

Chapter (non-refereed)

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INVERTEBRATA

The invertebrates of Bedford Purlieus have received scant attention over the years, with the possible exception of the Lepidoptera, and there appear to be no published records for the site. During 1974 several specialists paid visits to the wood at rather short notice in an effort to record and collate past records for the Lepidoptera, Coleoptera, Isopoda, Mollusca and earthworms, for which separate accounts follow.

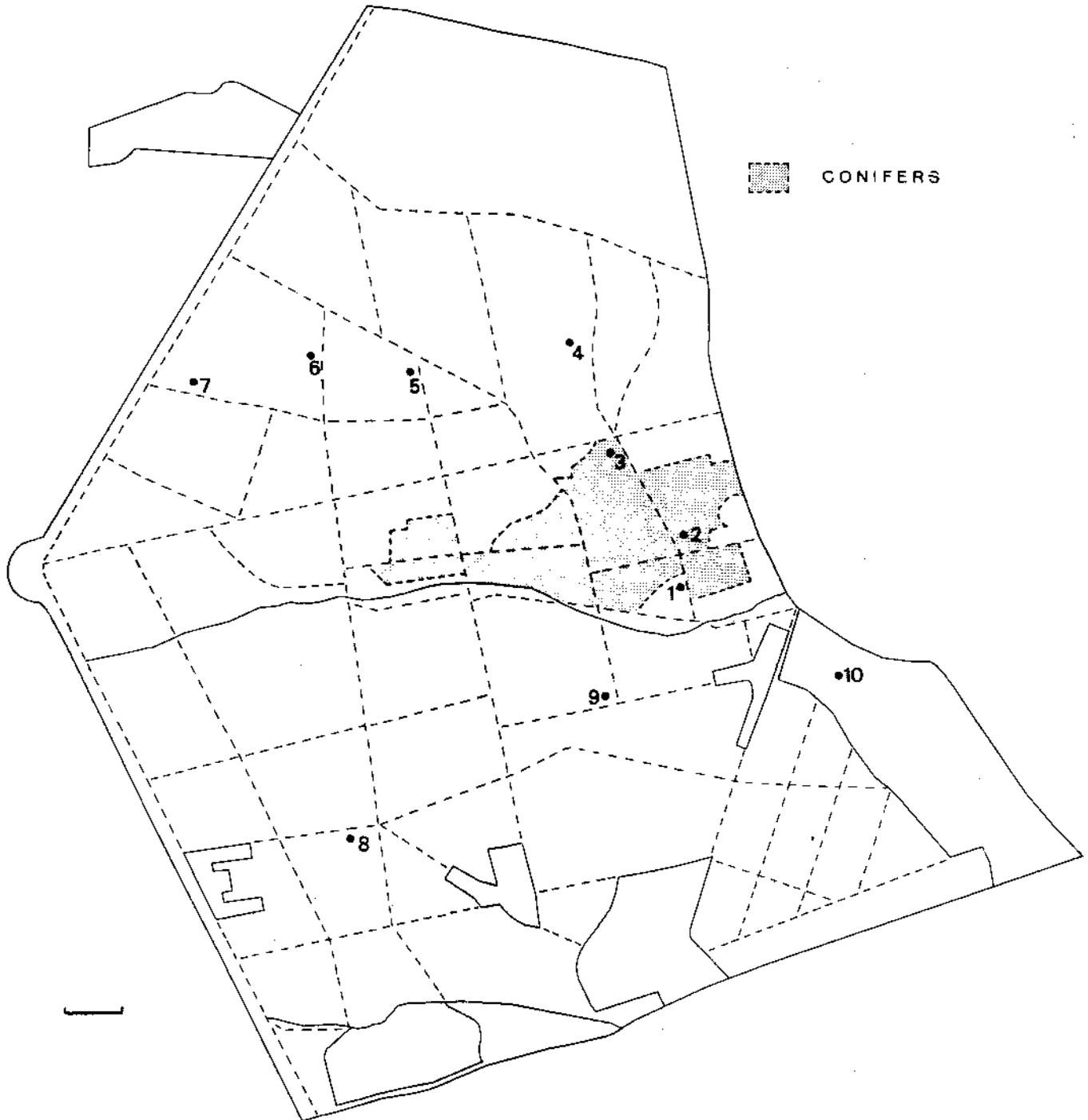
For many insect Orders there appear to be no records or information of any description. However, the late W.E. Russell was one of the few entomologists, interested in orders other than Lepidoptera, who visited the wood. His main interest was sawflies, although his collection, which is now at Monks Wood Experimental Station, provided additional Heteroptera records.

The only other records, resulting from casual collecting, amount to three species of flea:- Ceratophyllus fringillae Walk. 13 July 1972, common in Blue Tit's nest in C 38B; Hystrichopsylla t. talpae (Curt.) and Ctenophthalmus n. nobilis Rothsch. 7 May and 22 October 1974 in small numbers in moles' nests in C 38B and C 39C.

In a wood with such diverse soils, overlain with an equally variable vegetation cover, comparative studies are extremely difficult. However, ten sampling sites were selected as follows (Soil types and pH of top 10 cm as described above by Stevens):-

- Site 1 C 43A (East), Soil type 1 over Lower Lincolnshire Limestone, pH 4.5-5.5 but very close to highly alkaline area, near large oak with young beech and some birch, sycamore and Rubus, deep litter layer.
- Site 2 C 40B (South west), Soil type 1, over Lower Lincolnshire Limestone, pH 5.5-6.5 but adjacent to highly alkaline area, Scots pine planted 1951, some Rubus, Endymion and Mercurialis surviving, thin needle litter.
- Site 3 C 40A (North), Soil type 2a, borders of Upper Lincolnshire Limestone and Upper Estuarine Series, pH >7.5, Scots pine planted 1942, Mercurialis and Deschampsia, ground vegetation better developed than on Lower Lincolnshire Limestone, thin needle litter plus some moss.
- Site 4 C 33 (East), Soil type 5/6/7a, over Upper Estuarine Series, pH 4.5, rows of oak planted 1935, with some coppiced sweet chestnut stools, Pteridium and fairly deep litter.
- Site 5 C 36A (East), site at junction of soil types 1, 9 and 5/6/7a, boundaries of Upper Estuarine Series, Blisworth Limestone and outlying pocket of Chalky Boulder Clay, pH >7.5, large old lime stools and some oak, moderate litter layer.
- Site 6 C 35A (East), Soil type 1, over Blisworth Limestone, pH >7.5, large old lime stools, some oak, moderate litter layer.
- Site 7 C 35A (West), Soil type 5/6, over Blisworth Clay, pH 4.5-5.5, scattered lime much Crataegus and Rubus, moderate litter layer.

37. SITES USED FOR INVERTEBRATE SAMPLING IN 1974.



- Site 8 C 45C (North), Soil type 10, over Chalky Boulder Clay, pH 4.5-5.5, scattered limes and some young coppice stools, shallow litter layer.
- Site 9 C 42B (South east), Soil type 23, over Upper Estuarine Series, although close to boundary with Lower Lincolnshire Limestone, pH < 4.5, birch over Pteridium, deep litter layer.
- Site 10 C 48A (North east), restored quarry site not sampled by Stevens although G.F. Peterken recorded soil pH of 8.3 at two sites in this compartment, Corsican pine planted 1969, no litter layer and sparse herb layer in area sampled.

The position of these sites is shown on Fig. 37.

Pitfall trap samples were collected at all ten sites; litter samples from all except site 10 and earthworms were sampled at sites 1-5 only. All the records for Mollusca and Opiliones relate to these sites as do most of those for the Myriapoda. 160 species of Coleoptera were caught in pitfall traps and 61 in litter samples of which 21 had not been taken in the pitfall traps. 29 species were recorded only from compartments planted with Scots pine. Of these five were extracted from Formica rufa nests and are doubtless present in nests in other parts of the wood. Only three of the remaining species are dependent upon the presence of pines. These are the two bark beetles Hylurgops palliatus and Hylastes ater, and Atomaria affinis which Joy (1932) describes as "rare, in Scotch Pine". Pitfall traps in the two pine sites caught the lowest numbers of spiders. Site 2 was regarded as poor for molluscs and site 3 only average. However, the biomass of earthworms from soils under pines was higher than at the nearest site (1) under mixed deciduous tree species. The low pH of the soils at site 4 had a far more dramatic effect on the earthworm populations, reducing them to a very low level. Conversely site 4 had the highest numbers of Millipedes due mainly to a relative abundance of the pill millipede, Glomeris marginata. The centipede Geophilus carpophagus was also more numerous on the site, while the small woodlouse, Trichoniscus pusillus was most abundant at sites 1 and 5. Site 5 also proved exceptionally rich in both earthworms and molluscs. Site 6 produced by far the highest numbers of harvestmen, over half of which were the one species, Oligolophus tridens. The common litter-frequenting silphid beetle Nargus velox was also most numerous at this site. The reconstituted quarry (site 10) presented an extreme contrast to the nine woodland sites. Although planted with Corsican Pines five years ago these have taken a long time to become established and much of the soil still remains bare and uncolonised by any plants. Such conditions particularly favour many predatory ground beetles and spiders and many species trapped here were not found within the wood.

By sampling from only ten sites for a very limited period of time one cannot hope to understand the complex factors which determine the distribution and abundance of species in a wood such as Bedford Purlieus. It does however give a hint as to the variation which exists. As has been shown at Monks Wood National Nature Reserve, only by frequent visits by specialists over many years can a true picture of the invertebrate fauna be gradually built up. A field excursion by the British Entomological and Natural History Society is planned for May 1975 which should result in a number of new records.

ANNELIDA : LUMBRICIDAE (Carole E. Lawrence)

Five sites for sampling earthworms were chosen on the basis of a range of soil types and pH, both of which had been provisionally mapped by G.F. Peterken. These same general areas were later used as sites 1-5 in the programme of pitfall trapping carried out by R.C. Welch, except that half of sample 5 was taken from the north west corner of C 36C. Further details are given above and their positions shown on Fig. 37. The method of sampling used was digging and handsorting on site, the sample size being 1 cu. ft. and eight such samples were taken at each site. Sampling was carried out during mild spells in the periods 21-25 January and 26-28 February 1974. Specimens collected in this way were taken back to the laboratory for weighing and identification. Soil from four samples from each site were retained for pH determination.

Table 17

Total numbers of adult individuals per site (i.e. from 8 cu. ft. of soil)					
Sampling site no.	1	2	3	4	5
<u>Allolobophora caliginosa</u> (Savigny)	9	10	8	-	14
<u>A. rosea</u> (Savigny)	1	7	3	1	5
<u>Bimastos muldali</u> Omodeo	8	-	-	-	7
<u>Dendrobaena rubida</u> (Savigny)	-	-	-	1	-
<u>Octolasion cyaneum</u> (Savigny)	1	4	2	1	4
<u>Lumbricus castaneus</u> (Savigny)	-	-	-	-	7
<u>L. ? festivus</u> (Savigny)	1	-	-	-	-
<u>L. terrestris</u> L.	1	4	3	-	4
Total biomass (g) including immatures	28.4	39.7	31.5	3.5	72.5
pH values (average of 4 samples)	7.01	6.09	7.83	4.05	7.50
Depth of litter layer (inches)	>2	<0.5	<0.5	1-1.5	1

Of the eight species of earthworm collected all are generally common with a widespread distribution, except Bimastos muldali. This is a species which is rarely recorded in Britain but is probably overlooked as eight specimens were collected in Monks Wood National Nature Reserve in January and February 1973.

MOLLUSCA (M.J. Bishop)

The Mollusca are better suited to the needs of the historical ecologist than are most other groups of invertebrates (Evans, 1972). Not only can conclusions be drawn from the present day distributions of species, but well stratified soils containing sub-fossil shells may record the faunal changes at a site in great detail. At Bedford Purlieus a tufa rich in shells has been reported, but faunal analyses have yet to be made.

Evidence for the presence of two species of snails at Bedford Purlieus has been provided only by the presence of their empty shells. These are the operculate Pomatias elegans (Mueller) and the large edible Helix pomatia L. Bedford Purlieus lies near the northern limit of the ranges of both species in Britain, and they may be extinct at this site. The distribution of Pomatias has been discussed by Kerney (1968) and the distribution of Helix pomatia by Pollard (1974).

The living Mollusca of Bedford Purlieus have been investigated during 1974 by pitfall trapping from 18 March to 18 July and by hand searching and litter sifting on 16 April and 7 and 30 May. Material from pitfall traps was provided by Dr. R.C. Welch from the first nine sites described above. Pitfall trapping is not a particularly efficient method of sampling Mollusca, but eighteen species were caught in this way. The traps caught slugs and medium sized snails, and a species list together with the total number of individuals caught during the trapping periods is presented in Table 18 below. In terms of individuals caught site 5 ranks as very good, sites 6 and 7 as good, sites 1, 3, 4, 8 and 9 as average and site 2 as poor. The same sort of order is observed in species numbers except that site 6 becomes only average. These observations are immediately interpretable in terms of soils and vegetation. The richest sites are in deciduous woodland on brown rendzina with the pH ranging above 7.5, whilst the poorest site is in conifer plantation on the same soil type but with some acidification (pH below 7.0). It is difficult to disentangle the factors affecting the average group.

Additional records of the small litter inhabiting species were obtained by sifting the substrate. Those species which were not caught by pitfall trapping are:- Carychium tridentatum (Risso), Acanthinula aculeata (Mueller), Columella edentula (Draparnaud) seg., Euconulus fulvus (Mueller), Punctum pygmaeum (Draparnaud).

"Woods" is evidently not a significant category for the Mollusca' (Boycott, 1934). Because of their requirement for shelter, the diverse structure provided by old hedges serves the Mollusca as well as old woods. They are above all exploiters of the ecotone. Of the thirteen species selected by Boycott as having special woodland alliances, only once (Cochlodina) is reported from Bedford Purlieus. The reasons for this are largely geographical. Iphigena rolphi (Turton) is however known from the nearby Carlton Purlieus. Rates of colonisation are such that all the Bedford Purlieus species can be found in eighteenth century plantations.

Table 18

Mollusca obtained from pitfall traps at Bedford Purlieus during 1974									
Sites	1	2	3	4	5	6	7	8	9
<u>Aegopinella nitidula</u> (Drap.)	10	2	8	-	13	28	12	-	-
<u>A. pura</u> (Alder)	-	-	1	-	-	-	-	-	-
<u>Arion ater</u> (L.) ssp. <u>ater</u>	-	-	-	2	3	2	4	3	3
<u>A. circumscriptus</u> Johnston	-	-	-	2	-	2	-	-	-
<u>A. hortensis</u> Ferussac	-	-	-	2	6	2	2	5	2
<u>A. intermedius</u> Normand	4	3	7	6	11	2	1	3	8
<u>Cochlicopa lubrica</u> (Muell.)	-	-	-	-	-	1	2	-	1
<u>Cochlodina laminata</u> (Montagu)	2	-	-	-	-	-	-	-	-
<u>Deroceras reticulatum</u> (Muell.)	1	-	-	-	14	1	5	6	-
<u>Discus rotundatus</u> (Muell.)	2	-	4	1	2	-	-	1	2
<u>Ena obscura</u> (Muell.)	-	-	-	-	1	-	-	-	-
<u>Limax maximus</u> L.	-	-	-	-	-	-	3	-	-
<u>Nesovitrea hammonis</u> (Stroem)	-	-	1	-	-	-	1	-	2
<u>Oxychilus alliarius</u> (Muell.)	-	4	-	7	-	-	1	-	1
<u>O. cellarius</u> (Muell.)	-	1	1	1	10	-	3	-	-
<u>Trichia hispida</u> (L.)	-	-	-	-	2	-	-	1	-
<u>Vitrea contracta</u> (West.)	-	-	1	-	-	-	-	-	-
<u>Vitrina pellucida</u> (Muell.)	1	-	-	-	2	-	-	-	-
Total individuals	20	10	23	21	64	38	34	19	19
Total species	6	4	7	7	10	7	10	6	7

CRUSTACEA (P.T. Harding)TERRESTRIAL ISOPODA

The six species of woodlice recorded during 1974 are all common and widespread in lowland Britain. Four species have been recorded from the woodland, and a further two species from the surrounding grassland/scrubland on the site.

Trichoniscus pusillus (Brandt)

Represented by both sub-species (pusillus and provisorius) in a mixed population. A low percentage of provisorius males were taken in litter samples. Probably the commonest species of woodlouse in the woodland, mainly in leaf litter.

Platyarthrus hoffmannseggii Brandt

Recorded only once in a nest of Lasius niger (L.) under a piece of concrete in the grassy area of C 50D. Although Formica rufa L. nests were examined for this species throughout the wood only one specimen was found by R.C. Welch in C 40A on 28 September 1967.

Philoscia muscorum (Scop.)

Common in the grassland/scrub areas of the R.A.F. clearings, C 50D and the western edge, occasionally seen within the wood on drier soils.

Oniscus asellus L.

Common in dead wood and leaf litter.

Porcellio scaber Latr.

Occasional in dead wood within the wood and in surrounding grassland. Also recorded from nests of Formica rufa.

Armadillidium vulgare (Latr.)

Common in the R.A.F. clearings, C 50D and on the western edge. Only found under closed canopy at the Centre Tree.

All the above mentioned species are typical of the habitats in which they were found, however, several more species could be expected to occur at Bedford Purlieus, and do occur in north Northamptonshire.

Trichoniscus pygmaeus Sars - a soil dwelling species, probably only overlooked owing to the difficulty of sampling for the species.

Haplophthalmus danicus B.-L. - occurs in almost every other large ancient wood in Rockingham Forest. Its particular micro-site - moss covered, well decayed large logs, is very scarce at Bedford Purlieus, but several suitable samples were examined.

Trachelipus rathkei (Brandt) - an early colonist of reconstituted quarry sites in the area. A very thorough search was made for this species in seemingly suitable habitats.

Porcellio spinicornis Say - a common inhabitant of dry stone walls in the area. It does not seem to occur in the wall along the southern edge although it is common 750 m to the south in the wall beside the road between Old Sulehay and Ring Haw.

AMPHIPODAGammarus pulex (L.)

Recorded from small pools in the dry stream bed during the summer and autumn. Not recorded when the stream was flowing.

OPILIONES & CHELONETHI

Although no specific search was made for Harvestmen 9 species, almost half the total number recorded from Britain, were collected in pitfall traps and litter during 1974 from the ten sample sites (Table 19). An average of six species was recorded from each site.

TROGULIDAEAnelasmacephalus cambridgei (Westw.)

One sieved from litter at site 6 on 30 May. Scattered, mainly single specimens in pitfall traps (sites 2, 3, 5, 6 and 8) during April, May and July, although three specimens were taken in one trap at site 6 during July.

NEMASTOMIDAEPlatybunus triangularis C.L. Koch

Common throughout the areas sampled from late March to the end of May. Most abundant in late May and July on the reconstituted quarry site 10.

Phalangium opilio L.

Single immature specimens sieved from leaf litter on 16 April (site 5) and 30 May (site 1). One specimen was recorded on 4.6.67 on a sticky band on a pine tree in C 40A. This species is more characteristic of open grassland.

Mitopus morio (F.)

Two single specimens in pitfall traps during March (site 3) and July (site 5). This species is also uncommon in Monks Wood.

Lacinius ephippiatus (C.L. Koch)

A late summer species abundant in pitfall traps in July, occurring at all sites except 5 and with only a single doubtful immature specimen recorded from site 10.

Odiellus palpinalis (Hbst.)

Very few immature specimens in pitfall traps at sites 7, 8 and 9 during July.

Oligolophus tridens (C.L. Koch)

The most abundant phalangid in litter and pitfall traps on all sites except 10 during April and May with very few immatures trapped at sites 4 and 9 in July. By far the largest numbers trapped at site 6.

Leiobunum rotundum (Latr.)

Immatures taken in pitfall traps in small numbers at all sites except 4 during April and May. Only two adults taken in one trap at site 5 during July.

Almost all the Pseudoscorpions collected from litter and pitfall traps proved to be Chthonius ischnocheles (Hermann), which was taken at all sites

Table 19

OPILIONES, MYRIAPODA AND ISOPODA FROM BEDFORD PURLIEUS
(COMBINED TOTALS OF SPECIMENS COLLECTED IN PITFALL
TRAPS AND LITTER SAMPLES DURING 1974)

SITE NOS.	1	2	3	4	5	6	7	8	9	10*
OPILIONES										
<i>Anelasmacephalus cambridgei</i>	-	1	3	-	1	8	-	1	-	-
<i>Nemastoma lugubre</i>	3	4	15	4	1	2	1	3	9	-
<i>Platybunus triangularis</i>	5	6	4	1	19	10	3	6	1	34
<i>Phalangium opilio</i>	1	-	-	-	1	-	-	-	-	-
<i>Mitopus morio</i>	-	-	1	-	1	-	-	-	-	-
<i>Lacinius ephippiatus</i>	37	45	6	3	-	62	20	35	19	1
<i>Odiellus palpinalis</i>	-	-	-	-	-	-	3	3	2	-
<i>Oligolophus tridens</i>	27	27	17	43	22	109	17	26	21	2
<i>Leiobunum rotundum</i>	8	3	1	-	4	7	4	2	6	2
	81	86	47	51	49	198	48	76	58	39
DIPLOPODA										
<i>Glomeris marginata</i>	26	13	20	53	30	14	7	37	9	-
<i>Polydesmus angustus</i>	2	6	11	6	2	-	1	2	8	-
<i>P. denticulatus</i>	3	1	2	5	3	-	1	17	-	-
<i>Iulus scandinavicus</i>	-	-	-	-	5	7	2	-	1	-
<i>Ophiulus pilosus</i>	11	7	3	2	3	16	9	4	-	-
<i>Cylindroiulus punctatus</i>	3	6	3	7	-	1	2	8	5	-
<i>Schizophyllum sabulosum</i>	-	2	-	-	1	-	-	-	-	-
<i>Tachypodoiulus niger</i>	4	2	5	-	6	8	6	2	2	-
	49	37	44	73	50	46	28	70	25	0
CHILOPODA										
<i>Strigamia acuminata</i>	4	-	-	2	3	-	1	1	-	-
<i>Geophilus carpophagus</i>	-	8	8	17	-	-	2	9	8	-
<i>Lithobius variegatus</i>	3	1	2	4	1	4	3	-	-	-
<i>L. forficatus</i>	1	-	-	-	1	-	2	-	-	-
<i>L. dubosqui</i>	4	2	6	1	2	-	-	-	2	-
<i>L. crassipes</i>	11	1	2	2	4	2	3	6	7	-
<i>L. curtipes</i>	1	-	-	2	-	-	-	1	2	-
	24	12	18	28	11	6	11	17	19	0
ISOPODA										
<i>Trichoniscus pusillus</i> agg.	36	2	10	7	34	16	2	4	10	-
<i>T. pusillus provisoris</i>	2	-	-	-	3	-	-	-	-	-
<i>Philoscia muscorum</i>	-	-	-	-	-	1	-	-	-	1
<i>Oniscus asellus</i>	9	4	9	4	3	21	6	2	1	-
<i>Porcellio scaber</i>	2	-	1	2	1	-	-	-	1	-
	49	6	20	13	41	38	8	6	12	1

* No litter samples collected from Site 10

except 10. Two other species were also recorded. Single females of Neobisium muscorum (Leach) were taken in the same pitfall trap at site 9 in late March and early July. Two tritonymphs of Allochernes dubius (O.P.-Cambridge) were extracted from litter collected under pines at site 3 on 30 May.

A small collection of spiders taken during this sampling programme have been lodged with Dr. E.A.G. Duffey.

MYRIAPODA

A total of 9 species of millipede and 7 species of centipede were recorded in the wood. Apart from one or two casual observations the records were all from pitfall traps or litter samples (Table 19). No Myriapoda were taken at site 10 on the reconstituted quarry.

DIPLOPODA GLOMERIDAE

Glomeris marginata (Vill.)

Common at all sites from March to July. Largest numbers taken at site 4.

CRASPEDOSOMIDAE

Polymicrodon polydesmoides (Leach)

A single record by P.T. Harding on 2 August from under logs in woodland ride.

POLYDESMIDAE

Polydesmus angustus Latz.

Taken in pitfall traps in low numbers from April to July at all sites.

P. denticulatus C.L. Koch

In general less common than preceding species. Not taken at sites 6 and 9 but more numerous at site 8 in May.

IULIDAE

Small numbers of unidentified immature iulids were collected from most sites throughout the sampling period March to July.

Iulus scandinavicus Latz.

Taken in small numbers in pitfall traps during March, May and July from sites 5, 6 and 7. Only a single specimen found elsewhere at site 9.

Ophiulus pilosus (Newport)

Recorded in small numbers from pitfall traps at all sites except 9, mainly during March, May and July. Also recorded from a Formica rufa nest in C 40A on 28.9.67.

Cylindroiulus punctatus (Leach)

Collected regularly in litter and pitfall traps from March to May at all sites except 5. A single specimen was trapped at site 9 in July and P.T. Harding recorded one in a drystone wall on the south edge of the wood on 7 October.

Schizophyllum sabulosum (L.)

Only three specimens collected in pitfall traps during March, two at site 2 and one at site 5.

Tachypodoiulus niger (Leach)

Taken regularly in pitfall traps in low numbers from March to May at all sites except 4.

CHILOPODA
GEOPHILIDAE

Strigamia acuminata (Leach)

Small numbers extracted from leaf litter collected on 16 April and 30 May from sites 1, 4, 5, 7 and 8. Recorded by P.T. Harding in leaf litter near Centre Tree on 2 October. No specimens taken in pitfall traps. Also recorded from Formica rufa nest in C 40 on 28.9.67.

Geophilus carpophagus Leach

Only recorded from litter samples collected on 11 March, 16 April and 30 May mainly as immature specimens from all sites except 1, 5 and 6. Most numerous at site 4.

LITHOBIIDAE

A few very small immature Lithobius could not be identified to species. Of the five species taken only L. crassipes proved to be at all numerous.

Lithobius variegatus Leach

In small numbers in litter and pitfall traps from March to July in all sites except 8 and 9.

L. forticatus (L.)

Four single specimens of this common woodland species taken in pitfall traps at sites 1, 5 and 7 from March to May.

L. dubosqui Brolemani

Small number taken in litter and pitfall traps from March to July in all sites except 6, 7 and 8.

L. crassipes C.L. Koch

Taken regularly in small numbers in litter and pitfall traps from all sites throughout the sampling period 11 March to 18 July. Also recorded from a mole's nest in C 38B on 7 May.

L. curtipes C.L. Koch

Three adults from litter collected 16 April and 30 May at sites 4 and 9. Two immatures from sites 1 and 8 on the earlier date, and one adult in a pitfall trap at site 9 in July. Also recorded from Formica rufa nest in C 40A on 28.9.67.

ORTHOPTERA

The orthopteran fauna of Bedford Purlieus is extremely poor and to some extent this is a reflection of the lack of suitable habitats. However, even where good grassland communities do exist, such as in C 45A, no grasshoppers were seen, and in C 50C only one specimen was collected. Only six species were recorded during 1974:-

TETTIGONIIDAE

Meconema thalassinum (Deg.)

Beaten from oak foliage on western edge of C 38A by P.C. Tinning on 7 August.

Pholidoptera griseoptera (Deg.)

Recorded on 7 October by P.T. Harding along St. John's Ride west of C 41A and C 44A and along the north-western edge of C 50A. This species was also heard singing on 22 October in wartime clearance area in C 45C and D.

Leptophyes punctatissima (Bosc)

Swept by P.C.T. on 7 August in the region of the Centre Oak, from tall herbage and limestone grassland.

ACRIDIDAE

Chorthippus brunneus (Thunb.)

One only recorded by P.C.T. on 7 August in short grassland on disturbed ground in C 50C.

C. parallelus (Zett.)

Also recorded on 7 August by P.C.T. on limestone grassland in North Gate Ride west of C 29.

TETTRIGIDAE

Tetrix undata (Sowerby)

A single female on 5 June in short grassland between C 50A and B.

HEMIPTERA

No special study has been made of this Order but three species of Homoptera were noted by P.C. Tinning on 7 August 1974. Six species of Heteroptera in the late W.E. Russell's collection bear Bedford Purlicus locality labels and a further three species were taken in pitfall traps or by sweeping during 1974.

HOMOPTERACERCOPIIDAEAphrophora alni (Fall.)

Beaten from oak foliage near Centre Tree, and by disturbed ground in C 50C.

CICADELLIDAECicadella viridis (L.)

Swept from limestone grassland in disturbed ground in C 45A.

Iassus lanio (L.)

Beaten from oak foliage bordering St. John's Ride.

HETEROPTERAARADIDAEAradus depressus (F.)

2 April 1970.

ANEURIDAEAneurus avenius (Duf.)

13 July 1972, 1♂ swept from ride through C 36 (R.C.W.). Southwood and Leston (1959) give distribution as "south of a line from Cambridge to Gloucester". It is the rarer of the two species of bark bug in this genus but has been taken in Monks Wood.

LYGAEIDAEMegalonotus antennatus (Schill.)

6 May 1968.

Drymus sylvaticus (F.)

28 July 1966.

NABIDAEHimacerus mirmicoides (Costa)

16 April 1974, 3 in leaf litter, site 2 (R.C.W.).

MIRIDAEMacrolophus nubilis (Herr.-Sch.)

20 May 1967.

Calocoris norvegicus (Gmel.)

22 July 1966.

Phytocoris ulmi (L.)

1 August 1966.

Capsus ater (L.)

13 July 1972 swept from ride between C 37 and C 38 (R.C.W.).

SALDIDAESaldula orthochila (Fieber)

4-18 July 1974, 1 adult, 2 nymphs in pitfall traps, site 10 (R.C.W.).

HYMENOPTERA

No visitor to Bedford Purlieus can fail to notice the numerous large nest mounds of the wood ant Formica rufa L. The distribution of those nests occupied during 1974 is shown on Fig. 38. Thornhaugh is one of the localities listed by Enid Nelmes (1938) in her survey of the distribution of the wood ant in England, Wales and Scotland which was begun in 1933. These ants are popularly believed to have been introduced into the wood but no records can be traced to substantiate this, although Nelmes (p.92) states that "in some places they have been introduced as food for pheasants; such as Harleston Firs, Northants". Introduced or not their present distribution within the wood is difficult to explain. 155 nests were occupied during 1974. Of these 54 are under conifers and approximately 35 are situated along the northern edge of rides running in an east-west direction. This is a favoured position for catching the most sun. Another 20 nests are associated with the wartime clearance area in C 45C and C, many of which are situated at the edge of the hut bases. On the other hand more than 90 nests correlate with the well drained brown rendzina soils over the various limestones.

Four other species of ant were noted in the wood during 1974. A single worker of Stenamma westwoodii Westw. was swept from a ride running through C 37 on 13 July. Collingwood and Barrett (1964) give the distribution of this ant as "south to Midlands" and list Northamptonshire as a record not confirmed since 1900. It has been recorded from Monks Wood on several occasions since 1968. Three other species were taken in pitfall traps:- Formica fusca L. 4-18.7.74 and Lasius niger (L.) 15-29.5.74, both at site 10 on the reconstituted quarry, and Myrmica ruginodis Nyl. 29.5.-12.6.74 at site 3.

The late W.E. Russell visited Bedford Purlieus on at least three occasions in 1956, 1967 and 1973 and recorded 17 species of sawfly. These, together with 7 additional recent records, are listed below. Records of a wasp and 5 species of bumblebee mostly noted by J.C. Felton in 1973 are also included.

38. DISTRIBUTION OF WOOD ANT (*FORMICA RUFA* L.) NEST SITES OCCUPIED DURING 1974.



HYMENOPTERA RECORDED FROM BEDFORD PURLIEUS

SYMPHYTA (SAWFLIES)

All records W.E. Russell unless otherwise stated.

ARGIDAE

Arge cyanocrocea (Forst.) 5 June 1973, east edge C 50B (R.C. Welch)

CIMBICIDAE

Zaraea fasciata (L.) 12 August 1956

TENTHREDINIDAE

Melisandra morio (F.) 29 June 1972 (G.J. Moller)

Dolerus gonager (F.) 5 June 1973, east edge C 50B (R.C.W.)

Athalia cordata Lep. 30 August 1967 (G.J.M.); 26 May 1973 and 5 June 1973, east edge C 50B (R.C.W.)

Empria tridens (Kon.) 5 June 1973 on young birch, C 44B (R.C.W.)

E. alector Bens. 26 May 1973

E. luteiventris (Klug.) 5 June 1974, east edge C 50B (R.C.W.)

Strombocerus denticulatus (Fall.) 26 May and 24 June 1973

Parna tenella (Klug.) 26 May 1973

Allantus truncatus (Klug.) 26 May 1973

Eutomostethus ephippium (Pz.) 26 May 1973

Aglaostigma fulvipes (Scop.) 10 May and 4 June 1967, and 26 May 1973

A. aucupariae (Klug.) 10 May 1967

Tenthredopsis litterata (Geoff.) 26 May 1973

T. nassata (L.) 26 May 1973 and 5 June 1974 east edge C 50B (R.C.W.)

Rhogogaster punctulata (Klug.) 4 June 1967 and 26 May 1973

R. chlorosoma (Bens.) 26 May 1973

R. viridis (L.) 26 May 1973

Tenthredo temula Scop. 29 May 1974 swept in C 34 (R.C.W.)

T. mesomelas L. 26 May 1973

T. amoena Gr. 11 August 1956

Macrophya duodecimpunctata (L.) 10 June 1967

Pristophora pallidiventris (Fall.) 26 May 1973

APOCRITA

All records by J.C. Felton on 15 August 1973 except B. lapidarius.

VESPIDAE

Vespula vulgaris (Wesm.) 1 worker

APIDAE

Bombus terrestris L. 1♂

B. agrorum Fab. 1♂

B. pratorum (L.) 1♂

B. lapidarius (L.) 15.5.74, one dead in road, edge of 43C (R.C.W.)

Psithyrus vestalis (Geoff. in Fourc.) 1♂

LEPIDOPTERA (J. Heath)

Although this wood was considered by many local lepidopterists to have an exceptionally good fauna in the immediate post-war period it was probably no better than the other remnants of Rockingham Forest. It does not appear to have been as rich as Castor Hanglands National Nature Reserve and was certainly much poorer than some southern woodland areas such as Box Hill in Surrey. Comparative species totals for these localities are:

Table 20

Site	Butterflies	"macro" moths
Bedford Purlieus	39	275
Castor Hanglands	38	398
Monks Wood	40	330
Box Hill area	44	485

(The butterfly present in Bedford Purlieus but not Castor Hanglands was Boloria selene)

Entomological activity in Bedford Purlieus, as elsewhere, reached its peak in the middle 1950's when collecting with MV lights was a relatively new "sport" and entomologists were intensively exploring all "good" localities. Most of our knowledge of the lepidoptera of Bedford Purlieus is due to the work of Mr. P.J. Gent of Northampton and Mr. S.W. Pooles, then resident in Peterborough.

Prior to 1961, 39 species of butterfly had been recorded but of these Thymelicus lineola, Thecla betulae, Quercusia quercus, Aricia agestis, Apatura iris, Boloria selene, Argynnis adippe, Argynnis aglaja, Argynnis paphia and Melanargia galathea have not been noted since 1960. Of the remaining 29 species six would now appear to have been lost from this site. Callophrys rubi, Lysandra coridon and Boloria euphrosyne were last seen in 1963, Strymonidia pruni in 1966, Carterocephalus palaemon in 1971 and Hamearis lucina in 1973. Therefore of the original total of 39 only 23 butterflies remain, and most of these are in small numbers whereas all the species were once abundant.

The destruction of much of the calcareous grassland on the western edge of the wood, the development of a more uniform tree cover within the wood and changes in climate will all have contributed to the disappearance of these species.

A similar picture of change can be seen with the macro moths (data is not available for the smaller species). Prior to 1940 only 70 species had been recorded but of these 15 have not been noted subsequently. Four of these, Cymatophorima diluta, Lymantria monacha, Xestia rhomboidea, and Cosmia diffinis were on the edge of their range and are species which have possibly contracted nationally. Another, Nola confusalis, has suffered a national decline and three, Achlya flavicornis, Chloroclysta miata and Conistra ligula may well have been overlooked as they occur either very early or late in the year. Of the seven remaining species

five, Eulithis prunata, Harpyia bifida, Tholera cespitis, Amphipyra pyramidea, and Apamea scolopacina, should not have been missed if they were still present but the remaining two, Eupithecia subfuscata and Ipimorpha subtusa, could easily have been overlooked. The latter is a species which seems to always occur only in very low numbers.

Since 1960 only 81 species of moth have been recorded but it is known that there has been very little activity by lepidopterists working at night during this period. Whilst no assessment of changes is possible it is interesting to note that three species have been added to the list during the last fourteen years. One, the stem borer in Viburnum lantana, Conopia anthraciniformis, was doubtless overlooked in earlier years but both of the other two, Ptilodontella cucullina, and Gortyna flavago seem to have increased nationally in recent years.

THE MACRO-LEPIDOPTERA OF BEDFORD PURLIEUS

The nomenclature and arrangement in the following list is that of Kloet & Hincks, 1972, A check list of British Insects, 2nd Edition (revised) Part 2, Lepidoptera. Handbk. Ident. Brit. Ins. 11(2).

HEPIALIDAE

Hepialus humuli (L.)
H. sylvina (L.)

H. hecta (L.)
H. lupulinus (L.)

LIMACODIDAE

Apoda avellana (L.)

SESIIDAE

Conopia anthraciniformis (Esp.)

HESPERIIDAE

Carterocephalus palaemon (Pall.)
Thymelicus sylvestris (Poda)
T. lineola (Ochs.)

Ochlodes venata (Bremer & Grey)
Erynnis tages (L.)
Pyrgus malvae (L.)

PIERIDAE

Colias croceus (Geoff in Fourc.)
Gonepteryx rhamni (L.)
Pieris brassicae (L.)

P. rapae (L.)
P. napi (L.)
Anthocharis cardamines (L.)

LYCAENIDAE

Callophrys rubi (L.)
Thecla betulae (L.)
Quercusia quercus (L.)
Strymonidia w-album (Knoch)
S. pruni (L.)

Lycaena phlaeas (L.)
Aricia agestis (D. & S.)
Polyommatus icarus (Rott.)
Lysandra coridon (Poda)
Celastrina argiolus (L.)

NEMEOBIIDAE

Hamearis lucina (L.)

NYMPHALIDAE

Ladoga camilla (L.)
Apatura iris (L.)
Vanessa atalanta (L.)
Cynthia cardui (L.)
Aglais urticae (L.)
Inachis io (L.)

Polygonia c-album (L.)
Boloria selene (D. & S.)
B. euphrosyne (L.)
Argynnis adippe (D. & S.)
A. aglaja (L.)
A. paphia (L.)

SATYRIDAE

Pararge aegeria (L.)
Lasionmata megera (L.)
Melanargia galathea (L.)
Pyronia tithonus (L.)

Maniola jurtina (L.)
Coenonympha pamphilus (L.)
Aphantopus hyperantus (L.)

LASIOCAMPIDAE

Poecilocampa populi (L.)
Malacosoma neustria (L.)

Philudoria potatoaria (L.)

DREPANIDAE

Drepana binaria (Hufn.)
D. cultraria (F.)

D. falcataria (L.)
Cilix glaucata (Scop.)

THYATIRIDAE

Thyatira batis (L.)
Habrosyne pyritoides (Hufn.)
Ochropacha duplaris (L.)

Cymatophorima diluta (D. & S.)
Achlya flavicornis (L.)

GEOMETRIDAE

Archiearis parthenias (L.)
Alsophila aescularia (D. & S.)
Geometra papilionaria (L.)
Comibaena pustulata (Hufn.)
Hemithea aestivaria (Hübner.)
Hemistola chrysoprasaria (Esp.)
Jodis lactearia (L.)
Cyclophora punctaria (L.)
Scopula imitaria (Hübner.)
S. immutata (L.)
S. floslactata (Haw.)
Idaea biselata (Hufn.)
I. fuscovenosa (Goeze)
I. seriata (Schrank)
I. subsericeata (Haw.)
I. emarginata (L.)
I. aversata (L.)
Xanthorhoe spadicearia (D. & S.)
X. ferrugata (Clerck)
X. quadrifasiata (Clerck)
X. montanata (D. & S.)
X. fluctuata (L.)
Scotopteryx bipunctaria (D. & S.)
S. chenopodiata (L.)
Epirrhoe tristata (L.)
E. alternata (Müller)
E. rivata (Hübner.)
E. galiata (D. & S.)
Camptogramma bilineata (L.)
Larentia clavaria (Haw.)

Anticlea badiata (D. & S.)
A. derivata (D. & S.)
Lampropteryx suffumata (D. & S.)
Cosmorhoe ocellata (L.)
Eulithis prunata (L.)
E. mellinata (Fabr.)
E. pyraliata (D. & S.)
Ecliptopera silaceata (D. & S.)
Chloroclysta siterata (Hufn.)
C. citrata (L.)
Cidaria fulvata (Forst.)
Plemyria rubiginata (D. & S.)
Thera firmata (Hübner.)
Electrophaes corylata (Thunb.)
Colostygia pectinataria (Knoch)
Hydriomena furcata (Thunb.)
Horisme vitalbata (D. & S.)
Melanthia procellata (D. & S.)
Triphosa dubitata (L.)
Philereme vetulata (D. & S.)
P. transversata (Hufn.)
Epirrita autumnata (Borkh.)
Perizoma alchemillata (L.)
P. flavofasciata (Thunb.)
P. didymata (L.)
Eupithecia exigua (Hübner.)
E. venosata (F.)
E. centaureata (D. & S.)
E. subfuscata (Haw.)
E. succenturiata (L.)

Chloroclystis v-ata (Haw.)
Aplocera plagiata (L.)
Hydrelia flammeolaria (Hufn.)
Abraxas sylvata (Scop.)
Lomaspilis marginata (L.)
Ligdia adustata (D. & S.)
Semiothisa alternaria (Hübner.)
S. liturata (Clerck)
Petrophora chlorosata (Scop.)
Plagodis dolabraria (L.)
Opisthograptis luteolata (L.)
Apeira syringaria (L.)
Ennomos alniaria (L.)
E. fuscantaria (Haw.)
Selenia dentaria (F.)
S. tetralunaria (Hufn.)
Odontopera bidentata (Clerck)

SPHINGIDAE

Sphinx ligustri L.
Mimas tiliacae (L.)
Smerinthus ocellata (L.)

NOTODONTIDAE

Harpyia bifida (Brahm)
Stauropus fagi (L.)
Notodonta dromedarius (L.)
Eligmodonta ziczac (L.)
Pheosia gnoma (F.)
P. tremula (Clerck)

LYMANTRIIDAE

Dasychira pudibunda (L.)
Euproctis similis (Fuessly)

ARCTIIDAE

Miltochrista miniata (Forster)
Nudaria mundana (L.)
Atolmis rubricollis (L.)
Cybosia mesomella (L.)
Eilema lurideola (Zinck.)

NOLIDAE

Nola cucullatella (L.)

Crocallis elinguaris (L.)
Ourapteryx sambucaria (L.)
Colotois pennaria (L.)
Lycia hirtaria (Clerck)
Biston strataria (Hufn.)
B. betularia (L.)
Menophra abruptaria (Thunb.)
Peribatodes rhomboidaria (D. & S.)
Alcis repandata (L.)
Ectropis bistortata (Goeze)
Aethalura punctulata (D. & S.)
Bupalus piniaria (L.)
Lomographa bimaculata (F.)
L. temerata (D. & S.)
Campaea margaritata (L.)
Perconia strigillaria (Hübner.)

Laothoe populi (L.)
Deilephila elpenor (L.)
D. porcellus (L.)

Ptilodon capucina (L.)
Ptilodontella cucullina (D. & S.)
Pterostoma palpina (Clerck)
Drymonia ruficornis (Hufn.)
Diloba caeruleocephala (L.)

Lymantria monacha (L.)

Spilosoma lubricipeda (L.)
S. luteum (Hufn.)
Phragmatobia fuliginosa (L.)
Tyria jacobaeae (L.)

N. confusalis (H.-S.)

NOCTUIDAE

- Euxoa tritici (L.)
E. nigricans (L.)
Agrotis segetum (D. & S.)
A. exclamationis (L.)
A. ipsilon (Hufn.)
A. puta (Hübner.)
Axylia putris L.
Ochropleura plecta (L.)
Noctua pronuba (L.)
N. comes (Hübner.)
N. fimbriata (Schreb.)
N. janthina (D. & S.)
Graphiphora augur (F.)
Diarsia mendica (F.)
D. brunnea (D. & S.)
Xestia c-nigrum (L.)
X. ditrapezium (D. & S.)
X. triangulum (Hufn.)
X. baja (D. & S.)
X. rhomboidea (Esp.)
X. castanea (Esp.)
Cerastis rubricosa (D. & S.)
Polia nebulosa (Hufn.)
Heliophobus reticulata (Haw.)
Melanchra persicariae (L.)
Lacanobia thalassina (Hufn.)
L. oleracea (L.)
Ceramica pisi (L.)
Hecatera bicolorata (Hufn.)
Hadena rivularis (F.)
H. perplexa (D. & S.)
H. confusa (Hufn.)
H. bicruris (Hufn.)
Tholera cespitis (D. & S.)
Panolis flammea (D. & S.)
Orthosia cruda (D. & S.)
O. miniosa (D. & S.)
O. populeti (F.)
O. gracilis (D. & S.)
O. stabilis (D. & S.)
O. incerta (Hufn.)
O. munda (D. & S.)
O. gothica (L.)
Mythimna conigera (D. & S.)
M. ferrago (F.)
M. impura (Hübner.)
M. pallens (L.)
M. comma (L.)
Cucullia chamomillae (D. & S.)
C. umbratica (L.)
Cleoceris viminalis (F.)
Aporophyla lutulenta (D. & S.)
- Xylocampa areola (Esp.)
Blepharita adusta (Esp.)
Polymixis flavicincta (D. & S.)
Eupsilia transversa (Hufn.)
Conistra vaccinii (L.)
C. ligula (Esp.)
Agrochola circellaris (Hufn.)
A. macilenta (Hübner.)
A. litura (L.)
A. lychnidis (D. & S.)
Atethmia centrago (Haw.)
Xanthia citrago (L.)
X. aurago (D. & S.)
X. togata (Esp.)
X. icteritia (Hufn.)
X. gilvago (D. & S.)
Acronicta megacephala (D. & S.)
A. aceris (L.)
A. leporina (L.)
A. alni (L.)
A. psi (L.)
Amphipyra pyramidea (L.)
A. tragopoginis (Clerck)
Rusina ferruginea (Esp.)
Thalpophila matura (Hufn.)
Euplexia lucipara (L.)
Phlogophora meticulosa (L.)
Ipimorpha subtusa (D. & S.)
Energia paleacea (Esp.)
Cosmia affinis (L.)
C. diffinis (L.)
C. trapezina (L.)
C. pyralina (D. & S.)
Apamea monoglypha (Hufn.)
A. lithoxyloa (D. & S.)
A. crenata (Hufn.)
A. caracterea (Hübner.)
A. unanimis (Hübner.)
A. anceps (D. & S.)
A. sordens (Hufn.)
A. scolopacina (Esp.)
Oligia strigilis (L.)
O. fasciuncula (Haw.)
Mesoligia furuncula (D. & S.)
M. literosa (Haw.)
Mesapamea secalis (L.)
Photodes minima (Haw.)
P. extrema (Hübner.)
P. fluxa (Hübner.)
P. pygmina (Haw.)
Eremobia ochroleuca (D. & S.)
Luperina testacea (D. & S.)

Hydraecia micacea (Esp.)
Gortyna flavago (D. & S.)
Charanyca trigrammica (Hufn.)
Hoplodrina blanda (D. & S.)
Caradrina morpheus (Hufn.)
Chilodes maritimus (Tausch.)
Lithacodia pygarga (Hufn.)
Pseudoips fagana Warren
Colocasia coryli (L.)
Diachrysia chrysitis (L.)
Polychrysia moneta (F.)
Autographa gamma (L.)
A. pulchrina (Haw.)

A. jota (L.)
Abrostola trigemina (Wern.)
A. triplasia (L.)
Catocala nupta (L.)
Tyta luctuosa (D. & S.)
Lygephila pastinum (Treits.)
Scoliopteryx libatrix (L.)
Laspeyria flexula (D. & S.)
Rivula sericealis (Scop.)
Hypena proboscidalis (L.)
Polygogon tarsipennalis (Treits.)
P. nemoralis (F.)

COLEOPTERA

Despite the comparative lack of larger trees and the extensive felling and replanting which has taken place in a large percentage of the remaining woodland of Bedford Purlieus, the coleopterous fauna remains relatively rich. A total of 47 $\frac{1}{2}$ species has been recorded in, or adjacent to, the wood in the past 40 years. J. Omer-Cooper (1926) lists many records by J. Willoughby-Ellis from Wansford, only 1 $\frac{1}{2}$ miles east of Bedford Purlieus. It is not inconceivable that some of these records refer to this wood. However, no specimens in his collection, deposited at York Museum, have so far been found to bear Bedford Purlieus data labels. The earliest definite records are those of D. Tozer for May 1935 when he recorded Elater elongatus and Osphya bipunctata. The latter species has a very localised distribution centred around Huntingdonshire with Bedford Purlieus as one of its northernmost known sites (Steele and Welch, 1973 p.213). Of the 38 species recorded by Tozer between 1935 and 1970 all except 7 species have probably not been recorded there for the past 30 years. S.O. and S.A. Taylor collected in the wood between 1936 and 1945 and their collection and notebooks are deposited at the Leicester Museum and Art Gallery. Of the species listed by them 30 remain the only known records, although a further four species were also recorded by Tozer; Trachys minuta on hazel, Saperda populnea on aspen, Agapanthia villosa-virescens on hogweed and Mordella villosa on flowers. The last species was recently recorded by P. Skidmore (1972) under the name M. fasciata F., from "an umbel at the edge of a cornfield" near Kingscliffe Woods, 3 miles to the west of Bedford Purlieus, and he remarks that this "represents a slight northern extension of its known range". Skidmore also took Laemophloeus bimaculatus (Pk.) and Synchita humeralis (F.) on a dead standing beech and comments "their capture supports the conviction held by the writer that all remnants of old forest areas should contain interesting rare insects". Certainly two species still present in the wood, Acalles roboris and Orchesia minor are regarded by R.A. Crowson (pers. comm.) as good indicators of a primary woodland site.

Many of the species listed by Tozer and the Taylors reflect a woodland with many mature trees. From experience gained in Monks Wood National Nature Reserve it can be hoped that a number of these species may still be present at very low densities. One species listed in the Taylors' notebooks, but not represented in their collection, is Rhagium inquisitor. It would appear unlikely that this northern species occurred "in numbers" in Bedford Purlieus. However, this species was also recorded from Monks Wood in 1925 at a time when pines were known to be present (Steele & Welch, 1973) but again no known specimens are extant.

Tozer records five species from verges outside, or bordering, the wood and one, Harpalus ardosiacus, from "fields around Bedford Purlieus". C.H. Lindroth (1974) describes the British distribution of this species as "north to Norfolk and Yorks. In open fields with limestone and chalk". H. obscurus, another very local southern species on chalk and limestone was recorded in C 38B and C 48D by J.W. Turner in 1956.

One unexpected record is that of three Odontaeus armiger taken by Tozer in June 1964 in a mercury vapour light trap. This species is more characteristic of open countryside although it flies at dusk and has been caught in this manner on three occasions in Buckinghamshire by Sir Eric Ansorge (1963).

Over the past three years particular attention has been paid to the Coleoptera frequenting different species of fungi in Bedford Purlieus. This has provided some interesting records, especially in the genus Gyrophæna (Staphylinidae):-

Table 21

Species of Agaric fungus	Species of Gyrophæna									
	pulchella	affinis	gentilis	bihamata	fasciata	williamsi	poweri	minima	angustata	hanseni
<u>Collybia dryophila</u>		+		+						
<u>C. maculata</u>		+								
<u>Galerina mutabilis</u>		+			+					
<u>Hebeloma crustiliniforme</u>								+		
<u>Hypholoma fasciculare</u>		+	+	+	+		+	+	+	+
<u>Inocybe asterospora</u>				+						
<u>I. corydalina</u>				+						
<u>Lepiota cristata</u>				+	+					
<u>Mycena galericulata</u>	+									
<u>Pluteus lutescens</u>				+	+					
<u>Tricholoma fulvum</u>	+									
<u>Tricholomopsis platyphylla</u>		+	+	+	+	+			+	

One male G. williamsi was collected from T. platyphylla on 13 July 1972 in C 38C. This species was first described from material taken at St. Albans in 1933. There appear to be no other published British records but E.W. Aubrook informs me that this species was numerous in a very rotten (unidentified) fungus in a wood near Harlow Carr, Harrowgate, Yorks on 23 September 1971. S.A. Williams also caught a single specimen in his "autocatcher" at Seal, near Sevenoaks, Kent, on 3 August 1973. Scheerpeltz and Hoefler (1948) did not find G. williamsi during an intensive study of fungicolous Coleoptera in Germany. More recently Batten (1973) collected 57 examples in Holland, all in Tricholomopsis rutilans, and concluded that G. williamsi is restricted to that species of fungus. One specimen of T. rutilans was collected in Bedford Purlieus but it only contained three common species of Staphylinidae; Proteinus ovalis, Autalia impressa and Oxypoda alternans.

A second species, G. poweri, of which one male was taken in Hypholoma fasciculare in C 35C on 29 June 1972, is only slightly less rare in Britain. Joy (1932) gives its distribution as "England S.E. to Leicestershire". I have seen specimens from the following southern localities:- New Forest, Hants; Caterham, Esher, Shirley and Mickleham, Surrey; Epping Forest, Essex; and Windsor Forest, Berks. There is also a specimen in the Manchester University Museum labelled Killarney 25.x.31. Scheerpeltz and Hoefler recorded G. poweri from three species of Hypholoma (including H. fasciculare),

Pluteus cervinus and Tricholanopsis platyphylla. Two male G. hansenii were also taken in H. fasciculare on 3 September 1972 in C 35. This species, added to the British List by Welch (1969), is still only known from about a dozen localities in the southern half of England. A single specimen of Phloiophilus edwardsi was sieved from litter at site 1 on 30 May 1974. Crowson (1962) states that this species "seems to be specifically attached to the fungus Phlebia merismoides growing chiefly on dead branches of oak", and Sheila Wells does list this species from another compartment in the wood.

A recent immigrant into Southern Britain, Leistus rufomarginatus, is still actively extending its range. Although known from Norfolk, records from Monks Wood (Welch, 1968) and more recently from a beech plantation just north of Kettering, Northants (Welch, 1973) were the northern known limits of its spread into central England. Thus the record of a single specimen caught in a pitfall trap in July 1974 slightly increases its known range.

For much of the year the stream flowing through the centre of the wood is reduced to a series of small pools. Specimens of Atheta elongatula have been taken running along the dry stream bed where Oreodytes halensis, a species regarded by F. Balfour-Browne (1940) as a "fen species, restricted to East Anglia and Lincs, usually in drains and moving water", has been found under stones. After heavy rain the stream frequently overflows its banks and large accumulations of flood refuse are deposited both in the stream and along its banks. Although most of the species collected from such debris belong to the family Staphylinidae, several specimens of Trechus rivularis were also taken. Lindroth (1974) is somewhat out of date in describing this carabid as "In dark forest swamps with sphagnum among damp sedge litter, Hunts and Cambs, very rare, but many taken at Wicken Fen". Present knowledge of its distribution shows that it is probably widely distributed in woodlands in the east Midlands and Central Lincolnshire. E.W. Aubrook (pers. comm.) has also taken it in Yorkshire.

If the Formica rufa were originally introduced into the wood a number of myrmecophilous Coleoptera must have been introduced with the nest material. These include the staphylinids Leptacinus formicetorum, Xantholinus atratus, Thyasophila angulata and Zyras humeralis; the rhizophagid Monotoma conicicollis and the ptiliid Acrotrechis montandoni, which Johnson (1967) describes as a "frequent inhabitator of the nests of larger ants (Formica spp.)".

Several other species are associated with the nests of various mammals, birds and social insects. Quedius othiniensis, Oxyletus saulcyi, Ptenidium laevigatum and Leptacinus testaceus were found in moles' nests, and the last species also, perhaps more typically, in a small mammal's nest. A single Lomechusa emarginata was caught in a pitfall trap on site 10 during July 1974. According to Donisthorpe (1927) this species of staphylinid is found in the nests of Formica fusca during the summer months, moving into the nest of a species of Myrmica for the winter months. This specimen was probably in the process of just such a migration.

A further 26 species were caught in pitfall traps on this restored quarry site and were not seen elsewhere in the wood. Ten of these were Carabidae including the Green Tiger beetle Cicindella campestris which shows a preference for a sandy or heathy habitat. The larvae of a species of Dyschirius were also caught in pitfall traps on site 10. These may not

be the common D. globosus but may be one of the predatory species found in the burrows of species of Bledius, since B. fracticornis was recorded from the same site. The weevil Gronops lunatus is also associated with sandy areas although the other Curculionidae and Chrysomelidae recorded here were most probably associated with the sparse herb layer.

The remaining grassy areas proved to be rather disappointing with regard to the Coleoptera but the opening up of some of the rides within the wood should provide additional herb-rich areas. A larva of the Glowworm Lampyris noctiluca was found in the wartime site in C 45D and many phytophagous species are present particularly along the south and west margin of the reconstituted quarry and in the marginal strip up the complete western edge of the wood.

If as much time had been spent in studying Bedford Purlieu as has gone into the study of Monks Wood National Nature Reserve, the list of Coleoptera given in Appendix 5 would probably have been almost twice its present length.

COLEOPTERA RECORDED FROM BEDFORD PURLIEUS

The majority of the 474 species in the following list have been recorded during 1974, many in pitfall traps which were used during four two-weekly periods:- 18.3.74 - 1.4.74, 16-30.4.74, 15-29.5.74 and 4-18.7.74. Four traps were placed at nine different sites, within the wood, for the first period, with a tenth site, on the reconstituted quarry, added for the remaining dates. In the following list these records are shown thus:- "P.F.T., 5/74, 50A" i.e. May 1974, C 50A. All other records give, where possible, date of collection, habitat details, compartment number and collector's initials in brackets. All records are by R.C. Welch unless indicated by initials of the following additional collectors:- J.N. Greatorex-Davies, P.T. Harding, H.E. Henson, W.E. Russell, D. Tozer, J.W. Turner and Sheila E. Wells. I.M. Evans kindly abstracted records from the notebooks of S.O. and S.A. Taylor deposited at the Leicester Museum and Art Gallery. These were most probably all collected by the father and are indicated by the initials S.O.T. Tozer's records are mainly undated and refer to the broad period 1935-1970 unless stated otherwise.

In the following list the families are arranged according to Crowson (1956, Handbk. Ident. Brit. Ins. 4 Pt. 1) with the exception of the Anisotomidae, part of which is added to the Silphidae with the rest in the Leiodidae following a manuscript list in the British Museum (Natural History) which will form the Coleoptera part of the revised second edition Kloet & Hincks. Nomenclature for the Staphylinidae is that of Tottenham (1949, The generic names of British Insects, Pt. 9, R. ent. Soc. Lond. Comm. of Generic Nomenclature) with the exception of the Oxytelinae which follow Hermann's world revision (1970, Bull. Amer. Mus. Nat. Hist., 142) and the genus Sepedophilus following Hammond's revision (1973, Entomologist's mon. Mag., 108). Nomenclature for Meligethes and Euparea (Nitidulidae) is after Sporncraft in Freude, Harde & Lohse (1967, Die Kafer Mitteleuropas, 7) and that for the Lathridiidae follows Walkley (1952, Proc. Ent. Soc. Wash., 54 pt. 5). The remaining families follow Kloet & Hincks (1945, Checklist of British Insects) and those parts of the Handbooks for the Identification of British Insects so far published by the Royal Entomological Society of London.

CARABIDAE

- Cicindela campestris L. P.F.T., 5/74, 50A.
- Carabus nemoralis Muell. P.F.T., 4/74, 36A; 7/74 larva, 33.
- C. problematicus Hbst. P.F.T., 7/74, 50A.
- Cychrus caraboides (L.) 7.5.74, pupa under rotten stump, 35; 24.10.74, under rotten birch stump, 42A (N.G-D.).
- Leistus spinibarbis F. 7.10.74, under stone on edge of quarry site, 50A (P.T.H.).
- L. rufomarginatus Duft. P.F.T., 7/74, 35.
- L. fulvibarbis Dej. 19.6.56, common, under stones, 39B, 48D (J.W.T.); P.F.T., 3/74, 35, 4/74 larva, 35.
- L. rufescens F. 29.6.72, under stone in dried-up pond; 13.7.72, sweeping ride through 38; 15.5.74, in litter, 35; P.F.T., 5/74 and 7/74, 35, 36A.
- L. ferrugineus (L.) 19.6.56, fairly common, under log, 38B; 12.5.74, fairly common, under wood chips, 34 (J.W.T.).
- Nebria brevicollis (F.) 12.5.74, very common, under stones and branches, 39D (J.W.T.); 11.3.74, larva in litter, 43A; P.F.T., 3/74, 35, 42B, 43A, 4/74, 35, 40B, 43A, 5/74, 35, 40B, 43A, 50A, 7/74, 35, 50A, 4/74 larvae 35, 43A.
- Notiophilus biguttatus (F.) 13.7.72, in flood refuse in dry stream bed, 39; 12.5.74, occasional in stream litter, 39D (J.W.T.); 15.4.74, in ride between 32 and 36; 21.10.74, in F. rufa nest, 43E; 11.3 and 16.4.74, litter, 33, 36A and 40A; P.F.T., 3/74, 35, 40A and B, 42B, 4/74, 35, 36A, 40A, 43A, 50A, 5/74, all except 50A, 7/74, all except 33, 40A and 50A.
- N. rufipes Curt. P.F.T., 5/74, 40A.
- Loricera pilicornis (F.) 12.5.74, common, in stream litter, 39D (J.W.T.); P.F.T., 3/74, 35, 40B, 4/74, 43B, 45B, 7/74, larvae, 35.
- Dyschirius sp. P.F.T., 7/74 two larvae, 50A.
- Clivina fossor (L.) 7.5.74, under stone, 37B; 7.5.74, under stone on path, 37.
- Trechus obtusus Er. 13.7.72, sweeping ride through 37; 3.9.72, in fungus 35; 7.8.74, oak litter, 44C (P.T.H.); P.F.T., 3/74, 36A, 42B, 45B, 4/74, 43A, 45B, 5/74, 45B, 7/74, 35, 36A, 43A, 45B.
- T. rivularis (Gyll.) 13.7.72, in flood refuse in dry stream bed, 39; P.F.T., 7/74, 33, 45B.
- Asaphidion flavipes (L.) 15.4.74, in ride between 32 and 36; 11.3.74, litter, 40B and 43A; P.F.T., 4/74, 35, 5/74, 35, 42B.
- Bembidion (Metallina) lampros (Hbst.) 13.7.72, running in ride, 37; 12.5.74, occasional, in stream litter, 39D (J.W.T.); P.F.T. 4, 5 and 7/74, 50A.
- B. (Metallina) properans Steph. P.F.T., 5/74, 50A.
- B. (s.str.) quadrimaculatum (L.) P.F.T., 5/74, 50A.
- B. (Phila) obtusum (Serv.) 20.6.55, occasional, under log, 39A (J.W.T.); 30.9.74, in flood refuse in dry stream bed, 43C.

- B. (Philochthus) guttula (F.) P.F.T., 4/74, 35.
- B. (Peryphus) tetracolum Say P.F.T., 4 and 7/74, 50A.
- Stomis pumicatus (Pz.) P.F.T., 5/74, 35.
- Pterostichus diligens (Sturm) P.F.T., 7/74, 45B.
- P. longicollis (Duft.) P.F.T., 3/74, 45B, 4/74, 33.
- P. madidus (F.) 3.6.56, very common, under stones etc, 38B and D, 39B (J.W.T.); P.F.T., 4/74, 35, 5/74, 35, 36A, 50A, 7/74, 33, 35, 40A, 45B.
- P. melanarius (Ill.) 15.5.56, common, in old log, 39B; 12.5.74, common, under stones, 37B and 39D (J.W.T.).
- P. nigritus (F.) 12.5.74, uncommon, in old log, 37B (J.W.T.).
- P. strenuus (Pz.) 16.4.74, cut grass, 37B; 15.5.74, in dry straw, 17B.
- Abax parallelepipedus (Pill. & Mitt.) 12.5.74, fairly common, under stone, 34 (J.W.T.); P.F.T., 4/74, 35, 36A, 43A, 5 and 7/74 all except 50A.
- Calathus fuscipes (Goez.) P.F.T., 7/74, 50A.
- Agonum assimile (Pk.) 28.10.51, fairly common, under stones, 38D, 39B (J.W.T.).
- A. dorsale (Pont.) 28.10.51, very common, under stones, logs etc, 39D (J.W.T.); P.F.T., 5/74, 50A.
- A. obscurum Hbst. 28.10.51, very common, under stones, 39B and D (J.W.T.).
- Amara familiaris (Duft.) 29.6.72; 12.5.74, occasional, under bark on old log, 37B (J.W.T.); 16.4.74, cut grass, 37B; 7.5.74, in litter, 40A; 11.3, 16.4 and 30.5.74, litter, 35, 36A and 40A; P.F.T., 4/74, 40A, 5/74, 35.
- A. ovata (F.) 20.6.55, fairly common, under log, 43B, 48D (J.W.T.).
- A. plebeja (Gyll.) 20.6.55, uncommon, under log, 48D (J.W.T.).
- A. communis (Pz.) 15.5.56, fairly common, under leaf debris, 38B (J.W.T.).
- Harpalus (Pseudophonus) rufipes (Deg.) P.F.T., 7/74, 50A.
- H. (s.str.) aeneus (F.) 19.6.56, very common, under stones, 39A and B, 48D (J.W.T.); P.F.T., 4 and 5/74, 50A.
- H. (s.str.) obscurus F. 3.6.56, occasional, under stones, 39B, 48D (J.W.T.).
- H. (Ophonus) ardosiacus Lut. in fields around Bedford Purlieus (D.T.).
- Trichocellus placidus (Gyll.) 13.7.72, sweeping ride between 37 and 38.
- Badister sodalis (Duft.) not common (D.T.); 13.7.72, sweeping ride through 37; 7.5.74, in litter 32B; 7.8.74, oak litter, 44C (P.T.H.); P.F.T., 4/74, 36A, 5/74, 35, 40A, 7/74, 35, 36A.
- Lebia chlorocephala (Hoff.) not common (D.T.); 13.9.36 (S.O.T.); 5.5.68, (W.E.R.).
- Demetrias atricapillus (L.) 12.5.74, occasional, in leaf litter, 39A (J.W.T.); 16.4.74, cut grass, 37B; 16.4.74, litter, 35.
- Dromius linearis (Ol.) 28.10.51 and 12.5.74, fairly common, behind bark, 39D and 43B (J.W.T.).

D. melanocephalus Dej. 29.6.72; 15.5.74, sweeping ride between 17B and 37C.

D. quadrimaculatus (L.) 28.10.51, common, behind bark, 39D, 43B (J.W.T.); 15.11.72, under bark of fallen lime, 36.

Metabletus truncatellus (L.) P.F.T., 5/74, 50A.

M. foveatus (Geoff. in Fourc.) P.F.T., 4/74, 50A.

DYTISCIDAE

Oreodytes halensis (F.) 13.7.72, under stone in dried-up stream bed, 39.

Hydroporus memnonius Nic. 13.7.72, in pool in wheel rut in ride between 36 and 39.

H. palustris (L.) in brook through wood (D.T.).

H. tessellatus Drap. 13.7.72, under stone in dry stream bed, 39.

HYDROPHILIDAE

Sphaeridium scarabaeoides (L.) 11.3.74, litter, 40A.

S. lunatum F. 23.7.74, in dog dung, 45A.

Cercyon terminatus (Marsh.) P.F.T., 5/74, 35.

Megasternum obscurum (Marsh.) 7.8.74, oak litter, 44C (P.T.H.); 22.10.74, small mammal's nest, 39C; P.F.T., 7/74, 36A, 45B.

Anacaena globulus (Pk.) in flood refuse in dry stream bed, 13.7.72, 39, 30.9.74, 43C; P.F.T., 3/74, 50A, 4/74, 35, 7/74, 35, 45B.

PTILIIDAE

Ptenidium laevigatum Er. 15.5.74, in mole's nest, 38B.

P. nitidum (Heer) 16.4.74, cut grass, 37B.

Acrotrichis fascicularis (Hbst.) 16.4.74, cut grass, 37B.

A. intermedia (Gillm.) 15.5.74, in dry straw, 35; 7.8.74, oak litter, 44C (P.T.H.).

A. grandicollis (Man.) 13.7.72, sweeping ride through 37.

A. montandoni (Allib.) 28.9.67 in Formica rufa nest, 40A.

SILPHIDAE

Nicrophorus humator (Goez.) 3.9.72, in dead rabbit in ride between 37 and 38.

N. vespilloides (Hbst.) 3.9.72, in dead rabbit in ride between 37 and 38.

Thanatophilus rugosus (L.) 23.7.74, in dog dung, 45A.

Ablataria laevigata (F.) recorded by (D.T.).

Ptomopagus subvillosus (Goez.) 7.5.74, in litter, 35; P.F.T., 3/74, 40A, 5/74, 40B, 45B, 7/74, 35.

Nargus velox (Spence) 15.11.72, in fungus, 38; 31.10.73, in fungi, 43C; 7.5.74, in fungus, 17B; 22.10.74, small mammal's nest, 39C; 30.5.74, litter, 35; P.F.T., 3/74, 35, 36A, 40B, 4/74, all except, 35, 40B, 42B, 50A, 5/74, all except 50A, 7/74, 35.

N. wilkini (Spence) 11.3 and 16.4.74, litter, 33 and 36A; P.F.T., 3/74, 33, 35, 36A, 43A, 4/74, 36A, 40A, 43A, 5/74, 33, 40A, 43A.

Catops coracinus (Kell.) 13.7.72, in dead blackbird and in dog dung in ride between 35 and 36; 29.5.74, in dog dung on path between 40B and 43C.

C. fuliginosus Er. P.F.T., 5/74, 43A, 45B, 50A, 5/74.

C. nigricans Spence 22.10.74, small mammal's nest, 39C; P.F.T., 5/74, 40A.

C. nigrita (Er.) P.F.T., 3/74, 40A, 43A, 5/74, 40A.

C. tristis (Pz.) P.F.T., 5 and 7/74, 40A.

Sciodrepa watsoni (Spence) 29.6.72, in dead thrush; P.F.T., 5/74, 40A, 7/74, 33.

S. fumatus (Spence) 29.6.72, in dead thrush; 13.7.72, in dead blackbird in ride between 35 and 36; 29.5.74, in dog dung on path between 40B and 43C.

Colon brunneum Lat. P.F.T., 7/74, 35, 45B.

LEIODIDAE

Leiodes dubia (Kug.) P.F.T., 7/74, 50A.

Amphicyllis globus (F.) P.F.T., 7/74, 33.

Agathidium atrum (Pk.) P.F.T., 5/74, 45B.

A. piceum Er. 11.3.74, litter, 40B; P.F.T., 3/74, 40A.

LEPTINIDAE

Leptinus testaceus Muell. 30.9.74, in mole's nest, 36C; 22.10.74, two in small mammal's nest, 39C.

SCYDMAENIDAE

Cephennium gallicum Gang. 11.3.74, litter, 36A and 43A; P.F.T., 4/74, 36A, 43A, 5/74, 35, 40B, 7/74, 33.

Stenichnus collaris (Muell. & Kunze) P.F.T., 7/74, 35, 42B.

MICROPEPLIDAE

Micropeplus staphylinoides (Marsh.) 11.3, 16.4 and 30.5.74, litter, 33, 35, 40A and 43A; P.F.T., 3/74, 36A, 4 and 5/74, 35, 40A, 43A.

STAPHYLINIDAE

Proteinus ovalis Steph. 15.11.72, in fungi, 40; 7.5.74, in moss and fungus, 17B; 29.5.74, in dog dung on path between 40B and 43C; P.F.T., 4 and 5/74, 40A; 30.9.74, flood refuse in dry stream bed, 43C.

P. brachypterus (F.) 31.10.73, in fungi, 32, 33 and 40B; 22.10.74, deer dung, 39; 30.9.74, flood refuse in dry stream bed, 43C.

- P. atomarius Er. 22.10.74, in rotten fungus, 40A.
- P. macropterus (Gyll.) P.F.T., 5/74, 35.
- Megarthus depressus (Pk.) 16.4.74, on the wing, 36.
- Eusphalerum (s.str.) primulae (Steph.) 15.5.74, in Primula vulgaris flower, 42B.
- E. (Onibathum) luteum (Marsh.) 29.6. and 13.7.72, abundant on umbel flowers, 37; 13.7.72, 1 in Collybia platyphylla, 38; 23.7.74, on umbels in ride between 32A and 35.
- Omalius rivulare (Pk.) 29.5.74, in dog dung on path between 40B and 43C.
- O. caesum Gr. 30.5.74, litter, 40A.
- Phloeonomus (s.str.) punctipennis Th. 30.5.37 (S.O.T.).
- Anthobium atrocephalum (Gyll.) 31.10.73, in fungi, 43C; 7.5.74, in fungi, 35; 11.3 and 16.4.74, litter, 35, 36A, 42B, 43A and 45B; P.F.T., 3/74, all except 50A, 4/74, all except 40B and 50A, 5/74, 33, 35, 36A, 40B, 42B, 43A.
- A. unicolor (Marsh.) in fungi, 15.11.72, 38; 7.5.74, 35; 11.3, 16.4 and 30.5.74, litter, 35, 36A, 43A and 45B; P.F.T., 3, 4 and 5/74, all except 50A.
- Olophrum piceum (Gyll.) 11.3.74, litter, 35; P.F.T., 3/74, 33, 35, 36A, 42B, 45B, 4/74, 36A, 45B; 30.9.74, flood refuse in dry stream bed, 43C.
- Lesteva longo-elytrata (Goez.) in flood refuse in dry stream bed, 13.7.72, 39; 30.9.74, 43C.
- Coryphium angusticolle Steph. 22.10.74, under bark of elm log, 48A.
- Carpelimus (s.str.) elongatulus (Er.) 13.7.72, sweeping ride through 36.
- Oxytelus sculpturatus (Gr.) 13.7.72, sweeping, 37, in dog dung in ride between 35 and 36, in deer dung in ride through 36; deer dung, 30.9.74, 43C, 22.10.74, 39; P.F.T., 3/74, 36A, 40A, 5/74, 36A, 7/74, 35, 36A; 30.9.74, flood refuse in dry stream bed, 43C.
- O. tetracaratus (Block) 13.7.72, sweeping ride through 37, in deer dung in ride through 36; 16.4.74, cut grass, 37B; P.F.T., 5/74, 50A.
- O. saulcyi Pand. 15.5.74, in mole's nest, 38B.
- Anotylus rugosus F. 13.7.72, in flood refuse in dry stream bed, 39; 11.3, 16.4 and 30.5.74, litter, 36A and 40B; P.F.T., 4/74, 35, 50A.
- Platystethus (s.str.) arenarius (Fourc.) 13.7.72, in dog dung in ride between 35 and 36; 22.10.74, in horse dung, 40A.
- P. (Craetopycrus) nitens Sahlb. 29.6.72; 15.5.74, sweeping ride between 17B and 37C; P.F.T., 5/74, 50A.
- Bledius (Hesperophilus) fracticornis (Pz.) P.F.T., 5 and 7/74, 50A.
- Oxyporus rufus (L.) in fungi (D.T.).
- Stenus (s.str.) clavicornis (Scop.) 13.7.72, sweeping ride between 37 and 38; 16.4.74, cut grass, 37B; 15.5.74, sweeping ride between 35 and 37C.
- S. (Hemistenus) flavipes Steph. 13.7.72, sweeping ride between 37 and 38.
- S. (Hemistenus) picipes Steph. 13.7.72, sweeping ride between 37 and 38.

- S. (Parastenus) impressus Germ. 13.7.72, sweeping 37 and ride through 38; 3.9.72, sweeping ride between 37 and 38 and 39 and 42; 16.4. and 30.5.74, litter, 35 and 45B.
- Astenus longelytratus Palm 29.6.72; 13.7.72, sweeping ride through 36.
- Sunius propinquus (Bris.) P.F.T., 5/74, 50A.
- Lithocharis ochraceus (Gr.) P.F.T., 4/74, 40A.
- Lathrobium (s.str.) fulvipenne (Gr.) 13.7.72, sweeping ride through 36; 15.5.74, in dry straw, 17B; P.F.T., 3/74, 36A.
- L. (s.str.) punctatum (Fourc.) 7.5.74, under rotten log, 37C; 16.4.74, cut grass, 37B; 7.5.74, in leaves in ditch, 36A; in mole run under log, 37C; 16.4 and 30.5.74, litter, 33 and 45B; P.F.T., 5/74, 45B.
- L. (s.str.) longulum Gr. 28.9.67, in Formica rufa nest, 40A.
- L. (Lobrathium) multipunctum Gr. 6.6.37 (S.O.T.).
- Achenium depressum (Gr.) not common (D.T.).
- Leptacinus formicetorum Maerk. 28.9.67, very common in F. rufa nest, 40A.
- Xantholinus (s.str.) tricolor (F.) 30.5.74, litter, 42B; P.F.T., 5/74, 36A, 43B, 45B, 7/74, 36A.
- X. (s.str.) linearis (Ol.) 28.9.67, in F. rufa nest, 40A; 16.4.74, cut grass, 37B; 11.3.74, litter, 40A; P.F.T., 5/74, 33, 45B, 7/74, 50A.
- X. (s.str.) longiventris Heer 30.5.74, litter, 40A; P.F.T., 3/74, 35, 42B, 4/74, 50A.
- X. (Hyponygrus) angustatus (Steph.) 15.5.74, on wing, 43C.
- X. (Hyponygrus) atratus Heer 28.9.67, in F. rufa nest, 40A.
- Atrechus affinis (Pk.) 13.7.72, sweeping ride between 35 and 36; 3.9.72, under bark of pine log, 43.
- Gyroyhypnus punctulatus Goez. 11.3 and 30.5.74, litter, 33 and 36A; P.F.T., 3/74, all except 40A, 4/74, 33, 36A, 42B, 43A, 45B, 5/74, 33, 35, 40B, 43B, 43A, 45B, 7/74, 35, 42B.
- G. laeviusculus (Steph.) 5.6.74, sweeping edge of 50B.
- G. myrmecophilus (Kies.) 7.8.74, in oak litter, 44C (P.T.H.); 11.3, 16.4 and 30.5.74, litter, 33, 36A, 40A and B, 42B and 45B; P.F.T., 3/74, 33, 36A, 40A, 42B, 43A, 4/74, 33, 42B.
- Philonthus (s.str.) laminatus (Creutz.) 16.4.74, on the wing, 43C; 11.3.74, litter, 40A; P.F.T., 3/74, 42B.
- P. (s.str.) succicola Th. 13.7.72, in dead blackbird in ride between 35 and 36; 3.9.72, in dead rabbit in ride between 37 and 38.
- P. (s.str.) potitus (L.) 3.9.72, in dead rabbit in ride between 37 and 38.
- P. (Bisnius) decorus (Gr.) P.F.T., 3/74, 35, 4/74, 35, 36A, 5 and 7/74, 35.
- P. (Bisnius) cognatus Steph. 16.4.74, on the wing, 43C; P.F.T., 4/74, 50A.
- P. (Bisnius) varians (Pk.) 23.7.74, in dog dung, 45A.
- Ocypus (Alapsodus) winkleri (Bern.) 22.10.74, under pieces of wood, 39C.
- Creophilus maxillosus (L.) 28.10.51, in dead bird, 38C (J.W.T.); 3.9.72, in dead rabbit in ride between 37 and 38.

- Quedius (s.str.) fuliginosus (Gr.) 30.5.74, litter, 36A; P.F.T., 7/74, 35, 45B.
- Q. (s.str.) subfuliginosus (Britt.) 22.10.74, under pieces of wood, 39C.
- Q. (Microsaurus) othiniensis Joh. in mole's nests, 7.5.74, 38B; 30.9.74, 36C.
- Q. (Sauridus) picipes (Man.) 4.8.40 (S.O.T.); 30.9.74, flood refuse in dry stream bed, 43C.
- Q. (Sauridus) fumatus (Steph.) 7.8.74, oak litter, 44C (P.T.H.).
- Q. (Sauridus) nemoralis Baudi P.F.T., 4/74, 35.
- Habrocerus capillaricornis (Gr.) 13.7.72, in flood refuse in dry stream bed, 39; 15.5.74, in dry straw, 17B; P.F.T., 5/74, 40B.
- Mycetoporus (s.str.) splendidus (Gr.) P.F.T., 5/74, 40B.
- M. (s.str.) longicornis Maekl. P.F.T., 4/74, 40B, 43A.
- M. (Schinomosa) nigricollis Steph. 3.9.72, in straw heap, 39.
- M. (Schinomosa) rufescens (Steph.) P.F.T., 3 and 5/74, 40B.
- Bolitobius inclinans (Gr.) P.F.T., 4/74, 35, 7/74, 33, 42B.
- Lordithon (s.str.) thoracicus (F.) in fungi, 13.7.72, 35C and 38C; 3.9.72, 42; 31.10.73, 32, 34 and 40B; 4.7.74 (S.E.W.); 30.5.74, litter, 33; P.F.T., 7/74, 36A.
- L. (s.str.) exoletus (Er.) 31.10.73, in fungus, 34.
- L. (Bobitobus) lunulatus (L.) 13.7.72, in fungus, 35.
- Sepedophilus marshami (Steph.) 15.5.74, dry straw, 35.
- S. pedicularis (Gr.) 13.7.72, in fungus, 35.
- Tachyporus (s.str.) chrysomelinus (L.) 16.4.74, cut grass, 37B; 15.5.74, in dry straw, 35, hawthorn blossom, 41B; 11.3, 16.4 and 30.5.74, litter, 33, 40A and B, 43A; P.F.T., 3/74, 35, 36A, 40A, 45B, 4/74, 35, 43A, 5/74, 35, 43A, 45B.
- T. (s.str.) pallidus Sahlb. 29.6.72, 13.7.72, sweeping rides through 36, 37 and 38; 7.5.74, in mole run under log, 37C.
- T. (s.str.) hypnorum (F.) 13.7.72, sweeping ride through 38; 31.10.73, in fungus, 32; 5.6.74, sweeping edge of 50B; 21.10.74, in F. rufa nest, 43E; 11.3 and 16.4.74, litter, 35, 36A and 45B; P.F.T., 3/74, 33, 36A, 43A, 45B; 30.9.74, flood refuse in dry stream bed, 43C.
- T. (s.str.) obtusus (L.) 13.7.72, sweeping ride between 37 and 38; 5.6.74, sweeping edge of 50B.
- T. (s.str.) nitidulus (F.) 29.6.72; 11.3, 16.4 and 30.5.74, litter, 33, 40A and B; P.F.T., 4 and 5/74, 40B, 50A, 7/74, 40B.
- Tachinus (s.str.) signatus Gr. 7.5.74, in leaves in ditch, 36A; in moss, 35; 30.5.74, litter, 36A; P.F.T., 3/74, 36A, 42B, 43A, 4/74, all except 33, 35 and 50A, 5/74, all except 33, 40A and 50A, 7/74, all except 33, 40A and B, 50A.
- Cypha longicornis (Pk.) 13.7.72, sweeping ride through 36; P.F.T., 4/74, 45B; 30.9.74, flood refuse in dry stream bed, 43C.
- Gyrophæna (s.str.) pulchella Heer 31.10.73, 200 in fungus, 33; 18.9.74, in fungus (S.E.W.); 11.3.74, litter, 36A.

- G. (s.str.) affinis (Sahlb.) in fungi, 13.7.72, 35 and 38C; 3.9.72, 35; 9.7.74 and 6.8.74 (S.E.W.).
- G. (s.str.) gentilis Er. 13.7.72, in fungi, 35 and 38C, 1♀ sweeping along ride through 36; 3.9.72, fungus, 35.
- G. (s.str.) bihamata Th. many in fungi, 29.6.72, 35; 13.7.72, 35 and 38C; 3.9.72, 35; 31.10.73, 40B; 4, 9 and 18.7.74 and 29.8.74 (S.E.W.).
- G. (s.str.) fasciata (Marsh.) abundant in fungi, 29.6.72, 35; 13.7.72, 35 and 38C; 3.9.72, 35; 4 and 18.7.74 and 6.8.74 (S.E.W.).
- G. (s.str.) williamsi Strand 13.7.72, 1♂ in fungus, 38C.
- G. (s.str.) poweri Crotch 29.6.72, 1♂ in fungi, 35.
- G. (s.str.) minima Er. in fungi, 29.6.72, 35; 31.10.73, 32 and 34.
- G. (s.str.) angustata (Steph.) in fungi, 29.6.72, 35; 13.7.72, 38C.
- G. (s.str.) joyi Wend. 13.7.72, 1♂ swept from Mercurialis perennis, 39D.
- G. (s.str.) hanseni Strand 3.9.72, 2♂♂ in fungus, 35.
- Agaricochara latissima (Steph.) 22.10.74, in Piptoporus betulinus, 43C.
- Homalota plana (Gyll.) 22.10.74, under bark of elm log, 48A.
- Anomognathus cuspidatus (Er.) 3.9.72, under bark of fallen lime, 36; 22.10.74, under bark of elm log, 48A.
- Leptusa (s.str.) fumida (Er.) 3.9 and 15.11.72, under bark of fallen lime, 36; 16.4.74, under bark of fallen elm, 43C.
- L. (Pachygluta) ruficollis (Er.) 13.7.72, under bark of dead elm, 38A; 15.2.74, in fungus (S.E.W.).
- Bolitochara (s.str.) lucida (Gr.) 13.7.72, in Trametes on old hazel stool, 37C.
- B. (Ditropalia) bella Maerk. 13.7.72, sweeping ride through 37.
- B. (Ditropalia) obliqua Er. 13.7.72, in Trametes on old hazel stool, 37C; 3.9.72, in straw heap, 39.
- Autalia impressa (Ol.) 15.11.72, in fungi, 40.
- A. rivularis (Gr.) 13.7.72, in dead blackbird in ride between 35 and 36; in deer dung in ride through 36.
- Falagria (Falagrioma) thoracica Curt. 3.9.72, in straw heap, 39; P.F.T., 7/74, 40A.
- Dadobia immersa (Er.) 13.7.72, sweeping ride through 38.
- Amischa analis (Gr.) 29.6.72; 13.7.72, in dead blackbird in ride between 35 and 36, sweeping ride between 37 and 38 and ride through 38; 11.3 and 16.4.74, litter, 40A and 43A; P.F.T., 4/74, 40B, 50A.
- A. decipiens (Shp.) 11.3.74, litter, 40A and B.
- Sipalia circellaris (Gr.) 11.3, 16.4 and 30.5.74, litter, 33, 36A, 40B and 45B; P.F.T., 3/74, 33, 7/74, 33, 35.
- Atheta (Aloconota) gregaria (Er.) 29.6.72; 16.4.74, on the wing, 36.
- A. (Philhygra) elongatula (Gr.) 13.7.72, running in dried-up stream bed, 39.
- A. (Dinaraea) angustula (Gyll.) 29.6.72.

- A. (Plataraea) nigriceps (Marsh.) P.F.T., 5/74, 40B.
- A. (Enalodroma) hepatica (Er.) P.F.T., 7/74, 35.
- A. (Tetropla) liturata (Steph.) 29.6.72, in fungi, 35.
- A. (Tetropla) gagatina (Baudi) 3.9.72, in fungi, 39; P.F.T., 7/74, 33.
- A. (Tetropla) sodalis (Er.) 7.5.74, in fungus, 35.
- A. (Tetropla) britanniae Bern. & Scheer. 13.7.72, in fungi, 38C; 3.9.72, in fungi, 39.
- A. (Tetropla) crassicornis (F.) 13.7.72, in dead blackbird and dog dung in ride between 35 and 36, in fungi, 35C; 3.9.72, in dead rabbit between 37 and 38, in fungi, 39; 31.10.73, in fungi, 32 and 40B; P.F.T., 5/74, 36A, 40A.
- A. (Tetropla) xanthopus (Th.) 13.7.72, sweeping ride between 37 and 38.
- A. (Tetropla) triangulum (Kr.) 16.4.74, litter, 40B.
- A. (Stethusa) castanoptera (Man.) 13.7.72, in fungi, 38C and 37, in dead blackbird in ride between 35 and 36.
- A. (Stethusa) pertyi (Heer) 13.7.72, in dog dung in ride between 35 and 36.
- A. (Liogluta) oblongiuscula (Shp.) P.F.T., 3/74, 35, 4/74, 35, 45B, 5/74, 36A, 43A, 45B, 7/74, 35, 42B, 45B.
- A. (Dimetrota) atramentaria (Gyll.) 30.9.74, flood refuse in dry stream bed, 43C.
- A. (Dimetrota) marcida (Er.) 31.10.73, in fungi, 32, 33, 40A.
- A. (Dimetrota) laevana (Muls. & Rey) 13.7.72, in dog dung in ride between 35 and 36.
- A. (Dimetrota) setigera (Shp.) 22.10.74, in horse dung, 40A.
- A. (Dimetrota) cinnamoptera (Th.) 22.10.74, deer dung, 39.
- A. (Datomicra) nigra (Kr.) 3.9.72, in dead rabbit in ride between 37 and 38; in fungi, 42.
- A. (Acrotona) aterrima (Gr.) 3.9.72, in dead rabbit in ride between 37 and 38.
- A. (Acrotona) fungi (Gr.) 29.6.72; 13.7.72, commonly swept along rides in 37 and 38, in flood refuse in dry stream bed, 39D; 3.9.72, in straw heap, 39; 7.5.74, in litter, 17B and 40A; 15.5.74, in dry straw, and leaf litter, 35; 29.5.74, under elm log bark, between 43 and 48; 11.3, 16.4 and 30.5.74, litter, 35, 36A, 40A and B, 43A; P.F.T., 3/74, 45B, 4 and 5/74, 40A, 7/74, 40A and B.
- A. (Acrotona) laticollis (Steph.) 11.3.74, litter, 36A.
- A. (Amidobia) indubia (Shp.) 13.7.72, in dead blackbird in ride between 35 and 36, in deer dung in ride through 36; 22.10.74, in fungus, 40A.
- Zyras (Pella) humeralis (Gr.) P.F.T., 4/74, 45B, 5/74, 33, 40A and B, 42B, 43A, 7/74, 33, 43A, 45B.
- Lomechusa emarginata (Pk.) P.F.T., 7/74, 50A.
- Chiloporata longicornis (Er.) 29.6.72, swept in centre and other rides.
- Ocalea picata (Steph.) 7.8.74, in oak litter, 44C (P.T.H.); P.F.T., 3/74, 35, 45B, 7/74, 36A, 45B; 30.9.74, flood refuse in dry stream bed, 43C.

O. badia Er. 31.10.73, in fungus, 43C; P.F.T., 7/74., 35, 43A, 45B.

Oxyopoda (s.str.) lividipennis Man. P.F.T., 3/74, 36A, 40B, 45B, 5/74, all except 33 and 50A.

O. (s.str.) opaca (Gr.) P.F.T., 3/74, 40A.

O. (s.str.) vittata Maerk. P.F.T., 7/74, 35; 25.10.74, under deer dung, 44C (J.N.G-D.).

O. (Podoxya) brevicornis (Steph.) 13.7.72, in flood refuse in dry stream bed, 39, in dead blackbird in ride between 35 and 36; P.F.T., 4/74, 43A, 5/74, 42B; 30.9.74, flood refuse in dry stream bed, 43C.

O. (Mycetodrepa) alternans (Gr.) in fungi, 3.9.72, 35; 15.11.72, 38 and 40; 31.10.73, 32 and 40A.

O. (Bessopora) amoena Fairm. & Lab. P.F.T., 4/74, 40B.

O. (Sedomoma) annularis (Man.) P.F.T., 5/74, 40A, 45B; 30.9.74, flood refuse in dry stream bed, 43C.

O. (Sedomoma) brachyptera (Steph.) P.F.T., 5/74, 42B.

Thyasophila angulata (Er.) 28.9.67, in Formica rufa nest, 40A.

Tinotus morion Gr. 11.3.74, litter, 40A.

Aleochara (s.str.) bipustulata (L.) 23.7.74, in dog dung, 45A; P.F.T., 5/74, 50A.

A. (Copiata) curtula (Goez.) 3.9.72, in dead rabbit in ride between 37 and 38.

A. (Baryodma) intricata Man. 23.7.74, in dog dung, 45A.

A. (Ceranota) ruficornis Gr. 19.7.36 (S.O.T.).

PSELAPHIDAE

Euplectus piceus Mots. P.F.T., 7/74, 40B.

Bryaxis puncticollis (Denny) 30.5.74, litter, 36A.

LUCANIDAE

Dorcus parallelipedus L. in rotting logs (D.T.).

GEOTRUPIDAE

Geotrupes stercorarius (L.) 22.10.74, under horse dung, 40A.

G. spiniger Marsh. 2.11.73, crawling on ground, 48 (S.E.W.).

SCARABAEIDAE

Onthophagus ovatus (L.) recorded by (D.T.).

Odontaeus armiger (Scop.) 27.6.64, 3 at M/V light (D.T.).

Homaloplia ruricola (F.) on grassy verges outside wood, sometimes abundant (D.T.).

DASCILLIDAE

Dascillus cervinus (L.) on verges of wood (D.T.).

BYRRHIDAE

Simplocaria semistriata (F.) 11.3.74, litter, 40B.

BUPRESTIDAE

Agrilus laticornis (Ill.) 5.6.74, sweeping edge of 50B.

Trachys minuta L. beating hazels (D.T.), 4 and 19.7.36 (S.O.T.).

T. troglodytes Schoen. 4.7.36 (S.O.T.).

ELATERIDAE

Elater pomonae Steph. several in old log (D.T.).

E. elongatulus F. several beaten off birch May 1935 (D.T.).

Athous haemorrhoidalis (F.) 29.6.72; 30.6.74, fairly common, beating hawthorn, 44B (J.W.T.); 5.6.74, on hawthorn, 44B; 11.3.74, larva in litter, 40B.

A. hirtus (Hbst.) 30.6.74, occasional, in log, 41B (J.W.T.).

A. bicolor (Goez.) 19.6.56, in old log, 39A (J.W.T.).

A. vittatus (F.) On oaks (D.T.); 30.6.74, occasional, beating hawthorn, 44B (J.W.T.); 15.5.74, sweeping between 17B and 37C.

Corymbites incanus (Gyll.) 5.6.74, sweeping, 44B.

Prosternon tessellatum (L.) 30.5.37 (S.O.T.).

Agriotes pallidulus Ill. 29.6.72; 5.6.74, sweeping edge of 50B; P.F.T., 5/74, 40A and B.

A. sputator (L.) 30.5.74, litter, 45B.

A. acuminatus (Steph.) 29.6.72; 13.7.72 sweeping ride between 37 and 38; 29.5.74, hawthorn blossom, 42B; 5.6.74, sweeping edge of 50B; P.F.T., 5/74, 40B.

Adrastus nitidulus (Marsh.) 12.5.74, 34 (H.E.H.).

Denticollis linearis (L.) 29.6.72, sweeping centre and other rides.

Dalopius marginatus (L.) 13.7.72, sweeping ride through 36; 12.5.74, 34, (H.E.H.); 16.4.74, litter, 33.

TRIXAGIDAE

Trixagus dermestoides (L.) 16.4.74, litter, 42B; P.F.T., 5/74, 45B, 7/74, 50A.

EUCNEMIDAE

Melasis buprestoides L. 12.5.74, 37B (H.E.H.).

LAMPYRIDAE

Lampyrus noctiluca (L.) 22.10.74, larva under asbestos sheet, 45D.

CANTHARIDAE

Cantharis rustica Fall. 5.6.74, sweeping edge of 50B.

C. nigricans (Muell.) 29.5.74, sweeping grass, 34.

C. pellucida F. 5.6.74, sweeping, 44B.

Metacantharis clypeata (Ill.) 5.6.74, sweeping, 44B.

Rhagonycha fulva (Scop.) 13.7.72, sweeping ride between 37 and 38; 5.6.74, on oak, 44B.

R. translucida Kryn. 29.6.72, sweeping centre and other rides.

R. limbata Th. 7.5.74, pupa under rotten stump, 17B; 5.6.74, sweeping, 44B and edge of 50B, on hawthorn, 44B.

R. lignosa (Muell.) 29.6.72; 5.6.74, sweeping edge of 50B and hawthorn, 44B.

Malthinus flaveolus (Pk.) 13.7.72, sweeping ride through 36; P.F.T., 7/74, 45B.

M. fasciatus (Ol.) 29.6.72; 13.7.72, sweeping ride through 36.

M. balteatus Suff. 13.7.72, sweeping ride between 37 and 38.

Malthodes marginatus (Lat.) 13.7.72, sweeping ride between 37 and 38.

M. minimus (L.) 29.6.72; 13.7.72, sweeping ride between 37 and 38 in through 37; 5.6.74, sweeping edge of 50B; P.F.T., 7/74, 40A, 42B.

M. pumilus (Bréb.) 29.6.72; 13.7.72, sweeping ride between 37 and 38 and rides through 37 and 39.

ANOBIIDAE

Grynobius excavatus (Kug.) 30.5.37 (S.O.T.).

CLERIDAE

Necrobia violacea (L.) 30.6.74, 38B (H.E.H.).

PHLOIOPHILIDAE

Phloiophilus edwardsi Steph. 30.5.74, litter, 43A.

NITIDULIDAE

Kateretes pedicularis (L.) 30.7.39 (S.O.T.).

Brachypterus glaber Steph. 13.7.72, sweeping ride between 37 and 38; 5.6.74, on hawthorn, 44B.

B. urticae (F.) 15.4.74, sweeping ride between 35 and 37.

Meligethes atratus (Ol.) 15.5.74, on hawthorn blossom, 41B.

M. flavimanus Steph. 3.9.72, sweeping ride between 37 and 38.

M. lumbaris Sturm 29.5.74, hawthorn blossom, 42B.

M. aeneus (F.) sweeping rides, 13.7.72, between 37 and 38; 3.9.72 between 32 and 36; 15.5.74, on hawthorn blossom, beating field maple, 36A; 29.5.74, hawthorn, 42B; 5.6.74, hawthorn, 44B.

M. ovatus Sturm 29.6.72; sweeping centre and other rides.

M. brunnicornis Sturm 5.6.74, sweeping edge of 50B.

M. nigrescens Steph. 13.7.72, sweeping ride through 36 and between 37 and 38; 15.5.74, on hawthorn blossom, 41B; 5.6.74, hawthorn, 44B.

M. erythropus (Gyll.) 29.5.74, hawthorn blossom, 42B.

Epuraea unicolor (Ol.) 11.3.74, litter, 40B; P.F.T., 3/74, 36A.

E. pusilla (Ill.) 3.9.72, in fungus, 39.

Librodor hortensis (Fourc.) 3.9.72, in fungus, 39; 15.5.74, on the wing in ride between 34 and 40B.

RHIZOPHAGIDAE

Rhizophagus bipustulatus (F.) P.F.T., 3/74, 35.

R. perforatus Er. P.F.T., 4/74, 40A.

R. dispar (Pk.) 3.9.72, under bark of pine log, 43; P.F.T., 3/74, 40B.

R. cribratus Gyll. 12.7.45 (S.O.T.).

Montoma conicicollis Aubé 28.9.67, in Formica rufa nest, 40A.

PHALICRIDAE

Stilbus testaceus (Pz.) 29.6.72; 13.7.72, sweeping ride between 37 and 38, and through 38; 5.6.74, sweeping edge of 50B; 22.10.74, in fungus, 40A; 30.9.74, flood refuse in dry stream bed, 43C; P.F.T., 4/74, 35.

SILVANIDAE

Silvanus unidentatus (Ol.) 4.7.36 (S.O.T.).

CRYPTOPHAGIDAE

Cryptophagus setulosus Sturm 3.9.72, in fungus, 39.

Atomaria atricapilla Steph. 29.6.72; 13.7.72, sweeping ride through 36 and 37 and between 37 and 38; 15.5.74, sweeping ride between 17B and 37C; 11.3.74, litter, 33.

A. apicalis Er. 13.7.72, sweeping 37; 15.5.74, on Salix, 45B.

A. ruficornis Marsh. 29.6.72; 13.7.72, in flood refuse in dry stream bed, 39.

A. linearis Steph. 13.7.72, sweeping ride between 37 and 38 and through 38.

A. affinis Sahlb. P.F.T., 3/74, 40B.

A. fuscicollis Man. 29.6.72; 13.7.72, sweeping rides through 36 and 37 and in flood refuse in dry stream bed, 39.

EROTYLIDAE

Dacne bipustulata (Thunb.) 30.4.72 (H.E.H.).

BYTURIDAE

Byturus ochraceus Scriba 15.5.74, on hawthorn blossom, 41B; 29.5.74, hawthorn, 42B; 5.6.74, hawthorn, 44B.

B. urbanus (Lind.) 29.6.72; sweeping centre and other rides.

ENDOMYCHIDAE

Sphaerosoma piliferum (Muell.) 13.7.72, in Trametes on old hazel stool, 37C.

Endomychus coccineus (L.) 30.4.72, 38B (H.E.H.).

COCCINELLIDAE

- Micraspis sexdecimpunctata (L.) 15.5.74, on grass, 43C; 5.6.74, sweeping, 44B.
- Adalia bipunctata (L.) 29.6.72; sweeping centre and other rides.
- A. decempunctata (L.) 11.3.74, litter, 35 and 36A.
- Coccinella septempunctata L. 29.6.72; sweeping centre and other rides.
- C. undecimpunctata (L.) P.F.T., 7/74, 50A.
- Calvia quattuordecimguttata (L.) 29.6.72, sweeping centre and other rides.
- Halyzia sexdecimguttata (L.) 29.5.74, sweeping rides.
- Propylea quattuordecimpunctata (L.) 29.6.72; 16.4.74, litter, 40B.
- Chilocorus bipustulatus (L.) 30.7.39 (S.O.T.).

LATHRIDIIDAE

- Stethostethus lardarius (Deg.) 29.6.72; 13.7.72, sweeping ride through 36; 7.5.74, in mole run under log, 37C; 15.5.74, on Salix, 45B; 30.9.74, flood refuse in dry stream bed, 43C.
- Aridius nodifer (Westw.) 13.7.72, in Trametes, 37C; 3.9.72, in fungi, 35 and 39; 7.5.74, in fungi, 35; 30.5.74, litter, 40A; P.F.T., 7/74, 42B.
- A. bifasciatus (Reitt.) 29.6.72; 13.7.72, sweeping ride between 37 and 38; 3.9.72, in fungus, 39; 7.5.74, under rotten log, 37C; 15.5.74, on hawthorn blossom, 41B, young birch seedlings, 45B; 5.6.74, hawthorn, 44B, and sweeping edge of 50B; 30.5.74, litter, 40A.
- Enicmus transversus (Ol.) 29.6.72; 13.7.72, sweeping ride between 37 and 38, in Trametes, 37C; 3.9.72, in fungus, 35; 16.4 and 30.5.74, litter, 42B and 45B; P.F.T., 4/74, 42B, 5/74, 40B.
- E. histrio Joy P.F.T., 7/74, 35, 42B.
- Corticaria pubescens (Gyll.) 13.7.72, sweeping ride between 37 and 38 and through 38; P.F.T., 4/74, 50A.
- Corticarina gibbosa (Hbst.) 29.6.72; 3.9.72, in fungus, 39; 15.5.74, sweeping ride between 35 and 37C, on hawthorn blossom, 41B, on Salix, 45B; 29.5.74, hawthorn, 42B; 5.6.74, sweeping edge of 50B; 16.4 and 30.5.74, litter, 33 and 45B; P.F.T., 3/74, 35, 40B, 4/74, 35, 5/74, 50A.

CISIDAE

- Cis boleti (Scop.) 13.7.72, adults and pupae in Trametes, 37C.
- Octotemnus glabriculus (Gyll.) 13.7.72, in Trametes, 37C, 2 swept from ride through 36.

COLYDIIDAE

- Ditoma crenata (F.) under bark of logs (D.T.).

MYCETOPHAGIDAE

- Mycetophagus quadripustulatus (L.) 30.4.72, 38B (H.E.H.).
M. atomarius (F.) 29.6.72; sweeping centre and other rides.

TENEBRIONIDAE

- Hypophloeus bicolor (Ol.) 22.10.74, under bark of elm log, 48B.

LAGRIIDAE

- Lagria hirta (L.) by sweeping (D.T.); 30.6.74, fairly common, beating hawthorn blossom, 41B (J.W.T.).

ALLECULIDAE

- Isomira murina (L.) 29.6.72; sweeping centre and other rides.
Cteniopus sulphureus (L.) by sweeping on damp, reedy ground (D.T.).

SALPINGIDAE

- Lissodema quadripustulatum (Marsh.) on old hazels (D.T.).
Salpingus reyi (Abeille) on old hazels (D.T.).

PYROCHROIDAE

- Pyrochroa serraticornis (Scop.) 19.5.71 (H.E.H.); 13.7.72, larvae under bark of dead standing elm, 38A.

OEDEMERIDAE

- Oedemera lurida (Marsh.) 4.7.36, 17.7.37 (S.O.T.).

MELOIDAE

- Meloe violaceus Marsh. 30.5.37 (S.O.T.).

MELANDRYIDAE

- Orchesia minor Walk. on old hazels (D.T.).
O. undulata Kr. under park of oak logs (D.T.).
Conopalpus testaceus (Ol.) 4.7.36 (S.O.T.).
Osphya bipunctata (F.) abundant on oaks in May and June 1935 (D.T.).

SCRAPTIIDAE

- Anaspis rufilabris Gyll. 29.6.72; 13.7.72, beating oak, 39; 29.5.74, hawthorn, 42B; 5.6.74, hawthorn, 44B.
A. frontalis (L.) 29.6.72, on umbel flowers; 13.7.72, sweeping ride between 37 and 38; 29.5.74, hawthorn, 42B; 5.6.74, hawthorn, 44B.
A. regimbarti Schil. 5.6.74, beating hawthorn, 44B.
A. maculatus Geoff. in Fourc. 13.7.72, sweeping ride between 37 and 38, in fungi, 35C; 15.5.74, on hawthorn blossom, 41B; 29.5.74, hawthorn, 42B; 5.6.74, hawthorn, 44B.

MORDELLIDAE

Mordella villosa (Schr.) on flowers (D.T.); 12.7.45 (S.O.T.).

Mordellistina pumilla (Gyll.) on flowers (D.T.).

M. abdominalis (F.) on flowers (D.T.).

M. humeralis (L.) on flowers (D.T.).

CERAMBYCIDAE

Rhagium mordax (Deg.) 1950's, near Centre oak (H.E.H.); 3.9.72, larva under bark of fallen lime, 36.

R. inquisitor (L.) 30.5.37, "in numbers" (S.O.T.).

Grammoptera ruficornis (F.) 13.7.72, sweeping ride between 37 and 38 and through 38; on hawthorn blossom, 15.5.74, 41B; 29.5.74, 42B; 5.6.74, 44B.

Strangalia maculata (Poda) 13.7.72, on Filipendula in ride between 37 and 38.

S. melanaria (L.) 4.7.36 (S.O.T.); 5.6.74, sweeping edge of 50B.

Clytus arietus (L.) 30.6.74, occasional, beating hawthorn blossom, 44B (J.W.T.).

Anaglyptus mysticus (L.) 30.6.74, occasional, beating hawthorn blossom, 44B (J.W.T.).

Pogonocherus hispidus (L.) 30.4.72 (H.E.H.).

Agapanthia villosoviridescens (Deg.) generally common on Hogweed in June (D.T.); 4.7.36 and 4.8.40 (S.O.T.).

Saperda populnea (L.) on aspens (D.T.); 4.7.36 (S.O.T.).

BRUCHIDAE

Bruchus loti Pk. 4.7.36 and 30.5.37 (S.O.T.).

CHRYSOMELIDAE

Zeugophora subspinoso (F.) 4.7.36 (S.O.T.).

Lema cyanella (L.) roadside verges (D.T.).

L. melanopa (L.) 13.7.72, sweeping ride between 37 and 38.

Cryptocephalus coryli (L.) a few off hawthorn (D.T.).

C. moraei (L.) 4.7.36 and 17.7.37 (S.O.T.); 3.7.66 (H.E.H.).

C. fulvus Goez. 19.7.36 (S.O.T.).

C. pusillus F. 20.8.37 (S.O.T.).

Chrysolina sanguinolenta (L.) September 1957, on Toadflax outside wood (D.T.).

C. hyperici (Forst.) 4.7.36, 17.7.37 and 30.7.39 (S.O.T.).

C. varians (Schal.) 13.9.36 (S.O.T.); 23.7.74, larvae on Hypericum perforatum along North Gate Ride opposite 35.

Phaedon cochleariae (F.) 15.5.74, beating field maple, 36A.

Phyllodecta vulgatissima (L.) 30.6.74, very common, beating aspen, 41B (J.W.T.).

- P. laticollis Suff. 21.5.37 (S.O.T.).
- Phyllotreta vittula Redt. 3.9.72, sweeping ride between 32 and 36.
- P. cruciferae (Goez.) 4.7.36 (S.O.T.).
- Longitarsus pratensis (Pz.) P.F.T., 4/74, 50A.
- L. gracilis Kuts. P.F.T., 7/74, 50A.
- L. dorsalis (F.) P.F.T., 4/74, 50A.
- L. luridus (Scop.) P.F.T., 4/74, 35.
- L. melanocephalus (Deg.) 11.3.74, litter, 36A.
- Haltica brevicollis Foud. 5.6.74, beaten from hawthorn, 44B.
- Hermaeophagus mercurialis (F.) 4.7 and 13.9.36 (S.O.T.); 29.5.67, 32C and 12.5.74, 34 (H.E.H.); 30.4.72 (W.E.R.); 29.6. and 13.7.72, on Mercurialis perennis in rides between 35 and 37, 37 and 38, and in 39.
- Batophila rubi (Pk.) 29.6.72; P.F.T., 3/74, 36A, 4/74, 35, 40A, 43A, 5/74, 36A.
- Chalcoides aurea (Geoff. in Fourc.) on Salix, 15.5.74, 45B; 5.6.74, 44B.
- C. aurata (Marsh.) 15.5.74, on Salix, 45B.
- C. nitidula (L.) 19.7.36 (S.O.T.).
- Epitrix atropae Foud. on Belladonna (D.T.).
- Chaetocnema concinna (Marsh.) 13.7.72, sweeping ride between 37 and 38; 15.5.74, sweeping ride between 35 and 37C.
- C. sahlbergii (Gyll.) 13.9.36 (S.O.T.).
- Sphaeroderma testaceum (F.) 13.7.72, sweeping ride between 37 and 38.
- Psylliodes dulcamarae (Koch, J.D.W.) 12.7.45 (S.O.T.).
- Cassida flaveola Thunb. 13.7.72, sweeping ride through 38; 5.6.74; sweeping edge of 50B.
- C. vibex L. 16.4.74, cut grass, 37B.
- C. rubiginosa Muell. 15.5.74, on young birch seedlings, 45B.
- C. nobilis L. borders of wood, by sweeping (D.T.).

ANTHRIBIDAE

- Platystomos albinus (L.) a few by beating old hazel and birch (D.T.).

ATTELABIDAE

- Caenorhinus aeneovirens (Marsh.) 30.4.72 (H.E.H.).
- C. germanicus (Hbst.) 13.7.72, sweeping ride between 37 and 38; 5.6.74, sweeping edge of 50B.
- C. interpunctatus (Steph.) 12.6.37 (S.O.T.); 30.4.72 (H.E.H.).
- Deporaus betulae (L.) 12.5.74, 47A (H.E.H.).

APIONIDAE

- Apion radiolus Kirby 4.8.40 (S.O.T.).
- A. loti Kirby 5.6.74, sweeping edge of 50B; P.F.T., 7/74, 50A.

- A. aethiops Hbst. 5.6.74, sweeping edge of 50B.
A. minimum Hbst. P.F.T., 5/74, 50A.
A. simile Kirby 30.7.39 (S.O.T.); 29.6.72; sweeping centre and other rides.
A. subulatum Kirby 4.7.36 (S.O.T.).
A. dichroum Bedel 10.3.68 (H.E.H.); 29.6.72; 13.7.72; sweeping ride between 37 and 38; 15.5.74, sweeping ride between 17B and 37C; 5.6.74, sweeping edge of 50B.
A. nigritarse Kirby 10.3.68 (H.E.H.); P.F.T., 5/74, 50A.

CURCULIONIDAE

- Otiorrhynchus singularis (L.) 11.3.74, litter, 40A.
Phyllobius parvulus (Ol.) 13.7.72, sweeping ride between 37 and 38; 30.6.74, 38B (H.E.H.).
P. pyri (L.) 15.5.74, on young birch seedlings, 45B; 5.6.74, oak, 44B; 5.6.74, sweeping edge of 50B.
P. maculicornis Germ. P.F.T., 7/74, 50A.
P. argentatus (L.) 5.6.74, oak, 44B, and sweeping edge of 50B; 30.5.74, litter, 35.
Polydrosus pterygomalis Boh. 13.7.72, sweeping ride through 36; 30.5.74, litter, 35; P.F.T., 5/74, 36A.
P. cervinus (L.) 29.6.72; 13.7.72, on oak, 39; 15.5.74, on young birch seedlings, 45B.
Sciaphilus asperatus (Bons.) 13.7.72, sweeping ride through 36 and between 37 and 38; 12.5.74, 38B (H.E.H.); P.F.T., 3/74, 43A, 5/74, 40B.
Barypithes araneiformis (Schr.) 15.5.74, in dry straw, 17B; 16.4 and 30.5.74, litter, 35, 43A and 45B; P.F.T., 3/74, 35, 36A, 4/74, 36A, 43A, 5/74, 33, 35, 40B, 42B, 7/74, all except 40A and B, 43A and 50A.
Barynotus moerens (F.) 5.5.68 (W.E.R.); 12.5.74, 38B (H.E.H.); P.F.T., 5/74, 40A, 7/74, 33.
Sitona lineatus (L.) 29.6.72; 5.6.74, sweeping edge of 50B; 11.3.74, litter, 33 and 35; P.F.T., 4/74, 35, 5/74, 50A.
S. sulcifrons Thunb. P.F.T., 4/74, 50A.
S. lineellus Bonsd. 13.7.72, sweeping rides through 36 and between 37 and 38.
S. hispidulus (F.) P.F.T., 4/74, 50A.
S. humeralis Steph. P.F.T., 5 and 7/74, 50A.
Dorytomus taeniatus (F.) 30.6.74, 47A (H.E.H.).
Miccotrogus picirostris (F.) 13.7.72, sweeping ride through 36.
Anthonomus inversus Bedel 30.6.74, 38B (H.E.H.).
Curculio (s.str.) villosus F. 30.4.72 (H.E.H.).
C. (Balanobius) rubidus (Gyll.) on birch (D.T.).
C. (Balanobius) pyrrhoceras Marsh. 30.4.72 (H.E.H.); sweeping rides, 13.7.72, between 37 and 38; 3.9.72, between 39 and 42; 15.5.74, between 35 and 37C; 29.5.74, hawthorn, 42B; 5.6.74, sweeping edge of 50B.

- C. (Balanobius) salicivorus Pk. 5.6.74, on Salix, 44B.
- Liosoma deflexum (Pz.) 13.7.72, sweeping ride through 38; 30.5.74, litter, 45B; P.F.T., 5/74, 42B and 50A.
- Phytonomus nigrirostris (F.) P.F.T., 4/74, 50A.
- P. posticus (Gyll.) P.F.T., 5/74, 50A.
- Gronops lunatus (F.) P.F.T., 4/74, 50A.
- Acalles roboris (Curt.) 30.5.74, litter, 45B.
- A. ptinoides Marsh. P.F.T., 4/74, 42B.
- A. turbatus Boh. 30.6.74, 38B (H.E.H.).
- Coeliodes dryados (L.) 12.5.74, 47A (H.E.H.).
- Cidnorhinus quadrimaculatus (L.) 12.5.74, 34 (H.E.H.).
- Ceuthorhynchus assimilis (Pk.) 15.5.74, sweeping ride between 35 and 37C.
- C. quadridens (Pz.) P.F.T., 5/74, 40B.
- C. pollinarius (Forst.) 12.5.74, 34 (H.E.H.).
- C. erysimi (F.) 13.7.72, sweeping ride between 37 and 38.
- C. contractus (Marsh.) 13.7.72, sweeping ride through 38 and between 37 and 38.
- Rhinoncus perpendicularis (Reich.) 12.5.74, 34 (H.E.H.).
- Amalorrhynchus melanarius (Steph.) 30.7.39 (S.O.T.).
- Gymnetron pascuorum (Gyll.) 5.6.74, sweeping edge of 50B.
- Miarus graminis (Gyll.) 12.7.45 (S.O.T.).
- M. plantarum (Germ.) 4.8.40 (S.O.T.).
- M. campanulae (L.) 13.9.36 and 17.7.37 (S.O.T.).
- Cionus scrophulariae (L.) 12.5.74, 34 (H.E.H.).
- C. hortulanus (Geoff.) 12.5.74, 34 (H.E.H.).
- Cleopus pulchellus (Hbst.) 30.4.72, 34 (H.E.H.).
- Anoplus plantaris Naez. 13.7.72; on birch, 37.
- Rhynchaenus quercus (L.) 30.4.72 (H.E.H.).
- R. pilosus (F.) 30.4.72 (H.E.H.).
- R. pratensis Germ. by sweeping (D.T.).

SCOLYTIDAE

- Scolytus scolytus (F.) 19.5.71, near centre oak (H.E.H.); 22.10.74, dead in bark of elm log, 48B.
- S. multistriatus (Marsh.) under bark of dead elm, 13.7.72, 38A; 16.4.74, 43C; 22.10.74, dead in bark of elm log, 48B.
- Hylurgops palliatus (Gyll.) 3.9.72, common under bark of pine logs, 43; P.F.T., 3/74, in numbers, 40A and B, 4/74, 40B.
- Hylastes ater (Pk.) P.F.T., 3/74, 40B.
- Trypodendron domesticum L. 27.3.67 (H.E.H.).
- Xyleborus dryographus (Ratz.) 13.7.72, dead in bark of dead elm, 38A.

ADDENDA TO COLEOPTERA RECORDED FROM BEDFORD PURLIEUS

During a brief visit to Bedford Purlieus on 1st September 1975 with Dr. R.A. Crowson a number of previously unrecorded species of Coleoptera were collected. Those species marked with an asterisk (taken by R.C. Welch) were all sieved from a pile of pine bark chippings in Compt. 40B, adjacent to Main Ride, unless stated otherwise. Dr. Crowson's list also includes some older records for 11th April 1959. Most of his recent captures were from Compts. 40 and 43 under bark of fallen and cut timber, by sieving litter and in a dead pigeon. Two species of Chrysomelidae recorded pre-war have been confirmed. Cryptocephalus pusillus F. (recorded by the Taylors on 20.8.37) was sieved from the pine chippings, and Dr. Crowson notes Chalcoides nitidula L. (recorded by the Taylors on 19.7.36) as near its northern British limit at this site.

The following 34 species are additional to the preceding list, and bring the total species known from the wood to 507:-

CARABIDAE

- * Trechus quadristriatus (Shr.)
- * Bembidion (Nepha) genei Kuest. s.sp. illigeri Netol.
B. (Bembidionetolitzkya) tibiale Duft.

DYTISCIDAE

- * Agabus guttatus Pk. 1 under piece of wood in dry stream bed, Compt. 39D.

PTILIIDAE

- * Acrotrichis rugulosa Rossk. 1♀
- * A. silvatica Rossk. 1♂ 3♀♀ (see C. Johnson, Entomologist, 100 :
132-136, 1967).
Ptinella aptera (Er.)

SILPHIDAE

- * Catops kirbii (Spence) 1♂ in dead pigeon, Compt. 40B.

STAPHYLINIDAE

- Lathrobium (s.str.) geminum Kr.
- Xantholinus (Hyponygrus) fracticornis (Muell.)
- Philonthus (s.str.) tenuicornis Muls. & Rey
- P. (Bisnius) varius (Gyll.)
- P. (Bisnius) fimetarius (Gr.)
- P. (Bisnius) cephalotes (Gr.)
- * Quedius (Microsaurus) cruentus (Ol.) 1♂
- * Lordithon trinotatus (Er.) 2
- * Sepedophilus littoreus (L.) 3♂ 1♀

* Tachinus (s.str.) laticollis Gr. 1♀

T. (s.str.) marginellus (F.)

Atheta (Dinaraea) aequata (Er.)

A. (Dinaraea) linearis (Gr.)

PSELAPHIDAE

Bibloporus bicolor (Denny)

ANOBIIDAE

Ptilinus pectinicornis (L.)

NITIDULIDAE

Cychramus luteus (F.)

LATHRIDIIDAE

Enicmus testaceus (Steph.)

CISIDAE

Cis nitidus (F.)

C. vestitus Mellie

C. bilamellatus Fowl.

CHRYSOMELIDAE

Chaetocnema hortensis (Geof.)

APIONIDAE

Apion immune Kirby

CURCULIONIDAE

Brachysomus echinatus (Bons.)

Sitona striatellus Gyll.

Anthonomus rubi (Hbst.)

Ceuthorrhynchus floralis (Pk.)

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MANAGEMENT

Contributions on management were made by representatives of the Forestry Commission and the Nature Conservancy Council. Both gave a personal opinion which does not necessarily represent the official views of their respective organisations. They are complementary, for one represents the views of a forester with due regard to ecological aspects, and the other summarises the views of a number of ecologists who recognise the need for, and acceptability of, productive forestry on this site.

The first paper has been prepared by Mr. M.J. Penistan, formerly Conservator of Forests for the Forestry Commission's East England Conservancy. It was specially prepared for the meeting, presenting a Forester's point of view with due appreciation of the ecological value of Bedford Purlieus as a woodland area exceptional for its biological richness.

Bedford Purlieus belongs to the Forestry Commission and the production of timber from it has been the first objective, but with the conservation of wildlife, plants and animals, as an important secondary objective.

Mr. Penistan hoped that, following this meeting, when more details of the site would be made available, the Plan could be adopted formally by the Forestry Commission, accepted by the Nature Conservancy Council, and then put into practice.

The Plan has three parts: A, the basic facts; B, a summary of objectives and C, prescriptions. It was originally written following three days survey during the spring and summer of 1974 while Mr. Penistan was serving with the Forestry Commission. There is little reference in the Plan to detailed biological survey, though Mr. Penistan was accorded a sight of historical and biological data which was being assembled for the meeting. He acknowledges his debt to Dr. Peterken for this, and for the general encouragement.

The second paper, prepared by G.F. Peterken, reviews various aspects of management from the ecologists point of view, drawing on the preceding papers and discussion at the meeting.

Neither paper purports to be the final answer to management of Bedford Purlieus. This is the responsibility of the Forestry Commission, in consultation with other organisations and individuals, taking into account the facts and opinions presented at the meeting.