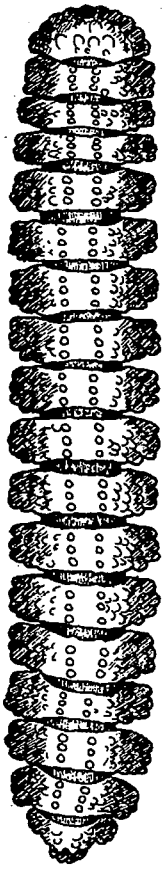
ISSN 0267 - 2154

BULLETIN of the BRITISH MYRIAPOD and ISOPOD GROUP

Edited for the Group by
A.D.Barber & H.J.Read



Volume 17
April 2001

BULLETIN OF THE BRITISH MYRIAPOD AND ISOPOD GROUP

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Published by the British Myriapod and Isopod Group
c/o A.D.Barber, Rathgar, Exeter Road, Ivybridge, Devon, PL21 0BD, UK

ISSN 0267 2154

EDITORIAL

The year 2000 saw the formalisation of the group during the annual field meeting in Essex. It was decided that this new organisation would encompass Myriapods and Isopods and formally joins the British Myriapod Group and the British Isopod Study Group. A constitution was accepted and various committee posts established. The name of this Society is 'The British Myripod and Isopod Group'. In practice it is unlikely that this formalisation will alter the Group substantially, at least in the short term. However, additional meetings of the Committee should help to increase the ability of the Group to respond to issues as they arise and provide a structure in which we hope it will be possible to achieve more in terms of awareness and expertise for Myriapods and Isopods.

One of the consequences of the formal linking of the Isopods with the Myriapods is that the Bulletin now includes the former and we are glad to be able to have several such articles this year. Although the title of the Bulletin has altered to reflect this change we have retained the current numbering system.

As well as several contributions on Isopods this edition of the Bulletin also has a European feel with the publication of the remaining millipede European distributions and a comparison of the British and Dutch fauna. As in Bulletin 16 we have continued to include reports for field meetings of the Group and we are also pleased to re-launch the Miscellanea section, for short notes and observations.

A recent development is a web site (www.bmig.org.uk) where full details of the Group can be found. This also includes a species list of the British fauna and a contents list of all the issues of both the Bulletin of the British Myriapod Group and our sister publication, Isopoda. We hope that the web site will continue to grow and would welcome suggestions on potential contents.

At the time of writing the annual field meeting and first AGM of the Group at Easter time has been postponed due to the outbreak of foot and mouth in Britain and will hopefully be held in Ireland in October 2001.

As we look forward into the new century we hope that we can continue working towards our object, that of furthering the study of Myriapods and Isopods.

OBITUARY

MARIE FLASAROVA
27 February 1934 – 29 January 2000

Born near Prerov in what is now the Czech Republic, Marie Flasarova studied at the Natural History Faculty of the J.E.Purkyne University in Brno, graduating with a BA in biology and education. In 1969 she took her PhD at the same university and later defended her thesis for the CSc degree in biological science. Married to a fellow zoologist, Ivo Flasar, they had one daughter, Miroslav, born in 1959.

Marie worked as a hydobiologist from 1958-63, but then moved to the Education Faculty at Usti nad Labem, north of Praha, where she lectured in zoology. Despite having published in prestigious foreign journals, she was dismissed in 1972 for political reasons and it was another 5 years before she returned to an official position, this time as a zoologist with the Regional Museum in Teplice. She worked here, together with her husband, until the last days of her life.

Although her early work included classic studies of the gut of isopods, her most significant contribution was to the study of the taxonomy, ecology and distribution of woodlice in Bohemia and other parts of former Czechoslovakia. In these studies, she found common interest with colleagues in Britain, becoming a corresponding member of the British Isopoda Study Group in the early 1980s. Marie published 30 papers on isopods and two on diplopods, as well as many on other topics, including popularising articles in regional publications.

Marie had a long and productive partnership with her husband Ivo Flasar, with many joint papers. Sadly, this partnership ended following her short illness in January 2000. Perhaps because all her publications are in Czech or German, Marie's considerable contribution to faunistic studies of her own country have not really been recognised more widely. She was an unassuming and generous person whose career was partly blighted by getting on the wrong side of the Communist political system in the 1970s, and which was ended prematurely whilst she was still actively publishing new work.

A complete bibliography of Marie Flasarova's publications and reports is included with her obituary by Professor Jan Buchar, published in 2000 in *Zpravy a studie Regionalniho muzea v Teplicich*, volume 23, pages 5-18. An English version of this obituary and bibliography has been prepared for publication. Further details of her publications can be obtained from me.

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Bulletin of the British Myriapod and Isopod Group 17 (2001)

THE CONTINENTAL DISTRIBUTION OF BRITISH AND IRISH MILLIPEDES, PART 2.

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INTRODUCTION

This article shows and discusses the known distributions of the non-julid millipedes of Britain and Ireland on the Continent of Europe, and compliments the article on the julids published in Volume 15 of the Bulletin of the British Myriapod Group in 1999.

For the time being these two articles include all the British and Irish species except those found in hothouses and *Anthogona britannicum* Mauriès, which has yet to be found on the Continent. Suffice it to say that Dr. Jean-Paul Mauriès and I have checked all our adult specimens of *Anthogona* from France (it was formerly believed to be a monospecific genus endemic to France): we have verified that they are all *A. variegatum* Ribaut, which occurs from Normandy southwards to the Pyrenees and is strictly Atlantic in distribution.

The millipedes listed are numbered to correspond with the distribution maps. On these maps black filled circles indicate precise records in 50 X 50km UTM squares. On this occasion open circles are used where there are records from a region in which precise geographical coordinates are unknown to me. To save space, the Atlantic islands are not shown on the maps. A black circle in the boxes 'A', 'M' and 'C' indicates that the species concerned is found in the Azores, Madeiran or Canary Islands respectively.

DISTRIBUTION OF SPECIES

Order POLYXENIDA

1. *Polyxenus lagurus* (Linné, 1758)

This pioneering pan-European millipede is the only species of its order to occur in the northern areas of the Continent. It has also been recorded from Israel, Algeria and the United States of America. It tends to inhabit crevices in walls, rocks, below stones and especially beneath the bark of trees; it is also regularly found below foliose lichens and clumps of moss on trees and rocks and occurs regularly in leaf litter. In southern areas it inhabits litter much more. Whether or not it is owing to high summer temperatures the sub-corticolous habit is not very evident in Southern Europe. *Polyxenus lagurus* may have the largest range of all European millipedes, it occurs further north out of doors than any other apart from *Proteroiulus fuscus* which is not recorded from almost all southern regions. I know that I am still lacking some available precise information About *Polyxenus lagurus* from France, Italy, Austria and Yugoslavia at least. There are nearly twenty other species of polyxenids in the Mediterranean zone.

Order GLOMERIDA

2. *Glomeris marginata* (Villers, 1789)

Glomeris marginata has an extended Atlantic distribution. It is one of the most studied millipedes, known to be very common in most of the Atlantic zone, though not in the colder parts. Particularly in woods on limestone it may dominate the diplopod biomass. It extends into the Central, Alpine and Mediterranean zones to some degree. I have not included a couple of records from botanical gardens outside its range in the Balkans. Its limits of general distribution are quite well known, except in Spain.

3. *Geoglomeris subterranea* Verhoeff,1908.

Stygioglomeris crinata Brölemann, 1913
Geoglomeris jurassica Verhoeff, 1915

Whatever we call this small glomerid it has become apparent that it is quite a common member of the soil fauna in some (limestone) areas. At the same time soil extractions in calcareous areas frequently fail to reveal it - its ecological requirements remain to be worked out. Its distribution might be a more restricted form of that of *G. marginata*; there are not yet records from the Netherlands, the extreme north of Germany and Scandinavia. At the same time there are few records from the Atlantic zone in France and none from Spain, while the other five species of the genus all occur in the Mediterranean. There are not yet enough records of this small species to clearly delimit its range.

4. *Adenomeris gibbosa* Mauriès, 1960

Apart from Declan Doogue's discoveries around Dublin this species has been recorded on only three occasions in the western half of the Pyrenees. Clearly, it might have been introduced into Ireland. It has to be said, however, that collecting, let alone soil sampling, has occurred very rarely in the western areas of France. In view of the fact that the species was not described until 1960 either, it could certainly have been overlooked. There is the possibility that it has an Atlantic distribution. There are two other species of *Adenomeris* described from the Pyrenean region, *hispida* in 1909 (7 records) and *viscaiana* in 1985 (1 record) which may be local or regional endemics. I am not aware of any synanthropic records for any of these species (with the possible exception of Dublin of course!). As the known sites for *A. gibbosa* are in rather remote places an introduction to Ireland would have been fortuitous.

5. *Trachysphaera lobata* (Ribaut, 1954)

There are well over a dozen sites in the western half of France from which this small species, which is presumed to be calcicolous, has been recorded during the past half-century. Most were from caves examined by spelaeologists, others were from litter in woodland and the most northerly of these records is from a quarry near Paris. Evidently *T. lobata* has an Atlantic distribution, strictly at present, and its occurrence in the Isle of Wight might be natural. An introduction cannot be ruled out, but is not required to explain its presence.

Order POLYZONIIDA

6. *Polyzonium germanicum* Brandt, 1831

The distribution of *Polyzonium germanicum* is best accounted for by the supposition that it has moved north from different refugia since the last glaciation. There is a large area comprising most of the eastern half of Europe which has presumably been occupied from the Balkans and a not insignificant population in most of France and the SE corner of England which presumably moved out of the Atlanto-Mediterranean refugium. Schubart (1934) studied individuals from the two areas and found no difference between them. *Polyzonium germanicum* is likely to have had a wider continuous distribution in the past and has not yet reoccupied all of the territory from which it had to retreat (Kime, 1990). Northwards from Switzerland and the Austrian Tyrol there is a huge tract of country including the eastern edge of France, Luxemburg, Belgium, the Netherlands and most of Germany (west of the Elbe) from which it has been reported on merely one occasion.

Order CHORDEUMATIDA

7. *Craspedosoma rawlinsi* Leach, 1815.

The taxonomy of the genus *Craspedosoma* is so complicated that it is difficult to prepare proper maps. Fortunately the situation with regard to *C. rawlinsi* has been eased since the publication by Spelda (1991) synonymising it with *C. alemannicum* and the article presented by Hauser (in press) at the last myriapodological congress in 1999. We are now able to say that it is a Central European species comprising all those former species, sub-species and varieties that occur north of the Alps. There are still other species in the Alpine regions and beyond. I present a map which I hope is reasonably accurate, with reservations about ex-Yugoslavia! Its range is consistent with its north east orientation in Britain. At the same time I note that Central species do have a tendency to creep westwards to varying degrees in Britain and Ireland, perhaps because there are vacant niches. *C. rawlinsi* is apparently markedly confined to the eastern parts of France, where there is no other species of *Craspedosoma* to the west of it.

8. *Nanogona polydesmoides* (Leach, 1815)

Nanogona polydesmoides is essentially an Atlantic species, despite a highly disjunct patch of a race attributed to the species in the North of Italy. There are five other species of *Nanogona* in the South of France: its origins are Atlanto-Mediterranean. Found mainly in woodland litter in the North it is increasingly found in caves as you go southwards and favours limestone. It is extremely localised in Belgium. Note that on the Continent this species occurs almost entirely to the west of *Craspedosoma*.

9. *Anamastigona pulchellum* Silvestri, 1898

Anamastigona is a Mediterranean genus. *A. pulchellum* is based in Italy and was found on Madeira and in France (Toulouse) before being discovered in Ireland. The records outside Italy are almost certainly introductions. It might be found more widely in the future.

10. *Brachychaeteuma melanops* Brade-Birks, 1918

On the evidence this is a strict Atlantic species confined to the western half of France on the European mainland. I find that it is common in the northern part of Aquitaine, generally in woodland on calcareous soil. Records are too few and scattered for its limits in France to be clear.

11. *Brachychaeteuma bradeae* (Brölemann & Brade-Birks, 1917)

The distribution of this and the following species are rather more difficult to elucidate. There is of course the possibility that they may be both in the same polymorphic species: Blower (1986) discusses this in detail.

The records of *B. bradeae* quite definitely suggest a Central European distribution with occurrences in Britain being mainly northern and eastern. There are many synanthropic records of this animal; it would be useful to know where it occurs in natural or semi-natural habitats.

12. *Brachychaeteuma bagnalli* Verhoeff, 1911

The geographical records of *B. bagnalli* in Britain and Ireland are hard to interpret at the moment. Schubart (1938) reported *B. bagnalli* from seven caves in Belgium and from Germany, only giving the Belgian locations. I regret that I have not yet been able to see the subsequent German paper giving details of the German site(s). In Belgium it is common in patches and, whereas several more records are from caves it has recently been found many times in soil and litter in calcareous woodland. These records are from the edge of the Atlantic and Central zones. The French record is in the Central zone but not all that far from the Atlantic. On the Continent *B. bagnalli* occurs between *B. bradeae* to the east and *B. melanops* to the west. (There are other species in the South as well). In Britain and Ireland it is logical that the first two should be found north of the latter but obviously the position is somewhat confused between *bradeae* and *bagnalli*. Overall *B. bagnalli* has a marginal position between Atlantic and Central. There is finally some logic in this.

13. *Chordeuma sylvestre* C. L. Koch, 1847

It is at first sight surprising that this species is found in Cornwall, because on the mainland of Europe the species has a central distribution, being found to the east of *Chordeuma proximum*. It is an abundantly common species within its range and the position is quite clear. It appears to be in the 'wrong place' in Britain and so probably introduced. However, the most northerly record on the Continent is from Springe south of Hanover at just over 52 N, approximately the latitude of Ipswich, Banbury and Hereford. *C. sylvestre* is particularly associated with rocky ground and does not occur on the North European Plain. In northern France it extends westwards into Normandy where it overlaps *C. proximum*. Its occurrence in Cornwall is compatible with its ecological requirements, and perhaps an extension of its French range. Does it occur in Britanny? We don't know.

14. *Chordeuma proximum* Ribaut, 1913

This animal has a classic Atlantic distribution, occurring in the western half of France, Britain and Ireland. In France it is more or less parapatric with *C. sylvestre*, the boundary between them running approximately along the Rhone-Saone valley and the Seine Valley further north. Yet, as mentioned above, the two species overlap in Normandy. *C. proximum* is a very characteristic woodland species in western France. Again, there are no records from Brittany!

15. *Melogona gallicum* (Latzel, 1884)

This species has a more extended Atlantic range than *C. proximum*, reaching the southern tip of the Netherlands, a bit to the east of the Rhine Valley in Germany, NW Switzerland and indeed Norway, a supposed introduction, but still in the Atlantic zone. It is a very common woodland animal in N and NE France, Belgium and Luxemburg. While it is common in Normandy there are still no records from Brittany! From my limited experience in south west France it seems more sporadic there than further north.

16. *Melogona voigti* (Verhoeff, 1899)

Roughly east of the Rhine Valley *M. voigti* replaces *M. gallicum*. It has a central distribution, reaching southern Sweden, Denmark and Scotland. It is common in the Netherlands where it crosses the Rhine and reaches Belgium. It is entirely logical that it should occur in Scotland. It might be found in the east of England.

17. *Melogona scutellare* (Ribaut, 1913)

There are a number of species of millipedes that occur in the Alpine zone and which have disjunct populations mainly to the north and west of these mountains. One of these is *Melogona scutellare*. The type species was found at Grenoble and the animal was subsequently shown to occur in the Alps and Jura of France and Switzerland over a very large altitudinal range - from 360m to 2315m according to Pedroli-Christen (1993). It is local and uncommon: its biotopes vary considerably. In England Brade & Birks (1916) described the variety *broelemanni* from Lancashire and later described *bagnalli* from Derbyshire. However, Blower (1985) showed that there is variation between *typica*, *broelemanni* and *bagnalli* in English material and so there may not be regional varieties (Another variety had been described from a further disjunct population in Piedmont in Italy by Verhoeff). Demange (1981) cites a record from the French Pyrenees (Haute-Garonne). Just lately it has been reported from Belgium by Van den Haute (1999). What are we to make of all this? Are we left with relict populations of a formerly widespread species or have there been introductions into depauperate faunas? Either or both seem possible. On present evidence, as there are no reports at all from the whole of northern France the latter is perhaps the more likely. Yet there has been little intensive searching in northern France. By far most of the data for the species now come from Britain and Ireland.

Order POLYDESMIDA

18. *Polydesmus angustus* LATZEL, 1884

This very familiar species has an extended Atlantic distribution. It is such a common animal that the few sporadic reports of it east of its main range may well be introductions. In general, to the east, *P. angustus* is entirely replaced by *P. complanatus*. *P. angustus* has been introduced into N America and Mexico.

Note that in theory the species is common throughout France. A look at the distribution map indicates the gaps in which collecting may most usefully be done.

19. *Polydesmus barberii* Latzel, 1889

This species of the Italian and French Rivieras has presumably been introduced into south west England.

20. *Polydesmus coriaceus* Porat, 1870

A very clear Atlantic distribution is revealed in this case, with an extension of subspecies or varieties into north east Spain (Catalonia), including Mallorca. The animal occurs from Madeira, the Azores and Portugal to Belgium. The species has reached the Cape Verde Islands to the south and the USA in the west. It seems to be the most common polydesmid by far in the north of Spain.

21. *Polydesmus denticulatus* C. L. Koch, 1847

I am not quite sure how to describe the distribution of *P. denticulatus*. A glance at the map indicates a fairly central range, but in fact the species occurs rather widely north of the Mediterranean Basin. It is something of an ecological oddity as well, synanthropic in the north and east (the most northerly records in Sweden are from greenhouses) as well as occurring in woodland, recorded from inundation forests and wet woodlands, elsewhere from dry grasslands and a whole range of sites. From some regions there is a shortage of precise localities and environmental data. My French data are not yet complete. It has been introduced into Newfoundland.

22. *Polydesmus inconstans* Latzel,1884

Like the preceding species *Polydesmus inconstans* has a large range in Europe and has been introduced, this time quite widely, into N America. It is found near the Mediterranean only in the west; it is not known from the Balkans. It occurs from Spain to Norway in the Atlantic zone. It also occurs in the North from Iceland to Finland and Russia. These northern and eastern records are mainly synanthropic. In western Europe it is regularly found in grassland and quarries. It might be an Atlantic species which has greatly extended its range by pioneering. One very striking difference between the distribution of this species and that of *P. denticulatus*, not perhaps immediately apparent, is the real scarcity of records of this species from SW Germany, one of the best-worked parts of Europe, whereas *P. denticulatus* is very common there. Furthermore, in Switzerland, *P. inconstans* is found only here and there in the Rhone Valley area in the west. Thus it is very unlikely to be a Central species, and much more likely to be based on the Atlantic. It should be remembered, too, that it is closely related to *P. coriaceus* of certain Atlantic origin, and with which it was for a long time confused.

23. *Polydesmus testaceus* C. L. Koch, 1847

The most northerly published records of this species are from southern England and Germany. It is evidently thermophile and occurs on limestone formations, very often in calcareous grassland, in the Atlantic and west-central zones. It is also petrophile and cavernicolous. It appears to be absent from the North European Plain. In the South it reaches Italy where there are very similar species and where there has been some taxonomic confusion in the past. I would say that it has an extended Atlantic distribution but I would like to find more of it in the west of France! It is sufficiently common on limestone in the Perigord to make this very likely. There are so far no reports from the limestone areas of the Pyrenees and northern Spain. I have collected huge numbers of *P. testaceus* in Belgium and Luxemburg, mostly from pitfall traps in grassland and sometimes from rocky woodland.

24. *Brachydesmus superus* Latzel, 1884

Brachydesmus superus is a pan-European species found almost everywhere, including many Atlantic islands; it has reached the USA and, indeed, Robinson Crusoe Island (Juan Fernandez Is.) in the Pacific. I have not been able to locate all the records; as with other common species lists of precise localities are often missing from accounts of distribution. In this case I am aware that I am particularly short of locations in Poland, North Germany and parts of France where it should be plentiful. In the Mediterranean region there are other species of *Brachydesmus* which cohabit or replace it. In many if not all regions it has strong synanthropic tendencies.

25. *Eumastigonodesmus boncii* Brölemann, 1908

I have never seen this animal which comes from the high Pyrenees. I can't imagine how it got to rural County Durham where I once unsuccessfully looked for it.

26. *Macrosternodesmus palicola* Brölemann, 1908

This species is proving to be quite common in calcareous soil and, in winter, in the litter of woods on such soils in the Atlantic zone. It seems to be a regular component of the soil fauna in beech woods. It extends eastwards to Sweden as a synanthrope.

27. *Ophiodesmus albonanus* (Latzel, 1885)

This has a similar distribution to *M. palicola*, but I, personally, have found it far less often on the Continent, especially so in France.

28. *Stosatea italica* (Latzel, 1886)

Common in the central part of the Mediterranean Basin, this animal has colonised to the north and west as far as Ireland. It has been found on Madeira. I have found it on a few occasions. In my experience it appears and then tends to disappear from a site. In north west Europe these sites are regularly synanthropic but occasionally in unexpectedly rural situations. It has been associated in the imagination with the boots of Roman legionnaires, although in the case of Ireland it was trading boats instead!

DISCUSSION

The majority of species' distributions conform with expected patterns. But there are so few records of some others that it is difficult to be entirely certain of their limits: more investigations are needed in several parts of the Continent. Western France, Spain and Portugal are of particular importance to British and Irish investigators. The bulk of British and Irish species fall into either the western (Atlantic) category or the Central European category. Because the latter group have spread to the west in Britain and Ireland this situation is not always evident from the national maps. Knowing which category an animal belongs to should give some insight into its particular ecological needs. The Central species are usually most active in spring, with a smaller autumn peak, they often burrow in the winter and in the summer as well, especially if it is hot or dry. The Central chordeumatids e.g. *Craspedosoma* are however active in winter and tolerant of cold conditions. On the European scale, chordeumatids correlate well with the distribution of oceanic plants; they are mainly in the west or up in mountains with adequate rainfall. Forty per cent of the French

millipedes are chordeumatids (Geofroy,1996), the highest proportion in Europe. There is plenty of scope for recording chordeumatids in late autumn (when many become adult), winter or early spring. A good time to go south! For the other orders spring appears to be the best time. In the southern part of the Atlantic zone the winters are not cold, at least not near sea level, and collecting of many species can proceed from October until April.

ACKNOWLEDGEMENTS

Thanks are gladly given to the British Myriapod Group membership for the wealth of records from these islands. I particularly thank Paul Harding for providing me with maps. I hope my British and Irish records are more up to date than they were two years ago. The main aim of this paper is to show Continental distribution in particular. So I am most grateful to all the many colleagues who have sent me data to this end and, here, especially to Jean-Paul Mauriès and Jean-Jacques Geoffroy of the CIM in Paris who have made me welcome and have provided me with a wealth of information. Professor Henrik Enghoff has made a huge contribution, sending me information over many years and Sergei Golovatch has contributed much from the East. The omissions and mistakes that remain are entirely mine.

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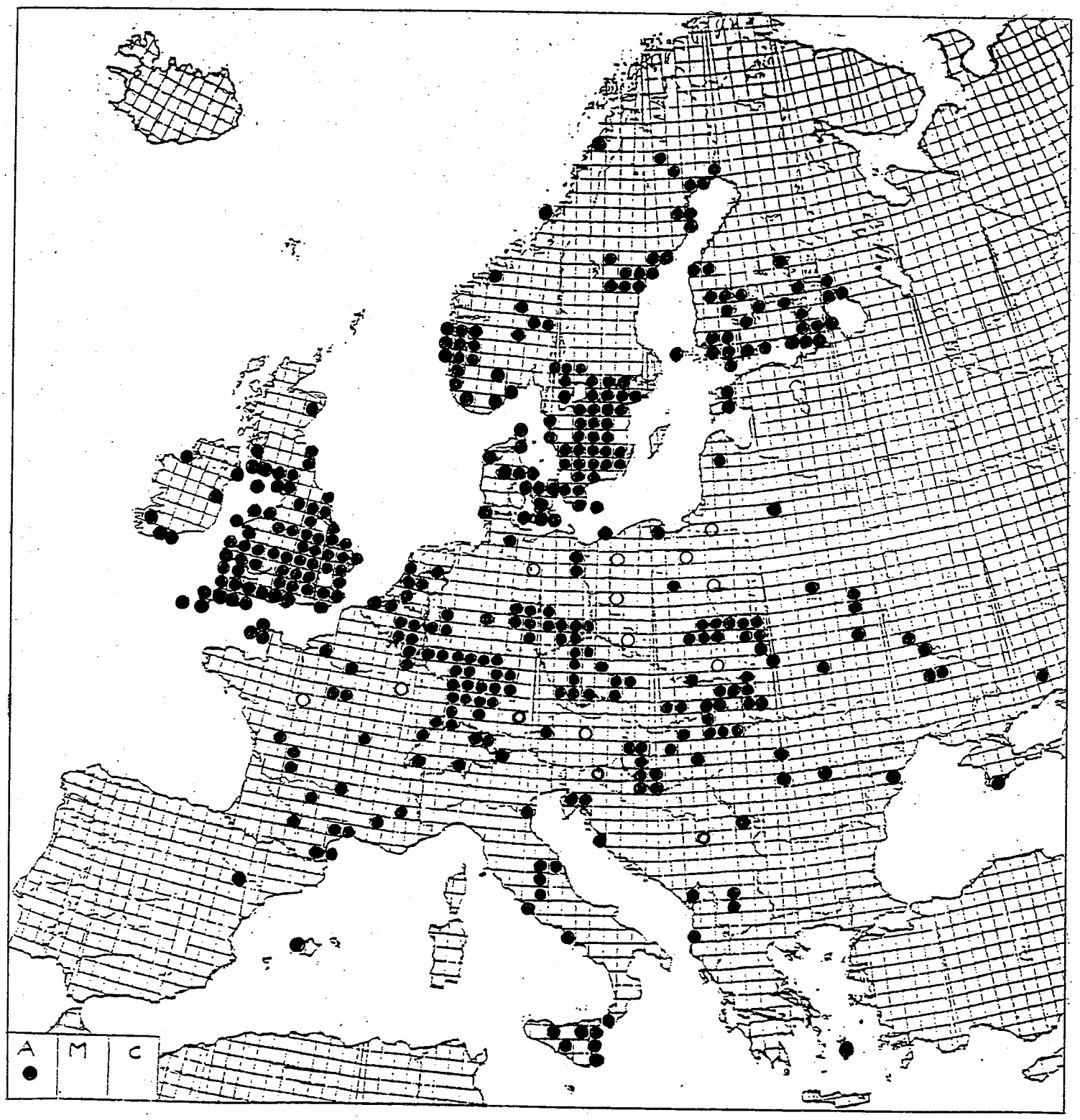
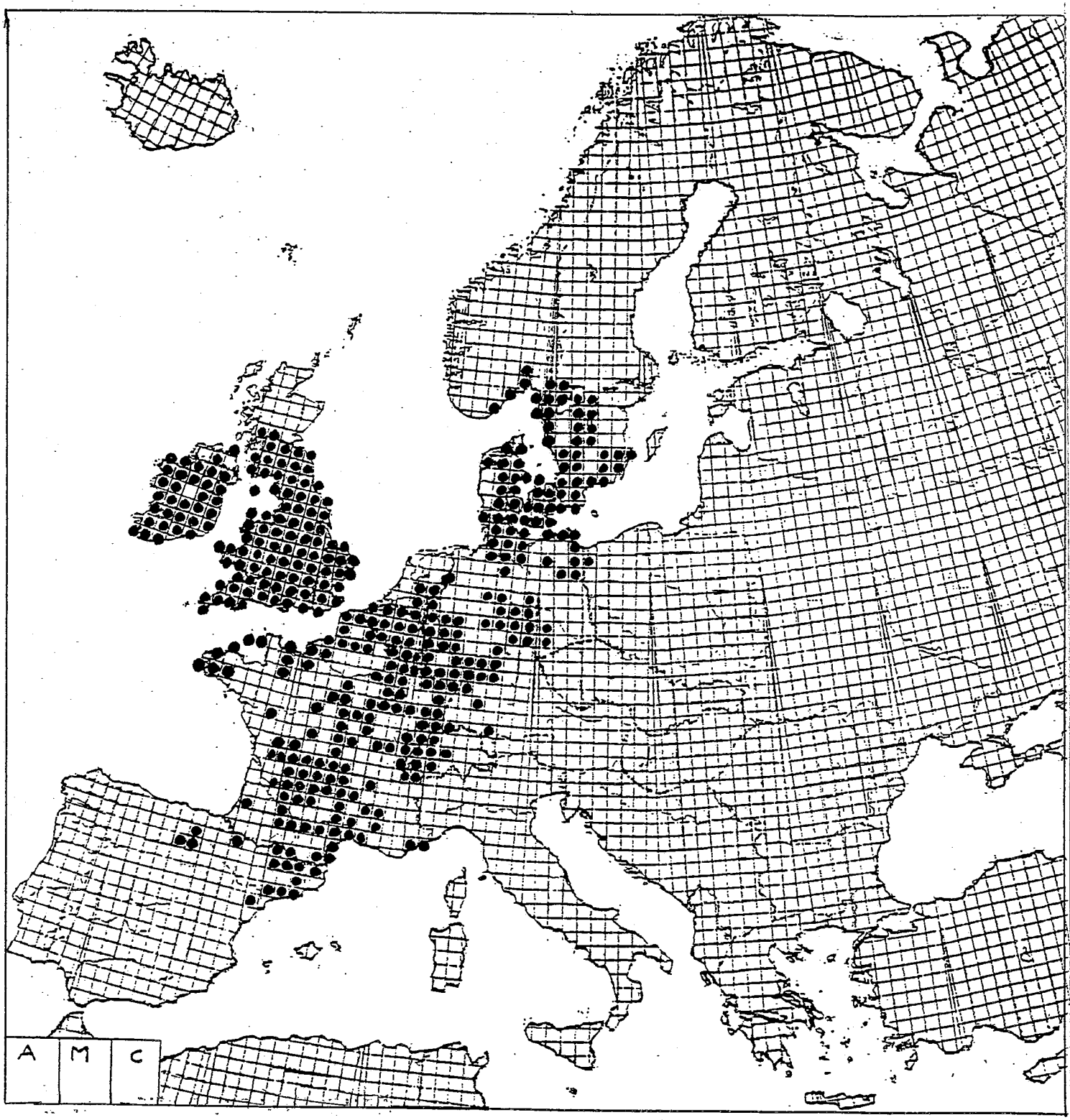
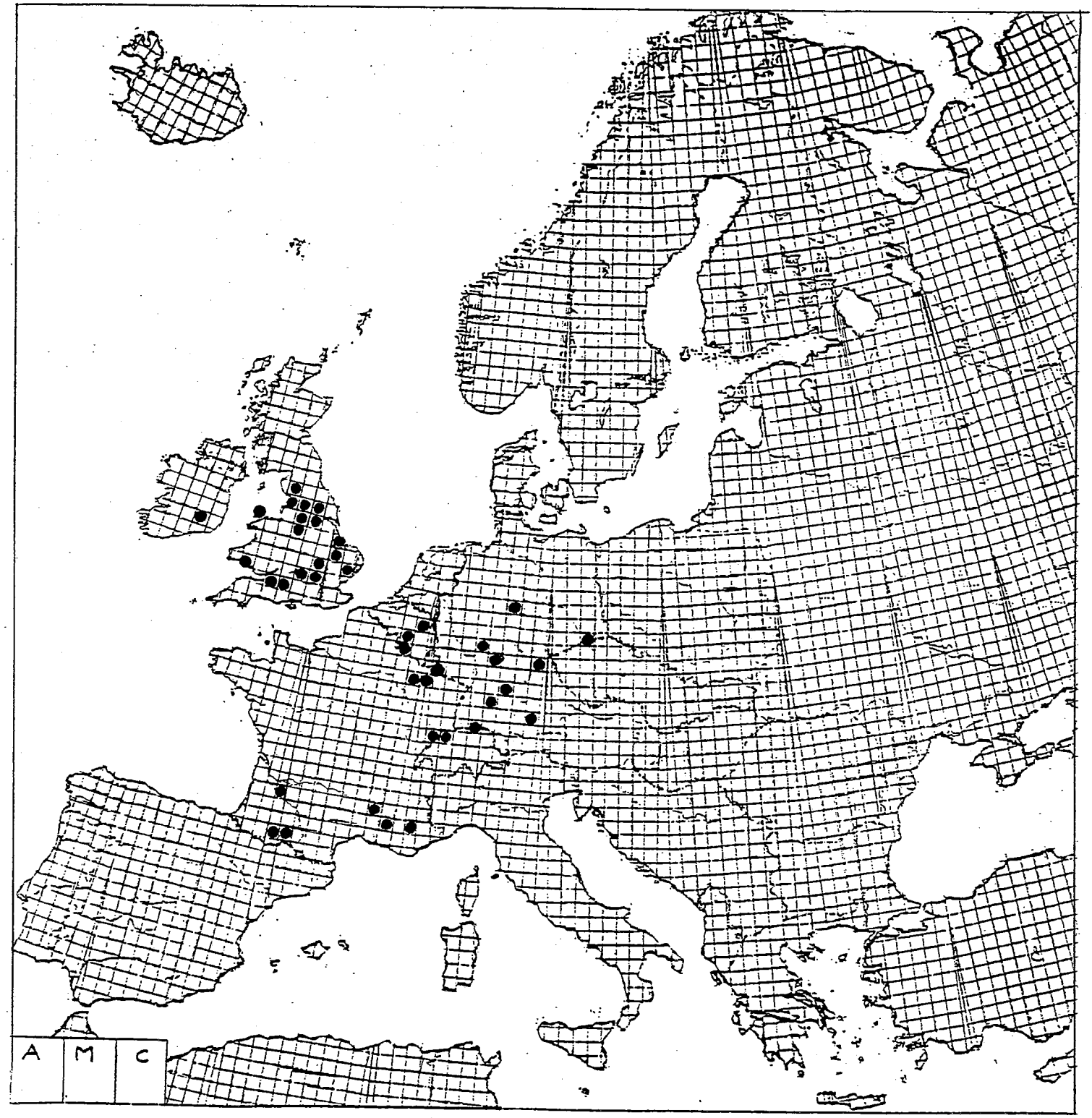


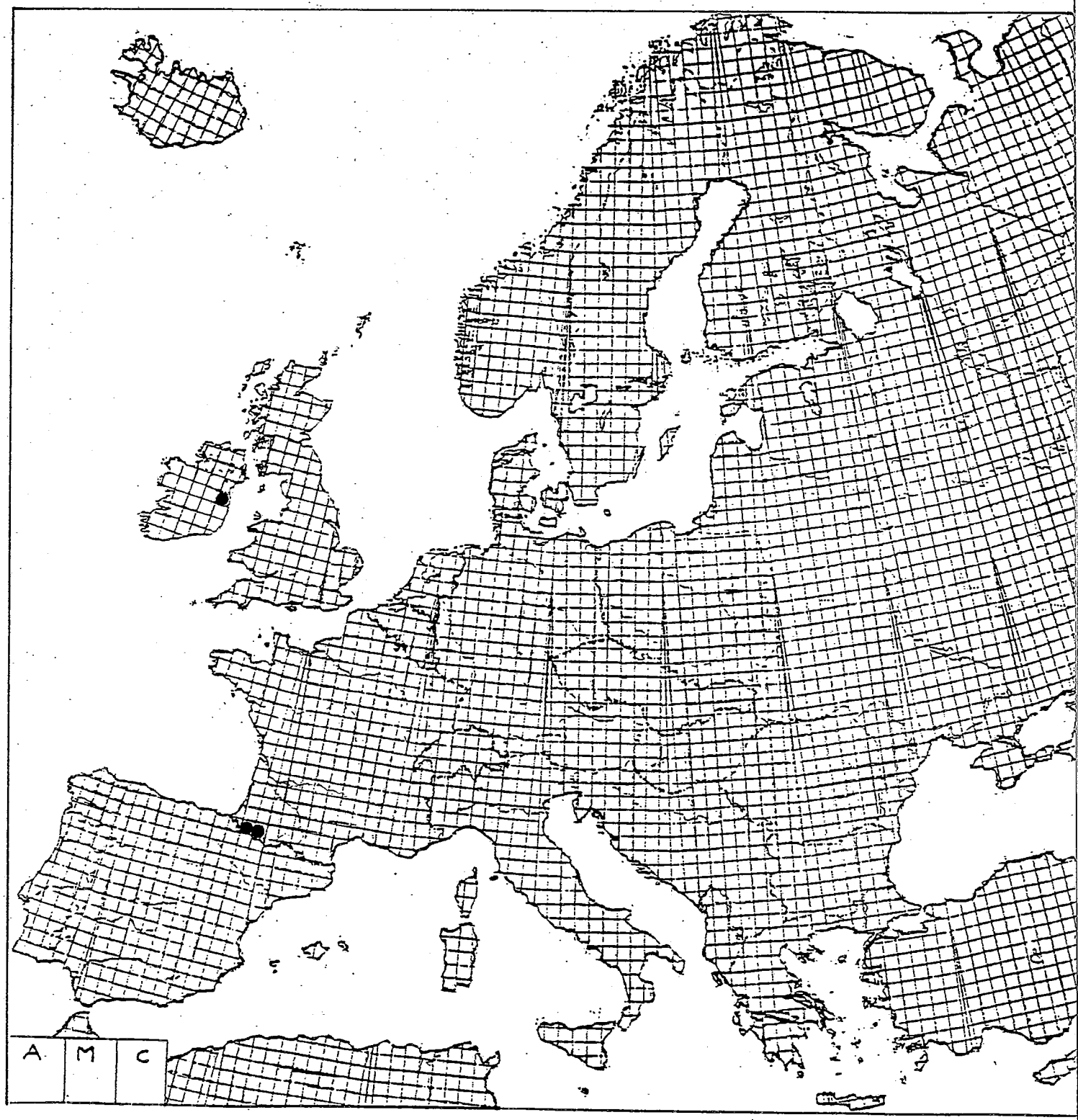
MAP 1. POLYXENUS LAGURUS.



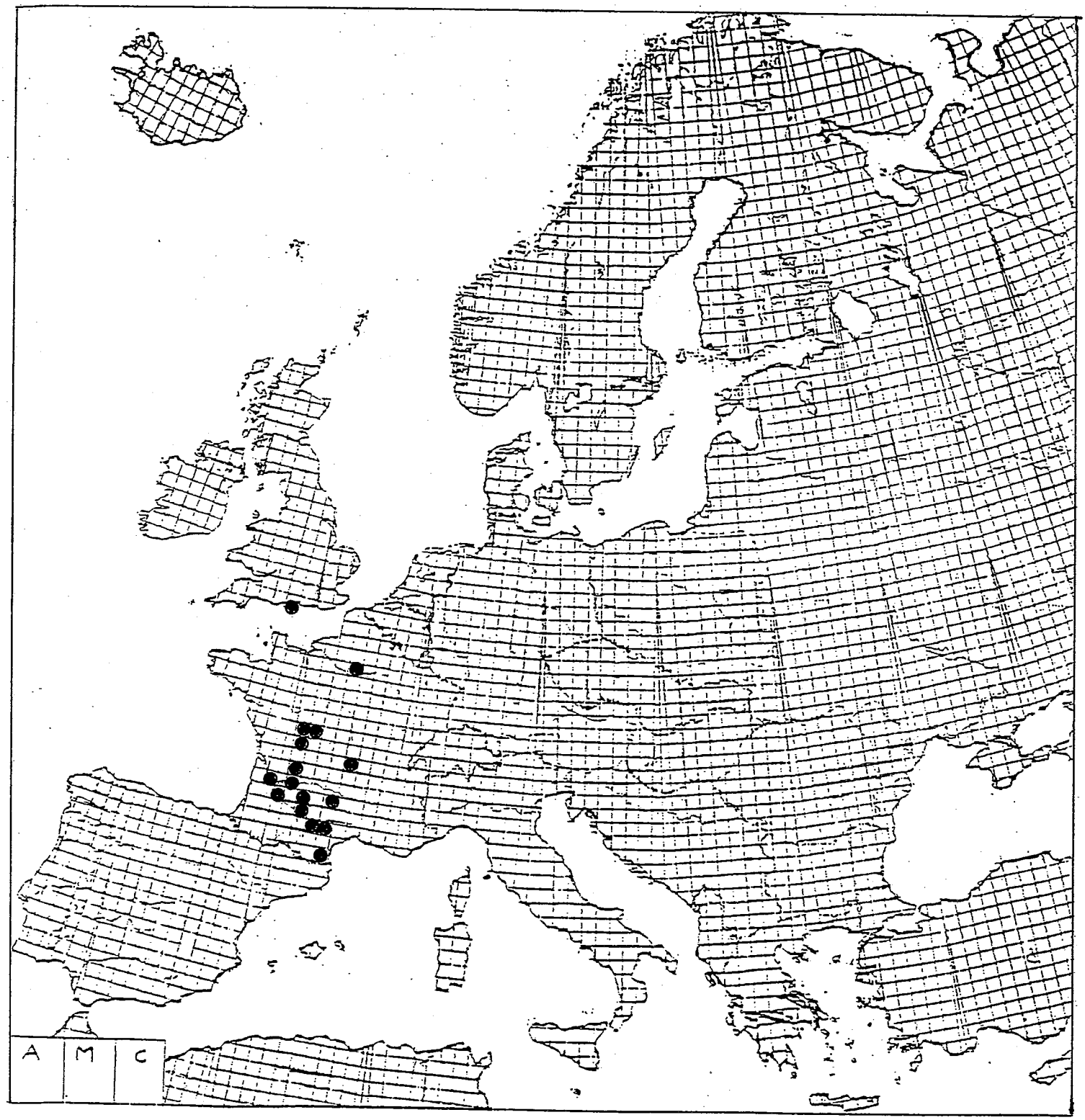
MAP 2. GLOMERIS MARGINATA.



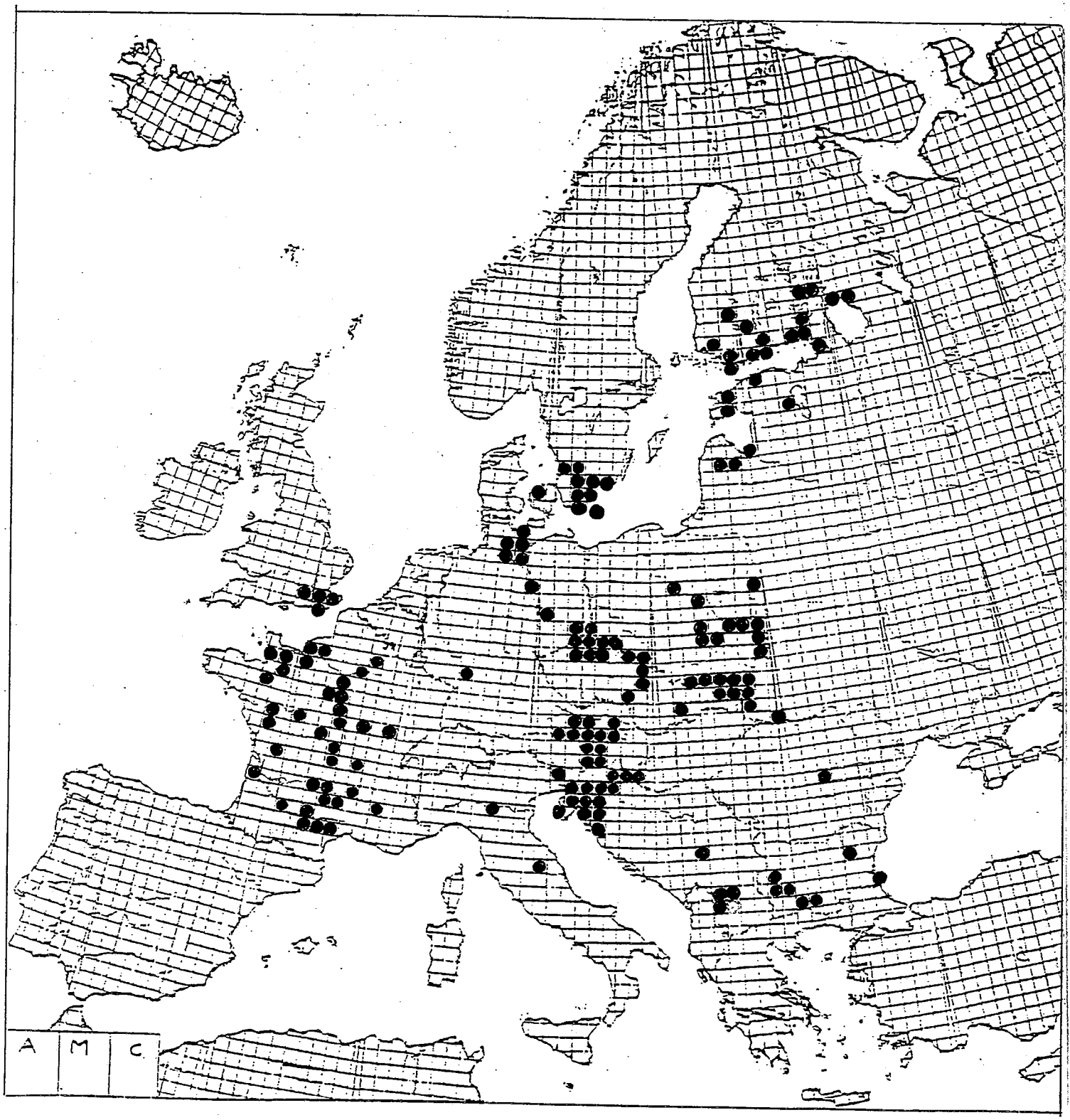
MAP 3. GEOGLOMERIS SUBTERRANEA.



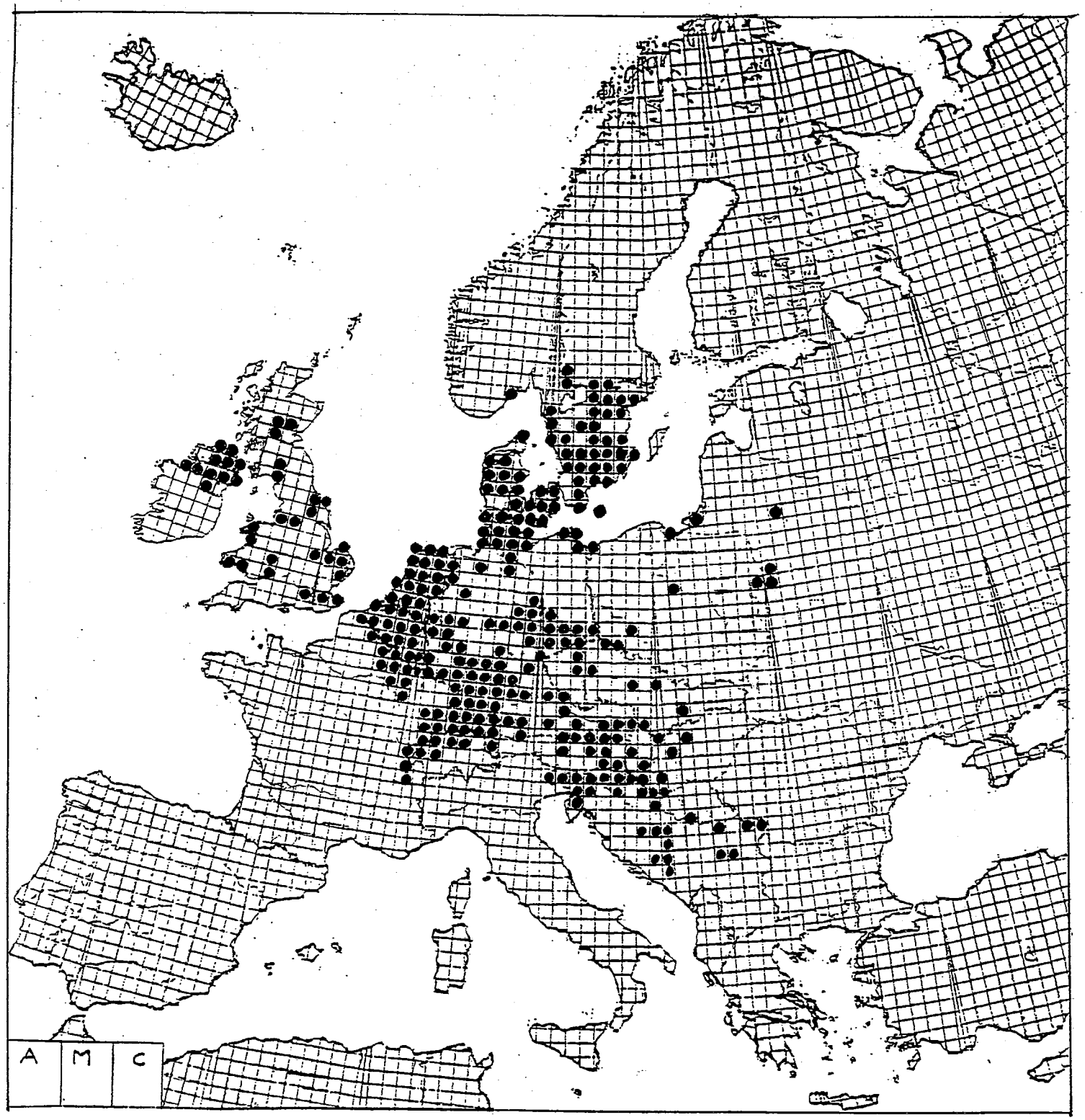
MAP 4. ADENOMERIS GIBBOSA.



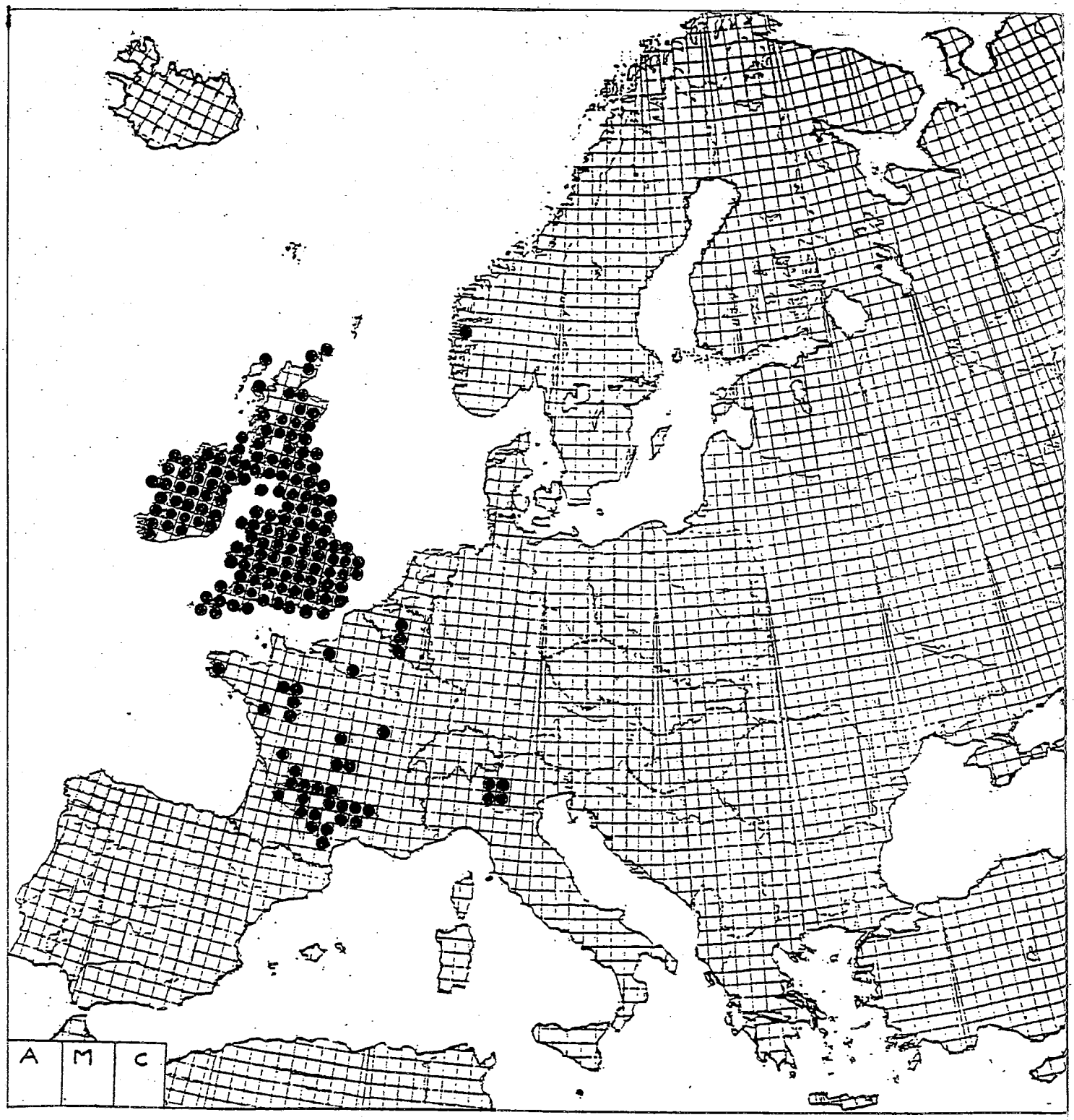
MAP 5. TRACHYSPHAERA LOBATA.



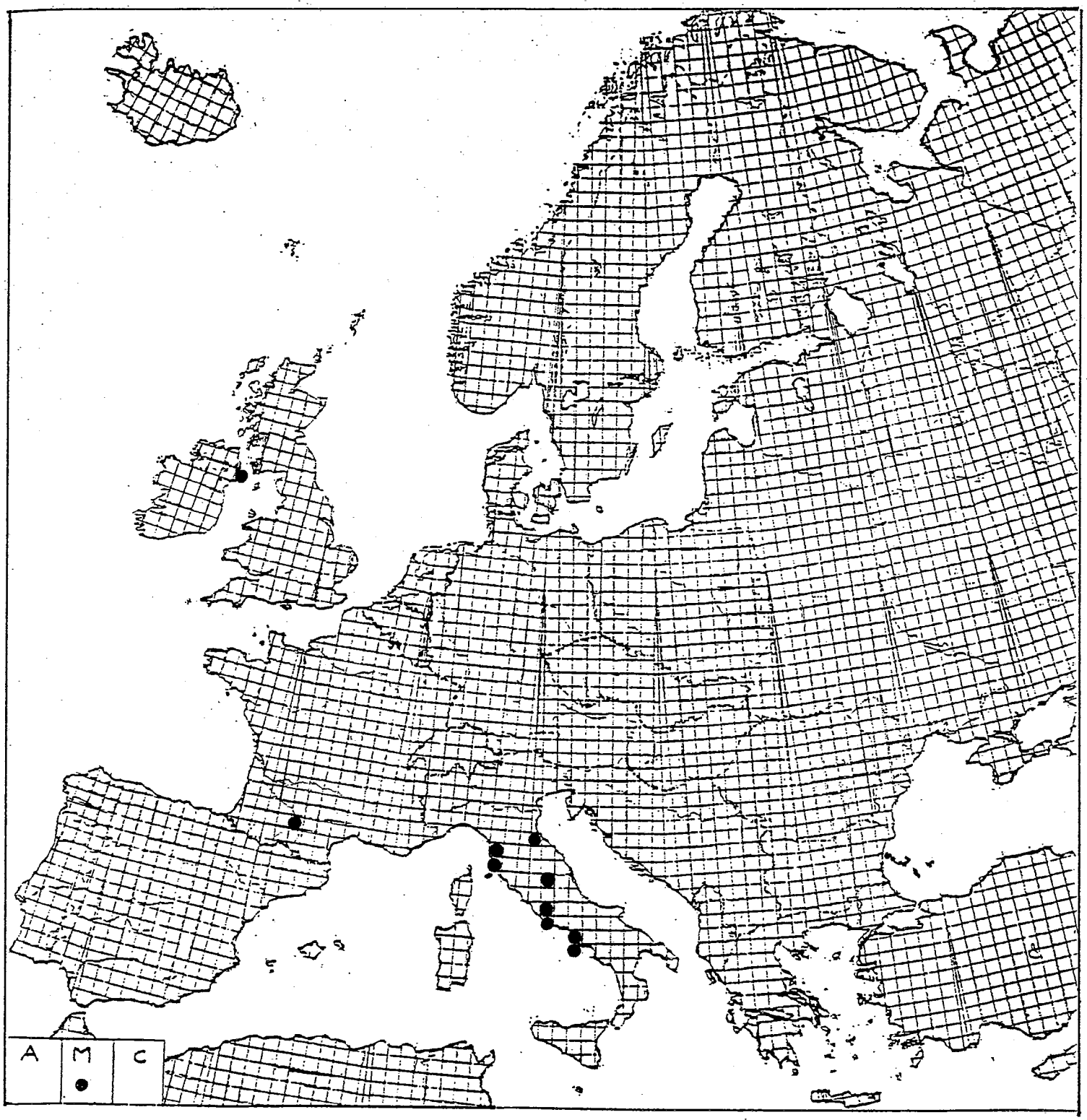
MAP 6. POLYZONIUM GERMANICUM.



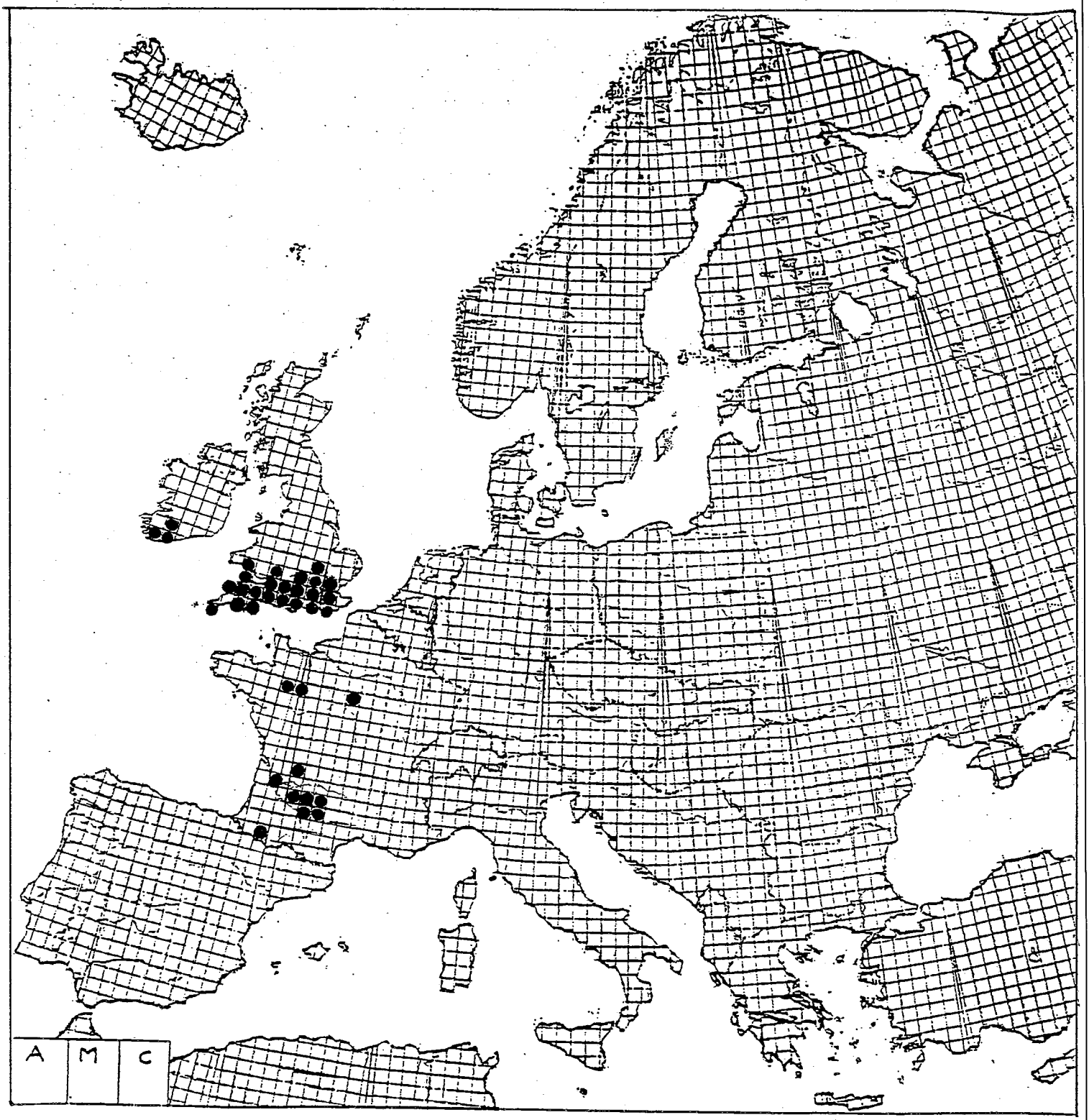
MAP 7. CRASPEDOSOMA RAWLINSI.



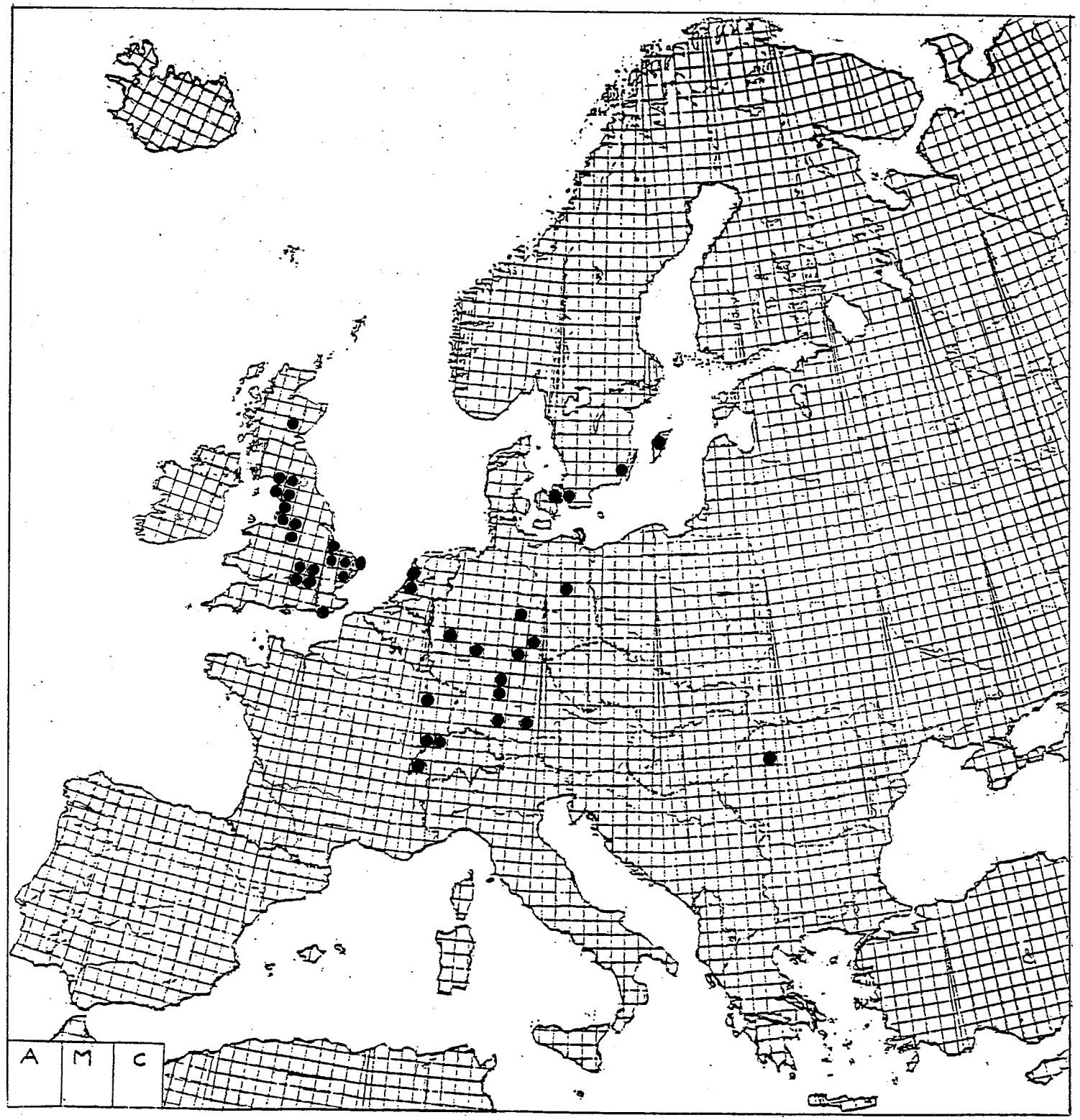
MAP 8. NANOGONA POLYDESMOIDES.



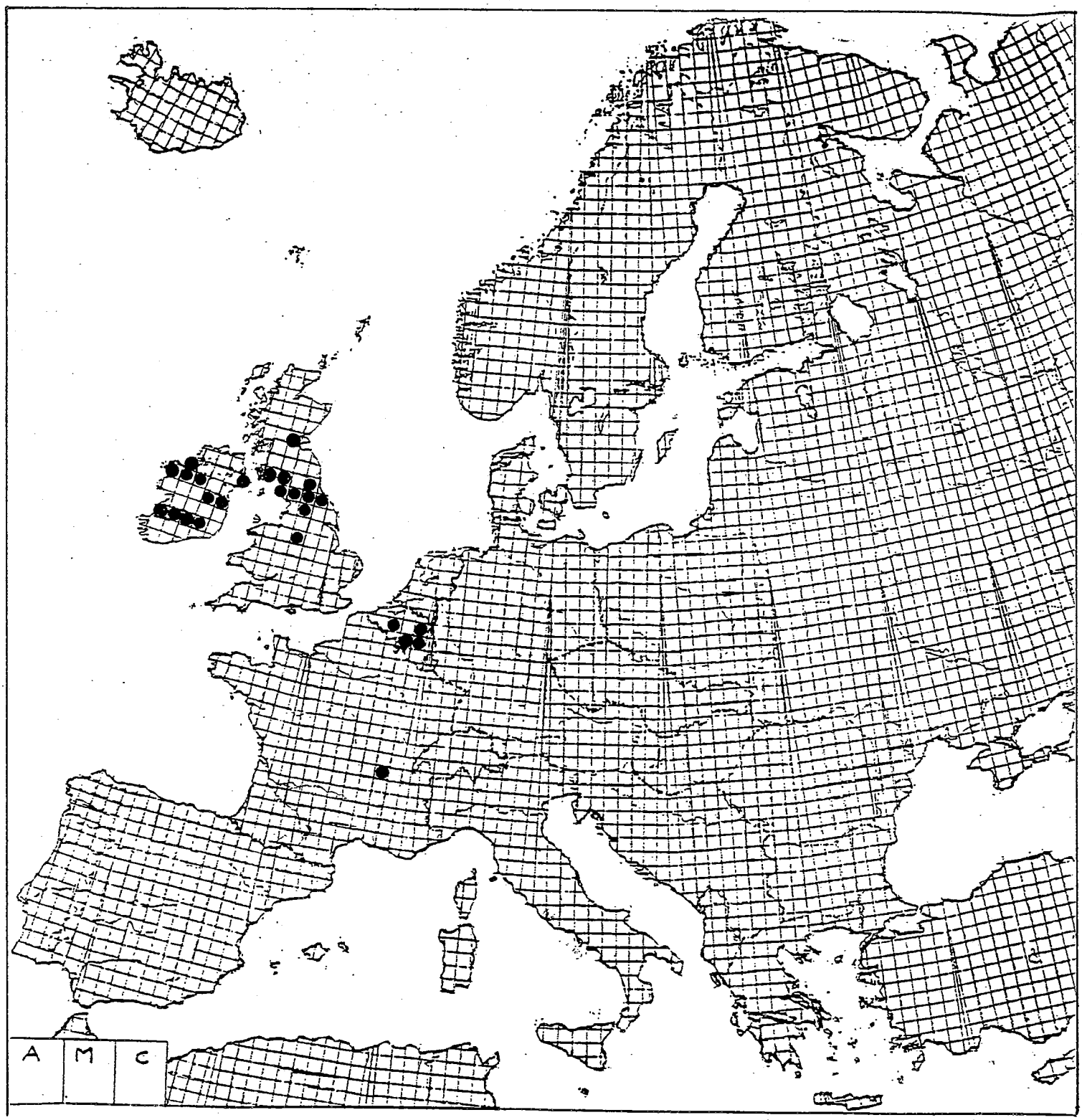
MAP 9. ANAMASTIGONA PULCHELLUM.



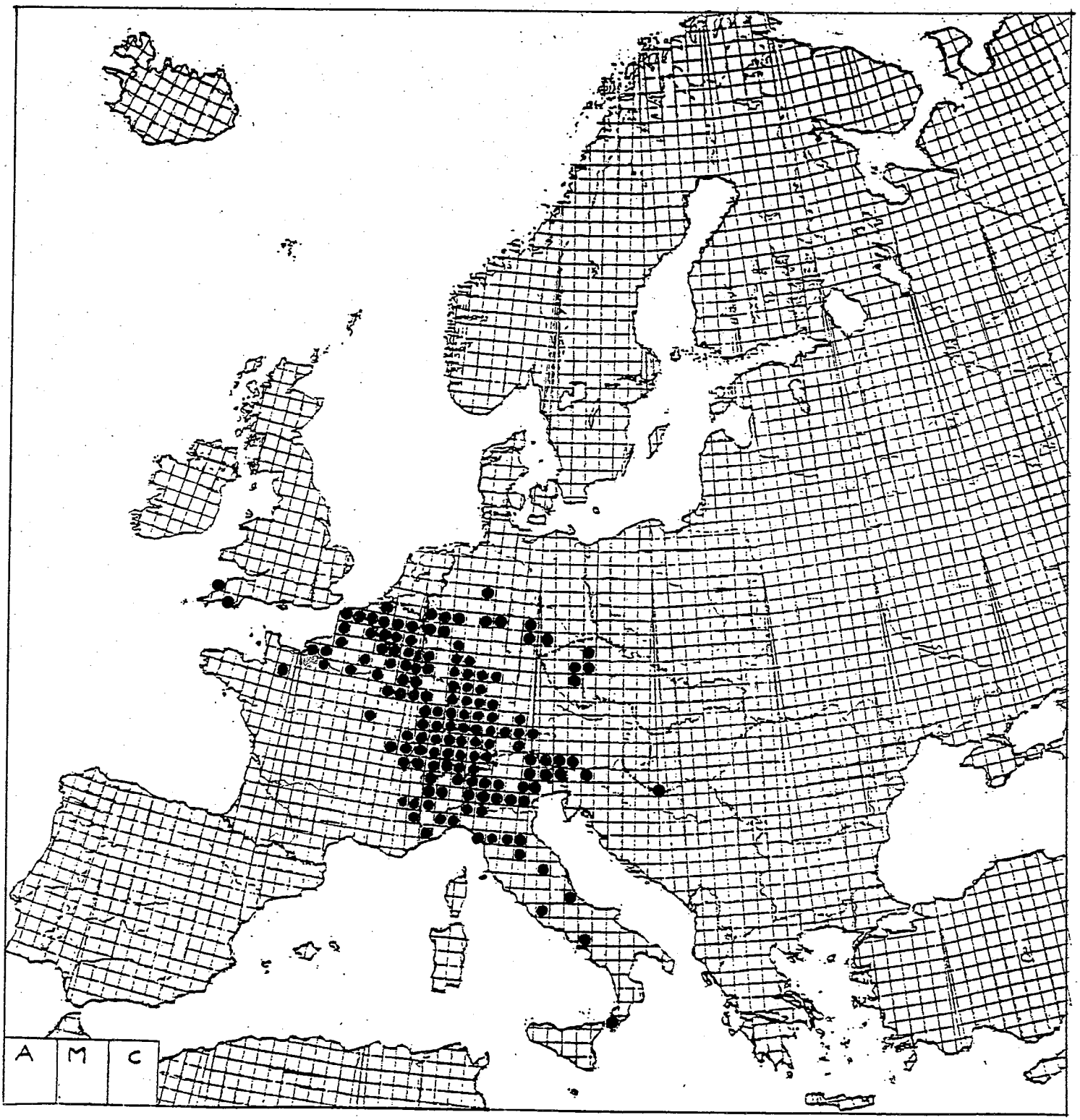
MAP 10. BRACHYCHAETEUMA MELANOPS.



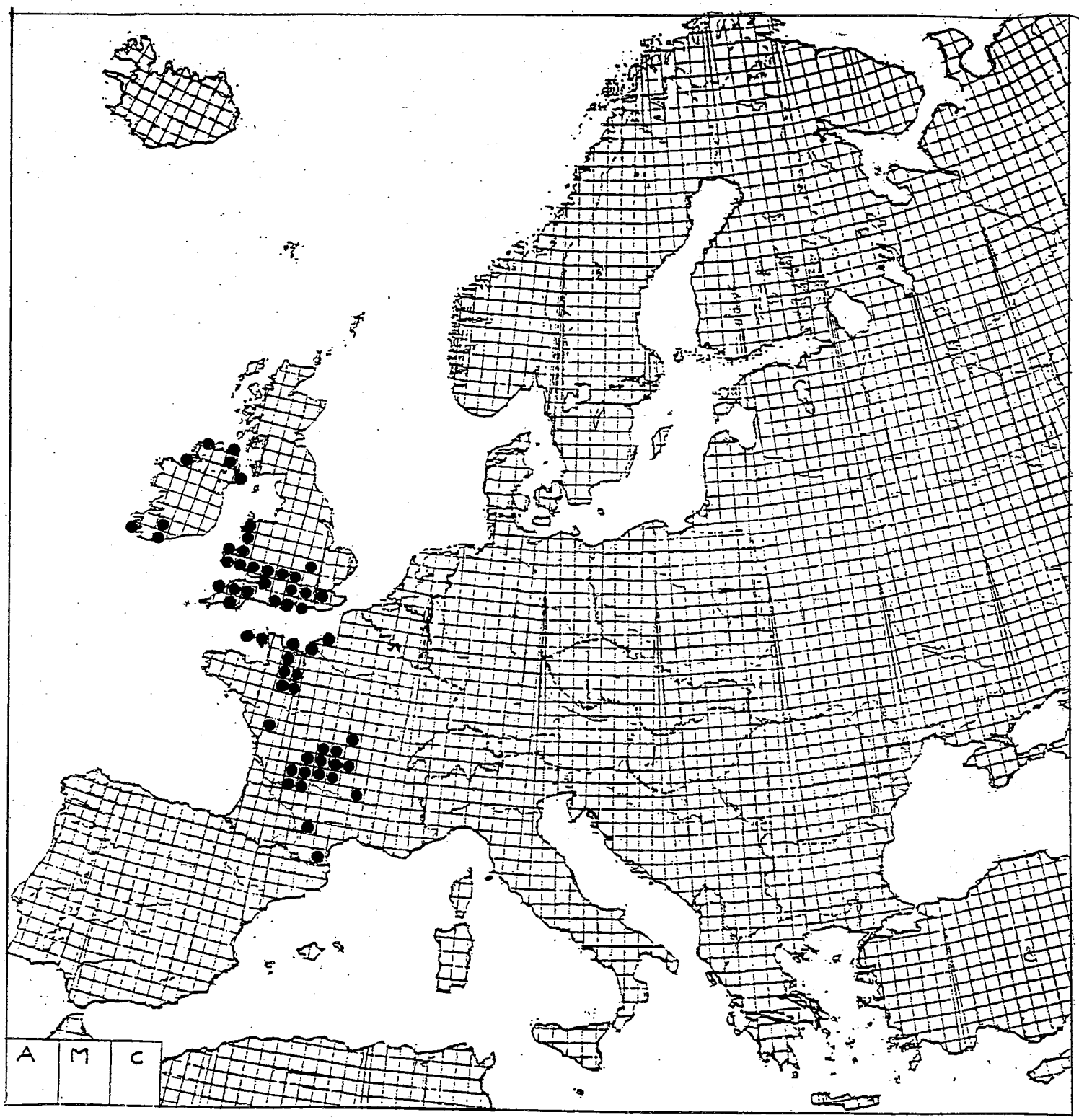
MAP 11. BRACHYCHAETEUMA BRADEAE.



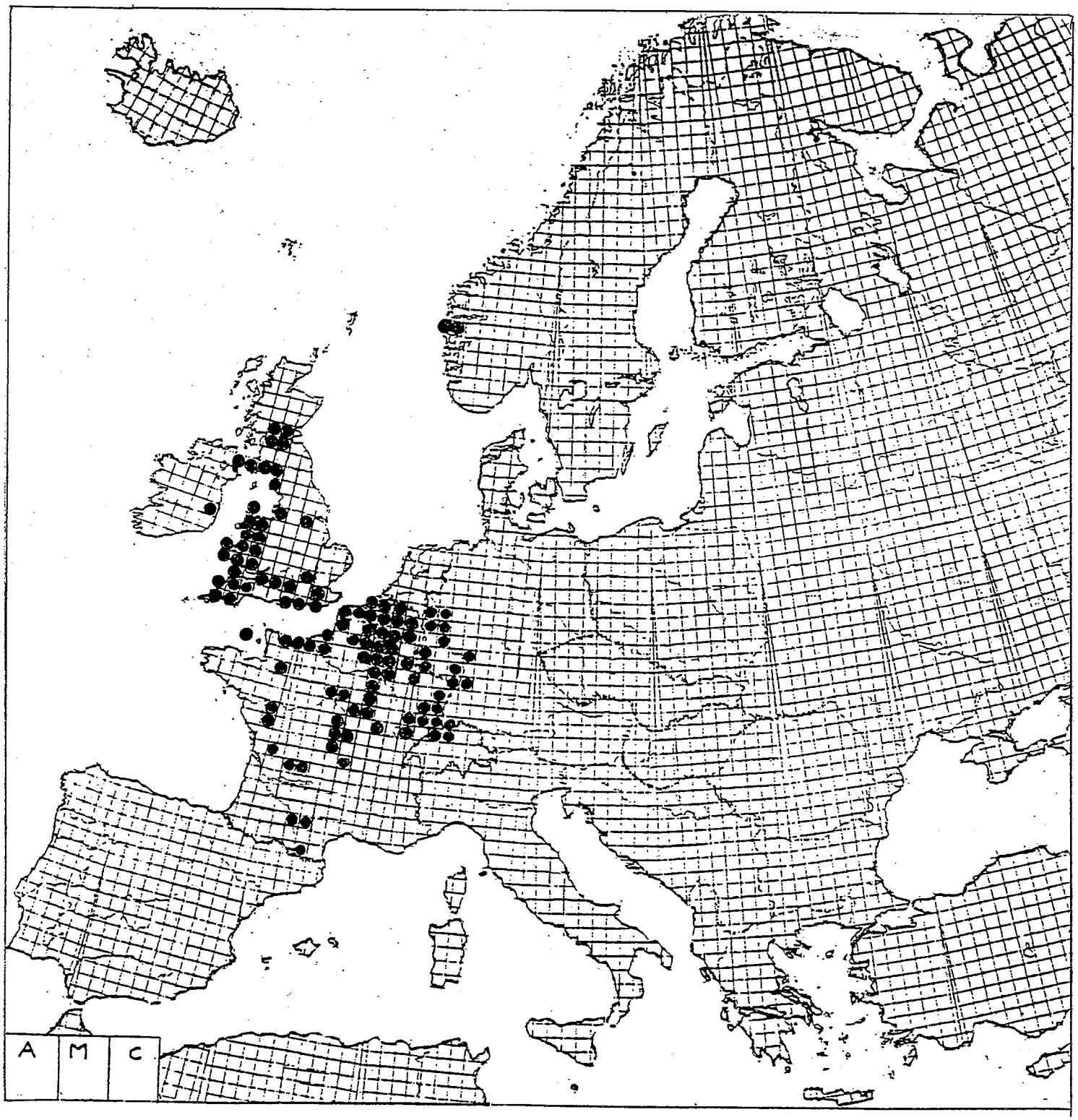
MAP 12. BRACHYCHAETEUMA BAGNALLI.



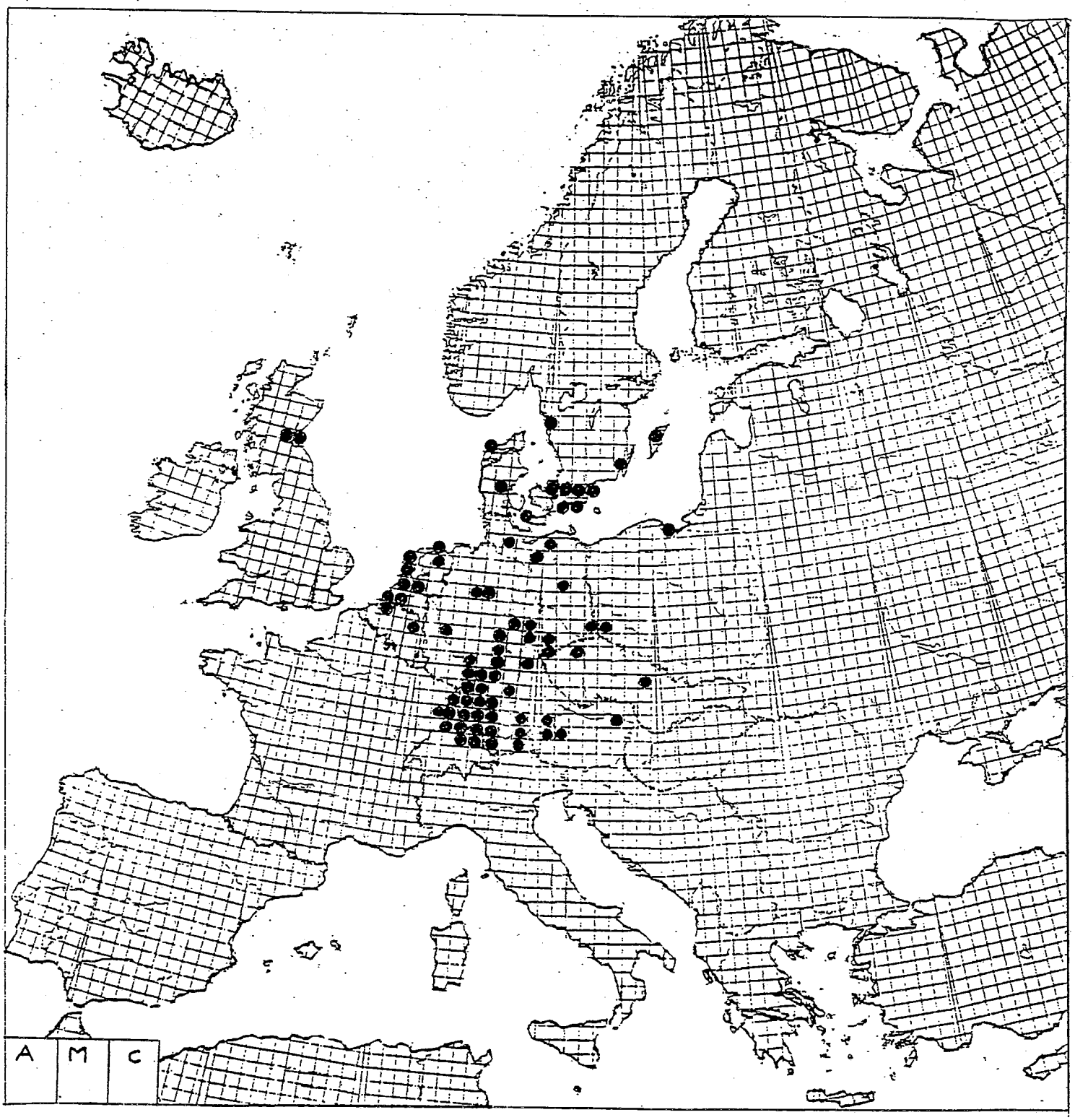
MAP 13. CHORDEUMA SYLVESTRE.



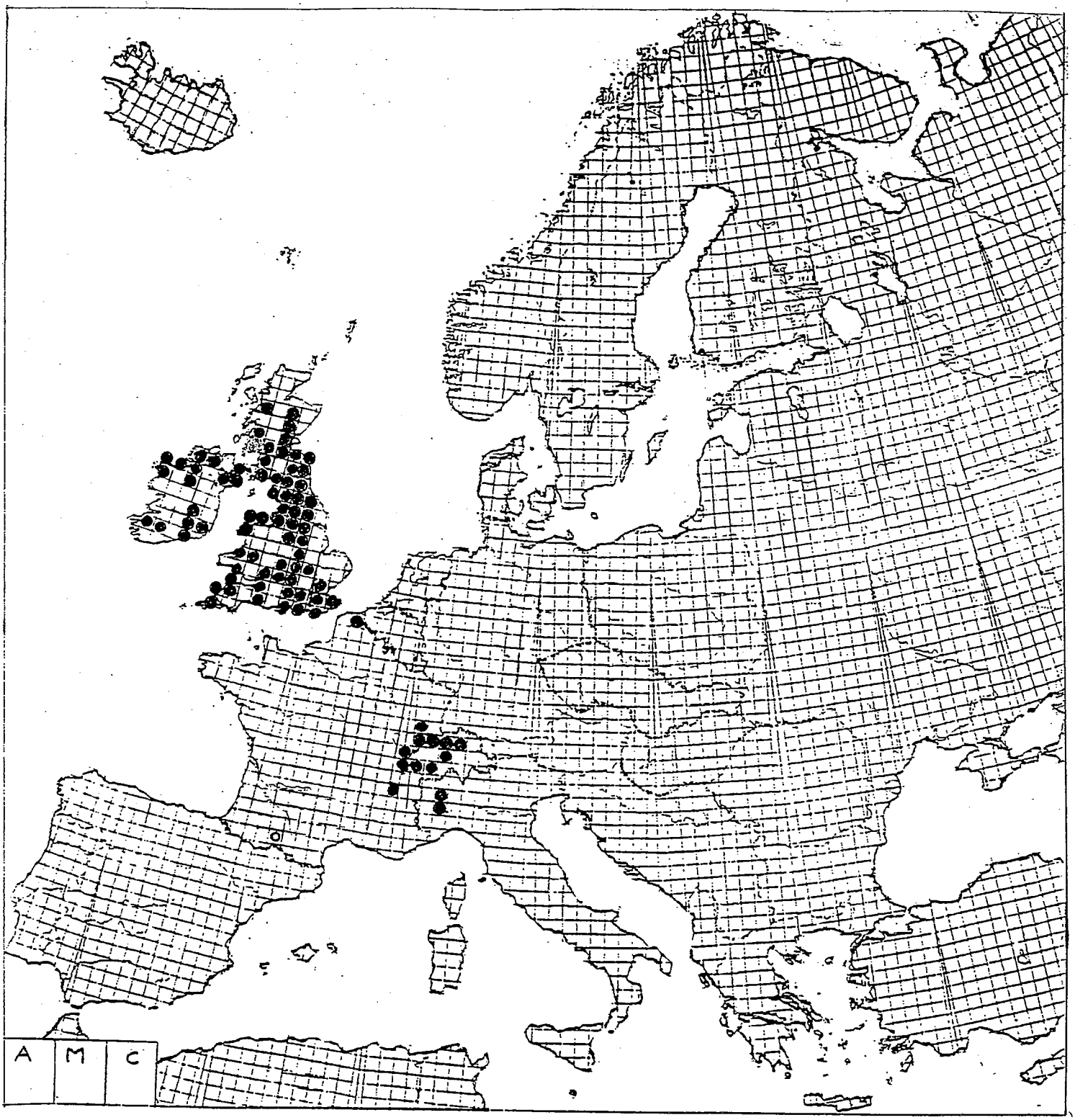
MAP 14. CHORDEUMA PROXIMUM.



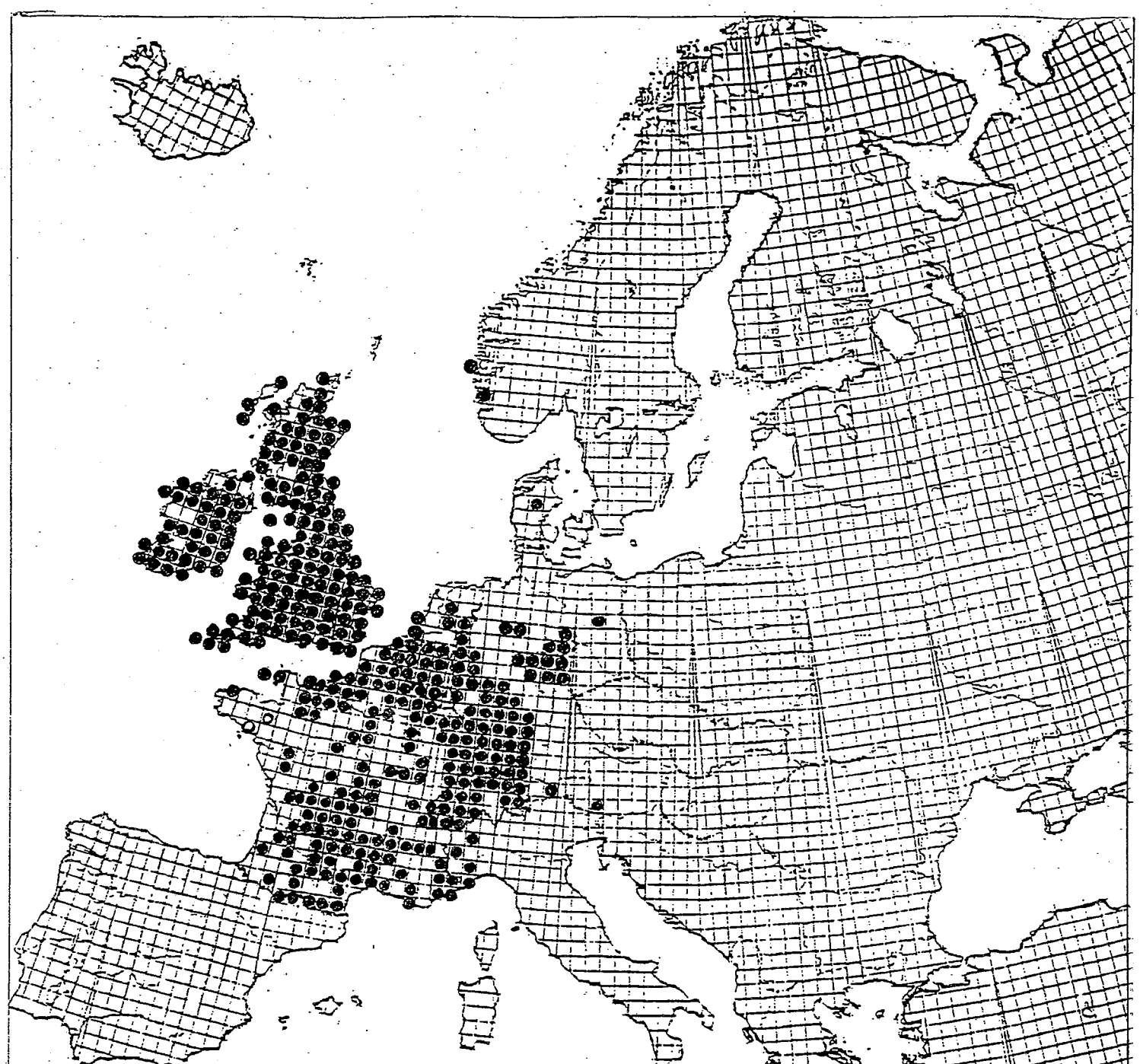
MAP 15. MELOGONA GALLICUM.



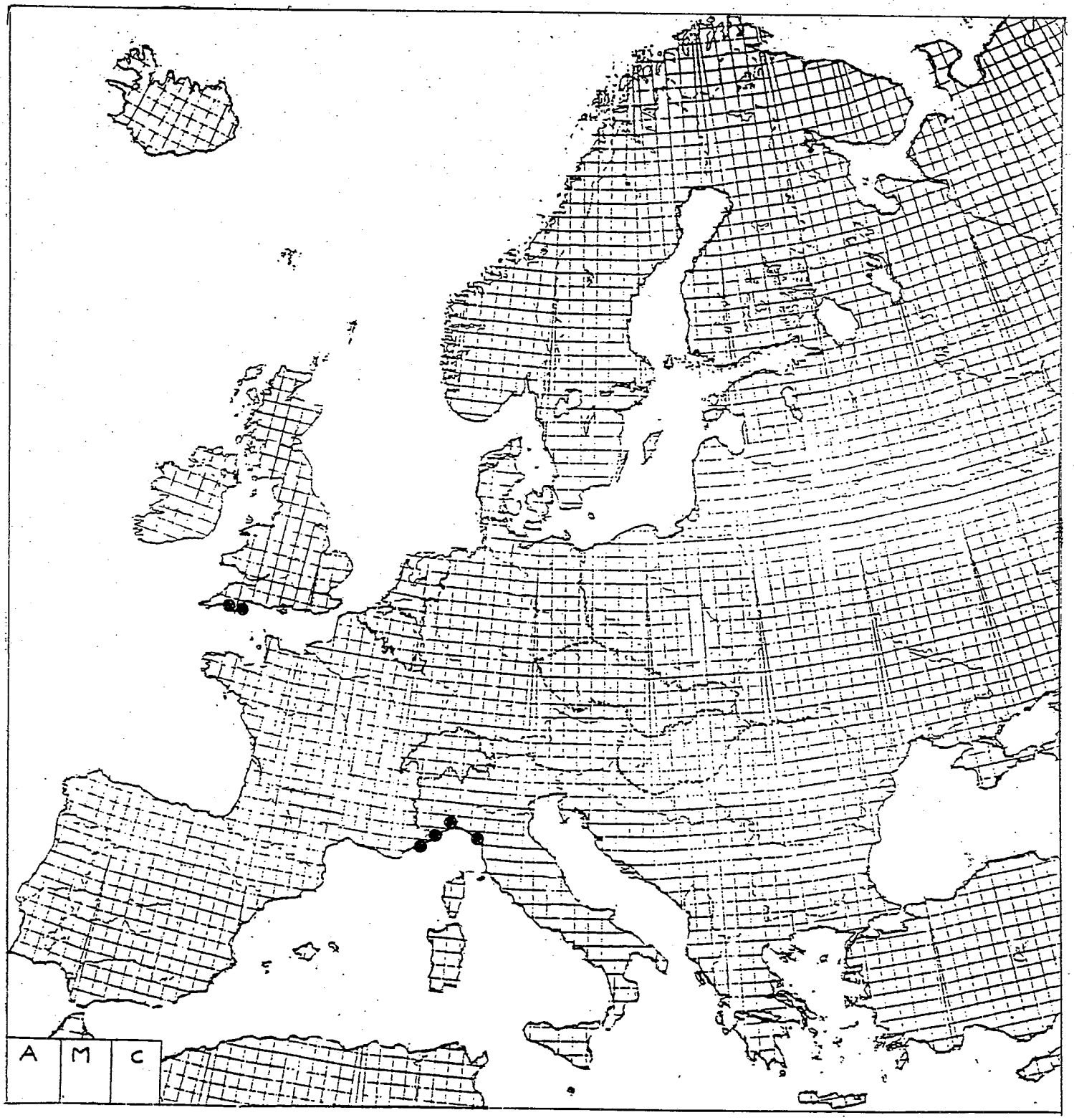
MAP 16. MELOGONA VOIGTI.



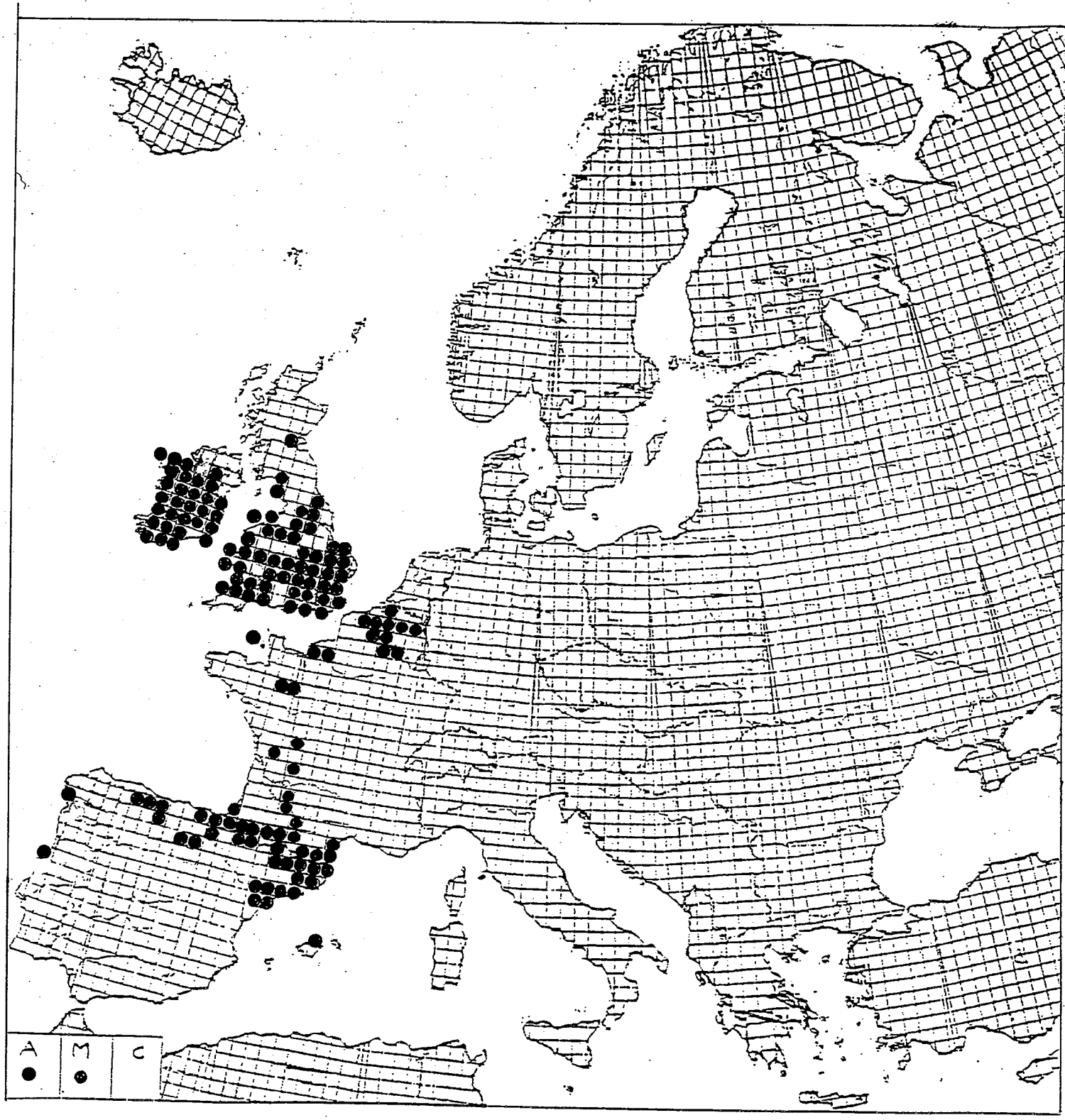
MAP 17. MELOGONA SCUTELLARE.



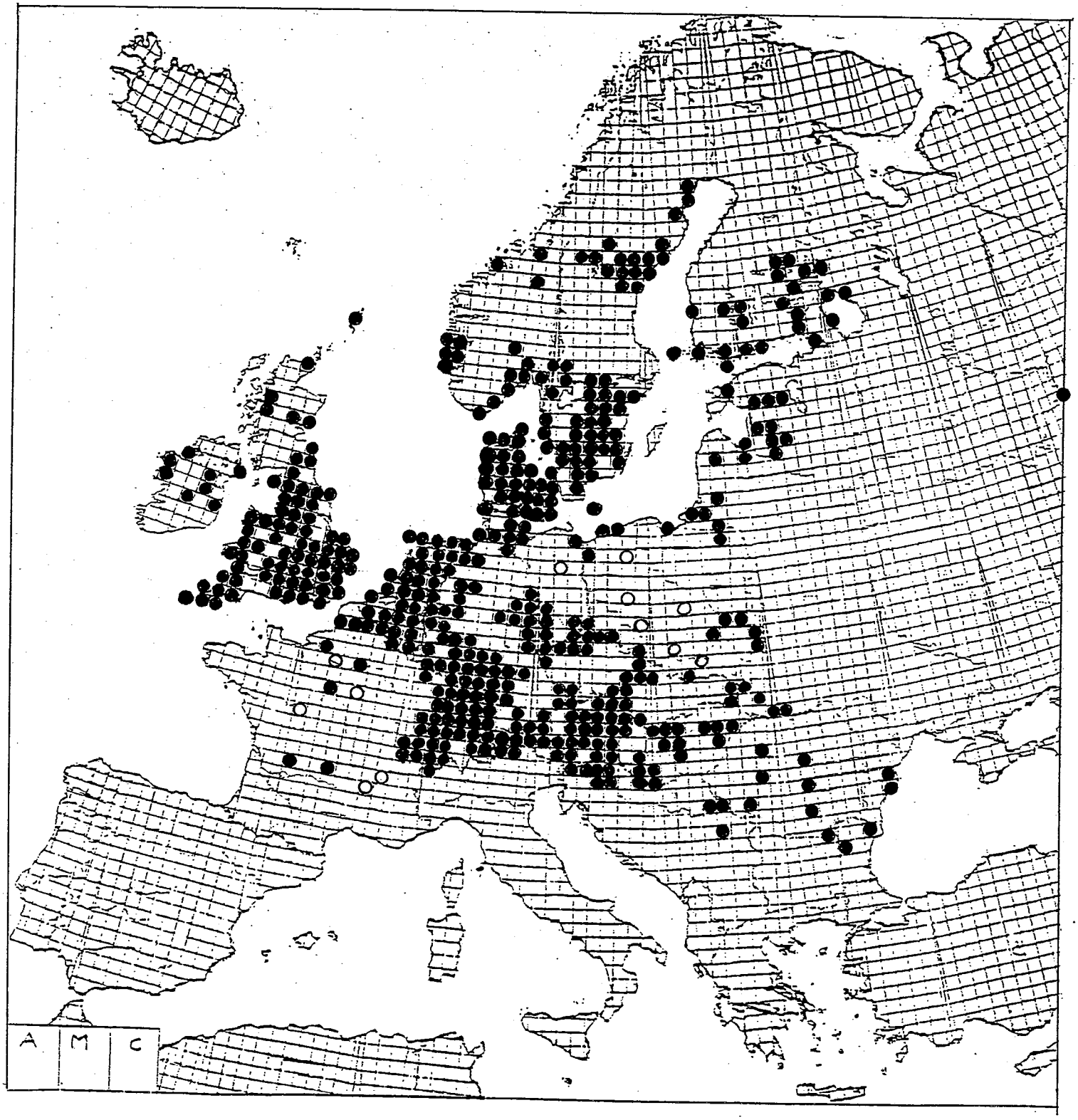
MAP 18. POLYDESMUS ANGUSTUS.



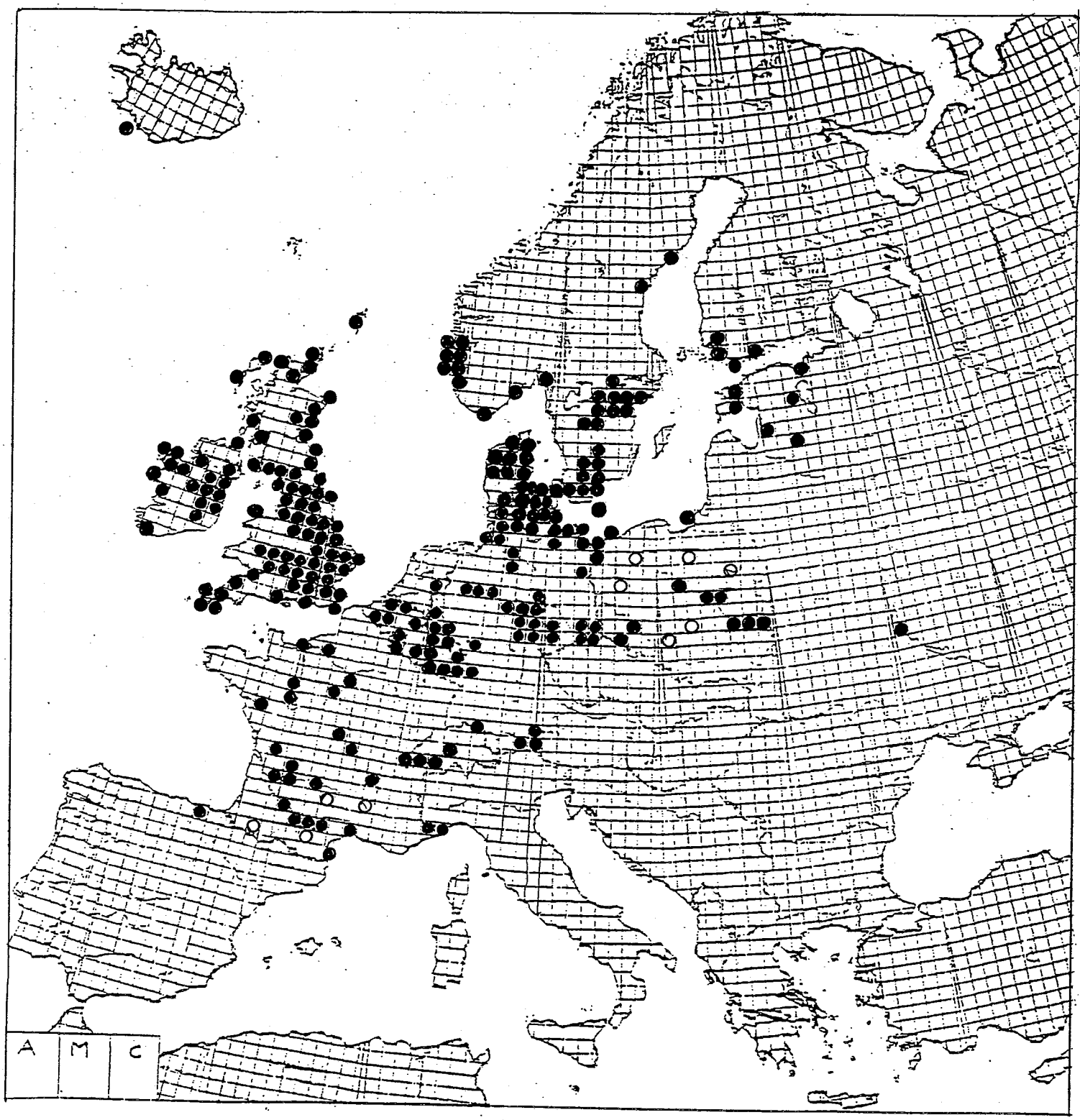
MAP 19. POLYDESMUS BARBERII.



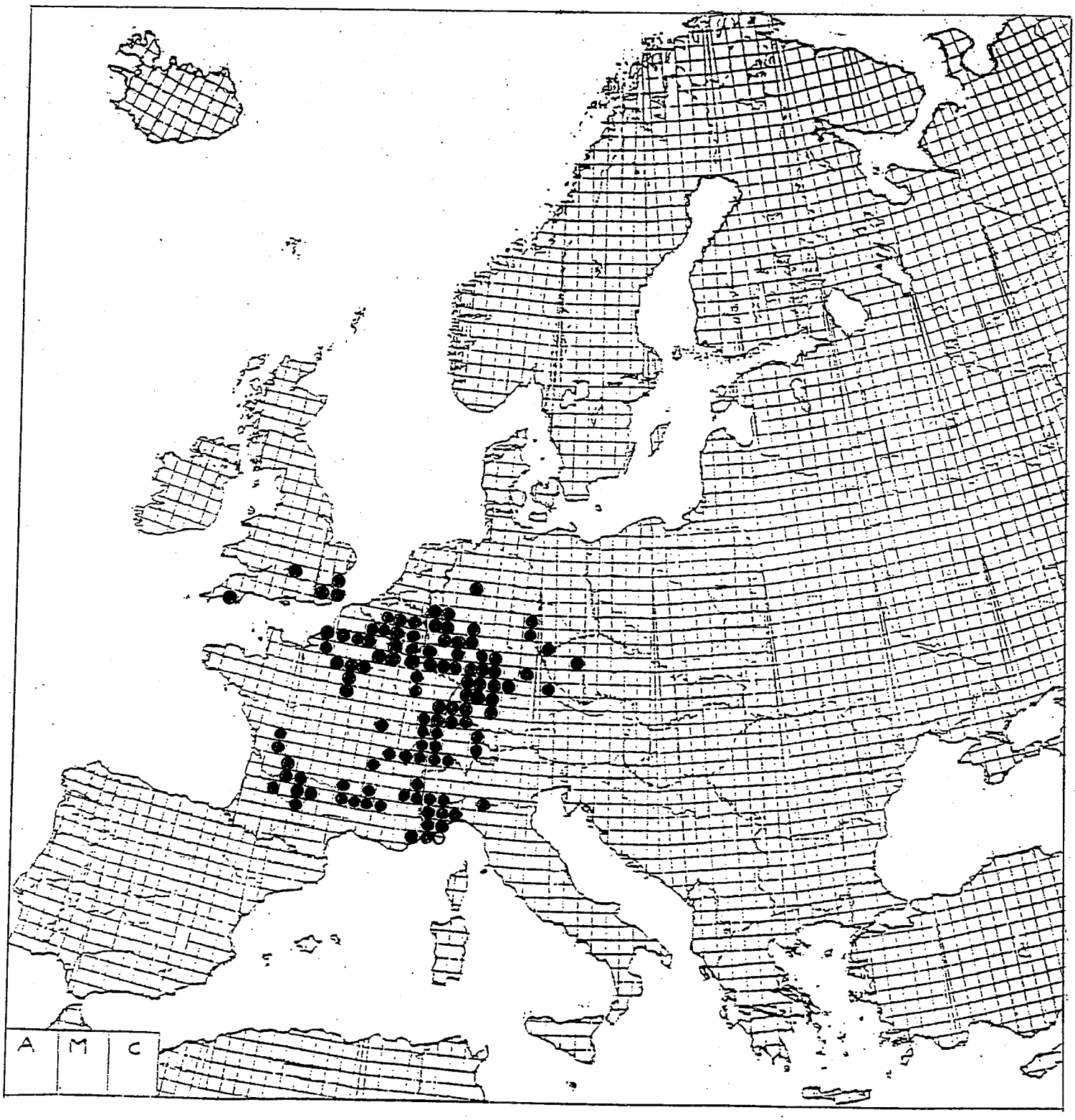
MAP 20. POLYDESMUS CORIACEUS.



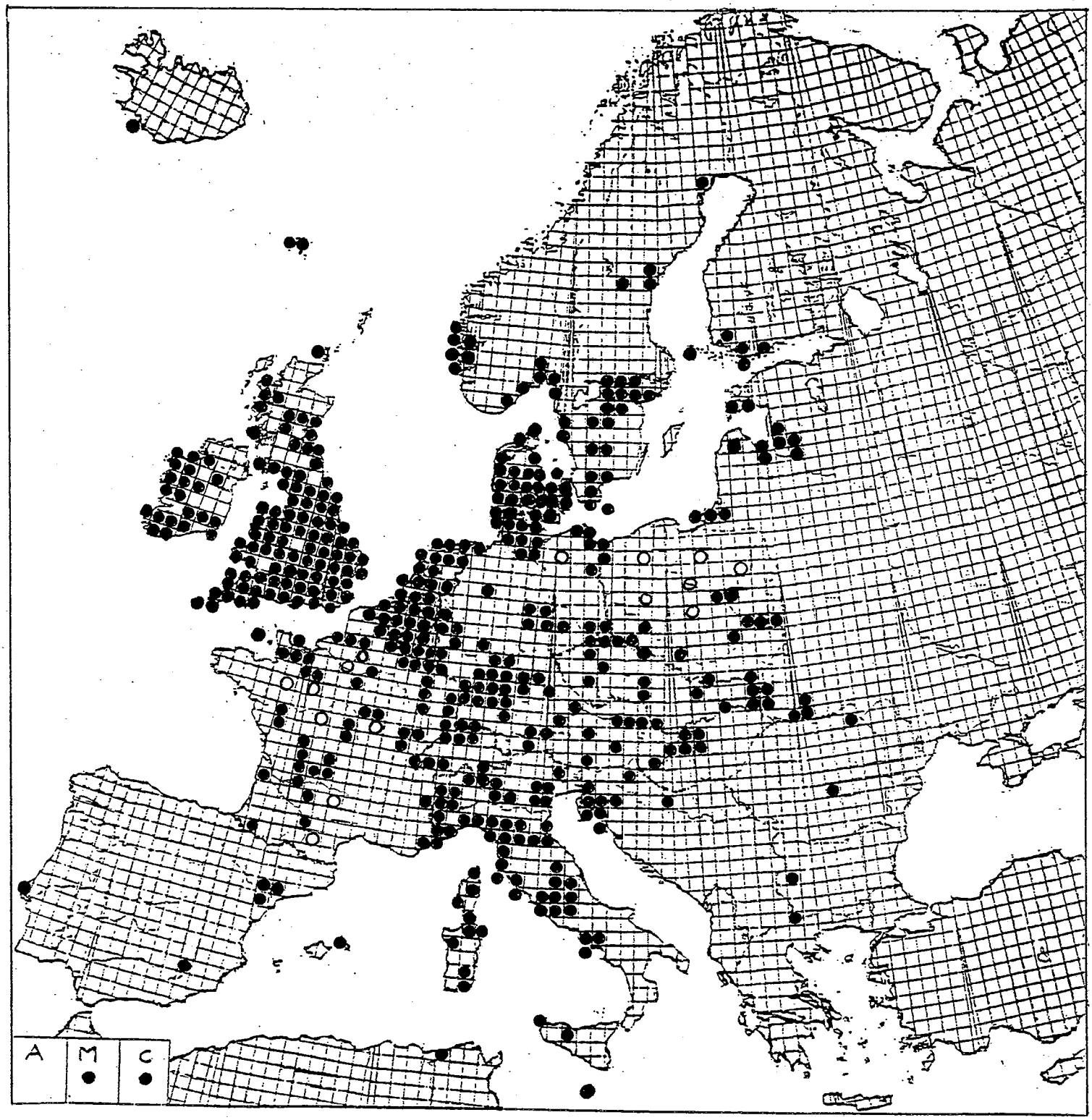
MAP 21. POLYDESMUS DENTICULATUS.



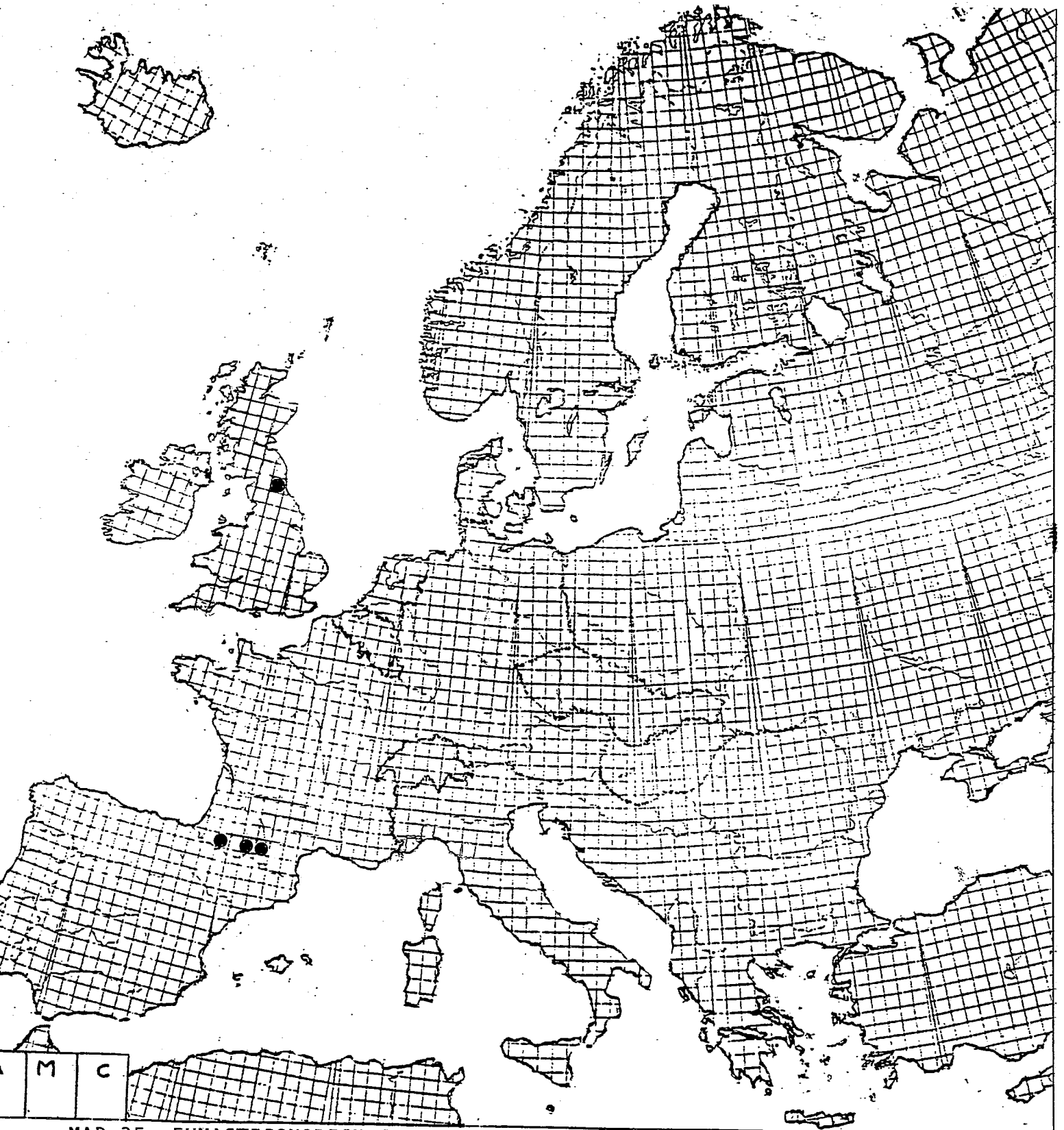
MAP 22. POLYDESMUS INCONSTANS.



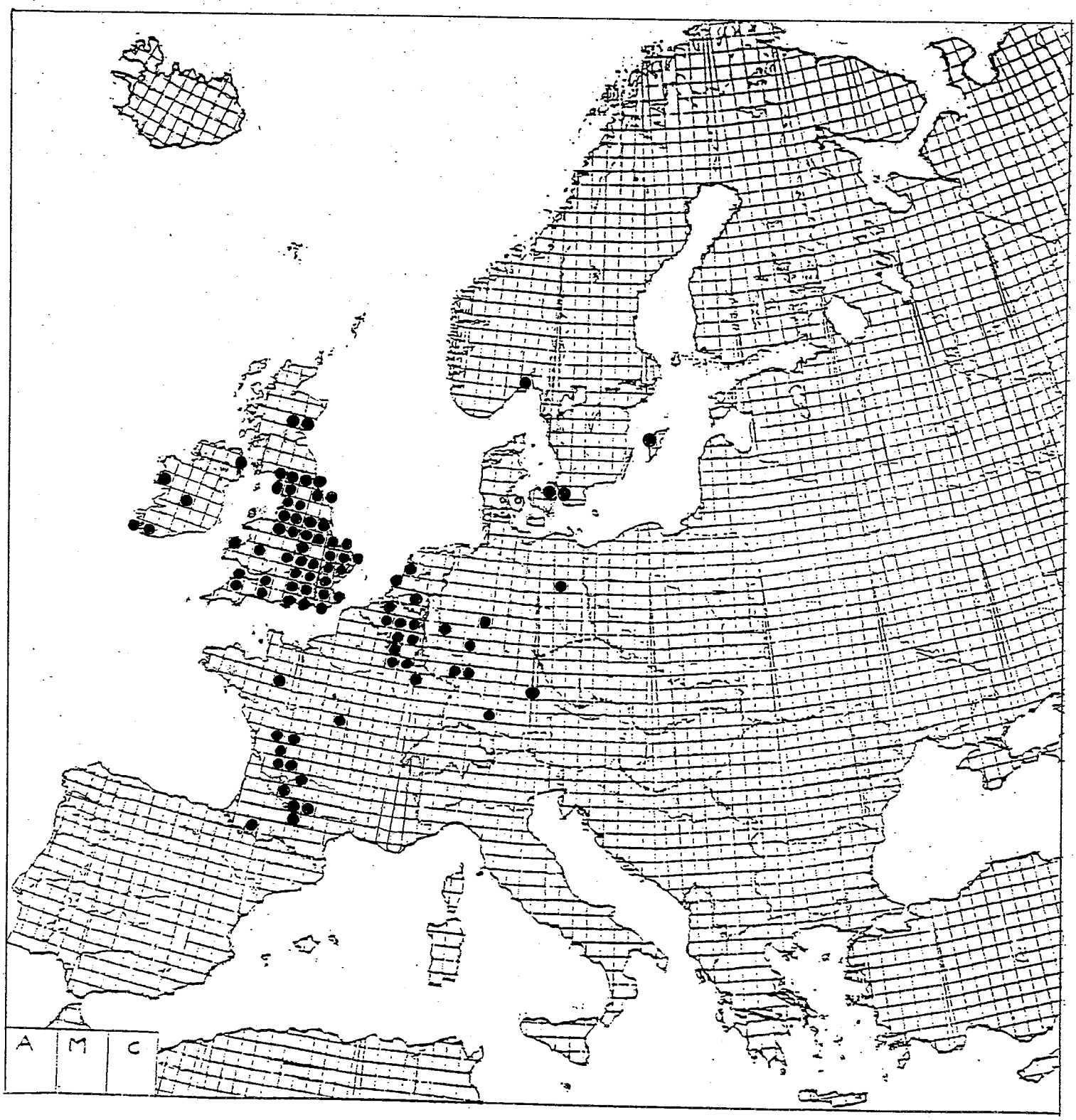
MAP 23. POLYDESMUS TESTACEUS.



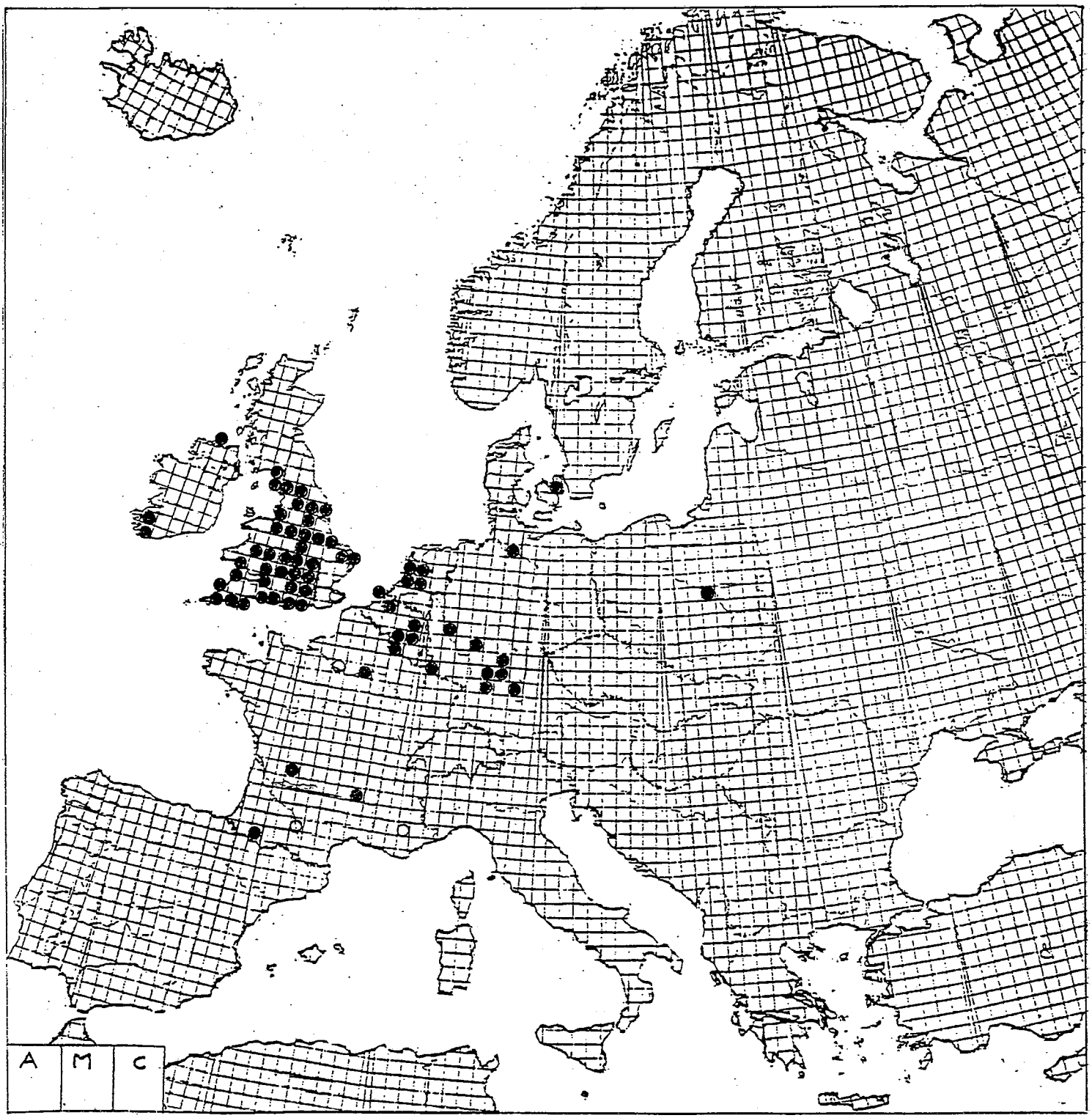
MAP 24. BRACHYDESMUS SUPERUS.



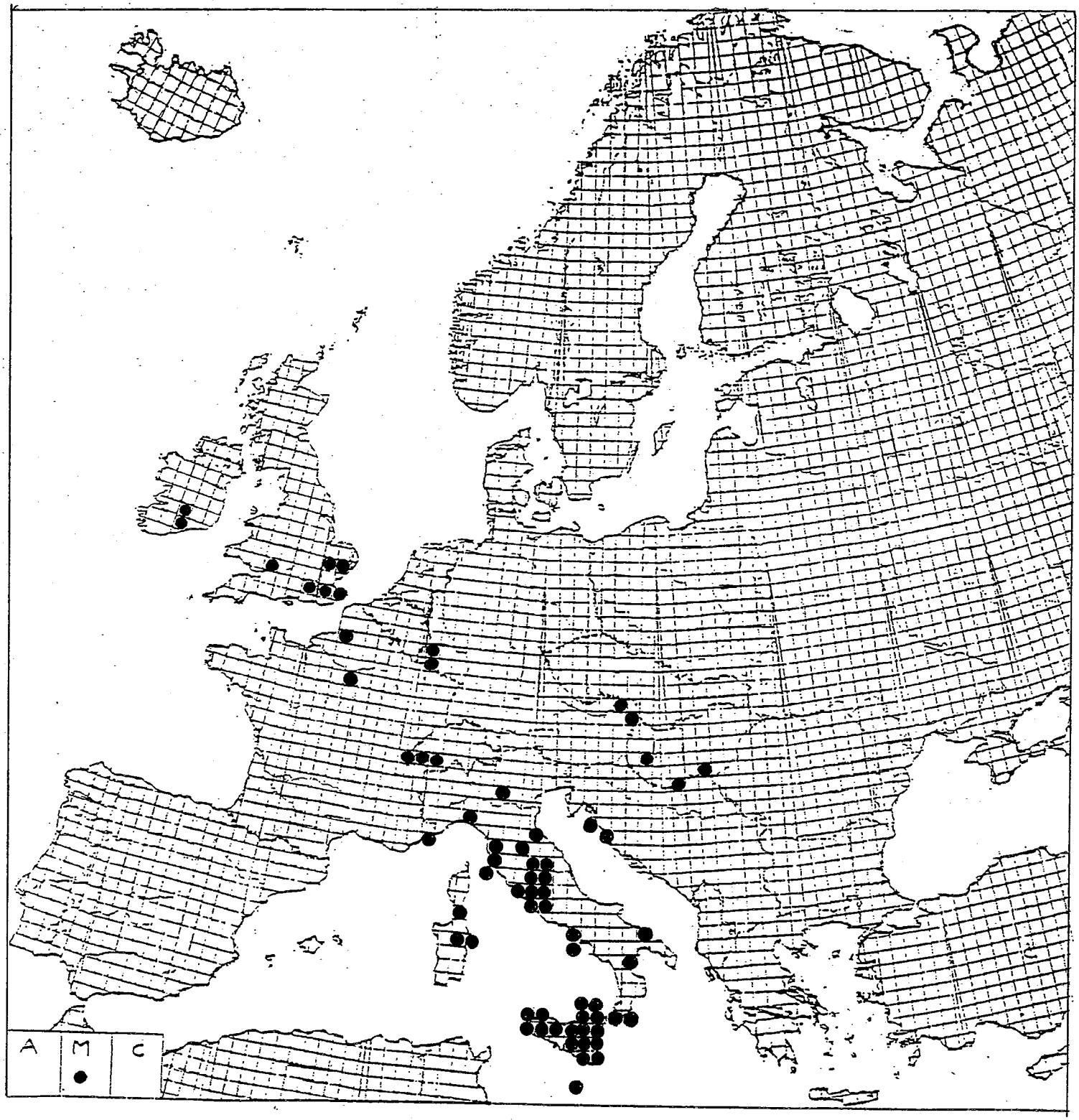
MAP 25. EUMASTIGONODESMUS BONCII.



MAP 26. MACROSTERNODESMUS PALICOLA.



MAP 27. OPHIODESMUS ALBONANUS.



MAP 28. STOSATEA ITALICA.

Bulletin of the British Myriapod and Isopod Group 17 (2001)

THE DUTCH MILLIPEDE FAUNA, AS COMPARED WITH THE BRITISH.

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Baerdijk 142, 5062 HV Oisterwijk, The Netherlands.

INTRODUCTION

Contrary to other West European countries the Netherlands in the 18th and 19th centuries never had a naturalist who cared about millipedes or centipedes. In general one can say even that the Dutch at that time never cared much for the diversity of the animal kingdom. Looking at the authorship of the common European insects and other arthropods it is a remarkable fact that none of these animals were described and named by Dutch authors. Apparently the Dutch at that time were more engaged in earning money than in caring for the nature around them.

It is therefore no wonder that faunistic interest in millipedes and centipedes in Holland during the 19th century was minimal: there simply were no Leach's or Newport's, no Latreille's or Gervais's, no Koch's in the Netherlands. The very few published faunistic contributions were simple lists of species based on the work of the great naturalists of other countries, written as a sideline by entomologists who were specialists in other groups. This situation existed up to about the middle of the 20th century.

At that time surely millipedes were in a much better position than centipedes. In the twenties the well-known German specialist Dr. Otto Schubart, who at that time was collecting information on the occurrence and distribution of millipedes in the countries around Germany, made a short trip to Holland and briefly collected at several ecologically and geographically different sites. He published an interesting extensive report on his results in 1929. Shortly afterwards he identified the material in the Amsterdam museum and wrote a small second paper on Dutch millipedes in 1931.

Unfortunately the papers by Schubart did not excite any interest among Dutch naturalists and when around 1942 in the troublesome war years I started collecting myriapods I had to puzzle it out all by myself. At that time I had to manage with a pocket lens and with Latzel's books of 1880 and 1884 as antiquated and hopelessly inadequate guides. Only after the war I was lucky to obtain copies of the books by Schubart (1934) and Brolemann (1930, 1935) that served as a solid basis for further work.

In 1953 a simple key for the identification of the millipedes of the Netherlands was published. It was largely based on the work of Schubart with some additional records taken from the available material in the Zoological Museum of Amsterdam and my own collections. But, as usual, the recorded distribution of unpopular animals is more or less identical with the distribution of their collectors. And exactly that was the case with millipedes in Holland: most of the available material came from in and around the big

cities, and from some favourite Dutch holiday resorts, in short, not the ideal basis for a faunistic study.

During the seventies my wife and I made several short trips to undercollected areas in the Netherlands to obtain a better insight in the occurrence of chilopods and diplopods. The results were published in a series of small papers, which cumulated in the appearance in 1978 of an atlas of the distribution of Dutch millipedes in which I commented on the distributional ecology of the species. As these publications were written in Dutch they were hardly accessible to British colleagues. An updated atlas published by Berg (1995) in the English language gave additional records but no information at all on the nature of the distribution or the ecology of the species.

To remedy the situation the present essay tries to give a comparison of the British and Dutch faunal lists and emphasize some obvious similarities and differences.

DUTCH MILLIPEDES

The distributional picture of Dutch millipedes is somewhat confusing. Probably the fauna of the lowlands in the western and northern provinces originally was quite poor in species. This seems to be contradicted by the great number of species recorded from the heavily urbanized western provinces, which seems to suggest a rich fauna in that part of the country. Actually, however, a relatively large percentage of the species found in the west are introductions from elsewhere. The part of the Netherlands that is really richest in autochthonous species is the southeastern part of the country, i.e. the hilly extreme south of the province Limburg that geologically (and faunistically) is part of the Belgian Ardennes.

In my atlas (Jeekel, 1978) I tried to make a practical ecological division and came to a rough classification:

A. Species occurring only under natural conditions, i.e. in biotopes with a minimum of human influence. Such an occurrence is more or less imaginary, because of the absence of really undisturbed nature in this country.
B. Species living partly under the same conditions as A, and partly in biotopes under regular but moderate human influence.
C. Species occurring only in synanthrope biotopes, and on account of their general distribution not belonging to the natural fauna of the country.

A. To category A1 belong species occurring in their particular habitat throughout the country: *Polyxenus lagurus, Craspedosoma raulinsii, Nemasoma varicorne, Proteroiulus fuscus, Ommatoiulus sabulosus, Cylindroiulus punctatus, Julus scandinavius.*

To category A2 belongs a species strictly confined to lowland peat marshes: *Xestoiulus laeticollis.*

To category A3 belongs a species just crossing the border from the east and confined to two eastern provinces of the Netherlands: *Megaphyllum projectum.*

To category A4 are referred the species that are confined to the very south of the province Limburg, the hilly limestone country: *Glomeris intermedia, Chordeuma sylvestre, Melogona gallica, Ommatoiulus rutilans, Leptoiulus belgicus, Leptoiulus kervillei, Polydesmus testaceus.* Some of them stand out in having a few, probably natural outposts northward: *Glomeris marginata, Tachypodoiulus niger, Enantiulus nanus, Polydesmus angustus.*

B. To category B1 belong species occurring in natural habitats throughout the country as well as in biotopes under more or less strong human influence: *Cylindroiulus latestriatus, Brachyiulus pusillus, Brachydesmus superus, Polydesmus inconstans, Polydesmus denticulatus.*

To category B2 belong species which are probably indigenous only in the south of Limburg, and some perhaps also near to the German border in the provinces Overijssel and Gelderland, but otherwise distributed in the rest of the country through human agency: *Melogona voigti, Brachychaeteuma bradeae, Choneiulus palmatus, Nopoiulus kochii, Blaniulus guttulatus, Boreoiulus tenuis, Cylindroiulus coeruleocinctus, Allajulus nitidus, Ophiodesmus albonanus, Macrosternodesmus palicola.*

C. To category C1 belong six European species that, judging from the general pattern of their distribution do not belong to the Dutch fauna: *Cylindroiulus apenninorum, Cylindroiulus britannicus, Cylindroiulus parisiorum, Cylindroiulus truncorum, Cylindroiulus vulnerarius, Ophyiulus pilosus.* To these I must add two species uncertainly recorded from the Netherlands *Unciger foetidus* and *Stosatea italica.*

To category C2 belong the species introduced in greenhouses from tropical regions, like *Oxidus gracilis*, etc., which will not be discussed here.

It goes without saying that this classification is open to discussion and details may have to be reconsidered when our knowledge of the occurrences in the Netherlands and elsewhere is improved.

THE DUTCH AND BRITISH LISTS COMPARED

In the following discussion the species names preceded by an * have not been recorded from the U.K. For reasons of convenience to British readers I have arranged the species in the sequence used by Blower (1985).

Family POLYXENIDAE.

Polyxenus lagurus (L.)

In the Netherlands the known distribution of this species is erratic. It may be remembered that one of the classic studies on the geographical variation in the sex ratio of this species was partly based on 301 specimens collected during the twenties in a forest near Alkmaar in the province Noord-Holland, not far from the North Sea coast (Vandel, 1926). The record of such a large number of specimens is quite amazing because since that time the species has hardly been seen in any quantity. Most of the records from the Netherlands are not far from the North Sea coast and concern apparently the bisexual form.

Personally I met with *Polyxenus* only a few times during many years of collecting in the Netherlands. This contrasts with the experience of others in Europe. For instance, Dr. K.

Schömann (1956) in his study on *Polyxenus* in Germany says: "... dürfte Polyxenus lagurus als individuenreichste Diplopodenart Mitteleuropas zu bezeichnen sein" (... could *P. l.* be characterized as diplopod species with the highest number of individuals in Central Europe) and he gives examples of finds of 250 to 400 specimens on a single tree trunk. Unfortunately no exact data on place or time of the year were given.

The little success I had in collecting *Polyxenus* may be because I did not pay enough attention to the habitat of the species and perhaps while collecting myriapods I was simply "looking too big", and missed the small specimens. But that cannot be the only explanation. May be air pollution in this heavily industrialized country, and the ongoing fragmentation and destruction of natural and seminatural habitats have played a role in the relative rareness of this species nowadays.

Perhaps the occurrence of *Polyxenus* in the U.K. is also somewhat erratic, at least that is the impression one gets from the comment by Blower, but surely the situation must be more favourable than in the Netherlands.

Family GLOMERIDAE

The British fauna of pill millipedes is a little more varied than that of the Netherlands, which has two species of *Glomeris* but lacks representatives of *Stygioglomeris* and the Trachysphaerid *Adenomeris.* Perhaps *Stygioglomeris crinata* Brolemann will turn up someday in the south of the Province Limburg as it has been recorded from nearby Belgium.

Glomeris marginata (Villers)

In the UK this is apparently a common species everywhere, except in Scottland, but in the Netherlands it is common only in the limestone area of Limburg. Outside this area it is met with only here and there in more or less isolated populations on sandy soils, mostly in the province Gelderland. Surely these must be regarded as isolated outposts of a continuous area in the adjacent countries. *Glomeris* has no synanthropic tendencies and it is evident that too much human influence on the habitat is destructive for this species, which means that in this country it will become rare in the future. Although the Dutch coastal sand dunes might seem a suitable habitat, no *Glomeris* is to be seen there.

* ***Glomeris intermedia*** Latzel

Our second *Glomeris* has not been recorded from the UK. It is a typical limestone bound west-European species, occurring in the Netherlands exclusively in the extreme south of the province Limburg often in company with *G. marginata.* It certainly does not occur in our diluvial areas. Since it is a West European species occurring in most of France I think it may be expected to be found in the U.K. sooner or later.

Family POLYZONIIDAE

The British representative of this family, *Polyzonium germanicum* Brandt, has not been recorded from the Netherlands. Probably this country falls outside the remarkable split range of the species in Europe. The interesting British record from Southeast England in itself might suggest the possibility of an occurrence along the eastern border of the Netherlands, but the general picture of the distribution in Germany hardly supports this.

Family CRASPEDOSOMATIDAE
Only a single species has been recorded from both countries, but the occurrence in the Netherlands of a second *Craspedosoma*: *C. alemannicum,* known from Luxemburg, might be possible, although not very probable.

The other British craspedosomatid, *Nanogona polydesmoides* (Leach), apparently quite common in the U.K., is not found in the Netherlands. According to its distribution pattern it is an atlantic-sub-westmediterranean species.

Possibly the recent record of *Anthogona britannica* Mauriès from Southwest England concerns an atlantic species.

Craspedosoma raulinsii Leach
It is strange to realize that in the U.K. this is a rather rare species. Although *Craspedosoma* is not really common in the Netherlands, it is one of the species that may be found almost everywhere in wooded areas provided the place is not too dry and not too much disturbed by human activities. It is not fastidious with regard to soil type, occurring in marshes as well as in deciduous woods on sandy or clayey soils. Schubart (1967) calls it a cold-resistant species.

Family BRACHYCHAETEUMATIDAE
The U.K. may be ironically labelled as the cradle of this family, all the recognized species of *Brachychaeteuma* having been first described from English soil. This is one of those millipede types, which is found almost exclusively in the localities where the collectors live. The animals apparently have a subterranean habit and are found mostly by a collector who is on the right place at the right time or by specialized mechanical methods.

Of the three British species only one has been recorded from the Netherlands. Possibly the other two, *B. bagnalli* and *B. melanops,* may be discovered here sooner or later. The known distribution of the genus in Europe is fragmentary anyway.

Brachychaeteuma bradeae (Brölemann & Brade Birks)
I found this species first in my garden in Haarlem many years ago and in similar places in the Zoo at Amsterdam. Later it proved to be not rare in the nests of *Talpa* in meadows on peaty soils near Amsterdam. Besides these localities in Noord-Holland a female specimen was found in the limestone area of Limburg. Probably the distribution of *Brachychaeteuma* in the Netherlands is mostly due to human influence, except in the south of the province Limburg where its occurrence may be natural.

Family CHORDEUMATIDAE
Of four species recorded in the U.K. two are known to occur in the Netherlands. *Chordeuma proximum* Ribaut found here and there in the southern part of Britain seems to have an atlantic distribution, and is not likely to occur in the Netherlands.

In the U.K. *Melogona scutellaris* (Ribaut) appears to be rather common, according to Blower even the most common chordeumatid. Apparently this is an Atlanto-Mediterranean species unlikely to be discovered in the Netherlands.

Chordeuma sylvestre C.L. Koch
Strangely enough, this species, which has a wide distribution in the central part of Europe down to central Italy, was found only in a few localities in Cornwall, the warmest part of England. If it were introduced in the U.K. one would rather expect it in the cooler regions. In the Netherlands it has been recorded only from the province Limburg, being not rare in wooded areas on alkaline clayey soil.

Melogona gallica (Latzel)
A species with a west European distribution. In the Netherlands it occurs in almost the same area as the preceding species: only the south of the province Limburg. It seems less common there than *C. sylvestre*. Neither of the two appears to have a synanthrope tendency. In contrast *M. gallica* has a much wider distribution in the U.K. than *C. sylvestre*.

Melogona voigtii (Verhoeff)
Contrary to the other *Melogona* this appears to be a synanthrope species in the Netherlands, however, with the same preference as to soil type. Up to now it is rather rare and has been collected here and there in the country. I suppose it is a primarily Central European species, which is gradually spreading through horticultural trade; this may also explain the recent discovery in Scotland.

The only other central European chordeumatid that, with some luck, might be found in the southernmost part of the province Limburg is *Mycogona germanica* (Verhoeff). It is, however, not to be expected in the U.K.

Family NEMASOMATIDAE
Of the two members of the family recorded from Great Britain only one has been recorded from the Netherlands. Since *Thalassisobates littoralis* (Silvestri) has been found in a number of localities on the British coast, the possibility of its occurrence on the Atlantic coasts of the European mainland cannot be excluded. The sandy beaches of the Netherlands are not particularly the place where one should look for it, but there are of course dikes and other stony fortifications where the species might have become settled. After all, the chilopod *Strigamia maritima* is known to occur at several places along the Dutch coast.

Nemasoma varicorne C.L. Koch
Although this species probably occurs throughout the Netherlands it is not really common, and surely much less common than the other bark-living millipede *Proteroiulus fuscus*. Owing to its particular habitat little can be said about the nature of its occurrence. According to Enghoff (1976) the Dutch material belongs to the parthenogenetic form, although incidentally males may be found. It seems that the occurrence in the U.K. has a similar pattern as in the Netherlands.

Family BLANIULIDAE

All but one of the British Blaniulidae has been found in the Netherlands too, probably in similar relative quantities. Only *Archiboreoiulus pallidus* (Brade-Birks) is not yet recorded from the Netherlands, although I have always borne in mind the possibility of its presence while identifying *Blaniulus*. In Belgium it seems to be occurring frequently together with *Blaniulus guttulatus* and it has been found not far from the Dutch border in Limburg, so it seems only a matter of time until it is located either in a synanthrope or in a more natural biotope, in the Netherlands.

Proteroiulus fuscus (Am Stein)

A species with a wide distribution in northern Europe, which is one of the most common millipedes in the Netherlands. It occurs, often in large populations, anywhere in and under pieces of rotten wood, tree trunks, etc., but also in the leaf litter of wooded biotopes on dry sandy soils as well as in the shrub vegetation of marshes. The species is parthenogenetic, although incidentally males have been found. The distributional data in the U.K. and the Netherlands appear similar.

Choneiulus palmatus (Nemec)

The distribution of this species in Europe is rather erratic and difficult to assess. In the Netherlands it may be autochthonous in the south and east of the province Limburg, but elsewhere it is almost surely introduced, occurring only in synanthrope localities. The frequent occurrence in greenhouses might suggest a certain thermophily, indicative of a southern origin. The situation in the UK may be similar: possibly indigenous in the south and synanthrope elsewhere.

Nopoiulus kochii (Gervais)

Owing to uncertainty about the characters of this species, its previously recorded distribution in the Netherlands should be reconsidered. May be it is more or less similar to that of the preceding species, but less rare.

Blaniulus guttulatus (Fabricius)

This is of course a well-known synanthrope species in the U.K. as well as in the Netherlands. It is here also known as an agricultural pest causing damages to germinating cultivated plants. In the south of Limburg its occurrence may be natural; but such is almost impossible to ascertain because of the ease with which it may be distributed through horticultural activities. In the rest of the Netherlands it is found especially in alluvial biotopes on humus rich soil types.

Boreoiulus tenuis (Bigler)

The general picture of the distribution in Europe of this species is difficult to evaluate. Rather rare in the Netherlands, and found usually on heavy soils together with other small synanthrope species. Maybe the occurrence in the south of Limburg is natural, but other records concern certainly synanthrope localities.

Family JULIDAE

Although the U.K. and the Netherlands share the bulk of species of this family there are some interesting differences. The U.K. has *C. londinensis,* probably an atlantic species not to be expected in the lowlands; *Enantiulus armatus* (Ribaut), a tiny species probably also with an atlantic type of distribution, *Haplopodoiulus spathifer* (Brolemann), probably introduced, and *Metaiulus pratensis* Blower & Rolfe also Atlantic.

Metaiulus pratensis has been recorded from the extreme southeast of England. It is a small species that is easily overlooked by hand collecting. Although not likely to be found in the Netherlands, the possibility cannot be altogether excluded.

The single species of *Enantiulus* occurring in England, *E. armatus,* was described from Southwestern France and occurs only in Cornwall. Apparently it is a typical western species, possibly to be found also in northern Spain and Portugal. It is not likely to occur in the Netherlands.

Ommatoiulus sabulosus (Linnaeus)
Although this species is usually characterized as common the occurrence in the Netherlands in general is rather erratic. It may be found locally throughout the country in open woody sites on sandy soil but never in great quantities. Actually, it is seen in the Netherlands most frequently in the coastal dunes, and occasional mass migrations have been recorded especially near the beaches where the lost erring specimens sometimes caused a little panic among bathers who feared these little "snakes". I remember having observed hundreds of adult specimens in the dunes near The Hague at night, climbing small poplar trees apparently to eat leaves. The extreme variation in number of individuals during their period of activity in three consecutive years has been recorded by Barlow (1957).

The species has, for a millipede, an extremely large distribution in Europe considering it does not have any preference for synanthropic habitats. Blower mentioned the colour variation occurring in certain populations in England. In this connection it may be useful to refer to a survey of the named colour variations, which at least partly are geographically determined, by Attems (1927).

* ***Ommatoiulus rutilans*** (C.L. Koch)
The distributional range of this species touches the Dutch territory in the South of Limburg where it was found a few times on warm limestone hill slopes. Like its congener it is active only in the summer months. Discovery in southwestern England seems not impossible considering the distribution in west-central Europe

Tachypodoiulus niger (Leach)
This is obviously one of the most common species throughout the UK. In the Netherlands it is similarly ubiquitous only in the southern half of the province Limburg, and particularly in the calcareous part. In the limestone quarries in this province it was the second commonest millipede, which was met with hibernating there, sometimes in enormous clusters (Jeekel & Van der Hammen, 1983). Elsewhere in the country it is rare and the few isolated localities are probably outposts of the distributional area in Belgium and Germany. Its distribution over here is quite similar to that of *Polydesmus angustus.*

Cylindroiulus coeruleocinctus (Wood)
This species is common in gardens in this country and it is probably almost everywhere introduced by transport with plants. It is not found on acid sandy soils in the eastern, central and southern parts. Its occurrence in this country is therefore probably natural only in the provinces Noord Brabant and Limburg where it is quite common. As far as I am aware *C. coeruleocinctus* does not occur in wooded areas but it is essentially a species of open terrain.

In the U.K. it seems to be not very common which is remarkable for a species that has such an evident synanthropic tendency and has obtained such a wide synanthropic distribution in Europe and North America.

Cylindroiulus vulnerarius (Berlese)
This may be an intruder from Italy, which in northwestern Europe was first discovered in the Netherlands as early as around 1910. Verhoeff described in 1912 Dutch material received from an amateur entomologist who investigated the fauna of *Talpa* nests. Verhoeff was apparently so impressed by the isolated find of this blind julid in the Netherlands that he described the material under the name of *Cylindroiulus ellingseni*. He compared it with *vulnerarius* and realized that the two were closely related. However, we now assume that the material from the Netherlands had dried out and that the gonopods as illustrated by Verhoeff were thereby misformed.

Later I found material of *vulnerarius* in Amsterdam and discovered the error by Verhoeff. Nowadays the species has been recorded from many countries, mostly from distinctly synanthrope localities. Still, one may wonder whether it is indeed an introduced species throughout Western Europe or that it was just overlooked earlier.

* ***Cylindroiulus apenninorum*** (Brolemann)
I have always wondered why this Italian species, which was reported from the Netherlands already in 19th century, has never been collected in other West European countries like the U.K. It was recorded by the coleopterist Everts in 1889 as *Julus dicentrus*, the name of a central European *Cylindroiulus* used before the name by Brolemann was proposed. It must have arrived here with plant material imported directly from Italy and seems perfectly adapted to the Dutch climate. At least I remember having collected it in substantial numbers in the "Haagse Bos", an old park in the centre of The Hague, possibly a remnant of the old coastal deciduous woods behind the dunes.

Schubart (1929) who collected this species in the Netherlands was so excited by the discovery that he proposed the subspecific name *batavus* Schubart for the Dutch population. Possibly a more careful comparison of material from the Netherlands with material of this variable species from the natural range in Italy may lead to a more exact identification of the part of that country from where the Dutch population originated. Considering the enormous development of trade of plant material in recent decennia we may expect the discovery of this species in other west European countries at any time. By the pointed produced anal scale and tail the species is easily recognized, and it certainly is not rare on the sites where it has settled.

Cylindroiulus punctatus (Leach)
Supposedly this Northwest European species is as common in the Netherlands as it is in the U.K., and I guess it is hard to find a square kilometer or a piece of rotten wood where it is missing. It is particularly common in the humus layer of deciduous woods on the acid soils of the eastern and southern provinces and along the dune coast.

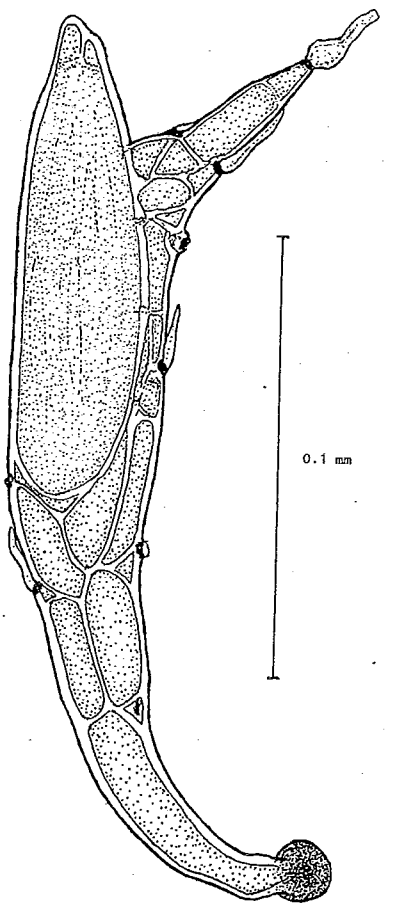
However, in spite of its being the most common Dutch millipede it is certainly not a typical synanthrope species as e.g. *Cylindroiulus latestriatus*. This may be the reason

why it has not been introduced outside its natural European area, except in Newfoundland.

Cylindroiulus latestriatus (Curtis)
This is a very common species in the Netherlands, where in the coastal dunes during springtime at times it may be extremely abundant. In Europe it has the same general distribution as the preceding species, but the pattern is obviously influenced by a distinctly synanthropic tendency. More inland in the Netherlands it is met with anywhere in gardens, as well as other biotopes under strong human influence, but also in more natural biotopes, for instance in peat marshes, always in more open terrain.

Referring to the remark by Blower (1985:36) it may be interesting to mention here the discovery of a parasitic fungus on Dutch material of *C. latestriatus*. Already many years ago I noticed in collected material specimens showing small black spots on a number of anterior legs and mouthparts. On closer inspection I found that these black spots were the basal cells of specimens of a parasitic ascomycetous fungus of the order Laboulbeniales. The species belongs to the genus *Rickia* Cavara that occurs usually on mites. Many species have been described but only recently species of *Rickia* were reported from millipedes (Scheloske, 1969; Rossi & Balazuc, 1977). The species of *Rickia* occurring on Dutch millipedes is close to these described forms, but seems sufficiently distinct to be regarded as a separate species, which I intend to describe under the name of *Rickia cylindroiuli* spec. ined. A small picture of this fungus is given in Figure 1. I am pretty sure that it will turn up in the U.K. before long.

Figure 1.



Cylindroiulus britannicus (Verhoeff)
Found only a few times in synanthropic biotopes in the Netherlands and almost certainly not belonging to the autochthonous Dutch fauna. The distributional picture in the U.K. and Ireland seems totally different, records being much more numerous. Blower (1985) calls this and the following "dead-wood species". Like the foregoing this is probably a species with an Atlantic distribution, which will prove to be widespread also in Western France, Northwest Spain and Portugal. Misidentification as *C. latestriatus* may account for the lack of records from these countries.

Cylindroiulus parisiorum (Brolemann & Verhoeff)
Like the foregoing and the following species this is more or less an enigma with regard to the natural distributional area. In the Netherlands it has been found only a few times as a synanthrope species, which may indicate import from elsewhere. It seems that in

the U.K. it is also rare although records are more numerous. Possibly it is an Atlantic species, which will be found also in the undercollected parts of the Atlantic coastal countries: western France, northwestern Spain and northern Portugal.

Cylindroiulus truncorum (Silvestri)
This is certainly an introduced species although its exact origin is not yet clarified. Silvestri described it from Tunisia, and it has been reported from Algeria, but of course that does not necessarily guarantee a North African origin. It has been recorded also from Iran by Attems. So much seems certain: it originated from a country with a warmer climate than Western Europe. In the Netherlands it is not common, but it has obtained a strong foothold, and is apparently much less rare than in the U.K. I found it in particular in compost heaps or places with dense accumulation of leaf litter in parks on humus rich soils. This, and its occasional occurrence in hothouses, indicates a definite thermophily, corroborating a southern origin.

Perhaps the seeming rarity in the U.K. is due rather to lack of sampling on the proper sites. Like so many cylindroiulines it is more or less gregarious on the sites where it occurs. Blower mentions the occurrence in England of males with "female" striation instead of the deeply furrowed appearance of "normal" males. It may be worthwhile to remind that the weakly striated males were described as var. *striatulus* by Schubart (1931: 163). According to his observations the variety is found particularly in males with a lower mean number of somites (38 (-5) – 43 (-3) against 40 (-5) – 47 (-3).

Allajulus nitidus (Verhoeff)
I understand this is not one of the commonest julids in the U.K. and I have had a more or less similar experience with it in the Netherlands. In the wooded areas on limestone in Limburg it is quite common and at places even gregarious. A similar situation occurs in some localities in the eastern part of Overijssel close to the German border. Elsewhere, however, a find of *C. nitidus* is always noteworthy, and strangely enough these collections always concerned few specimens. Although sites may be more or less strongly influenced by human activities, such an influence is not always immediately evident. Probably the species requires more heavy soil and a certain amount of humidity, as it certainly does not occur in biotopes with dry, acid sandy soils.

* ***Enantiulus nanus*** (Latzel)
Most of the collected material of this Central European species comes from the South of Limburg. Here it is found together with *Allajulus nitidus*, of which it looks like a minor edition. Discrimination of females and juveniles of the two species is not easy, and should be done by taking measurements and comparing the density of the striation of the metazonites, which is distinctly denser in *E. nanus.*

Elsewhere *E. nanus* is rare in the Netherlands and its occurrence there may be caused by human transport. For that reason the species might sooner or later be found in more or less synanthrope sites also in the U.K.

Julus scandinavius Latzel
With *Cylindroiulus punctatus* this is one of the most common millipedes in the Netherlands except on heavy, clayey soils. In the dunes it is common and I remember that in the spring adults may become very active and I observed many individual specimens moving with great speed on open sandy areas at night, obviously migrating

from one site to an other. Since that time I realize that this is essentially a woodland species, which at times actively migrates to colonize new biotopes where patches of shrubs are developing. This activity is obviously the reason why one may find occasionally specimens in the open fields far away from trees or shrubs.

Apparently this west central European species is less dominantly present in the U.K., a condition possibly due to its soil preference.

Xestoiulus laeticollis (Porat)
This looks like a diminutive form of *Julus scandinavius* with which it may occur in the same swampy locality. The present distribution of the species suggests that once it occupied the marshes of the northern plains of Europe. In the Netherlands it is found in some peat marshes in Holland, which may be regarded as remnants of a once continuous area stretching from Holland to Poland, Western Russia, the Baltic states and southern Sweden

It has not been reported from the U.K. although I have wondered if a thorough exploration of the suitable biotopes along the east coast could not yield this species.

Ophyiulus pilosus (Newport)
This species has been found in a few widely separated localities in the Netherlands: old woods in the provinces North Holland and Utrecht. It probably settled there many years ago with plant material.
Its rarity in the Netherlands I find hard to explain. Having personally experienced its commonness in the eastern U.S.A. and in the U.K. I came to the same conclusion as Kime (1999): just as in the U.S. *O. pilosus* must have been introduced in the U.K and Ireland. The fact that it has become so extremely common in these countries might be an indication of such a development: introduced species may multiply in enormous quantities when they arrive in the proper surroundings without competition of autochthonous species or without their natural enemies.

The genus *Ophyiulus* centers in the Central Mediterranean area, and *O. pilosus* appears to be a what may be called expansion-species of the genus: a species which has attained a much wider distribution than the area of its congeners. With regard to its massive, probably natural occurrence in southern Scandinavia one may seek the explanation in a coherent Central European distribution pattern during colder climatic periods and a secondary division into the two main areas of today: Scandinavia Northern Germany versus Switzerland, Austria, Northern Italy, Slovenia and Croatia.

Schubart (1934: 271) in his discussion on the discontinuous area cites Bigler (1929) as the author of two subspecies: the northern typical subspecies *O. pilosus s.str.* and the Central European form *O. pilosus major.* The matter of nomenclature is complicated because Attems and Verhoeff also distinguished similar forms.
Personally I think that the Scandinavian (small) form (according to Bigler males of 16 to 10 mm length) is the one that was introduced into the U.K. and the U.S. The drawing of the gonopod given by Blower (1985: 173, fig. 54F) shows much agreement with the illustration by Bigler (1929: 31, fig. 10). The central European form *major* (according to Bigler with males 25 to 28 mm long) may also have become displaced by anthropochorous dispersal and I guess that some, if not all, of the Dutch records may concern this subspecies, a question which has to be sorted out yet. Of course, the U.K.

also may have populations of the large form, introduced from Central Europe: a matter to be kept in mind.

All this is still much speculation and it is clear that the taxonomy of this species is in need of a thorough study of samples from all over its distributional range.

Leptoiulus belgicus (Latzel)
In the Netherlands this species has been found only in the extreme southern, mountainous part of Limburg, a marginal piece of the main area in western Europe. Although a west European species it has been recorded as far eastward as Austria. Recently, it has been recorded in the Netherlands also from the urbanized part of the province Noord-Holland. I have not seen the material upon which these records are based and cannot confirm the identification. If correct, such an occurrence can only be explained by assuming anthropochorous dispersal.

The known distributional range in England, only the southwest, is remarkable considering the pattern in continental Europe. It reminds a little of the occurrence of *Chordeuma sylvestre.*

Leptoiulus kervillei (Brolemann)
This is also a western species known only from a small part of the south of the province Limburg. This area seems to be an outpost of the more or less continuous range in Belgium and France. The records from the south of England fit very well in a certain distributional picture: obviously a range existing before the breakthrough of the Street of Dover.

Brachyiulus pusillus (Leach)
This species is locally quite common both in the U.K. and in the Netherlands, but the picture of its natural distribution is undoubtedly blurred by its strong synanthrope tendency. It is found everywhere in gardens on humid non-acid soil types. In the more natural habitats it occurs particularly on humid clayey soils behind the calcareous dune coast. However, it is easily transported and was obtained for instance in considerable quantities on localities in the middle of the reclaimed Zuiderzee polders on clay soil (Jeekel, 2000). Not found in wooded areas but more in open shrub vegetation and even quite abundantly near the borders of rivers, or in open reed lands with a high water table (Jeekel & Brugge, 2001). Considering the localities where it is found I suppose it can survive periodical inundations of its habitat.

Unciger foetidus (C.L. Koch)
The single record of this species from the Netherlands is based solely upon a communication received from Brolemann by Schubart (1929) according to whom it was found near Leiden, a somewhat puzzling record. However, *U. foetidus* is known to have synanthropic tendencies and the possibility of an occurrence in the Netherlands under such conditions cannot be excluded. Its main area of dispersal is Central Europe, but the nearest record from Germany is in East Frisia not very far from the northeastern Dutch border, so there is still a slight chance that *U. foetidus* will be found somewhere in the east of the province of Overijssel. After all it has been discovered only recently in East Anglia. The discovery in a synanthrope site in the Netherlands is an other possibility. Unfortunately my search for it has failed up to now.

* ***Megaphyllum projectum*** Verhoeff
I do not have much experience with this species, which is mainly Central European in distribution, the occurrence in the Netherlands being confined to two eastern provinces close to the German border. It is noteworthy that it apparently does not occur in the south of Limburg, neither in the Belgian Ardennes. Probably we are dealing here with an eastern-central European millipede, which touches on the Dutch eastern border. Occurrence in the U.K. seems quite unlikely.

I found it in the leaf litter of small wooded patches, but in the spring, when I collected only subadults were found. Adults seem to be active only in the summer. It does not seem to have synanthropic tendencies.

Family POLYDESMIDAE
All Polydesmidae of the Netherlands occur in the U.K. But Britain has some interesting additional species, like *Polydesmus gallicus* or, better, *P. coriaceus* Porat, which has not been recorded and probably, as an atlantic species, does not occur in the region of the low countries. A remarkable recent record of *Polydesmus barberii* Latzel from Southeast England concerns possibly a case of recent anthropochorous dispersal. The other species recorded once in England is *Eumastigonodesmus boncii* (Brolemann), a species that seems to have an Atlantic distribution and is not to be expected to occur in the Netherlands.

Brachydesmus superus Latzel
Like in the U.K. this is one of our commonest polydesmids, which is found mostly in humid situations in gardens. As a consequence of the synanthrope tendency of the species the natural distribution has become difficult to ascertain. Probably its occurrence in the shrubby vegetation of wet valleys in the dunes and directly behind, often in company of the julid *Brachyiulus pusillus* (Leach), must be regarded as natural. Seems to prefer humus rich sandy or clayey soils provided the habitat is not too dry.

Polydesmus angustus Latzel
I understand that in Britain this west European species is the most widely distributed polydesmid. Over here it is common only in the limestone area of Limburg, where it was found to be the most common millipede in limestone quarries (Jeekel & Van der Hammen, 1983), and in forests on clayey soils east of the river Meuse down to around Nijmegen. Elsewhere there are a few isolated localities, mostly sites with old wood, but I think that part if not all of these populations might as well have been introduced with plant material. Maybe the localities in Noord-Brabant are northern outposts of the more continuous area in Belgium.

Polydesmus testaceus C.L. Koch
In the Netherlands this central European species is strictly confined to the limestone area of Limburg where it is common, though not as common as *P. angustus.* In the limestone quarries of the southern-most part of Limburg it is the third most common species (Jeekel & Van der Hammen, 1983).

Although distinctly more selective in its choice of habitat and more eastern in general distribution than *P. angustus* it seems strange that the range of *P. testaceus* in the U.K. is so restricted and includes isolated localities in Cornwall. This reminds of the distribution of *Chordeuma sylvestre* and *Leptoiulus belgicus.*

Polydesmus denticulatus C.L. Koch
Except on limestone or heavy clayey soils this is the most common polydesmid in the Netherlands, which is found in dry woodland on poor acid soils as well as in shrub vegetation of peat marshes. Moreover it has rather strong synanthrope tendencies, which accounts for the occurrence practically everywhere in the country. Apparently the animal is less common in the U.K., where the synanthrope tendency is not so obvious as over here.

Polydesmus inconstans Latzel
This might seem a fairly recent arrival in a large part of the Netherlands because it was not reported upon in papers before the '70s. It now appears to be fairly common in Limburg. There, as in the U.K., it has been found a few times in limestone quarries, but it is decidedly less common in this habitat than *P. angustus* or *P. testaceus.* Elsewhere in the Netherlands *P. inconstans* is rare, having been collected in some isolated localities. However, it was found to be the dominant polydesmid in the Flevoland polder (reclaimed from the former Zuiderzee) on clayey soil, which indicates distribution through human transport.

Family MACROSTERNODESMIDAE
The two species found in the Netherlands occur also in the U.K.

Ophiodesmus albonanus (Latzel)
This seems to be a rare species in the Netherlands, meaning that it is found only when one happens to look for it at the right place at the right time. It seems to prefer a heavy soil type that does not dry out in summer. Its occurrence in this country is probably natural only in the province Limburg and in some small areas along the German border. Elsewhere I guess occurrence is entirely due to human transport. May be the period of appearance at soil level is very short, and this may be the cause of its rareness.

Macrosternodesmus palicola Brolemann
The known distribution of this species, like the foregoing, largely coincides with the place of residence of its collectors. It lives probably most of the year under the surface of fat humus-rich or humid clayey soil. The picture of its erratic occurrence in the Netherlands is similar to that of the UK. Personally I have not seen it for many years now.

Family PARADOXOSOMATIDAE
While the well-known hothouse millipede, *Oxidus gracilis* (C.L.Koch) is just as common in its particular habitat in the Netherlands as in the U.K., the occurrence of the other British paradoxosomatid in the Netherlands is dubious.

Stosatea italica (Latzel)
This essentially Mediterranean species was recorded from the Netherlands only once, collected by an amateur entomologist studying the arthropod fauna of *Talpa* nests in the southern part of the province Limburg. Unfortunately we have no knowledge of the exact locality and the circumstances under which it was found. If this species really belongs to the Dutch fauna it almost certainly must have been introduced with plants from the Mediterranean region.

SUMMARY

Below is a summary comparison of the species occurring in the Netherlands and not (yet) in the U.K. The two expected to be found sooner or later in Britain are marked by a *

Glomeris intermedia Latzel
* *Cylindroiulus apenninorum* (Brolemann)
Enantiulus nanus (Latzel)
Xestoiulus laeticollis (Porat)
Megaphyllum projectum Verhoeff
**Ommatoiulus rutilans* (C.L. Koch)

Species occurring in the U.K. but not recorded from the Netherlands are listed below. Those marked by a * might be found (or found again) some day in the Netherlands.

**Stygioglomeris crinata*
Adenomeris gibbosa
Polyzonium germanicum
Nanogona polydesmoides
Anthogona britannica
Brachychaeteuma melanops
**Brachychaeteuma bagnalli*
Chordeuma proximum
**Melogona scutellare*
**Thalassisobates littoralis*
**Archiboreoiulus pallidus*
Cylindroiulus londinensis
Enantiulus armatus
Haplopodoiulus spathifer
Metaiulus pratensis
**Unciger foetidus*
Polydesmus gallicus
Polydesmus barberii
Eumastigonodesmus boncii
**Stosatea italica*

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Bulletin of the British Myriapod and Isopod Group 17 (2001)

OXFORDSHIRE WOODLICE: CURRENT STATUS AND DISTRIBUTION

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INTRODUCTION

This paper summarises the current knowledge of the Oxfordshire woodlouse fauna. The distributional data are primarily based on the county tetrad atlas (Gregory and Campbell 1995), but updated to December 2000 and plotted using national 10km grid squares.

The records presented here cover the current administrative county of Oxfordshire (Figure 1). This differs considerably from the Watsonian vice-county of Oxfordshire (vc 23), which is traditionally used in recording schemes, and includes a large chunk of Berkshire (vc 22) in the south-west. The boundary between the two vice-counties approximately follows the course of the River Thames which is shown on the maps.

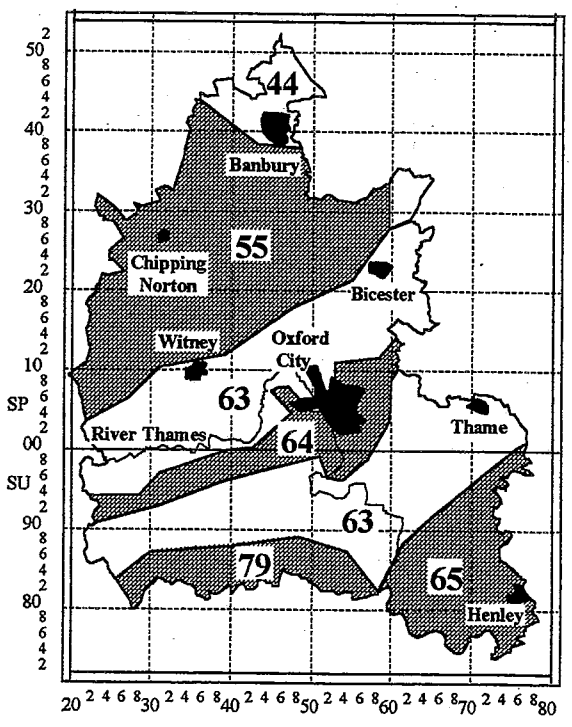


Figure 1. The modern county of Oxfordshire showing key towns and Natural Areas

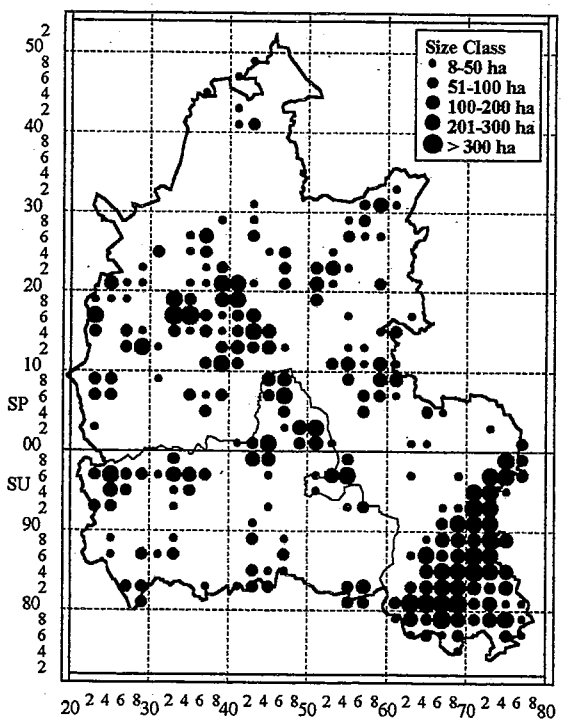


Figure 2. Extent of woodland cover: all tetrads with woodlands over 8ha in area (including plantation) are shown.

This gives an area of 260,944 hectares which falls within the following 39 10km squares: SU28, SU29, SU38, SU39, SU48, SU49, SU58, SU59, SU67, SU68, SU69, SU77, SU78, SU79, SP20, SP21, SP22, SP23, SP30, SP31, SP32, SP33, SP34, SP40, SP41, SP42, SP43, SP44, SP45, SP50, SP51, SP52, SP53, SP54, SP60, SP61, SP62, SP63 and SP70.

PHYSICAL FEATURES OF THE COUNTY

Like most counties in the lowland south Oxfordshire supports much extensive agriculture, but considering the close proximity to London, is surprisingly free of conurbations. Extremes in elevation are seen in the south-east where the Thames lies at 35m and the Chilterns rise to 255m. Habitats considered to be of high conservation value occupy only 8% of the county. The underlying geology is a series of exposures from the Jurassic in the north-west to the Cretaceous in the south east. Six Natural Areas*, which strongly correspond to the underlying geology, occur in Oxfordshire (Figure 1).

* Natural Areas: The idea of Natural Areas was developed by English Nature in the 1990's. They are biogeographic zones characterised by physical factors such as geology and topography. Each has a unique landscape, rural land use and associated fauna and flora. They are intended to provide a framework for conservation initiatives across England. Historically such work had been restricted by artificial constraints such as adminastrative county boundaries.

In the extreme north there is a small area of the Midland Clay Pastures (44), but much of the northern third of the county consists of a rolling limestone plateau forming the north-eastern end of the Cotswold Natural Area (55). Although dominated by pasture and agriculture it is dissected by deep stream valleys which still contain small remnants of semi-natural habitat. Along the southern edge, where oolitic limestones outcrop, many large tracts of deciduous woodland survive (Figure 2).

The Thames and Avon Vales (63) are low lying areas composed of heavy Oxford and Gault clays. The Thames and its many tributaries, such as the Cherwell and the Ray, still have many unimproved damp meadows and marshes. Within the Thames and Avon Vales lies the well-defined Midvale Ridge (64), composed of limestone and calcareous sands. This is another well-wooded area (Figure 2), but also supports remnants of contrasting calcareous grassland and heath reminiscent of those of the East Anglian brecklands. At the base of the ridge a well-developed series of calcareous seepage fens occurs.

In the south Cretaceous chalk outcrops. West of the Thames this forms the rolling hills of the Berkshire Downs. Intensive agriculture predominates, but some areas of chalk grassland survive. Over much of the Chilterns, which lie east of the Thames, the chalk is locally masked by acidic clay drift and is dominated by woodland (Figure 2). Chalk grassland mainly occurs on the north-west facing escarpment.

PAST AND PRESENT RECORDS

A more detailed account of past recording in the county is given in Gregory & Campbell (1995). The first woodlice records, for *Platyarthrus hoffmannseggi* and *Porcellionides pruinosus*, were made in 1868 near Oxford (Taylor 1939). In the early decades of the

twentieth century the Rev T.R.R. Stebbing and Dr R.S. Bagnell were both active in the county. The early records are collated in the Victoria County History (Taylor 1939), which lists 16 species (Table 1). The few records made from the 1930's to the 1970's were mainly generated by the Bureau of Animal Population Studies at Oxford University.

TABLE 1. WOODLICE SPECIES RECORDED FROM OXFORDSHIRE SHOWING FREQUENCY OF OCCURRENCE IN OXFORDSHIRE AND THROUGHOUT ENGLAND (BASED ON HARDING & SUTTON 1985, EXCEPT *)

Species	First Oxon Record	Number Oxon 10km sq.	Number Oxon Records	Oxon Rank	Number English Records	English Rank
Ligidium hypnorum	1963	7	47	14	131	12
Androniscus dentiger	pre 1939	37	132	9	463	6
Buddelundiella cataractae	1989	1	3	= 23	2	23
Haplophthalmus danicus	pre 1939	36	175	8	162	11
[#] *Haplophthalmus mengei*	pre 1939	22	58	13	91	15
Haplophthalmus montivagus	1987	4	7	21	new	22*
Trichoniscoides albidus	1989	12	32	15	47	18
Trichoniscoides helveticus	1987	5	9	19	new	21*
Trichoniscus pusillus	pre 1939	39	704	4	1988	4
Trichoniscus pygmaeus	1963	39	207	6	243	8
Metatrichoniscoides leydigi	1989	1	3	= 23	new	24*
Oniscus asellus	pre 1939	39	727	3	3389	1
Philoscia muscorum	pre 1939	39	808	1	2249	3
Platyarthrus hoffmannseggi	pre 1939	39	205	7	412	7
Armadillidium depressum	1980	9	21	16	99	14
Armadillidium nasatum	pre 1939	5	12	17	117	13
Cylisticus convexus	pre 1939	4	6	22	87	16
Armadillidium vulgare	pre 1939	39	537	5	1488	5
Porcellio dilatatus	pre 1939	7	12	18	41	19
Porcellio laevis	pre 1939	9	8	20	28	20
Porcellio scaber	pre 1939	39	754	2	2788	2
Porcellio spinicornis	pre 1939	35	82	10	196	9
Porcellionides pruinosus	pre 1939	30	64	12	177	10
Trachelipus rathkei	pre 1939	22	77	11	84	17

[#] includes a few undifferentiated records for *H. mengei* aggregate.

From the mid 1980's to the mid 1990's saw a decade of intense recording activity across the county. Steve Hopkin and David Bilton were both active in the county and provided records for many elusive species. Building on this promising start J.M.Campbell, of the Oxfordshire Biological Record Centre (OBRC), and the author made a concerted effort during the 1990's to achieve a balanced coverage across the county.

Surveys were not confined to semi-natural habitats, such as woodland, grassland and fen. In order to address the usual bias towards such 'prime sites', man-made habitats such as churchyards, gardens and waste ground were also included. It was considered that we could not comment on the true status of the woodlice occurring within the county unless all potential habitat types had been examined. Species records have been made in accordance

with guidelines given by the British Isopod Study Group. The 24 species that have been recorded from the county and details of their frequency of occurrence are listed in Table 1. Full details of all 4689 site based records (to December 2000) are held by the OBRC database (using Recorder). These are mainly post 1990. The collection of data is on-going and any records for Oxfordshire woodlice will be gratefully received by the author.

The coincidence map (Figure 3) is plotted at tetrad level (2km x 2km) and indicates the extent of recording activity across the county. The number of species of woodlice recorded from each 10 km grid square is indicated in Figure 4.

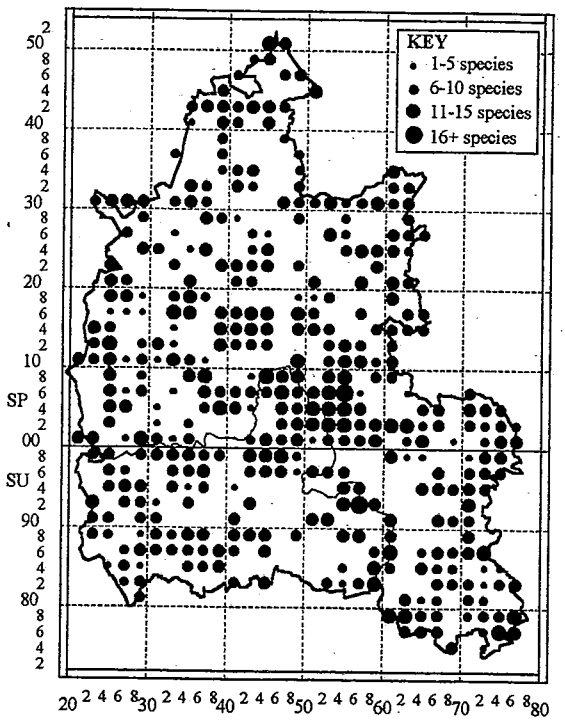


Figure 3. Coincidence map of all species records indicating extent of recording

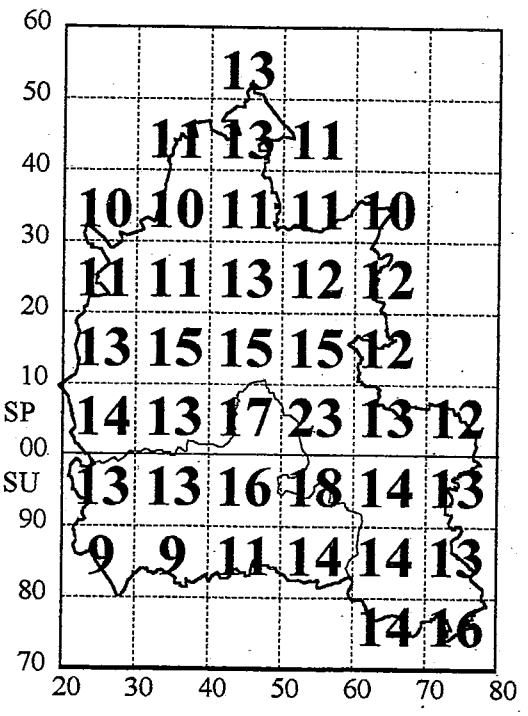


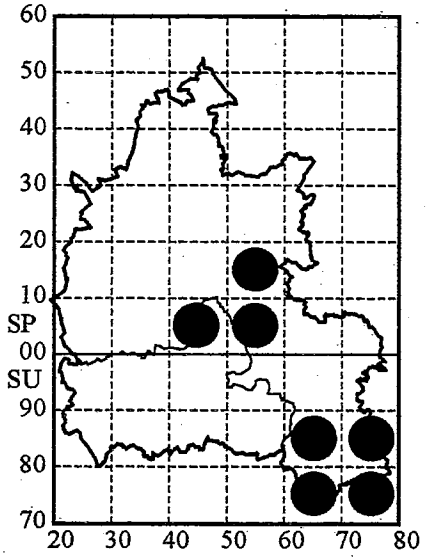
Figure 4. Number of species recorded per 10km grid square

INTRODUCTION TO THE SPECIES ACCOUNTS AND MAPS

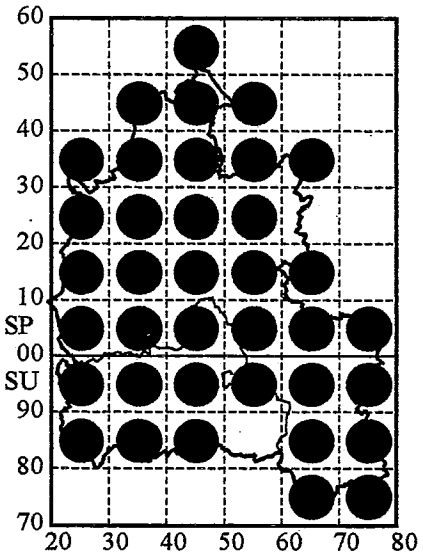
The maps illustrate the occurrence of all native and naturalised woodlice capable of surviving outdoors within national 10 km grid squares. Species names follow those used in Hopkin (1991). Nationally Notable species (i.e. those occurring in less than 100 10km grid squares throughout the British Isles) are noted. Records are shown for two time categories as listed below. Only the most recent record for a given 10 km grid square is shown

- ● indicates post 1985 records
- ○ indicates records made before 1985

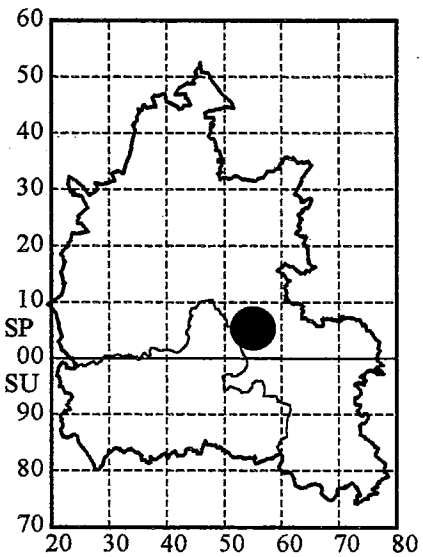
DISTRIBUTION MAPS AND SPECIES ACCOUNTS



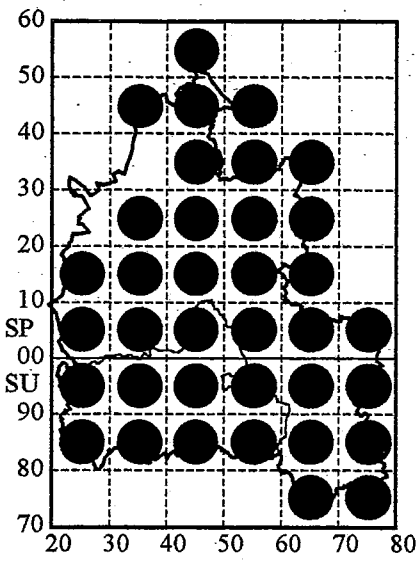
Ligidium hypnorum (Cuvier, 1792)
First recorded at Wytham Wood (SP40) in 1963, this species occupies two distinct habitat types. On the Midvale Ridge around Oxford it can be locally common amongst litter and moss within ancient wet woodland and carr. In the Chilterns it is typically found in small numbers amongst moss in deciduous woodlands on north facing slopes. One site is a willow thicket beside the River Thames.



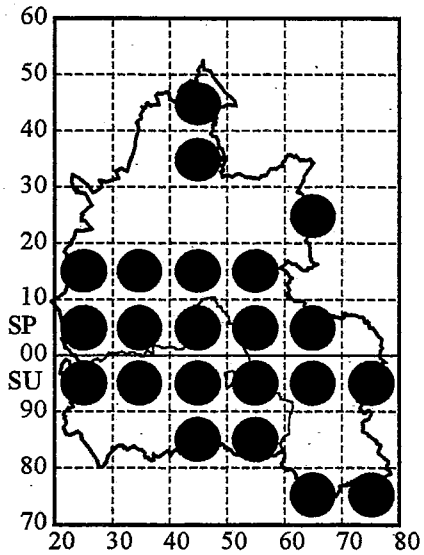
Androniscus dentiger Verhoeff, 1908
This distinctive species is fairly common in the county. Records are mainly from amongst rubble and under stones in man-made habitats such as churchyards or quarries. It is occasionally found in semi-natural sites typically near water. Taylor (1939) records it from Oxford city.



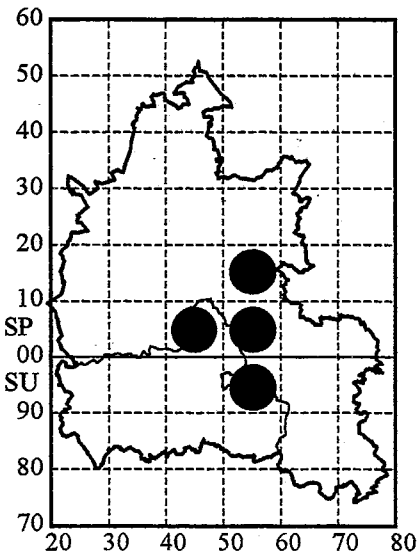
Buddelundiella cataractae Verhoef, 1930
This predominantly coastal species was discovered at an Oxford garden centre in 1989. Specimens were found beneath a piece of wood lying on gravel and amongst peaty debris beneath paving stones in association with *H. mengei* and *T. pygmaeus*. It was still present the following year, but has not been seen since. One of the locations has been lost following rebuilding work.



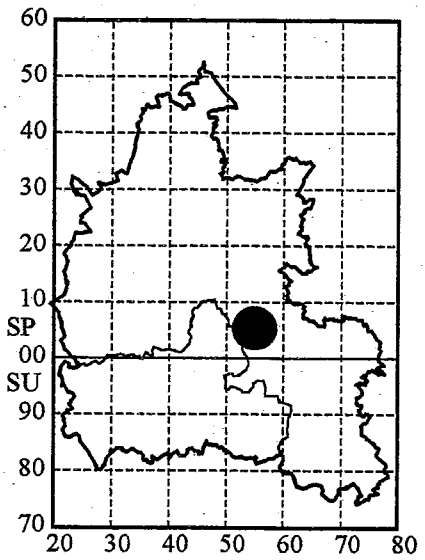
Haplophthalmus danicus Budde-lund, 1880
This is the only common member of the genus in Oxfordshire. In the Thames valley it is apparently common, but is easily overlooked due to it's small size and sluggish movements. Typical locations are beneath or within damp rotten wood, within compost heaps or amongst wet litter in fens, occasionally in damp soil. First recorded from 'Oxford' by R.S.Bagnall in 1913.



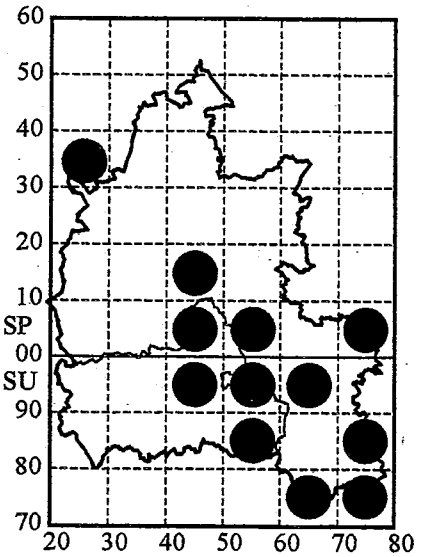
Haplophthalmus mengei (Zaddach, 1844)
A local species found amongst rubble, in friable soil or on the underside of dead wood and large stones. Although characteristic of riverside meadows and wet woodland, where it often occurs with *H. danicus*, it occupies a wide range of other habitats. For example, it has been collected from dry short-turf chalk grassland during heavy frosts and synanthropic sites such as farmyards and churchyards (often within compost heaps). R.S.Bagnall found it at 'Oxford' in 1913 but this could be either this species or *H. montivagus*.



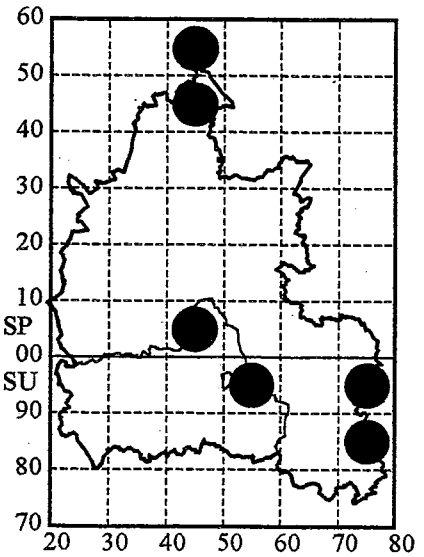
Haplophthalmus montivagus Verhoeff, 1941
First recognised in 1987 from Wytham Wood (SP40) this species appears to be restricted to a few old calcareous woodlands around Oxford. It is most easily found in winter, typically on the underside of deeply embedded stones and dead wood, but also hand-sorted from soil and rotten deadwood. Three of the four known sites are exceptionally well recorded, so it may have been over-looked elsewhere. However, at other apparently suitable sites (e.g. Wychwood Forest, SP31) *H. mengei* has been found instead.



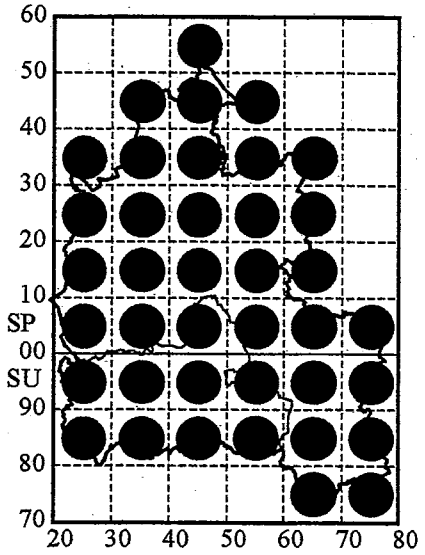
Metatrichoniscoides leydigi (Weber, 1880)
In October 1989 specimens were found beneath pallets, plant pots and amongst peaty gravel at an Oxford garden centre. The underlying ground consists of about 1/2 metre depth of ballast mixed with gravel and sand. Throughout winter *M. leydigi* was regularly seen in association with *H. mengei* and *T. pygmaeus*. The following summer it became very elusive and had retreated down to a depth of around 30cm. This remains the only known British locality for this species, otherwise recorded from the coasts of France and Holland and a few synanthropic sites inland.



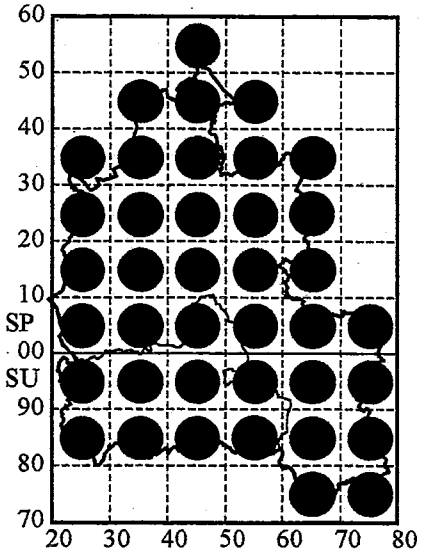
Trichoniscoides albidus (Budde-lund, 1880)
Nationally Notable. This small soil dwelling species was not recorded in the county until 1989 and remains under-recorded. It is easily mistaken for the ubiquitous *T. pusillus*, but does have a distinctive jizz. Specimens, usually singletons, are most easily found in winter on the underside of deeply embedded stones near water courses in meadows or woodland. It has also been hand-sorted from leaf-litter and taken in pitfall traps on several occasions. It is common in at least the lower Thames valley. This is more apparent from the tetrad map in Gregory & Campbell (1995).



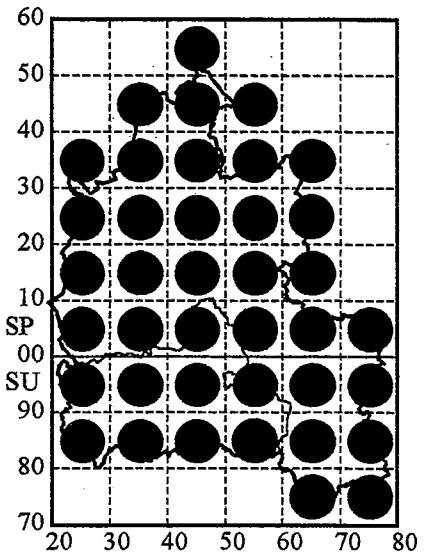
Trichoniscoides helveticus (Carl, 1908)
Nationally Notable. First recognised in 1987 from Wytham Wood (SP40). The southern records are all from semi-natural calcareous woodland or grassland, typically from the underside of large stones embedded in soil. The two northern records are from amongst rubble beside a man-made reservoir and a disused railway embankment (both det. D.T.Bilton) suggesting that undisturbed friable soils are more important than habitat type. Most records are made during the winter, especially when frosty. It is believed to be extremely under-recorded and may prove widespread in chalk or limestone areas.



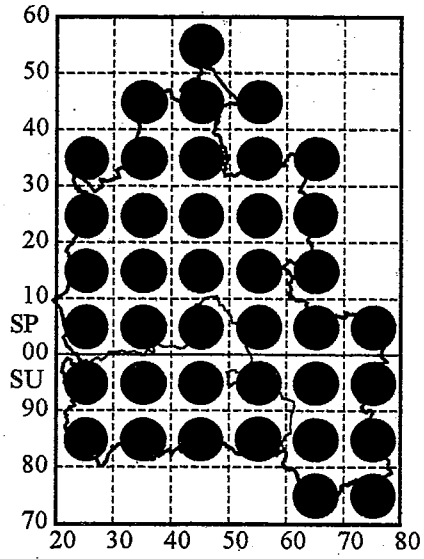
Trichoniscus pusillus Brandt, 1833
This is the only abundant and ubiquitous Trichoniscid woodlouse in the county. It was first collected in 1908 from Witney and widely recorded in Taylor (1939). It is readily found on the underside of stones and deadwood in all but the driest places, but specimens quickly disappear upon disturbance.



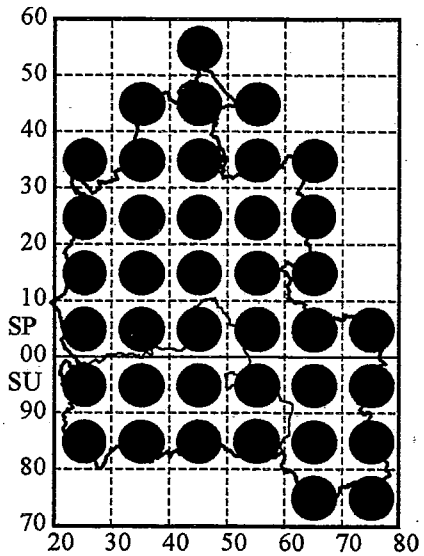
Trichoniscus pygmaeus Sars, 1899
First recorded at Wytham Wood (SP40) in 1963, this soil dwelling species has proved much less frequent than *T. pusillus*. This is partly a reflection of its much more elusive behavior. During cold or wet weather it is much easier to locate, but rarely in more than ones or twos. Although found in most habitats it has a strong preference for disturbed sites such as churchyards, where it is often found on the underside of stones or amongst rubble in damp spots.



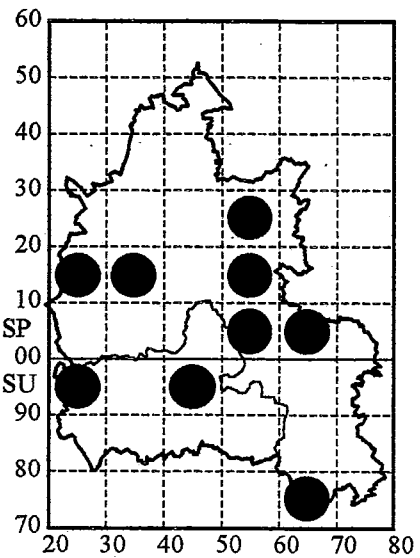
Oniscus asellus Linnaeus, 1758
Readily found under dead wood and stones throughout the county and widely recorded in Taylor (1939). It can be extremely abundant in many urban areas. The subspecies *O. asellus asellus* occurs in Oxfordshire but some specimens collected from Wychwood Forest (SP31) were found to be intermediate between this and the newly described *O. asellus occidentalis* (Bilton 1994).



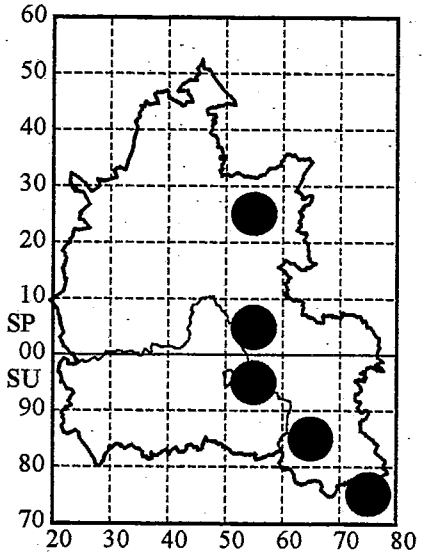
Philoscia muscorum (Scopoli, 1763)
This is the most widely recorded woodlouse in Oxfordshire and it has proved difficult to find sites where *P. muscorum* cannot be found. It was equally well known to early recorders (Taylor 1939). Although best described as abundant and ubiquitous it does have a strong preference for grassy sites and is never as numerous within dense woodland.



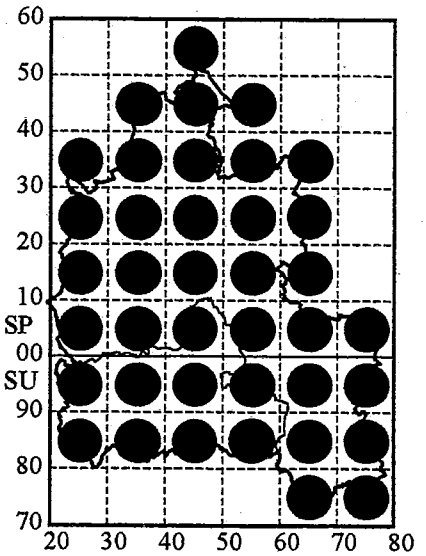
Platyarthrus hoffmannseggi Brandt, 1833
First recorded in 1868 at Stow Wood, near Oxford (SP51), this distinctive woodlouse is one of the earliest species to be recorded from the county (Taylor 1939). It is always found in association with ants (typically *Lasius* or *Myrmica* spp.) and has proved to be common wherever the host species occur, such as gardens, churchyards, road verges and semi-natural grasslands. Unlike most woodlice it is very elusive throughout the winter months until ants become active in the spring.



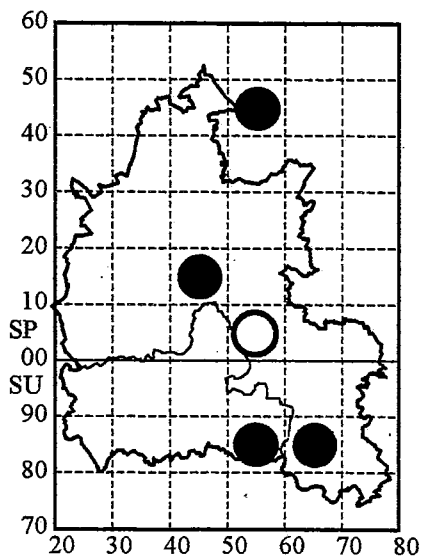
Armadillidium depressum Brandt, 1833
This pill-woodlouse, first recorded at Shipton-under-Wychwood (SP21) in 1980, has proved uncommon and mainly restricted to the limestones of the Cotswolds and the Midvale Ridge. Old limestone walls are a favorite location, but it has been collected from limestone railway cuttings. It is often abundant when a population has been found. The Oxfordshire records are probably recent introductions beyond its natural south-western range. To add support to this view it is apparent that many records are within a kilometre of active or disused railway lines.



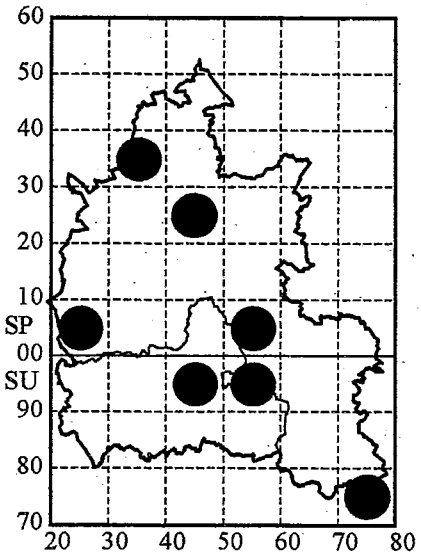
Armadillidium nasatum Budde-lund, 1885
Another uncommon pill-woodlouse in the county first recorded in Taylor (1939) from the Oxford Botanic Gardens. It still occurs there amongst rockery stones in the garden, but is also common inside all hothouses. Elsewhere in the county it has been recorded from a few dry sparsely vegetated sites such as railway sidings, garden centres and disused quarries. It has probably been spread into the county by human activities.



Armadillidium vulgare Latreille, 1804
This pill-bug is common in gardens, churchyards and grasslands throughout the county and was widely recorded in Taylor (1939). It is scarce in damp or wooded sites, especially in the north-west of the county.

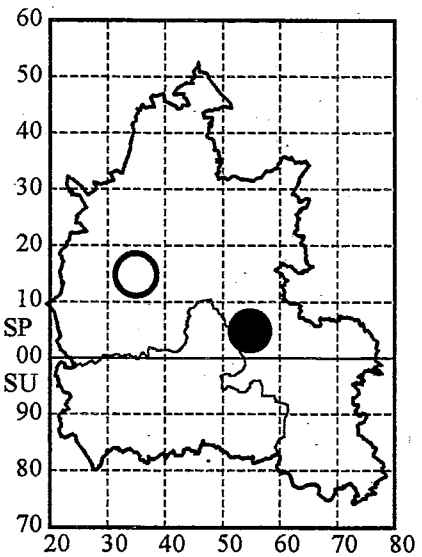


Cylisticus convexus (De Geer, 1778)
An apparently rare pill-bug in the county. The few recent records are from sparsely vegetated synanthropic sites, including a railway siding and a few disused quarries. It is probably under-recorded but is clearly not common. It has not been found in churchyards, a habitat in which it occurs in Leicestershire (Daws 1994), but sites such as farm-yards, which have been poorly covered in this survey, may be productive. Taylor (1939) gives two records from Oxford city-centre where the species may still persist.



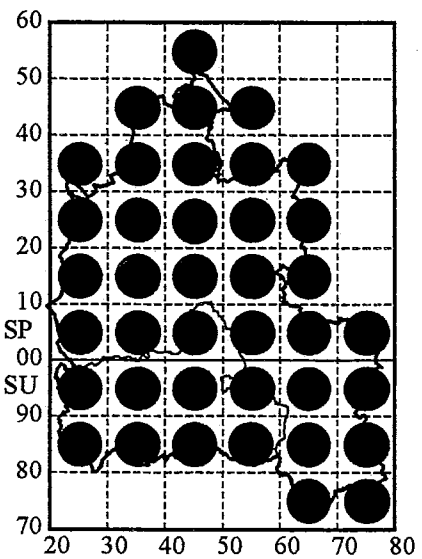
Porcellio dilatatus Brandt, 1833

The few records for this large species are mainly from stables and manure or compost heaps. Typically single specimens are found with difficulty so it may have been missed at some sites. Several Oxford localities are given in Taylor (1939) when stables (and perhaps the species) were much more common. Recent surveys in Leicestershire (Daws, 1994) have shown the species to be common on dairy farms. This habitat has not been sampled in Oxfordshire and, consequently, the species is probably considerably under-recorded.



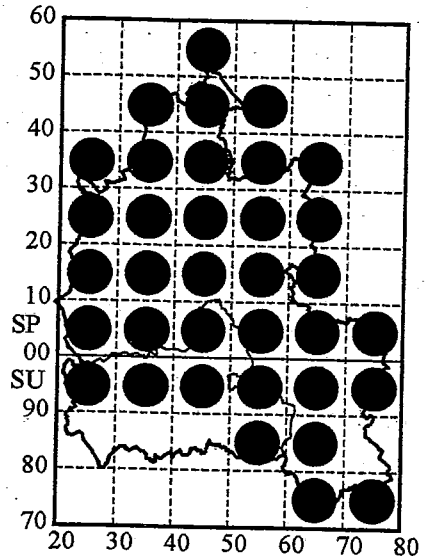
Porcellio laevis Latreille, 1804

Another species possibly more common in the past. Taylor (1939) lists records from Witney (1908) and Oxford. There are just two recent records, both from Oxford city centre. It has long been known from Oxford Botanical Gardens, but in 1990 a large population was discovered within a compost heap in nearby garden, suggesting it may be more widespread within the city. As for *P. dilatatus*, further surveys may show it associated with dairy farms and stables.

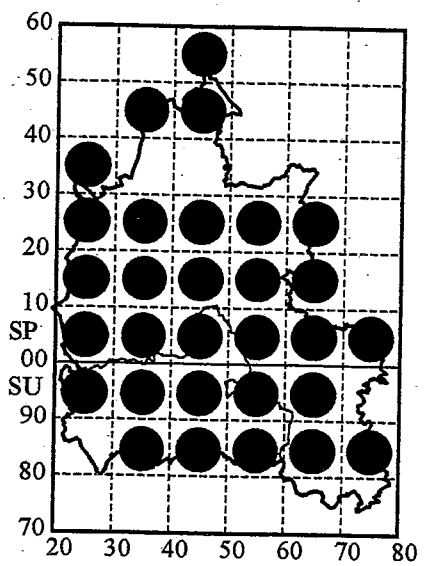


Porcellio scaber Latreille, 1804

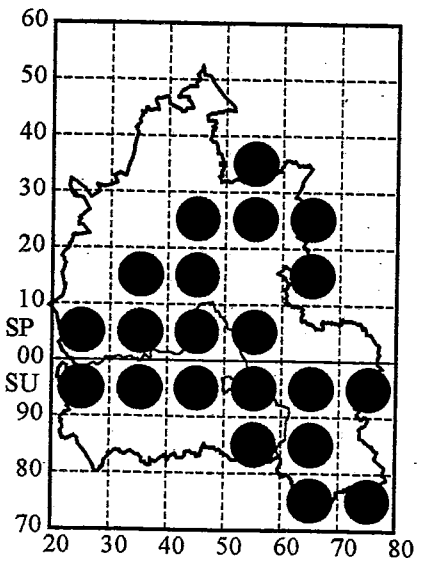
A ubiquitous and abundant woodlouse readily found under stones and dead-wood, on walls and even under the bark of trees high above the ground. It is the woodlouse most likely to be found inside houses. It was equally well known to early recorders (Taylor 1939).



Porcellio spinicornis Say, 1818
This attractively marked species is common over much of the county. It is usually collected from limestone walls, but two records are from disused limestone quarries. Usually it is found in small numbers, but when conditions are right it can appear in abundance. Across the Berkshire Downs and the Chilterns, where walls tend to be made of flint or sarcen stone, the species seems to be much scarcer. Taylor (1939) lists several records.



Porcellionides pruinosus (Brandt, 1833)
A common species which can be abundant within compost and manure heaps. It can persist away from such sites and has been found under stones in churchyards and on road verges. Many specimens were seen under the bark of over-mature oaks at a nature reserve near Oxford but these were probably introduced via an adjacent rubbish tip. First recorded in 1868 as 'Plentiful in the vicinity of Oxford' Taylor (1939) gives several additional records.



Trachelipus rathkei (Barndt, 1833)
Taylor (1939) lists several records for this attractively marked species near Oxford. It has subsequently proved to be widespread in the county within two distinct areas. In the Thames Valley it is locally common in damp meadows, gravel-pits, disused quarries, farmyards, railway sidings and even arable fields. A second cluster of records, from similar habitats in the north-east of the county, are associated with the upper catchment of the Great Ouse. This is clearly shown in the tetrad maps for the county (Gregory & Campbell 1995).

DISCUSSION

Considering the absence of coastline, the county list of 24 species is very respectable. The coincidence map (Figure 3) indicates that there are many unrecorded areas across the county. The number of species recorded from each 10km square is rather uniform (Figure 4) with little correlation between geology or habitat availability. Many of the higher totals (i.e. 15+) tend to reflect well-worked squares rather than species hot spots. There seems to be a general decline in species richness towards the north of the county probably reflecting the limited range of habitats available in this part of the county. It is believed that there has been sufficient fieldwork to enable comments on the status and distribution of the Oxfordshire woodlouse fauna to be made.

In general species abundance, distribution and habitat preference mirrors the national picture given in Harding and Sutton (1985). The five most frequently encountered species in Oxfordshire are *Philoscia muscorum, Porcellio scaber, Oniscus asellus, Trichoniscus pusillus* and *Armadillidium vulgare.* These 'famous five' dominate the county's woodlouse fauna and account for 75% of the woodlouse records (Table 1).

Reference to Table 1 indicates that there are differences in the apparent abundance of several species across Oxfordshire (Oxfordshire rank) when compared to England as a whole (English rank). Three species, *Androniscus dentiger* (Oxon 9th, but English 6th) and the two pill-bugs *Armadillidium nasatum* (Oxon 17th, English 13th) and *Cylisticus convexus* (Oxon 22nd, English 16th) do seem to be genuinely less common in Oxfordshire than across the rest of England. The maps in Harding & Sutton (1985) indicate that all are widespread across Britain and there is no apparent explanation why they should be relatively scarce in Oxfordshire.

Species such as *Haplophthalmus danicus* (ie Oxon rank 8th, English rank 12th) and *Trachelipus rathkei* (Oxon 11th, English 17th) seem to be more common in the county that in England overall. These are south-eastern species so they are expected to be well represented in a south-eastern county such as Oxfordshire. The same trend is also demonstrated by *H..mengei* (Oxon 13th, English 15th) and *Trichoniscoides albidus* (Oxon 15th, English 18th). Due to the extra recording effort put into locating such elusive species within the county it is difficult to make judgement. Even so, it is believed that most of the soil dwelling Trichoniscids, especially within the genera *Trichoniscoides* and *Haplophthalmus*, remain very under recorded in the county.

Due to the paucity of historical records (less than 2% are pre 1970) we cannot make any reliable claims about distributional changes over the past century. Certainly, several of the county's present day 'rarities', ie *Armadillidium nasatum, Cylisticus convexus, Porcellio dilatatus* and *P. laevis*, were well known to recorders of the early twentieth century (Table 1). Even the few old records for these species represent a substantial proportion of the total made at that time and it is possible they may once have been more widespread.

Other woodlice were not discovered in the county until recent decades. Four species, *Haplophthalmus montivagus* (unknown to science until 1941), *Trichoniscoides*

albidus and *T. helveticus* (both very elusive) and *Ligidium hypnorum* (overlooked), tend to occupy semi-natural habitats within the county. Their relatively recent discovery in the county is a result of increased recording effort in recent decades. *Armadillidium depressum* is a possible candidate for a relatively new colonist of the county. It is apparent that many sites are within a kilometre of active or disused railway lines and it is possible that it has been spread from its south-western strongholds via the rail network. To back this view, the most north-easterly record published in Harding & Sutton (1985) is from a railway bridge in Buckinghamshire.

The discovery of *Buddelundiella cataractae* and *Metatrichoniscoides leydigi* surviving out-doors in Oxford city was unexpected. The site had been a plant nursery for around 200 years and pre-dates modern practices of routinely sterilising composts, gravel, etc. Both may have been present, unnoticed for many decades. Considering the unique nature of the habitat, which consists of about 1/2 metre of ballast mixed with sand, gravel and peat, it is unlikely that either has been spread into local gardens. Although both are clearly very rare in Britain they are accidental introductions into Oxfordshire. Given the limited resources available for species conservation they should not be considered as part of Britain's threatened wildlife. However, it does illustrate the point that synanthropic sites can be extremely rewarding to sample.

In Oxfordshire 20 species (83% of the county fauna) have been collected from churchyards and gardens, making this the most diverse habitat type in the county. Old churchyards are particularly important as they have been under consistent management for centuries and offer a wide range of micro-sites, including friable soils, piles of stone or rubble, stone walls, compost heaps, areas of shrubs or grassland and ancient trees. Waste ground such as railway sidings, abandoned quarries and derelict urban areas support fewer species, but the characteristically dry, exposed and sparsely vegetated habitats support several county rarities, such as *Armadillidium nasatum* and *Cylisticus convexus.*

Of the semi-natural habitats, the generally damp conditions found in deciduous woodland support 16 species within Oxfordshire. Woodland is a key habitat for three locally scarce species, *Ligidium hypnorum, Haplophthalmus montivagus* and *Trichoniscoides helveticus.* 14 species have been recorded from meadows and wetlands. Three local species, *Haplophthalmus mengei, Trichoniscoides albidus* and *Trachelipus rathkei,* are strongly associated with damp river-side meadows. Only 10 species have been collected from dry calcareous grassland, but this is another important habitat the *T. helveticus*

Hopkin (1991) notes that *Haplophthalmus mengei* and *H. montivagus* seem to be mutually exclusive in Britain. The two species occur in close vicinity at two sites in Oxfordshire: at Little Wittenham Nature Reserve (SU59) and Wytham Estate (SP40). Both border the river Thames and *H. mengei* inhabits grassland, scrub and at Little Wittenham NR a narrow strip of woodland prone to flooding. In contrast *H. montivagus* occurs on higher ground within deciduous woodland. This is in keeping with habitat preferences observed elsewhere. At Little Wittenham NR both *have* been found in the same micro-site. Two males of each species (det S.P.Hopkin) were hand

sorted from lime-rich clay at a depth of about 10cm (in association with *Trichoniscoides albidus*) at the edge of deciduous woodland just beyond the flood plain.

It has been well documented by many authors (eg Hopkin 1991) that normally elusive soil dwelling Trichoniscids are much easier to find in frosty weather. This has proved to be the case in Oxfordshire. For example, the only Oxfordshire record for *Haplophthalmus mengei* from dry chalk grassland (a species normally associated with damp sites) was made in heavy frost when it was found under a stone with the notoriously elusive *Trichoniscoides helveticus*. Even widespread species such as *Androniscus dentiger* and *Trichoniscus pygmaeus* are much easier to find in cold or inclement weather conditions. There seems little point in laboriously hand-sorting for these species in the dry summer months. The only species which cannot be easily found in winter is *Platyarthrus hoffmannseggi*, which (presumably) follows the host ants deep underground until spring brings them back to the surface.

Being a land locked county there would appear to be few species left to add to the county list. The most likely candidates are *Trichoniscoides sarsi* (which inhabits churchyards and gardens in Leicestershire (Daws 1994)) and *Armadillidium pulchellum* (acidic woodland in Gloucestershire and Hampshire). It is apparent that farmyards and animal out-buildings such as stables would repay further study. Surveys in Leicestershire have shown apparently rare species, such as *Porcellio dilatatus* and *P. laevis*, to be quite widespread in these habitats.

Many of the species distribution patterns seen across the county are too subtle to be adequately seen with the relatively coarse 10km recording unit used by the national recording scheme. These patterns are much more apparent from the tetrad (2km X 2km) maps in the county atlas (Gregory & Campbell 1995). A baseline for the county has been set and the collection of data is on-going. We are now in a position to observe long-term changes in species abundance and across the county.

ACKNOWLEDGEMENTS

Without the encouragement of Steve Hopkin this survey would never have began. I am indebted to John Campbell of the Oxfordshire Biological Records Centre for his encouragement, contribution of specimens, access and transport to otherwise inaccessible sites. Steve Hopkin and David Bilton offered advice on field-work techniques, provided confirmation or determination of difficult taxa and made their own records for the county available.

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Bulletin of the British Myriapod and Isopod Group 17 (2001)

WWW – WALKING WITH WOODLICE

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THE PROJECT

Between May and October last year, the Natural History Museum in association with the BA festival 'creating sparks' launched an innovative online survey looking at the distribution of woodlice in the UK. Particularly appropriate for children in the 7-14 age range, the project attempted to get schools, groups and individuals of any age to 'explore the biodiversity on (and under) their own doorstep'. The website provided all the relevant background information and an online printable key, and participants were asked to make their own identifications and submit data along with their postcode. This data was then analysed using presence/absence by habitat and geographical area, and used to generate distribution maps and graphs of the various species, which were then posted back up on the web. The final stage involved asking people to analyse these (and/or their own) results and submit their conclusions, which were hosted on the site. During the six month period, some two thousand records were submitted, with many thousands more visiting the site, particularly during school term time.

BACKGROUND AND DEVELOPMENT

The head of Education, Roy Hawkey, originally came up with the idea of an internet based biodiversity project several years ago, but it wasn't until last year with the launch of the 'creating sparks' festival, that the timing and technology was thought right to launch such an innovation.

Originally a number of key learning objectives were identified, in particular to:

- Raise awareness of biodiversity and the relevance of it here in the UK (as opposed to in distant tropical rainforests)
- Explore issues of protocol and standardisation relating to the collection, interpretation and communication of biodiversity data
- Act as a pilot project in the design of network parataxonomy tools
- Develop interactive science education activities on the Internet
- Link Museum scientific and education staff directly with school students
- Act as a pilot for the use of volunteer biodiversity recorders to support data gathering using computer networks

In terms of the science, Steve Hopkins from the University of Reading advised that the main interest would be to see if there appeared to be any change in distribution of the southern pill woodlouse *Armadillidium nasatum.* We also wished to make a more general comparison with

the last full scientific survey from 1985 as published in '*Woodlice in Britain and Ireland: distribution and habitat*' (Harding and Sutton, 1985)

Likewise a number of intended learning outcomes for students who participated in the project were identified. In particular participants should be able to:

- Use a dichotomous key
- Outline the significance of biodiversity in the UK
- Use the Internet to exchange data and to communicate with each other and with professional scientists
- Manipulate and interpret data presented in tables, maps and graphs on-line

Woodlice were chosen as the single most useful group of organisms to achieve these objectives, displaying a wide distribution throughout all parts of the UK, with little seasonal variation. Whilst very few non-specialists realise there are 37 species endemic to the UK, the more common species display good inter-specific and limited intra-specific variation. They were also thought to create a good degree of interest amongst the target audience being reasonably active yet easily found, harmless yet fairly robust and (importantly) not usually generating phobias.

Achieving the desired overall structure of the website suitable for the target audience in terms of appropriate use of technology and design, as well as developing the simplified dichotomous key and protocol for making identifications involved drawing on external sources as well as experience within the Museum. Within the usual constraints of time and money, the project was produced in stages, which whilst not being ideal in terms of participants seeing the whole picture, allowed for a degree of modification to occur. Being such an innovative endeavour, it was difficult to anticipate the level or quality of response and the nature of problems in either the technology or the science interpretation.

EVALUATION

The project was deemed a success on a number of levels. Firstly the quantity of response and quality of those responses was deemed to indicate that the use of the internet for this type of two way exchange of information has finally come of age. Teachers, pupils and other members of the public seem keen (and able) to be involved in such scientific studies, although they are considerably less likely to voice their opinions on the results and submit conclusions (though this may have been due to the project only appearing online in stages). Secondly the evidence suggests that many of the objectives and learning outcomes were broadly met, this being arrived at through studying the online responses, interviewing participants and observing participation within the Museums' *Investigate* gallery. Thirdly, useful information was generated by the project in terms of both woodlice data (is the southern pill woodlouse moving north?), the distributions and numbers of participants, the very nature of surveys and abilities on non-specialists to be able to contribute. The forth area of 'success' was in the relative strengths and limitations of the technology used to receive data and generate results.

It is this last area we are particularly keen to improve on as that will have implications for the continued success of other aspects of the project. We have decided to modify and improve the website for a re-launch of Walking with woodlice 2001 in May. The site will feature a more interactive key featuring more common species of woodlice in an attempt to aid identification.

We shall also try to fully automate the receiving of data and generation of distribution maps and graphs to allow participants to view their contributions to the project more quickly, and hence hopefully encourage a more full participation in the analysis of results and submission of conclusions.

It would be wrong for me to summarise our results and provide conclusions to the project so far, both in terms of the overall objectives of the project and in view of the fact that it is set to continue for the next year or three. I therefore encourage you to decide what you think the results show and take part in the project by visiting www.nhm.ac.uk/woodlice for yourself!!

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Bulletin of the British Myriapod and Isopod Group

SOME OBSERVATIONS OF *STENOPHILOSCIA ZOSTERAE* (VERHOEFF, 1928) AT COLNE POINT NNR, NORTH ESSEX

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Stenophiloscia zosterae was first recorded in Britain from specimens collected in pitfall-traps on Slapton shingle ridge (20/82-43-) in south Devon between 1974 and 1977 (Harding, Cotton & Rundle 1980). A second specimen was pitfalled at Scolt Head Island NNR (53/81-46-) in Norfolk in 1977 and a live specimen collected by hand at Goldhanger in Essex (62/90-07-) in 1976. All were collected from between the high water mark and the storm drift line on unvegetated shores composed of shingle or sand (Harding *et al* 1980). Further pitfall trapping and hand searching (both day and night) failed to produce additional material (Harding & Sutton 1985). It was nearly two decades later before another specimen came to light. A second live specimen was found under driftwood in the strandline of a vegetated shingle spit at Shingle Street (62/37-44-) in Suffolk (Daws 1995).

During the BMIG field meeting to Essex in April 2000 the authors visited Colne Point NNR in north Essex (53/10-12-). Woodlice were mainly collected by turning pieces of driftwood a few metres either side of the strandline along several hundred metres of a sparsely vegetated sandy shingle beach. A small pinkish species, which could not be identified in the field, but somewhat reminiscent of a large pale *Trichoniscus pusillus*, was found clinging to the underside of most pieces of driftwood. Specimens tended to remain stationary when disturbed and the antennal flagella seemed to be composed of three distinct segments. A few specimens were collected, including two males, which upon examination were quite clearly *S. zosterae*. Other woodlice found in small numbers were *T. pusillus, Philoscia muscorum, Porcellio scaber* and the rare pill-bug *Armadillidium album*.

Based on the appearance of preserved specimens (ie slender with long legs) Hopkin (1991) suggests that *S. zosterae* may be capable of rapid movement when disturbed. Oliver & Meechan (1993) simply describe it as a 'runner capable of rapid movement when disturbed'. Having observed numerous live specimens in the field (perhaps up to a hundred) this is clearly not the case. The majority of specimens remained stationary when disturbed and even when provoked

with a finger did little more than walk into the nearest crevice within the driftwood. This slow moving behaviour, if typical, is a useful field character. Firstly there is plenty of time to collect a specimen for confirmation. Secondly, if the specimen disappears at great speed into the underlying shingle (a favourite trick of the superficially similar *Halophiloscia couchi*) it is probably not *S. zosterae.*

As to the perennial question: is *S. zosterae* extremely rare or extremely elusive? It has long been thought to be extremely elusive and for this reason has been omitted from the British Red Data Book which documents rare and vulnerable species. The discovery at Colne Point NNR of large numbers with relative ease, after an absence from the county of 25 years, supports this belief: this observation being an anomalous occurrence, possibly triggered by a combination of factors, such as climatic conditions. In addition the site has been well worked by the Essex Spider Group, by hand searching and pitfall trapping, and the species has not been seen before (pers comm P.R. Harvey). On current evidence the species is widespread along the coast of East Anglia and could be expected to turn up on other undisturbed sandy shingle shorelines along the east and south coasts. Anyone collecting from such habitats should keep a look out for anything that is reminiscent of a large pinkish *Trichoniscus* or a small slow moving *H. couchi.* It could just be *S. zosterae.*

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Bulletin of the British Myriapod and Isopod Group 17 (2001)

REPORT ON THE 1999 NORTHUMBERLAND MEETING: CENTIPEDES

A.D. Barber

Centipede Recording Scheme

Some 12 species of chilopod were recorded from a variety of rural, urban and coastal sites by Paul Lee, Gordon Corbet, Steve Gregory, John Harper, Helen Read and Tony Barber. Records are from 19 10km National Grid squares from the 100km squares 36 (NT), 45 (NZ) and 46(NU) all but three of which included sites within the Watsonian vice-county 68 (Cheviot). Exceptions noted * were from S.Northumberland (vc 67) or Berwickshire (vc 81) (Table 1).

Early work on myriapods in the Northumberland-Durham region was by Richard Bagnall (Bagnall, 1913, 1935) but this was essentially from the more southern part of that area. Barber (1981, 1984) reviewed Bagnall's records and reported on Chilopoda from Northumberland, Durham and Borders and from the Cheviot specifically. He collected some 14 species from vice-county 68 which included all those found in 1999 with the exception of *Haplophilus subterraneus* and *Cryptops hortensis*. The latter are distinctly synanthropic in northern England and the sites from which these were collected in 1999 (Ford Castle, both species and Alnwick, *H.subterraneus*) fit into this category. Most of the records of *Lithobius melanops* were also from synanthropic sites where forms such as *L.crassipes* are less likely to be seen or from the coast, a typical habitat for the species.

Lithobius forficatus, not unexpectedly is seen to be widespread and is recorded from a diversity of sites. *Lithobius variegatus* was not, however, recorded at all, even in habitats where it might be expected in more western areas of Britain. Barber (1984) recorded it only from Upper Coquet Dale and Ramsey's Burn and he commented on its patchy distribution in the Cheviot area.

Lithobius crassipes and *Brachygeophilus truncorum* were commonly found along with scattered records of *Geophilus insculptus*, *Necrophloeophagus flavus* and *Geophilus carpophagus*. The two forms of the latter were not distinguished by recorders other than one from Harthope Valley with 49 leg pairs (G.B.Corbet, *pers. comm.*). They would all, however, from the locations given, be of the "small" form with 47-51 leg pairs.

Of the *Lithobius* species not recorded at the meeting but on the earlier list, all *L. macilentus* locations were from lowland sites on the NW of the Cheviot Hills, there were two records of *L. calcaratus* from grass-moor and three of *L. borealis*. With additional collecting these species might have been found in 1999. *Lamyctes fulvicornis*, also listed, is distinctly a late summer/autumn form.

Of some interest are species not found in earlier collections or in the present one such as *Strigamia crassipes* with at least one record from the Lothians and *Geophilus electricus* which has been found in Peebles although it is, in fact, typically a synanthrope.

ACKNOWLEDGEMENTS

Thanks to all those who submitted records from the field meeting.

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TABLE 1. RECORDS OF CENTIPEDES FROM THE 1999 NORTHUMBERLAND FIELD MEETING

Vice County	81*	68	81*	81*	68						68	81*	67*	68																						68
100km square	36												45	46																						
10km square	76	82	83	84			92			93	95		19	00	01	02		05	10	11	13	20			21				22	23						
Location	El	He	Cs	Cs	Nc	RT	He	Ha	Wo	Fo	Bc	Wa	Db	Ky	Th	Ro	Ch	Bl	Me	An	Ba	Br	nA	Co	Am	Hk	Bo	Be	Ba						
Haplophilus subterraneus	o	o	+	o	o	o	o	o	o	+	o	o	o	o	o	o	o	o	o	+	o	o	o	o	o	o	o	o	o						
Schendyla nemorensis	o	o	o	+	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o						
Strigamia maritima	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	+	o	o	o	o	o	o	+	o	o	+	+						
Geophilus carpophagus	o	+	o	o	o	o	o	+	o	o	o	o	o	o	+	o	+	o	o	o	o	o	o	o	o	o	o	o	o						
G.insculptus	o	+	+	+	+	o	o	o	+	+	o	+	+	o	o	o	+	o	+	o	o	+	o	o	o	o	o	+	o						
Necrophloeophagus flavus	o	+	o	o	o	o	+	o	+	o	+	+	o	o	o	o	o	+	o	o	o	o	o	o	+	o	+	+	o						
Brachygeophilus truncorum	o	+	o	o	o	+	+	+	o	o	o	+	+	+	o	o	o	o	+	o	+	+	o	+	+	o	o	o	o						
Cryptops hortensis	o	o	o	o	o	o	o	o	o	+	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o						
Lithobius forficatus	o	+	+	o	+	+	o	+	+	+	+	+	+	o	o	+	o	+	o	+	o	+	+	+	o	+	+	+	o						
L.melanops	o	+	o	+	o	o	o	o	o	+	+	o	o	o	o	o	+	o	o	o	o	o	+	+	+	+	+	+	+						
L.crassipes	+	+	o	+	o	o	+	+	o	+	o	+	+	o	+	o	o	+	o	o	o	+	o	o	o	o	+	o	o						
L.microps	o	+	+	o	+	+	+	o	o	o	+	+	o	o	o	o	o	o	o	o	o	o	o	o	+	o	+	o	o						

Locations :

Elba (El), Hethpool, College Valley (He), Norham Church (Nc), Harthope Valley (Ha), Wooler/Wooler Church (Wo), Ford Castle (Fo), Berwick Church (Bc), Whiteadder Water (Wa), Kyloe (Ky), Thrunton Wood (Th), Rosedean (Ro), Chillingham (Ch), Berwick Cliffs (Bl), Mereburn (Me), Alnwick (An), Bamburgh (Ba), Brainshaugh (Br), near Alnmouth (nA), "Coastal" site (Co), Alnmouth (Am), (Howick (Hk), Boulmer (Bo), Beadnell (Be).

Bulletin of the British Myriapod & Isopod Group 18 (2002)

REPORT ON THE 2000 ESSEX MEETING : CENTIPEDES

A.D.Barber

Centipede Recording Scheme

Some 11 species of chilopod were recorded from a variety of sites in Essex by Steve Gregory, John Lewis, Helen Read, John Harper and Tony Barber over the period 27th - 30th April 2000. Records are from 12 10km National Grid squares from the 100km squares 51 (TQ), 52 (TL) and 62 (TM) mostly within the Watsonian vice-county 19 (North Essex) with a few from vice-county 18 (South Essex) (Table 1). Both forms of Geophilus carpophagus, the urban form with 53 - 57 leg pairs and the rural one with 47 - 51 were found. In addition, three sites in West Suffolk (vc 26) were visited by Paul Lee and Ken Hill who included two species (*Geophilus electricus* and *Lithobius curtipes*) not found in the Essex collections.

Essex is seen as one of those eastern counties from which *Lithobius variegatus* is largely if not entirely absent (commented upon by Pocock, 1903) and where the common rural small lithobiid is likely to be *Lithobius crassipes* but, being relatively southern and close to London, urban sites may include relatively unusual species. Pocock had also commented on the absence of *Haplophilus subterraneus* which we now know to be present in some sites.

There has been limited data on the myriapods of the county with the exception of isolated records although Barber (1972) indicated that 15 species had been recorded from the county by that time. This would have been based on those given in Eason (1964) who also included *Scutigera coleoptrata* from a building at Colchester and those in the Victoria County History list (Pocock, 1903) together with a short note relating to 5 species including *Haplophilus subterraneus* and *Cryptops anomalans* from vc19 (Barber,1969).

Subsequently there has been a note by Steve Hopkin of species from an urban rubbish tip at South Woodford (vc 18) with *Henia vesuviana, Cryptops anomalans, C.hortensis, Haplophilus subterraneus, Geophilus insculptus, Schendyla nemorensis, Lithobius forficatus, L. melanops* and *L.microps* (Hopkin, 1986) and Steve Gregory's 1995 account of the myriapods of North Essex which listed 16 species (Gregory, 1995) including both *Cryptops hortensis* and *C.parisi, Geophilus electricus, Brachyschendyla dentata* and *Lithobius macilentus* amongst 11 new vice-county records. The review by Peter Harvey (Harvey, 2000) gave a county total of 23 species (excluding *Scutigera*) but nevertheless Essex data available to the national recording scheme still remains limited.

The species collected at the field meeting were already recorded at least once from the county but add to our knowledge of the local fauna, confirming, as expected, *Lithobius forficatus* to be almost ubiquitous, *Necrophloeophagus flavus* similarly so (Pocock had reported it from 10 sites) and *Lithobius variegatus* apparently absent throughout. The latter has been found once in the county, in Epping Forest, by Steve Hopkin (Harvey, 2000).

Other species not found during this meeting but recorded in the same paper include the two other species of *Cryptops* (see above), three species of *Strigamia, Geophilus insculptus, Lithobius macilentus, L. calcaratus* and *Lamyctes fulvicornis* (an autum/winter form

generally). In addition, the fact that *Lithobius curtipes* has been found in Suffolk suggests that it could turn up in Essex, *Henia brevis* could be found in synanthropic sites, *Lithobius borealis* may well be found and possibly even *L.muticus*. The two maritime forms, *Geophilus fucorum* and *Schendyla peyerimhoffi* could be found on the coast and *Lithobius lapidicola*, known from the Kent and Suffolk coasts is another possible species for the county

ACKNOWLEDGEMENTS

Thanks to all those who submitted records or specimens from the field meeting.

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TABLE 1 RECORDS OF CENTIPEDES FROM THE 2000 ESSEX FIELD MEETING

Vice County	**18**.....			**19**.....																		**26**.....		
100km square	51		52																62			52		
10km square	49		40	50		51	52	53				54			61	63		01	11	22	64	95		
Location	Ef	El	Gb	Mc	Bw	Lr	Hf	Ae	Am	Rw	Sw	Ha	Ba	Sh	Ls	Hw	Hx	Cp	Cp	Wn	Ld	Fe	Bu	
Haplophilus subterraneus	o	+	+	+	o	o	o	o	+	o	o	o	o	o	o	o	o	o	o	o	o	o	o	
Schendyla nemorensis	o	+	+	+	o	o	o	o	+	+	o	+	+	+	o	o	o	o	o	o	+	o	+	
Henia vesuviana	+	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	
Geophilus carpophagus (UF)	o	o	o	+	+	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	
Geophilus carpophagus (RF)	+	+	+	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	+	+	
Geophilus electricus	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	+	
Necrophloeophagus flavus	+	+	+	+	o	+	+	+	+	o	o	o	o	+	+	+	+	+	+	+	+	o	+	
Brachygeophilus truncorum	+	+	+	o	o	o	o	o	o	o	o	o	o	o	+	o	+	o	o	o	+	+	+	
Cryptops hortensis	+	+	+	o	o	o	o	o	o	o	o	+	+	o	o	o	o	o	o	o	o	o	o	
Lithobius forficatus	+	+	+	+	o	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Lithobius melanops	o	+	o	+	o	+	o	o	+	o	o	o	o	o	+	o	o	+	+	+	o	o	o	
Lithobius crassipes	o	+	o	o	o	o	o	o	o	+	o	o	o	o	+	+	+	o	o	o	+	+	+	
Lithobius curtipes	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	+	o	
Lithobius microps	+	o	+	+	o	+	o	+	+	o	o	+	+	+	o	o	o	o	o	o	o	o	o	

UF and RF refer to the larger urban form and the smaller rural forms of *Geophilus carpophagus*, distinguished by their trunk segment (leg pairs) numbers (53-57 and 47-51 respectively)

Locations :

Essex : Epping Forest (Ef), Epping Forest nr Loughton / Strawberry Hill (El), Gernon Bushes (Gb), Moreton Church (Mc), Bobbingworth (Bw), Leaden Roding Church (Lr), Hatfield Forest (Hf), Audley End Village (Ae), St. Mark's College, Audley End (Am), Rowney Wood (Rw), Saffron Walden (Sw), Hadstock (Ha), Bartlow (Ba), Shadwell Wood (Sh), Woodland SE of Leaden Roding (Ls), Hempstead Wood (Hw), Wood nr. Hempstead Wood (Hx), Colne Point NNR (Cp), Walton-on-the-Naze (Wn). **Suffolk :** Ladygate Wood LNR, Haverhill (La), Felshamhall Wood, Bradfield Woods NNR (Fe), Bulls Wood LNR, Cockfield (Bu)

Bulletin of the British Myriapod and Isopod Group 17 (2001)

WOODLICE RECORDED DURING THE BMIG FIELD MEETING IN ESSEX (2000)

Steve Gregory

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INTRODUCTION

For recording purposes Essex is divided into two vice counties: vc 18 (south Essex) and vc 19 (north Essex). Harding and Sutton (1985) record 18 species of woodlice from the county as a whole (see Table 1), but there are very few records for many species and it is apparent that the county is relatively under recorded. From 1987 onwards the activities of the Essex Spider Group generated many woodlouse records during their countywide search for spiders. These and other local records, predominantly those held by the Colchester Natural History Museum (mainly 1970's-80's) and those of the author (who between 1991 and 1994 made several visits to the north-east of the county), have been collated by Peter Harvey. Records held at Monks Wood BRC have not been included. The database holds records for 21 species (Table 1) and Essex has a very good county wide coverage for the less elusive species (pers comm P.R.Harvey).

In April 2000, mainly as a result of the paucity of Myriapod records for the county (Harvey 2000), the BMIG's annual field meeting was based at St Marks College, Audley End a few miles south of Saffron Walden in the north-west of the county.

RESULTS OF THE FIELD MEETING: APRIL 2000

During the course of the weekend collections were made by 8 people from 23 sites covering 14 10km grid squares within three vice-counties. These are summarised Table 2 below. Although the majority records were made in the north-east of the county, not too far from base, some people were more adventurous and excursions were made further afield. For example, visits were made to Epping Forest and various churchyards towards the south, to the coast in the east and Paul Lee even sneaked across the border to visit a number of woodlands in Suffolk.

17 species of woodlice were collected during the weekend and the occurrence of various species is detailed in Table 2. Widespread species, in addition the usual 'famous 5' common species, were *Androniscus dentiger, Platyarthrus hoffmannseggi* and *Trichoniscus pygmaeus.* These were mainly recorded from churchyards or on the coast. *Ligidium hypnorum* (found at 3 sites) and *Haplophthalmus danicus* (2 sites) were perhaps less widely recorded than expected.

The grounds of St Marks College proved to be (jointly) the most diverse site for woodlice, an honour shared with Colne Point NNR which I shall mention below. Species of note include *Cylisticus convexus*, found beneath mats of plants in the gardens, and *Ligidium hypnorum,*

Haplophthalmus danicus and *Trichoniscoides albidus*, which were all found nearby under logs near a small stream.

One of the highlights for the weekend was the discovery *Trichoniscoides helveticus* a new county record. A single male was found by John Harper at the Harrison Sayer Reserve. This is a small remnant of calcareous grassland on boulder clay, a rare habitat in Essex (most has been ploughed for arable), but quite typical for this elusive species.

Table 1: Summary of woodlice known to occur in Essex

Species	Harding & Sutton 1985	Essex database
Ligia oceanica	+	+
Ligidium hypnorum	+	+
Androniscus dentiger	+	+
Haplophthalmus danicus		+
Haplophthalmus mengei seg.		+
Miktoniscus patience		+
Trichoniscoides albidus	+	+
Trichoniscus pusillus	+	+
Trichoniscus pygmaeus	+	+
Stenophiloscia zosterae	+	
Oniscus asellus	+	+
Philoscia muscorum	+	+
Platyarthrus hoffmannseggi	+	+
Armadillidium album	+	+
Armadillidium nasatum	+	+
Armadillidium vulgare	+	+
Cylisticus convexus	+	+
Eluma purpurecsens		+
Porcellio dilatatus	+	
Porcellio laevis	+	
Porcellio scaber	+	+
Porcellionides cingendus		+
Porcellionides pruinosus	+	+
Trachelipus rathkei		+
Total - 24	18	21

As usual the coast, sampled by Derek Whiteley, Imogen Wilde and myself, didn't disappoint. Walton on the Naze, east of Colchester, is a series of eroding clay cliffs, sandy grassland and a well developed sandy spit ('The Naze') at the far end. Historically it is well worked and long known to support the elusive *Trichoniscoides albidus* and the rare pill-bug *Armadillidium album*. Both were re-found. The former proved wide-spread in small numbers, whilst *A. album* was found at far end of the Naze in the same location as I found it in 1994. Here large quantities of rubbish and debris had accumulated and it was found by carefully searching amongst strandline debris and within underlying sand. Nearby a single specimen of *Miktoniscus patiencei* (a new species for this site) was found under a stone by Imogen. Conditions looked ideal for *Trichoniscoides saeroeensis*, but despite careful searching none were found.

Colne Point NNR lies about 10 miles down the coast. We walked along the strandline of the poorly vegetated shingle beach, turning pieces of driftwood as we went. A few *Armadillidium album* were seen, but also many specimens of a small pinkish species somewhat reminiscent of a large, but pale *Trichoniscus pusillus*. I have to confess I was completely stumped and didn't know what it was. A few specimens were collected and, much to my surprise, they turned out to be *Stenophiloscia zosterae*. In all 12 species were collected in the vicinity, including more *Trichoniscoides albidus* under stones beside a small stream, but still no *T. saeroeensis* were discovered.

DISCUSSION

A considerable number of new 10km square records were made for the less common species and the coverage for the county is looking quite respectable. The 17 species recorded reflect the mix of inland, coastal and synanthropic habitats examined.

The re-discovery of *S. zosterae*, after 25 years absence in the county, has to be the highlight of the weekend. The few British records are virtually all from pitfall traps (Harding, Cotton & Rundle 1980). This has previously proved to be an extremely elusive species and only two specimens have ever been collected live in Britain (Harding *et al* 1980, Daws 1995). The discovery of this species at Colne Point NNR is discussed in more detail in Gregory, Whiteley & Wilde (2001).

T. helveticus is another important find. There are very few records for this species, mainly from undisturbed calcareous woodland or grassland in south-eastern England. It is elusive and may prove to be quite wide spread wherever friable or rubbly lime-rich soils occur in the south-east (ie most areas!).

Several species previously recorded in the county were not re-found during the weekend. In the some cases, eg *Porcellionides pruinosus* (farmyards and manure heaps) and *Trachelipus rathkei* (riverside meadows), the right habitats were not surveyed. Others, such as *Porcellionides cingendus*, are probably genuinely very rare in the county and the odds were against us. However, the absence of *Haplophthalmus mengei* is puzzling as many apparent suitable sites were examined. There is only one record for this species in Essex, from amongst rubble in a roadside ditch in association with *Trichoniscoides albidus*. Harding and Sutton (1985) comment that *H. mengei* becomes scarce towards south-eastern England and it may be that this species is also genuinely rare in the county.

With a total of 17 species recorded, many new 10km records, the rediscovery of *S. zosterae* and a new county record (*T. helveticus*) we can conclude it was a successful field meeting. Our thanks go to Ken Hill for organising the event.

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ACKNOWLEDGEMENTS

The author is grateful to Peter Harvey (Essex Spider Group and County Woodlouse Recorder) for his helpful comments and for providing provisional distribution maps for the county.

LIST OF SITES VISITED IN ESSEX, 27TH APRIL TO 30TH APRIL 2000

1 - Gernon Bushes, TL4702, vc 18
2 - Moreton Churchyard, TL537071, vc 19
3 - Leaden Roding Churchyard, TL590133, vc 19
4 - Hatfield Forest, TL546204, vc 19
5 - Rowney Wood, TL568338, vc 19
6 - Saffron Walden, TL533372, vc 19
7 - St Marks College, TL5233375, vc 19
8 - Harrison-Sayer Reserve, Hadstock, TL557435, vc 19
9 - Bartlow, TL582450, vc 19
10 - Shadwell Wood, Church End, TL573412, vc 19
11 - Woodland near Leaden Roding, TL6012, vc 19
12 - Hempstead Wood, TL663386, vc 19
13 - Woodland near Hempstead Wood, TL666386, vc 19
14 - Ladygate Wood, Haverhill, TL6544, vc 26
15 - Felsham Wood, Bradfield Woods NNR, TL9358, vc 26
16 - Felsham Wood, Bradfield Woods NNR, TL9357, vc 26
17 - Bulls Wood, Cockfield, TL9254, vc 26
18 - Epping Forest, TQ4096, vc 18
19 - Epping Forest, TQ4195, vc 18
20 - Colne Point NNR, TM0912, vc 19
21 - Colne Point NNR, TM1012, vc 19
22 - Walton on the Naze, under cliffs, TM2624, vc 19
23 - Walton on the Naze, The Naze, TM263248, vc 19

TABLE 2: LIST OF SITES VISITED DURING THE BMIG FIELD MEETING TO ESSEX (APRIL 2000)

Site number:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
Vice -county:	18	19	19	19	19	19	19	19	19	19	19	19	19	26	26	26	26	18	18	19	19	19	19	
10km grid square:	TL 40	TL 50	TL 51	TL 52	TL 53	TL 53	TL 53	TL 54	TL 54	TL 54	TL 61	TL 63	TL 63	TL 64	TL 95	TL 95	TL 95	TQ 49	TQ 49	TM 01	TM 11	TM 22	TM 22	
Androniscus dentiger	+	+					+											+			+	+		6
Armadillidium album																				+	+		+	3
Armadillidium vulgare	+	+	+	+		+	+	+	+			+	+	+	+	+	+	+		+	+	+	+	19
Cylisticus convexus							+																	1
Haplophthalmus danicus							+			+														2
Ligia oceanica																					+			1
Ligidium hypnorum		+					+									+								3
Oniscus asellus	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+	+	+		+	+		20
Miktoniscus patiencei																							+	1
Philoscia muscorum	+	+	+	+		+	+	+	+		+				+	+	+	+	+	+	+	+	+	18
Platyarthrus hoffmannseggi	+	+	+	+			+	+										+			+	+		9
Porcellio scaber	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+	+	+	+	+	+	+	22
Stenophiloscia zosterae																				+	+			2
Trichoniscoides albidus							+														+		+	2
Trichoniscoides helveticus								+																1
Trichoniscus pusillus	+	+	+		+	+	+	+	+		+	+	+	+	+	+	+	+	+	+	+	+	+	21
Trichoniscus pygmaeus	+	+	+				+		+							+					+	+		8

Records were contributed by Tony Barber, Steve Gregory, John Harper, Paul Lee, John Lewis, Helen Read, Imogen Wilde and Derek Whiteley

MISCELLANEA

A BLUE EXAMPLE OF *NECROPHLOEOPHAGUS FLAVUS* (DE GEER)

On 20th April 2000, whilst cultivating a vegetable plot at Little Comberton, Worcestershire (SO9643) I unearthed a specimen of the geophilomorph centipede *Necrophloeophagus flavus* (De Geer) some 14 cm deep in cohesive clay loam. The specimen, which had 55 pairs of legs, was generally clear sky blue.

Under a microscope the segments appeared opalescent cerulean blue with a shimmer of cobalt blue highlights. The first eight segments were more normally coloured and from the ninth the segments were somewhat more tumid than is usual. The blue coloration persisted for three hours following immersion in 70% alcohol, after which the animal became milky white in colour.

As I had never seen a blue geophilomorph, and was unable to find any references to the matter, I contacted Dr M. Judson and Dr J-P.Mauriès, invertebrate zoologists at MNHN, Paris, neither of whom could provide further information. Dr Judson kindly discussed the matter with Dr J-M. Demange, a recognised authority on Geophilomorphs with the following result :

a. Geophilomorphs with violet or greenish tints are known but Demange was unaware of any records of sky-blue individuals.
b. Some geophilomorphs produce a luminous secretion containing hydrogen cyanide. Could the blue coloration be, in some way, related to that?
c. The effect of infection may also be considered.

April 2000 was the wettest April in England for over 300 years and 103.5 mm of rain fell at Little Comberton between April 1st and 20th.

A.D. Barber advises me that he and A.N. Keay found two specimens of *Geophilus osquidatum* in the Avon Gorge near Bristol during March 1984 which were "blue" and that when exposed to UV light showed fluorescence. Unfortunately the specimens are no longer available.

P.F.Whitehead
Moor Leys, Little Comberton, Pershore, Worcestershire, WR10 3EH

SYSTEMIC REACTION TO A *LITHOBIUS FORFICATUS* BITE.

A 43 year old patient from a village near Reims with a history of hepatitis A at age 14 showed a systemic reaction with pruritis, fever, oedema and arthralgia 48 hours after he had been bitten by a millipede (!).

Whilst carrying armfuls of wood from a woodpile the man concerned had felt a sharp pain on the inside of the right forearm followed immediately by several inflamed areas of 3-5 cm diameter. Associated with the affected area were two small, faint, red bite marks. Over the succeeding hours the reaction extended with swelling of the forearm. Anti-inflammatory treatment was instituted by application of bufexamac. 48 hours later there were signs of a general reaction with moderate fever (38°), swelling of the forearm, pruritis of the lower limbs, joint pains, etc. The symptoms were relieved with antihistamines but a month later there was further oedema of the forearm, intense pruritis and possibly further pyrexia. This was treated with antibiotic and disappeared after several days. Tests for Lyme disease as also for allergy to mosquitoes, horseflies, simulids, cockroach, bees and wasps were all negative. The IgE titre was normal as for the venom of hymenoptera and mosquitoes.

A visit to the patient's home and careful examination of the woodpile in the cellar revealed many *Glomeris* and one single centipede. . Examination of the original source of the wood from a stack on the outskirts of the village revealed dozens of centipedes similar to the one from the cellar which could be identified as *Lithobius forficatus*.

The possibility of a hypersensitivity reaction is considered. Systemic reactions to myriapod bites are exceedingly rare in Western Europe and are often mistakenly ascribed to hymenoptera stings.

REFERENCE

Lavaud, F., Bouchet, F., Remy, G., Sabouraud, D., Perdu, D. (1995) Morsure de myriapode (*Lithobius forficatus*): un cas de réaction systémique. *Semaine des Hôpitaux* 72 (31-32): 982-984.

GEOPHILUS OSQUIDATUM IN KENT

Geophilus osquidatum is generally regarded as a western species and is widespread in the south and west. However a female has now been recorded from a garden at Maidstone in Kent, Vice County 15 (2.6.00, confirmed R.E. Jones) and this seems to suggest that its range extends further to the east than previously thought, albeit a record from a synanthropic site.

The garden concerned has been monitored over a number of years and amongst species recorded are *Schendyla nemorensis, Henia brevis, Geophilus insculptus, Necrophloeophagus flavus, Cryptops anomalans, Lithobius forficatus, Lithobius melanops, Lithobius microps* and the millipedes *Blaniulus guttulatus, Cylindroiulus caeruleocinctus* and *Polydesmus coriaceus* (*gallicus*).

A.D.Barber
Rathgar, Exeter Road, Ivybridge, Devon. PL21 0BD.

CENTIPEDES FROM CAVES

Although there were a few records of centipedes from caves made by the Cave Research Group some years ago, the number of records of these animals from such habitats is limited. A new review of records of myriapods from British caves would be welcome.

I have recently examined some specimens sent by Max Moseley of Morecambe.

1. Hazel Grove Cave, Beetham, Lancashire, VC 60 (limestone cave)
(NGR 34/493728), several specimens crawling on walls and floor, deep threshold to dark zone, 29.09.99 :
Geophilus insculptus male (49 trunk segments), female (51 trunk segments)
Geophilus electricus male (67 trunk segments).

2. Warton Quarry Mine, Warton, Lancashire, VC 60 (abandoned mine working in limestone) (NGR 34/487724), obtained by flotation from well rotted mine timber from under rocks, floor of adit, dark zone, 10.11.95 :
Geophilus insculptus immature

Hazel Grove Cave has been well collected but without any centipedes turning up before. On the day concerned there were several specimens crawling on the walls, ceiling, etc. The cave passage is quite shallow, only 1 - 2 m below the surface so possibly the animals entered the cave accidentally, writes the collector.

A.D.Barber
Rathgar, Exeter Road, Ivybridge, Devon. PL21 0BD.

HOTHOUSE INHABITANTS WANTED

We are looking for millipedes from European hothouses for ecological experiments. The animals are usually whitish, light brown or reddish. Their body length is up to 5mm. Temperature in their biotope is 24-28°C. They like to live on the soil surface below/on dead wood, bark, bark chips and stones. The period of their main activity is summer (July/August). These tiny millipedes mostly represent the species *Poratia digitata* (Porat, 1889) and *Muyudesmus obliteratus* Kraus, 1960 (see illustration on the front cover of this Bulletin). Their place of origin is the Amazon region, where populations are bisexual (male and females present). They were introduced in European hothouses, together with plants, and became parthenogenetic. This adaptation is being studied by us and we need live specimens.

Sampling is best done with the aid of a fine water-colour brush. The animals should be shipped air mail in litter and/or soil material inside a plastic (film) box with a perforated lid to:

PD Dr. Joachim Adis. Max-Planck-Institute, Postfach 165,
D-24302 Plön, Germany
Tel: (04522)763 262, Fax: 763-281, Email: adis@mpil-ploen.mpg.de

MYRIAPOD MEMORANDA
(C.A.W.JEEKEL)

A collection of papers and notes on the systematics and geography of Diplopoda and Chilopoda.

Volume I (1999)
(19.07.99)

- A new pill millipede from Madagascar, with a catalogue of the species hitherto described from the island (Diplopoda - Spaerotheriida)
- Record of Millipedes from the West Indies
- A new *Sechelleptus* from Madagascar, with a key to the species of the genus (Diplopod - Spirostreptida)
- On the status of the names *Geophilus proximus* C.L.Koch, 1847 *Geophilus insculptus* Attems, 1895 and *Geophilus oligopus* (Attemms, 1895)
- Qualitative analysis of the chilopods and diplopods occurring in some woodland biotopes in the Netherlands

Volume II (2000)
(24.08.00)

- Records of Pachybolidae from the West Indies and Guiana (Diplopoda, Spirobolida)
- Errata to Jeekel, (1970), Nomenclator Generum and Familiarum Diplopodorum
- A new *Luzonomorpha* from Mindoro, Phillipine Is. (Diplopoda, Polydesmida, Paradoxosomatidae)
- Millipedes from Australia, 12: Notes on the Paradoxosomatidae of New South Wales, with a key to the genera, and descriptions of a new genus and a new species (Diplopoda, Polydesmida)
- On some millipedes from the island of Malta
- Some miscellaneous records of Chilopoda and Diplopoda from the Netherlands
- *Ophyiulus targionii* Silvestri in South Australia (Diplopoda, Julida, Julidae)
- A new genus of Spaeropoeidae from Malaysia (Diplopod, Sphaerotheriida)
- Notes on Aphilidesmidae from Guiana, with the description of two new genera and two new species (Diplopoda, Polydesmida)
- *Polydesmus denticulatus* C.L.Koch, 1847 versus *Polydesmus denticulatus* Leguillou, 1841 (Diplopoda, Polydesmida)

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- A bibliographic catalogue of the Asiatic Sphaerotheriida (Diplopoda)
- *Julus lucifugus* Gervais, 1836, a long overlooked name for a wide-spread synanthrope millipede (diplopoda, Spirobolida, Spirobellidae)

- A bibliographic catalogue of the Siphonophorida (Diplopoda)
- Millipedes and centipedes of the Kleimeer polder, Province N. Holland (co-author : B.J.H.Brugge)

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