthwhile putting on record the following, which are mainly for Beds. with some from Bucks, Essex, Herts, Northants and Leics. In the table certain codes have been used. Where suitable habitat was carefully searched without success there is a "nil" entry in the table. Other codes are F for "few", C for "common" and L for "local".

Corophium curvispinum is interesting as a freshwater species in a genus which is otherwise comprised of salt or brackish species in Britain. The habitat where it is found in the Grand Union Canal is algal "lawn" on vertical submerged walls, usually limestone. The Leighton Buzzard record is in administrative Beds but vice-county Bucks-I have been unable to find this shrimp in the Ouse system or in the Grand Union Canal east of the Chiltern summit.

Orchestia cavimana is a species of freshwater "beaches", being found under stones or jetsam close to the waters edge. When discovered it bounds away in a series of jumps like the familiar sandhopper of seaside beaches. The records for Gammarus pulex and Crangonyx pseudogracilis have been identified from the keys given in either Hynes, Macan and Williams (1960) or Gledhill, Sutcliffe and Williams (1976) and published by the Freshwater Biological Association.

DATE	COUNTY	GRID.	LOCALITY	SITE	Coro. curv.	Orch. cav.	Gamm. pul.	Cran. pseu.	
20 APR 75	BHOES	139921	STARTOPS END, TRING	GD.UN.CANAL	FC				
26 APR 75	HERTS	137921		RESERVOIR		1			
	BUCKS	931196	HORTON LOCK, SLAPTON	GD.UN.CANAL.	FC				
	BEDS	928203	SLAPTON LOCK		F		F		
		917257	L.BUZZARD		F				
30 APR 75	BUCKS	896279	STOKE HAMMOND		FC				
	NORTHANTS	882309	GT BRICKHILL		C				
		792427	COSGROVE		LFC				
		788437	CASTLETHORPE WHARF		LF				
	BUCKS	818423	HAVERSHAM	R OUSE	NIL				
30 APR 75	LEICS	832413	NEW BRADWELL	GD.UN.CANAL					
		878439	NEWPORT PAGNALL	R OUSE	1				
		630840	N KILWORTH	GD.UN.CANAL	NIL				
		590720	CRICK		F				
1 MAY 75	BEDS	046494	BEDFORD	R OUSE	NIL				
	HERTS	975090	NORTHCHURCH	GD.UN.CANAL	NIL		C		
006072		BERKHAMSTED		NIL					
055059		HEMEL HEMPSTEAD		NIL					
088987	WATFORD		NIL						
14 JUN 75	ESSEX	160955	HILFIELD	RESERVOIR	NIL		C		
		398104	ROYDON	R STORT		1			
		911264	LINSLADE	GD.UN.CANAL				1	
28 DEC 75	BUCKS	023477	KEMPSTON MILL		NIL	NIL	F		
	BEDS	060495	BEDFORD		NIL				
6 MAR 76	BEDS/BUCKS	984183	EDELSBOROUGH	CHALK STREAM			C		
17 APR 76	BEDS	134515	GT BARFORD	R OUSE	NIL	LC	1	1	
28 APR 76		917290	STOCKGROVE PK	LAKE			1		
16 MAY 76		975393	BROGBOROUGH	CLAY PIT				1	
		994384	LIDLINGTON	STREAM				FC	
31 MAY 76	BEDS	153559	CHAWSTON	STREAM			FC		
6 JUN 76	NORTHANTS	153562		GRAVEL PIT			1		
		750590	NORTHAMPTON	R NENE		LC		FC	
		810620	LT BILLING	LAKE/STREAM			F		
12 JUN 76	BEDS	079489	CARDINGTON MILL	R OUSE					
10 JUL 76		122507	WILLINGTON		C				
14 JUL 76		023477	KEMPSTON MILL		NIL				
6 AUG 76		185432	BROOM	R IVEL	F				
8 AUG 76		985601	COLWORTH HO.,SHARNB.	LAKE		F			
21 AUG 76		937523	TURVEY	R OUSE	NIL		C		
		955566	HARROLD		NIL				

(In columns 1 to 5 'ditto' marks are implied by blanks; in columns 6 to 9 a blank means 'no record!')



# RULES AS AMENDED OCTOBER 1976

## (1) TITLE

The Society shall be called 'The Bedfordshire Natural History Society'.

## (2) OBJECTS

- (a) The Society shall promote the study of all branches of natural history especially in relation to the county of Bedfordshire.
- (b) The Society shall maintain and publish records of the occurrence and distribution of the flora and fauna of the county.
- (c) The Society shall do all that it can to protect the flora and fauna of the county and shall collaborate with other bodies in the conservation of areas of particular natural history interest.

## (3) PUBLICATIONS

The Society shall publish Newsletters and an annual Journal.

## (4) MANAGEMENT

- (a) The Society shall be managed by a Council composed of Officers and a Committee of ten. The Officers shall consist of a Chairman, Secretary, Treasurer and not more than three others currently deemed necessary by the Council.

The Council may co-opt additional members who will not have voting rights at a Council meeting.

5 elected members shall form a quorum at a Council Meeting.

- (b) The Council shall be elected annually at the Annual General Meeting. The Council shall nominate officers and voting members may submit additional nominations. Any candidate for election as an officer or member of the Committee shall be nominated in writing by not less than five voting members or two voting members of the Society respectively. These nominations to be received by the Secretary at least fourteen days before the Annual General Meeting.

## (5) MEMBERSHIP

Membership shall be granted upon application, subject to the approval of the Council and to payment of the appropriate annual subscription. Members admitted during the last three months of any year shall remain members until the 31st December of the following year without further payment.

The Society shall consist of:

- (a) Ordinary members
- (b) Associate members, who must be members of the family of an Ordinary member and resident at the same address.
- (c) Student members - any person under the age of eighteen years.
- (d) Corporate members.

Paid up, Ordinary and Corporate members, but not Associate or Student members shall be entitled to one copy of the Journal. Paid-up Ordinary, Associate and Corporate members, but not Student members shall each be entitled to one vote at a General Meeting.

## (6) HONORARY MEMBERSHIP

Honorary membership may be granted in recognition of services to the Society on the nomination of the Council and subject to confirmation at the next Annual General Meeting. An Honorary member shall be entitled to the same rights as an Ordinary member.

## (7) SUBSCRIPTIONS

Subscription rates appropriate to each class of membership shall be recommended by the Council and submitted to a Special General Meeting for approval.

Subscriptions shall be due on the first day of January in each year; the Council shall review the continued membership of those whose subscriptions are more than one year in arrears.

(8) ANNUAL GENERAL MEETING

The Annual General Meeting shall be held at a time and place to be decided by the Council, and all members shall receive at least twenty-one days notice thereof. The Secretary shall submit the Council's Report on the progress of the Society and the Treasurer shall submit the Statement of Accounts completed to the preceding 31st December and audited by two non-members approved at the previous Annual General Meeting. The Recorders shall submit their annual reports.

(9) SPECIAL GENERAL MEETING

The Council may, at any time, convene a Special General Meeting, and must do so at the request, in writing, of twelve paid-up voting members.

Members shall receive at least seven days notice of a Special General Meeting and of the purpose for which it is being convened. At a Special General Meeting only the business for which the meeting was convened shall be considered.

(10) MINUTES

Minutes shall be kept of the Annual General Meeting, Special General and Council Meetings. Minutes of the Annual General Meeting and of any Special General Meeting shall be read as the first business of the following Annual General Meeting.

A copy of the minutes of a Council meeting shall be sent to each Council member before the next Council meeting.

Minutes of these meetings will be available for inspection by members of the Society upon written request to the Secretary.

(11) FUNDS

The funds of the Society shall be held in the name of the Society and shall be controlled by resolutions of the Council. They shall be used only for the objects of the Society. A member shall not receive direct or indirect payment for services, or for anything other than expenses approved by the Council.

(12) No member may commit the Society to any course of action or express views in the name of the Society without prior Council approval.

(13) ASSETS

The capital and property of the Society shall be vested in three trustees who shall be elected, removed or replaced only by resolution of the Council.

(14) RECORDERS

The Council shall appoint Recorders for various branches of natural history, and each shall present a report at the Annual General Meeting for subsequent publication in the Journal.

(15) VISITORS

A member may bring two visitors to any Ordinary meeting unless the Council has decided otherwise.

(16) EXPULSION OF A MEMBER

The Council may expel a member for conduct considered prejudicial to the Society's interests, or for failure to pay overdue subscriptions.

(17) DISSOLUTION OR MERGING OF THE SOCIETY

Any resolution to dissolve the Society or to merge with another organisation must be approved by the Council and by a majority decision of the voting members as ascertained by a ballot of all the voting members counted at a Special General Meeting. In the event of dissolution or a merger, no part of the Society's funds or possessions shall be given to members but these shall be wholly devoted to exclusively charitable objects similar to those of the Society as approved by the Council.

(18) RULES

Rules shall not be made or altered except by a majority decision of voting members present at a Special General Meeting and no alteration may be made which shall cause the Society to cease to be charitable<sup>at</sup> law. A copy of these rules shall be sent to each person admitted to membership of the Society.

