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of the
BRITISH MYRIAPOD GROUP

Edited for the Group
by J. Gordon Blower

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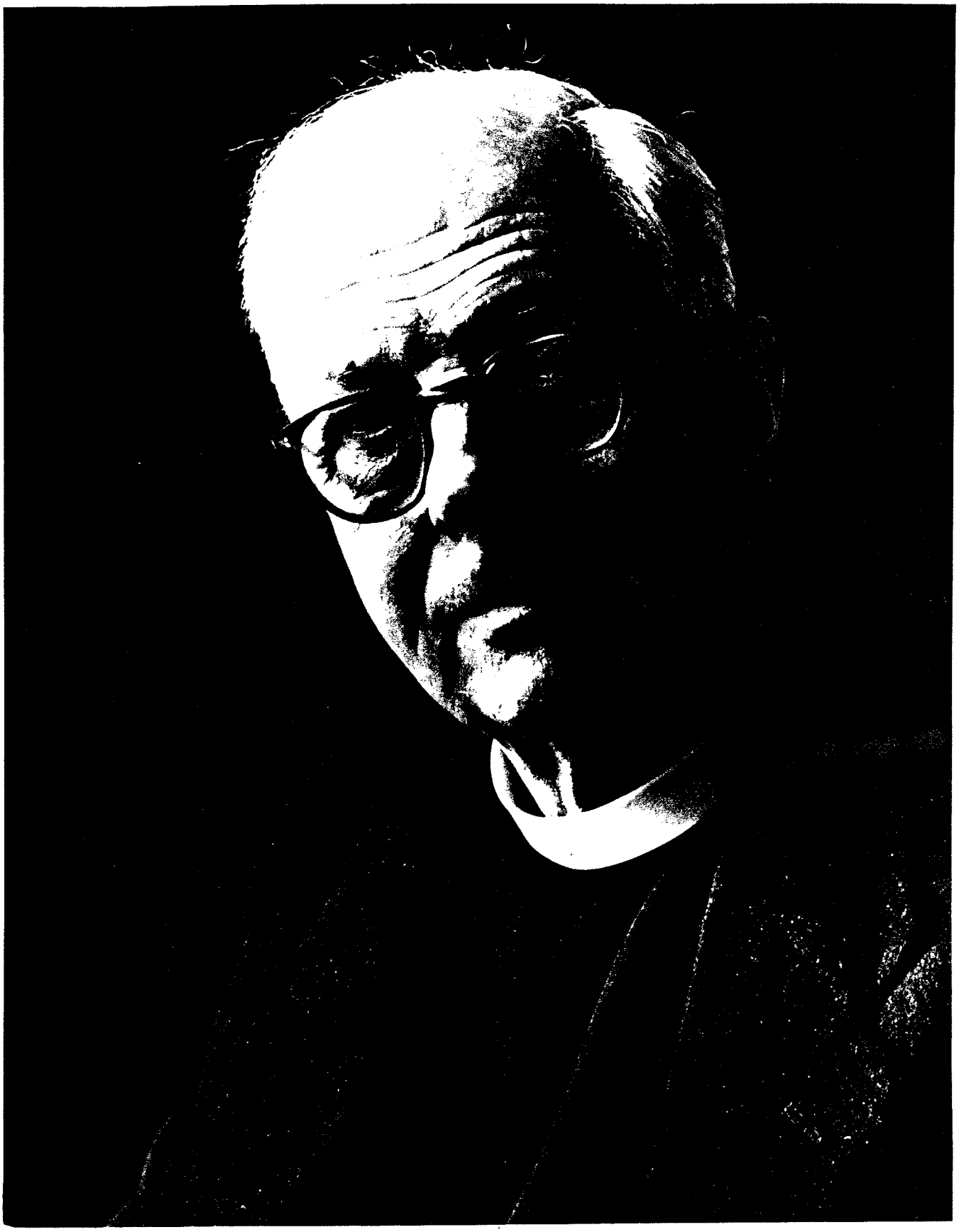

The British Myriapod Group began in the spring of 1969 when several keen workers got together in Devon for the express purpose of collecting myriapods and talking about them. This was an encouraging gathering and the participants turned up a centipede new to Britain, Chalandea pinguis which made a good start for the Group. During the Easter holiday in 1971 the British Myriapod Group met a second time, on this occasion on the border of Herefordshire and Radnorshire. You will not be surprised therefore to hear that I am delighted now to welcome the appearance of the present Bulletin. It provides a needed forum for the discussion of matters which are particularly of interest to workers in Britain. But it sets out in no other spirit than to add vitality to the study of our own myriapod fauna and to give news of advances in research on the animals in which we are especially interested. The success of this new venture will depend upon the support and encouragement given to it by British workers and so I hope that the challenge of the Editor and his helpers will be met enthusiastically by an able body of contributors and that as a result the Bulletin will be able to go from strength to strength.

S. Graham Brade-Birks

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The Editor has been fortunate in having much encouragement and material help from the Rev.Canon S.G. Brade-Birks in the preparation of this Bulletin. To him, he offers his most sincere thanks. The fact that the Bulletin has appeared at all, and with such elegance of typography and lay-out is due entirely to Mrs. Joan Gatehouse. The Editor and his colleagues within the group wish to record their deep gratitude for her very expert assistance.

Frontispiece

The Rev.Canon S. Graham Brade-Birks at the age of 84 years. Portrait by Dr. Hilda Brade-Birks.

THE BRITISH MYRIAPOD GROUP

Inauguration; Field Meetings; News

First Field Meeting, Brendon, North Devon, 15-18th April, 1970.

In the Easter vacation of 1970, twelve of us* met together with the express purpose of looking for myriapods and talking about them. Thus the British Myriapod Group was formed. It had been agreed that we should meet in some poorly worked part of the country, in the first instance, in the South, where variety is greater. John Lewis, recently home from Zaria, found a delightful spot in North Devon (V.C4) from which only three millipedes had been recorded. We enjoyed the excellent hospitality of Mr. Brealey at "Millslade", in the village of Brendon, nestling in the well-wooded valley of the East Lyn River.

We worked seven habitats in eight-one-kilometre grid squares. Fourteen species of millipedes and fourteen of centipedes were found, mostly new to the vice-county. Three of the millipedes and four of the centipedes were new to Devon and one centipede was new to Britain! This was Chalandea pinguis (Brölemann, 1898). It is a short and broad geophilid with poison claws flattened "like the blade of a sabre" (to quote Brölemann); there are 35 leg-bearing segments in the male and 37 in the female. It is recorded only from the maritime alps (Peira Cava), the Pyrenees and Corsica. Dr. Eason made a careful examination of the specimens we collected and declared that they were exactly as described by Brölemann in Faune de France.

One male was collected on the first morning's excursion into Millwood just opposite "Millslade"; 3 ♂♂ and 2 ♀♀ the same afternoon in Woody Bay, closer to Lynton, and further specimens turned-up the next day in Barton Wood. Details and localities of species collected are given in Table 1. In addition to the most notable presence, notable absences were Lithobius forticatus and Geophilus insculptus.

We talked about myriapods in the comfortable lounge at Millslade, helped by refreshments provided by Mr. Brealey and also in the Staghunter's Inn in the village. In particular we discussed distribution. Most existing British records are for Counties or Vice-counties (see Blower, this Bulletin) but Desmond Kime and Tony Barber had already made most of their recording in grid squares. Colin Fairhurst reported on the latest moves to establish a British Myriapod Survey on these lines (see Barber and Fairhurst, this Bulletin).

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* Messrs. Baker, Barber, Blower, Brookes, Eason, the Fairhursts, Kime, Lewis, Miller, Rolfe and Williams. Apologies from Dr. Turk & Peter Langton.

Second Field Meeting, Kington, Herefordshire 5-8th April, 1971.

Encouraged by our Brendon meeting where we had aimed to make Vice-county records and achieved seven County and one British record, we decided that for our second meeting we should aim not merely to work a whole county, but two! Kington is very close to the North West border of Herefordshire where it joins Radnorshire. No millipedes are recorded from either county and only nine chilopods from one locality in Radnor. We had excellent accommodation in Dunfield House, a conference centre just out of the town. The warden and his wife, Mr. & Mrs. Bill Coates looked after us well. We had a comfortable lounge and a room which we used as a laboratory. Unfortunately, founder members Kime, Rolfe and Williams were unable to be present but we were joined by Jean Brookes, Alan Curry and John and Angela Round. The only lack of luck entailed by our number (13) was our failure to find a new British species. The house lies in its own extensive and varied grounds and we tackled these first. In all, we worked five habitats in Herefordshire and two in Radnorshire. Eighteen species of millipede and sixteen of centipede were recorded for Hereford and eight millipedes and ten centipedes for Radnor. Details are given in Table 2. (page 4).

News

In place of our third meeting in Spring 1972 we have a much bigger gathering. We sixteen will be joined by over sixty of our colleagues from all over the world for the Second International Congress of Myriapodology in Manchester from 5th - 12th April, under the Presidency of the doyen of Myriapodologists, The Rev. Canon S.G. Brade-Birks.

Since we were formed, Charles Brookes has been appointed to the Head of Biology in the Manchester Polytechnic, Colin Fairhurst has joined the teaching staff at Stockport College of Technology and Tony Barber has moved to Plymouth Technical College. Joan Fairhurst is head of Biology at Crewe Grammar School, Richard Williams has a lectureship in Design Technology at the University of Manchester Institute of Science and Technology, and John Round is in charge of Biology at Urmston Grammar School. The most recent recruit to the group is perhaps Carl Damian Brookes, born last July, - we wish him luck whichever group he finally joins.

We missed Bill Rolfe at Kington. He has now retired from the National Agricultural Advisory Service to a quiet village in Kent, quite close to Dr. Brade-Birks. We wish him a long and happy retirement.

Table 1. British Myriapod Group, Brendon, N.Devon. 15-18th April, 1970.

	10 Km square	64	73	74						
	1 Km square	78	79	79	57	58	67	68	68	68
								W	P	V
	Glomeris marginata				*		*	*		
+	Microchordeuma gallicum				*	*	*	*	*	
	Polydesmus angustus			*			*		*	
+	P.gallicus	*	*						*	
	P.denticulatus							*		
	Brachydesmus superus	*					*	*	*	
+	Isobates varicornis	*				*				
	Proteroiulus fuscus			*			*	*	*	
	Blaniulus guttulatus						*		*	
	Iulus scandinavius	*	*		*	*	*	*		
	Ophyiulus pilosus	*	*		*	*	*			
	Cylindroiulus punctatus	*	*	*		*	*	*	*	
	Tachypodoiulus niger	*	*			*	*	*		
	Schizophyllum sabulosum		*			*				
	Lithobius variegatus		*	*		*	*	*	*	
	L.melanops			*						
	L.lapidicola						*	*		
	L.duboscqui							*		
	Haplophilus subterraneous		*			*	*	*		*
	Strigamia maritima		*							
	Necrophloeophagus longicornis							*	*	*
	Geophilus carpophagus					*	*	*	*	
	G.electricus		*						*	
	Brachygeophilus truncorum							*		
	Chalandea pinguis		*			*			*	
	Schendyla nemorensis		*							*
	Cryptops hortensis	*								

6/4 Woody Bay
7/3 Simonsbath
7/4 5/7, 5/8) Barton Wood
6/7 Deercombe
6/8 W Millwood
6/8 P Millslade pasture
6/8 V Brendon village

\+ New to Devon

Glomeris, C.brittanicus and Polymicrodon have previously been recorded for V.C.4.

Table 2. British Myriapod Group, Kington, Herefordshire. 5-8th April,1971.

10 Km square	24	25	+	26	+	63
1 Km square	67	68	79	48	81	20
		D			K	B	
Glomeris marginata	*	*		o			*
Microchordeuma scutellare		*					
M.gallicum		*					
Polymicrodon polydesmoides				o			
Ophiodesmus albonanus		*					*
Macrosternodesmus palicola		*					
Polydesmus angustus		*	*				
Brachydesmus superus	*		*	o			
Proteroiulus fuscus			*	o			
Isobates varicornis				o			
Blaniulus guttulatus			*	o			
Archeboreoiulus pallidus			*				
Iulus scandinavius			*	o			
Ophyiulus pilosus	*		*	o			
Cylindroiulus britannicus			*				
C.punctatus	*	*	*	o			*
Tachypodoiulus niger	*	*	*	o			*
Schizophyllum sabulosum					*		
Lithobius forficatus	*	*	*	o	*		*
L.variegatus	*	*	*	* o	*	o	*
L.duboscqui	*	*	*	* o	*	o	*
L.melanops		*	*		*		
L.aulacopus			*	o			
L.crassipes	*			*	*		
Geophilus carpophagus	*	*					
G.insculptus			*	o			
G.electricus		*		o	*		
Necrophloeophagus longicornis		*			*		
Schendyla nemorensis				o	*		*
Brachygeophilus truncorum	*	*	*	*		o	*
Strigamia accuminata		*					
S.crassipes		*	*			o	*
Haplophilus subterraneus			*	o			
Cryptops hortensis							*

2/4	6/7	Whitney
	6/8	Brilley
2/5	D	Dunfield House grounds
	7/9	Herrock Hill (Offa's Dyke)
	4/8	Yatt Wood, Old Radnor
2/6	8/1	K Krill
	8/1	B Borland Wood
6/3	2/0	Nash Wood

\+ RADNORSHIRE - (marked thus: o)

BRITISH MYRIAPOD SURVEY

The Myriapod Survey Scheme was launched in collaboration with the Isopod Survey Scheme in order to bring together information on distribution and habitat preferences. It is hoped that the cards will be used not only by B.M.G. members but also by the staff of museums, agriculture, forestry and nature conservancy establishments; Field Studies Centres, Natural History Societies, and members of staff running terrestrial field courses in Universities, Colleges and Schools.

The Habitat Card - background.

A habitat card was first produced by John Metcalfe, Steven Sutton and Paul Harding at the end of 1968. Experience with this suggested that a more detailed card was needed, with a punch code incorporated.

In April 1969, agreement was reached with the Biological Records Centre(B.R.C.)at Monk's Wood to draft a new card using their standard format together with a habitat classification. It was intended that this data should be applicable to isopods, millipedes and centipedes.

After earlier discussion with Gordon Blower, the first draft of this habitat classification was examined in detail in January 1970 by Colin Fairhurst and the three Isopod Survey members. Advice on the problems of coding the habitat information was given by David Burn of Leeds University and the card gradually evolved to the format shown at the 1970 meeting of the B.M.G. in Devon. Here Tony Barber agreed to handle the centipede survey.

The British Myriapod Group undertook to support the survey provided that the B.R.C. could be persuaded to allow access to the collector's cards and their associated computer cards. In order to clarify the situation and finalise the format of the card, a meeting was arranged at Monk's Wood between John Heath together with members of the Isopod and Myriapod Survey. The following points emerged:

a) Card printing:- The B.R.C. would print all cards free and produce a first edition of 10,000 for the Isopods, 10,000 for millipedes and 10,000 for centipedes. Any reprinting can be done at a months notice.

b) Instructions:- Instructions for the use of the card were printed by the Isopod Survey and at the expense of the survey (we hope to obtain a grant from a public body to cover this and postage expenses). They were printed on cards the same size as the collectors cards (5"x 8").

c) Distribution:- The B.R.C. send the cards to us for distribution to collectors. The collectors are asked to return the completed cards to Colin Fairhurst (Millipedes) and Tony Barber (Centipedes).

d) Computer Cards:- When sufficient cards have been collected, B.R.C. punch the IBM 80 column cards free, and at the same time record the locality information on to magnetic tape for their own use. Apparently they do not publish or pass on large chunks of information without our consent.

e) Storage:- The IBM computer cards will be stored with Gordon Blower at Manchester. The collectors' cards will be kept by Colin Fairhurst and Tony Barber. Members of BMG & other interested parties will be free to consult the stocks of cards at any time. The B.R.C. will also produce distribution maps for us when required.

The Scheme was launched in April 1971 and after 10 months there are approximately 25 people who have submitted roughly 500 record cards. This promising start indicates that the Myriapod Survey Scheme is going to be a success.

Colin P. Fairhurst & Tony D. Barber

MYRIAPODOLOGY : RETROSPECT

BY

The Rev. Canon S.G. Brade-Birks

What was it like to be an English myriapodologist fifty years ago? I can give you some sort of an answer to the question because half a century ago my wife and I had already been working on myriapods for about seven years. She had taken her degree in botany at Manchester with zoology as her subsidiary subject. My subsidiary subject was the same but my degree there was in geology and we both had taken our masters' degrees. So when we became engaged to be married we decided to do some research on common ground. Myriapoda was a neglected group and as there had been an awakening of interest in faunal studies in Lancashire and Cheshire at the time, we decided to collect and investigate millipedes, centipedes and their allies. I have a note in my diary which shows that we discussed Chilopoda together on 11th January, 1915 and it certainly was about that time that we made a serious beginning when not much British faunistic work had yet been done on Myriapoda.

When we became interested in the faunistic aspect of the subject, the chief English workers were Richard S. Bagnall and A. Randall Jackson; the former was especially noteworthy for his study of Symphyla and Pauropoda. Both these zoologists gave us every encouragement and it was especially Dr. A.R. Jackson who initiated us into the mysteries of collecting and identifying these animals. Jackson, who had two doctorates, those of science and medicine, maintained that he always passed as a medical man among scientists and as a scientist among his medical colleagues. His main zoological interest was in spiders but he had taken up the myriapods, no doubt because they were not covered by anycne else in the work of the Lancashire and Cheshire Fauna Committee. Dr. and Mrs. Jackson invited me to stay for a day or two with them at their house in Chester in October, 1915 so that we could discuss the subject and I could receive instruction in the methods Jackson had adopted in his studies. Thus I made a very fruitful visit to Chester from the 6th to the 8th October, 1915.

At this time there was not much literature in English that was useful to anyone interested in the study of myriapods from a faunistic point of view and even the general information in English about these animals was somewhat scanty. Bagnall's and Jackson's then recent papers were available and the account by F.G. Sinclair (formerly F.G. Heathcote) had been published in 1895 as a section in the Cambridge Natural History. R.I. Pocock had written about them in the Encyclopaedia Britannica. There were a few records of British species, notably those of J.E. Gray and Pocock but the immediate foundations were mainly those laid by Jackson and Bagnall.

I always had a great respect for Bagnall's work because although he was busily engaged as an executive in industry, he had attained great skill as a naturalist especially in his handling of the delicate and difficult Symphyla and Pauropoda. He was a person of a very generous disposition and I believe that when he heard that it was proposed to put his name forward as a candidate for the fellowship of the Royal Society he respectfully suggested to his intended sponsors that they should instead submit the name of a friend of his, eminently worthy of such an honour, who was a professor in one of the universities; the eventual result was that that friend was elected.

In Northern Ireland Nevin H. Foster who was another able naturalist had taken a keen interest in myriapods. There were also in Lancashire and Cheshire numerous collectors about this time who supplied us with material, while, in Kent, members of the very active Dartford Naturalists' Field Club were most useful to us especially in our investigations into the nature of luminosity in centipedes.

We took up our subject with great enthusiasm and after our marriage in 1917 we had a small laboratory in our house at Darwen, Lancashire and it was from there that we wrote a number of our first twenty papers on myriapods in the years up to 1919.

Great assistance was given to us by Dr. Henry W. Brölemann of Pau and we had a considerable correspondence with him, while Professor H. Ribaut of Toulouse also helped us. From both of them we received the greatest kindness and courtesy.

I think that chapter one of our work with myriapods may be said to have come to an end when we went to Dartford to lecture to the Society there on 27th September, 1919.

A year before, on 14th September, 1918, a paper of ours had been read for us at a meeting of the same society. On that occasion we introduced a lighter vein into the proceedings with these verses:-

GEOPHILUS

And this is the song of the Kentish men,
  Of the naturalists wise, keen and true,
And when we speak of "the Kentish MEN"
  We mean the women too:

A Lithobius forficatus
  Went awalking in the wood;
He met a small Geophilus
  In very merry mood.

"Good morning, Mr. Brown-hue!
  You're rather short of feet,
I'd rather like to race you
  (You'd not be hard to beat)."

Lithobius was disgusted,
  And waved his feelers high.
"I'd race you right to Hampstead,
  If only you would try!"

Geophilus was willing
  To race him late at night,
If he'd meet him west of Horns Cross
  (He knew he'd have a light).

. . . . . .

The stars began to twinkle,
  The birds had gone to bed,
When out upon the dark world
  Lithobius popped his head.

He felt a certain grievance
  When Geophilus he saw,
For HE had turned his light on,
  And could see his way before.

("I'll beat the begger yet though,
  For I am swift of foot.")
"Come on!" he cried, "Geophilus,
  I'll race you round the boot."

The boot was Mr. X's boot;
  He was chatting with a friend,
And he saw the phosphorescence
  As the race drew to an end.
. . . . . .

We must tell the sequel sadly,
  For the race ne'er had an end
(Lithobius knows the story,
  The saddest ever penned).

Geophilus is missing!
  He's been missing since that night,
He needn't have been missing
  If he hadn't shown his light.

His carcase is in spirit now,
  In a little northern town,
Where his species has been diagnosed,
  And all data noted down.

Shall we weep for this Geophilus,
  And say his life was vain?
Perhaps it would be better
  If we saved ourselves the pain.

He has added to our knowledge
  By turning on his light,
And for this very reason
  We're assembled here to-night.

Now this is the song of the Kentish men,
  These Dartfordians wise, keen and true,
And when we call them "the Kentish MEN"
  We mean the women too.

S. Graham Brade-Birks

1st November, 1971.

THE DISTRIBUTION OF BRITISH MILLIPEDES AS KNOWN AT THE END OF 1969

by

J. Gordon Blower

Synopsis

Details of distribution are given in five tables. Table 1 records the presence or absence of each of forty-eight species in each of the 152 vice-counties of Great Britain and Ireland. Table 2 ranks the species in order of the number of vice-counties in which they have been recorded and thereby gives some sort of quantitative estimate of commonness and rareness. Table 3 gives details of the number, position and authorities of the 'rarer' species. Table 4 lists counties alphabetically and gives details of unpublished and published records for each. Table 5 ranks the counties according to the number of species recorded in them and thus gives a measure of how well a particular area has been worked.

No note is made of the circumstances of capture - only the geographical position, and in the relatively coarse units of vice-counties. The aim of this compilation is to follow the growth of county and vice-county recording and to summarise the information which has been gathered up to date.

CONTENTS

The growth of the British list

The first millipedes recorded in Great Britain were those which Leach (1814) listed in The Zoological Miscellany. His list included eleven species, seven of which he described new to science - Craspedosoma Rawlinsi, Craspedosoma polydesmoides, Iulus londinensis, punctatus, niger, pusillus and pulchellus; Four had been described previously - Glomeris marginata, (Villers) and Polyxenus lagurus, Polydesmus complanatus and Iulus terrestris of Linneus. Of the seven original Leachian species, only Iulus pulchellus (= Blaniulus guttulatus Bosc) fell as a synonym.* Of the five previously described species, P.complanatus is now referred to as P.angustus and Iulus terrestris was probably either Iulus scandinavius or Ophyiulus pilosus but we do not know which. Leech's valid records are therefore ten in number (modern names used) as follows:-

Polyxenus lagurus (L.)		
Glomeris marginata (Villers)	J	T
Craspedosoma rawlinsi Leach	J	
Polymicrodon polydesmoides (Leach)		
Polydesmus angustus Latzel	J	T
Blaniulus guttulatus (Bosc)	J	T
Cylindroiulus londinensis (Leach)		
Cylindroiulus punctatus (Leach)	J	T
Tachypodoiulus niger (Leach)	J	
Brachyiulus pusillus (Leach)		T

1814, 10

The suffixed letters indicate those species on Leach's list which were included in the next two lists to be published, those of Johnstone (1835) for Scotland (Berwickshire) and of Templeton (1836) for Ireland. These were the first lists giving specific localities.

1835, 11

Johnstone included Schizophyllum sabulosum (L.) together with six of the species in the list of Leach. Templeton had five of the species in Leach's list.

Newport (1844) listed the English material present in the British Museum. This list included the ten in Leach's list together with Schizophyllum sabulosum which Johnstone had recorded, Ophyiulus pilosus which Newport himself had described and Cylindroiulus latestriatus which had been described in the same year by Curtis (1844). There were thus thirteen species on the list for the first half of the century.

1844, 13

Pocock (1893) added three species to Templeton's Irish list which were also new to Britain - Brachydesmus superus, Polydesmus gallicus and Proteroiulus fuscus.

1893, 16

Evans (1898) added Oxidus gracilis bringing the total recorded last century to seventeen species.

1898, 17

Pocock added Cylindroiulus teutonicus (1900) Polydesmus denticulatus (1901) Polydesmus coriaceus (1906) and Evans (1907) added Cylindroiulus britannicus bringing the total to twenty three species. These were the twenty commonest (most recorded) species of the present day (see Table 2) together with C.londinensis, P.testaceus and Oxidus gracilis.

1907, 23

* Pocock (1893A), Bagnall (1918D) & Brade-Birks (1919B & 1919C) reinstated these Leachian names but they are only now becoming accepted on the continent.

Pocock (1893) said that there must be some fifty species of myriapod known to occur in England "but not one half of these are in print". There were, in fact, sixteen species of millipedes recorded from Britain up to and including those in Pocock's paper. Pocock went on to say that it should be easy to arrive at a stage where the myriapods are as well known as the butterflies, "if someone gets interested". As Pocock's interest moved to the Mammals, that 'someone' to whom the myriapods presented a special challenge was Dr. A. Randell Jackson, helped, as he gratefully acknowledges, by Edward Ellingsen of Kragero, Norway. But Jackson was a full-time medical practitioner and was also keenly interested in spiders. Like Pocock, Jackson (1914) said of the myriapods, that "someone ought to take up the group" and it was he who encouraged a Manchester graduate of Darwen in Lancashire, the Rev. S. Graham Birks, to do just this. Jackson (1916) gladly records that the much needed worker had been found and there followed a very productive partnership between Birks and Miss H.K. Brade, afterwards his wife, he having taken the surname of Brade-Birks before their marriage in 1917. Previously R.S. Bagnall had come on to the scene. Between 1912 and 1922, Bagnall and the Brade-Birkses added eighteen further species, bringing the total to forty:

1922, 40

1912	Macrosternodesmus palicola, Choneiulus palmatus Brachychaeteuma bagnalli	(Bagnall)
1913	Nopoiulus minutus	(Bagnall)
1916	Microchordeuma scutellare	(Brade-Birks)
1917	Cylindroiulus nitidus, Brachychaeteuma bradeae	(Brade-Birks)
	Isobates littoralis	(Bagnall)
1918	Ophiodesmus albonanus, Boreoiulus tenuis, Brachychaeteuma melanops	(Bagnall)
	Cylindroiulus parisiorum	(Brade-Birks)
1920	Archeboreoiulus pallidus, Entothalassinum italicum and Polyzonium germanicum	(Brade-Birks)
1922	Leptoiulus belgicus, Eumastigonodesmus bonci	(Bagnall)

The list remained at these forty-one species for the next seventeen years and appear as the valid entries in the check-list of Brade-Birks (1939). (In fact, the list of Brade-Birks contained 47 species but six of these were later shown to be invalid by Blower (1958)).

1939, 41

Another seventeen years went by, without addition. For thirty four years the list remained at 41. Then Blower and Rolfe (1956) added Metaiulus pratensis and Leptoiulus kervillei and Blower (1957) recorded the new finds of Nielsen, Geoglomeris jurassica and of Eason (1957) Microchordeuma gallicum, bringing the total to forty-five species which are listed by Blower (1958).

1958, 45

Nelson (1964) recorded Chordeuma proximum and two further species have been found since, Chordeuma silvestre by Blower in Cornwall and Leptophyllum armatum by Eason in Devon and later by Blower at another site in Devon. These two species are here recorded for the first time, bringing the final total to forty-eight species.

1969, 48

Ireland

The six species recorded by Templeton (1936) for Ireland were joined by eight added by Pocock (1893) and a further six were added by Selbie (1912, 1913) bringing the total for Ireland to twenty species where it remains to this day.

Scotland

Evans (1898, 1901, 07, 17) was largely responsible for bringing the Scottish list to its present state by adding ten to Johnstone's seven and Gibson-Carmichael's three. Bagnall (1913, 1918B & 1925A) added a further five bringing the total to twenty-five. This total has recently been increased to twenty-six by Forbes McNaughton's discovery of C.nitidus.

At the end of 1969 we might ask have we reached the stage anticipated by Pocock (1903) where the British Millipedes are as well known as the British Butterflies? With more than half the possible number of species recorded from fewer than a quarter of the counties and as many as eighteen counties without a single record (see Table 5) the answer must surely be, no! However, we can now reiterate Pocock's words with greater confidence. We may get to know our British myriapods as well as our butterflies in another ten years but the task must not be under-estimated; I have worked a small corner of Glamorgan now for fifteen years, assisted by year after year of keen undergraduates. Whilst the object has been to teach them zoology rather than swell the list, it is a somewhat sobering fact that we have just got Glamorgan half-way up the list of "moderately worked" counties with seventeen of the possible forty or so species recorded. More hopeful is the example of Messrs. Kime and Barber who have added twenty species to a pre-existing total of eleven for Surrey in five years, to make it the second best worked county.

COMMON SPECIES, RARE SPECIES AND SPECIES WITH RESTRICTED DISTRIBUTION

Table 2 ranks the species according to the total number of vice-counties in which they have been recorded in England, Scotland and Wales and Ireland separately. Certain discrepancies in the ranks of the common species are noteworthy and are indicated by underlined rank positions. These are:

Glomeris marginata — rare in Scotland (14th compared with 6th overall). It is only recorded from the counties of Berwick, Wigtown and the Lothians in Scotland (see Table 1.3). Although the Clyde area and the counties immediately to the North of the Forth have been well worked (see Table 5), G.marginata has not been found there. In Ireland, by contrast, G.marginata is ranked as the commonest species.

Schizophyllum sabulosum — commonest in Scotland (1st compared with 10th overall).

Brachyiulus pusillus — 3rd in Scotland, 15th and 16th in England and Ireland respectively.

Polydesmus gallicus — Common in Ireland (6th compared with 16th overall), absent from Scotland and absent from counties north of Cheshire (see Table 1). This is the only one of the twenty commonest species which is absent from one of the three principalities.

Craspedosoma rawlinsi — Commoner in Scotland and Ireland - amongst the twenty commonest in these two countries but ranked 27th in England.

The last nineteen species in Table 2 can be regarded as the rarities but thirteen of these are rare because of their restricted distribution; all the nineteen rare species are restricted to England and Wales. Details of the five 'true' rareties and of the restricted distributions of the other fourteen rare species are given in Table 3.

Dr. Eason kindly let me see his detailed records from which I prepared a list with the species ranked according to the number of his records. The first eleven species agree with the first eleven in Table 2 but Blaniulus guttulatus and Polymicrodon polydesmoides were ranked 10th and 11th and Brachydesmus superus seventh. This highlights the fact that B.guttulatus and B.superus have achieved their high positions in Table 2 perhaps because of their agricultural importance and also the fact that P.polydesmoides is widespread rather than common. Mr. Kime provided me with a similar list of his own records, mainly from Surrey which he aptly termed a 'batting order'. His list is interesting in having the three species listed above in similar positions to Eason but mainly in the low position of S.sabulosum (21st) and I.scandinavius (19th) and the high positions of C.londinensis var (6th) and C.britannicus (12th) reinforcing the impression gained from Table 2 that S.sabulosum is largely Northern (and Western) and C.londinensis is (Southern) and Eastern. The low position of Iulus (19) in Kime's list is interesting. Although its position in Eason's list is not dissimilar to its position overall (Table 2), the fact that Eason has not yet recorded it in his own vice-county (33) is remarkable. A further point of note is that I have never encountered it in the Isle of Man. I suspect that it is restricted not by geographical (climatic) features but by circumstances of topography and land use.

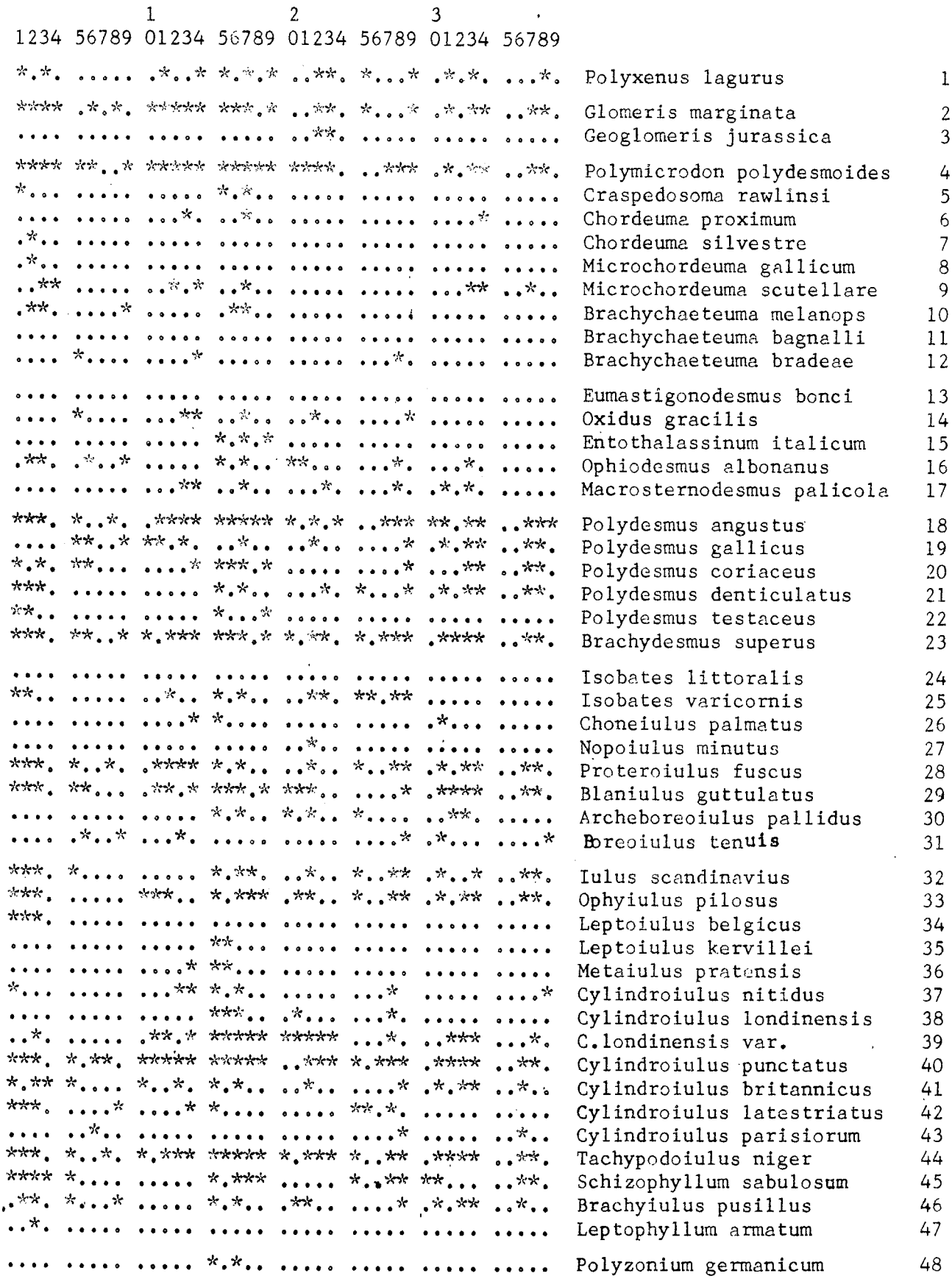
For the common species then, there appear to be broad geographical influences biasing the distribution of;

Glomeris marginata to the west, and excluding it North of Firth & Clyde.
Schizophyllum sabulosum (& perhaps Craspedosoma) to the North and West
Brachyiulus pusillus to the North
Polydesmus gallicus to the South and West
& Cylindroiulus londinensis var. to the East

and restricting the distribution of Iulus scandinavius there appear to be some undefined circumstances.

This much emerges from a study of county records. The sub-division into vice-counties does not greatly increase the information. Nor does it appear to me that further county recording will necessarily add more information on the common species; for the rarer restricted species only time will tell us if their restriction is a function of their rarity or vice-versa; the accumulation of further vice-county records, will, in this instance, be a great help.

TABLE 1.1 ENGLAND (SOUTH)



1		2		3			
1234	56789	01234	56789	01234	56789	01234	56789		
..	.....	.*..*	*.*.*	..**.	*...*	.*.*.	...*.	Polyxenus lagurus	1
****	.*.*.	*****	***.*	..**.	*...*	.*.**	..**.	Glomeris marginata	2
....	.....	.....	.....	..**.	.....	.....	.....	Geoglomeris jurassica	3
****	**..*	*****	*****	****.	..***	.*.**	..**.	Polymicrodon polydesmoides	4
*...	.....	.....	*.*..	.....	.....	.....	.....	Craspedosoma rawlinsi	5
....	.....	...*.	..*..	.....	.....	....*	.....	Chordeuma proximum	6
.*..	.....	.....	.....	.....	.....	.....	.....	Chordeuma silvestre	7
.*..	.....	.....	.....	.....	.....	.....	.....	Microchordeuma gallicum	8
..**	.....	..*.*	..*..	.....	.....	...**	..*..	Microchordeuma scutellare	9
.**.	....*	.....	.**..	.....	.....	.....	.....	Brachychaeteuma melanops	10
....	.....	.....	.....	.....	.....	.....	.....	Brachychaeteuma bagnalli	11
....	*....	....*	.....	.....	...*.	.....	.....	Brachychaeteuma bradeae	12
....	.....	.....	.....	.....	.....	.....	.....	Eumastigonodesmus bonci	13
....	*....	...**	..*..	..*..	....*	.....	.....	Oxidus gracilis	14
....	.....	.....	*.*.*	.....	.....	.....	.....	Entothalassinum italicum	15
.**.	.*..*	.....	*.*..	**...	...*.	...*.	.....	Ophiodesmus albonanus	16
....	.....	...**	..*..	...*.	...*.	.*.*.	.....	Macrosternodesmus palicola	17
***.	*..*.	.****	*****	*.*.*	..***	**.**	..***	Polydesmus angustus	18
....	**..*	**.*.	..*..	..*..	....*	.*.**	..**.	Polydesmus gallicus	19
..	**...	....*	***.*	.....	....*	...**	..**.	Polydesmus coriaceus	20
***.	.....	.....	*.*..	...*.	*...*	.*.**	..**.	Polydesmus denticulatus	21
**..	.....	.....	*...*	.....	.....	.....	.....	Polydesmus testaceus	22
***.	**..*	*.***	***.*	*.**.	*.***	.****	..**.	Brachydesmus superus	23
....	.....	.....	.....	.....	.....	.....	.....	Isobates littoralis	24
**..	.....	..*..	*.*..	..**.	**.**	.....	.....	Isobates varicornis	25
....	.....	....*	*....	.....	.....	.*...	.....	Choneiulus palmatus	26
....	.....	.....	.....	..*..	.....	.....	.....	Nopoiulus minutus	27
***.	*..*.	.****	*.*..	..*..	*..**	.*.**	..**.	Proteroiulus fuscus	28
***.	**...	.**.*	***.*	***..	....*	.****	..**.	Blaniulus guttulatus	29
....	.....	.....	*.*..	*.*..	*....	..**.	.....	Archeboreoiulus pallidus	30
....	.*..*	...*.	.....	.....	....*	.*...	....*	Boreoiulus tenuis	31
***.	*....	.....	*.**.	..*..	*..**	.*..*	..**.	Iulus scandinavius	32
***.	.....	***..	*.***	.**..	*..**	.*.**	..**.	Ophyiulus pilosus	33
***.	.....	.....	.....	.....	.....	.....	.....	Leptoiulus belgicus	34
....	.....	.....	**...	.....	.....	.....	.....	Leptoiulus kervillei	35
....	.....	....*	**...	.....	.....	.....	.....	Metaiulus pratensis	36
*...	.....	...**	*.*..	.....	...*	.....	....*	Cylindroiulus nitidus	37
....	.....	.....	***..	.*...	...*.	.....	.....	Cylindroiulus londinensis	38
..*.	.....	.**.*	*****	*****	...*.	..***	...*.	C.londinensis var.	39
***.	*.**.	*****	*****	..***	*.***	.****	..**.	Cylindroiulus punctatus	40
*.**	*....	*..*.	*.*..	..*..	....*	.*.**	..*..	Cylindroiulus britannicus	41
***.	....*	....*	*....	.....	**.*.	.....	.....	Cylindroiulus latestriatus	42
....	..*..	.....	.....	.....	....*	.....	..*..	Cylindroiulus parisiorum	43
***.	*..*.	*.***	*****	*.***	*..**	.****	..**.	Tachypodoiulus niger	44
****	*....	.....	*.***	.....	*..**	**...	..**.	Schizophyllum sabulosum	45
.**.	*...*	.....	*.*..	.**..	....*	.*.**	..*..	Brachyiulus pusillus	46
..*.	.....	.....	.....	.....	.....	.....	.....	Leptophyllum armatum	47
....	.....	.....	*.*..	.....	.....	.....	.....	Polyzonium germanicum	48

TABLE 1.2 ENGLAND (N) & WALES

4		5		6		7	IOM 7		
01234	56789	01234	56789	01234	56789	0	1		
.....	*....	*...*	.*.*.	.*...	....*	.	*	Polyxenus lagurus	1
.*...	....*	**..*	*****	*.***	*****	.	*	Glomeris marginata	2
.....	.....	.....	.....	.....	....*	.	.	Geoglomeris jurassica	3
.*...	.*..*	*.***	*****	*.*.*	.**.*	*	*	Polymicrodon polydesmoides	4
.....	....*	.....	...**	..**.	.*...	.	.	Craspedosoma rawlinsi	5
.*...	.....	.....	.....	.....	.....	.	.	Chordeuma proximum	6
.....	.....	.....	.....	.....	.....	.	.	Chordeuma silvestre	7
.....	....*	.....	.....	.....	.....	.	.	Microchordeuma gallicum	8
.*...	.....	..*..	..***	*.*..	.*..*	.	.	Microchordeuma scutellare	9
.....	.....	.....	.....	.....	.....	.	.	Brachychaeteuma melanops	10
.....	.....	.....	..*..	..*..	.*...	.	.	Brachychaeteuma bagnalli	11
.....	.....	.....	..*.*	.....	....*	.	.	Brachychaeteuma bradeae	12
.....	.....	.....	.....	.....	.*...	.	.	Eumastigonodesmus bonci	13
.....	.....	.....	...**	.....	.**..	.	.	Oxidus gracilis	14
.....	.....	.....	.....	.....	.....	.	.	Entothalassinum italicum	15
.....	.....	....*	.**..	.....	*.*.*	.	.	Ophiodesmus albonanus	16
.....	.....	....*	...*.	.....	.**.*	*	.	Macrosternodesmus palicola	17
**...	**.**	*****	*****	*.***	*****	*	*	Polydesmus angustus	18
.*...	....*	*....	...*.	.....	.....	.	.	Polydesmus gallicus	19
.....	....*	....*	*****	***.*	.*..*	.	*	Polydesmus coriaceus	20
.*...	.*..*	***.*	*.***	*.*..	.*..*	*	.	Polydesmus denticulatus	21
.....	.....	.....	.....	.....	.....	.	.	Polydesmus testaceus	22
.*...	.*..*	**...	*****	****.	.**.*	.	*	Brachydesmus superus	23
.....	....*	.....	.....	.....	....*		*	Isobates littoralis	24
.....	....*	..*.*	.*.**	.....	.**.*	.	.	Isobates varicornis	25
.....	.....	.....	...**	.....	.*..*	.	.	Choneiulus palmatus	26
.....	.....	.....	...**	.....	.***.	.	.	Nopoiulus minutus	27
.*..*	.*..*	...**	*****	*.*.*	.*****	.	*	Proteroiulus fuscus	28
.*...	.*..*	.***.	*****	*****	.*****	.	*	Blaniulus guttulatus	29
.....	.....	...*.	.*.*.	..*.*	.*..*	.	.	Archeboreoiulus pallidus	30
.....	.....	....*	..*..	....*	.**.*	*	.	Boreoiulus tenuis	31
**...	**.**	*.*.*	*****	*.*.*	.*****	*	.	Iulus scandinavius	32
.*...	.*.**	***.*	*****	*.*.*	**..*	*	*	Ophyiulus pilosus	33
.....	.....	.....	.....	.....	.....	.	.	Leptoiulus belgicus	34
.....	.....	.....	.....	.....	.....	.	.	Leptoiulus kervillei	35
.....	.....	.....	.....	.....	.....	.	.	Metaiulus pratensis	36
.....	.....	...*.	..*..	.....	....*	.	.	Cylindroiulus nitidus	37
.....	.....	.....	.....	.....	.*..*	.	.	Cylindroiulus londinensis	38
.....	.....	.....	**.**	..*..	....*	.	.	C.londinensis var.	39
.*...	*..**	**.**	*****	*.*.*	.*****	*	*	Cylindroiulus punctatus	40
.*...	....*	.....	..***	*.*..	.*..*	.	.	Cylindroiulus britannicus	41
.*...	*..**	.**.*	.****	.**..	.**.*	.	*	Cylindroiulus latestriatus	42
.....	.....	.....	...*.	..*..	.....	.	.	Cylindroiulus parisiorum	43
.*..*	.*.**	*****	*****	***.*	.*****	*	*	Tachypodoiulus niger	44
.*...	....*	*****	*****	..*.*	.*****	*	.	Schizophyllum sabulosum	45
.....	.*..*	..**.	**.**	.*...	.*****	.	.	Brachyiulus pusillus	46
.....	.....	.....	.....	.....	.....	.	.	Leptophyllum armatum	47
.....	.....	.....	.....	.....	.....	.	.	Polyzonium germanicum	48

TABLE 1.3 SCOTLAND

7	8	9	10	11		
234 56789	01234 56789	01234 56789	01234 56789	012		
... *.*.	..*..	....	....	...	Polyxenus lagurus	1
..*	.****	....	....	...	Glomeris marginata	2
... .	....	....	....	...	Geoglomeris jurassica	3
... .	..*** **...	.*...	*...*	*..	Polymicrodon polydesmoides	4
... ..*..	.*.** ***..	....	....	...	Craspedosoma rawlinsi	5
... .	....	....	....	...	Chordeuma proximum	6
... .	....	....	....	...	Chordeuma silvestre	7
... .	....	....	....	...	Microchordeuma galli um	8
... .	....	....	....	...	Microchordeuma scutellare	9
... .	....	....	....	...	Brachychaeteuma melanops	10
... .	....	....	....	...	Brachychaeteuma bagnalli	11
... .	....	....	....	...	Brachychaeteuma bradeae	12
... .	....	....	....	...	Eumastigonodesmus bonci	13
... ..*..	...*.	....	....	...	Oxidus gracilis	14
... .	....	....	....	...	Entothalassinum italicum	15
... .	...*.	....	....	...	Ophiodesmus albonanus	16
... .	..... *....	....	....	...	Macrosternodesmus palicola	17
... .	.**** ***..	.**.. ..*..	*.*..	...	Polydesmus angustus	18
... .	....	....	....	...	Polydesmus gallicus	19
... .	..***	....	....	*..	Polydesmus coriaceus	20
... .	...*. .*...	....*	*....	...	Polydesmus denticulatus	21
... .	....	....	....	...	Polydesmus testaceus	22
... .	..*** *....	....*.*	*.... ....*	*..	Brachydesmus superus	23
... .	....	....	....	...	Isobates littoralis	24
... .	..**.	....	..... *....	...	Isobates varicornis	25
... .	....	....	....	...	Choneiulus palmatus	26
... ..*..	....	....	....	...	Nopoiulus minutus	27
... .	..*** ****.	....*.*	..... *....	...	Proteroiulus fuscus	28
..* *.**.	.**** ***..	....*	*....	...	Blaniulus guttulatus	29
... .	....	....	....	...	Archeboreoiulus pallidus	30
... .	...*.	....	....*	...	Boreoiulus tenuis	31
... .	..*** **...	....*..	....*	...	Iulus scandinavius	32
... .	..*** ***..	....*..	*.... ....*	...	Ophyiulus pilosus	33
... .	....	....	....	...	Leptoiulus belgicus	34
... .	....	....	....	...	Leptoiulus kervillei	35
... .	....	....	....	...	Metaiulus pratensis	36
... .	..... .*...	....*	....	...	Cylindroiulus nitidus	37
... .	....	....	....	...	Cylindroiulus londinensis	38
..*	....	....	....	...	C.londinensis var.	39
... ...*.	.**** ****.	....*..	..*.* *...*	*..	Cylindroiulus punctatus	40
... .	...*.	....	....	...	Cylindroiulus britannicus	41
... .	..*.* *....	....*..	..***	*..	Cylindroiulus latestriatus	42
... .	....	....	....	...	Cylindroiulus parisiorum	43
... .*...	.**** ***..	....***	....*	...	Tachypodoiulus niger	44
..* **.*.	.**** *.*..	..... .****	*..*. *....	...	Schizophyllum sabulosum	45
..* ...**	..*** **...	..... .***.	...**	...	Brachyiulus pusillus	46
... .	....	....	....	...	Leptophyllum armatum	47
... .	....	....	....	...	Polyzonium germanicum	48

TABLE 1.4 IRELAND

1				2				3				4		
1234		56789		01234		56789		01234		56789		0		
....	.....	.....	.....	**...	.....	.....	....*	.	Polyxenus lagurus	1
.**.	.....	..*..	.*..*	***..	..***	..*.*	*.***	*	Glomeris marginata	2
....	.....	.....	.....	.....	.....	.....	.....	.	Geoglomeris jurassica	3
*...	.....	.....	.....	.*..*	*..**	..*..	*.**.	*	Polymicrodon polydesmoides	4
....	.....	.....	.....	**...	....*	..*..	..***	*	Craspedosoma rawlinsi	5
....	.....	.....	.....	.....	.....	.....	.....	.	Chordeuma proximum	6
....	.....	.....	.....	.....	.....	.....	.....	.	Chordeuma silvestre	7
....	.....	.....	.....	.....	.....	.....	.....	.	Microchordeuma gallicum	8
....	.....	.....	.....	.....	.....	.....	.....	.	Microchordeuma scutellare	9
....	.....	.....	.....	.....	.....	.....	.....	.	Brachychaeteuma melanops	10
....	.....	.....	.....	.....	.....	.....	.....	.	Brachychaeteuma bagnalli	11
....	.....	.....	.....	.....	.....	.....	.....	.	Brachychaeteuma bradeae	12
....	.....	.....	.....	.....	.....	.....	.....	.	Eumastigonodesmus bonci	13
....	.....	.....	.....	.....	.....	.....	.....	.	Oxidus gracilis	14
....	.....	.....	.....	.....	.....	.....	.....	.	Entothalassinum italicum	15
....	.....	.....	.....	.....	.....	.....	.....	.	Ophiodesmus albonanus	16
....	.....	.....	.....	.....	.....	.....	.....	.	Macrosternodesmus palicola	17
....	.*...	.....	.*...	.*...	...**	..*..	*.***	*	Polydesmus angustus	18
..	.*...	...*.	.....	*..*.	...**	*....	..*.*	.	Polydesmus gallicus	19
..*.	.....	...*.	.....	..*..	..*..	*....	*..**	*	Polydesmus coriaceus	20
....	.....	.....	.....	*.*..	....*	.....	...**	*	Polydesmus denticulatus	21
....	.....	.....	.....	.....	.....	.....	.....	.	Polydesmus testaceus	22
..*.	.....	.....	.*...	.*...	..***	*....	*****	*	Brachydesmus superus	23
....	.....	.....	.....	.....	.....	.....	.....	.	Isobates littoralis	24
....	.....	.....	.....	.....	.....	.....	.....	.	Isobates varicornis	25
....	.....	.....	.....	.....	.....	.....	.....	.	Choneiulus palmatus	26
....	.....	.....	.....	.....	..*..	*....	.****	*	Nopoiulus minutus	27
*...	.....	.....	.*...	**...	...**	.**..	*.***	*	Proteroiulus fuscus	28
....	.....	..*..	.....	.*...	...*.	.*...	**.**	*	Blaniulus guttulatus	29
....	.....	.....	.....	.....	.....	.....	.....	.	Archeboreoiulus pallidus	30
....	.....	.....	.....	.....	.....	.....	.....	.	Boreoiulus tenuis	31
....	.....	.....	.....	*....	....*	*....	*.***	*	Iulus scandinavius	32
*...	....*	.....	.....	.....	..***	..*..	*****	*	Ophyiulus pilosus	33
....	.....	.....	.....	.....	.....	.....	.....	.	Leptoiulus belgicus	34
....	.....	.....	.....	.....	.....	.....	.....	.	Leptoiulus kervillei	35
....	.....	.....	.....	.....	.....	.....	.....	.	Metaiulus pratensis	36
....	.....	.....	.....	.....	.....	.....	.....	.	Cylindroiulus nitidus	37
....	.....	.....	.....	.....	.....	.....	.....	.	Cylindroiulus londinensis	38
*...	.....	.....	.....	.....	..*..	.....	....*	.	C.londinensis var.	39
***.	.....	.....	.**..	**...	..***	***..	*..**	*	Cylindroiulus punctatus	40
....	.....	.....	.....	.....	.....	.....	.....	.	Cylindroiulus britannicus	41
....	....*	.....	.....	.*...	.....	.....	*....	.	Cylindroiulus latestriatus	42
....	.....	.....	.....	.....	.....	.....	.....	.	Cylindroiulus parisiorum	43
....	.....	..*..	.....	***..	...**	***..	*****	*	Tachypodoiulus niger	44
....	.....	...*.	...*.	**...	....*	....*	..*.*	*	Schizophyllum sabulosum	45
....	.....	.....	.....	.....	..**.	.*...	.*.**	.	Brachyiulus pusillus	46
....	.....	.....	.....	.....	.....	.....	.....	.	Leptophyllum armatum	47
....	.....	.....	.....	.....	.....	.....	.....	.	Polyzonium germanicum	48

TABLE 2.

			Number of V.C.'s				RANK			
			Total	E	W	S	I	E	S	I	
1	Cylindroiulus punctatus		81	45	6	14	17	2	2	2	
2	Tachypodoiulus niger		79	44	8	12	15	3	5	3	
3	Polydesmus angustus		77	46	8	12	11	1	5	6	
4	Polymicrodon polydesmoides		69	44	5	9	11	3	8	6	
5	Brachydesmus superus		67	40	5	9	13	5	8	4	
6	Glomeris marginata		67	40	4	5	18	5	14	1	
7	Blaniulus guttulatus		65	38	5	13	9	7	3	10	
8	Proteroiulus fuscus		62	35	4	10	13	8	7	4	
9	Ophyiulus pilosus		60	33	7	9	11	9	8	6	
10	Schizophyllum sabulosum		60	30	5	16	9	10	1	10	
11	Iulus scandinavius		52	30	7	7	8	10	12	13	
12	Brachyiulus pusillus		44	22	3	13	6	15	3	16	
13	Polydesmus coriaceus		41	27	1	4	9	12	15	10	
14	Polydesmus denticulatus		39	23	6	4	6	14	15	16	
15	Cylindroiulus latestriatus		37	20	6	8	3	17	11	18	
16	Polydesmus gallicus		29	15	3	.	11	21	.	6	
17	Cylindroiulus londinensis var.		29	25	.	1	3	13	22	18	
18	Polyxenus lagurus		28	20	2	3	3	17	17	18	
19	Craspedosoma rawlinsi		24	8	1	7	8	27	12	13	
20	Cylindroiulus britannicus		24	21	2	1	.	16	22	.	
21	Isobates varicornis		23	18	2	3	.	19	17	.	
22	Microchordeuma scutellare		17	15	2	.	.	21	.	.	
23	Ophiodesmus albonanus		17	16	.	1	.	20	22	.	
24	Boreoiulus tennuis		15	13	.	2	.	24	19	.	
25	Macrosternodesmus palicola		14	13	.	1	.	24	22	.	
26	Nopoiulus minutus		14	6	.	1	7	32	22	15	
27	Archeboreoiulus pallidus		14	14	.	.	.	23	.	.	
28	Oxidus gracilis		12	10	.	2	.	26	19	.	
29	Cylindroiulus nitidus		12	8	.	2	.	27	19	.	
30	Cylindroiulus londinensis	*	7	7				29			E?
31	Brachychaeteuma bradeae	**	7	7				29			
32	Choneiulus palmatus	**	7	7				29			
33	Cylindroiulus parisiorum	**	5	5				33			
34	Polydesmus testaceus	*	4	4				34			S
35	Chordeuma proximum	*	4	3	1			36			S
36	Brachychaeteuma melanops	*	4	4				34			S
37	Brachychaeteuma bagnalli	*	3	3				36			NE
38	Isobates littoralis	*	3	2	1			42			NW
39	Leptoiulus belgicus	*	3	3				36			SW
40	Metaiulus pratensis	*	3	3				36			SE
41	Entothalassinum italicum	*	3	3				36			SE
42	Geoglomeris jurassica	**	3	3				36			
43	Microchordeuma gallicum	**	2	1	1			45			
44	Polyzonium germanicum	*	2	2				42			SE
45	Leptoiulus kervillei	*	2	2				42			SE
46	Chordeuma silvestre	*	1	1				45			SW
47	Eumastigonodesmus bonci	*	1	1				45			NE
48	Leptophyllum armatum	*	1	1				45			SW

Table 2. Species ranked according to the number of vice-counties in which they are recorded (legend overleaf).

Table 2. Explanation of symbols and notes,(for Table on previous page.)

The species marked with one or two asterisks are 'rare':
- those marked * are restricted to a small part of the country which is indicated on the right.
- those marked ** are known to occur in more than one 'quarter' of the country.

The actual localities of the 'rare' species and the name of the person holding the published or unpublished records is listed in Table 3.

17 - this is the variety caeruleocinctus in contrast to the typical form, 30.

10 - Schizophyllum should now be called Omatoiulus (see Jeekel 1968).

TABLE 3.

THE RARE SPECIES AND THEIR RESTRICTED DISTRIBUTION

Details of the nineteen least common species listed in Table 2.

1. RARE

Geoglomeris jurassica	Berkshire (22), Blower (1957). Lancashire (69), Bocock unpubl. Yorkshire (62), Sutton (1969)	see also Blower and Bocock (in prep.)
Microchordeuma gallicum	Caernarvon, Eason (1957), Blower (1957) Cornwall, Blower, unpubl.	
Cylindroiulus parisiorum	Cheshire, Curtis (1844), Blower (1953) Worcs., Brade-Birks (1918) Wilts., Blower (1953) Yorks., Blower (1957) Cambr., Langton (1968)	
Brachychaeteuma bradeae	V.C.'s 5, 14, 17, 28, 57, 59, & 69.	
Choneiulus palmatus	V.C.'s 14, 31, 58, 59, 66, & 69,	

2. SOUTHERN

Chordeuma proximum West Glos., Forest of Dean, Nelson (1964). Glamorgan, Gower (Blower unpubl.) Sussex (13) and Surrey, Kime unpubl.

Brachychaeteuma melanops Cornwall (2), Devon (3), Dorset (9), Kent (15), Halliday unpubl., Surrey, Kime, unpubl.

Polydesmus testaceus Cornwall (1 & 2), Turk (1944), Kent, Rolfe (1935) and recently, Barber (1968), Essex, Pocock (1903)

3. SOUTH-EASTERN

Entothalassinum italicum Kent, Brade-Birks (1920) and since, but only recently from Surrey, by Kime and Essex by Barber (1968 and unpubl.)

Leptoiulus kervillei, Kent (15), Blower & Rolfe (1956) and again by Barber (1968) and Barber (unpubl.) from West Kent (16).

Metaiulus pratensis, Kent (15, 16) Blower & Rolfe (1956), Sussex (14) ibid. (in B and R Camber was erroneously included in Kent - it is in Sussex).

Polyzonium germanicum, Kent (15) and Surrey (17).

4. SOUTH-WESTERN

Chordeuma silvestre, Cornwall (2) Blower (1965 unpubl.) New to Britain
Leptoiulus belgicus, Cornwall (1 & 2), Devon (3).
Leptophyllum armatum, Devon (3) - found by Eason on Salcombe Hill and later by Blower at Great Haldon - New to Britain.

5. NORTHERN

Whilst none of the nineteen least common species (Table 2) is restricted to the North the following commoner species have a northerly bias:

(Nopoiulus minutus, Cheshire, Lancs. (59) Northumberland and Durham (66, 67 & 68) also in Scotland and Ireland).

(Craspedosoma rawlinsi, only from Cornwall (1), Turk (1944), Kent (15) and Surrey, Kime unpubl. in the south, otherwise limited to the North, Caernarvon, Cheshire, Lancs (59), Yorks (62 & 63) and Durham; also in Scotland and Ireland).

6. NORTH-WESTERN

Isobates littoralis, Lancs., Bagnall (1917), Caerns., Eason (1957) and Isle of Man, Blower (1963) Isle of Man Marine Fauna List.

7. NORTH-EASTERN

Brachychaeteuma bagnalli, Durham, Bagnall 1912, Derby and Yorks (62), Blower, unpubl.

Eumastigonodesmus bonci, Durham, Bagnall 1922A.

8. EASTERN (?)

Cylindroiulus londinensis, the typical form of this species as described by Leach from London is recorded from Kent (15, 16), Surrey, Middlesex, Norfolk (28) North Lancashire (69) and recently from Durham by Kime, unpubl.

The variety caeruleocinctus has a Southern and Eastern bias although it is recorded from as far west as Devon.

TABLE 4.1

County and vice-county lists. The counties are arranged alphabetically and are followed by the number of numbers of the related vice-counties in brackets, the number of species recorded for each vice-county and finally the total number of species for the county.

The source of the records is given; first the publication(s) and then the initials of those responsible for, or holding, the unpublished records.

Initials of recorders as follows:

A.D.B.	Barber, Mr. A.D.
J.G.B.	Blower, Mr. J.G.
M.J.B.	Blumfield, Miss
C.H.B.	Brookes, Dr.
P.M.B.	Butler, Professor
M.J.C.	Cotton, Dr.
M.J.D.	Delany, Dr.
E.H.E.	Eason, Dr.
C.P.F.	Fairhurst, Dr.
P.D.G.	Gabbutt, Dr.
J.L.G.	Gilbert, Mr.
E.H.H.	Harvey, Professor
R.D.K.	Kime, Mr.
F.McN.	McNaughton, Dr.
K.P.S.	Southern, Mrs.
J.S.	Sankey, Dr.
R.C.W.	Welch, Dr.
M.D.W.	Winder, Mrs.

A separate note is made of quantitative sampling in an area - preceded by the underlined abbreviation thus - - - Quant.

CONTENTS OF TABLE 4

TABLE 4.2

ENGLAND

BEDFORDSHIRE (30) 2 spp.

Worthington (1938), Cloudsley-Thompson (1950)

BERKSHIRE (22) 20 spp.

Blower (1957) Geoglomeris;
P.D.G., R.D.K., K.P.S. (Wytham survey).
Quant. Williams (in litt.) One year, fortnightly pitfall trap samples from wood, scrub and grassland near Reading University Farm, Shinfield, 9 spp.

BUCKINGHAM (24) 4 sp.

A.D.B.

CAMBRIDGE (29) 21 spp.

Sinclair (1904), Worthington (1938), Cloudsley-Thompson (1949), Langton (1968).
Langton's paper includes the fourth record of Cylindroiulus parisiorum in Britain. M.D.W.

CHESHIRE (58) 28 spp.

Jackson (1910, 14, 15, 16), Brade-Birks (Notes 2, 6, 9, 18, 23, 30), Bagnall (1918).
J.G.B., C.H.B., C.P.F.
Quant. Brookes (1963) and Blower (1970) six years direct and pitfall trap samples in Ernocroft Wood, Nr. Marple, 12 spp.

CORNWALL

West	(1)	21	26 spp.
East	(2)	21	

Cocks (1849, 1851), Larwood (1941), Turk (1943, 1944).
J.G.B., mainly from (2), Camelford area, including second record of Microchordeuma gallicum and first record of Chordeuma silvestre. A.D.B.

CUMBERLAND (70) 10 spp.

Gibson-Carmichael (1881), Pocock (1901).
J.G.B. from Birkrigg Oak, Nr. Stair, Keswick.

DERBYSHIRE (57) 21 spp.

Brade-Birks (Notes 12),
J.G.B., P.M.B.
Quant. Blower & Miller (unpubl.) One years samples, Milldale, 10 spp.

DEVON

South	(3)	23	23 spp.
North	(4)	5	

Bagnall (1918D) (1919)(1921B) (1922a), Blower & Gabbutt (1964).
M.J.D., P.M.B., P.D.G., E.H.E., E.H.H., R.D.K.,
6 spp. recorded from Lundy, O.W.G., M.J.D., P.D.G.
Dr. Eason's find of Leptophyllum armatum was the first in Britain; it has since been found at Gt. Haldon by J.G.B.
Quant. Blower & Gabbutt (1964) three years samples at Harpfood Wood, Nr. Sidmouth, 13 spp.

TABLE 4.3

DORSET (9) 8 spp.

Bagnall (1918C, 1919), Brade-Birks (Notes 11).

DURHAM (66) 28 spp.

Bagnall (1912b, d, 1913f, 1919, 1922a).
R.D.K., including Cylindroiulus londinensis typica for the first time in the North.

ESSEX	South	(18)	8	15 spp.
	North	(19)	14	

Pocock (1903) Barber (1968)
A.D.B.

GLOUCESTER	East	(33)	20	22 spp.
	West	(34)	18	

Nelson (1964), first record of Chordeuma proximum
E.H.E., mainly (33), J.G.B., mainly (34) from Woodchester Park Nr. Stroud and Forest of Dean, Nr. Canop.

HAMPSHIRE	I.O.W.	(10)	8
	South	(11)	10
	North	(12)	11

14 spp.

Pocock (1903), Blower (1953), Barber (1967), Isle of Wight.
M.J.D.; K.P.S.; R.D.K.; ten new species added to the list.

HEREFORD (36) No records.

HERTFORD (20) 8 spp.

Morris (1922a, 1927), Stephenson (1961), all from Rothamsted.
M., Rothamsted.
Quant. Morris (as above) animals extracted by flotation from arable fields.

HUNTINGDON (31) 19 spp.

Cloudsley-Thompson (1949, 1951). Welch (1968).
J.L.G., R.C.W. from Monk's Wood.

ISLE OF MAN - see end of English Counties.

KENT	East	(15)	30	31 spp.
	West	(16)	13	

Theobald (1912) Brade-Birks (Notes 13, 21, 24, 27), Rolfe (1935), Blower and Rolfe (1956), Harding (1967).
S.W.R., J.S., J.G.B., A.D.B., R.D.K.
Messrs. Barber and Kime have recently added 14 species to Kent; they are preparing a comprehensive fauna of the county.

LANCASHIRE	South	(59)	24	
	Mid	(60)	14	33 spp.
	N.(part)	(69)	9	

Jackson (1915b), Bagnall (1916a), Brade-Birks (Notes 1, 2, 4, 6, 7, 9, 18, 23 and 25).
J.G.B.

TABLE 4.4

LEICESTERSHIRE & RUTLAND (55) 14 spp.

A.D.B. coll, and also det. material in Leicester Museum .

LINCOLNSHIRE South (53) 9
North (54) 17 20 spp.

Brade-Birks (1920f), Bagnall (1922a), Fairhurst (1968) C.P.F., J.G.B., A.D.B., R.D.K., 7 spp. added to the County. Quant. Fairhurst (as above) mainly pitfall trap samples at Gibralta Point and extensive data on Tachypodoiulus niger.

MIDDLESEX (21) 7 spp.

J.G.B., A.D.B.

MONMOUTH (35) No records.

NORFOLK East (27) 4
West (28) 17 17 spp.

Pocock (1901b), Brade-Birks (Notes 25).

NORTHAMPTON (32) 6 spp.

J.G.B.

NORTHUMBERLAND S (67) 18
N (68) 10 18 spp.

Bagnall (1912d)(1913f).

NOTTINGHAMSHIRE (56) 19 spp.

Carr (1916) (R.D.K. has examined Carr's P.gallicus ♂ and is of the opinion that it is a damaged specimen of P.angustus ♂.)
J.G.B., A.D.B.

OXFORDSHIRE (23) 11 spp.

K.P.S. (records from B.A.P.)

SHROPSHIRE (40) 2 spp.

SOMERSET South (5) 15
North (6) 8 18 spp.

Bagnall (1918c)
P.M.B.

STAFFORDSHIRE (39) 3 spp.

Brade-Birks (1917a), Varty-Smith (1919), Bagnall (1922a).

SUFFOLK East (25) 13
West (26) 2 13 spp.

O.W.G., J.G.B., from (25) just south of Lowestoft, 11 species added.

TABLE 4.5

SURREY (17) 31 spp.

Pocock (1902), Arthur, Thompson and Sankey (1951), Cloudsley-Thompson (1951), Cloudsley-Thompson & Sankey (1953), Barber and Eason (1970), Banerjee (1967a & b).
P.D.G., J.S., R.D.K. Messrs. Barber & Kime have recently added 20 species to the county which is now, next to Lancashire, the best worked county in Britain.

SUSSEX	South	(13)	14	23 spp.
	East	(18)	19	

Butterfield (1919), Brade-Birks (Notes, 22)
L., K.P.S., R.D.K., 12 species from (13).

WARWICK (38) 16 spp.

Eason (1958)
E.H.E.

WESTMORLAND part-(69) 11 spp.

J.G.B. (report to Nature Conservancy, Merlewood, 1959).

WILTSHIRE	North	(7)	2	6 spp.
	South	(8)	5	

Blower (1953).
R.D.K. 5 species from (8).

WORCESTERSHIRE (37) 18 spp.

Brade-Birks (Notes, 14), Eason (1958).
J.G.B., E.H.E.

YORKSHIRE	SE	(61)	7	
	NE	(62)	22	
	SW	(63)	5	25 spp.
	MW	(64)	13	
	NW	(65)	4	

Blower (1962) summarises past records and adds most of them.

ISLE OF MAN (71) 13 spp.

Cloudsley-Thompson (1953).
J.G.B.

W A L E S

ANGLESEY (52) 12 spp.

E.H.E., O.W.G., J.G.B., C.P.F.
Quant. Fairhurst (1958) Pitfall trap and direct samples from Newborough Warren; extensive data for Schizophyllum sabulosum.

BRECON (42) No records.

CARDIGAN (46) 10 spp.

Edwards (1929)
J.G.B., K.P.S.
Quant. Edwards (as above) from arable fields Nr. Aberystwyth

CARMARTHEN (44) 2 spp.

K.P.S.

CAERNARVON (49) 21 spp.

Eason (1957)
J.G.B., O.W.G., P.M.B.

DENBIGH (50) 12 spp.

Jackson (1914)
J.G.B. Llanferres

FLINT (51) 10 spp.

Jackson (1914)
J.G.B. Nannerch, P.M.B. Mold district.

GLAMORGAN (41) 17 spp.

J.G.B. from Gower, P.M.B. Cardiff district.
Quant. Blower & Miller (in litt.) two years soil and litter samples from Llethrid in Gower.

MERIONETH (48) 6 spp.

E.H.E.

MONTGOMERY (47) No records.

PEMBROKE (45) 5 spp.

J.G.B. including Iulus scandinavius and Cylindroiulus latestriatus from Skomer. K.P.S.

RADNOR (43) No records.

S C O T L A N D

AYR (75) 3 spp.

Waterston (1939), Bagnall (1913a).

ARGYLL	part (97)	10	
	Main (98)	3	
	Mid Ebud (103)	3	11 spp.
	S. Ebud (102)	3	
	Cantire (101)	-	

Gibson-Carmichael (1882), Main, J.G.B., Ardnamurchan (97), Mull (103), M.J.D. Colonsay (102).

ABERDEEN	South (92)	1	1 sp.
	North (93)	-	

J.G.B.

ANGUS (90) No records but see :-

P.F.M. EX. M.J.C. from Tentsmuir , where work is proceeding.

BANF (94) No records.

BERWICK (81) 7 spp.

Johnstone (1935), Evans (see Forth Area).

BUTE (100) 7 spp.

Bagnall (1913a)

CAITHNESS (109) 3 spp.

M.J.B. Thurso district.

DUMFRIES (72) No records.

DUNBARTON (99) 7 spp.

Bagnall (1913a)

EAST LOTHIAN (82) 16 spp.

Bagnall (1918b), Evans (see 'Forth Area')

ELGIN (95) No records.

FIFE AND KINROSS (85) 14 spp.

Gibson-Carmichael (1917), Evans (see 'Forth Area').

FORTH AREA (82) 16, (83) 20, (84) 15, (86) 12, (87) 8, 24 spp.

Evans (1900, 1901b, 1907, 1917, 1919, 1921)
Evans (1919) lists all records for the area up to date together with those of other authors.

HEBRIDES, INNER (102) see ARGYLL 3 spp.
(103) see ARGYLL 3 "
(104) see INVERNESS 7 "

HEBRIDES, OUTER (110) see INVERNESS 4 "

INVERNESS	E'ness	(96)	2
	W'ness	(97)	- (none for Inverness part of (97)
	N.Ebud.	(104)	7
	part	(110)	4

Bertram (1939), Canna (104); Waterston (1936), Barra (110); C.P.F., Muck (104).

KINCARDINE (91) 2 spp.

E.H.E. (Polymicrodon polydesmoides and Polydesmus angustus).

KIRKUDBRIGHT (73) No records.

LANARK (77) 4 spp.

Evans (1901a), Bagnall (1913a), Nopoiulus in a Glasgow greenhouse.

LINLITHGOW SEE 'WEST LOTHIAN'

MIDLOTHIAN (83) 20 spp.

Evans (see 'Forth Area')

ORKNEY (111) No records.

PEEBLES (78) 5 spp.

Gibson-Carmichael (1882).

PERTH	with Clk	(87) 8	
	Mid	(88) 2	8 spp.
	North	(89) -	

Evans (see 'Forth Area') for (87)
C.P.F., for (88)

RENFREW (76) 2spp.

F.Mc.N.

ROSS & CROMARTY	W(105) 4	
	E(106) -	(none)
	part(110) -	(no records for R & C part, Lewis)

C.P.F., F.Mc.N., both for (105)

ROXBURGH (80) - No records.

SELKIRK (79) 1 sp.

Gibson-Carmichael (1882) - Brachyiulus pusillus.

TABLE 4.9

SHETLANDS	(112)	No records.
STIRLING	(86)	12 spp.
Evans (see 'Forth Area'0.		
SUTHERLAND	East (107) -	No records.
	West (108) -	
WEST LOTHIAN	(84)	15 spp.
Evans (see 'Forth Area').		
WIGTOWN	(74)	5 spp .

Gibson-Carmichael (1882) including only record for Scotland of Cylindroiulus londinensis caeruleocinctus.

TABLE 4.10

N O R T H E R N I R E L A N D

ANTRIM (39) 18 spp.

Templeton (1936), Pocock (1893b), Selbie (1913a), BNFC (1914) (1915), Foster (1919), Brade-Birks (Notes, 8 & 15), Johnson (1919).

ARMAGH (37) 12 spp.

Pocock (1893b), Selbie (1913a), Johnson (1913a), Foster (1919).

DERRY (40) 15 spp.

Selbie (1913a), B.N.F.C. (1914), Foster (1919).

DOWN (38) 15 spp.

Pocock (1893b), Selbie (1912, 1913a), B.N.F.C. (1914) Johnson (1913a), Foster (1919) Brade-Birks (Notes, 8 & 15).

FERMANAGH (33) No records.

TYRONE (36) 6 spp.

Selbie (1913a), Foster (1919).

E I R E

CARLOW (13) 3 spp.

Selbie (1913a).

CAVAN (30) 7 spp.

Selbie (1912, 1913a, 1915a), Foster (1919).

CLARE (9) 2 spp.

J.G.B.

CORK	West	(3)	5	
	Mid	(4)	-	5 spp.
	East	(5)	-	

Pocock (1893b), Selbie (1913a).

DONEGAL	E/S	(34)	2	
	W/N	(35)	12	13 spp.

Pocock (1893b), Selbie (1913a), Johnson (1913a), Foster (1919).
J.G.B. adds 6 spp. to (35)

DUBLIN (21) 12 spp.

Carpenter (1907), Pocock (1893b), Selbie (1913a), Johnson (1913a), Brade-Birks (Notes, 3.)

GALWAY	S.E.	(15)	-	
	W.	(16)	5	5 spp.
	N.E.	(17)	1	

Pocock (1893b), Brolemann (1896), Selbie (1913A), Johnson (1919).

KERRY	S.	(1)	6	
	N.	(2)	2	7 spp.

Pocock (1893), Selbie (1913a), Foster (1919).

TABLE 4.11

KILDARE (19) 1 spp.

Pocock '(1893b).

KILKENNY (11) No records.

KING'S COUNTY see OFFALY

LAOIGHIS (14) No records.

LEITRIM (29) 13 spp.

B.N.F.C. (1915), Foster (1919).

LIMERICK (8) No records.

LONGFORD (24) 1 sp.

Foster (1919).

LOUTH (31) 5 spp.

Pocock (1893b), Selbie (1913a), Foster (1919) (1915).

MAYO E. (26) -
W. (27) 8 8 spp.

Selbie (1912, 1913a), Johnson (1912) (1915), Foster (1919).

MEATH (22) 4 spp.

Pocock (1893b), Selbie (1912).

OFFALY (18) 1 sp.
Monaghan (32) 8 spp.

Selbie (1913a), B.N.F.C. (1913) (1916)

ROSCOMMON (25) 1 sp.

Foster (1919).

SLIGO (28) 11 sp.

Selbie (1913a), B.N.F.C. (1915), Foster (1919).

TIPPERARY S. (7)
N. (10) No records.

QUEEN'S COUNTY see LAOIGHIS

WATERFORD (6) 2 spp.

Brolemann (1896), Selbie (1913a).

WESTMEATH (23) 1 sp½

Pocock (1893).

WEXFORD (12) 3 spp.

Selbie (1913a).

WICKLOW (20) 10 spp.

Pocock (1893b), Selbie (1913a), Foster (1919).

C H A N N E L I S L A N D S

Browning (1956) Barber & Kime (1970).

TABLE 5.

COUNTIES RANKED ACCORDING TO NUMBER OF SPECIES RECORDED THEREIN (see also fig.1)

	Well-worked 50% or more of the possible no. of species		Moderately worked 25-49% of the possible no. of species		Poorly worked less than 25% of the possible no. of species		Not worked No records of the possible no. of species
ENGLAND & WALES	Lancs.	33	Hunts.	19	Dorset	8	Brecon
40 possible species +	Surrey	31	Notts.	19	Herts.	8	Hereford
	Kent	31	Worcs.	18	I.O.W.	8	Monmouth
	Cheshire	28	Somers.	18	Middlesex	7	Montgom.
	Durham	28	Northl.	18	Northants	6	Radnor
(Welsh counties underlined)	Cornwall	26	Glamorg.	17	Merioneth	6	
	Yorks	25	Norfolk	17	Wilts.	6	
	Devon	23	Warwick	16	Pembroke	5	
	Sussex	23	Essex	15	Bucks.	4	
	Glos.	22	Hants.	14	Stafford	3	
	Caerns.	21	Leics. & R	14	Carmarth.	2	
	Derby	21	Suffolk	13	Bedrord	2	
	Berks.	20	I.O.M.	13	Salop.	2	
	Lincoln	20	Denbigh	12			
			Anglesey	12			
			Oxford	11			
			Westmorland	11			
			Cardigan	10			
			Flint	10			
			Cumberd.	10			
	(14)		(20)		(13)		(5)
SCOTLAND	Midloth.	20	Stirling	12	Wigtown	5	Banf
26 possible species ‡	Eastloth.	16	Argyl	11	Peebles	5	Dumfries
	Westloth.	15	Perth	8	Lanark	4	Moray
29 counties	Fife&Kin.	14	Berwick	7	Ross & C	4	Nairn
			Bute	7	Ayr	3	Kirk-bt.
			Dunbarton	7	Caithness	3	Orkney
			Inverness	7	Renfrew	2	Roxburgh
					Kincardn.	2	Shetland
					Aberdeen	1	Sutherland
					Selkirk	1	
	(4)		(7)		(10)		(9)
IRELAND	Antrim	18	Monaghan	8	Meath	4	Fermanagh
20 possible ‡ species	Derry	15	Mayo	8	Carlow	3	Kilkenny
6 N.Ireland	Down	15	Cavan	7	Wexford	3	Laoighis
26 Eire	Armagh	12	Kerry	7	Clare	2	Limerick
32 counties			Tyrone	6	Waterford	2	Tipperary
(N.Ireland counties underlined)	Donegal	13	Cork	5	Kildare	1	
	Leitrim	13	Galway	5	Longford	1	
	Dublin	12	Lowth	5	Offaly	1	
	Sligo	11			Roscomm.	1	
	Wicklow	10			Westmeath	1	
	(9)		(8)		(10)		(5)
TOTALS (114 counties)	(27)		(35)		(33)		(19)

+ The number of possible species for England and Wales is less than 48 for any given county because of the restriction of certain species to geographical regions as follows:

NW	N	NE
1	1	2
SW	S	SE
3	4	3

Thus an average fig. of 40 is chosen.

leaving:

36	38	37
41	44	41

see TABLE 3.

‡ The number of possible species for Scotland and Ireland is taken as the total number recorded from the principalities to date.

Figure 1

Vice-Counties shaded according to the number of species recorded in them (compare Table 5 where the counties themselves are similarly assessed)

More than 50% of the possible species	- Black
Between 25% & 49% " "	- Cross Hatched
Less than 25% " "	- Stippled
No records	Plain

Acknowledgements

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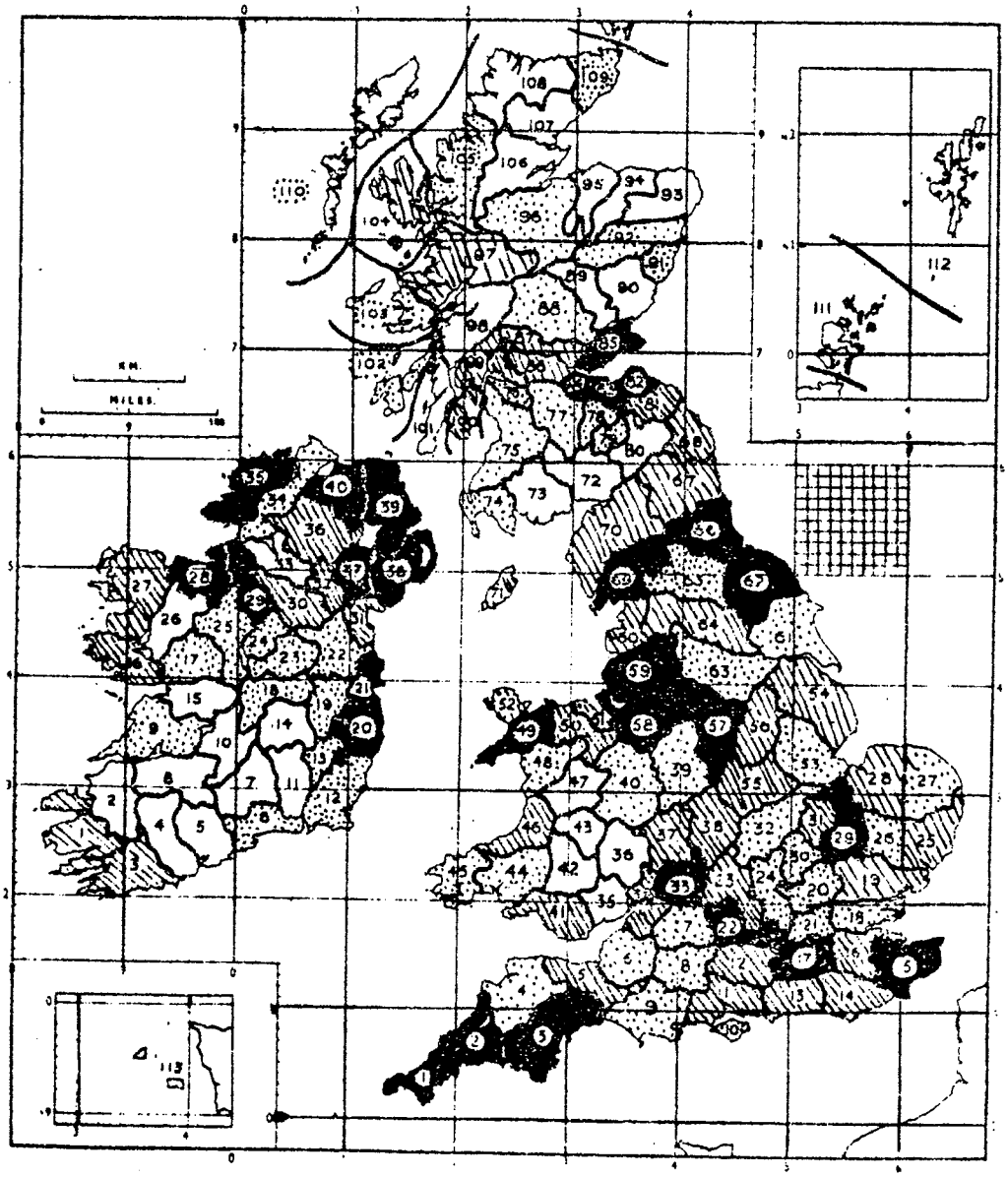
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BIBLIOGRAPHY

ARTHUR, D.R., J.C. CLOUDSLEY-THOMPSON & J.P. SANKEY (1951) Entomologists' mon.Mag. 87 : 275-278.

BAGNALL, R.S. (1909) Trans.nat.Hist.Soc.Northumb. 3 : 462. (1910A) ibid.3 : 645 & 660. (1910B) ibid. 3 : 654-660. (1911A) ibid. 4 : 17-40. (1911B) ibid. 4 : 59-60. (1912A) Rep.Br.Ass.Ad mt Sci. 1911 420. (1912B) Zoologist 1912 : 264-266. (1912C) Trans.nat.Hist.Soc.Northumb. 4 : 171-176. (1912D) ibid. 4 : 344-365. (1913A) Glasgow Nat. 5 : 89-92. (1913B) Scott.Nat. 1913 : 182-185. (1913C) Zoologist 1913. (1913D) Ent.Record 25 : 224-226. (1913E) J.Linn.Soc. 32 : 195-199. (1913F) Trans.Vale Derwent Nat.Fld.Club 1 : 116-128. (1914A) Trans.nat.Hist.Soc.Northumb. 4 : 59-60. (1914B) Zoologist 1914 : 1. (1915A) The Vasculum 1 : 30. (1915B) ibid. 1 : 60. (1916) Lancs. Chesh.Nat. 8 : 349. (1917A) Lancs.Chesh.Nat. 10 : 104-109. (1917B) ibid. 10 : 110-112. (1917C) Ann.Mag.nat.Hist. 20: 360-2 . (1918A) Lancs.Chesh.Nat. 10 : 347. (1918B) Scott.Nat. 1918 : 79. (1918C) Journ.Zool.Res. 3 : 87-93. (1918D) Ann.Mag.nat.Hist. 2 : 407-412. (1919) ibid. 4 : 79-84. (1921A) Lancs.Chesh.Nat. 13 : 183. (1921B) Lancs. Chesh.Nat. 13 : 186-188. (1922A) Ann.Mag.nat. Hist. 9 : 176-177. (1922B) Lancs.Chesh.Nat. 14 : 225. (1925A) Scott.Nat. 1925 : 60. (1930) ibid. 1930 : 31. (1935A) Ann.Mag. nat.Hist. 15 : 473-9. (1935B) Scott.Nat. 1935 : 143-145. (1935C) ibid. 1935 : 79-82. (1935D) Ann.Mag.nat.Hist. 16 : 619-629.

BANERJEE, B. (1967A) J.anim.Ecol. 36 : 171-177. (1967B) Oikos 18 : 141-144.

BARBER, A.D. (1967A) Entomologists' mon.Mag. 103 : 67. (1967B) ibid. 103 : 122. (1968) ibid. 104 : 268. (1969) ibid. 105 : 85-92.

BARBER, A.D. & EASON, E.H. (1970) J.nat.Hist. 4 : 79-84.

BARBER, A.D. & KIME, R.D. (1971) Entomologist s' mon.Mag. 107 : 223.

BASSINDALE, R. & BARRETT, J.H. (1957) Pr.Bristol Nat.Soc. 29: 227-328.

BELFAST NATURALISTS FIELD CLUB (1912) Proc.Belfast N.F.C. 6 : 492-496. (1913) ibid. 6 : 588, 596 & 608. (1914) ibid. 7 : 91-92. (1915) ibid. 7 : 166-169. (1916) ibid. 7 : 213, 217, 222, 226.

BERTRAM, D.S. (1939) Proc.R.phys.Soc.Edinb. 23 : 1-71.

BINYON, J. & LEWIS, J.G.E. (1963) J.mar.biol.Ass.U.K. 43 : 49-55.

BLOWER, J.G. (1952) Naturalist,Hull. 1952 : 145-157. (1953) Ann.Mag. nat.Hist. 6 : 305-316. (1955A) Soil Zoology Ed. Kevan. Butterworth, London 138-151. (1955B) Naturalist, Hull. 1955 : 137-146. (1956) Proc.VIe Congres International de la science du sol.Paris. III : 169-176. (1957) Ann.Mag.nat.Hist. 10 : 497-508. (1958) Synopses Br.Fauna 11 : 1-74. (1961) Ann.Mag.nat.Hist. 4 :183-187. (1969) Syst.Ass.Publs. No 9. (1970) Bull.Mus.hist.nat.Paris. 41 (Supp.2) 19-23. (1970) J.Zool.,Lond. 160 : 455-496.

BLOWER J.G. & ROLFE, S.W. (1956) Ann.Mag.nat.Hist. 9 : 513-520.

BLOWER, J.G. & GABBUTT, P.D. (1964) Proc.Zool.Soc.Lond. 143 : 143-176.

BLOWER, J.G. & FAIRHURST, C.P. (1968) J.Zool.,Lond. 156 : 257-271.

BOYD, W.A. (1901) Brit.Ass.Handbook on the Clyde 1901 : 318.

BRADE, H.K. & S.G. BIRKS (1916A) Notes on Myriapods. I. Lancs.Chesh.Nat. 9 : 49-55. (1916B) II. Lancs.Chesh.Nat. 9 : 82. (1916C) III. Ir.Nat. 25 : 121-135. (1916D) IV. Lancs.Chesh.Nat. 9 : 141-148. (1917A) V. Ann.Mag.nat.Hist. 19 : 417-424.

BRADE, H.K. & S.G. BRADE-BIRKS (1917B) VI. Lancs.Chesh.Nat. 10 : 113-122.

BRADE-BIRKS, H.K. & S.G. (1917C) VII. Journ.Zool.Res. 2 : 135-149. (1918A) VIII. Ir.Nat. 27 : 27-29. (1918B) IX. Lancs.Chesh.Nat. 11 : 93-97. (1918C) X. Jour.Zool.Res. 3 : 47-53. (1918D) XI. Jour. Zool.Res. 3 : 55-61. (1918E) XII. Ann.Mag.nat.Hist. 2 : 319-336. (1918F) XIII. Lancs.Chesh.Nat. 11 : 152-186. (1918G) XIV. Ann. Mag. nat.Hist. 2 : 470-471. (1919A) XV. Ir.Nat. 28 : 4-5. (1919B) XVI. Ann.Mag.nat.Hist. 3 : 253-256. (1919C) XVII. Bull.Soc.zool.Fr. 44 : 63-68. (1919D) XVIII. Lancs.Chesh.Nat. 12 : 101-106. XIX (see (1920A) XX. Ann.Mag.nat.Hist. 4 : 1-30. Jackson & BB).

BRADE-BIRKS, S.G. (1920B) XXI. Ann.Mag.nat.Hist. 5 : 198-200.

BRADE-BIRKS, H.K. & S.G. (1920C) XXII. Hastings & East Sussex Naturalist 3 : 119-124. (1920D) XXIII. Lancs.Chesh.Nat. 12 : 297-298,

BRADE-BIRKS, S.G. (1920E) XXIV. Ann.Mag.nat.Hist. 6 : 364-365.

BRADE-BIRKS, H.K. & S.G. (1920F) XXV. Ann.Mag.nat.Hist. 6 : 470-477.

BRADE-BIRKS, S.G. (1922A) XXVI. Ann.Mag.nat.Hist. 9 : 160-163. (1922B) XXVII. ibid. 9 : 208-212. (1923) XXVIII. Proc.R.phys.Soc. Edinb. 20 : 277-280. (1923) XXIX. Lancs.Chesh.Nat. 1923 :1-8. (1925) XXX. ibid. 18 : 217-221. (1928A) XXXI. Ann.Mag.nat.Hist. 1 : 397-398. (1928B) XXXII. Geol.Mag. 65 : 400-406. (1929) XXXIII. Part I. Jl.S.-east agric.Coll.Wye,Kent. 26. (1930) XXXIII. Part II. Ibid. 27.

BRADE-BIRKS, H.K. & S.G. (1933) XXXIV. Ann.Mag.nat.Hist. 11 : 228-231.

BRADE-BIRKS, S.G. (1934) XXXV. Jl.S.-east.agric.Coll.Wye 34 : 197-209. (1939) XXXVI. Jl.S.-east.agric.Coll.Wye. 44 : 156-179.

BRITTEN, H. (1920) Lancs.Chesh.Nat. 13 : 118.

BROLEMANN, H.W. (1896) Ir.Nat. 5 : 12-15.

BROWNING, E. (1956) Bull.Soc.Jersiaise 16 (4) : 377-394.

CARPENTER, G.H. (1895) Ir.Nat. 4 : 256. (1895A) ibid. 4 : 25-35. (1895B) ibid. 4 : 246-254. (1907) ibid. 16 : 57. (1908) Brit.Ass. Handbook to the Dublin District: 176.

CARR, J.W. (1906) Vict.History County of Nottingham 7 : 131-132. (1916) The Invertebrate Fauna of Nottinghamshire. Nottingham : J.& H. Bell

CLOUDSLEY-THOMPSON, J.L. (1945) Nature,Lond. 156 : 537. (1948) Naturalist, Hull. 1948 : 149-152. (1949) Entomologists' mon.Mag. 85 : 46-47. (1949) ibid. 85 : 261-262. (1950) ibid. 86 : 319. (1950) Ann.Mag.nat.Hist. 3 : 1047-1057. (1951) Entomologists' mon.Mag. 87 : 247-8. (1951) Naturalist,Hull. 1951 : 16-17. (1953) Entomologist 86 : 11-12. (1954) Entomologists' mon.Mag. 90 : 236. (1956) ibid. 92 : 193.

CLOUDSLEY-THOMPSON, J.L. & SANKEY, J. (1953) Entomologists' mon.Mag. 89 : 284-286. (1956) ibid. 92 : 132-134.

COCKS, W.P. (1849) Ann.Rep.Roy.Cornwall Poly.Soc. 17. (1851) ibid. 19.

DELANY, M.J. (1956) J.anim.Ecol. 25 : 112.

EASON, E.H. (1951) Ann.Mag.nat.Hist. 4 : 257-268. (1953A) ibid. 6 : 850-854. (1953B) Proc.Cotswold Nat.Field Club. 31 : 61-62.

(1957) Hastings Nat. 8 : 204-210. (1957) Proc.Zool.Soc.Lond. 129 : 273-291. (1958) Ann.Mag.nat.Hist. 1 : 90-96. (1961) ibid. 4 : 385-391. (1962) Proc.Zool.Soc.Lond. 138 : 123-132. (1964) Centipedes of the British Isles London : Warne. (1965) Ann.Mag.nat.Hist. 8 : 285-295.

EDWARDS, E.E. (1929) Ann.appl.Biol. 16 : 299-323.

EVANS, T.J. (1910) Proc.Sheffield Nat.Club. 1 : 139.

EVANS, W. (1900) Ann.Scot.nat.Hist. 1900 : 127. (1901A) ibid. 1901, 120. (1901B) ibid. 1901 : 184. (1906) ibid. 1906 : 87. (1907) Proc. R.phys.Soc.Edinb. 16 : 405-414. 17 : 109-120. (1910) Ann.Scot.nat. Hist. 1910 : 257. (1917) Scott.Nat. 1917 : 274. (1918) ibid. 1918 : 259-265. (1919) ibid. 1919 : 87-93. (1921) ibid. 1921 : 68.

FALCONER, W. (& Margerison) (1911) Naturalist,Hull. 1911 : 235. Details in Blower (1952).

FELTON, J.C. (1965) Entomologists'mon.Mag. 101 : 48.

FOSTER, N.H. (1915A) Ir.Nat. 24 : 101-104. (1915B) ibid. 24 : 174-175. (1919) Ann.Mag.nat.Hist. 4 : 395-407.

GIBSON-CARMICHAEL, T. (1887) Nat.Monthly 1887 : 13.

GIBSON-CARMICHAEL, T.D. (1882A) Proc. R. phys.Soc.Edinb. 7 : 183-196. (1882B) ibid. 7 : 240. (1883) Entomologists' mon.Mag. 20 : 88. (1897) Essex Nat. 10 : 311.

HARDING, J.K. (1967) E.Malling Res.Sta.Ann.Rep. 169-171.

HICKS, C.E. (REVELL, R.J.) (1966) Rept.Trans.Dev.Ass. 97 : 131.

JACKSON, A.R. (1910) Lancs.Nat. 3. (1914) ibid. 6 : 450. (1915) Lancs.Chesh.Nat. 7 : 101. (1915) ibid. 7 : 433. (1916) ibid. 8 : 391.

JACKSON, J.W., BRADE-BIRKS H.K. & S.G. (1919) Geol.Mag. 6 : 406-411.

JOHNSON, W.F. (1912) Proc.R.Ir.Acad. 31 : 33. (1913A) Ir.Nat. 22 : 128-130. (1913B) ibid. 22 : 203. (1915) Proc.R.Ir.Acad. 31 : (Addenda).

JOHNSTON, G. (1835) Mag.nat.Hist. 8 : 486-494.

KIME, R.D. (1968) Entomologists' mon.Mag. 104 : 95.

LANGTON, P.H. (1968) Entomologists' mon.Mag. 104 : 109.

LARWOOD, H.J. (1941) Ann.Mag.nat.Hist. 8.

LEACH, W.E. (1814) Brewster's Edinburgh Encyclopaedia 407-409. (1815) Trans.Linn.Soc.Lond. 11 : 306-400. (1817) Zoological Miscellany. 3 : 36-45.

LEWIS, J.G.E. (1960) Entomologists' mon.Mag. 95 : 206-297. (1961) Proc.zool.Soc.Lond. 137 : 221-248. (1961) Ann.Mag.nat.Hist. 4 : 393-399. (1962) J.mar.biol.Ass.U.K. 42 : 655-664. (1965) Proc.zool.Soc.Lond. 144 : 269-283. (1967) J.Zool.,Lond. 151 : 163-169.

MAIN, H. (1931) Essex Nat. 23 : 203-206.

MORLEY, C. (1944) Trans.Suffolk Nat.Soc. 5 : 73-91. (1949) ibid. 7 : 25.

MORRIS, H.M. (1922) Ann.appl.Biol. 9 : 282-305. (1927) ibid. 14 : 442-464.

MARR, J.E. & SHIPLEY, A.E. (Ed.) (1904). Handbook to the Natural History of Cambridgeshire. Cambridge U.P.

NELSON, J.M. (1964) Ann.Mag.nat.Hist. 7 : 527-8.

NEWPORT, G. (1843) Mag.nat.Hist. 11.316(1844) ibid. 13. (1845) Trans.Linn.Soc.Lond. 19 : 265-302.

PARFITT, E. (1866) Zoologist 24 : 7. (1890) Nature,Lond. 41 : 153.

PEARSON, R.G. & WHITE, E. (1964) J.Anim.Ecol. 33 : 245-258.

POCOCK, R.I. (1889) Nature,Lond. 41 : 176-177. (1890) Nature 41 176. (1889) Ann.nat.Hist. 7 : 367-374. (1893) Ann.nat.Hist. 11 : 248-254. (1893)A Rugby Past and Present.W.O.Wait 243-342.(1893B) Ir.Nat. 11 : 309-312. (1900A) Ann.Mag.nat.Hist. 6 : 206-207. (1900B) Vic.History County of Hampshire and the Isle of Wight. 163-165. (1900C) Zoologist 4 : 484.

POCOCK, R.I. (1901A) Vict.History County of Cumberland 1 : 143-144. (1901B) Vic.History County of Norfolk 1 : 171-172. (1902) Vict. History County of Surrey. 1 : 176-178. (1903) Vict.History County of Essex. 1 : 193-195. (1903) Victoria Hist. County of Hampshire. 1 : 163-165. (1906)A. Kew.Bull.Add.Ser. 5 1906 : 21-22. (1906B) Vict.History County of Somerset 1 :

ROBERTS, H. (1956) Ph.D. Thesis: University of Southampton.

ROLFE, S.W. (1934) Jl.S.-east.agric.Coll.Wye 34 : 258-259. (1934B) Ann.Mag.nat.Hist. 14 : 192-203. (1935) ibid. 15 : 284-290. (1937) Jl.S.-east.agric.Coll.Wye 40 : 99-102. (1938) ibid. 42 : 214-215. (1939) ibid. 44 : 180-182.

SAMONELLE (1819) The Entomologist's Useful Compendium.

SELBIE, C.M. (1912) Ir.Nat. 21 : 113-115. (1913A) ibid. 22 : 131-135. (1913B) Ann.Mag.nat.Hist. 12 : 439-443.

SINCLAIR, F.G. '(1904) in Marr and Shipley. The Natural History of Cambridgeshire.

STEWART, C. (1809) Memoir Wernerian Society 1 (1811) 577.

STAINFORTH, T. (1913) Naturalist,Hull. 1913 : 400-401. (1916) ibid. 1916: 181.

STEPHENSEN, J.W. (1931) Ann.Mag.nat.Hist. 3 : 311-319.

TEMPLETON, R. (1836) London's Mag.Nat.Hist. 1836 : 9-14.

THOMPSON D'ARCY WENTWORTH (1890) Nature 41 : 104.

THOMPSON, H.W. (1921) Naturalist,Hull. 1921.

TURK, F.A. (1943) Ann.Rep.Roy.Cornwall Poly.Soc. (1944) Ann.Mag.nat.Hist. 11 : 532-551. (1945) Northwest Nat. 1945 : 137-144. (1947) ibid. 1947 : 226-234. (1967) Trans.Cave Res.Gp. 9

TURK, F.A. & TURK. S.M. (1958) The Foreshore of Cawsand Bay & district its fauna and flora. Plymouth.

THEOBALD , F.V. (1912) Jl.S.-east.agric.Coll.Wye 21 : 111 - 220.

VARTY-SMITH (1919) Trans.North.Staff.Fd.Club 1918-1919 : 89-90.

VERHOEFF, K.W. (1911) Zool.Anz. 38 : 455-458. (1912) Trans.nat.Hist. Soc.Northumb. 4 :143-167.

VAITILINGHAM, S. (1960) Thesis: University of Southampton.

WATERSTON, A.R. (1936) in Forrest, J.E. Waterston, A.R. & Watson, E.V. - Proc.R.phys.Soc.Edinb. 22 : 271. (1939) Scott.Nat. 132.

WELCH, R.C. (1968) Ann.Rept.Hunts.Fauna & Flora Soc. 21 : 24-27.

WORTHINGTON, E.B. (1928) Nat.Hist.Wicken Fen Cambridge 4 : 308-312. (1938) Vict.History County of Cambridge & Isle of Ely. 1 : 87-88.

Some Notes On The Chilopoda Of South East England.

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The following is an attempt to describe, as far as it is known, the chilopod fauna of South East England. It is based on available literature and on collections made by the author and others and is undoubtedly incomplete in several respects.

Introduction

This part of England is one of the better known areas of the British Isles at least as far as the chilopod and diplopod fauna is concerned. Out of the 47 species of centipede described from Britain 34 are known from Kent, Surrey or Sussex. However other counties in the South East are much less well known especially those North of London. Thus for instance only three species are recorded from Bedfordshire. Fig. 1 shows the total numbers of species from the various counties.

The comparatively large number of species known is obviously in part due to extensive collection over the years made by various workers but also to the nature of the area. It has a variety of urban, semi-rural and rural habitats, a large number of soil and vegetation types, and localities where introduced species could become established. It is also of course, that part of Britain nearest to the European mainland.

Of the 13 species not recorded from the aforementioned counties one (Scutigera coleoptrata, an obvious introduction) is known from Essex, some are of doubtful status, and about two thirds are known from the South West of England.

Our species may be conveniently, if approximately, divided into four categories:

1. Species widely distributed and common in most of Britain but not necessarily in all parts - the majority of our types.
2. Species confined to a more or less restricted area of the British Isles but apparently indigenous and more or less common there.
3. Species known from several widely scattered localities but nowhere common. Some of these may be introduced but their precise status is impossible to determine with our present knowledge.
4. Species known from one or a few sites only: includes some species which are almost certainly introduced but others could be native.

In the succeeding list all county and European distribution notes are based on Eason (1964) unless otherwise stated. The exception to this is in the case of Surrey, Sussex and Kent where they are based on the author's paper (Barber, 1969) and unpublished notes. The appendix includes references to South Eastern species of which I am aware.

1 Widespread Species

Haplophilus subterraneus (Shaw)

Although recorded from Kent, Surrey, Sussex, Hampshire, Middlesex and Essex the majority of records are from synanthropic habitats. Despite extensive collecting it has been recorded only 12 times in Western Surrey, mostly but not exclusively, from town sites and Cloudsley-Thompson's (1954) record is from his garden. Eason (1957) found it in Hastings and St. Leonards and it has also been found in a car park in the former town (unpubl.)

Fig. 1
South Eastern counties & total species known from each

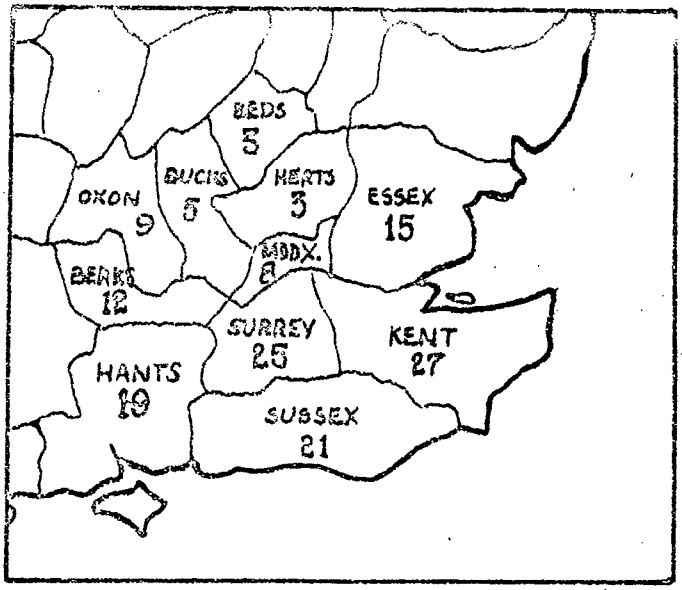


Fig. 2
Known British distribution of *Lithobius muticus* C.L.K. (10 km. grid squares)

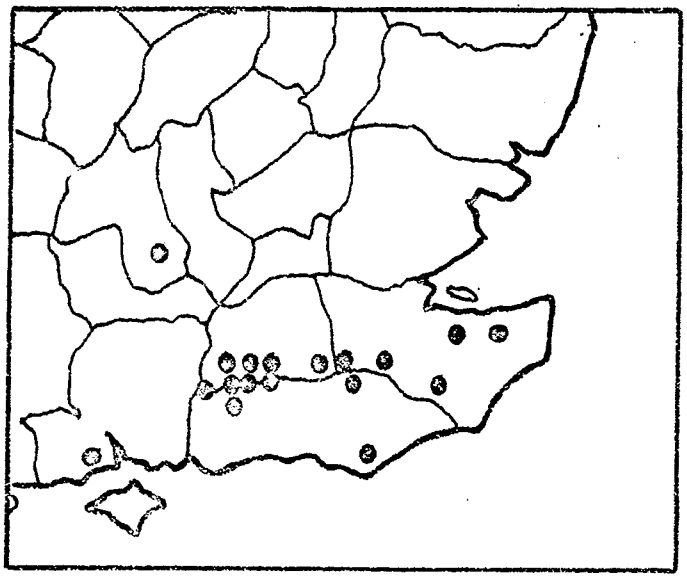
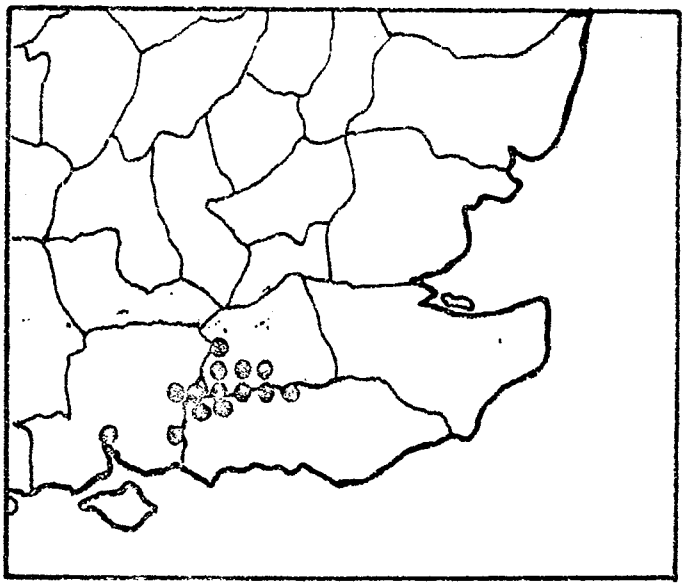


Fig. 3
Known distribution of *Lithobius piceus piceus* in Britain



In Hants Vaitilingham (1960) failed to find it in his New Forest localities, recording it only from Southampton, despite Pocock's (1906) record from the former. It has, however, been found in a beech hanger in the N.E. of that county. In Kent it has only been found at Petts Wood (Greater London) not in the rest of the county. Pocock (1903) remarked on the absence of this species in Essex although it has recently been found in the extreme N.E. (Barber, 1968).
This pattern contrasts markedly with the situation in more Westerly counties (unpubl. and various) also the species is widespread and common in many woodland habitats. The comparative scarcity in our area especially the virtual absence of Kent records (despite fairly extensive collecting in both urband and rural areas) suggests that it may be nearing the edge of its range eastwards and that this is why it is largely synanthropic here.

Schendyla nemorensis (C.L. Koch)
A species widespread in England this has been found in all the South Eastern counties and Watsonian vice-counties South of the Thames (Berks, Hants, Surrey, Sussex, Kent) and also from S.Essex. Widespread although possibly not common as far as can be determined.

Strigamia crassipes (C.L. Koch)
Generally distributed in Southern Britain this species is recorded from Surrey, Sussex (E and W), Kent, (E and W), Herts, Bucks and Essex (N and S). Like the next species this is typically a woodland type though not exclusively so.

S.acuminata (Leach)
Unlike the preceding this species is widespread in both South and North London. It is here recorded from Hants, Surrey, Sussex (E and W),Kent (E and W), Bucks and Essex (N and S). Neither species appears to be very common but both consistently turn up in collections from different parts.

S.maritima (Leach)
This littoral species is known from many parts of the British Isles. In the South East there are records from East Sussex (Eason, 1957; Leurs 1960) and from the North and Channel coasts of Kent (J.G. Lewis, pers.comm; A.D.B. unpubl.) also one record from N.Essex (Pocock'1903). More extensive collecting will probably show it to occur on most parts of the coast of Southern England.

Geophilus carpophagus (Leach)
A species widespread in much of Britain, characteristic habitats being woodland and acid heath. Known from Hants, Surrey, Sussex (E and W), Oxon, Beds and Essex (S). In Kent it is not as common as would be expected in suitable habitats but it is not yet possible to consider the significance of this. Interestingly, although all the Surrey records are away from houses two in East Kent are from a cool greenhouse and from inside a cottage.

G.electricus (L.)
Known from scattered localities in various parts of Britain. Many of these records, but by no means all, are from urban or garden areas. In the South East it is known from Surrey (2 gardens, 1 Waste ground) Kent (Stone, Brade-Birks, 1918; village centre, unpubl.) and Middlesex. It is therefore at present difficult to assess its status.

G.insculptus Attems.
This species occurs in many parts of Britain but is probably more typical in the North rather than the South of England. It is however recorded from Hants (North, 1 record), Surrey (11 records), Kent (2 records) (from Maidstone), Middlesex and Essex (N and S). Many, but not all of these records would suggest that it is synanthropic.

Necrophloeophagus longicornis (Leach)
Found throughout England this species has been recorded from all S.E. counties except Bucks and Beds. Common in Surrey (36 records), it is by far the most abundant geophilomorph in all parts of Kent from which collections have been made (51 records). On the other hand Vaitilingham (op.cit.) found it to be rare in Hampshire.

Brachygeophilus truncorum (Bergsoe & Meinert)
Typically a woodland species this has been recorded in all parts of England and in all the S.E. counties except Middlesex and Herts. It has been found, often abundantly, in most woodlands examined in Hants, Surrey, Sussex and Kent as well as in other habitats. Comparatively few records (14) exist for the latter county, probably due to a failure to sample suitable habitats.

Cryptops hortensis Leach
Known from most parts of England including Hants, Bucks, Surrey, Sussex, Kent, Middlesex and Essex (S) as scattered records from a variety of habitats. Often abundant in gardens, waste sites etc. at certain times of the year.

Lithobius variegatus Leach.
This species, known so far only from the British Isles and Channel Islands, has been recorded from every English county except Lincs. Northants, Beds, Cambs, Norfolk, Essex and Middlesex (i.e. the Eastern counties; there is only a single record from Suffolk). It is extremely common in Surrey and all counties Westward in all suitable habitats that have been examined (i.e. rural areas especially woodland). It is also very widespread in Kent but does not seem to occur in every likely site in the extreme East of that County. North of London there are two records from Bucks and one from the extreme West of Herts. This is unlikely to represent its Eastward limit since few collections have been made in Herts or Beds. Further North it is known from Huntingdon (Welch 1968) and there is the one record from a garden in East Suffolk (Morley 1943). Pocock (1903) who had collections from a number of sites in that county, remarked on the absence of this species from Essex.

L.forficatus (L.)
Known from all English counties except Middlesex and Herts (and there, obviously only due to lack of collections) this is common in both urban and rural sites in the South East although where that species occurs it tends to be in association with, or more or less replaced by, L.variegatus.

L.melanops Newport.
This animal is known from most parts of the British Isles. In the South East it has been recorded from Berks, Hants, Sussex, Surrey and Kent. It is fairly widespread although there are not large numbers of records, (Surrey 16, Kent 13). It occurs in a variety of habitats both rural and urban and is common in gardens. Cloudsley-Thompson (1956) found it indoors.

L.lapidicola Meinert
Scattered records of this species exist for most parts of the British Isles although it seems to be commoner in the West. Unlike L.melanops it tends only to occur away from gardens although like that species often in fairly superficial micro-habitats. Known from Hants, Berks, Surrey (5 records), Sussex, Kent (2 records including that of Brade-Birks, 1918).

L.calcaratus C.L. Koch
Known from various counties in England, Wales and Scotland, this species has been recorded from Berks, Hants, Surrey, Sussex, Kent and Essex. There are only two or three records from most of these counties at most suggesting that it is by no means a very common animal in the S.E.

L.crassipes L.Koch
This species appears to have been recorded from much of Britain with the possible exception of parts of Wales, S.W. England, parts of Scotland (where comparatively few collections have been made) and Ireland except the N.E. In Eastern England it is probably the commonest lithobiid, with the possible exception of L.forficatus, in all habitats except gardens and urban areas. It has been recorded from all the S.E. counties except Middlesex and Herts. Most of the records from this area, for which details are available, seem to be from the litter of deciduous woodland. In Kent, Surrey, Sussex and Hants it is widespread but by no means common, even though in the woodlands in which it occurs, it is often abundant. From Surrey there are a total of 11 records, in Kent 4. Vaitilingham (op.cit.) only found it in one of his sites although it occurred in 63% of his samples there. It is possible that it is partially or wholly replaced by L.duboscqui or sometimes L.curtipes in much of this area.

L.curtipes C.L. Koch
It is possible that this species should be considered in group 3 since it has only been recorded from 9 English and 5 Welsh counties. It is known from Hunts (Welch, loc.cit.) Warwick, Glos, Cambs, Yorks (N.E.) and in the S.E. from Kent, Surrey, Sussex and Hants. Obviously, as Eason (1964 p. 241) remarks, it has in the past been confused with the previous species so that this does not represent its true distribution, indeed it would be surprising if it did.
Vaitilingham (op.cit.) found it in 5 out of 8 vegetation types at Denny Reserve but not at Chilworth Common (where L.crassipes occurred) and it was obviously one of the commonest centipede species there. In Sussex Eason (1957) found it in Wilmington wood with L.crassipes and J.G. Lewis (pers.comm.) has a record from Ashurst Wood with L.muticus and others. The two Surrey records, both from deciduous woodland, were made with only one or a few species from each site. In Kent there are two records from woodland in the East. In the first, two females were collected in company with L.variegatus, L.forficatus and L.muticus: in the second, it was abundant together with L.variegatus and L.duboscqui. It would appear from this that the ecological requirements of this species are not necessarily the same as those of L.crassipes although further work on these two species is obviously required. In Notts, Leics and Lincs although L.crassipes is very abundant, L.curtipes has not been recorded (unpubl.)

L.duboscqui Brolemann
A widespread species known from all but 12 English and Welsh counties, this has been recorded from all parts of the S.E. except Bucks and Beds. In Surrey and Kent it is very common in both urban and rural areas (52 and 41 records respectively) and appears to take the place of L.crassipes in woodland etc. at least to some extent. Its status North of the Thames is difficult to establish; Pocock (1903) did not record it from Essex although it has since been found in a village in the N.W. of that county (Barber, 1968).

Lamyctes fulvicornis Meinert.
Known from 14 counties in England and Wales, also from Scotland (5) and Ireland (9), there are records from Surrey (1) and Kent (3). Probably much more common than these records would suggest.

II Local Species
Species restricted to one area of Britain.
There are about six undoubtedly native species whose local distribution in this county can be more or less defined with our present knowledge Lithobius piceus piceus and L.muticus appear to be more or less confined to the South East. L.pilicornis is mostly a species of the extreme South West and South Wales but has also been recorded from various parts of S.E. England.

Lithobius piceus piceus C.L. Koch
Although a subspecies L.piceus brittanicus was described by Bagnall (1913) from Northumberland and Durham this does not appear to have been subsequently recorded. Vaitilingham (op.cit.) recorded more than 50 specimens of L.piceus from Chilworth Common, Hants, and mentioned that it was definitely not Bagnall's form but L.piceus piceus. It has subsequently been found in Surrey, where it is extremely common in or near deciduous woodland in the S.E. of that county (more or less replacing L.forficatus in these sites) and occurring as far East as just beyond Gatwick Airport. It has also been recorded from neighbouring parts of Hants and West Sussex but has not been found in Kent despite fairly extensive collecting. Its known 10 k.m. distribution is shown in Fig. 2. The few collections made in South and East Sussex and North Surrey have not revealed this species so although it is not certain where the boundary of its range lies it would seem to be more or less confined to Hants, Surrey, North and West Sussex. It occurs in Northern France and the Alps and is common in Central Europe (Brolemann, 1930). Jeekel (1971) found it in South Limburg (Holland).

L.muticus C.L. Koch
This species was first collected in Britain by Roberts (1956) from the New Forest. Eason (1957) also recorded it from Wilmington Wood (East Sussex) and Wytham Woods (Berks). Subsequently it was recorded from N.E. Sussex (Lewis, unpubl.) and Oxfordshire (Eason, 1964). Since then it has been found elsewhere in Sussex, 24 times in Surrey and East and West Kent (Fig. 3). It occurs in both Western and Central Europe.

L.pilicornis Newport
Originally considered to be confined to the extreme West (Cornwall and Pembroke) it has been found in Glamorgan (E.H. Eason pers.comm.) and Devon (Revell 1965: unpublished). There are also synanthropic records from Oxfordshire (Bampton; E.H. Eason, pers.comm.), Sussex coast (Brighton, E.H. Eason, unpubl.; Rye, unpubl.) and North Kent Coast (Faversham, in a house, unpubl.). Known also from the West coast of France and the Iberian peninsula.

III Scattered Species
Species from widely scattered localities but not common.
The precise status of these is difficult to establish. Possibly some are introductions, though others are undoubtedly native. About twelve British species come into this catebory, some from the South East.

Schendyla peyerimhoffi Broleman & Ribaut.
Known only from coastal Devon and Sussex (Lewis, 1961) but likely to have been confused in the past with S.nemorensis. Recorded from North Africa and Portugal.

Chaetechlyne vesuviana Newport
Single records of this species exist from Hants and suburban Kent, (specimens in British Museum (Nat.Hist.) E.H. Eason pers.comm.)
It has also been recorded from the Isle of Wight (Barber, 1967a) and Devon (Bagnall, 1912; Blower, 1961). Occurs in Central Europe, Iberia and Mediterranean region.

C.montana oblongocribellata Verhoeff.
Recorded from urban gardens in Middlesex, Surrey and Kent, and also from more rural sites in Cornwall (Turk, 1944) and Somerset (Barber, 1967b). It is also recorded from the Alpes maritimes and Tyrol.

Clinopodes linearis (C.L. Koch)
Very abundant in at least one site (a garden) in Surrey it has also been found at one other site in that county (urban) and in Middlesex (coll. J.C. Felton, unpubl.) All these synanthropic habitats. It has also been collected from Northumberland, Durham and Yorkshire (Bagnall, 1935) Devon (Leurs, 1962) and Cornwall (Turk, 1944). It has a general European distribution but especially the Mediterranean region.

Geophilus fucorum seurati Brolemann.
Lewis (1961) recorded five specimens of this littoral species from Cuckmere Haven, Sussex and one from Whitstable, Kent. It is also known from Caernarvonshire, Isle of Man, Galway, (Eason, 1964) and Devon (Lewis, 1961). Recorded from Algeria and the Mediterranean coast of France (in the latter case as G.fucorum fucorum Brol.

G.algarum Brol.
Considered by Lewis (loc.cit.) to be probably conspecific with G.forcorum is known from the French Atlantic and Channel coasts.

Cryptops anomalans Newport.
All British records of this species are from the South East but they are all from urban localities and involve one or two specimens only in most cases. Known from Surrey (Pocock, 1902, Barber, 1969). Sussex and London (Eason, 1957). Middlesex (Felton, 1965) and Essex. (Barber, 1968). It is found in Europe generally. Although likely to be an introduced species it is possible that it is, in fact, an uncommon native type having a preference for synonthropic habitata as appears to be the case with C.hortensis (Eason, p.156) and may be more or less confined to this part of Britain.

C.parisi Brolemann
Known from Kent (unpubl.) and Middlesex; also from Devon, Lancs, Westmorland, and Glamorgan. May well be an introduced species (Eason, 1964, p. 160.)

Lithobius aulacopus Latzel.
In the S.E. this species has been recorded from woodland in Kent (unpubl.) and Berks. Also known from Hunts (Welch, loc.cit.) Hereford, Radnor, Brecon, Caerns, Lancs, and Kincardine. Since it is known from Europe generally it is likely to be quite widespread in Britain.

Scutigera coleoptrata (L.)
An introduced species known from a house in Colchester, Essex, also from Cheshire (J.G. Blower, pers.comm.), Aberdeen and Edinburgh.

IV Species known from one or a few sites only

Brachyschendyla dentata Brol. & Rib.
Extracted from soil samples from three sites in Surrey, two urban one more or less rural, (Barber and Eason, 1970 and unpublished). Due to its small size and subterranean habit it may have been overlooked elsewhere. It is known in Europe only from two sites in France and from Holland (Jeekel, 1971).

Pachymerium ferrugineum (C.L. Koch)
Collected by Lewis (1960) from Cuckmere Haven, Sussex this species is known from most of Europe but not the French Atlantic Coast.

Geophilus pusillifrater Verhoeff.
Another species known only from Cuckmere Haven (Lewis, 1961) also from Yugoslavia.

Remaining British Species

Of the remaining British species Lithobius tricuspis Meinert and Chalandea pinguis Brolemann are known only from South and North Devon respectively (Eason, 1965; British Myriapod Group, this Bulletin) Schendyla zonalis Brol & Rib. from S.Devon and Dorset coasts (Bagnall, 1935); Brachyschendyla monoeci (Brolemann) from a greenhouse in Cornwall (Turk, 1944); and Nesoporogaster souletina brevior Eason from a garden in the same county (Eason, 1962). Geophilus osquidatum Brolemann is known from a number of sites in the West of England and may probably occur in the South East and the littoral Hydroschendyla submarina (Grube) has so far been distinguished in Cornwall, Devon and Yorks.

Lithobius erythrocephalus C.L. Koch is known from Northumberland, Cardigan and Midlothian; it may well be indigenous (Eason, 1964) Dicellophilus carniolensis (C.L. Koch) an introduced species, has been recorded 3 times from N.England and Scotland.
The precise status of Lithobius nigrifrous Latzel and Haase, L.agilis C.L. Koch and L.borealis Meinert in Britain is not clear (Eason op.cit.)

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REFERENCES

The majority of the authorities referred to are to be found, together with others not mentioned, in the appendix. The following are in addition to these:

Bagnall, R.S. (1912) Zoologist, 1912 , 264-266.
(1913) Trans.V.Derwent nat.Fld.Club (N.S.) 1 (2) 116-28.
(1935) Ann.Mag.nat.Hist. (Ser.10) 15 473-9.
Barber, A.D. (1967a) Entomologists'mon.Mag. 103, 67.
(1967b) Entomologists'mon.Mag. 103, 122.
Blower, J.G. (1961) Ann.Mag.nat.Hist. (Ser.13) 4 183-7.
Cloudsley-Thompson, J.L. (1956) Entomologists'mon.Mag. 92 193.
Eason, E.H. (1962) Proc.zool.Soc.Lond. 138 123-32.

Eason, E.H. (1964) Centipedes of the British Isles London.
(1965) Ann.Mag.nat.Hist. (Ser.13) 8 285-95.
Jeekel, C.A.W. (1971) Ent.Bericht. 31 191-202.
Morley, C. (1943) Trans.Suffolk nat.Soc. 5 (2) 86-7.
Pocock, R.I. (1902) Vict.Hist.County of Surrey 1 176.
Revell, R.J. (1965) Rept.Trans.Devonshire Assoc. 97 163.
Turk, F.A. (1944) Ann.Mag.nat.Hist. (Ser.11) 11 532-51.
Welch, R.C. (1968) 21st Annual Rept. Huntingdonshire Fauna & Flora Society 24-27.

APPENDIX - Some Sources of S.E. Records.

Hampshire (Vice-counties 11, 12)

Pocock, R.I. (1906) Vict.Hist.County of Hampshire & I.O.W. 1 163.
Delany, M.J. (1956) J.Anim.Ecology 25 112.
Roberts, H. (1956) Ph.D. Thesis, University of Southampton.
Vaitilingham, S. (1960) M.Sc. Thesis, University of Southampton.

Sussex

Eason, E.H. (1957) Hastings Naturalist 8 (6) 204-9 (refs.to earlier records)
Lewis, J.G.E. (1960) Entomologists'mon.Mag. 95 206.
(1961a) Proc.zool.Soc.Lond. 137 221-48.
(1961b) Ann.mag.Nat.Hist. (Ser.13) 4 393-9.
(1962) J.mar.biol.Ass.U.K. 42 655-64.

Kent (V.C. 15, 16)

Theobald, J. (1912) J.S.E. Agric.coll.Wye 21 167.
Brade-Birks, H.L. & S.G. (1918) Lancs.Chesh.Nat. 11 152-65, 186-99.
Brade-Birks, S.G. (1929) J.S.E.Agric.coll.Wye 26 178-216.
Lewis (1960)
An account of Chilopoda and Diplopoda in Kent is in preparation by R.D. Kime and A.D. Barber.

Surrey (V.C. 17)

Barber, A.D. (1969) Entomologists'mon.Mag. 105 85-92 (refs. to earlier records)
Barber, A.D. & Eason, E.H. (1970) J.nat.Hist. 4 79-84.

Essex (V.C. 18, 19)

Pocock, F. (1903) Vict.Hist.County of Essex 1 193.
Barber, A.D. (1968) Entomologists'mon.Mag. 104 268.

Hertfordshire (V.C. 20)

Middlesex (V.C. 21)

Eason (1957)
Felton, J.C. (1965) Entomologists'mon.Mag. 101 48.

Berkshire (V.C. 22)

Eason (1957)
Records and papers of Bureau of Animal Populations, Oxford University.

Oxford (V.C. 23)

Brade-Birks, H.K. & Brade-Birks, S.G. (1917) Lancs.Chesh.Nat. 10 113.

Buckinghamshire (V.C. 24)

Bedfordshire (V.C. 30)

Cloudsley-Thompson, J.L. (1950) Entomologists' mon.Mag. 86 319.

Unpublished records

A.D.B. (11, 13, 15, 16, 22, 23, 24) : E.H. Eason (16, 18, 19, 20, 21, 22, 23, 24): J.C. Felton (15, 21) : R.D. Kime (11, 13, 14, 16, 17, 20, 24) : J.G.E. Lewis (14, 15, 16) : British Museum (N.H.) (Various - E.H.E.) R.Williams has records from Bucks. (V.C. 24); these were not available when this account was prepared.