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The Millipedes of Leicestershire and Rutland

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We are also indebted to Steve Woodward who kindly allowed reproduction of photographs of millipedes he has recorded in VC55.

Introduction

Millipedes are a diverse group of invertebrates. They can be told apart from the superficially similar groups of centipedes and pill woodlice by possessing two pairs of legs per body segment whereas the other two groups have only one pair of legs per segment.

Currently, there are sixty two species of millipedes on the British list - six of these are unable to survive our winter climate and are confined to heated glasshouses. This assemblage of species comes in many shapes and sizes from the usual "snake millipedes" through "flat-backed millipedes" to "pill millipedes" with one species of Bristly millipede (*Polyxenus lagurus*) which could be confused with woolly bears (museum beetle larvae). Even the size of these species varies greatly from some that measure over 45 mm in length to others that barely reach 2 mm. The longevity of millipedes also varies greatly with some having an annual life cycle while others take 3-4 years to become adult then living for a further 6-7 years.

At present, thirty four species have been recorded within Leicestershire & Rutland (VC55) two of which have been found in the last couple of years. So there is plenty of scope for more species to be found and the present distribution of the known species to be enhanced.

Identification

Since millipedes generally grow to adulthood by adding further segments to the length of their bodies, and the fact that some species are only positively identified by their genitalia, makes the initial study of this group problematic. So, not only is it necessary to ensure that the specimen is of an adult but in some species it is necessary to be sure of the sex.

In recent years, several new species have been added to the British list and some of the diagnostic features used in older keys have proven to be flawed. Fortunately there is a new key being compiled at this time by Paul Lee (who runs the British Myriapod Recording Scheme on behalf of the BMIG, British Myriapod & Isopod Group) a draft copy of which can be obtained (for the cost of postage and photocopying) from Paul Lee, Oakdene, The Heath, Tattingsstone, Ipswich IP9 2LX (email: paullee@arachne.fsnet.co.uk). The Field Studies Council (FSC) usually runs a weekend identification course on Centipedes, Millipedes and Woodlice where a good grounding in these groups can be obtained (www.field-studies-council.org).

Habitats

Millipedes have been found in all but the aquatic habitats within Leicestershire & Rutland (VC55) although a few species that live within the river flood plains can survive short periods of inundation. Some species show strong associations with certain habitats while others are more

cosmopolitan in their preferences. Most species of millipede either live within the soil, usually found by turning over embedded stones and pieces of wood, or within clumps of vegetation, also under bark or within rotten wood of fallen trees, while a few species will even climb trees and live beneath loose bark.

Food

Millipedes are herbivores/detritivores and will tackle a range of different food types as long as there has been some initial decay; they are important contributors to the process of breaking down and recycling of litter. Some living plant material will be eaten as long as it is soft enough to be digested, such as seedlings and root crops with the latter usually first having been attacked by slugs. A further source of food for a few species is to graze algae from damp trees and walls.

Collecting

The easiest way to start collecting is by hand, turning over stones and pieces of wood, and then putting specimens straight into 70% alcohol. The use of a pooter and pricking out tool (as used by gardeners) or even a fine moistened camel hair paint brush will help lessen the damage to smaller specimens. Once familiarised with millipede identification, a range of other collecting techniques (sweeping, beating, pitfall trapping, bark traps, Tullgren funnels) can be tried and will produce a range of species.

The time of year when certain species are adult is also a limiting factor with many of the annual species being found over the winter and spring months. The temperature and weather conditions are also limiting factors in finding certain species with both drought and freezing temperatures forcing some soil dwelling species further underground.

Once a specimen has been provisionally identified, this should be verified by an expert. Establishing a personal reference collection will aid in the identification of specimens and any initial mistakes can be corrected at the start rather than being duplicated in the future.

Literature

At present the most up-to-date publication on this group of invertebrates is the *Millipedes (Diplopoda) of Britain and Ireland* by Paul Lee (Lee, 2006) which shows up-to-date distribution maps of all known species and has some useful photographs of many of the species. The other notable book *Millipedes* is by J Gordon Blower (Blower, 1985) which gives a concise and in-depth background for the study of this group of invertebrates. The book is currently being revised (publication due shortly) and will include the ten new British species that have been found since 1985.

On the local level there have been a few studies of wildlife at several sites within the counties that have incorporated information on millipedes. These include an unpublished survey of *The Non-insect Invertebrates of the City of Leicester* based on a 1km² basis and carried out by Adrian Rundle for the Leicestershire Museum, Arts & Records Service (LMARS).

The other survey carried out and published by LMARS was the *North-east Leicestershire Coalfield Survey* which has a chapter on the millipedes that were found (Dawson, 1978). The only recent survey of millipedes in VC55 has been by the current authors inspired by Paul Lee's publication which showed some large gaps within the Leicestershire and Rutland area. This report hopes to draw together all the known information on the myriapods and stimulate further interest in the future.

History of millipede collecting in VC55

As with all groups of invertebrates, our knowledge of the number of millipedes that occur within Leicestershire & Rutland, and their relationship to and with each other, has increased and will continue to do so with time. Historical records are notorious for their lack of data, usually being a list of species found within a county and the date of publication. In addition, the fact that many millipedes recorded under a certain name have not only subsequently proved to contain several species but the original names have disappeared from print over time. A further problem is validating such records with few, if any, specimens surviving to the modern day. With all this in mind, this section aims to bring together all of the known published information relating to millipedes for the two counties.

The first mention of millipedes for VC55 comes from the Transactions of the Leicester Literary & Philosophical Society (section E, Zoology) when a Mr HE Quilter read a paper on *Centipedes and Millipedes* (Quilter, 1889). The talk concluded with a list of species that had been collected from within Leicestershire by Mr WA Vice and Mr Quilter with identifications by Mr TD Gibson Carmichael. They are listed below on the left with modern names to the right (Table 1).

Table 1: Millipede list from Quilter (1889)

<u>Original recorded name</u>	<u>Modern name</u>
<i>Glomeris marginata</i> Villers	<i>Glomeris marginata</i> (Villers, 1789)
<i>Blaniulus vermestus</i> Meivert	Could refer to any of at least five modern day species
<i>Julus fallax</i> Meivert	<i>Ophiulus pilosus</i> (Newport, 1842)
<i>Julus sabulosus?</i> (immature)	<i>Ommatoiulus sabulosus</i> (Linnaeus, 1758)
<i>Polydesmus complanatus</i> L	<i>Polydesmus angustus</i> (Latzel, 1884)

In 1907 *A Guide to Leicester and District* (edited by GC Nuttall) included a Zoology chapter by AR Horwood (who was curator at New Walk Museum) where a list of millipedes of Leicestershire appeared (Horwood, 1907). The publication was produced for the British Association for the Advancement of Science meeting at Leicester in that year. The species list was part of a greater attempt to bring together, for the first time, a comprehensive list for all animal groups found within the county.

It drew upon the scattered records published in the Transactions of the Leicester Literary & Philosophical Society and Sir Oswald Mosley's *Natural History of Tutbury* (Mosley, 1863) supplemented by his own researches and those of others. Although no-one is credited for any of the records, those who helped compile the lists are named with a special thanks to a Mr DJ Scourfield for notes on the crustacea under which the list of millipedes appeared (Table 2).

Table 2: Millipede list from Horwood (1907)

<u>Original recorded name</u>	<u>Modern name</u>
<i>Polyxenus lagurus</i>	<i>Polyxenus lagurus</i>
<i>Glomeris marginata</i>	<i>Glomeris marginata</i>
<i>Julus fallax</i>	<i>Ophiulus pilosus</i>
<i>Julus sabulosus</i>	<i>Ommatoiulus sabulosus</i>
<i>Julus londinensis</i>	<i>Cylindroiulus caeruleocinctus</i>
<i>Julus punctatus</i>	<i>Cylindroiulus punctatus</i>
<i>Julus pulchellus</i>	* <i>Nopoiulus kochii</i>
<i>Blaniulus vermestus</i>	Could refer to any of at least five modern species
<i>Polydesmus complanatus</i>	<i>Polydesmus angustus</i>

[**Nopoiulus kochii* was not officially recorded in the UK until 1986 so this record is considered extremely doubtful. Nationally, the existing pre-1986 material purporting to be this species has been examined and found to include a range of species that includes *Choneiulus palmatus*, *Blaniulus guttulatus* and *Proteroiulus fuscus*.]

JG Blower tabulated a list of species found within VC55 (Blower, 1972) which (in map form) was unchanged in 1985 when Blower published his *Synopsis of the British Fauna No 35* on millipedes (Blower, 1985); the combined list is shown in Table 3.

Table 3: Combined millipede list originating from Blower (1972; 1985)

<i>Glomeris marginata</i>	<i>Julus scandinavicus</i>
<i>Nanogona polydesmoides</i>	<i>Ophiulus pilosus</i>
<i>Proteroiulus fuscus</i>	<i>Brachyiulus pusillus</i>
<i>Bianiulus guttulatus</i>	<i>Polydesmus angustus</i>
<i>Ommatoiulus sabulosus</i>	<i>Polydesmus gallicus</i> (= <i>Polydesmus coriaceus</i>)
<i>Tachypodoiulus niger</i>	<i>Polydesmus denticulatus</i>
<i>Cylindroiulus caeruleocinctus</i> *	<i>Brachydesmus superus</i>
<i>Cylindroiulus punctatus</i>	
[*Named as <i>C. londinensis</i> in 1972]	

In 1978 LMARS, under the leadership of Ian Evans, conducted a survey and produced a report *North East Leicestershire Coalfield: Report of a Biological Survey*. One of the groups of invertebrates covered was millipedes with 425 specimens taken and 11 species identified. Jan Dawson wrote the chapter on millipedes with AD Barber having identified the specimens (Dawson, 1978; Table 4).

Table 4: Millipedes recorded in the NE Leicestershire Coalfield Survey (Dawson, 1978)

<i>Polyxenus lagurus</i>	<i>Ophiulus pilosus</i>
<i>Glomeris marginata</i>	<i>Julus scandinavicus</i>
<i>Polydesmus angustus</i>	<i>Proteroiulus fuscus</i>
<i>Cylindroiulus teutonicus</i> (= <i>C. caeruleocinctus</i>)	<i>Ommatoiulus sabulosus</i>
<i>Cylindroiulus punctatus</i>	<i>Tachypodoiulus niger</i>
<i>Polymicrodon polydesmoides</i> (= <i>Nanogona polydesmoides</i>)	

In the 1980s Adrian Rundle was employed by LMARS on short-term contracts to collect non-insect invertebrates from around Leicestershire and Rutland among which were the millipedes. The objective was to produce a report on non-insect invertebrates of the City of Leicester based on a 1km² basis but the survey was never written up. All of Rundle's survey work remains as yearly documents containing lists of species under site names with short habitat descriptions copies of which are now held by the Leicestershire & Rutland Environmental Records Centre (LRERC).

A garden in Scraftoft Lane, Leicester has had its wildlife studied for many years with malaise and pitfall traps being used to capture invertebrates. Jenny Owen published her findings in *The Ecology of a Garden: The First Fifteen Years* in 1991 which has been reprinted several times (Owen, 1991). There is a section on millipedes (pp319-320) where she records five species which had been identified by either AJ Rundle or by DT Richardson (Table 5).

Table 5: Millipedes recorded in a Leicester garden (Owen, 1991)

<i>Polydesmus gallicus</i> = <i>P. coriaceus</i>	<i>Archiboreoiulus pallidus</i>
<i>Macrosterodesmus palicola</i>	<i>Ophiulus pilosus</i>
<i>Bianiulus guttulatus</i>	

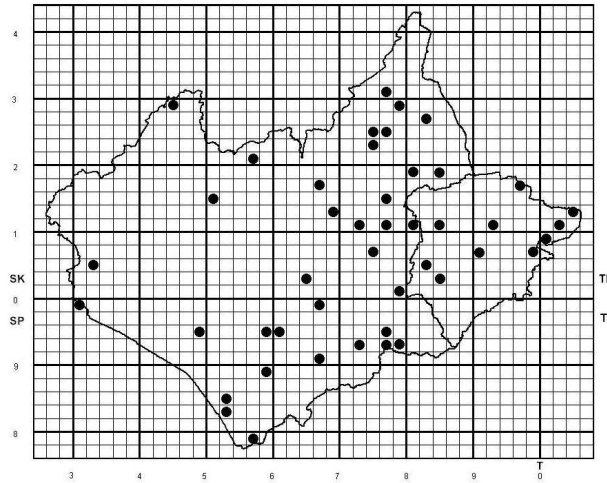
J Daws wrote a short article for the Newsletter of the Leicestershire Entomological Society on the finding of the Pill Millipede (*Geoglomeris subterranean* under the name *Styrioglomerus crinita*) as a new vice-county record from Ketton Quarry on 27/04/1994 (Daws, 1995).

Systematic List of VC55 Millipedes

Of the 62 species recognised on the British list (BMIG web site, November 2010), 34 have been recorded in Leicestershire & Rutland. The list follows the nomenclature of Lee (2006).

Polyxenus lagurus (Linnaeus, 1758)
Bristly Millipede (Cover photograph)

Order: **POLYXENIDA**
Family: **Polyxenidae**



This is the least likely British millipede to be recognised as a member of this group with a rather flat body (2-3 mm long) fringed with continuous rows of clumps of hairs. Older British records were often from beneath the bark of dead trees whilst most modern records are taken from mortared walls and beneath flower pots within churchyards. This is an annual species with adults being found from late spring to early autumn.

P. lagurus is listed as a VC55 species by Horwood (1907). The oldest mappable record the LRERC holds is for 27/06/1978 when Jan Dawson thought she had found this species new to VC55 whilst searching under bark of a felled Elm on Pasture Lane, village of Hose. This was followed by Rundle

when he recorded the species from three sites in north-east VC55 on 04/10/1980.

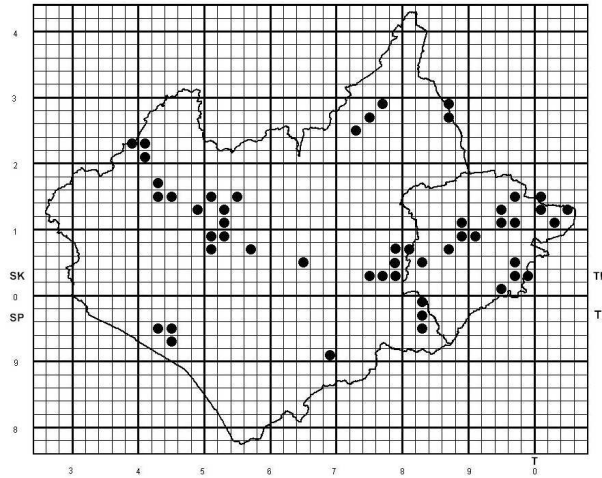
Since then there has been a scattering of records throughout VC55. Most are in line with the national trend and have come from churchyards with the species being mainly found beneath bricks and stones or from flower pots which are either standing on other bricks, stones or slabs or leaning against walls. These records were bolstered by Ivan Pedley, who whilst recording lichens throughout VC55, found this species to be relatively common on lichen-covered walls, rocks and stonework. Steve Woodward found four of them out of a sample of crumbling mortar on the Grace Dieu Priory ruins on 06/11/2010.



1 & 2: *Glomeris marginata*

Glomeris marginata (Villers, 1789)
Pill Millipede (Photographs 1 & 2)

Order: **GLOMERIDA**
Family: **Glomeridae**



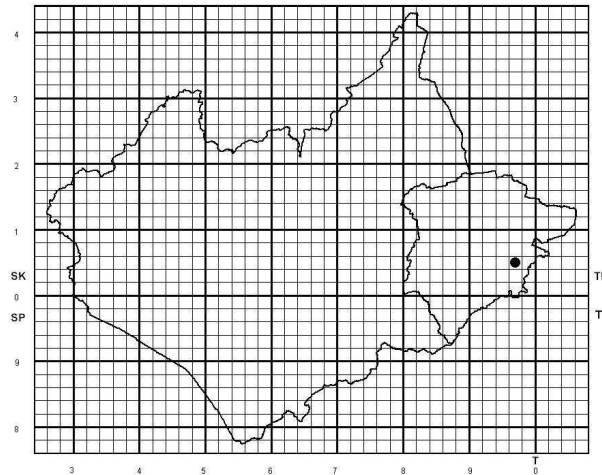
Usually a shiny black (occasionally brown to orange) species (7-15 mm) that can roll into a ball unlike pill woodlice which fold in the middle; *G marginata* tucks its head under its chin and pulls its tail over its head (folded into three). Its main habitat is deciduous woodland although it has been recorded from a range of other situations. This is a long-lived species with individuals living for over a

decade so adults can be found throughout the year.

The earliest record for VC55 was made by Mr WA Vice and Mr HE Quilter (Quilter, 1889). The earliest mappable record was made by IM Evans from Bradgate Park (23/11/1959) since when the species has been found in a variety of natural to semi-natural habitats across both counties.

Geoglomeris subterranea
(Verhoeff, 1908)

Order: **GLOMERIDA**
Family: **Glomeridae**



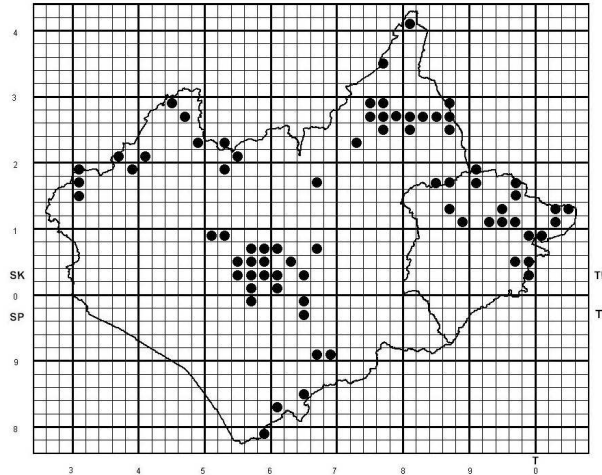
This is a small (2-3.5 mm) soil dwelling pale pill millipede that is mainly restricted to calcareous soils with many records coming from extraction sites of former chalk and limestone quarries. Adults can be found throughout the year although, so far, no male specimens have been recorded from Britain. This species may, occasionally, be found under large stones or rocks but, due to its small size, the only way to really measure the population is through a drying extraction method. This species migrates

deeper into the soil during very cold and dry weather.

There is only a single record for this species (formerly known as *Stygioglomeris crinata*) from VC55 when a specimen was found by J Daws under a large boulder adjacent to a footpath at Ketton Quarry (27/04/1994). The small size of the species means that it is probably under-recorded and should be searched for on the limestone areas of the two counties.

Nanogona polydesmoides
(Leach, 1814)

Order: **CHORDEUMATIDA**
Family: **Craspedosomatidae**



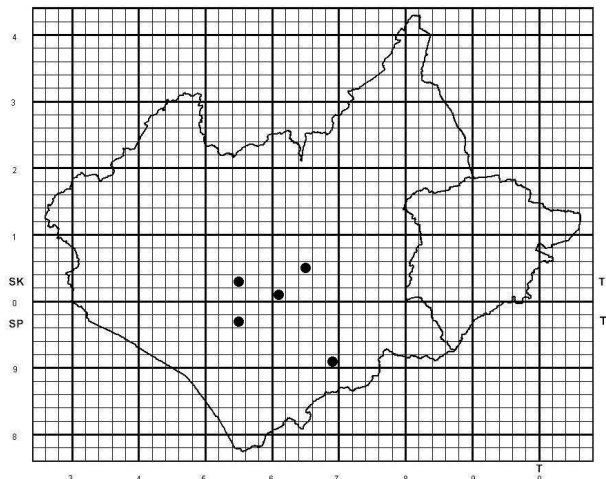
This is a large (17-21 mm) flat-backed (due to keels on either side of its body) millipede with a triangle of eyes on each side of the head; it also has a lot more body segments (30) than the similar-looking *Polydesmus* (20 segments) species so can even be identified in the juvenile state. It is considered a species of deciduous woodland although there are records from many other habitats. It is thought to be an annual species with

adults mainly found from autumn through to late winter although individuals may live a little longer.

The earliest VC55 record for this species came from AD Barber (23/03/1970) when it was found at Harby Hills. This species is relatively common across the two counties with records coming from a variety of habitats from woodlands to gardens in both rural and synanthropic sites.

Melogona scutellaris
(Ribaut, 1913)

Order: **CHORDEUMATIDA**
Family: **Chordeumatidae**



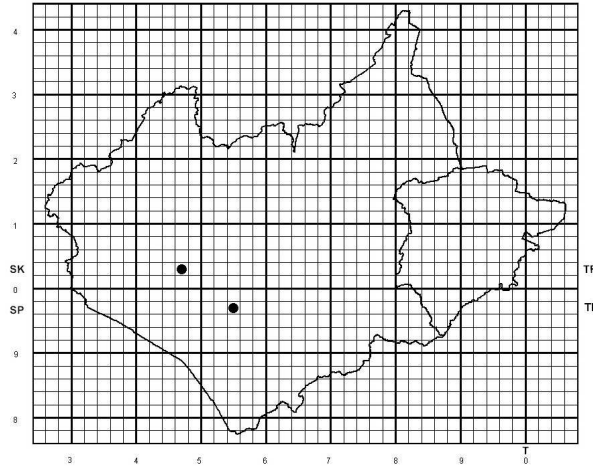
This is a snake millipede (5.5-8 mm) where the first body segment does not overlap the back of the head thus creating a notched effect when viewed from the side. It has 28 body segments, not including the head, and the cluster of eyes are in the form of an acute triangle. This species is most often recorded from woodland and disturbed ground including gardens. It is an annual species

with adults being found throughout the winter and spring months.

This is an under-recorded species in VC55 being first recorded by AJ Rundle (06/06/1981) when he found it in the grounds of Gumley Hall. Recently there have been a few records of this species from churchyards where it has been collected from beneath slabs and stones.

Brachychaeteuma bradeae
(Brölemann & Brade-Birks, 1917)

Order: **CHORDEUMATIDA**
Family: **Brachychaeteumatidae**

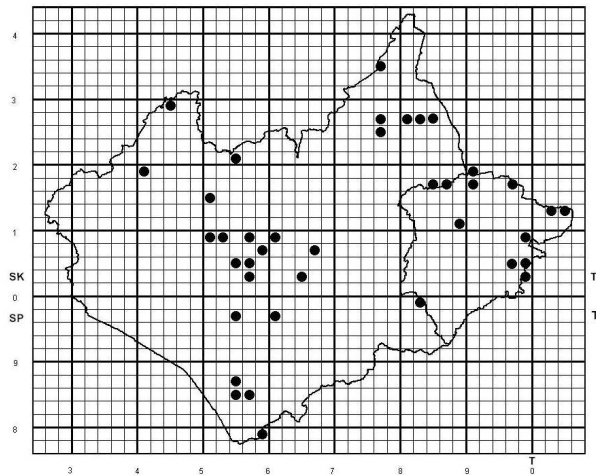


A small (5.5-8.5 mm) flat-backed millipede, with a line of 3-4 eyes on each side of its head, which can only be separated from *Brachychaeteuma bagnalli* by its genitalia. This is a soil-dwelling species that can be found by turning over large stones or logs. It has been recorded from woodlands and cultivated sites and is an annual species with adults being found through the winter and spring months.

The first VC55 record came from Desford churchyard (20/02/2007) when a single male was found beneath a large concrete slab by J Daws. The following year three specimens were found beneath large pieces of concrete on the recreation ground adjacent to Whetstone churchyard (16/01/2008) again by J Daws.

Brachydesmus superus
(Latzel, 1884)

Order: **POLYDESMIDA**
Family: **Polydesmidae**

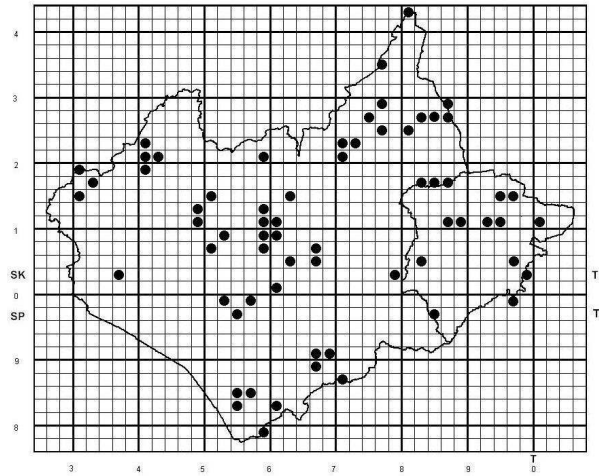


A blind flat-backed millipede (8-10 mm) that has a clearly sculptured upper surface to its 19 body segments. This is a cosmopolitan species being recorded from a wide range of habitats. It is believed to be an annual species with most records coming from the winter and spring months.

The first VC55 record came from Narborough Bog (02/04/1960) when IM Evans found the species. It has been recorded throughout VC55 with the most recent records coming from beneath drift material from several sites along the River Soar and from beneath stones and logs from several churchyards.

Polydesmus angustus
(Latzel, 1884) (Photograph 3)

Order: **POLYDESMIDA**
Family: **Polydesmidae**



A large (16-22 mm) flat-backed millipede with 20 body segments (not including the head) that can only be told apart from other members of *Polydesmus* by the genitalia. This species can be found in almost any habitat millipedes are found in. It takes about three years to mature and is believed to die after reproduction in the spring but there are records of individuals throughout the year.

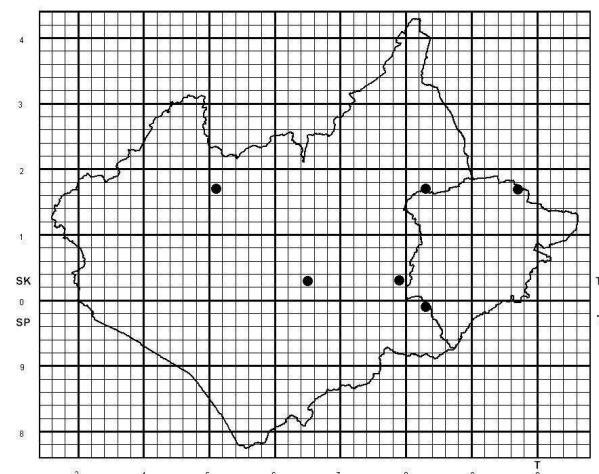
This is a common species in Leicestershire & Rutland being recorded from a wide range of habitats. Mr WA Vice and Mr Quilter collected the first VC55 record (under the name *P complanatus*) but without information on the collecting site or the date on which collected (Quilter, 1889). The first mappable record came from the grounds of Leicester General Hospital (12/03/1960) when it was found by Derek Foxwell.



3: *Polydesmus angustus*

Polydesmus denticulatus
(C.L. Koch, 1847)

Order: **POLYDESMIDA**
Family: **Polydesmidae**



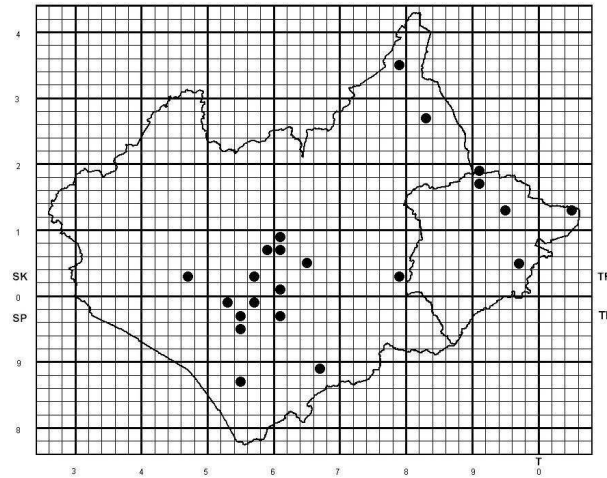
One of the members (10-17 mm) of the Polydesmidae that can only be separated from each other by genitalia examination. The two main habitats it has been recorded from are woodland and wetland but it does occur in other situations. It takes about two years to mature and has been found throughout the year with a peak of records in

spring and summer.

There are only six records for Leicestershire & Rutland but this may be due to under-recording and confusion with similar species. The first record came from Wardley Wood (28/04/1960) when IM Evans collected this species.

Polydesmus coriaceus
(Porat, 1871)

Order: **POLYDESMIDA**
Family: **Polydesmidae**

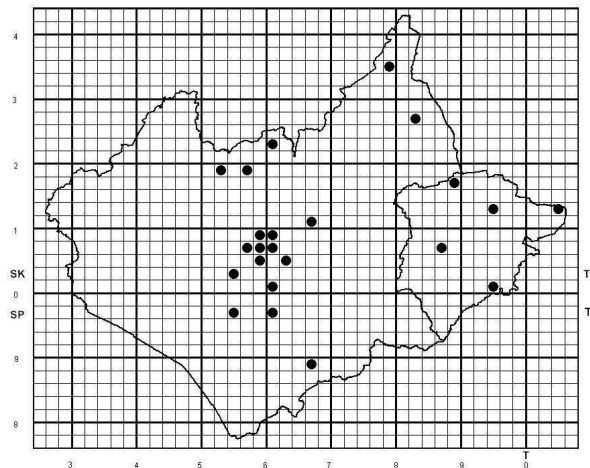


This species, formerly known as *P gallicus*, is another large (15-20 mm) flat-backed millipede that can only be identified from other *Polydesmus* species by its genitalia. It can be found in any situation where millipedes occur with a slight preference for synanthropic habitats and grassland. The species has been recorded throughout the year with a peak of records in the spring. A common species that can be collected in large numbers from beneath logs and stones in a wide range of habitats.

P coriaceus was listed as a VC55 record (under the name *P gallicus*) in an article in the Bulletin of the British Myriapod Group (Blower, 1972). This record almost certainly pertains to an NBN Gateway record by G Collis when the specimen was collected from Beaumont Leys Lane, Leicester on 30/06/1971. The first mappable record held by LRERC came from Laughton village collected by AJ Rundle (11/07/1981).

Polydesmus inconstans
(Latzel, 1884)

Order: **POLYDESMIDA**
Family: **Polydesmidae**

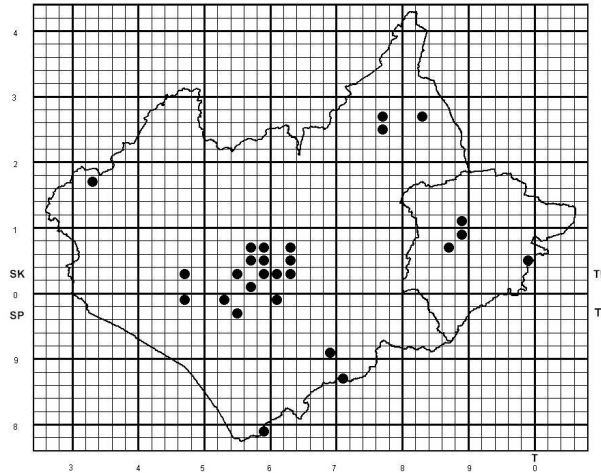


The last of the four common species (10-16 mm) of *Polydesmus* that can only be identified from one another by their genitalia. It has been recorded from a wide range of habitats but prefers the more open ones such as grassland. It has been recorded throughout the year with a peak in the spring months.

This seems to be another under-recorded species with records scattered across VC55. The first record came from Bramley Road, Birstall (10/05/1961) when it was collected by AG Smith.

Macrosternodesmus palicola
(Brölemam, 1908)

Order: **POLYDESMIDA**
Family: **Macrosternodesmidae**

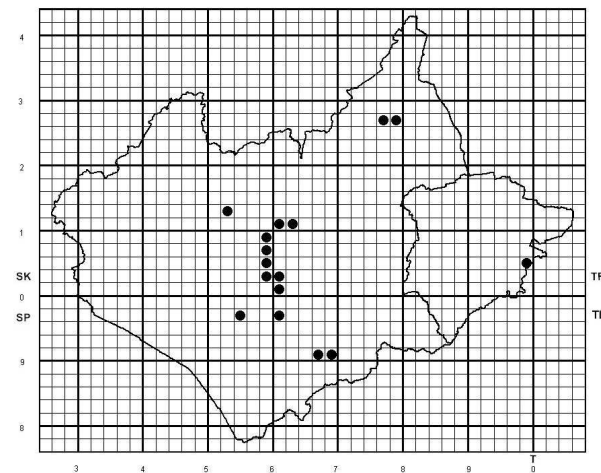


This is a small (3.5-4 mm) blind, white, flat-backed species with a sculpted surface to the top of its body segments. It has been found in a wide range of habitats beneath logs and stones. It is usually found from late autumn to early summer with a spring peak of records.

An uncommon species in VC55 that, due to its small size, can be elusive. The first record came from Goadby Marwood village, Vale of Belvoir (04/10/1980) when it was collected by AJ Rundle.

Ophiodesmus albanus
(Latzel, 1895)

Order: **POLYDESMIDA**
Family: **Macrosternodesmidae**



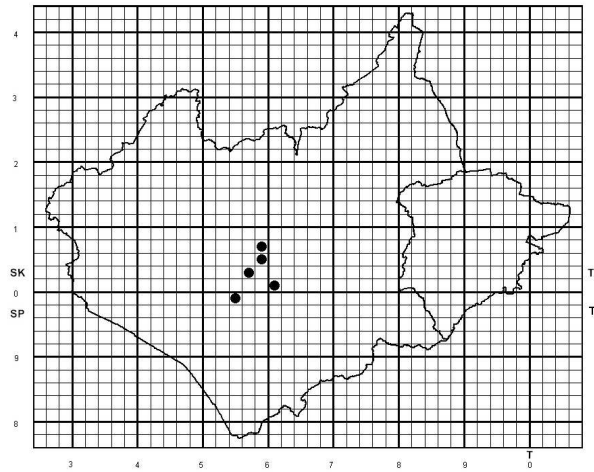
A small (4.5-5 mm) blind, white, flat-backed millipede with a smooth and shiny surface to the top of its body segments. This species is often associated with synanthropic habitats where it can be found beneath logs and stones. It has been recorded throughout the year with a peak through

the spring months.

There are a few VC55 records with the majority coming from around the city of Leicester. The first record came from Goadby Marwood village when it was collected by AJ Rundle (04/10/1980).

Choneiulus palmatus
(Němec, 1895)

Order: **JULIDA**
Family: **Blaniulidae**

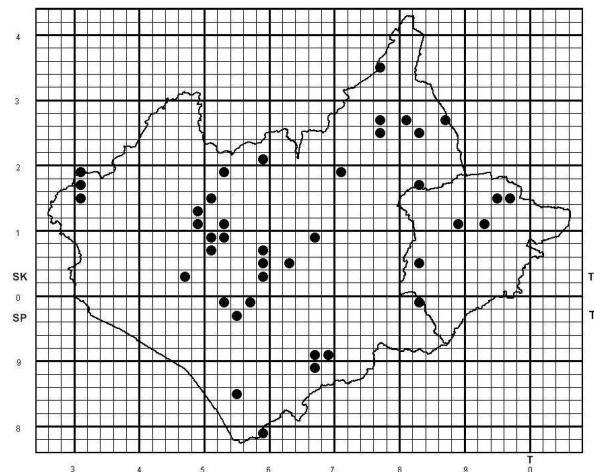


A snake millipede (5-15 mm) with the longitudinal grooves restricted to the lower half of its body segments and with eyes in a single line. It is mainly associated with glass-houses and gardens throughout Britain but has also been found to inhabit woodland amongst leaf-litter and under bark in the south. The millipede is believed to take up to three years to reach maturity with adults living for several more years.

AJ Rundle first recorded the species (14/09/1985) from a site in Leicester. Since then there have been a further six records from around the city and its satellite villages. The main habitats have been either gardens/waste ground or botanical gardens/garden centres where this species has been recorded from glass-houses.

Proteroiulus fuscus
(Am Stein, 1857)

Order: **JULIDA**
Family: **Blaniulidae**

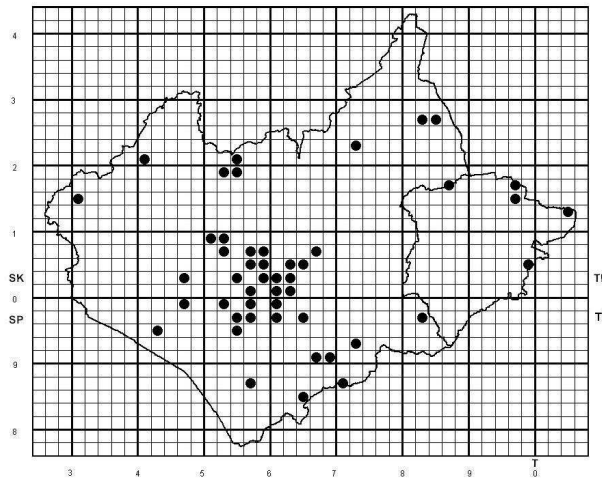


Another snake millipede (6.5-14 mm) with longitudinal grooves restricted to the lower half of its body segments with its eyes in a very acute triangle. This is primarily a woodland species, although it can be found in other habitats, associated with dead wood and living trees where it is to be found beneath bark or within leaf litter. The species can

take up to three years to become adult with individuals living for a further six years.

This is a common VC55 species being found in most habitats that contain dead wood or several trees. The first record was made by IM Evans at Wardley Wood (28/04/1960).

<p><i>Blaniulus guttulatus</i> (Fabricius, 1798)</p>	<p>Order: JULIDA Family: Blaniulidae</p>
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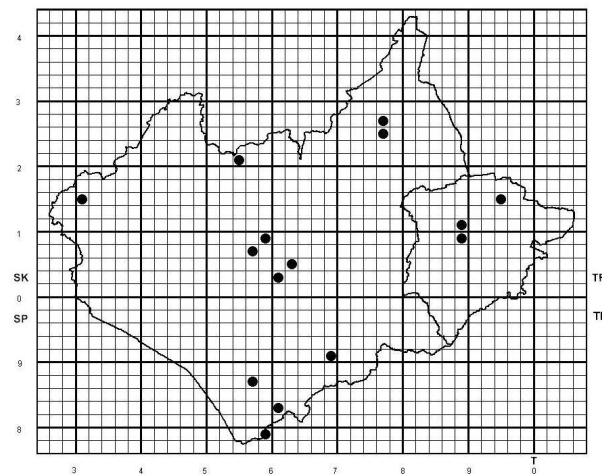


This is a blind snake millipede (8-15 mm) with its longitudinal grooves restricted to the lower half of its body segments. There is also a fringe of long hairs along the posterior edge of each body segment. In life it has a row of bright red spots along each side of the body which is lost after a few hours in alcohol that can stain the whole body black. The male genitalia are not enclosed within the body and are clearly visible. This is a synanthropic species associated with cultivated land, gardens, waste

ground and churchyards. It is a soil dwelling species that can be hard to find in cold weather and during drought when it moves deeper into the soil. The species can take up to four years to mature with adults being found throughout the year.

A common VC55 species the first record coming from West Humberstone (07/12/1960) when collected by DGS Gamble. All subsequent records come from under stones in a range of open to semi-open habitats scattered across both counties.

<p><i>Archiboreoiulus pallidus</i> (Brade-Birks, 1920)</p>	<p>Order: JULIDA Family: Blaniulidae</p>
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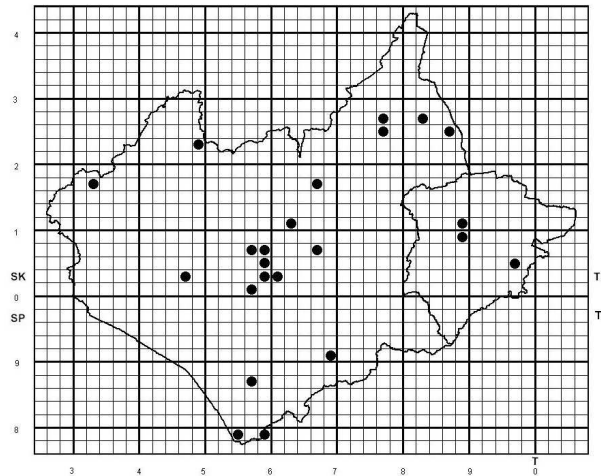


A blind snake millipede (9-15 mm) with its body segments having longitudinal grooves restricted to the lower half – there is also a fringe of long hairs along the posterior edge of each body segment. In life there is row of yellow to orange spots on either side of the body which can sometimes be observed in preserved specimens. The male genitalia are not enclosed within the body and are clearly visible. This is another species associated with arable land,

gardens, waste ground and churchyards where it can be collected with *B. guttulatus* but in smaller numbers. *A. pallidus* is a soil dwelling species that can be hard to find during the winter and droughts with the adult being seen throughout the year.

AJ Rundle secured the first VC55 record from Goadby Marwood on 04/10/1980. A further fourteen records for the species come mostly from rural synanthropic sites.

<p><i>Boreoiulus tenuis</i> (Bigler, 1913)</p>	<p>Order: JULIDA Family: Blaniulidae</p>
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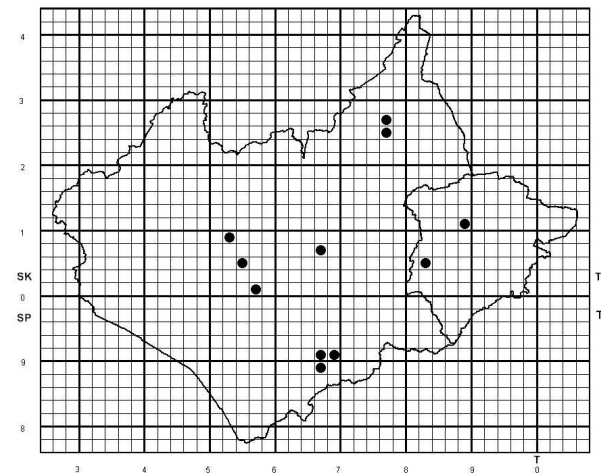


This is the smallest (7-9 mm) of the three blind snake millipede species that have longitudinal grooves restricted to the lower half of their body segments. Unlike the other two species, *B tenuis* has very short hairs along the posterior edge of the body segments. In life it has a row of yellow to orange spots along each side of the body which can sometime still be visible in alcohol. The male genitalia are not enclosed within the body and can

be clearly seen. This is a soil dwelling species of arable land, gardens and churchyards with adults being found throughout the year.

The first VC55 record was made by AJ Rundle (Goadby Marwood; 04/10/1980) with further records coming from a range of synanthropic habitats. This species can easily be mistaken, by the novice, for a juvenile of the larger and commoner *Blaniulus guttulatus* with which it sometimes can be found.

<p><i>Nemasoma varicorne</i> (C.L. Koch, 1847)</p>	<p>Order: JULIDA Family: Nemasomatidae</p>
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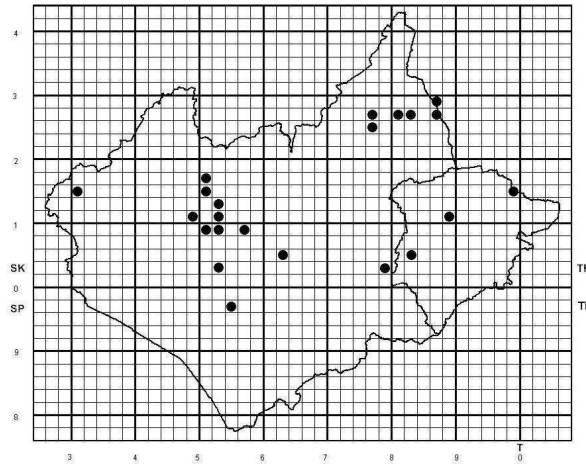
A snake millipede (4-13 mm) with its longitudinal grooves restricted to the lower half of its body segments and its group of eyes forming an equilateral triangle. It can usually be collected from under the bark of dead and living trees and so can be found in any habitat that has a few large trees, especially woodland. It takes about two years to mature with a few specimens living beyond

their second mating season. Adults can be found throughout the year with a surge of records in spring.

There are only ten records for VC55 with the first coming from Goadby Marwood (04/10/1890; AJ Rundle). The other nine records come either from woodland or parkland type habitats where it is usually associated with dead wood.

Julus scandinavicus
(Latzel, 1884)

Order: **JULIDA**
Family: **Julidae**



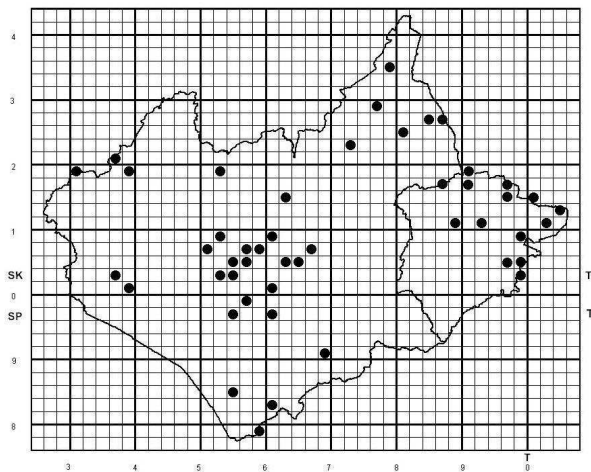
An eyed snake millipede (13-30.5 mm) that has a pointed projection on the upper margin of the last body segment. This projection is straight for most of its length and ends in a slightly down-turned transparent hook. Adult males are then identified by the shape of the first pair of visible legs with females needing genitalia examination. This is a predominantly woodland species that has been recorded from a wide range of other habitats. The

species takes three years to mature with the majority of specimens dying after mating in the spring.

D Foxwell collected the first specimen for VC55 at Leicester General Hospital (12/03/1960) with most subsequent records coming from rural habitats showing predominance for woodland or woodland-edge type habitats.

Ophiulus pilosus
(Newport, 1842)

Order: **JULIDA**
Family: **Julidae**



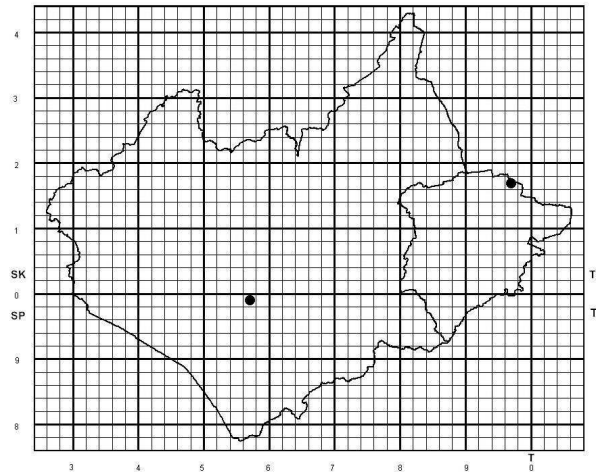
Another eyed snake millipede (14-30 mm) that has a pointed projection on the upper margin of the last body segment that is straight for the majority of its length ending in a slightly down-turned transparent hook. Males are identified from the shape of the first pair of legs (sickle-shaped) while females require genitalia dissection. The species has a preference for woodland but has been recorded in a wide variety of other habitats. The millipede takes two years to mature believing

to die after breeding in the spring but a few specimens have been recorded throughout the year.

This species was first listed for VC55 as *Julus fallax* (Quilter, 1889). The first mappable record came from the grounds of the Leicester General Hospital on 12/03/1960 by D Foxwell. Subsequent records have come from woodland/parkland type habitats from across both counties.

Allajulus nitidus
(Verhoeff, 1891)

Order: **JULIDA**
Family: **Julidae**



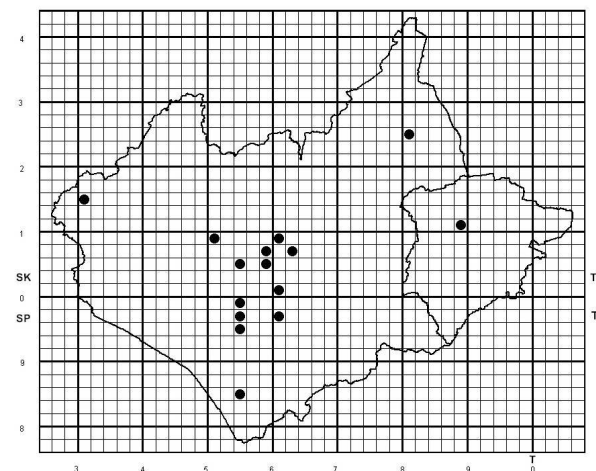
An eyed snake millipede (11-25 mm) that has a pointed projection which is either straight or slightly down-curved along its length with no transparent hook at its tip. It is a synanthropic species that is associated with semi-natural woodland, parks and churchyards. Adults can live for several years but

can be difficult to find in cold weather and drought when it will move deeper into the soil.

The only records for Leicestershire & Rutland were made by AJ Rundle when it was found at Clipsham Hall (23/09/1989) and on the following day from Rushton Drive, Leicester.

Cylindroiulus britannicus
(Verhoeff, 1891)

Order: **JULIDA**
Family: **Julidae**



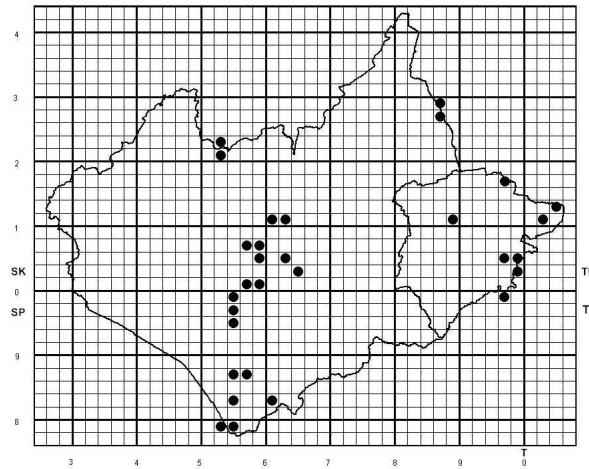
This is an eyed snake millipede (9.5-16 mm) that lacks a projection on the upper margin of its last body segment and is less than 20mm long. It is then separated from a further three species by the number of hairs on its rear end (anal valves) and then its genitalia. *C. britannicus* has been collected from a range of habitats associated with compost heaps, glass houses and under the bark of standing dead trees and fallen timber. It is believed to

mature after 2-3 years with adults being found throughout the year.

This under-recorded species (due to difficulties of identification) has been recorded across VC55 with the first sighting coming from a site in Leicester (14/09/1985) when it was collected by AJ Rundle. The majority of subsequent records are from in and around Leicester and its satellite villages.

Cylindroiulus caeruleocinctus
(Wood, 1864)

Order: **JULIDA**
Family: **Julidae**

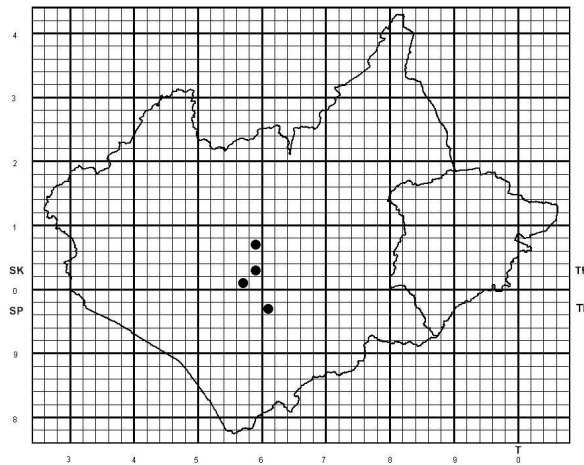


A large (20-29 mm) robust (even as an immature) snake millipede that lacks a projection on the upper margin of its last body segment and has a cluster of eyes forming an oval to kidney shape. This is a synanthropic species of open spaces associated with cultivated land, parks and churchyards. Adults have been found throughout the year but during drought and the winter months it will move deep into the soil.

C caeruleocinctus was listed under the name *C londinensis* (Horwood, 1907). The first mappable record for VC55 came from pitfall traps set in Cooper's Plantation, Saltby when Jan Dawson collected this species (01/010/1978) under the name *C teutonicus* (see under *C londinensis* below for more information). The majority of more recent records are from Leicester city and its surrounding conurbation.

Cylindroiulus parisiorum
(Brölemann & Verhoeff, 1896)

Order: **JULIDA**
Family: **Julidae**

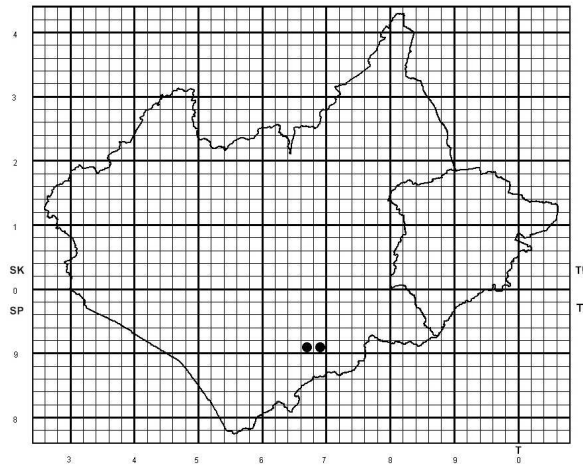


This is an eyed snake millipede (9-12.5 mm) without a projection on the upper margins of its last body segment that can be told apart from three similar species by the number of hairs on its anal valve and its genitalia (see *C truncorum* for more details). The species has been found in a range of synanthropic and semi-natural habitats including parks, cemeteries, grassland and woodland. Adults have been recorded from September to June although the actual lifespan of this species is still unknown.

The first record for VC55 was a single male which was collected from beneath bark of a standing dead tree within the grounds of Aylestone Hall Gardens, Leicester (J Daws; 02/01/2007). A further three records came from another city park (in large numbers from within its compost/rubbish heaps) and two cemeteries – Welford Road Cemetery (two specimens amongst leaf litter under a large stone) and Wigston Cemetery (again in large numbers within a compost/rubbish heap).

Cylindroiulus londinensis
(Leach, 1815)

Order: **JULIDA**
Family: **Julidae**



A large (20-48 mm) robust (over 3mm in diameter) eyed snake millipede that has a stub- to club-shaped projection on the upper margin of the last body segment. It is predominantly a woodland species that has been recorded from more open habitats with adults being found throughout the year. LRERC holds a number of records for this species including one from Bramley Road, Birstall (08/04/1960) collected by AG Smith with a second record from the same site on 10/05/1961. There are also records from the NE Leicestershire Coalfield Survey (Dawson, 1978) when two specimens (under the name *C teutonicus*/*C londinensis*) were collected in pitfall traps in Cooper's Plantation (05/10/1978; 20/10/1978).

Before the 1980s there was a lot of confusion between the two species we know today as *C londinensis* and *C caeruleocinctus* with many collectors believing that a third species (*C teutonicus*) was involved. A further complication at this time was that some experts were using *C teutonicus* for the species we now know as *C caeruleocinctus*.

This was sorted out when *C teutonicus* was deleted from the British list (Blower, 1985). The Coalfield specimens (Dawson, 1978) have been examined and found to be *C caeruleocinctus* – unfortunately the earlier specimens could not be traced and so have been deemed to be the same species.

The only reliable, and thus the first, VC 55 record for *C londinensis* was for a specimen taken by AJ Rundle (06/06/1981) when the millipede was recorded widely around the Gumley Estate and churchyard.

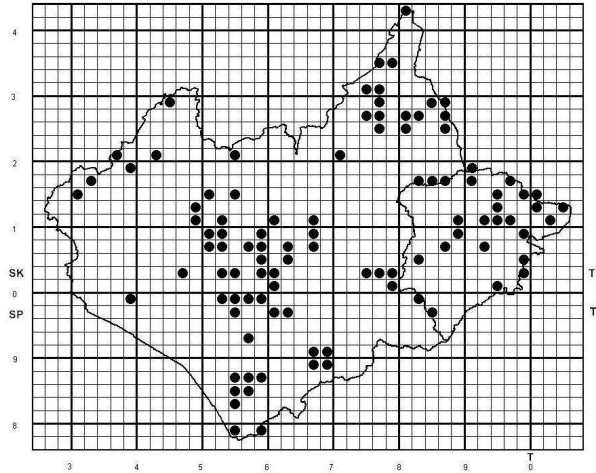
Unfortunately there are no specimens within the museums service to support this record and so in the end Dr Rundle was tracked down and he spoke at length about his visit to Gumley Hall. He remembers collecting *C londinensis* because this was the first time he had seen this species – “it was relatively common within the woodland around the artificial lake, where adults and juveniles were present, and the characteristic [club-shaped] tail could easily be seen on all specimens”.



4: *Cylindroiulus punctatus*

Cylindroiulus punctatus
(Leach, 1815) (Photograph 4)

Order: **JULIDA**
Family: **Julidae**

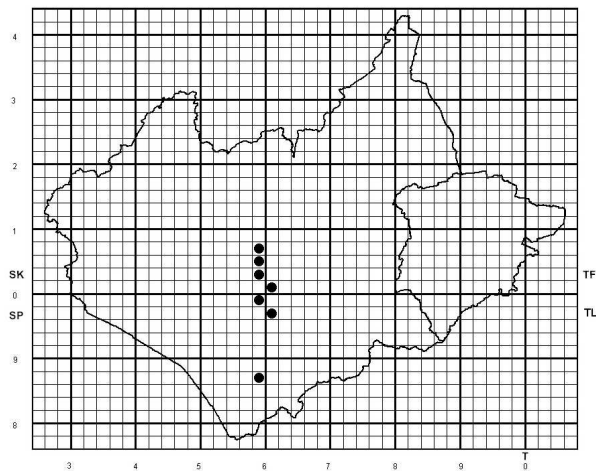


This is a pale snake millipede (14-27 mm) that has a club-shaped projection on the upper margin of its last body segment. It is found in a range of habitats in association with dead wood and leaf litter. It takes 2-3 years to mature and may breed for several seasons so that adults can be found throughout the year.

One of the commonest species in VC55 being found under most logs one turns over being listed by Horwood (1907) as a counties' species. The second VC55 record (the first with full details) came from the grounds of the Leicester General Hospital when it was collected by D Foxwell (12/03/1960).

Cylindroiulus truncorum
(Silvestri, 1896)

Order: **JULIDA**
Family: **Julidae**

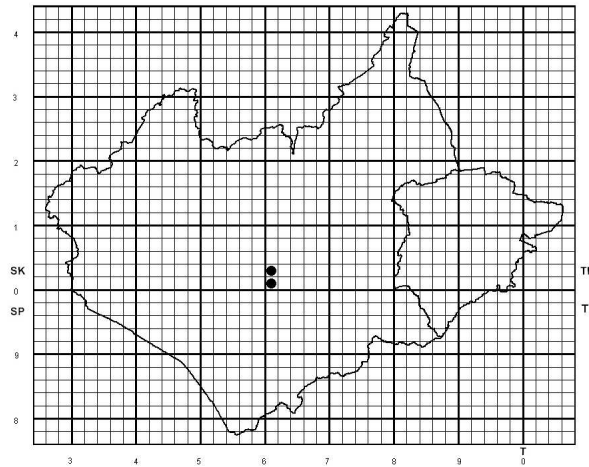


This species (10.5-15 mm) and *C. parisorum* are very similar in appearance and can only be reliably separated by genitalia. One of the few external characters for separating the two species (the number of anal hairs) has proven to be inconclusive because there is a large overlap in the consistency within species. An added problem is that even individuals collected from a single population and identified by an expert seem to have similar genitalia to the other species. So the question remains – do these species coexist or are they one species with very variable genitalia? There are less than eight records mapped for *C. truncorum* in the latest atlas for the UK and Ireland (including one for Leicester) with the main habitat for these few records being either inside hothouses or amongst

leaf litter outdoors. The first record for VC55 was made by AJ Rundle from Leicester's Welford Road Cemetery (21/09/1987) which was followed by a further three records for the city over the next six years. There was then a gap of 14 years until it was found at Saffron Hill Cemetery, Leicester (18/03/2007) associated with wet wood-chipped mulched shrub beds and under the bark of logs awaiting chipping. A further four records followed over the next ten months all associated with either rubbish, compost or muck heaps at two city parks, a cemetery and a stables. One further record came when specimens were found in a heated glasshouse at the University Botanical Gardens, Oadby.

Cylindroiulus vulnerarius
(Berlese, 1888)

Order: **JULIDA**
Family: **Julidae**



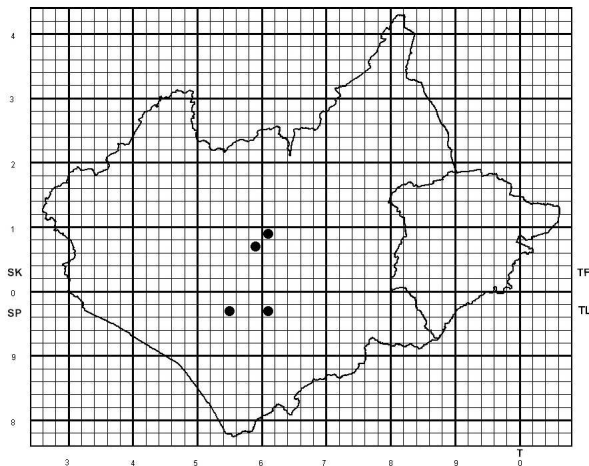
Microscopically this species (12.5-22 mm) is easy to identify: it is a cylindrical blind millipede with a slightly downward-pointing projection at the rear of the animal. A fairly recent addition to the British list (1975) it has now been recorded from around 20 sites across the UK. It is believed to have originated in Italy and has probably been spread across Europe by the horticultural trade as it is mostly found in and around glasshouses, gardens and parks. Its main habitat is rotting wood and organic matter in contact with the soil. It is thought to be an annual

species since, at present, there are no records over the mid to late summer.

The first VC55 record came from Avenue Road, Leicester (27/09/1989) when it was collected by AJ Rundle. The only other VC55 specimens were collected by J Daws (23/05/2007) from the University Botanical Gardens at Oadby. These were found beneath half wooden barrel tubs that had been left on a patio outside a glasshouse waiting to be cleaned and presumably reused.

Brachyiulus pusillus
(Leach, 1815)

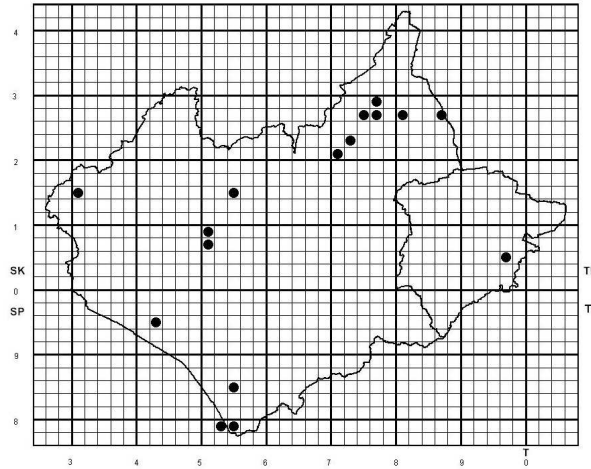
Order: **JULIDA**
Family: **Julidae**



This is a distinctive species (7-13 mm) having a black cylindrical body with two pale yellow to orange stripes along the length of the body, one either side of the mid-line. The main habitats are cultivated land, riverside meadows and grasslands where the millipede is able to survive periodic inundation. It is believed to be an annual species found from late winter to early summer with adults probably dying after breeding although there are a few records from throughout the year. It is listed as a VC55 species by Blower (1972).

The first mappable record was made when several were collected from beneath drift wood and amongst flood debris of the R Soar adjacent to Narborough Bog NR (21/02/2007). Further sightings quickly followed: cemetery Wigston (21/03/2007), Watermead Nature Park, Leicester (28/03/2007) and Watermead Country Park, Thurmaston (28/03/2007). The lack of records for this distinctive species is somewhat surprising since J Daws saw *B pusillus* well over a decade ago whilst searching flood debris for spiders along the River Soar north of Kegworth.

<p><i>Ommatoiulus sabulosus</i> (Linnaeus, 1758) (Photograph 5)</p>	<p>Order: JULIDA Family: Julidae</p>
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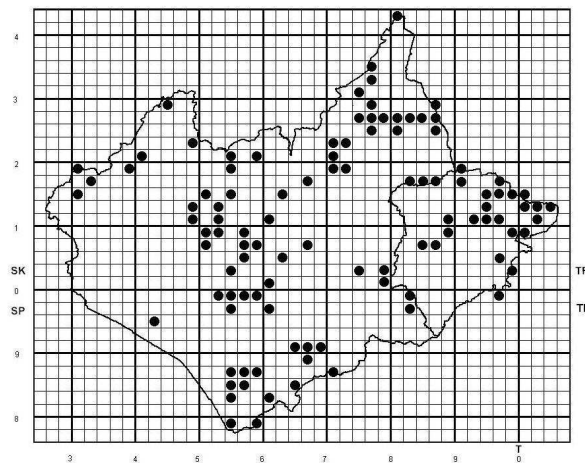


A large (14-33 mm) eyed snake millipede that has an upward turned tip to the projection on the upper margin of its last body segment and two yellow to orange stripes down the length of its back (diagnostic in the field). In the summer, it is a great wanderer and can be found in a wide range of habitats including heath/moor and open woodland. It can take 2-4 years to mature with adults being found throughout the year. In the

winter this species can be found by looking under logs and amongst leaf litter.

This species seems to have a scattered distribution across VC55. It is listed by Horwood (1907) with a possible juvenile having been collected earlier by Messrs Vice & Quilter (Quilter, 1889). The first mappable record came from Harby Hills (23/03/1970) collected by AD Barber.

<p><i>Tachypodoiulus niger</i> (Leach, 1814) (Photograph 6)</p>	<p>Order: JULIDA Family: Julidae</p>
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This large (15-39 mm) black, eyed snake millipede has an upward turned tip to the projection on the upper margin of the last body segment. It is one of Britain's commonest millipedes and can be found in almost any habitat. It can take 2-3 years to mature and may live for several breeding seasons with individual females living for

up to nine years.

A common species across VC55 the first record with full details came from Saddington (29/05/1954) when it was collected by either CW Holt or CW Henderson. From personal experience, *T niger* can be a common sight at night when it comes out to graze the algae on tree trunks and wooden fences.

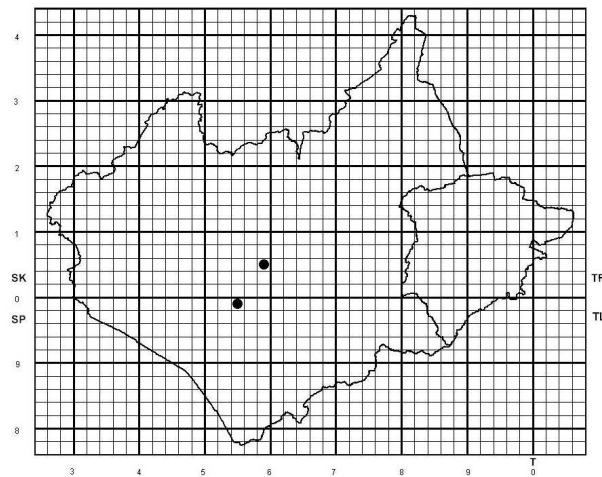


5: *Ommatoiulus sabulosus*



6: *Tachypodoiulus niger*

<p><i>Oxidus gracilis</i> (C.L. Koch, 1847)</p>	<p>Order: POLYDESMIDA Family: Paradoxosaomatidae</p>
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A blind flat-backed millipede (16-23 mm) with distinct side keels that has a smooth upper surface to its body segments. A glasshouse species that cannot survive our cold winters and so is confined to plant nurseries, garden centres and botanical gardens from where it can be distributed around the country on potted plants and trees.

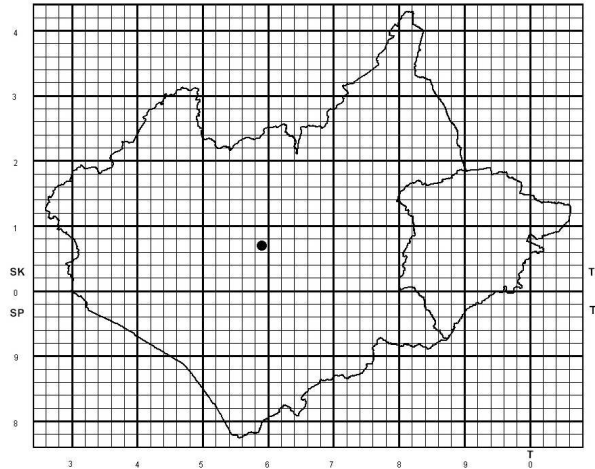
It can take as little as five months to mature within well-heated glasshouses with adults found throughout the year.

The species was first recognised in VC55 by J Dawson (13/06/2000) when an Environmental Health Officer brought specimens to New Walk Museum for identification. These had been found by S Raddie crawling out of the compost within potted plants at the Leicester City offices at B7 New Walk Centre, Leicester.

The second occasion on which it was identified was when J Daws found a recently moulted adult at Palmer's Garden Centre, Enderby in one of their heated glasshouses (06/07/2007).

Poratia digitata
(Porat, 1889)

Order: **POLYDESMIDA**
Family: **Pyrgodesmidae**



This is a small (under 5 mm) blind, flat-backed millipede which has the upper surface of its body segments sculptured with the first segment almost completely covering the head when viewed from above. This is a hot-house species that has, so far, only been recorded from four sites across the British Isles. From the limited information available this is probably an annual species that, due to living in heated glasshouses, could breed throughout the year.

The only record of *P. digitata* for VC55 (the second for Britain) comes from the "Orchid House" at Belgrave House Museum, Leicester. It was found by AJ Rundle (14/09/1985) from under bark and named in the field as *Prosopodesmus panporus*. There is a specimen in spirit at New Walk Museum (collected by J Mathias who was showing Rundle

around Belgrave Hall) which has been checked by the authors. Further specimens are lodged at the British Natural History Museum (three females) and in the private collections of JG Blower (6 females) and AJ Rundle (the rest of those collected).

The unintentional record of *Prosopodesmus panporus* for VC55, a similar looking species, still persists today but this has been explained away by the fact that the older keys did not contain the newly found *P. digitata* in conjunction with the Leicester Museum specimens being labelled with the initial field identification of *P. panporus*. Nationally, *P. panporus* is only known from several glasshouses at Kew Gardens, London where it was found to be new to science in 1975 by AJ Rundle. *P. panporus* is not known from the wild.

References

- Blower, JG (1958). British myriapods. *Synopsis of the British Fauna No 11*. Linnaean Society, London.
- Blower, JG (1972). The distribution of British millipedes as known at the end of 1969. *Bulletin of the British Myriapod Group*, **1**, pp9-38.
- Blower, JG (1985). Millipedes. *Synopsis of the British Fauna (New Series) No 35*. Linnaean Society, London.
- Blower, JG & Rundle, AJ (1986). *Poratia digitata*, a new British hothouse millipede. *Bulletin of the British Myriapod Group*, **3**, pp11-16.
- Daws, J (1995). New county millipede – where else but at Ketton! *Leicestershire Entomological Society Newsletter*, **15**, p7.
- Dawson, JE (1978). Millipedes. In: *North-east Leicestershire Coalfield, report of a biological survey* (IM Evans ed.), Leicestershire Museums Publication No16 pp131-135. ISBN 0 85022 056 4.
- Horwood, AR (1907). Zoology. In: "A Guide to Leicester and District" (GC Nuttall ed.), p351.
- Lee, P (2006). *Atlas of the Millipedes (Diplopoda) of Britain and Ireland*. Pensoft series Faunistica No 59. ISBN 9546-422770
- Mosley, O (1863). *The Natural History of Tutbury*. (Reprinted 2009; ISBN 9781150039744).
- Owen, J (1991). *The Ecology of a Garden: The First Fifteen Years*. Cambridge University Press.
- Quilter, HE (1889). Centipedes and millipedes. *Transactions of the Leicester Literary & Philosophical Society- quarterly reports of the sections*, p43.

[Further information about the study of the millipedes and allied groups can be found at the web site of the British Myriapod and Isopod Group (www.bmig.org.uk) where the current British list is displayed with all species linked to the most up-to-date distribution maps on the NBN Gateway.]

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