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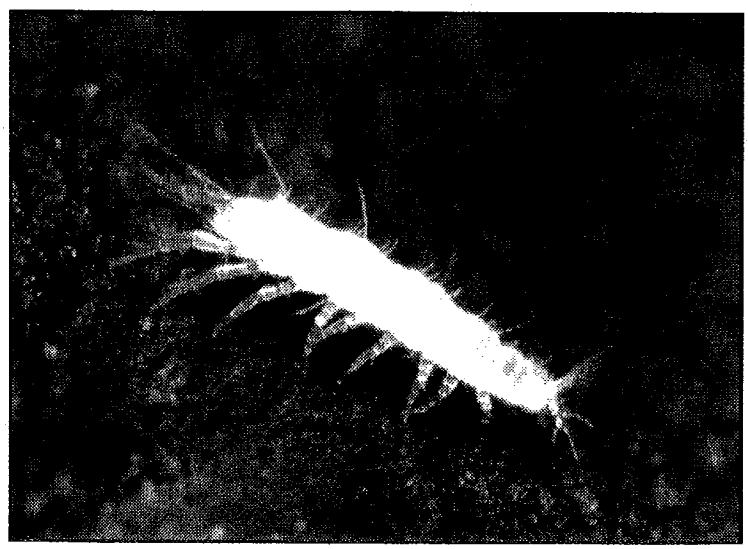

Volume 20 (2004)

CONTENTS

Cover photograph of *Stylopauropus pedunculatus* © Steve Hopkin

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C/o A.D. Barber, Rathgar, Exeter Road, Ivybridge, Devon. PL21 0BD. UK.
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EDITORIAL

During the past year the Myriapod world lost another Grand Master in Bruno Condé. Condé worked in France on the Penicillata or bristly millipedes and contributed greatly to the knowledge of this group of tiny animals.

Following the Myriapod based celebratory Bulletin of last year it is good to have several Isopod contributions for 2004 including one on aquatic isopods. There is a decidedly Celtic flavour to the volume too, with several reports from Scotland and Wales. We are continuing the new format for the Bulletin this year and hope that you are all pleased with it; comments and suggestions would be welcome. Please remember that contributions to future Bulletins are welcome and should ideally reach the editors by 1st January for inclusion in that years volume. We would also welcome drawings or photographs for the front cover.

In the coming year we look forward to widening our horizons to Galicia, Spain for a collecting trip to try to fill in some of the blank squares on the European Atlas (and see how many British species we can find!). There is a meeting in Görlitz, Germany entitled Myriapods in Europe: Habitats and Biodiversity and of course the British Myriapod and Isopod Group AGM weekend at Easter, this year in Buckinghamshire.

OBITUARY

PROFESSOR WILLIAM DAVID [BILL] WILLIAMS
1936-2002

Bill Williams may be an unfamiliar name to most BMIG members, but he provided much of the basis of our understanding of the distribution and ecology of freshwater isopods (*Asellus* spp) in Britain and Ireland. His contribution of keys and descriptive notes on *Asellus* to the Freshwater Biological Association's 1960 *Key to the British species of Crustacea: Malacostraca occurring in fresh water* has stood the test of time well, being republished with amendments and important additions in 1976 and 1993, the last being still in print.

Bill Williams was a Liverpudlian, but he emigrated to Australia in 1961, soon after completing his PhD at the University of Liverpool on the ecology of *Asellus aquaticus* and *A. meridianus*. He had a distinguished academic career and was appointed to the Chair of Zoology at the University of Adelaide in 1975, when only 39, and produced more than 250 publications. He retired (nominally) from Adelaide in 1994 and died in Brisbane on 26 January 2002. Perhaps his most fundamental message in freshwater ecology was that half the water bodies of the world are closed saline systems, unlike, and no less important than, the 'normal' freshwater systems that flow to the sea.

His early work on *Asellus* in Britain for his PhD led to the FBA *Key*, and to six other publications (see below) on British *Asellus*. This work formed the basis for county distribution maps of *Asellus* included in only the first edition of the *Key*. It was the more detailed data, underlying these simplified maps that he generously passed to me in the 1970s. At that time I was working with Professor H.P. Moon to produce our *Preliminary review of the occurrence of Asellus in the British Isles*, published in 1981. I still have the original cards of distribution records that Bill Williams compiled for his PhD.

Bill Williams will be remembered with affection, respect and gratitude by those that knew him. His contribution to BMIG's activities through his work on British *Asellus* deserves to be recognised, but we also need to get out there again with our pond nets to finish the task that he (and Philip Moon) helped to start.

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Paul T Harding
Biological Records Centre
CEH Monks Wood

DISTRIBUTION OF FRESHWATER ISOPODA IN BRITAIN AND IRELAND

Paul T. Harding

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INTRODUCTION

The British Myriapod and Isopod Group (BMIG) is concerned mainly with terrestrial taxa: millipedes, centipedes and woodlice. It is easy to forget that the recording scheme which includes woodlice is in fact intended to cover 'non-marine isopods', and includes four species of freshwater isopod (water hoglice). This paper provides a brief summary of progress with recording these four species.

NOMENCLATURE AND IDENTIFICATION

For simplicity, we follow Gledhill *et al*. (1993) in retaining the genus *Asellus* for all four species although *Asellus* is now considered by many authors to include several distinct genera. Three species are native: *Asellus aquaticus* (L.), *Asellus cavaticus* Schiödte and *Asellus meridianus* Racovitza. The fourth species, *Asellus communis* Say, was apparently introduced from North America and is currently known from only one site in Northumberland. Several species described from Britain as new to science by W.E. Collinge have been shown to be synonymous with *A. aquaticus* or *A. meridianus*, or with the woodlouse *Androniscus dentiger* Verhoeff (see Moon & Harding 1981).

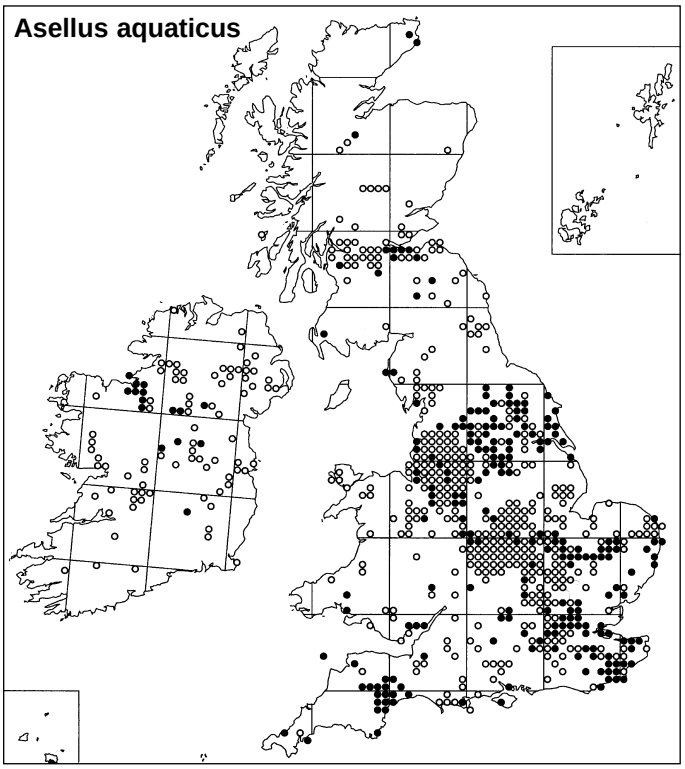
The species are not difficult to identify and excellent illustrated keys are included in Gledhill *et al*. (1993). However, the occurrence of one introduced species (*A. communis*) suggests that it is possible that other species (even other genera) of freshwater isopod have been introduced, or may be in the future. Because of the number of other freshwater organisms that have been introduced to Britain and Ireland, recorders should always be careful to check even apparently common species.

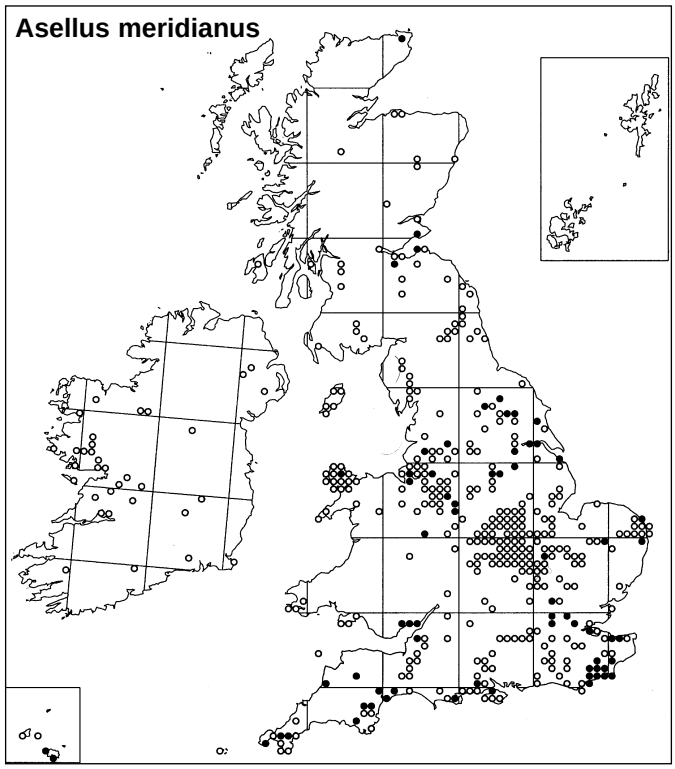
DATA AND MAPS

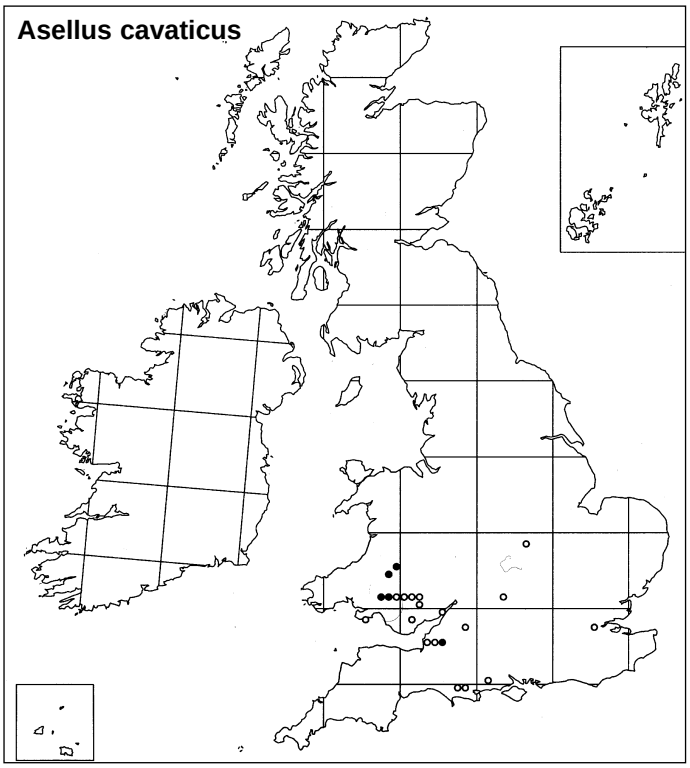
In common with other collated BMIG datasets, data for *Asellus* are currently managed on behalf of BMIG by the Biological Records Centre at CEH Monks Wood. Moon and Harding (1981) reviewed the existing data for all species of *Asellus* in Britain and Ireland, including original records from W.D. (Bill) Williams (see Obituary, pp 2). The data for *A. cavaticus* were updated for two subsequent publications: Harding (1989) and Proudlove *et al*. (2003). A small number of records of *A. aquaticus* and *A. meridianus* have been added to the database since 1981 (H.R. Arnold pers.comm.).

The overall coverage of records has not changed significantly since 1981, due mainly to a lack of recording. Few BMIG members record in freshwater and therefore are not equipped to sample water-bodies. The National Biodiversity Network is promoting increased collaboration between separate freshwater recording initiatives to collate data, and if appropriate to identify specimens. It is hoped that BMIG will be able to increase existing knowledge of the distribution of all species of *Asellus* in Britain and Ireland through targeting a little of our own our own recording and working with others interested in freshwater macro-invertebrates.

Figures 1, 2 and 3
The distribution maps separate records on the year 1980:
Circle = Records before 1980
Dot = Records from 1980 to present.
A. communis is not mapped; it occurred at Bolam Lake (NGR NZ080818).







WHY BOTHER, OR THE 'SO WHAT?' FACTOR

Proponents of studies based around the distribution of uncharismatic or common species often encounter active or implied criticism; the question "So what?". The following highlights issues which deserve investigation, even for these species.

- The status of *A. cavaticus* should be monitored together with the very small number of other obligate subterranean taxa in Britain (see Proudlove *et al*. 2004).
- The status of *A. communis* in Britain should be assessed in the context of being a potentially invasive species.
- The range and status of *A. aquaticus* and *A. meridianus* should be re-examined in relation to their potential as competitor species.

ACKNOWLEDGEMENTS

I am very grateful to Henry Arnold at BRC for updating the data and providing the maps.

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BIOLOGICAL DATA ON BRITISH CENTIPEDES RECORDED IN HIS NOTEBOOK BY J. GORDON BLOWER BETEWEEN 1948 AND 1975

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INTRODUCTION

Amongst Gordon Blower's effects that were passed on to Helen Read is a hard covered University of Manchester notebook containing 231 pages of hand-written field and laboratory notes on British centipedes and millipedes covering the period from16 June 1948 to 4 November 1964. An index of localities comprises pages 228-231.

In additional to a lot of locality data the notebook contains a number of biological observations which, as far as I am aware, have not been published. Information has previously been extracted as indicated by an entry on p. 227, which reads: 'note entered 2 May 1988. The cards which Colin's [Colin Fairhurst] student abstracted from this book include references to p. 224 - so were probably made after 9.75'. Much of the Yorkshire data appears in Blower's (1955) seminal paper on Yorkshire centipedes. In some cases he omitted biological data and where this was the case I have included the Yorkshire entries.

The notes that I consider to be of biological interest are given here, as far as possible as written, under Lithobiomorpha and Geophilomorpha with page number and date. The entries under each order are further listed under Habitat, Morphology, Colour etc., so some entries appear twice. Each tube in Blower's collection appears to have been numbered and these numbers (A1-A1000, C19-C28, M1-M7 and D1-528) are written on the right hand side of each page of the notebook. They are not quoted here. Blower gave the number of pairs of legs immediately after the sex of the specimens e.g. *Geophilus electricus* ♀ 69.

My additional comments and explanatory remarks are here placed in square brackets. For lithobiomorphs I have used imm to denote an immature and larv to indicate a larval individual.

The nomenclature used by Blower has not been changed in the transcript. Current nomenclature is given by Barber (2003) and is as follows:
Lithobius duboscqui = L. microps Meinert
Lithobius lapidicola = L. borealis Meinert
Lithobius aulacopus = L. macilentus L. Koch
Lamyctes fulvicornis = L. immarginata (Newport)
Scolioplanes acuminatus = Strigamia acuminata (Leach)
Necrophloeophagus longicornis = N. flavus (De Geer)

Specimens assigned by Blower to *Geophilus carpophagus* may have been either that species, or the recently described *G. easoni* Arthur et al (Arthur et al 2000). The species are separable on the number of leg-bearing segments (*G. carpophagus* ♂51-55, ♀53-57. *G. easoni* ♂47-49, ♀49-51) and as Blower frequently gave leg numbers in his notes it is possible to assign some of his '*G. carpophagus'* to the correct species. All those for which leg numbers were given are, in fact, *G. easoni* (see Records of *Geophilus easoni* below). Leg numbers were not given for the '*Geophilus carpophagus*' recorded with young so may be either species (see Brooding below). The records from the Wirral and the hills of the Lake District refer in all probability, however, to *G. easoni*.

LITHOBIOMORPHA

Habitat

p. 3. 28.8.48 Cheadle Hulme [Cheshire]. Dr and Mrs Peel's garden.
Lithobius Duboscqui Brolemann 1896. Beneath blackcurrant bushes 6 inches to one foot beneath surface of soil.

p. 9. -.8.49 (4.49). Lundy Island. From Mr Gilbert.
Mr Gilbert noticed that *L. forficatus* was rare on the island, the common form being *L. variegatus*. One specimen only was collected and this from Millcoombe [Farm] which is the only inhabited part of the island. It seems that *L. forficatus* replaces *L. variegatus* in regions extensively affected by man. Cf. Coterrill [?] Clough, [excursion with Altringham Field Society] a reserve where *L. variegatus* is still dominant.
This conception cuts across my original idea that *L. variegatus* occurred at higher altitudes or under moorland conditions. NB Brade-Birks (Oct 1919) *Lancs. & Ches. Nat. L. variegatus* "——the idea that this is a moorland species is gradually being dispelled by records of its occurrence in other situations." [Blower (1955) wrote of *L. forficatus* 'frequently occurs in habitats associated with man's activity'].

p. 76. 2.9.52. North Riding [Yorkshire], Oulsten Bank Wood on right hand side of.
Lithobius common in soil – of the few captured: *L. crassipes* 2♀, 1♂. *L. curtipes* 1♀.
Mixed deciduous wood just thro' Olstead (0.5 mile).
Lithobiids very common in soil. Only two captured. *L. curtipes* 1♂, *L. crassipes* 1♀. [Blower (1955) noted that *L. crassipes* was perhaps the most typical *Lithobius* in rich litter but did not mention soil.]

p. 95. 15.8.52. Suckley, Worcestershire. Under logs and stones in garden. *Lithobius variegatus* [and] *Lithobius forficatus* together. One imm just moult 15 [presumably *L. variegatus*].

p. 140. June 1957. Lake District, Far Sawrey.
Lithobius aulacopus 12 ♀♀. 1 imm ♀15, 2 larv 12. 3 damaged specimens (2♀♀ and one without anal legs).
Lithobius crassipes 7♀♀, 1♂.
Lithobius lapidicola 1♂.
The above three lithobiids were found in the soil a few feet up into Station Scar Wood from the roadside – All together! Duration of collection 20 mins [includes 9 millipedes].

p. 144. 26.7.57. Chee Dale, Derbyshire. In Mole's Hills in clearing. *Lithobius crassipes*. 1 imm newly moulted.

Morphology

p. 48. 9.4.51. Crayke Wood, N. Riding [Yorks.].
Lithobius sp. Like *forficatus* in key otherwise *L. piceus britannicus* but only the mere vestige of an accessory claw on fifteenth leg. Coxal pores 4.4.3. Teeth on coxost. of forceps 4+5. About the same size and proportions as *L. crassipes*.
Another *Lithobius sp*. as above.
[It is clear that Blower had collected two specimens that he could not assign to a species but I have no idea how significant these observations are. *Lithobius piceus* has a distinct accessory claw on leg 15; in *L. forficatus* it is vestigial (see Eason 1964). Blower (1955) notes that *Lithobius piceus britannicus* has been recorded only on one occasion from Northumberland and Durham by Bagnall (1913), 'a fairly large animal with bright yellow tibiae.' He makes no mention of the Crayke Wood specimens. Their identity remains uncertain].

p. 120 [No date but probably 4-11 August 54]. Malham [Yorks.]. Coll. Butler. Tarn House Plantation, under bark.
L. lapidicola 2♂, 2imm. Note imm do not have supernumerary spine but [?] 9th tergite still not produced. Curious variegation.

p. 140. June 1957. Far Sawrey, Lake District.
Lithobius aulacopus 12 ♀♀, 1 imm ♀, 2 larv 12, 1 larv 10. 3 damaged specimens (2♀♀ and one without anal legs) inner tooth further forwards, ultimate antennal article > 2 pen [ultimate]. Tenth tergite with angular post. lateral angles. All these present in this stadium quite clearly. NB No males. [Tony Barber confirms that no males have been found in UK].

p. 159. 18.3.51. Isle of Man, Port Erin District.
Lithobius lapidicola. Supplementary spine on left side only.

p. 160. Under stones adjacent to ploughed field on road to Port St Mary.
Lithobius melanops ♀. No 15 DpF and other three characters [?] OK also 3 imm ♂♂ about half adult length but with 15 [pairs of legs] diagnosed by 9,11 and 13 and mx teeth.

p. 199. Rothamsted. Coll. Madge (letter dated 5.9.62).
38 *Lithobius duboscqui*: 14 post larval (one has extra mxp tooth externally on right, one has an extra ocellus ant. to usual three RHS only). 8 larva II, 6 larva III and10 larva 4 (the last legs, whatever the larva appear to have telopodal glands).

Colour

p. 72. 10.1.51. Anglesey and Caernarvon. Gilbert. Newborough.
L. melanops ♀. Last tergum and head more amber than rest, light coloured, particularly sternites.

p. 89. 12-19.9.1953. Caernarvon.. P. M. Butler. Top of Clogwyn Mawr 1500 feet.
L. lapidicola. Note dark colour and variegation. This applies to all this species from this locality.

p. 120 [No date but probably 4-11 August 54]. Malham [Yorks.]. Coll. Butler. Tarn House Plantation, under bark.
L. lapidicola 2♂♂, 2imm. Curious variegation.

p.146. 11.8.57. Yorks. N. Riding. Under stones by Gliding post[?], Whitehorse. With nests of *Formica lehmani*.
Lithobius crassipes 2♂♂, 1♀, 2imm 15. Markings very striking – this didn't look like ordinary *crassipes* at first sight.

Food

p. 75. 22.8.52. Marple [Cheshire]. Torchlight survey 10.30pm in Ernocroft garden.
Two *Lithobius forficatus* seen feeding on slugs.

p.197. 1960. Far Sawrey. Copied from loose notes Ap[ril]l 1970.
L. variegatus seen feeding 4 feet up tree on a lacewing, big and green.

GEOPHILOMORPHA

Habitat

p. 3. 9.8.48. Appleby, Easingwold [Yorks.].
Haplophilus subterraneus Leach. Garden in soil 1-2 feet down.

p. 4. 15.9.48. Wythenshawe Park [Cheshire].
Haplophilus subterraneus. Several specimens occupying large cavity within a potato. No evidence that these are responsible for the damage.

p. 50. 31.12.1950. North Riding, Woodland at Rievaux. Foot of snow on ground.
Brachygeophilus truncorum. In soil after removing snow – one specimen quite active!!

p. 56. August 1951. North Riding [no locality]
Haplophilus subterraneus very numerous around the roots of potato plants. [Blower (1955) gave Easingwold, in rotten potato tuber 6.51 and in potato patch 2.8.51].

p.104. 21.1.51. Derby Road Fallowfield, Manchester. Walking on footpath.
Haplophilus subterraneus nicely extended.

Morphology

p. 53. May 1951. Newhaven, Derbyshire. Dr Butler.
Geophilus electricus (Linné) ♂65, ♂69, ♀69. ♀♀ much thinner than ♂♂.

p. 119. ND prob[ably] 10.54. Malham, Yorks. Coll. Butler.
G. insculptus 1♀. Note clypeus (prelabial zone curved round ventrally so that origin of antennae ventrally) [small sketch].

p.160.
Isle of Man. Port Erin District.
23.3.51. Just above splash zone (Spaldrick). At Sea Campion roots in coarse sand.
Geophilus electricus ♀ 69 (Brolemann gives carpophagus pit approximately from 8-20, this specimen only shows the structure clearly from (12)(13) 14-20). [Eason (1964) gives carpophagus pit from S5 or 6.]
23.3.51. Under stones adjacent to ploughed field on road to Port St Mary.
Geophilus insculptus ♀ 51, imm♂♂ 47, 49. Carpophagus pit in ♀ from (3)4-20. In immature ♂♂ extends only from (6)7-16.

p. 224. 20.5.60. Buckingham Palace Garden. Under low bush on ground.
Geophilus osquidatum ♂ 55, 23-24mm. 20-27 crenulations [on poison claw], 3+3 coxal pores. Anal claws very small. Carpophagus pit (?) only just visible. [This was the most easterly British record. It has now been recorded from Maidstone, Kent (Barber, 2001).]

Colour

p. 3. 9.8.48. Wilmslow [Cheshire]. Miss Mackel's [?] garden.
Geophilus insculptus Attems. Rear two thirds of gut filled with olive green material.
20.8.48. Poynton [Cheshire] Mr Ashby's garden. *Necrophloeophagus longicornis* (Leach 1814). One specimen with salmon pink contents of gut.
28.8.48. Cheadle Hulme [Cheshire] Dr & Mrs Peel's garden.
Geophilus insculptus 1895. Olive green guts.

p. 53. May 1951. Newhaven, Derbyshire. Dr Butler.
Scolioplanes acuminatus ♂ 39, ♀41. ♂ large red, ♀ smaller and yellow.

p.112. 31.8.54. Low Wood (nr. Witherslack), Grange District [Cumbria]. Oak..
B. truncorum 1♂ with 37, light yellow. 1♀ with 39, rich red brown!?

p. 183. 11.4.61. Gower, Glamorgan. Caswell Bay, Hollywood (Bishop's Wood).
Geophilus osquidatum ♂ 19.5 mm 55, ♀ 24.5 mm 59, ♀ 21.2 mm 59. Amber coloured for first twelve or so (corresponding to well-developed pits thence very pale "milky" cream (due to presence of eggs?). The light cream quite diagnostic.

Habitus

p. 174. 6.8.58. Achatenny Under stones and at grass roots on sheep pasture close to shore, sandy soil.
Schendyla nemorensis ♂ 19mm (39), ♂12.5 (39), ♀ 22.5 (41), ♀ 16 (41).
Cream coloured (except for head and anal legs) usually found in semi extended condition, cf. *Brachygeophilus*.
Brachygeophilus truncorum ♂14mm (37), ♂ 13.5 (37), ♂ 10 (37), ♀ 14.5 (39). Just going to moult ♀ 8.5 (39), ♀ 8 (39). Also 9 newly hatched specimens.
Found in typical "bunched-up" attitude cf. *Schendyla.* More yellow amber – no doubt a general impression given by the more heavily sclerotised ant. and post. sternite edges in region of the carpophagus pits.
Note the constancy of segment number in above two species.

Brooding

p.100. Burton in Wirral [Cheshire]
8/52. *Haplophilus subterraneus* several with young
23.7.51 '*G. carpophagus'* Paddock Wood 1 with young. 8/52.Fiddlestone Wood 1 with young
p. 114 1.9.54. Grange District [Cumbria]. Rondsay, near shore.
'G. carpophagus' 1♀ with brood just hatched under stones. Young have scattered pigment spots.
p. 174. 6.8.58. Achatenny. Under stones and at grass roots on sheep pasture close to shore, sandy soil.
Brachygeophilus truncorum, 9 newly hatched specimens.
p. 176. 8.58 In pinewood near Raskelf, North Riding. Under bark of felled pine in sandy soil.
Brachygeophilus truncorum, 3 newly hatched.
p. 195. 6 or 7.7.61. Lake District, Grizedale under stone.
'*Geophilus carpophagus*', ♀ with 21 newly hatched and egg shells.
23.7.61. Grizedale.
'G. carpophagus', several – each with family group. One under log, another under a stone deeply imbedded. One family pickled more or less intact, 21 individuals - egg shells still attached.

Food

p. 3. 9.8.48. Wilmslow [Cheshire] Miss Mackel's [?] garden.
Geophilus insculptus Attems. Rear two thirds of gut filled with olive green material
20.8.48. Poynton [Cheshire] Mr Ashby's garden. *Necrophloeophagus longicornis* (Leach 1814). One specimen with salmon pink contents of gut
28.8.48. Cheadle Hulme [Cheshire] Dr & Mrs Peel's garden.
Geophilus insculptus Attems 1895. Olive green guts.
p. 32. 1.10.50. Cotterill Clough. In wood nearby Ringway gate.
Brachygeophilus truncorum. Browsing over dew-spangled moss on the upper and sides of a fallen tree trunk.
[See also records of association between *H. subterraneus* and potatoes under Habitat, which may relate to feeding. Also colour of gut of *G. insculptus* under Colour.]

Records of *Geophilus easoni*

p. 159. 18.3.57. Isle of Man Port Erin District.
'*Geophilus carpophagus'* 3♀♀ 51, 51, 51. 2♂♂ 47, 47.
p. 170. 18.6.58. Lake District. Oakhill (Brantwood) Coniston.
'*Geophilus carpophagus'* 1♂ 49.

p. 175. 6.8.58. Achatenny. [Highland] Under stones and at grass roots on sheep pasture close to shore Sandy soil.
‘*Geophilus carpophagus*’ ♀51 (30mm) C[oxal] p[ores] 9+11. Imm ♀51 (23mm) C.P. 3+2.
Ardtoe. [Highland] Under sea pink at roots on rocks on shore.
‘*G. carpophagus*’, ♂ 47.
p. 176. 8.58. North Riding. In pinewood near Raskelf. Under bark of felled pine in sandy soil.
‘*Geophilus carpophagus*’ ♀49 (newly moulted), ♂47.
p. 226. 16.8.62 Thorpness, Suffolk. Base of marram. P.D.G.
‘*Geophilus carpophagus*’ ♂♂ 47,47. ♀♀ 47, 49, 49, 49 + 1M♀ 51.

ACKNOWLEDGEMENTS
I am grateful to Helen Read for making Gordon Blower’s notebook available to me, to Paul Lee for information on *L. variegatus* in Suffolk and to Tony Barber for reading through the manuscript and providing useful information and making a number of very helpful suggestions.

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MYRIAPOD PAPERS OF R.S. BAGNALL, 1889-1962

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A brief biographical note on R. S. Bagnall was published in an account of his Thysanoptera collection by L.A. Mound (1968) from which the following information is mostly derived.

Richard Siddoway Bagnall was born at Winlaton near Whickham, Co.Durham in 1889, the son of J.S. Bagnall, a member of the firm of R.S. Bagnall and Sons, forge-men and chain makers of Swalwell and South Hylton. In unpublished notes dated 1921, he referred to himself as "Forgemaster and Director of Engineering Works, Rydal Mount, Bladyon on Tyne". Educated privately, he soon developed an interest in natural history and in 1903 was awarded the Hancock Prize for an essay *An October Day in Gibbside* about the joys of beetle collecting. According to his obituary in the Proceedings of the Royal Entomological Society he was trained as a chemist.

Elected a Fellow of the Entomological Society of London in 1904, the Linnean Society in 1909 and the Royal Society of Edinburgh in 1920 he published extensively on Thysanoptera, Collembola and Conopterigidae as well as on myriapods and isopods. He was one of the honorary curators of the Hancock Museum as well as being one of the founders of *Vasculum*. In 1929 he was awarded an honorary DSc by the University of Durham and was also the Vice-president, of the Sunderland Naturalists' Association.

It seems that he was able to leave his business interests during 1912-13 to work as an assistant curator of the Hope Department and as a special demonstrator in zoology at Oxford. After this, his business interests seem to have involved him in considerable travelling and, although, apparently still working on various groups, his last publications on isopods and myriapods were in 1922 and 1935 respectively, his last on thrips in 1936. Mound (*op. cit.*) describes him as "one of the most outstanding amateur entomologists of the first thirty years of this (i.e. 20th) century"; "he was clearly an excellent naturalist and his contemporaries refer to his remarkable powers of finding small arthropods in the field".

It appears that Bagnall's' health was never very good, possibly as a result of meningitis in his youth, and he died in Harrogate, North Yorkshire on the 19th January 1962 after a series of cerebral thromboses. Though Heslop-Harrison (1962, *Vasculum* 47 (2): 11) gives the date of death as 1961.

Because of Bagnall's wandering lifestyle, his collection is dispersed among a few institutions, though the majority of his material is believed to be housed in The Natural History Museum, London, for at least the main part of his thysanopteran collection was presented to them in 1932. A proportion of Bagnalls' collection of arthropods (miscellaneous small collections of insects but also including Isopoda, Myriapoda and Arachnida) were donated to the Hancock Museum, Newcastle upon Tyne between 1904 and 1909. To the Oxford University Museum of Natural History he presented various small donations of insects over a number of years, though most notably in 1912 he presented material of British Chilopoda, Symphyla, Pauropoda, Diplopoda, Thysanoptera, Isopoda, Thysanura, Collembola, Anoplura, Mallophaga, and also some foreign Thysanoptera. During 1915 he presented his collection of British Fleas (in alcohol).

Lists of his publications on woodlice were published by Harding (1990) for Great Britain and Doogue & Harding (1982) for Ireland. The present list of myriapod papers has been compiled using notes from Gordon Blower's papers along with other sources and has had considerable inputs f from both Ulf Scheller of Järpås, Sweden. and Darren J. Mann of Oxford University Museum of Natural History, the latter also providing

biographical information. There are still queries and inconsistencies regarding certain of the works noted here and amendments and corrections would be appreciated.

PROVISIONAL LIST OF MYRIAPOD PAPERS

1909. Notes on some Pauropoda from the counties of Northumberland and Durham. *Transactions of the Natural History Society of Northumberland, Durham and Newcastle-upon-Tyne (N.S.)* **3**(2): 462-466

1910. A Contribution towards a knowledge of the British species of the Order Symphyla. *Transactions of the Natural History Society of Northumberland, Durham and Newcastle-upon-Tyne (N.S.)* **3**(3): 646-653

1911. A Synopsis of the British Pauropoda. *Transactions of the Natural History Society of Northumberland, Durham and Newcastle-upon-Tyne (N.S.)* **3**(3): 654-660

1911. A Synopsis of the British Symphyla with Descriptions of New Species. *Transactions of the Natural History Society of Northumberland, Durham and Newcastle-upon-Tyne (N.S)* **4**: 17-41

1911. Notes on Pauropoda, with a brief description of a New Species of *Brachypauropus*. *Transactions of the Natural History Society of Northumberland, Durham and Newcastle-upon-Tyne (N.S.)* **4**: 59-60

1912. Further records of some British Symphyla, with Description of a New Species. *Transactions of the Natural History Society of Northumberland, Durham and Newcastle-upon-Tyne (N.S.)* **4**: 171-176

1912. Report of field meetings in 1911. *Transactions of the Natural History Society of Northumberland, Durham and Newcastle-upon-Tyne (N.S.)* **4**: 344-365

1912. Brief records of *Chaetechelyne vesuviana*, Newp., and other myriopods new to the British fauna. *Zoologist* (Ser. 4) **16**: 1-3

1912. British Symphyla (Scolopendrellidae). *Report of the Eighty First Meeting of the British Association for the Advancement of Science Portsmouth 1911*: 420

1912. New diplopods. *Report of the Eighty First Meeting of the British Association for the Advancement of Science Portsmouth 1911*: 420

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1913. The Myriapods of the Derwent Valley. *Transactions of the Vale of Derwent Naturalist's Field Club (N.S.)* **1**(2): 116-128

1913. On the Classification of the Order Symphyla. *Journal of the Linnean Society, Zoology* **32**: 195-199

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1913. The Scottish Symphyla. *The Scottish Naturalist* **20**: 182-185

1913. Review of Field Work in 1911. *Entomologist's Record and Journal of Variation* **25**(9): 224-226

1914. A synopsis of the British Symphyla with descriptions of new species. *Transactions of the Natural History Society of Northumberland, Durham and Newcastle-upon-Tyne (N.S.)* **4**(1): 17-41

1914. Further records of some British Symphyla, with description of a new species. *Transactions of the Natural History Society of Northumberland, Durham and Newcastle-upon-Tyne (N.S.)* **4**(1): 171-176

1914. *Lithobius lapidicola*, Meinert, a centipede new to the British fauna. *Zoologist* (Ser. 4) **18**: 102

1915. Report on the field meetings of The Natural History Society for 1911. *Transactions of the Natural History Society of Northumberland, Durham and Newcastle-upon-Tyne (N.S.)* **4**: 344-365

1915. On a small collection of Symphyla from Algeria. *Annals and Magazine of Natural History* (Ser. 8) **15**: 527-528

1916. A November week at Grange-over-Sands II. Woodlice and Myriapoda. *Lancashire and Cheshire Naturalist* **8**: 349-352

1917. Records of some British Symphyla. *Annals and Magazine of Natural History* (Ser. 8) **20**: 360-362

1917. Lancashire Myriapoda new to Britain with comments on halophilous species. *Lancashire and Cheshire Naturalist* **10**: 104-108

1917. The Symphyla of Lancashire and Cheshire. *Lancashire and Cheshire Naturalist* **10**: 110-112

1918. Notes on *Lithobius borealis* Mein., and other Lancashire Myriapods. *Lancashire and Cheshire Naturalist* **10**: 347

1918. Records of some Myriapoda from the Forth area. *The Scottish Naturalist* **76**: 79-80

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1919. On the discovery of two species of Brachycheateumidae a minor group *Annals and Magazine of Natural History* (Ser. 9) **4**: 79-84

1921. Some new or little-known Lancashire Myriapods. *Lancashire and Cheshire Naturalist* **13**: 186-188

1922. On some new and rare British Diplopoda. *Annals and Magazine of Natural History* (Ser. 9) **9**: 176-177

1923. The Symphyla of Northumberland and Durham. *The Vasculum* **9**(3): 65-73

1925. Two new Scottish symphyles. *The Scottish Naturalist* **154**: 106

1930. Record of *Lithobius erythrocephalus* C.Koch, a centipede new to the British fauna. *The Scottish Naturalist* **181**: 31

1935. Notes on British Chilopods (Centipedes) I. *Annals and Magazine of Natural History* (Ser. 10) **15**: 473-479

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MYRIAPODS AS PREY OF THE CAVE SPIDER *META MENARDI*.

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Cloudsley-Thompson (1949) reported that spiders did not appear likely to prey upon myriapods as they were rejected or treated with great caution, an exception being the tropical cave spider *Troglohphantys cavernicola* which included myriapods as part of its diet. This is also true of spiders that build orb webs. These webs are designed to catch flying or jumping prey and myriapods are animals that walk and are therefore unlikely to fall into them. However the cave spider *Meta menardi* is another exception as it has ceased to use its web as an aerial filter and now feeds on invertebrates that crawl over the surface of the underground chambers that it inhabits. Previous work had shown that *M. menardi* consumed myriapods as part of its diet. Both Yoshida & Shinkai, (1993) working in Japan and Ekert & Moritz, (1992) working in Germany recovered diplopod remains from *M. menardi* webs. Initial observations by the author have confirmed that myriapods were also among the prey selected by *M. menardi* in the UK (Smithers 1996). This work forms part of a wider study of the prey of spiders living in the entrance and twilight zones of underground chambers.

In order to explore the relationship between *M. menardi* and its myriapod prey a population of *M. menardi* in an abandoned mine adit on the edge of Dartmoor was observed over a period of two years. The adit was visited every week and any spider found feeding was robbed of its meal. Prey items were taken back to the laboratory for identification and were taken to the lowest taxa possible. This was often limited by the advanced state of digestion exhibited by the prey items. The sex, life stage and position of the spider within the adit were also noted.

Myriapods formed 30% of the prey recovered. These were placed into four taxa, (see Table 1). With members of the family Julidae being the most abundant.

Table 1

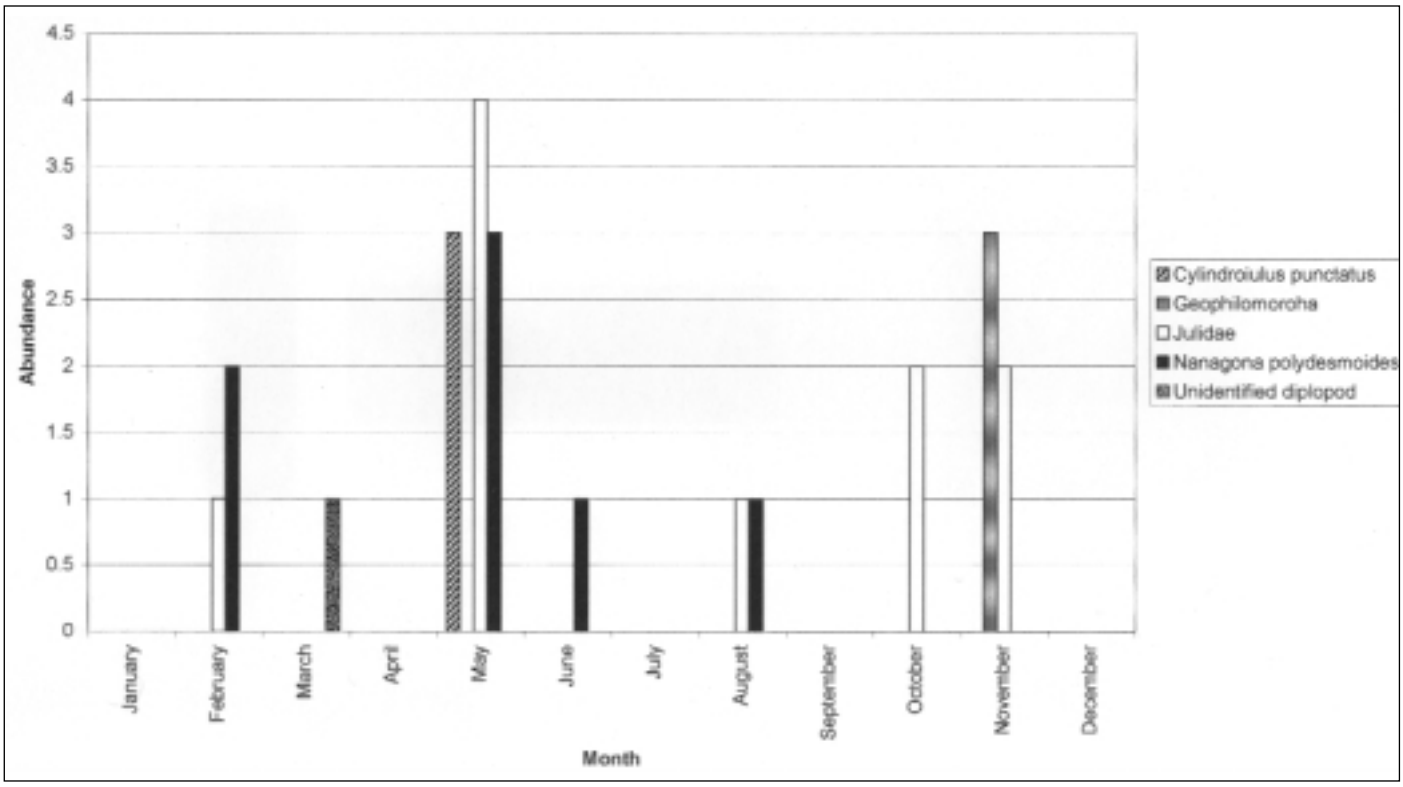
Numbers of myriapod prey items caught by *M menardi*

Geophilomoropha	3
Cylindroiulus punctatus	3
Julidae	10
Nanagona polydesmoides	7
Unidentified diplopod	1

Seasonal variation in myriopod prey displayed a dramatic peak in the spring which was composed mainly of Julids and to a lesser extent *Nanagona*. The latter being recorded over the spring and summer. The geophilomorphs occurred only in the autumn (Figure 1).

Figure 1

Numbers of myriapod prey items recovered at different times of the year



The julids were caught throughout the adit and displayed a peak in the spring, some in the autumn and winter but none in the summer. Geoffory (1981) has shown that Julids display a seasonal vertical migration in the soil in which they move down the soil profile in autumn and winter then return to the surface in the summer. Seasonal variation in the abundance of julid prey fits well with Geoffory's model. This vertical migration is likely to take them in to rock fissures that can lead them into subterranean chambers.

Nanagona polydesmoides is a well known cavernicole (Chapman 1993) so its recovery from spiders that were predominately farthest from the entrance is not surprising.

In total 10 females, 1 male and 13 immature spiders were recorded feeding on myriapods. In the wider study only 4 males were recorded feeding at all, which suggests that mature males may devote their energies to other activities such as reproduction.

The geophilomorphs were only recovered in the winter months, which indicates that at this time of year they may migrate down the soil profile to avoid adverse conditions at the surface. Like the julids these seasonal migrations are likely to lead them into subterranean chambers.

It appears that myriopods are a significant component of *M. menardi*'s diet which seems to come exclusively from the wall fauna of underground chambers (Smithers 1996). The myriopod prey are either seasonal migrants or permanent members of the subterranean wall community. The diet of *M. menardi* has evolved to take advantage of these seasonal migrations exploiting their accidental entrance into subterranean chambers.

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WOODLICE ON THE SCOTTISH ISLANDS OF BUTE, ISLAY AND MULL.

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This paper considers the woodlice (Isopoda Oniscidea) on the Scottish Islands of Bute, Islay and Mull. All three are situated off the West coast of Scotland, and their climate benefits from the warm sea currents of the North Atlantic drift so that, relative to latitude, winters are mild. However, exposure to the Atlantic means that rainfall is high. The smallest of the three is the Isle of Bute which is one of the Clyde Islands (VC 100). Its land area is about 124km2 (land areas are from Fleming, 2003). Bute is sheltered from the Atlantic by the Island of Arran to the south and the Mull of Kintyre to the west, and thus receives somewhat less precipitation than Islay or Mull, but it still benefits from the warming effects of the North Atlantic Drift. Islay is the largest of the southern Inner Hebrides (VC 102), with a land area of about 615km2. The Isle of Mull is the largest of the mid Inner Hebrides (VC 103) and has an area of about 917km2.

The "usual five" species of coastal Scotland, *Ligia oceanica, Trichoniscus pusillus, Oniscus asellus, Philoscia muscorum* and *Porcellio scaber,* are widespread on all three islands. In addition, there are records of *Androniscus dentiger, Haplophalmus mengei* agg. (i.e. *H. mengei* or *H. montivagus), Trichoniscus pygmaeus* and *Cylisticis convexus*.

ISLE OF BUTE

We visited Bute on a number of occasions between August 1999 and October 2003. Table 1 shows the distribution of our records of woodlouse species from these visits. We have not included earlier records published in Harding & Sutton (1985) because six of the seven 10km grid squares covering Bute also include areas of mainland, and there were no such records for the seventh square. However, we do note that the pre 1970 record of *Cylisticus convexus* from Ordnance Survey grid square NS06 in Harding & Sutton (1985) refers to a specimen in the collection of the National Museum of Ireland labelled "Near Rothsay, Bute, Scotland", dated 26.5.1910 (Harding, 1977). We found this species by the dam at Loch Ascog (which could also be described as near Rothesay). It was abundant there in July 2000, but could not be re-found in a thorough search in April 2003.

We found a single female specimen of *Haplophthalmus mengei* agg. in wet leaf litter at the base of a wall just above the shoreline near Montford Bridge (NS16). From what is presently known of the distribution of *H. mengei* and *H. montivagus* in Britain, it seems most likely that this specimen was the former species. We found specimens of *Trichoniscoides saeroeensis* under large stones at the top of the shoreline near Shalunt (NS07) and under a large stone embedded in gravel at the top of the beach at Ettrick Bay (NS06). The three locations where we found *Trichoniscus pygmaeus* were all at the top of the shoreline. *Androniscus dentiger* is widespread along the shoreline, especially on the east side of the island, and was also found inland, e.g. by the dams at Loch Fad and Loch Ascog (both NS06).

Table 1
Woodlice records from Bute, August 1999 - October 2003, by Ordnance Survey 10km grid squares.

Grid square	*Ligia oceanica*	*Androniscus dentiger*	*Haplophthalmus mengei* agg.	*Trichoniscoides saeroeensis*	*Trichoniscus pusillus*	*Trichoniscus pygmaeus*	*Oniscus asellus*	*Philoscia muscorum*	*Porcelio scaber*	*Cylisticus convexus*
NR96	+				+		+	+	+	
NR97	+				+	+	+	+	+	
NS05	+				+		+	+	+	
NS06	+	+		+	+		+	+	+	+
NS07	+	+		+	+	+	+	+	+	
NS15	+				+		+	+	+	
NS16	+	+	+		+	+	+	+	+	

ISLAY
Table 2 shows the distribution of woodlouse species on Islay, based on records published in Harding and Sutton (1985) and our own records from two brief visits in August of 2000 and 2001.

C. convexus was found at two sites, both in NR16. It was abundant among building rubble dumped above the shoreline in front of Bruichladdich distillery, and it was also found further inland in a derelict cottage used as a cattle shelter, surrounded by poor quality grazing land. The distillery site was re-examined in 2001, albeit with limited time, and none could be found. *T. pygmaeus* was found at two sites, at Ardnave (NR27) and at Laggan Bridge (NR35) in both cases in non-shoreline sites under old wood and other agricultural debris. *A. dentiger* was found at two non-shoreline sites: Laggan Bridge (NR35) and Bridgend (NR36), in both cases associated with old mortared brickwork.

Table 2
Woodlice species from Islay by Ordnance Survey 10km grid squares. **O** indicates records from Harding & Sutton (1985), + indicates our own records from 2000 and 2001.

Grid square	*Ligia oceanica*	*Androniscus dentiger*	*Haplophthalmus mengei* agg.	*Trichoniscoides saeroeensis*	*Trichoniscus pusillus*	*Trichoniscus pygmaeus*	*Oniscus asellus*	*Philoscia muscorum*	*Porcelio scaber*	*Cylisticus convexus*
NR15	⊕				+		3	+	+	
NR16	O				+		+	+	+	
NR24	+				+		+	+	+	
NR25	+				+		+	+	+	
NR26	+				+		⊕	+	+	+
NR27	+				+	+	+	+	+	
NR34	⊕				+		+	+	+	
NR35	+	+			+	+	⊕	O	+	
NR36	+	+			+		⊕	+	⊕	
NR37	+				+		+	+	+	
NR44	+				+		+	+	+	
NR45	+				+		⊕	+	+	
NR46	+				+		⊕	+	+	
NR47	+				+		+	+	+	

ISLE OF MULL

Records of woodlice from the Isle of Mull were reviewed by Scott-Langley (2002). On the basis of records in Harding and Sutton's (1985) Atlas, unpublished records from Gordon Corbett, and his own records from a visit in the summer of 2001, Scott-Langley was able to report that eight species were known from Mull and associated islands. A visit to the island in August 2002 enabled us to add *T. pygmaeus* to the species list, and a number of 10km square records for the other species (Table 3). *T. pygmaeus* was found at two locations: inland in Glen Gorm (NM44) under a boulder in scrubby woodland in a stream gully, and near Fishnish (NM64) under a boulder at the top of the shoreline.

Grid square	*Ligia oceanica*	*Androniscus dentiger*	*Haplophthalmus mengei* agg.	*Trichoniscoides saeroeensis*	*Trichoniscus pusillus*	*Trichoniscus pygmaeus*	*Oniscus asellus*	*Philoscia muscorum*	*Porcelio scaber*	*Cylisticus convexus*
NM21										
NM22	O				+		O	O	O	
NM23										
NM24	O				O		O	O	O	
NM31	+				⊖		O		O	
NM32	O				+		O	O	O	
NM33							O	O	O	
NM34	+						+		+	
NM35	O						+	+	⊖	
NM41	O			O	O		O	O	O	
NM42	+			O	O		O	O	O	
NM43	O				O		O	O	O	
NM44	+				+		⊖		+	
NM45	+				+	+	⊖		+	
NM51							O	O	O	
NM52	O	O			O		O	+	O	O
NM53	O				O		O	O	O	
NM54	O				O		O	O	O	
NM55	O				O		O	O	O	
NM61										
NM62	O				⊖		⊖	+	⊖	
NM63	O				+		⊖		⊖	
NM64	⊖				O	+	O	O	O	
NM72	O				O		O	O	O	
NM73	O			O	O		O	O	O	

Table 3

Woodlouse records from the Isle of Mull by Ordnance Survey 10km grid squares. Symbols: **O** indicates records summarised from Scott-Langley (2002), including records from Harding & Sutton (1985) and Corbet's unpublished records as well as Scott-Langley's; + indicates our own records from August 2002.

UNUSUAL COLOUR FORMS OF *PORCELLIO SCABER*

On Mull we found two unusual colour forms of *Porcellio scaber*, neither of which we had seen before. On the north side of Loch Spelve (grid ref NM675269) we found a specimen with a colour that might best be described as aquamarine or royal blue, with the meerest hint of slatiness. It was very similar in colour to the cushioned fingergrip on a Pilot 'super grip' propelling pencil. The colour did not fade in alcohol. Presumably this individual was infected with *Iridovirus*, but it did not have the purplish hue seen in *Trichoniscus pusillus* when infected with *Iridiovirus*. On the south shore of Loch Spelve (grid ref NM679261) we found an albino, completely lacking pigment even in the eyes. Just the gut contents showed as a dark stripe. At both these sites, other well-grown individuals were all the usual slatey grey colour. We are aware of other reports of albino and other abnormal colour forms of this and other species (e.g. Hopkin, 1989; Wijnhoven & Berg, 1999), but we were most surprised that these two very unusual finds were in close proximity to one another, especially as there is no indication that the two rather different conditions could be caused by the same factors.

DISCUSSION

It should be noted that the records cited for Islay and Bute refer only to those islands, whereas Scott-Langley's records refer not only to Mull but also to the associated islands of Iona, Ulva, Staffa and Lunga. Woodlice species known from Bute, Islay and Mull are compared in Table 4. Thus far, in the profile of species found, the similarity between the three islands is more striking than the differences. Our expectation is that the lack of records of *Haplophthalmus* from Islay and Mull, and *Trichoniscoides saeroeensis* from Islay, will turn out to be a consequence of sampling limitations rather than a true absence. We also speculate that *Porcellio spinicornis* may be found on Bute. There is an old but unverified record of its presence in Rothesay (Patience, 1906) and, although the distribution of this species in Scotland is heavily biased toward the East, it has been found at several locations in Glasgow (Collis & Collis, 1978) and rural Lanarkshire (our own records in Harding & Sutton, 1985).

Island	*Ligia oceanica*	*Androniscus dentiger*	*Haplophthalmus mengei* agg.	*Trichoniscoides saeroeensis*	*Trichoniscus pusillus*	*Trichoniscus pygmaeus*	*Oniscus asellus*	*Philoscia muscorum*	*Porcelio scaber*	*Cylisticus convexus*
Bute	*	*	*	*	*	*	*	*	*	*
Islay	*	*			*	*	*	*	*	*
Mull etc	*	*		*	*	*	*	*	*	*

Table 4
Summary of woodlouse records from Bute, Islay and Mull.

ACKNOWLEDGEMENTS
We thank Paul Harding for information on the National Museum of Ireland specimen of *Cylisticus convexus* from Bute, and for invaluable and unstinting support over many years.

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MYRIAPODA FROM WESTER ROSS AND SKYE, SCOTLAND

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In the Preliminary Atlas of Millipedes (British Myriapod Group, 1988) some seven species are shown from the Isle of Skye and six from those coastal areas of Wester Ross encompassed in the 100km National Grid square NG (18). For centipedes (Barber & Keay, 1988) the corresponding numbers are six and one. A proportion of the Skye records were made by Bruce Philp in the early 1980s in the course of other surveys. The species of which I am aware of him having found are marked P. Subsequently, a number of records were made by Gordon Corbet (details held by National Recording Schemes and included here). Dick Jones (Jones, 1992) made several records from Wester Ross in his report on Myriapods from North Scotland and these are also noted (indicated RJ).

We have a few Wester Ross records from the10km grid square NH (28) which are included and identified with an asterisk (*) and from NC (29) (indicated **) although any such records in the preliminary atlas are omitted. Skye and the adjacent island of Raasay are part of Watsonian vice-county 104 (along with Rum, Canna, Eigg, etc.) whilst Wester Ross is VC 105. 10km NG squares are shown for the unpublished records.

In August 2003, I had the opportunity to visit these areas and make a few collections. The weather had been extremely dry for some weeks and was then followed by heavy rain, conditions hardly suitable for finding large numbers of animals. The region is diverse in topography and contains substantial upland areas such as the Cuillin Hills and the Torridonian mountains with parts that are not accessible to cars. Almost all collecting was made in the valleys & coastal areas where there was convenient access. It would obviously be helpful to have further collections made at a different time of year and from a wider variety of sites.

Because of the scarcity of records from the area, it seems useful to record the results of the collecting in 2003 together with other records. A number of the millipedes were determined by Paul Lee. All records are now with the National Recording Schemes.

DIPLOPODA

Nanogona polydesmoides

Recorded from one 10km square in the Trotternish Peninsula, Skye in the preliminary atlas (British Myriapod Group, 1988).
An additional Trotternish record is from Dunans at a picnic area in moorland (24.08.03). Also recorded from Wester Ross at Applecross amongst stones and shingle close to the sea (21.08.03). Likely to be widespread although, according to Gordon Corbet, confined to natural and artificial calcareous habitats. He has very few records from the Highlands compared with other “equally findable” species.

NG 47, 74

Chordeuma sp. (probably *C. proximum*)

Immatures are here recorded from Dunvegan, Skye. Gordon Corbet has recorded *C. proximum* from Rum so this is the most likely species but without mature males it is impossible to be certain (P.Lee *pers. comm*.).

NG 24

Melogona scutellare

Attadale Garden, Loch Carron, Wester Ross (Gordon Corbet, 03.10.01). This and a record from Eigg are the only sites he knows of in the whole of the Highlands and West Coast.

NG 93

Proteroiulus fuscus

There are several Wester Ross locations shown in the preliminary atlas although none on Skye.
Rassal Ashwood NNR, Wester Ross (RJ, 15.7.91, G. Corbet, 29.8.91), Ardaneaskan area (cleared conifers, 19.08.03) and from forestry on the Island of Raasay (26.08.03). To be expected under bark, etc. in woodland habitats throughout the area and likely to be found when conditions are more favourable for collecting.

NG 54, 83, 84

Blaniulus guttulatus

Attadale Garden, Loch Carron, Wester Ross (Gordon Corbet, 03.10.01)

NG 93

Archiboreoiulus pallidus

Lochcarron, garden, under stones, 17.08.03. No other Highlands records; found in Glasgow (G.Corbet, pers.comm.)

NG 83

Ommatoiulus sabulosus

Two Skye P locations are shown for this distinctive species in the preliminary atlas.
Also from Kirkibost, Skye (2000, S.Moran, pitfalls via G.Corbet), Loch Carron, Wester Ross (G.Corbet, 23.08.96), Inverewe Gardens (R.J), Strathellen, Wester Ross (conifer woodlandand, 18.08.03) Kinloch, Skye (picnic area within forestry, 28.08.03).

NG 51, 71, 83

Tachypodoiulus niger

Two Wester Ross locations are shown in the preliminary atlas.
Glen Carron* (14.05.99) and Attadale Garden (03.10.01), Wester Ross (both G.Corbet). Also Lochcarron (garden, 17.08.03, old burial ground, 20.08.03) and Achnashellach* (railway station, 22.08.03) in Wester Ross and Armadale Pier (waste ground, 30.08.03) in Skye. Predominantly, perhaps entirely, synanthropic in the Highlands (G.Corbet).

NG 60, 83, 93, 94 NH 04

Allajulus nitidus

A single record of this species (det. P.Lee) from the Old Burial Ground at Lochcarron (20.08.03). Second record from W.Scotland (G.Corbet).

NG 94

Cylindroiulus londinensis

A single specimen was amongst several species of millipede, including the *Chordeuma* sp. found in mixed woodland/forestry at Dunvegan, close to Dunvegan Castle (27.08.03). This particular animal is recorded as from under a rock. There are two other Scottish records, from gardens in Argyle (G. Corbet).

NG 24

Cylindroiulus punctatus

There are records of this common species from both Skye p and Wester Ross in the preliminary atlas.
Gordon Corbet records it from both Skye (Kirkibost, S.Moran, pitfalls, 2000, Elishader, 30.08.91) and Wester Ross (Corrieshalloch Gorge*, 27.09.99, Rassal Ash Wood NNR, 28.08.91, Talladale, Loch Maree, 26.08.91).
Dick Jones reported it from Rassal Ash Wood, Shieldaig and Inverewe Gardens all in Wester Ross.
In addition, it is recorded here in Wester Ross from Ardaneaskan / Strathellen (17 & 18.08.03), Lochcarron (18.08.03, 20.08.03; 2 sites), Applecross (21.08.03), Inverewe Gardens NTS (22.08.03) & Achnashellach* (22.08.03) and from Skye at Portree Forest (25.08.03), Dunvegan (27.08.03) and Armadale (28.08.03).
It is likely to be found in most, if not all, woodland under appropriate conditions although I was not able to find it on Raasay, possibly because of the previous dry weather.

NG 24, 44, 51, 56, 60, 74, 83, 84, 88, 94, 97 NH 27

Cylindroiulus latestriatus

One Wester Ross location and one older record from Skye are shown in the preliminary atlas. Dick Jones found it on the foreshore at Inverewe.
I have a record of several specimens from the coast at Lower Diabeg (19.08.03) and Gordon Corbet has drawn my attention to 1976 survey records from sand dunes at Redpoint and Achnahaird, both in Wester Ross (ITE, 1979). It might be expected to be found all round the coast in suitable locations / conditions.

NC 01 NG 76

Julus scandinavius

There is one record from Skye in the preliminary atlas.
Gordon Corbet reports it from Kirkibost, Skye (S.Moran, pitfalls, 2000). Additional records are Lower Diabeg (above shore, 19.08.04), Loch Maree (lochside picnic area, 22.08.03) and Achnashellach* (station) in Wester Ross and Dunvegan, Skye (woodland, 27.08.03).

NG 24, 51, 76, 96 NH 04

Ophyiulus pilosus

Three locations in Skye (Trotternish) P are shown in the preliminary atlas.
Gordon Corbet records this species from Bernisdale, N.Skye (30.08.91), Applecross (28.08.91), Talladale, Loch Maree (26.08.91), Corrieshalloch Gorge* (27.09.99) and on the boundary of Easter and Wester Ross, east of Loch Droma* (27.09.99). Dick Jones had it from Inverewe Gardens. Other records are from Strathellen (woodland, 18.08.03) and Lochcarron (garden, 20.08.03) in Wester Ross.

NG 45, 74, 83, 97 NH 27

Polydesmus angustus

Two locations in Skye (Trotternish) P and three from Wester Ross are shown in the preliminary atlas.
S.Moran found this species in pitfalls at Kirkibost, Skye (2000, via G.Corbet). Gordon also has an old record from Raasay (21.03.56), Dick Jones found it at Inverewe and there is now a record from Loch Maree, Wester Ross (picnic area by lochside, 22.08.03).

NG 51, 53, 96

Polydesmus denticulatus

Glen Shiel, Wester Ross* (RJ)

Brachydesmus superus

One record (Trotternish) from Skye in the preliminary atlas. A record from woodland at Dunvegan (27.08.03) is added. Probably widespread but under-recorded.

NG 24

CHILOPODA
Stigmatogaster subterraneus* (*Haplophilus subterraneus)

Inverewe Gardens (RJ)

Schendyla nemorensis

Recorded from Portree, Skye (G.Corbet, 30.08.91)

NG 44

Strigamia maritima

Recorded by Gordon Corbet from Portree, Skye (30.08.91) and Loch Carron, Wester Ross (14.05.99). It occurred in numbers on the shore at several sites along Loch Carron in the Lochcarron area (18/20.08.03) and on the Applecross Peninsula at Applecross and Toscaig (21.08.03), on Skye at Staffin Quay (24.08.03) and on Raasay at Churchtown Bay (26.08.03). It is likely to occur in all suitable sites on shores around the area although no specimens were found at Lower Diabeg despite a search there.

NG 44, 46, 53, 73, 74, 83, 93, 94, 96

Geophilus easoni

"*Geophlus carpophagus*" is recorded from both Skye P and Wester Ross in the provisional atlas (Barber & Keay, 1988). Almost certainly all these records refer to *G. easoni*. Bruce Philp had it from 7 sites on Skye (Fairy Bridge, Loch an Fhridhein, Flag Woods, Rudh'an Dunain, Armadale, Sligachan and Loch Suardal) and Dick Jones reported "*Geophilus carpophagus*" from Rassal Ash Wood (presumably *G. easoni*). Gordon Corbet records *G. easoni* from Neist, Skye (31.08.91) and Loch Torridon, Wester Ross (14.05.99). A single additional record is of a male from under a rock in grassland at Duntulm Castle, Skye (24.08.03).

NG 14, 47, 85

Geophilus insculptus

Inverallgin, Torridon, Wester Ross (G.Corbet, pasture near shore, 26.08.91), Inverewe Gardens (RJ).
Further records are from Lochcarron (garden, immature, 17.08.03), Annat (roadside, rocks under pines, one male, 19.08.03) and Applecross (sycamore woodland, one female, 21.08.03). No Skye records.

NG 74, 85

***Geophilus flavus* (*Necrophloeophagus flavus*)**

Dick Jones reported this from the foreshore at Inverewe, possibly the most northern British record; A female and an immature of this species are now recorded from a cottage garden at Lochcarron (20.08.03).

NG 83

***Geophilus truncorum* (*Brachygeophilus truncorum*)**

There is a single record from Skye (Trotternish) in the provisional atlas.
Records are from Loch Maree (G.Corbet, 27.08.91) and Rassal Ash Wood NNR (RJ, 15.07.91, G.Corbet, 28.08.91) and I have it from Ardaneaskan (forestry, subcortical, 20.08.03). Undoubtably in more favourable conditions it would be expected to be found to be widespread in this region.

NG 83, 84, 96

Lithobius variegatus

Some comments on the distribution of this species have already been noted (Barber, 2003). Lewis (1997) suggests that it may be limited by climatic factors and by competing species or predators of which *L. forficatus* may be one. The latter species, he suggests, may be a more recent arrival in Britain and probably still spreading. If this were the case, it might be a reason for the apparent absence of *L. variegatus* on Raasay (despite searching in likely situations) and its patchy distribution on Skye.

Recorded from three locations in Skye P in the provisional atlas (B.Philp: Sligachan, Rudh'an Dunain, Geary). Gordon Corbet recorded it from Neist in Skye (31.08.91) and from Shieldaig (14.05.99) and Torridon (23.08.96) in Wester Ross.
Further records are from Ardaneaskan (forestry, 17.08.03), Strathellen (woodland, 18.08.03), Annat (roadside trees in moorland area, 19.08.03), Lower Diabeg (coastal, 19.08.03), Toscaig, Applecross Peninsula

(grassland, 21.08.03), Shieldaig (moorland, 21.08.03) and Achnashellach (forestry, 22.08.03), all in Wester Ross. The only two Skye records for 2003 are from Aird of Sleat (moorland, 28.08.03) and Kinloch (picnic area in forestry, 28.08.02), both in the Sleat peninsula.

NG 14, 50, 71, 73, 76, 83, 85, 94, 95

Lithobius forficatus

Eight 10km squares are recorded for Skye P for this species in the provisional atlas. These are based on B. Philp's records from Boreraig, Greshornish, Allt Mor, Fairy Bridge, Dun Caun, Struan, Ollisdal, Loch an Fhridhein and Kilt Rock.
It was recorded by Gordon Corbet from Duntuilm, Skye (30.08.91), from Fearnmore, Applecross Peninsula (28.08.91), NW of Applecross (28.08.91) and Head of Loch Broom* (27.09.99) in Wester Ross. Dick Jones had it from Inverewe Gardens and Aird of Coigach **, Wester Ross.
Additional records are from Lochcarron (garden, 17.08.03), Lower Diabaig (coastal, 19.08.03), Applecross (dead wood in grassland, 21.08.03), Achnashellach (forestry, 22.08.03), Loch Maree (picnic area, 22.08.03) and Inverewe Gardens NTS (22.08.03) in Wester Ross. Records from Skye are at Dunans (lochan side, 24.08.03), Staffin Quay (coastal waste-ground, 24.08.03), Leacan Nighean an t-Slosslaich (grassmoor, 25.08.03), Dunvegan (forestry, 27.08.03). It is also recorded from three sites on Raasay (roadside, moorland at Calum's Road, Eyre Point, all 26.08.03)

NG 24, 34, 46, 47, 53, 54, 64, 74, 76, 83, 88, 94, 96 NH 18

Lithobius melanops

There is one 10km square record for this from Skye P in the provisional atlas based on a record from Loch an Fhridhein (B.Philp, 22.06.80).
Dick Jones found this at Rassal Ash Wood whilst Gordon Corbet records it from NW of Applecross, Wester Ross (28.08.91).
Other records are from Loch Fada (roadside, moorland, under rocks, numerous, 25.08.03) and Armadale (forestry, 28.08.03) both on Skye. The specimen from the latter site was unusual in being quite a dark chestnut brown (the Loch Fada specimens were the typical lightish *L. melanops* colour) with very prominent projections on tergite 9 and no obvious secondary sexual characteristics on the last legs. It came out as *L. melanops* in all appropriate keys and was identified as such by M. Zapparolli.

NG 44, 60, 64

Lithobius borealis

The provisional atlas records this from one 10km square on Skye P; this is based on a specimen from the Quirang which showed slight projections on tergite 9 and was confirmed by E.H. Eason (B.Philp, 04.04.80). Gordon Corbet records it from Talladale, Loch Maree, Wester Ross (26.08.91). Other records are from Ardaneaskan, Wester Ross (male, under bark of dead wood by roadside, wooded area, 17.08.03) and from Raasay (26.08.03) where two females were collected in forestry and an immature, probably of this species was found at Calum's Road.

NG 53, 83, 97

Lithobius crassipes

Gordon Corbet collected this species from a roadside site NW of Applecross (28.08.91).

NG 64

***Lamyctes emarginatus* (*L.fulvicornis*)**

One record is shown for SkyeP in the provisional atlas; this was from a specimen collected at Ollisdal (22.06.80).
Records are from Kirkibost, Skye (pitfalls, S.Moran via G.Corbet, 2000), NW of Applecross (G.Corbet, 28.08.91), Glen Shiel* (RJ), Aird of Coigach** (R.J). This is a species that is seasonal in its occurrence and said to be sensitive to dampness.

NG 51, 64

DISCUSSION

The present report is based on a relatively small number of records; as explained conditions were not favourable in August 2003 with few or no specimens being found at some sites. For instance, nearly half an hour's searching at Portree Forest (conifer plantation) yielded just a single specimen of *Cylindroiulus punctatus* and no records at all were made in the shore / grassland / moorland areas at the seaward end of Glenbrittle.

Apart from the scattered pattern of finds of *Lithobius variegatus* already alluded to, it is notable that few geophilomorphs or smaller lithobiomorphs were seen. It would, for instance, have been interesting to know whether the common small lithobiids in moorland areas are *Lithobius borealis* as it appears to be in Shetland (Barber, 1986) and SW England or *Lithobius crassipes* as on much of eastern Scotland (G. Corbet, *pers. comm*.), Orkney mainland (Barber, 1998) and eastern England. Gordon Corbet refers to his record of the latter species from the Applecross Peninsula as his only record of it from the Western Highlands or west coast whereas it is ubiquitous on the east coast and on the north coast of Sutherland (*pers. comm*.). There is a single record in the provisional atlas from the Western Isles.

A similar situation has occurred for millipede records; better conditions e.g. earlier in the year might yield a larger collection. Interestingly, the woodland at Dunvegan yielded five different species including both the *Chordeuma* sp. and the rather unexpected *Cylindroiulus londinensis*. The other unexpected millipede record was that of *Allajulus nitidus* from the old burial ground site outside Lochcarron, a sheltered area with trees, stones and freshwater which also yielded two other julids. Possibly these have been introduced from elsewhere e.g. with topsoil or garden plants.

Given the right degree of shelter, because of the Gulf Stream, parts of this area can enjoy a surprisingly mild climate as seen, for instance, in the "sub-tropical" gardens at Inverewe in which Dick Jones found *Stigmatogaster subterraneus*, normally associated with more southerly latitudes. For this reason as well as gaining a better understanding of the distribution of "commoner" species and a clearer picture of the *Lithobius variegatus* / *L. forficatus* and *Lithobius borealis* / *L. crassipes* patterns, one might anticipate finding further unexpected types.

A comparison of the present species list with that of the Isle of Mull (Scott-Langley, 2002) is of some interest (Table 1). Mull is some 100km on average further south (the most southerly part of Skye is about 40km north of the most northerly part of Mull).

A similar species list is reported, again with a single record of *Lithobius crassipes* (three for *L. borealis*) and 8 10km square records for *L. variegatus*.

Table 1

Species recorded from Wester Ross, Raasay, Skye and Mull

	Wester Ross	Raasay	Skye	Mull
Nanogona polydesmoides	x		x	x
Melogona scutellare	x			
Chordeuma sp.			x	
Proteroiulus fuscus	x	x		x
Blaniulus guttulatus	x			
Archiboreoiulus pallidus	x			
Ommatoiulus sabulosus	x		x	x
Tachypodoiulus niger	x		x	x
Allajulus nitidus	x			
Cylindroiulus londinensis			x	
Cylindroiulus punctatus	x		x	x
Cylindroiulus latestriatus	x			x
Julus scandinavius	x		x	x
Ophyiulus pilosus	x		x	x
Polydesmus angustus	x		x	x
Polydesmus denticulatus	x			
Polydesmus inconstans				x
Brachydesmus superus			x	x
Stigmatogaster subterraneus	x			
Schendyla nemorensis			x	x
Strigamia maritima	x	x	x	x
Geophilus easoni	x		x	x
Geophilus insculptus	x			x
Geophilus flavus	x			x
Geophilus truncorum	x		x	x
Lithobius variegatus	x		x	x
Lithobius forficatus	x	x	x	x
Lithobius melanops	x		x	x
Lithobius borealis	x	x	x	x
Lithobius crassipes	x			x
Lamyctes emarginatus	x		x	x

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MYRIAPODS ON THE OUTER HEBRIDES

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INTRODUCTION

Published records of myriapods from the Outer Hebrides are scanty and are summarised in three sources. Waterston (1981) recorded 15 species, with a list of islands from which each had been recorded. This incorporated records from Barra in 1935 reported by Waterston (1936). The provisional atlases (British Myriapod Group, 1988 for millipedes, Barber & Keay, 1988 for centipedes) recorded seven species, adding two to the total, but did not claim to be comprehensive with regard to earlier published records. In addition there are unpublished records of millipedes rising from a survey of invertebrates conducted in 1976 by the Institute of Terrestrial Ecology (ITE, 1979). This included pitfall-trapping at 18 sites on Lewis/Harris, North Uist, Benbecula and South Uist, but produced only *Cylindroiulus latestriatus* (at every site), plus a single *Polydesmus inconstans* on North Uist.

I visited the Outer Hebrides from 3rd to 13th June 2003 and recorded myriapods on the following islands: Lewis/Harris, Great Bernera (bridged), Scalpay (bridged), South Uist, Eriskay (bridged), Barra and Vatersay (bridged). Recording was solely by hand searching in leaf-litter and under stones, wood and refuse. The general impression was that myriapods were scarce, with a large proportion of turned stones revealing nothing. In contrast earwigs, *Forficula auricularia* were unusually abundant.

MILLIPEDES

Waterston (1981) recorded six species, including one, *Cylindroiulus britannicus*, from St Kilda only. The provisional atlas recorded four species post-1970 adding *Ophyiulus pilosus*. Of these seven species I recorded four in 2003 without adding anything new for the Outer Hebrides, although there were several new records for individual islands.

Nanogona polydesmoides

Not found in 2003. Recorded by Waterston (1936) from Barra, 1935.

Cylindroiulus punctatus

Lewis: Lewis Castle, Stornoway, NB 4132. 1f in litter of deciduous woodland.
South Uist: Loch Druidibeg NNR: NF 7838, 1m, 1f in roadside grass (no trees); NF 8038, 1m in litter under pines and rhododendrons.
Recorded by Waterston (1981) from south Uist and Barra.

Cylindroiulus latestriatus

Lewis/Harris: Butt of Lewis, NB 5166, on cliff-top pasture; Eoropie, NB 5164, dunes; Back, NB 4841, coastal grass; Tolsta, NB 5349, dunes; Seilebost, Harris, NG 064976, dunes.
Great Bernera: Bosta, NB 136400, dunes.
South Uist: Howmore, NF 7536, road verge; A'Mheallach, NF 7222, dunes; Orisay, NF 7217, grazed coastal grass.
Eriskay: NF 783115, grazed grass.
Barra: Loch Ob, NF 708018, garden; Borg, NF 6503, dunes.
Vatersay: NL 658959, grazed grass.
This was recorded from S Uist and Barra (and the isolated Monach Islands) by Waterston (1981), and was by far the most widely recorded millipede in the atlas, from all the main islands except Barra. It was also

recorded, sometimes abundantly, at all 18 pitfall sites in 1976 (ITE, 1979).

Ophyiulus pilosus
Barra: Shiarabhaigh, NF 699033, 1f, mixed woodland; Loch Ob, NF 708019, 1f,1j in garden.
The only previous record for the Outer Hebrides appears to be that for NB43 [Stornoway, Lewis] in the provisional atlas.

Polydesmus angustus
Lewis/Harris: Miavaig, Lewis, NB 090346, 1m under rubble on jetty.
Shown in the provisional atlas (post-1970) from NB 43 [Stornoway, Lewis], and NF 72 [S Uist]; it was also recorded in a pitfall trap at Robach, North Uist in June/July 1976 (ITE, 1979).

Polydesmus inconstans
Not found in 2003. Shown in the provisional atlas (post-1970) for NB 43 [Stornoway, Lewis] and NF 87 [North Uist].

It was probably this species that was recorded, as *P. coriaceus*, from South Uist (post-1959) and from Barra (July, 1935) by Waterston, the Barra record derived from Waterston (1936) determined by R.A.Bagnell. Blower (1985) considered *P. coriaceus* of Blower (1958) and other authors to be *P. inconstans,* and recorded this species for the Outer Hebrides, while the name *P. coriaceus* Porat is correctly a synonym of *P. gallicus,* which has not, with one possible exception, been recorded in Scotland.

Brachydesmus superus
Lewis/Harris: Back, Lewis, NB 4841, 3f in coastal grass; Borvas, Lewis, NB 3551, 1m,1f in garden; Gosla, Little Loch Roag, Lewis, NB 127257, 1f in garden; Crowlista, Lewis, NB 040335, 2m on road verge at croft.
South Uist: Loch Aineort, NF 7828, 2m,1f in leaf-litter in deciduous wood.
Recorded by Waterston (1981) from South Uist (post-1959) and Barra (1935).

CENTIPEDES
Waterston (1981) recorded nine species of centipede and the provisional atlas four, adding *Lithobius crassipes.* Of these ten species I recorded five, and added one apparently new for the Outer Hebrides, *Schendyla nemorensis*.

Strigamia maritima
Not recorded in 2003. Waterston (1936) recorded it from Barra, collected July 1935.

Schendyla nemorensis
Lewis/Harris: Crowlista, Lewis, NB 040335, 1m, 1f under roadside rubble at croft.
New for the Outer Hebrides, but found widely in the Inner Hebrides and on the West-Highland coast (author's unpublished records).

Geophilus easoni
Lewis/Harris: Nearseam, E Harris, NG 081858, 1f on disturbed grassland (legs 2x51).
Eriskay: NF 793098, 3m under stones on pier (legs 2 x 47, 47, 49).

'*L. carpophagus*', recorded from a plantation on Barra, July 1935 by Waterston (1936), is likely to refer to this species which is widespread in Scotland, in contrast to *L. carpophagus ss.* which so far has only been confirmed from some coastal cliffs in Fife (Arthur *et al.,* 2002). An early record of '*G. carpophagus*' from St Kilda (Evans, 1906) remains indeterminate.

Geophilus insculptus
Lewis/Harris: Lews Castle, Stornoway, NB 4132, 1 under deciduous leaf-litter; Port of Ness, NB 5363, 1 on sea-cliff.
Recorded by Waterston (1981) from S Uist (post-1959).

Brachygeophilus truncorum
Lewis/Harris: Crowlista, Lewis, NB 040335, 2m on road verge at croft.
South Uist: Loch Sgioport, NF 8238, 1 on mortared wall close to shore.
Eriskay: NF 783115, f in churchyard.
Barra: Loch Ob, NF 708019, f in garden.
Recorded from South Uist, Barra and the offshore Monach Islands by Waterston (1981), all post-1959.

Lithobius variegatus
Not found in 2003. Waterston (1981) recorded it from South Uist and Barra, both post-1959.

Lithobius forficatus
Lewis/Harris: Miavaig, Lewis, NB 090346, f on jetty; Cuidhtinis, Harris, NG 095869, 1 on road verge.
Scalpay: NG 218960, 1f at jetty.
Eriskay: NF 793098, 1m at jetty.
This species was surprisingly difficult to find, considering how ubiquitous it usually is and how well recorded it has been in the past (although that has no doubt been helped by the ease of identifying it in the field). Waterston (1981) recorded it from the Monach Islands, North Uist, South Uist and Barra; the provisional atlas from these and Stornoway.

Lithobius melanops
Lewis/Harris: Taobh Tuath, Harris, NF 980911, 1m on dune grass.
South Uist: A'Mheallach, NF 7222, 2m in dune grass.

Recorded by Waterston (1981) from the Monach Islands, North Uist and South Uist, all post-1959. In addition the provisional atlas shows a record from Barra (post-1963).

Lithobius borealis
Not found in 2003. Waterston (1981) recorded it from South Uist, post-1959, as *L. lapidicola*.

Lithobius crassipes
Not found in 2003, but the provisional atlas shows it in North Uist (NF 86?). This is a scarce species in the west of Scotland in contrast to the east (and far north) where it is ubiquitous.

Lamyctes fulvicornis
Not found in 2003 (but rarely found anywhere before July). It was recorded in South Uist (post-1959) by Waterston (1981) and Barra, 1935 by Waterston (1936).

CONCLUSIONS
The most surprising absentee is *Ommatoiulus sabulosus*, especially in view of its wide distribution in dune grassland and moorland elsewhere in Scotland, and its ease of recognition. However it appears also to be absent from Orkney and Shetland, and I have searched for it in vain on the island of Arran. *Julus scandinavius* is another widespread moorland species that appears to be absent, but could be more easily overlooked.

Some other apparently absent species are woodland ones, e.g. *Proteroiulus fuscus* and *Cylindroiulus britannicus.* There is very little woodland on the Outer Hebrides, and the few plantations visited were not studied intensively. However the presence of dense woodland — apparently hazel, rowan and willow — on tiny islands in the freshwater lochs (not examined) suggests that such woodland was probably widespread before the introduction of domestic stock, and these remnants would be worth examining.

Only one species recorded in 2003 was an addition to the known fauna of the Outer Hebrides: the geophilomorph centipede *Schendyla nemorensis*. This is an expected but elusive species, easily passed over as an immature of one of the larger geophilids.

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HAPLOPHTHALMUS MONTIVAGUS VERHOEFF 1941 - EXTENDED DISTRIBUTION

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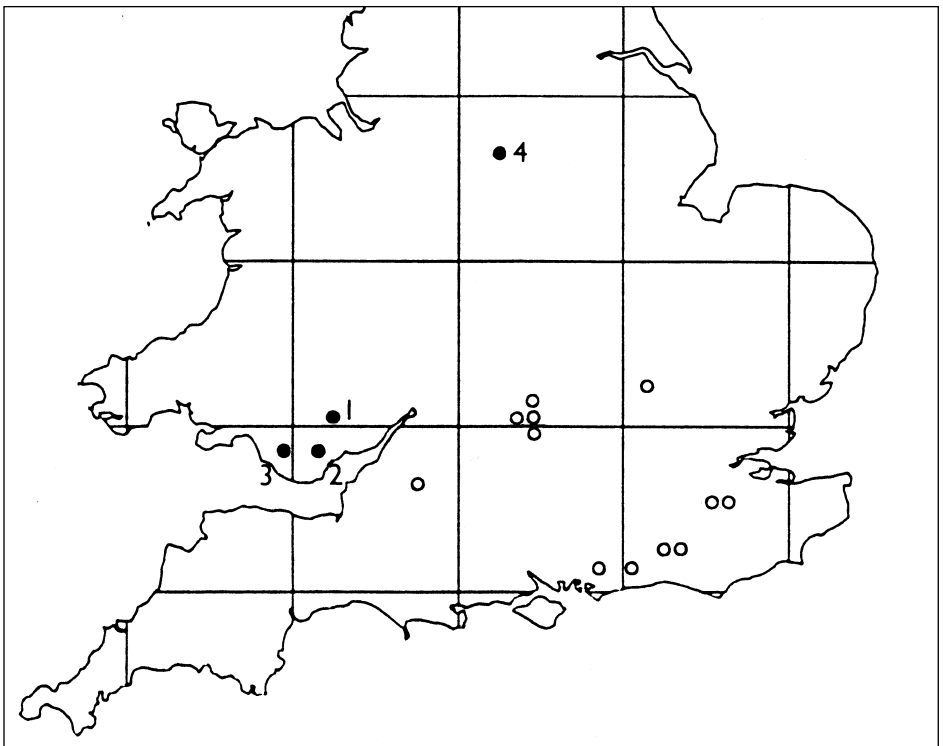
From its core area of distribution in central southern England, mostly in ancient woodland on calcareous soils, *Haplophthalmus montivagus* is now being found more widely and with a tendency to occur, at the extremities of its distribution, in synanthropic habitats.

The first of the new sites is described in Harper (2002) and, together with three more sites, is listed below and plotted on the distribution map. Although record no.3 predates no.2, it was identified later by Steve Gregory. Specimens from sites 1, 2 & 4 det John Harper; from site 1 were confirmed by David Bilton. All identified specimens are of course males as female *H. montivagus* and *H. mengei* cannot, as yet, be separated.

1.	2.11.2001	Lasgarn Wood, Abersychan	SO2703	vc35	J. Harper leg.
2.	16.3.2003	Garth Wood, Pentyrch, Cardiff	ST1182	vc41	J. Harper leg.
3.	24.2.2003	compost, Pencoed, Bridgend	SS9580	vc41	S. Warmingham leg.
4.	5.4.2002	garden, Haddon Hall, Bakewell	SK2366	vc57	J. Harper leg.

On collection the Haddon Hall specimens, both males, were suspected to be *H. montivagus* from the rich yellowy "Cornish" cream colour, a feature which showed in a few of the Lasgarn Wood specimens; *H. mengei* does not seem to show this richness of cream.



Haplophthalmus montivagus - UK Distribution - updated 20.2.2004

Key: open dots = previous records; black dots = records listed above

Both Lasgarn Wood and Garth Wood are ancient beechwoods on valley slopes with a limestone substratum and it may well be that these sites have long-established natural populations of the species; however at these sites, the specimens have been collected in or adjacent to limestone quarries, often used as dumps for garden refuse. The Welsh valleys have long been subject to very extensive mining, industrial, trading and housing development so the species could have been introduced with pit props or other timber from many sources. Simon Warmingham's compost heap at Pencoed must represent the ultimate in synanthropicity for a moisture-loving woodlouse and probably illustrates the method of spread away from the natural core habitats. In the case of Haddon Hall, there has been a centuries-old tradition of plant exchange between the great houses; it would be interesting to delve into the gardeners' areas and around gardens of other grand houses in the UK. Considering this paragraph, I am very conscious that, when collecting, I make a bee-line for these sorts of sites because they can be so productive; another example relates to collecting *Haplophthalmus danicus* in Scotland (Harper 2002b) where all the sites are adjacent to human habitation.

ACKNOWLEDGEMENTS
I am very grateful to Simon Warmingham of Pencoed, Bridgend for allowing me to include his record; and to Steve Gregory for providing an up-to-date map of the distribution of the species to which I have added the new sites.

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ON SOME MYRIAPODS NEW TO WALES

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With the proliferation of regional and local Biodiversity Action Plans and other instruments of conservation in Wales today, the accurate and independent reporting of authentic records of little-known or rare species is increasingly important; all too often species appear in lists with inadequate validation.

On 2.11.2001 Mike Kilner introduced me to a site in the Cwmbran area, Church Wood Fields ST284959 vc35 (Monmouthshire), ostensibly looking for spiders; on that first visit a millipede and a centipede new to Wales were collected, though the latter had to wait two years for a male to allow identification with certainty. This was a memorable day as the afternoon visit to a limestone quarry at Abersychan produced another two species new to Wales, *Lithobius piceus* and *Haplophthalmus montivagus*, already reported in the Bulletin of the British Myriapod and Isopod Group 18.

At Church Wood Fields, among several Polydesmids, was a male *Polydesmus testaceus*. A further visit on 29.3.2002 to the Fields produced no more specimens, but at the nearby Church Wood ST286961 nine males and five females were collected. The Fields are on land reclaimed from industrialisation and the flora suggests some basic soil was used to "sanitise" the area which might explain the suitability of the site for this species. However the majority of the specimens were found in riverine woodland along one of the many streams that drain off the mountain above, although there are exposures of limestone all over the area.

On 2.11.2001 at the Fields site mentioned above, three female centipedes were collected which keyed out to *Lithobius muticus* in Barber's (1996) key; two more females were taken on 29.3.2002 but I did not have sufficient experience of the species to make a positive determination. Finding *L.muticus* at Delamere Forest on the 2003 BMIG field excursion was eventually a spur to look for more specimens at Cwmbran, proving successful on 27.1.2004; a mature male had the distinctive broad head and a very clear setose swelling on Tibia 14 which confirmed the species; plus three more females. Reference to the centipede atlas (Barber & Keay, 1988) showed a dot SJ17 in Wales but not one for SJ57 Delamere Forest. Wondering if the Delamere Forest record had been plotted at SJ17 in error, I approached Henry Arnold at BRC who kindly confirmed my suspicion; there was no record for the species at SJ17 on the BRC database.

However, the Cwmbran collection continue to provide some interest. A comparison of the specimens (only females until recently) with the description given by Eason (1964) suggested caution for these reasons:

1. The forcipular teeth are small as Eason indicates, but almost level in all the nine specimens; Eason draws the outer teeth well forward of the inner.
2. Eason suggests that "spine VpT on 14th and 15th legs is often found in *L. muticus*, a very unusual spine in *Lithobius*"; none of the Cwmbran specimens show it; females usually have 15DpF and 15DpT but it only occurs once in five specimens at Cwmbran.
3. The typical habitat given for the species is woodland but the Cwmbran specimens occur under stones in open rough grassland on a reclaimed site; none were found in the nearby woodland with the *Polydesmus testaceus*.

The above differences suggest that it is just possible that the Cwmbran population has originated from a source elsewhere in Europe, transported by the agency of Man as the whole area is greatly modified by mining, industry, trading and housing.

A singleton of *Brachyschendyla dentata* was found under a lump of tufa within the ruins of Llanthony Abbey in the Vale of Ewyas, Black Mountains, Abergavenny - SO288278 vc35 (Monmouthshire) 25.3.2002 John Harper leg. The species may have been introduced to the area at almost any time in the past, perhaps by monks from the strongly connected Llanthony and Tintern Abbeys, or down the ages to tourists today**.**

ACKNOWLEDGEMENTS
I am very grateful to Mike Kilner for introducing me to the Church Wood Fields site; to Henry Arnold for up-to-date information on records held at BRC and confirming that there are no records of the two centipedes held on the Biological Records Centre database; and also to Paul Lee for confirming that there are no previous records of *P. testaceus* from Wales.

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REPORT ON THE 2002 BMIG MEETING IN DERBYSHIRE AND SOUTH YORKSHIRE

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INTRODUCTION

Members of the British Myriapod Group and British Isopod Study Group have recorded in Derbyshire on an *ad hoc* basis on a number of occasions as part of family holidays and climbing trips to the Peak District. Records also resulted from Gordon Blower's students and visitors from Manchester University. South Yorkshire has benefited from being part of Doug Richardson's county survey for the Yorkshire Naturalist's Union, producing the first county atlases in 1990 (Richardson, 1990). Based in Sheffield, the Sorby Natural History Society are sandwiched between both areas and produced several reports of local species, culminating in the comprehensive survey of Myriapods and isopods in 1995 (Richards, 1995). Despite this recording activity, there are still many areas requiring more thorough investigation.

This was therefore the first formal BMIG field meeting in Derbyshire and was held in the less well recorded region beyond the Sorby mapping area, at the Youth Hostel in Youlgreave, near Bakewell in April 2002. This report is based on records contributed by A. D. Barber, G. Collis, S. Gregory, P. Lee, A. McLean, S. Price, P. Richards, D. Scott-Langley and D. Whiteley

RESULTS OF THE FIELD MEETING, APRIL 2002

The meeting was attended by BMIG and Sorby members, incorporating the usual site recording visits and evening talks, which included an introduction to Millipede identification for the non-myriapodologists and local visitors. Delegates were based within easy reach of the beautiful carboniferous limestone dales of the white peak, which unsurprisingly received the most attention from collectors. The upland acid gritstone of the dark peak was only visited by 5 collectors. Access had kindly been granted to both Haddon Hall and Chatsworth House gardens, which were both delightful venues and turned up some of the most interesting records. The weather was very mild and sunny which made for a particularly pleasant weekend of collecting.

In total, 253 millipede, 155 centipede and 218 woodlouse records (plus over a hundred other invertebrate records) were submitted, representing at least twice these amounts of specimens examined. These contributed data for eight of the surrounding 10 Km grid squares. It is worth noting that even in a very well recorded area, this amounts to something in the region of a 15% increase in high quality species data added to the local knowledge. When submitted to Derbyshire Biological Records Centre these will constitute a 1000% increase in data for these groups!

The three tables summarise the recording effort, the figures representing the number of people submitting a record for each species at each locality.

MILLIPEDES

With 253 submitted records of 22 species, the millipedes were the most frequently recorded group. Few surprises emerged, but the data is a very welcome addition to the local mapping scheme.

Two new sites were identified for *Allajulus nitidus*. This is considered to be rare locally, with only two other records from the Sorby mapping area (A group of 15 10Km squares north-east of SK1070).

Archiboreoilus pallidus was previously un-recorded from the white peak despite Blower's suggestion that it has a preference for calcareous soils (Blower 1985). This anomaly was rectified with four of the six new records coming from limestone dales.

Unfortunately all eight specimens of *Brachychaeteuma* examined were either immature or female but are assumed to be *bradeae/bagnalli* agg. based on previous records. Assumptions cannot be made about their identity as both species are known in the vicinity. Confirmation would have added three new sites, including two new 10km squares.

Cylindroiulus latestriatus cropped up once just to remind us that we do, sadly, have to still do those genitalia preps on *C. britannicus*! Previous records had been from a bracket fungus and limestone grassland, distinctly different from the dead wood and leaf litter habitat of *C. britannicus*.

It is interesting to note that only one out of eight sites for *Macrosternodesmus palicola* was from an ostensibly 'natural' site, the majority being disturbed, synanthropic sites. Although it is quite well recorded in the Sheffield area (66% of 10km squares) every previously known site for this species is associated with human activity. *Ophiodesmus albonanus* seems to be genuinely scarcer in this region and, as is often the case, only occurred with *M. palicola.*

Polydesmus angustus occurred very commonly, with *Polydesmus coriaceus* (*gallicus*) occurring only at Haddon Hall. Local distribution maps show the latter species to be very synanthropic and only occurs in the area to the south of Sheffield when associated with human activity.

CENTIPEDES

Although surveys have previously provided good coverage of records for centipedes, they are still far from accurately mapped in some areas. Seventeen species of the 21 known locally were recorded during the weekend.

The commonest species was *Brachygeophilus truncorum* from 24 sites. This is one species which is under-recorded in Derbyshire but well mapped in South Yorkshire. Local mapping schemes use a 1Km square basis and these records have added 19 new dots!

Much attention was paid to searching out *Geophilus easoni/carpophagus* particularly in the upland areas of moorland. All proved to be *G. easoni* and indeed subsequent checking of local voucher collections has confirmed that *G. carpophagus* is actually un-recorded in the Sheffield area.

The two *Geophilus electricus* records represent a first for Derbyshire. The credit for the first going to Paul Lee in Lathkill Dale, two days before Steve Gregory unearthed it by Cromford Canal. The widespread but uncommon occurrence of this species reflects its subterranean habits, however, locally this discovery also demonstrates the paucity of centipede records.

Lithobius borealis was surprisingly only recorded in the Sheffield area in March 1998 from Bretton Clough (with *Armadillidium pictum*, Richards & Thomas 1998). The two new records are from remarkably similar steep sided ancient woodlands on landslip of shale grit and sandstone. This high altitude (250m/833ft), rocky, acid environment is consistent with the characteristic habitat for this species (Barber & Keay 1988).

The four new records for *Lithobius macilentus* further emphasise the localised 'clumps' of occurrence typical of parthenogenetic species. Previous 'hot spots were in SK58, SK49 and SK39. The limestone area of SK17 has now been extended into SK16. Rather like the distribution of *Lithobius variegatus* on a national scale, it

would be fascinating to try to plot the exact boundaries of each of these clumps of *L. macilentus* occurrence, or indeed, to introduce a Dutch male specimen to one population!

It is disappointing that no further localities were found for *Lithobius muticus*. It would appear to be restricted to the areas of Litton Slack and Miller's Dale (SK1673) within Derbyshire. Two other localities occur in the Sheffield area (SK39 & SK58). This again proposes future field work to establish the extent of this northern population.

WOODLICE

Among the excellent haul of 118 woodlouse records were probably the most locally significant finds. The Derbyshire Dales are quite well recorded for woodlice, but slight extensions of distribution were made for several of the limestone specialities such as *Armadillidium pulchellum, Androniscus dentiger, Porcellio spinicornis* and *Trichoniscus pygmaeus.*

A new addition to the local fauna is *Trichoniscoides sarsi/helveticus*. Steve Gregory and John Harper found both males and females, under stones by a ditch and at the edge of a lawn at Haddon hall. The base of the old hall walls themselves proved very productive for several Trichoniscoid species. No *Trichoniscoides* species have been recorded within the Sorby mapping area. This location falls just outside that boundary, but the discovery still constitutes a new species for the county.

In 1998 the RDB3 woodlouse *Armadillidium pictum* was found in good numbers in trees at Stoke Ford (Richards & Thomas 1998). During this field meeting a number of BMIG members visited the site and confirmed the continuing population in a number of similar tree-bole sites. Elsewhere the species cropped up for the first time in shady grassland and mossy rock habitats in no less than 3 new 10 KM squares. This does beg the question as to whether recent recording has now identified *A. pictum* as having populations in more 10km squares than the Red data book requisite for designation as RDB3 (ie. 15).

A single compost heap at Chatsworth House produced two further new county records in *Porcellionides pruinosus* and *Porcellio dilatatus*. This clearly shows that of the few people studying isopods in Derbyshire over the years, none of them have ventured into farmyards! Further investigation in such locations may yet turn up *Porcellio laevis*, which is also unknown in this area.

PAUROPODS

Yes, there was one! *Pauropus lanceolatus* was recorded by David Scott-Langley at Chatsworth (SK264705) on 5th April. The specimen was determined by Ulf Scheller. This is almost certainly a new county record for an entire Class of arthropods as far as local databases show.

MILLIPEDES	Abney Clough	Bamford Moor	Birchen Edge	Bradford Dale	Bretton Clough	Brook Bottom, Tideswell	Bucka Hill	Chatsworth House		Chee Dale	Cressbrook Dale	Cromford Canal	Frith Wood, Litton	Haddon Hall	Haddon Hall, Manager's Garden	Hartington Station	Hay Wood, Nether Padley	Ladybower Wood		Lathkill Dale		Miller's Dale	Monks Dale	Priddock Wood	Priestcliffe Lees	Robin Hood	Rose End Meadows	Stoke Ford, Bretton Clough	Topley Pike	Wye Dale	Total
Species \ Grid ref.	SK17	SK28	SK27	SK26	SK27	SK17	SK27	SK27	SK26	SK17	SK17	SK35	SK17	SK26	SK26	SK16	SK27	SK18	SK28	SK16	SK26	SK17	SK17	SK28	SK17	SK27	SK25	SK27	SK17	SK17	
Allajs nitidus																1									1						2
Archiboreoiulus pallidus						1		1	1					1	1						1		2								8
Blaniulus guttulatus								3	1					3		1				2	2		2								14
Boreoiulus tenuis				1			1	1	1												2									1	7
Brachdesmus superus														1																	1
Brachychaeteuma sp.																1							2				1				4
Brachydesmus superus														1		1							2				1				5
Cylindroiulus britannicus								1	1	2	1			6						1	1		1				1		1	1	17
Cylindroiulus latestriatus																				1											1
Cylindroiulus punctatus		1			1	1		2	1	3		1		4		1	3	1	2	2	1		1	2	1		1	1	1		31
Glomeris marginata	1			1	1	1	1	1		4						1	2			2		2	5		1		1	1	1	1	28
Julus scandinavius	1						2							1			1							2				1	1			9
Macrosternodesmus palicola				1			1	1	1					3						1											8
Melogona scutellare				1								1	1	3							1		2		1						10
Nanogona Polydesmoides										2						1									1		1				5
Ommatoiulus sabulosus													1							1					1						3
Ophiodesmus albonanus				2					1					6																	9
Ophyiulus pilosus				1				2	1	5	1			5		1				1			1								18
Polydesmus angustus	1		2		1		1	1		2			1				1		1	1	2		1	1	1		1		1		19
Polydesmus coriaceus														6	1																7
Proteroiulus fuscus							1							4			3		1	1	1			2				1			14
Tachypodoiulus niger	1		2	1		1	1	3		6		1	1	4		1	1			2			3	2		1	1		1	1	33
Total	4	1	4	8	3	4	8	16	8	24	2	3	4	48	2	9	11	1	4	15	11	2	22	9	7	1	9	4	5	4	253

Table 1. Records of millepedes from the 2002 Derbyshire field meeting (showing number of records submitted)

CENTIPEDES

Species \ Grid ref.	Abney Clough	Birchen Edge	Bradford Dale	Bretton Clough	Brook Bottom, Tideswell	Bucka Hill	Chatsworth House		Chee Dale	Cressbrook Dale	Cromford Canal	Frith Wood, Litton	Haddon Hall	Haddon Hall, Manager's Garden	Hartington Station	Hay Wood, Nether Padley	Ladybower Wood	Lathkill Dale		Monks Dale	Priddock Wood	Priestcliffe Lees	Rose End Meadows	Stoke Ford, Bretton Clough	Wye Dale	Youlgreave Church	Total
	SK17	SK27	SK26	SK27	SK17	SK27	SK26	SK27	SK17	SK17	SK35	SK17	SK26	SK26	SK16	SK27	SK28	SK26	SK16	SK17	SK28	SK17	SK25	SK27	SK17	SK26	
Brachygeophilus truncorum		1	1	1		2	1	2	1	1	1	1	4		1	1	1		2	3	2	1	1				28
Cryptops hortensis								1	3				2														6
Geophilus easoni		1				1			1						1	1	1						1	1			8
Geophilus electricus											1								1								2
Geophilus insculptus		2						1	1				1		1	1							1				8
Haplophilus subterraneus			2				1	1			1		6	2						1						1	15
Lithobius borealis																	1				1						2
Lithobius calcaratus									2										2								4
Lithobius crassipes		2							1							1		1	4	1		1		1			12
Lithobius forficatus		2				1		2	1		1		3	1	1	1		2	4	1		1	1			1	23
Lithobius macilentus									2						1					1							4
Lithobius melanops					1								1	1													3
Lithobius microps							1	1	1	1	1	1	4	1											1		12
Lithobius variegatus	1	1		1	1	2			2							2	1	1	2	1	2				1		18
Necrophloeophagus flavus													3					2	1	1							7
Schendyla nemorensis								1					1						1								3
Total	1	9	3	2	2	6	3	9	15	2	5	2	25	5	5	7	4	6	17	9	5	3	4	2	2	2	155

Table 2. Records of centipedes from the 2002 Derbyshire field meeting (showing number of records submitted)

WOODLICE

Species \ Grid ref.	Abney Clough SK17	Birchen Edge SK27	Black Rock, Wirksworth SK25	Bradford Dale SK26	Brook Bottom, Tideswell SK17	Bucka Hill SK27	Chatsworth House SK26	Chatsworth House SK27	Chee Dale SK17	Congreave Farm SK26	Cromford Canal SK35	Frith Wood, Litton SK17	Haddon Hall SK26	Haddon Hall, Manager's Garden SK26	Hartington Station SK16	Hay Wood, Nether Padley SK27	High Peak Junction, Matlock Bath SK35	Ladybower Wood SK28	Lathkill Dale SK26	Lathkill Dale SK16	Miller's Dale SK17	Monks Dale SK17	Mosley Farm, Chee Dale SK17	Priddock Wood SK28	Priestcliffe Lees SK17	River bridge, nr Congreave SK26	Rose End Meadows SK25	Stoke Ford, Bretton Clough SK27	Topley Pike SK17	Wye Dale SK17	Youlgreave Church SK26	Total
Androniscus dentiger								1	3				4	1							1											10
Armadillidium pictum																				1					1		1	2				5
Armadillidium pulchellum																				2		1										3
Haplophthalmus danicus								2					3						1													6
Haplophthalmus mengei													2																			2
Oniscus asellus	1		1	1	1	2		3	5	1	1	1	5		1	1	1	2	2	3	1	3		2	1		2	1		1	1	44
Philoscia muscorum	2				1			1	3		1		4	1		1	1	1	2	3	1	5		1	1		2	1			1	33
Porcellio dilatatus								2																								2
Porcellio scaber	2	1	1		1	2		3	3	1	1		4	1	1	2		2	2	3	1		1	1	1		2	2		1	1	40
Porcellio spinicornis									2				2	1								1	1				1				1	9
Porcellionides pruinosus								2																								2
Trichoniscoides sarsi/helveticus													1																			1
Trichoniscus pusillus	2		1	1	2	1	1	3	3	1	1	1	5	1	1	1	1	1	2	3	1	4		1	1		2	2	1	1	1	46
Trichoniscus pygmaeus				1	2			1	2				1						2			2			1	1	1				1	15
Total	7	1	3	3	7	5	1	18	21	3	4	2	31	5	3	5	3	7	11	15	5	16	2	5	6	1	11	8	1	3	6	218

Table 3. Records of woodlice from the 2002 Derbyshire field meeting (showing number of records submitted)

ACKNOWLEDGEMENTS
Thanks go to : All BMIG and Sorby Natural History Society members who have submitted their records or specimens; Debbie Oly at Youlgreave Youth Hostel for her excellent food, hospitality and patience: Steve Price and Derek Whiteley for arranging access to Derbyshire Wildlife Trust sites and NNRs: Kelham Island Brewery at the Fat Cat in Sheffield for preparing the barrel of beer! Special thanks to staff at Haddon and Chatsworth for their help and hospitality.

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SHORT COMMUNICATIONS: INTERESTING RECORDS

HAPLOPHTHALMUS DANICUS - FURTHER NORTH IN FIFE, SCOTLAND

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Further to my article in Bulletin of the British Myriapod and Isopod Group 18 on *Haplophthalmus danicus* in Scotland, a visit on 12.4.2002 to a Scottish Wildlife Trust "wildlife site" on the north shore of the Firth of Forth at Massney Braes, Lundin Links (of Ladies-only Golf Club fame!) produced a few specimens of *H. danicus* under pieces of wood lying on an abandoned rail track overgrown with trees. Gordon Corbet had kindly introduced me to the site in December 2001 so it is gratifying that he also found the species within 100m on 8.1.2004 in what appears to be an abandoned garden higher up above the shore. The sites (at G.R. NO412025, vc85) are both adjacent to gardens so it is highly likely that *H. danicus* has been introduced via the trade in garden materials.

Whether the species may be near its northernmost limit in the UK has to be considered in relation to the site's geography. The northern climate is ameliorated locally, not only by its proximity to the sea, but also by the high land surrounding the Firth of Forth. I have frequently observed a wedge of clear sky above the Firth which allows the southern sun to warm the north shore, while the trees and other vegetation provide shelter from the wind.

BUDDELUNDIELLA CATARACTAE - INLAND IN WALES

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To the end of 2003 *Buddelundiella cataractae* had still been found in only five 10km squares in the UK, four of them on or near the coast. Apart from the records given in the atlas "Woodlice in Britain and Ireland", BRC/ITE 1985, Steve Gregory found it in an Oxford garden centre (SP50) in 1989 and 1991 (the only previous inland records) and Paul Richards found it by the sea at Eastbourne (TQ60) in 1993; I thank both gentlemen for their information.

Thus it was with surprise that I found a single specimen on 16.1.2004 under a large stone against soil (rather than scree) in a limestone quarry in Clydach Gorge, Abergavenny (SO214125 - vc42); over 30km from the Severn Estuary. Since I had found in the same quarry, the previous year, a singleton of the millipede *Cylindroiulus vulnerarius* amongst garden waste, a link from garden centre through to dumped garden rubbish seems likely.

That the species is not often found comes as no surprise as I very nearly overlooked it as a partly curled up small white springtail, *Kalaphorura burmeisteri,* of the lobed springless type (among which it was grouped), but with a surface texture akin to *Haplophthalmus* woodlice. Then, as to whether *Buddelundiella* is appreciably commoner than found, I can only say that I have recently been finding the difficult *Metatrichoniscoides celticus* at several known sites along the coast between Cardiff and Bridgend but have seen no sign of *Buddelundiella* under rocks just above high tide mark where it might be expected.

FURTHER RECORDS OF *GEOPHILUS CARPOPHAGUS* LEACH

P. F. Whitehead

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Having read the paper by Arthur, Johnstone & Kettle (2002), I was impressed by its exactness, helpfulness and wide range. Far from being 'subjective,' such a commentary can only act as a spur and invite further work. My few recent observations of *Geophilus carpophagus* Leach, 1814 align with the findings of these workers *viz.*

ENGLAND, WORCESTERSHIRE

Longdon Marsh (VC37, SO83, 12m O.D.), evidently new to VC, one under moribund bark, 1.9m up open-grown pasture oak *Quercus robur* L., 30 May 2002.
Pershore Cemetery (VC37, SO94, 35m O.D.), two together in humified organic litter embedded in fracture scar on primary limb of mature Atlantic Cedar, *Cedrus atlantica* (Endl.) Carriere, 10m up tree, 9 March 2003.

WALES, MERIONETHSHIRE

Llanarth (VC35, SO31, 65m O.D.), three together under loosened bark of cultivated damson tree, *Prunus domestica* L. ssp. *institia* (L.) Bonnier & Layens, in orchard, 11 November 2002.

These records should be read against the findings of Arthur, Johnstone & Kettle (2002). They tend to confirm the affinity of *G. carpophagus* with dry elevated situations. The Pershore site may be comparatively northern for an inland locality, and it could be that this species is in, or is entering, a favourable phase in Britain.

I am grateful to the Worcestershire Wildlife Trust and the Countryside Council for Wales for making some of these observations possible.

REFERENCE

Arthur, W., Johnstone, J. & Kettle, C. (2002) Ecological and behavioural characteristics of *Geophilus easoni* Arthur *et al.* and *G. carpophagus* Leach. *Bulletin of the British Myriapod and Isopod Group* **18**: 26-32.

SOME INTERESTING PAUROPOD RECORDS

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Some Pauropods found in recent years were identified by Ulf Scheller.

***Trachypauropos britannicus* Scheller**
1 adult female from Ladymoore Nature Reserve, Wolverhampton (Staffordshire – VC 39) SO 942 948, 13 April 1999. Extracted from soil on a smelting slag tip by a Tüllgren funnel. The soil contained very high levels of heavy metals.

2 adult females extracted from *Fagus sylvaticus* litter by Tüllgren funnels from 7 Briar Close, Caversham, Reading (VC 23 – Oxfordshire) SU 711 760, 19 November 1999.

T. britannicus seems to have only been found previously as three specimens from the type locality in Lancashire collected by J. Gordon Blower.

***Stylopauropus pedunculatus* (Lubbock)**
1 adult female and 1 juvenile extracted from *Fagus sylvaticus* litter by Tüllgren funnels from 7 Briar Close, Caversham, Reading (VC 23 – Oxfordshire) SU 711 760, 19 November 1999.

Stylopauropus pedunculatus is a widespread species but this is a new county record.

SHORT COMMUNICATIONS: OBSERVATIONS

A SWARM OF *CYLINDROIULUS LONDINENSIS* IN MONTGOMERYSHIRE

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On 29th June 2003, while botanising in the upper Llyfnant valley, 4 km south of Machynlleth at SN757963, with Sam Bosanquet and Chris Forster-Brown, the former noticed a mass of dead millipedes around an old heap of de-icing salt at the side of the road. These were later confirmed as *Cylindroiulus londinensis* by Paul Lee. There were at least a thousand of them, all dead, some appearing fresh but others more or less decomposed, and in places they were heaped up several deep. Almost all were coiled up or lying in a C shape, and all appeared to be adults. The salt heap was about 2 x 1 m, and about 30 cm high, on the grassy verge of the road, and the millipedes were on and around the edges of the heap. Above the verge was a high hedgebank, with a sloping pasture beyond. The site was at 180m a.s.l., at the end of a minor road in a wild situation, with the nearest house and garden 200 m away.

Paul Lee comments that the reasons for millipede swarms are uncertain, and that each event may have a unique cause; feeding and mating may be among the explanations. As millipedes appear able to detect and avoid potential toxins in food, they would be unlikely to have ingested the salt. If they were mating, it is odd that they should have chosen such a potentially unsuitable site. As they were lying dead all around the salt heap, it seems unlikely that it had acted as a lethal barrier to a unidirectional moving swarm. The fact that the animals were in different stages of decay indicates that their accumulation may have continued for some time, and if so this would suggest that they may have been positively attracted to the salt, but there seems no entirely plausible explanation for what we saw. Roadside salt heaps though may prove to be a habitat worth investigating when they are met with.

AN ASSEMBLAGE OF *CRYPTOPS HORTENSIS* LEACH, 1914

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The ancient settlement of Kemerton (SO93) is one of a number of villages flanking the southern side of Bredon Hill in Worcestershire, into which feature at that point, the Watsonian county of West Gloucestershire makes a marked incision. Immediately to the east of the settlement, the Squitter Brook runs into a mill pool from which it discharges to join the Carrant Brook further south. Much more ancient than the settlement, this drainage is somewhat inefficient in places, with a complex hydrology known to have varied markedly over time. South the of the mill pond, the Squitter Brook passes through an area sometimes known as The John Moore Reserve (VC33), named after the author who lived nearby. This is a curious area of several acres in extent, much of which has been planted up as an orchard and with a variety of amenity trees, and is now rather neglected. There are some interesting areas of *Carex* reed swamp and willow carr, and some very large hybrid willows which are breaking up. Some ash seedlings have reached large tree size. The underlying sediments are, or are derived from, fissile Jurassic clays, and in some places the ground vegetation is dominated by moss. There are a number of vernal swamps and rising springs and lush growths of comfrey and stinging nettle, implying that the sediments are rich in available phosphates. There is a substantial litter of twigs and branches on the ground, and the humidity in the shallow valley at 39m O.D. is always high.

I was invited by the then trustees of the reserve to undertake a bio-assessment of it during 1998. The results of this are indelibly imprinted on my memory as one of the first organisms encountered was a Mute Swan which misguidedly landed in a tree. We have records of over 300 species of invertebrates from this site including the centipede *Cryptops hortensis* Leach, and I was struck during March 1998 how often this species was found there. Usually, in the midlands of England, *C. hortensis* is found in small numbers. Wood mould in trees may typically accommodate from two to five individuals. On the 12 March 1998 I located 19 *C. hortensis* at The John Moore Reserve, mostly not fully mature individuals under the decaying bark of a number of trees. Later, on 1 March 2001, I counted 61 examples of *C. hortensis* at the site. Of these, 46 were found together, apparently in a somewhat quiescent state, in a hairline crack running through a block of Oolitic Limestone measuring 40 x 30 x 10cm by the side of the Squitter Brook.

I have not been able to find parallels for so many *C. hortensis* at one spot, and in my experience it remains the greatest single concentration of this species. Lewis (1963) demonstrated that *C. hortensis* is particularly desiccation, and presumably therefore also temperature, sensitive (in south-west England it lives on maritime cliffs in full exposure), and one can only speculate that assembly at one point might be a response related to that. On the other hand, the large numbers of *C. hortensis* at the site imply that it is highly favourable. Perhaps the key lies in the facts that a) the macroconditions of the site are eminently suitable b) winter niches are somewhat limited and c) the basin-like valley is likely to be a frost-drain. Additionally few ‘grain-cracks’ (Oolitic Limestone has no bedding planes) in limestone blocks have been investigated as invertebrate habitats. Intriguingly, one still has to explain the mechanism of assembly. I should like to thank the aforementioned trustees and Dr J. G. E. Lewis for suggesting that I produce this note.

REFERENCE

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MISCELLANEA

The following snippets were found by David Scott-Langley while reading about the life and work of Lord John Hunt (of Everest fame). They are written by Robin Hanbury-Tenison and Lord Hunt and refer to an expedition to Mulu, Sarawak.

'On the Sunday we took the Hunts to our favourite secret place in the park for a picnic, Deer Cave, where we found John Lewis, a myriapodologist (a secialist in centipedes and millipedes), happily crawling through the guano, popping centipedes into collecting bottles as fast as he could catch them, oblivious to the earwigs, cockroaches and spiders that swarmed over his body. John [Hunt] later wrote to me that this moment epitomised the dedication of all our scientists.'

'…My wife and I spent a fortnight with Robin and his team, consorting with scientists whose knowledge was beyond our understanding, but whose enthusiasm impressed and infected us. We were fascinated by the excitement of one expert in his discovery of a host of centipedes which made a good life for themselves in the guano deposited by millions of bats in a deep dark cave.'