

CENTIPEDES FROM THE FYLDE COAST (LANCASHIRE) AND ADJACENT AREAS

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INTRODUCTION

Lancashire has been the focus of myriapod studies at several periods in the past with contributions from H.K.Brade & S.G.Birks (H.K. & S.G. Brade-Birks), A.Randell Jackson and R.S.Bagnall in the earlier part of the twentieth century. In 1916 H.K.Brade & S.G. Birks, in their *Notes on Myriapoda-IV*, published a preliminary list for South Lancashire (vice-county 59) (Brade & Birks, 1916). Their list (nomenclature updated) included *Cryptops hortensis*, *Geophilus carpophagus* sl., *Geophilus flavus*, *Geophilus insculptus*, *Geophilus truncorum*, *Lamyctes emarginatus*, *Lithobius calcaratus*, *Lithobius crassipes*, *Lithobius forficatus*, *Lithobius melanops*, *Lithobius microps*, *Lithobius variegatus*, *Stenotaenia linearis* and *Stigmatogaster subterranea*.

Many of these records were from the Darwen area but there were others from Manchester and elsewhere. In subsequent papers (Brade & Brade-Birks, 1917, Brade-Birks & Brade-Birks, 1918, Brade-Birks & Brade-Birks, 1919) they added *Schendyla nemorensis*, *Lithobius borealis* and *Strigamia maritima* to the Lancashire list. *Geophilus algarum* as listed in their list (after R.S.Bagnall) has been shown not to refer to that species but to what were possibly immature *Strigamia maritima* (Eason, 1961). In due course H.K. & S.G. Brade-Birks moved from Lancashire to Kent and although continuing with their *Notes on Myriapoda* right up until 1939 these no longer specifically related to Lancashire and Cheshire.

After the Second World War, J.Gordon Blower and his students at Manchester University engaged extensively in myriapod studies although not especially in Lancashire, it seems. In April 1986 a British Myriapod Group / British Isopod Study Group joint meeting organised by Gordon at Manchester (BMG,1986) made a number of records in that area.

Liverpool Museum (National Museums & Galleries on Merseyside) has centipede records for both South Lancashire and elsewhere from the 1970's and 1980's as well as a series of more recent records and thanks to Ian Wallace & Chris Felton we have had access to these and to records of the house centipede *Scutigera coleoptrata* from a flat at The Dingle (1994) and from south Liverpool (1996). This is a species only found inside buildings in mainland Britain. In 1993 a specimen of *Cryptops anomalans* was found in a basement room at the Museum.

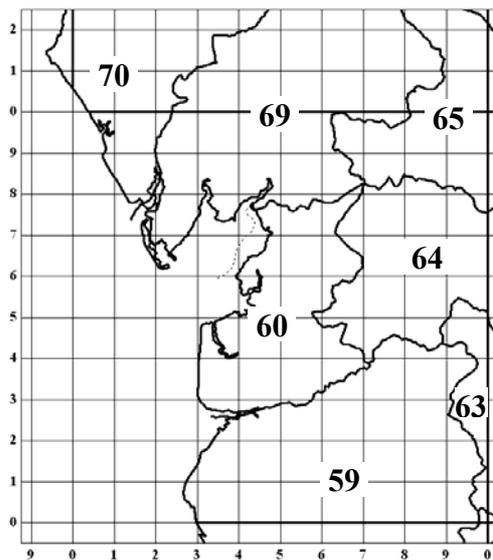
Bolton Museum has a number of centipede records dating from the period 1988-2003 which we have been able to access via Greater Manchester Local Record Centre (Steve Atkins). These include no additional species for Lancashire and their records of *Scutigera coleoptrata* from Tyldesley Garden cannot be currently accepted in the absence of either specimens or appropriate validation.

In October 2005, one of us (AB) collected in the Southport area without adding further species to the vice-county list. All these records have been included in the Centipede Recording Scheme data.

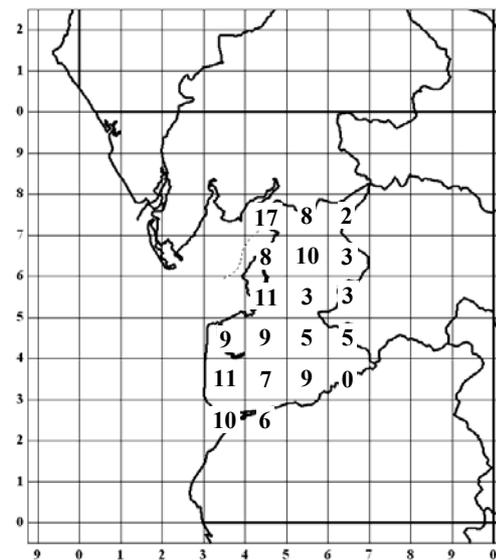
As far as vice-county 60 (West Lancashire) is concerned, recording has been much more patchy. There are old records for 1915 from Challan Hall, near Silverdale (*Geophilus insculptus*, *Cryptops hortensis*, *Schendyla nemorensis*), near Silverdale (*Geophilus truncorum*, *Lithobius variegatus*) and

Silverdale (*Geophilus flavus*) and there is a Brade-Birks 1916 record from Silverdale (*Geophilus electricus*). There is also a record by R.S.Bagnall from Arnside 1919 (*Strigamia maritima*), just over the border in vice-county 69 (Westmorland with North Lancashire).

Later unascribed records include species from Silverdale 1950 (*Lithobius calcaratus*, *Lithobius forficatus*, *Lithobius melanops*, *Strigamia acuminata*), Lytham 1958 (*G.insculptus*, *L.forficatus*), Thistleton 1958 (*G.truncorum*, *Lithobius crassipes*, *L.forficatus*), and Garstang Wood 1950 (*G.flavus*). Other records are by AB from Lancaster (1973: *S.subterranea*), C.Felton from Silverdale (1973: *L.calcaratus*), D.T.Richardson from Warton Crag (1976: *G.insculptus*, *L.calcaratus*, *L.forficatus*) and Tatham (*G.insculptus*), M.Fogan from Warton (1978: *L.microps*) and N.Jackson from SD56 (1981: *Geophilus carpophagus* sl).



MAP 1: West Lancashire (VC 60) & surrounding area showing vice counties



MAP 2: Number of species recorded for each 10km square in VC 60

The BMG / BISG meeting at Lancaster in April 1983 (unpublished) recorded *Geophilus insculptus*, *G.truncorum*, *L.forficatus*, *Lithobius macilentus*, *L.microps* and *L.variegatus* from Arnside Knott (in VC69), *G.insculptus*, *G.truncorum*, *L.forficatus* and *L.macilentus* from Gait Barrows, together with *C.hortensis*, *G.insculptus*, *L.crassipes*, *L.forficatus*, *L.melanops*, *L.microps*, *Schendyla nemorensis* and *Stigmatogaster subterranea* from St.Martin's College, Lancaster also various other records from adjacent VC69. A record of *Geophilus carpophagus* sl from Eaves Wood (01.04.83) is ascribed to A.N.Keay. In July 1984 AB collected specimens in the Myerscough area (*G.insculptus*, *L.crassipes*, *L.forficatus*, *L.melanops*, *L.variegatus*). He had previously recorded *L.forficatus* and *Lamyctes emarginatus* from Lancashire College of Agriculture, Myerscough and the latter also from Dinkling Green.

There are records by S.J.Gregory from Jenny Brown's Point, Silverdale (*G.truncorum*, *G.insculptus*, *G.flavus*, *L.melanops*, *L.microps*, *S.subterranea*, *S.maritima*) and from Over Kellet church (*G.insculptus*, *G.flavus*, *L.melanops*, *L.microps*, *S.nemorensis*, *S.subterranea*), both sets of records from 19.04.95 and a record by S.P.Garland of *L.variegatus* and *L.crassipes* from Fulwood (06.07.95). Also cave records from Warton Quarry mine (1995: *G.insculptus*) and Hazel Grove Cave (M.Morely, 1999: *G.insculptus* & *Geophilus electricus*).

Since 1997 JS has been collecting specimens from the Fylde coast and other areas of VC60 by both hand-sorting and pitfall trapping and these have been examined by AB. These, supplemented by further records by Jennifer Newton (indicated JN) and with some records from ants nests by Dr. Elva

Robinson (indicated ER) from Arnside Knott, Grubbins Wood and Gait Barrows (determined by Paul Lee) are listed herewith. Several of JN's records are from vice-counties 64 (Mid-west Yorkshire) or VC69 but are included here for completeness.

Map 1 shows vice-county 60 and adjacent areas of other vice-counties; Map 2 indicates the total number of species recorded from each of the 10km grid squares of VC60. Maps are also presented for each species showing occurrences since 1960, including all the above post-1960 records (Maps 3 – 25). It should be noted that a number of the records, including both records for *Lithobius curtipes*, do not relate to VC60.

GEOPHILOMORPHA

Family HIMANTARIIDAE

Stigmatogaster subterranea (Shaw)

A large, yellow species which, although found as far north as the west coast of Scotland, is typically synanthropic in the northern parts of its range. We have records from SD32: garden at St.Annes (19.10.97 and regularly thereafter) & Lytham Hall woodland (08.07.12), SD33: wood by Queensway, St.Annes (09.06.06, 28.06.12), SD43: Bucks Moss Wood, Salwick (26.06.12), SD45: Back Wood, Thurnham (18.07.12), (all JS) SD46: Heysham Moss SSSI (06.10.04, JN), SD47: Arnside Knott (VC69) (06.04.09, ER) and SD 57: Dalton Crags (20.06.12, JS). (Map 3)

Family SCHENDYLIDAE

Schendyla nemorensis (C.L.Koch)

A small, pale species recorded from a diversity of habitats both rural and urban. Recorded on five occasions - SD32: garden at St.Annes (05.03.99), SD34: under bark of dead tree at the Mount, Fleetwood (05.03.99), SD45: upper shore at Bank Houses, Cockerham (11.10.09) (all JS), SD47: Gait Barrows (11.04.03) and Arnside Knott (VC69) (06.04.09) (both ER). (Map 4)

Family LINTOTAENIIDAE

Strigamia acuminata (Leach)

A male of this species was collected by JS at Gibson Wood, Quernmore (SD56, 29.06.12) and a further one in Back Wood, Thurnham (SD45, 18.07.12). It had previously been recorded in VC60 at Eaves Wood, Silverdale (SD47) during the BMG/BISG meeting in 1983. (Map 5)

Strigamia maritima (Leach)

This is an exclusively seashore species found all round the British Isles in suitable habitats. It is here recorded from SD32: Granny's Bay, Fairhaven (20.06.04, 14.04.06, 10.03.09), SD34: south of Wardley's Creek, Hambleton (18.10.98) & Arm Hill, south of Knott End (11.04.04), SD45: north of Cockersands Abbey (18.07.12) (all JS). (Map 6)

Family GEOPHILIDAE

Geophilus carpophagus sensu lato

Until the latter years of the 20th century *Geophilus carpophagus* Leach as described by most authors was regarded as a single species although in due course it was recognised that there were two forms, a

“short form” found in moorland, woods, etc. and a “long form” found in synanthropic sites, climbing trees, in buildings and at the coast. These are now regarded as separate species, *G.easoni* and *G.carpophagus* sensu stricto. Hence the name “*G.carpophagus* sensu lato” as used here must be regarded as encompassing both species. With a few exceptions, therefore, older data cannot be assigned specifically to *easoni* or *carpophagus* ss. The map for *G.carpophagus* sl shows such records plus those for the two separate species. (Map 7)

***Geophilus carpophagus* Leach sensu stricto**

This is the larger species of the two which were formerly all regarded as *G.carpophagus* and typically associated with buildings and trees at the coast. There is a single record - SD45: upstairs, inside a house, Thurnham Bridge Cottages, Thurnham (13.04.09, JN). (Map 8)

***Geophilus easoni* Arthur et al**

The smaller of the two species formerly regarded as one (as *G.carpophagus*) and typically an animal of woodland, heathland and moor, etc. Two records - SD 44: relict mossland at Out Rawcliffe 13.09.08 (JS) and SD79 (VC65, north-west Yorkshire): in a garden, Sprintgill, 12 miles NE of Sedbergh 27.03.96 (JN). (Map 9)

***Geophilus electricus* Linné**

Many records of this species seem to be from synanthropic sites but it does not seem to be confined to them although patchily distributed. Collected in pitfall traps on three occasions (24.04.11, 08.09.11, 07.10.11) at New Laund Hill, Whitewell in SD64 (JS). (Map 10)

***Geophilus flavus* (De Geer)**

A species that is widely distributed over most of Great Britain and Ireland except, apparently N.Scotland. Records from nine sites – SD33: Peel clay-pits, SD34: cliffs at Norbreck & upper shore near Liscoe, SD42: Warton Bank (twice) & above Lea Marsh, SD44: in mole hill debris, field at Out Rawcliffe & riverbank, St.Michaels-on-Wyre, SD45: sea embankment north of Cockersands Abbey, (all JS), SD47: Gait Barrows (ER). (Map 11)

***Geophilus insculptus* Attems**

This is a species widely distributed in Britain up to the Shetland Islands so one might have expected to record it more often in VC60 than seems to be the case. There are seven locations recorded, all by JS: SD32: Lytham Hall woodland (28.5.00, 22.02.04, 08.07.12), SD45: Back Wood, Thurnham (18.07.12), SD53: woodland at Lower Brockholes (28.06.12), SD54: Nicky Nook, Scorton (14.05.06), SD56: Burton Wood, Aughton (27.04.99) & Gibson Wood, Quernmore (29.06.12), SD57: woodland south of Dalton (13.06.12). (Map 12)

***Geophilus truncorum* (Bergsö & Meinert)**

A relatively small species almost always (but not exclusively) recorded from more or less rural situations and typically found under dead bark and in leaf litter as well as on moorland and it is here recorded twelve times (all by JS) : SD32: Lytham Hall woodland, SD33: Starr Hills NR, St.Annes, track west of and wood by Queensway, St.Annes & Westby Wood, Weeton, SD43: Bucks Moss Salwick, SD45: Back Wood, Thurnham, SD53: Tun Brook Wood, SD54: Rough Hey Wood, Claughton-on-Brock, SD 55: Thorn Crag, Tarnbrook Fell, SD56: Gibson Wood, Quernmore & Claughton Moor, SD57: Dalton Crag. (Map 13)

SCOLOPENDROMORPHA**Family CRYPTOPIDAE*****Cryptops hortensis* (Donovan)**

This is the smallest and commonest of our three “native” *Cryptops* species and records exist from as far north as NW Scotland. The other two species, *C.parisi* and *C.anomalans* are very much more southern in their distribution although the former has been found in Edinburgh and Aberdeen, the latter in Sheffield (and in Liverpool – see above) and either might possibly be found in urban sites in VC60. All three species are commonly associated with synanthropic sites although *C.hortensis* is sometimes found in rural localities. It is recorded here from nine locations - SD32: garden at St.Annes (4 times), Lytham foreshore, Lytham Hall woodland & near Fairhaven Lake, SD33: by railway, south of Squires Gate, SD34: cliffs at Norbreck, SD44: Winmarleigh Moss & relict mossland, Out Rawcliffe (all JS), SD47: Gait Barrows (ER). (Map 14)

LITHOBIOMORPHA**Family LITHOBIIDAE*****Lithobius borealis* Meinert**

An animal mostly of rural sites including moorland in the west of Britain and found right up to the Shetland Islands. Older records of “*Lithobius lapidicola*” in Britain refer to this species. We have a single record from Arm Hill, south of Knott End in SD34 (01.03.09, JS). (Map 15)

***Lithobius calcaratus* C.L.Koch**

A species with a reputation for occurring in rather dry sites such as limestone outcrops and dry heaths and which has never been found in Ireland. There are a number of records here including from limestone in SD57 at Dalton Crags (3) and SD64 at New Laund Hill, Whitewell (3) (both JS). Additionally from SD56: Winder Wood, Roeburndale, Cold Park Wood, Roeburndale & Crossgill Beck, Littledale (all JN), SD57: woodland south of Dalton (JS), SD65: Dale Beck Quarry, Botton Head Fell and in NY70 at Smardale Gill NNR (VC69) (both JN). (Map 16)

***Lithobius crassipes* L.Koch**

This is the common small *Lithobius* in rural areas over much of Britain except in the SW, West Wales & W.Scotland (it is known in Ireland but mostly from the north). There are a total of 17 sites from which it is recorded: SD32: Royal Lytham golf course, dunes seaward of King Edward School, Fairhaven & Lytham Hall woodland (2), SD33: Starr Hills NR, St.Annes & field by site of Moss Side hospital, SD42: Warton Bank & Lea Marsh, SD43: Bucks Moss Wood, Salwick & Medlar Woods, SD44: Fowlers Hill Plantation, Cabus & Winmarleigh Moss, SD45: Bank Houses, Cockerham (2) (all JS), SD47: Warton Crag (both JN & JS), SD53: Tun Brook Wood (2), SD54: Castle Tarn, near Garstang (2), SD57: wasteland at Dock Acres (all JS) and SD 65: Dale Beck Quarry, Botton Head Fell (JN). (Map 17)

***Lithobius forficatus* (Linné)**

The common large chestnut-brown *Lithobius* of most of Britain except in those occasional localities (mostly urban except in west Cornwall), where *Lithobius pilicornis* occurs.

Recorded here from the following sites (all JS unless indicated) SD32: St.Annes garden, wood by Queensway, St.Annes, Lytham Hall woodland & Royal Lytham golf course, SD33: Westby Wood, Weeton, Wildings Hill Wood, Mythop, Long Wood, Singleton & Woodland Gardens, Blackpool, SD34: by sea wall at Knott End, upper shore near Liscoe & wasteland at Fleetwood, SD42: Lea

Marsh (2), SD43: in old willow between Freckleton and Newton, Medlar Woods, track at Thistleton & Bucks Moss Wood, Salwick, SD44: Fowlers Hill plantation, Cabus, in mole hill debris in field at Out Rawcliffe, Winmarleigh Moss (8) & riverbank, St.Michaels-on-Wyre, SD 46: Fairfield Community Orchard, Lancaster (JN), SD 47: Quaker's Stang & Leighton Moss (both JN) & Gait Barrows (ER), SD53: Tun Brook Wood (4) & woodland at Lower Brockholes, SD54: Nicky Nook, Scorton & Rough Hey Wood, Claughton-on-Brock, SD55: Clougha summit (JN), SD56: Gibson Wood, Quernmore, Cole Wood, Aughton (JN), Caton Moor (JN), Burton Wood, Aughton, Lawsons Wood, Aughton, Claughton Moor (2) & Nottage Crag, Claughton, SD57: Dalton Crags (both JN & JS), Lord's Lot Wood, Over Kellet, wasteland at Dock Acres & woodland near river at Arkholme, SD64: New Laund Hill Whitewell, SD66: Hill Kirks Wood, Roeburndale (JN), SD67: Gragareth summit (JN). The apparent absence of this species from grid square SD45 is unlikely to be significant and further sampling should locate it here. (Map 19)

***Lithobius macilentus* L.Koch**

Represented in Britain by females only (males occur in France), this is patchily distributed and not recorded from SW England or Ireland. Recorded from a single locality here - Tun Brook Wood, east of Preston (17.05.08, 13.06.08, 20.09.08, 04.10.08), in SD53 - collected both by hand sorting and in pitfall traps (all JS). (Map 20)

***Lithobius melanops* Newport**

Typically a species of gardens and coastal areas but found elsewhere and sometimes found inside houses and other buildings. Records are from SD32: in old willow at Witch Wood Lytham, dunes seaward of King Edward School, Fairhaven, by upstairs window of house, St.Annes & upper salt marsh near Cookson's site, Lytham, SD33: seaward dunes at Starr Hills & Woodland Gardens, Blackpool, SD34: Rossall School grounds, SD42: upper salt marsh at Freckleton Naze & near Freckleton Creek, SD43: in wood debris at Ribby, SD45: wood by River Cocker, (all JS) SD56: bark trap at Shire Oaks Wood, near Aughton (JN), SD64: New Laund Hill, Whitewell (JS). (Map 21)

***Lithobius microps* Meinert**

A small species often found in gardens and urban areas. JS has recorded it in SD32: St.Annes garden (11.03.98, 09.04.00) & embankment below promenade seaward of KES, Fairhaven (29.06.12), SD33: by old building in field east of Queensway St.Annes (06.06.04) and in wood by Queensway, St.Annes (28.06.12), by ditch off School Road Marton (24.04.00), Starr Hills NR (11.03.01) & from mole nest debris in field near Weeton (28.04.00), SD42: wooded slope above Freckleton Pool (14.11.04), SD43: Carr House Green Common, Inskip (28.07.01) SD45: sea embankment, Glasson Dock (18.07.12). (Map 22)

***Lithobius variegatus* Leach**

A distinctive variegated and almost always rural animal often found on upland moor and in woodland in Britain (although seemingly absent from large areas of eastern England and much of Scotland).

Recorded from the following sites (all JS unless indicated): SD33: disused railway at Great Plumpton, SD34: Arm Hill, south of Knott End, SD42: woodland above Lea Marsh & plantation by Lea Gate Hotel, SD43: Bucks Moss Wood, Salwick (2 occasions), SD44: Winmarleigh Moss, SD47: Arnside Knott and Grubbins Wood, Arnside (both VC69) (ER), SD53: woodland at Lower Brockholes, Boilton Wood (JN) & Tun Brook Wood, SD54: Fowler's Hill plantation, Cabus, Rough Hey Wood, Claughton-on-Brock (2) & Bannister Hey Wood, Claughton-on-Brock, SD55: upper Thrush Clough, Tarnbrook Fell, SD56: Nottage Crag, Claughton, Shire Oaks Wood, Aughton (JN) (3 occasions), Cole Wood, Aughton & Gibson Wood, Quernmore, SD57: Lord's Lot Wood, Over Kellet, woodland south of Dalton & woodland near river at Arkholme, SD59: Lambrigg Fell (2) in VC69 (JN), SD65: Marshaw Fell (4) (JS) and (5) (JN), SD66: Whitray Beck, Botton and Middle Gill, Botton, Lowgill & Lythe Fell (all JN), SD67: Ireby Fell, SD77: Southerscales, Ingleborough in VC64 (mid-west Yorkshire) (JN), SD79: Wandale Beck in VC65 (JN).

Further records for VC69 (all JN) are NY30/NY40: Kirkstone Pass, NY41: Place Fell, Patterdale, NY60: Low Borrowbridge, NY70: Smardale Gill NNR. (Map 23)

Family HENICOPIDAE

Lamyctes emarginatus Newport

An animal often found in damper areas and rather seasonal in its occurrence; Barber & Keay (1988) report it nationally from most seasons of the year but comment on its tendency to occur in the autumn both here and in Sweden, Faeroes and Iceland. Our records, all by JS, are all from between July and September. Records are from SD33: damp field east of Queensway, St.Annes (20.09.08), SD34: under debris near Fleetwood Dock (18.09.04), on wasteland east of A585, Fleetwood (11.07.10), under stone by pool at Fleetwood Marsh (28.09.11), SD53: at water's edge, Lightfoot Green gravel extraction site (06.09.09). (Map 24)

SCUTIGEROMORPHA

Family SCUTIGERIDAE

Scutigera coleoptrata Linné

In the Lancashire Wildlife Journal of 1994 there is a report of a presumed specimen of this being found in a house at Seathwaite Avenue, Blackpool (Ainscough, 1994). It was on a bare plaster wall in a living room and the author of the article reports capturing it in a glass tumbler from which it climbed out, was subsequently captured in an envelope and released outdoors. The author reports that it was identified using the brief entry and illustration in Chinery (1986). The scutigermorphs are so distinctive that it is unlikely to be anything other than one of these, presumably *S.coleoptrata* of which there are scattered indoor records from a variety of places in mainland Britain including, as indicated above, Greater Manchester and Merseyside (although a second species has recently been found in material imported from China). (Map 25)

DISCUSSION

The current list includes 20 species from outdoor sites in vice-county 60 together with a presumed *Scutigera coleoptrata* from indoors. From what we currently know of the distribution of our British species it contains few surprises. The list also has a relatively large number of records of our larger and more obvious types.

Not unexpectedly, *Lithobius variegatus* predominates in rural and more upland areas with *L.forficatus* often in more urban sites. *Lithobius borealis* and *L.crassipes* are roughly comparable in size and possibly of similar habits; examination of the distribution of these two rural species suggests a more easterly tendency for *L.crassipes* and a more westerly one for *L.borealis* but there are *L.crassipes* records scattered across much of Britain (except SW England) and *L.borealis* has been recorded right across Britain and Ireland.

Of the other British species, the two terrestrial *Strigamia* species always seem patchy in their occurrence and their ecology is not clear: *Strigamia acuminata* is known from localities as far north as Cumbria and Yorkshire and is recorded twice in the JS, JN, ER studies and had been previously found in VC60. *Strigamia crassipes* (C.L.Koch) although known from central Scotland has otherwise a more southern distribution according to current records.

Lithobius curtipes C.L.Koch, not always easy to distinguish from *L.crassipes*, has scattered records as far north as southern Scotland and there are records by C.Felton from Hutton Roof Crags, close to the border with Lancashire and from Burns Beck Moss, near Killington (both in VC69) in 2001 so its occurrence in VC60 might be predicted (Map 18). *Geophilus osquidatum* Brolemann, generally south-western, has been recorded from Shropshire and also from Workington in VC70 (Cumberland) so it might be found in Lancashire and *Lithobius muticus* C.L.Koch, mostly recorded from SE England, has been found in the Rotherham area and in rural sites in both Cheshire and Derbyshire.

There are several species that might possibly be found in VC60 in synanthropic habitats. These include *Schendyla dentata* (Brolemann & Ribaut) (known from Shropshire & Lothians amongst other locations), *Henia vesuviana* (recorded as far north as Cheshire), *Stenotaenia linearis* (C.L.Koch) (old records by R.S.Bagnall from Darwen, Sewerby, Ryhope Dene and Hexham) and *Lithobius pilicornis* (Newport) (SW England & SW Wales but urban sites elsewhere including Sheffield and Wakefield). Of the two larger *Cryptops* species, *Cryptops parisi*, although mostly southern, has been found in both Edinburgh and Aberdeen whilst *Cryptops anomalans* Newport is known in Sheffield and, as recorded above, Merseyside. *Lithobius lapidicola* Meinert, only known outdoors from the coasts of Suffolk and Kent, has been found in greenhouses elsewhere including North Wales (Bangor) and Edinburgh.

Apart from *Strigamia maritima* there also remains the possibility of other halophiles such as *Hydroschendyla submarina* (Grube) (known from Yorkshire, etc. but always difficult to find since it favours rock crevices) and *Geophilus gracilis* Meinert which is known from the Isle of Man and from Ravenglass (VC70) as well as other coastlines and could well be found on the Lancashire coast. There is also the possibility of hot-house exotics in suitable places such as subtropical / tropical greenhouses.

ACKNOWLEDGEMENTS

All those individuals named above either for providing specimens or for giving access to their records, to Graham Proudlove of Manchester for the cave records and to Biological Records Centre, Wallingford for spreadsheets of records including those from VC's 59 and 60. The distribution maps have been plotted for us by Steve Gregory using the DMAP mapping programme developed by Alan J. Morton.

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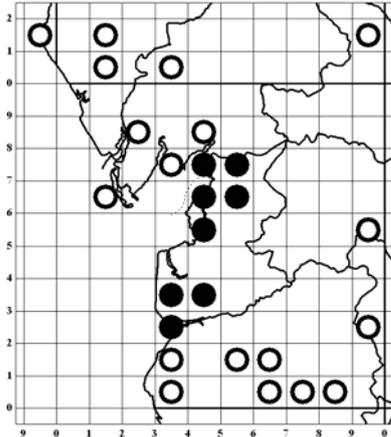
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DISTRIBUTION MAPS OF CENTIPEDES FROM THE FYLDE COAST AND ADJACENT AREAS (POST-1960)

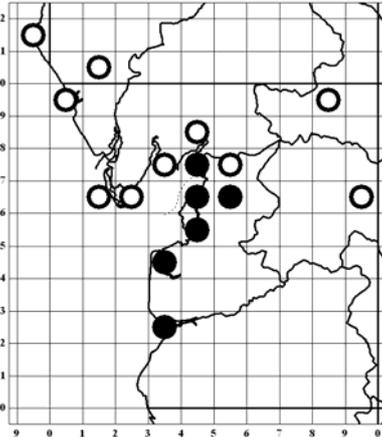
Maps show 10km National Grid grid square records from 1960 onwards only.

Solid dots [●] represent records from vice-county 60 (West Lancashire),

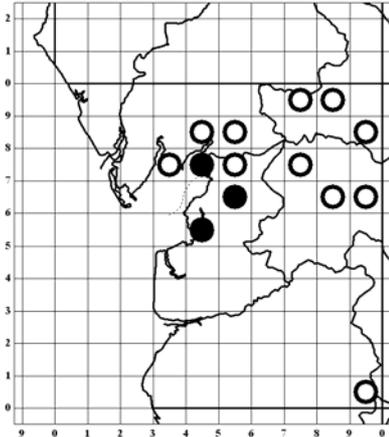
Open circles [○] other records from nearby areas in 100km NG squares SD (34) and part of NY (35).



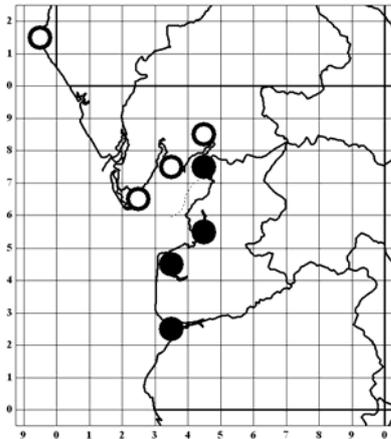
MAP 3: *Stigmatogaster subterranea*



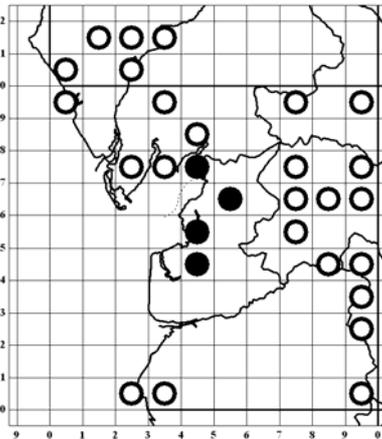
MAP 4: *Schendyla nemorensis*



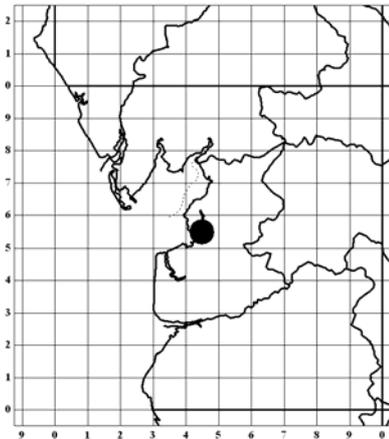
MAP 5: *Strigamia acuminata*



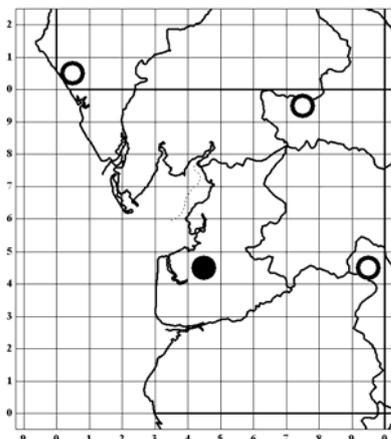
MAP 6: *Strigamia maritima*



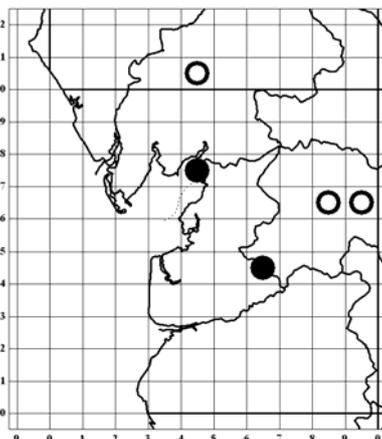
MAP 7: *Geophilus carpophagus* sl



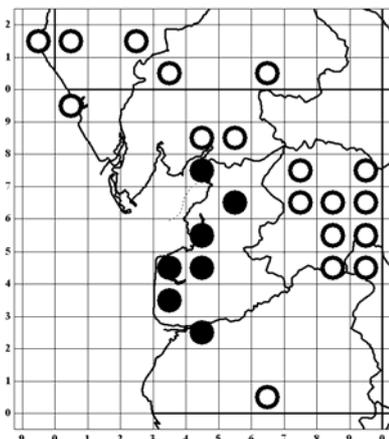
MAP 8: *Geophilus carpophagus* ss



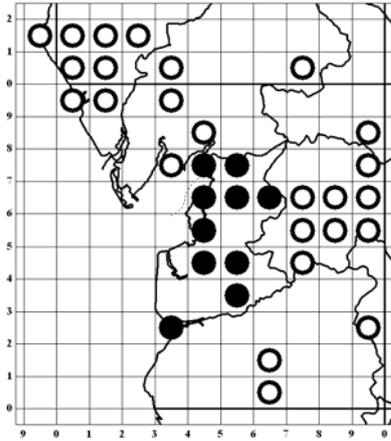
MAP 9: *Geophilus easoni*



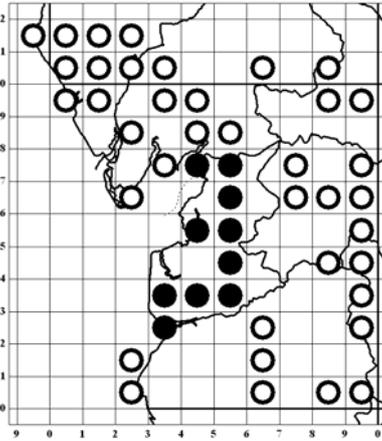
MAP 10: *Geophilus electricus*



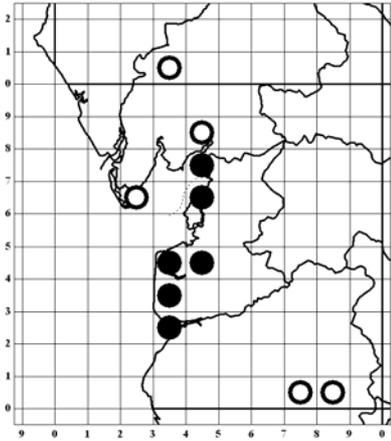
MAP 11: *Geophilus flavus*



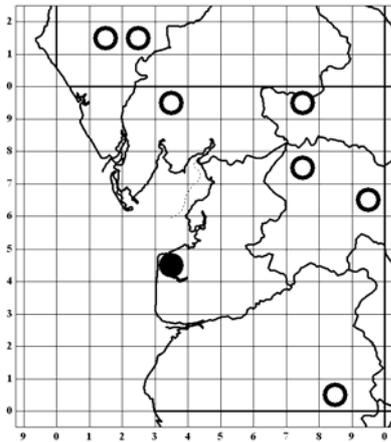
MAP 12: *Geophilus insculptus*



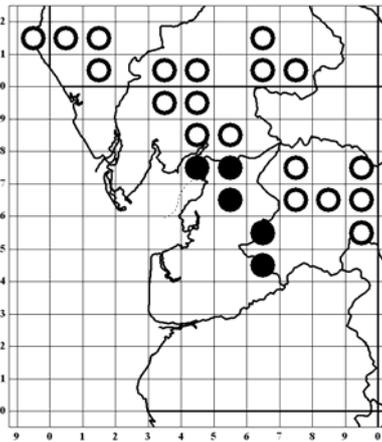
MAP 13: *Geophilus truncorum*



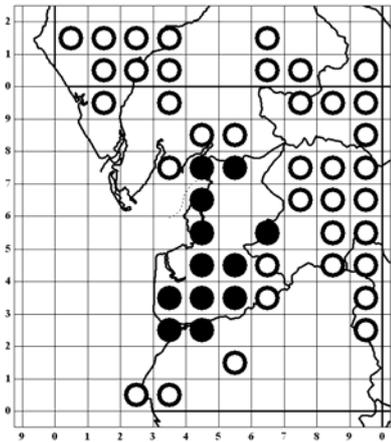
MAP 14: *Cryptops hortensis*



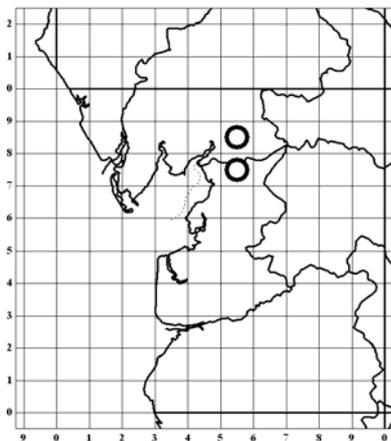
MAP 15: *Lithobius borealis*



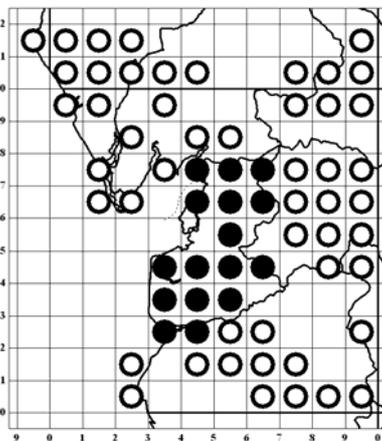
MAP 16: *Lithobius calcaratus*



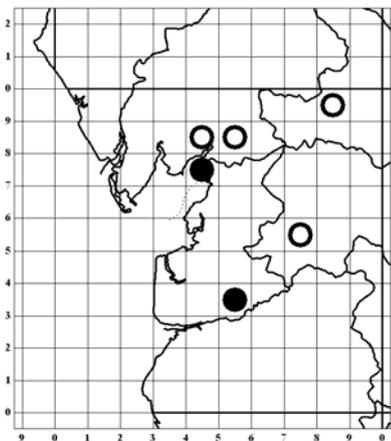
MAP 17: *Lithobius crassipes*



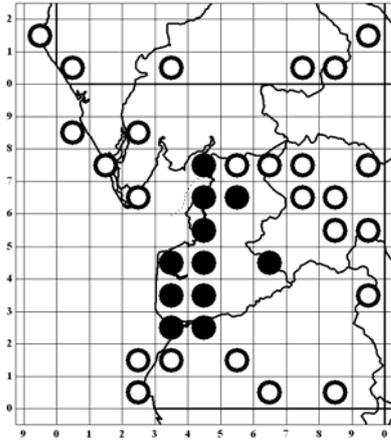
MAP 18: *Lithobius curtipes*



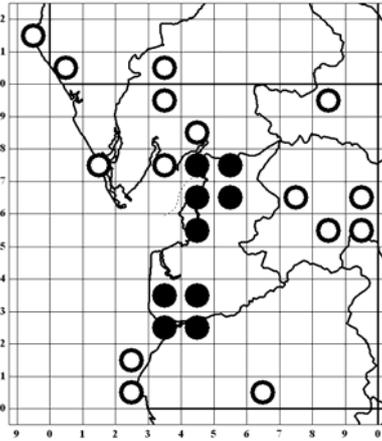
MAP 19: *Lithobius forficatus*



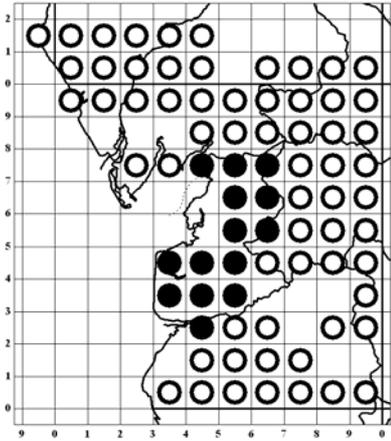
MAP 20: *Lithobius macilentus*



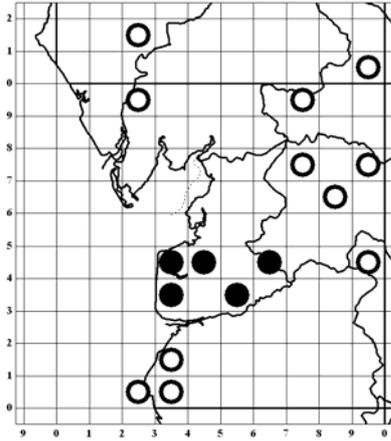
MAP 21: *Lithobius melanops*



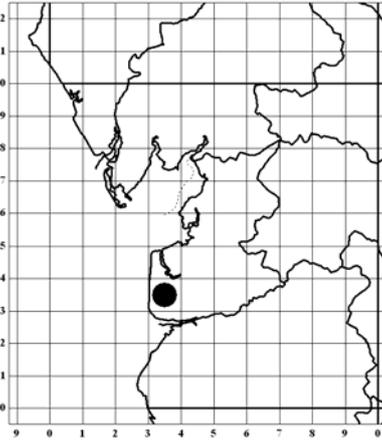
MAP 22: *Lithobius microps*



MAP 23: *Lithobius variegatus*



MAP 24: *Lamyctes emarginatus*



MAP 25: *Scutigera coleoptrata*