Bull.Br.arachnol.Soc. (1979) 4 (8), 366-376

Changes in distribution of British spiders, and recent advances in knowledge of distribution*

P. Merrett
Institute of Terrestrial Ecology,
Furzebrook Research Station,
Wareham, Dorset BH20 5AS

Summary

The spider fauna of the British Isles is probably known better than that of any other country. In spite of this 38 species have been added to the British list during the last 25 years (excluding species added as a result of taxonomic research). The occurrence of these species is analysed according to their habitat and distribution. Some may be recent arrivals, while others were previously overlooked. In many cases it is difficult to distinguish between advances in knowledge and real changes in distribution, but the recent spread of at least three species, *Argiope bruennichi* (Scopoli), *Euophrys lanigera* (Simon), and *Tegenaria agrestis* (Walck.) has been recorded in some detail.

Some common species which have probably been in Britain for a longer period have also shown apparently real increases in range, e.g. *Psilochorus simoni* (Berland), *Ostearius melanopygius* (O.P.-C.) and *Milleriana inerrans* (O.P.-C.), while it is likely that *Sitticus pubescens* (Fabr.) has declined recently.

Other apparently large changes in distribution are probably the result of the introduction of new collecting methods, e.g. pitfall trapping, or the concentration of collecting in new areas or specialised habitats. Examples given are *Hilaira hardyi* (Bl.), *Asthenargus falconeri* (Jackson) and *Monocephalus castaneipes* (Simon).

Some rare species have persisted in the same locality for a hundred years, e.g. *Alopecosa fabrilis* (Cl.) and *Enoplognatha tecta* (Keyserling).

The species which have been added to the British list since the publication of Vol. 3 of *British Spiders* are listed.

* This paper is dedicated to the memory of the late Dr W. S. Bristowe, in recognition of his pioneer studies on spider distribution.

It was originally presented at the Seventh International Congress of Arachnology, Exeter, July/August, 1977.

Introduction

It is often difficult to distinguish between real changes in spider distribution and apparent changes which are merely the result of an increased intensity of collecting in particular regions. In this paper, however, I hope to be able to show that the British spider fauna is sufficiently well known for us to be able to identify several examples of species whose distribution has changed recently and is still changing. Other examples will be given of species which appear to have expanded their range, but in which this apparent change may be the result of the use of new collecting techniques or collecting in previously underworked habitats or regions.

History of distribution records

In order to establish a basis for the discussion of recent changes in distribution records, it is necessary first to describe briefly the history of spider recording and the present state of knowledge. Although much collecting and taxonomic work on British spiders was done in the 19th century and early part of this century, records of the distribution and habitats of spiders tended to be published in a very haphazard fashion, and it was not until the publication of Volume I of Bristowe's *The Comity of Spiders* in 1939 that a serious attempt was made to describe the distribution of every British species, by listing records of their occurrence in each county. This list formed a sound starting point for all later work on distribution, and served as a stimulus for collectors to publish new county records as additions to this list. The most recent major landmark in this process was the publication of distribution maps in Vol. 3 of *British Spiders* by Locket, Millidge & Merrett in 1974. These maps were based largely on the same county records, but with more detailed locality records being shown for rare species. Some idea of the relative state of knowledge at the time of Bristowe's pioneering work may be gained from the fact that the total number of species known from Britain has increased by only about 12 percent since 1939, and by about 8 percent since the publication of Vol. 2 of *British Spiders* by Locket & Millidge in 1953. Also, the total number of county records of all species has increased by only about 40 percent since 1939, which in view of the

considerable increase in collecting activity over the last 25 years or so, indicates how well the fauna was known at that time.

Current state of knowledge

The range of numbers of species recorded from each county at the present time is shown in Fig. 1. While some counties have obviously been worked more thoroughly than others, the overall coverage is very good in England, though less complete in Wales and Scotland, and especially so in Ireland. Since the current total of species on the British list is 619, the three counties in the south of England with over 400 species recorded from them can be considered to be close to the upper limit. (In fact two counties, Dorset and Hampshire, each have over 450 species recorded from them). For climatic reasons, the possible maximum number of species declines further north, so that a total of over 300 species in the north of England or over 200 in northern Scotland is probably equivalent to a total of 400 in the south of England. Also, most of the counties in the Midlands of England, shown hatched or cross-hatched in Fig. 1, have a smaller range of habitats than many of the southern and south-eastern counties. The only regions which appear to be seriously under-worked are mid and south-west Wales, southern Scotland and most of Ireland, apart from the south-west.

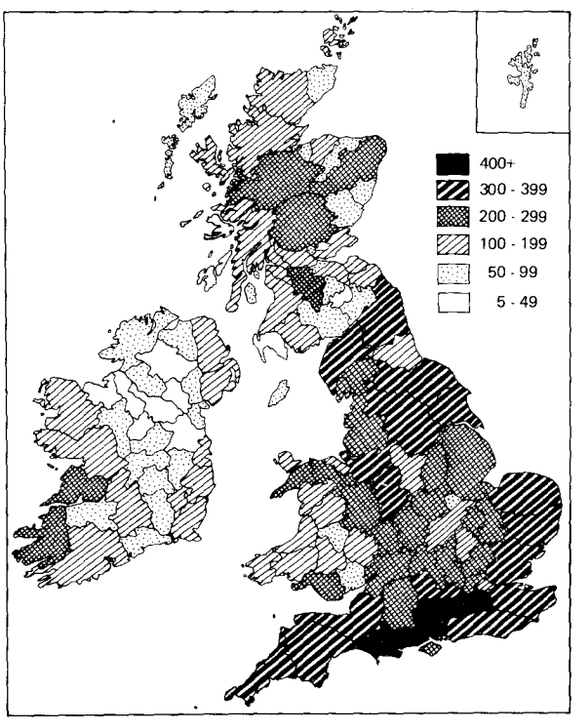


Fig. 1: Number of species recorded from each county by 1978.

I consider that these facts support Bristowe's statement in his historical introduction to Vol. 1 of *British Spiders* (Locket & Millidge, 1951), that knowledge of the British spider fauna compares favourably with that of any other country in the world, and help to put into context the recent changes which are to be discussed.

New British species

A total of 49 species has been added to the British list since the publication of Volume 2 of *British Spiders* in 1953, excluding *Drassodes cupreus* (Bl.), *Philodromus cespitum* (Walck.) and *Meta mengei* (Bl.), which have merely been raised from subspecific to specific status, *Centromerus tantulus* Parker, which is a doubtful species, and *Eidmanella pallida* which was probably a chance importation. Eleven of these 49 species, *Philodromus praedatus* O.P.-C., *P. buxi* Simon, *Salticus mutabilis* Lucas, *Tegenaria gigantea* Chamberlin & Ivie, *Episinus maculipes* Cavanna, *Theridion mystaceum* L. Koch, *Dicymbium brevisetosum* Locket, *Pocadicnemis juncea* Locket & Millidge, *Pelecopsis locketi* Cooke, *Micrargus apertus* (O.P.-C.) and *Meioneta simplicitarsis* (Simon) were originally added to the list as a result of taxonomic research and the examination of old collections, but the remaining 38 species were recognised as new to Britain when found. It is noteworthy that only five of these 38 new species, *Clubiona similis* L. Koch, *Enoplognatha tecta* (Keys.) (= *E. caricis* (Fickert), see Wunderlich, 1976), *Lessertiella saxetorum* (Hull), *Centromerus capucinus* (Simon) and *C. aequalis* (Westr.) have been discovered in older collections, whereas 26 of them have subsequently been found in additional localities. The twelve new species which are still known only from their original site are *Callilepis nocturna* (L.), *Heliophanus auratus* C.L.K., *Dolomedes plantarius* (Cl.), *Achaearanea veruculata* Urquhart, *Theridion pinastri* L. Koch, *Enoplognatha tecta, Walckenaera*

mitrata (Menge), *W. stylifrons* (O.P.-C.) *Carorita limnaea* (Crosby & Bishop), *Pseudomaro aenigmaticus* Denis, *Erigone aletris* Crosby & Bishop (Snazell, in preparation) and *Rhaebothorax paetulus* (O.P.-C.).

It is interesting to consider the distribution of these 38 species and the principal habitats which they occupy in Britain (which may be different from their habitat on the continent). In Fig. 2, the British Isles have been divided arbitrarily into nine regions, and the number of new species which have been found exclusively within one region and the number found within each region but also in one or more other regions, are shown. It is obvious that most of the new species occur in the south and south-east of England. Twenty species (or just over half) have been found in only one region, 15 of them in the south, south-east and E. Anglia; of the 18 other species which occur in more than one region, 11 are restricted to the south, south-east and E. Anglia. Only seven species (18 percent) have been found exclusively north-west of a line drawn across England from the Severn to the Wash. Excluding four species, *Baryphyma gowerense* (Locket) (= *Acanthophyma gowerense* (Locket), see Millidge, 1977), *Carorita paludosa* Duffey, *L. saxetorum* and *Glyphesis servulus* (Simon), which have been recorded in widely scattered localities, the remaining 34 species may each be classified as occurring mainly in one of six regions and in one of eight major habitat types (Table 1).

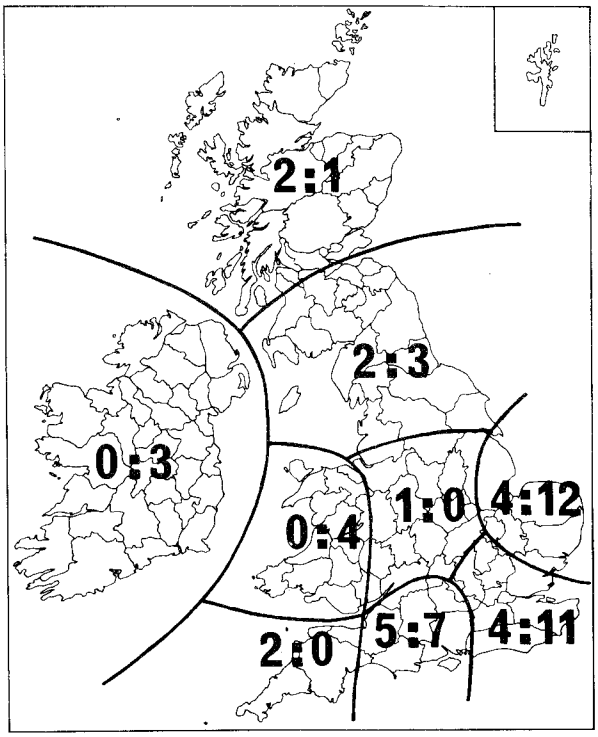


Fig. 2: Number of species new to Britain since 1953 recorded in each region shown. First figure of each pair refers to species found only in that region; second figure refers to additional species found in that region but also in one or more other regions.

The figures shown in Table 1 do not, of course, correspond with those in Fig. 2, because some species are not found exclusively in one of the regions shown in Table 1. East Anglian and south-eastern species have been grouped together here because there is considerable overlap. This table seems to emphasise

	East Anglia & S. East	South Central	South West	Midlands	N. England S. Scotland	N. Scotland
Woodland (on trees or in litter)	6				1	
Lowland heath	4	3	1			
Grassland	1	3				
Dry coastal habitats	6		1		1	
Salt marshes	1					
Inland marshes	1	1				
Sphagnum bogs				1	1	
Mountains						2

Table 1: Principal habitat types and geographical regions occupied by 34 new British species.

the importance of woodland, heathland, grassland, and dry coastal habitats in southern and south-eastern England and *Sphagnum* bogs and montane habitats for the new species found in the northern half of the country.

The preponderance of new species found in the southern and eastern parts of the country may to some extent reflect a higher intensity of collecting, but I do not consider that this is the only factor, as some other regions have been well worked in recent years. The south and east is of course the area which a species would tend to reach first if spreading from the continent of Europe, which is almost certainly the place of origin of at least 29 of the 38 species. Two others (*Carorita limnaea* and *Erigone aletris*) may have come from North America, and one (*Achaearanea veruculata*) almost certainly from New Zealand, the remaining six having been described as new to science. There can be no proof that any of these species are genuinely new arrivals in Britain as opposed to new discoveries, but it is interesting that, as noted earlier, 26 of these species have been re-discovered in other localities shortly after the original discovery. A good example is the very distinctive linyphiid *Trematocephalus cristatus* (Wider), which was first found here in 1959 (Merrett, 1960), and which during the following twelve years was found by other collectors in at least six other localities within a range of about 60 km of the original site, in what has long been quite a well-worked area in Surrey and northern Sussex. It would be most remarkable if such a distinct species had been present in the area for many years before and had escaped attention. Another striking example of coincidental discovery of a new British species is the large obvious linyphiid *Pityohyphantes phrygianus* (L. Koch) which within the space of three years was found in similar habitats in three different localities in northern England and southern Scotland by three collectors who were all unaware of the others' discovery (Ashmole *et al.*, 1978). About two-thirds of the new species are so obvious that they could not have failed to be recognised if found earlier. A special case is the theridiid *A. veruculata*, which was probably imported into the Isles of Scilly from New Zealand in 1907 or 1909 along with plants and two species of stick insects (Merrett & Rowe, 1961), but it has apparently failed to spread to the mainland.

Species showing expansion of range

None of the species discussed above has been known here for long enough to have shown clear signs of expanding its range, but several good examples of this can be found among species which were first described from Britain in the 1930s and 1940s. The best documented species is *Argiope bruennichi* (Scopoli), the distribution of which in Britain is shown in Fig. 3. The only area where it is known to have persisted for many years with good colonies is between Weymouth and Christchurch in Dorset, shown in greater detail in Fig. 4. Being such a large and obvious spider its occurrence has frequently been recorded in the journals of the local natural history societies and it is often noticed and reported by non-arachnologists. It was first reported from the Bournemouth area in 1940 (see Bristowe, 1944) and from Weymouth in 1945. It appears to have spread east along the coast from Weymouth and west from Bournemouth around Poole Harbour, but probably

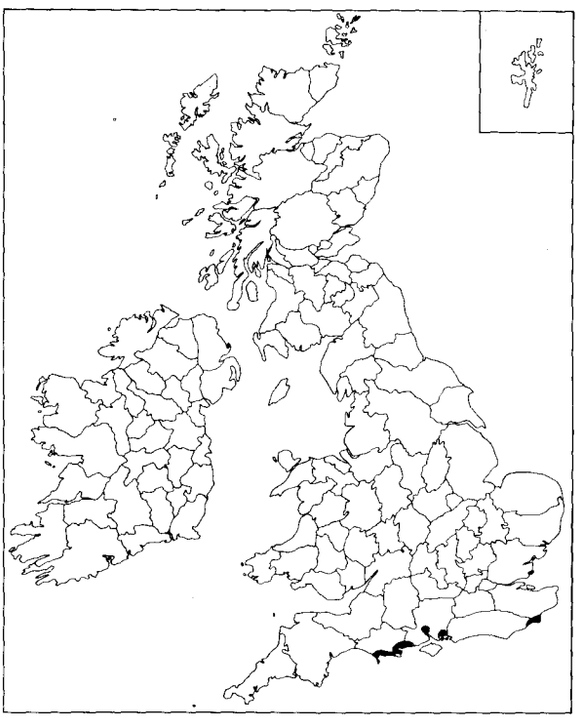


Fig. 3: Distribution of *Argiope bruennichi* (Scop.) in Britain.

for climatic reasons has failed to penetrate far inland, all the localities inland from Bournemouth being in sheltered low-lying river valleys. It appeared to be badly affected by the very cold winter of 1962-63, but the long hot summers in 1975 and 1976 may have contributed to a considerable spread recently. It is not known how it reached this country. The fact that all of its original colonies were found within a few km of sea ports might by thought significant, but as it appears to have arrived at various points on the south coast at about the same time, around 1940, possibly there were favourable southerly winds blowing then which facilitated aerial migration from the continent. It is interesting that its spread in England has coincided with an expansion of its range on the continent (Gauckler, 1965; Guttmann, 1976). In Dorset, *A. bruennichi* occurs in a variety of habitats, often on waste ground in semi-urban areas, but also among grass on cliff-tops and on wet heathland and salt marshes near Poole Harbour.

Another species which apparently has spread recently is *Euophrys lanigera* (Simon). This was first recorded from Britain in 1930 in Devon, and its present known distribution is shown in Fig. 5. In this and all subsequent figures, records in *The Comity of Spiders* Vols. 1 and 2 (i.e. up to 1941) are shown in solid black, records from 1941-61 cross-hatched, 1961-69 hatched and 1969-78 stippled. The fact that it appears to have spread through most of the densely populated southern and midland counties of England and that it is becoming commoner in many areas makes it almost certain that it is a relatively new arrival in Britain. In particular, it is so common and widespread in Dorset in the area where Pickard-Cambridge worked, that it is inconceivable that he could have failed to notice it if it had been present then.

A third recent immigrant, almost certainly, is *Tegenaria agrestis* (Walck.), which has rapidly expanded its known range as shown in Fig. 6. It lives outdoors in Britain, but like *E. lanigera* it is largely associated with man, and again it is probably significant that most of the records have come from densely populated parts of the country, suggesting that it may have been carried with building materials etc. The only area where it is known to live in a natural habitat away from man is on heathland in East Dorset and parts of the New Forest, near where

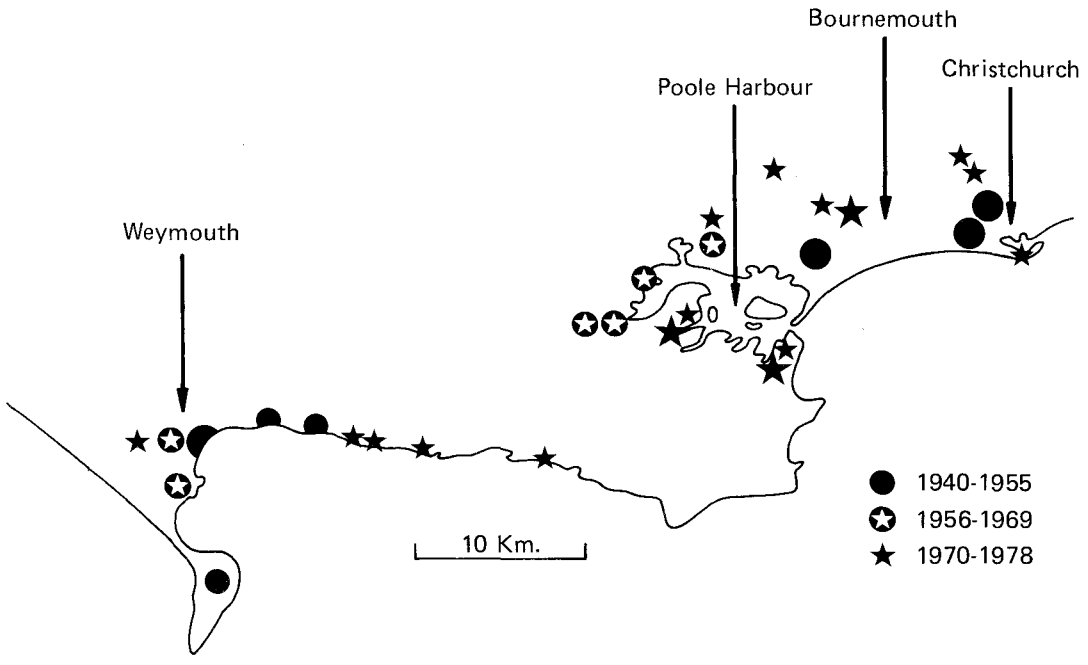
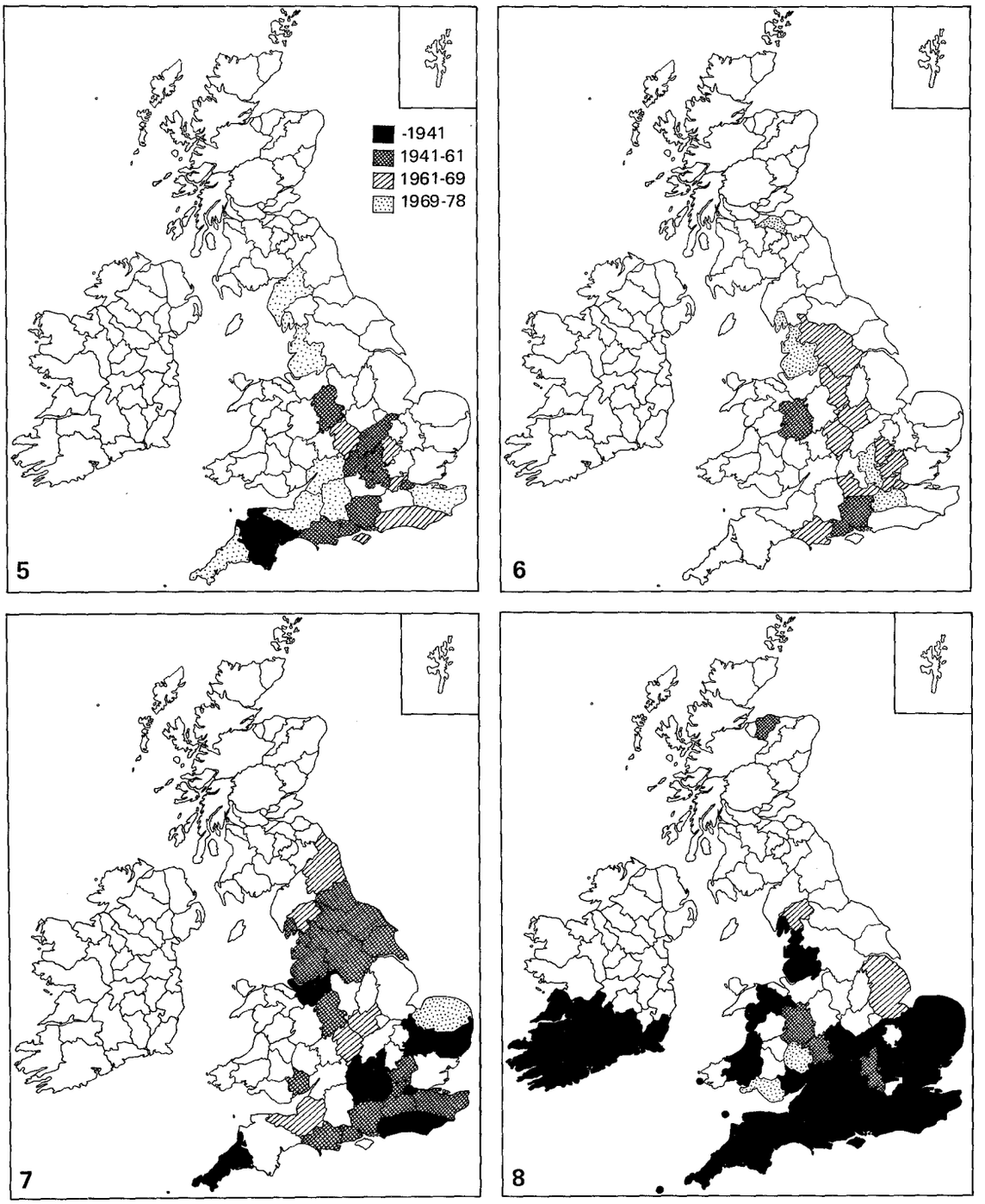


Fig. 4: Records of *Argiope bruennichi* in Dorset from 1940-1978. Dates refer to first record from a particular site. Size of symbols indicates relative size of colonies.



Figs. 5-8: Distribution maps showing approximate date of first record in each county. Explanation of shading as for Fig. 5. 5 *Euophrys lanigera* (Simon); 6 *Tegenaria agrestis* (Walck.); 7 *Psilochorus simoni* (Berland); 8 *Pholcus phalangioides* (Fuesslin).

it was first found in 1949.

A species which may have spread to Britain a little earlier is the pholcid *Psilochorus simoni* (Berland). It was first described here in 1933, but has since been quite widely reported and has shown a great increase in number of records since 1941 (Fig. 7) when compared with the related *Pholcus phalangioides* (Fuesslin) (Fig. 8). It is interesting that nearly all of the early records of *P. simoni* were from wine cellars, but recently it has been found in a variety of other situations indoors, suggesting that it may have been originally imported with wine from the continent and has subsequently spread to other domestic habitats.

Two other species which have also probably shown genuine increases in range are the linyphiids *Ostearius melanopygius* (O.P.-C.) and *Milleriana inerrans* (O.P.-C.). *O. melanopygius* is well known in other countries as a migrant, and its apparent recent spread in Europe has been described by Denis (1963). Figure 9 suggests that it has spread quite consistently from two original centres in south-east and northern England and a possibly later third centre in Scotland. It was first recorded from Britain in 1906, in Kent. *M. inerrans* (Fig. 10) has shown an even more regular expansion of range from apparently two original centres, in south-west England and Scotland. The spread of records across southern England from the south-west looks quite remarkable in its consistency. *M. inerrans* is a common aeronaut and coloniser of newly created habitats, e.g. burnt heathland and ploughed fields, and has become much more abundant in recent years. It was first described from Britain in 1884, from Cornwall.

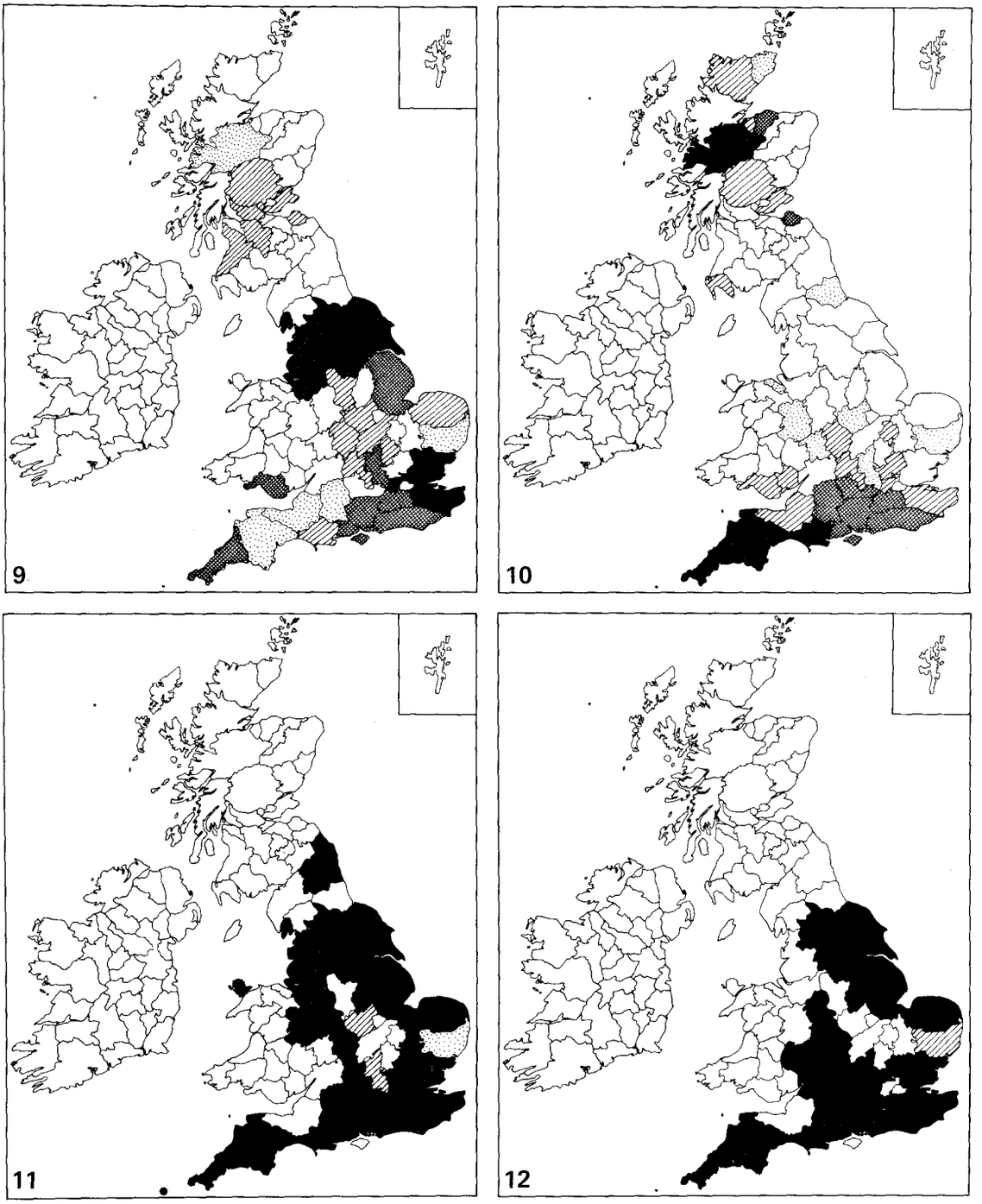
It is noteworthy that all these examples of increasing range are often associated with man's activities in one way or another.

Declining species

It is even more difficult to show that a species has declined than to show that it has increased, because once a species has been recorded from an area, subsequent records from the same place tend not to be published. There are, however, several species which may be thought to be declining, on account of the scarcity of recent records of them. A good example is *Sitticus pubescens* (Fabr.), of which only three new county records have been added since 1941 (Fig. 11) and relatively few recent records from some areas where it was once common. It is not inconceivable that the apparent decline of *S. pubescens* may be related to the increase of *E. lanigera*, which occupies a similar habitat and is possibly a more active and aggressive spider. After this paper had been given at the Congress, I was informed that *S. pubescens* was common around a house in Hampton, Middlesex from 1962 until about 1973, but that *E. lanigera* was first noticed in February 1972 and had since become common, and *S. pubescens* had not been seen since 1973 (F.M. Murphy, pers.comm.). In this instance it is thought likely that *E. lanigera* was introduced with a quantity of furniture and old clothes brought into the house in December 1971. It is also worth noting that I have seen only one specimen of *S. pubescens* in Dorset in the last 17 years (and that was away from buildings), but *E. lanigera* is now common, as stated earlier. Two other species of which there have been few or no new county records since 1941 are *Diaea dorsata* (Fabr.) and *Marpissa muscosa* (Cl.), although in both cases there are plenty of gaps on the map which could possibly be filled in (Figs. 12, 13), and both are large and obvious spiders.

Apparent increases caused by new collecting methods

There are numerous species which *appear* to have shown large increases in range, but where the increase can be largely attributed to new collecting techniques or to the concentration of collecting in specialised habitats. The use of continuous pitfall trapping, especially in winter, and the introduction of the polythene bag, which facilitates the carrying of large litter samples for sorting indoors, has undoubtedly greatly increased the number of records of many small inconspicuous linyphiids. For example, *Hilaira hardyi* (Bl.) (= *Phaulothrix hardyi* (Bl.), see Millidge, 1977) was formerly regarded as mainly a northern spider, but in the south it can be caught in enormous numbers in pitfall traps on recently burnt heathland in mid-winter (Fig. 14). Since it was not recorded from Dorset until 1962, possibly Pickard-Cambridge never collected on the heaths in mid-winter. *Asthenargus falconeri* (Jackson) (= *Jacksonella falconeri* (Jackson), see Millidge, 1977) also appears to be common



Figs. 9-12: Distribution maps showing approximate date of first record in each county. Explanation of shading as for Fig. 5. **9** *Ostearius melanopygius* (O.P.-C.);**10** *Milleriana inerrans* (O.P.-C.); **11** *Sitticus pubescens* (Fabr.); **12** *Diaea dorsata* (Fabr.).

in a variety of heathland, grassland and woodland habitats in the south, judging by the results of pitfall trapping and sorting of litter samples (Fig. 15), but it is very difficult to collect by hand in the field because of its small size, and may therefore have been overlooked in the past, but perhaps found by chance in the north. *Monocephalus castaneipes* (Simon) is an example of the need to collect in a specialised habitat. Like *H. hardyi*, it was formerly regarded as largely a northern species, occurring on grassland and under stones on mountains, but its known range has been extended in the south of England (Fig. 16) by the discovery that it is often abundant among moss growing on the trunks and lower branches of standing trees.

It is interesting to note here that a large proportion of the new county records for Dorset which have been added in recent years, have been of species which are either very small and inconspicuous, mature in winter, or live in *Sphagnum* bogs or other specialised habitats, e.g. *Hypselistes jacksoni* (O.P.-C.), *Trichopterna thorelli* (Westring), *Silometopus elegans* (O.P.-C.), *Mecopisthes peusi* Wunderlich, *Acartauchenius scurrilis* (O.P.-C.), *M. castaneipes, Mioxena blanda* (Simon), *A. falconeri, Wiehlea calcarifera* (Simon), *Glyphesis cottonae* (La Touche), *G. servulus* (Simon), *Pseudomaro aenigmaticus* Denis and *Maro sublestus* Falconer. It seems unlikely that any of these species are genuinely recent additions to the Dorset fauna as opposed to recent discoveries.

Species which have shown no change

A few species may be mentioned whose distribution appears not to have changed for about a hundred years. The large obvious lycosid *Alopecosa fabrilis* (Cl.) was first found on Bloxworth Heath in Dorset in 1868, and a few small colonies are still there in the same general area, but it has only once been taken elsewhere in Britain. An even more remarkable example is the theridiid *Enoplognatha tecta* (Keys.) (= *E. caricis*) which was described by Pickard-Cambridge from a marsh in Dorset in 1888, from one female which was later erroneously synonymised with *E. schaufussi* (L. Koch.). It was not until 1974 when a male of *E. tecta* was taken in a marsh within 1 km of the original site that this species was replaced on the British list (Merrett & Snazell, 1975).

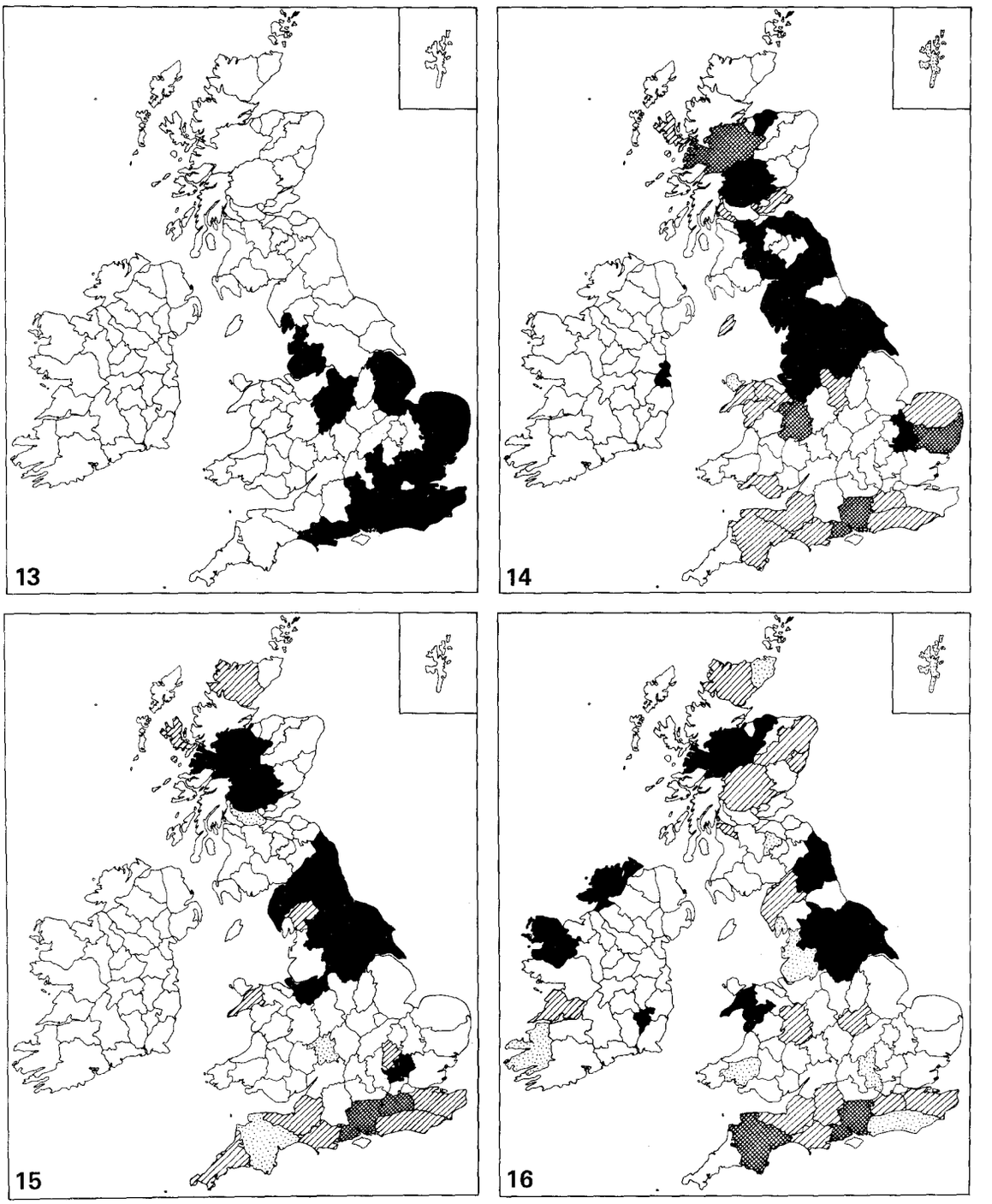
Conclusions

It is evident that in the case of most species it is almost impossible to be certain whether an apparent change in distribution is a real change or one caused only by a change in collecting methods or the concentration of collecting in a new area or habitat. Nevertheless, in some instances the existing records appear to be complete enough to enable us to say with a reasonable degree of confidence that increases in range have occurred, the best examples all being fairly large obvious species that have some form of association with man, e.g. *A. bruennichi, E. lanigera, T. agrestis, P. simoni, O. melanopygius* and *P. phrygianus*. There is much less evidence of formerly common species declining in numbers, but it is possible that *S. pubescens* is an example of this. There are many other species in which it is highly probable that advances in knowledge are the sole or principal cause of their apparent change in distribution, and some rare species which are known to have shown no change for a hundred years. It is to be hoped that our greater knowledge of distribution and ecology of spiders at the present time may serve as a sounder foundation from which to study possible future changes.

Additions to British list since 1974

It may be useful to list here the species which have been added to the British list since the publication of Vol. 3 of *British Spiders* in 1974.

Tegenaria gigantea Chamberlin & Ivie (Locket, 1975; Crawford & Locket, 1976)
Hahnia sp. n. (Snazell & Duffey, in press)
Ero aphana (Walckenaer) (Merrett & Snazell, 1975)
Theridion pinastri L. Koch (Murphy & Murphy, 1979)
Enoplognatha tecta (Keyserling) (Merrett & Snazell, 1975)
Pocadicnemis juncea Locket & Millidge (Millidge, 1976)
Micrargus apertus (O.P.-C.) (Millidge, 1976)
Pseudomaro aenigmaticus Denis (Snazell, 1978)
Erigone aletris Crosby & Bishop (Snazell, in prep.)
Pityohyphantes phrygianus (L. Koch) (Ashmole *et al.*, 1978)



Figs. 13-16: Distribution maps showing approximate date of first record in each county. Explanation of shading as for Fig. 5. **13** *Marpissa muscosa* (Cl); **14** *Hilaira hardyi* (Bl.); **15** *Asthenargus falconeri* (Jackson); **16** *Monocephalus castaneipes* (Simon).

References

ASHMOLE, N. P., LOCKET, G. H., LODHI, A. Q. K., SMITH, C. J. & SUDD, J. H. 1978: *Pityohyphantes phrygianus* (C. L. Koch), a possible recent colonist of Britain (Araneae: Linyphiidae). *Bull.Br.arachnol.Soc.* **4** (6): 279-284.

BRISTOWE, W. S. 1939-41: *The Comity of Spiders* **1**: 1-228; **2**: 229-560. London, Ray Society.

BRISTOWE, W. S. 1944: A foreign spider, *Argyope bruennichi* Scop., established in England. *Ann.Mag.nat.Hist.* (11), **11**: 829-834.

CRAWFORD, R. & LOCKET, G. H. 1976: The occurrence of *Tegenaria gigantea* Chamberlin and Ivie (1935) in North America and Western Europe. *Bull.Br.arachnol. Soc.* **3**(7): 199.

DENIS, J. 1963: La distribution géographique d'*Ostearius melanopygius*. *C.r.somm.Séanc.Soc.Biogéogr.* **352**: 71-77.

GAUCKLER, K. 1965: Die Schöne Wespenspinne *Argyope bruennichi* (Scopoli) und ihr Vordringen in Nordbayern. *Naturforsch.Ges.Bamberg.* **40**: 103-110.

GUTTMANN, R. 1976: Die Verbreitung von *Argyope bruennichi* Scop. im Saarland (Araneae). *Faun.-florist.Not. Saarland* **8** (2): 7-12.

LOCKET, G. H. 1975: The identity of Blackwall's *Tegenaria saeva* (Araneae, Agelenidae). *Bull.Br.arachnol.Soc.* **3** (4): 85-90.

LOCKET, G. H., & MILLIDGE, A. F. 1951-53: *British Spiders* **1**: 1-310; **2**: 1-449. London, Ray Society.

LOCKET, G. H., MILLIDGE, A. F. & MERRETT, P. 1974: *British Spiders* **3**: 1-314. London, Ray Society.

MERRETT, P. 1960: A spider, *Trematocephalus cristatus* (Wider), new to Britain, and notes on four other species. *Ann.Mag.nat.Hist.* (13), **3**: 145-148.

MERRETT, P. & ROWE, J. J. 1961: A New Zealand spider, *Achaearanea veruculata* (Urquhart) established in Scilly, and new records of other species. *Ann.Mag.nat. Hist.* (13), **4**: 89-96.

MERRETT, P. & SNAZELL, R. G. 1975: New and rare British spiders. *Bull.Br.arachnol.Soc.* **3** (4): 106-112.

MILLIDGE, A. F. 1976: Re-examination of the erigonine spiders *"Micrargus herbigradus"* and *"Pocadicnemis pumila"* (Araneae: Linyphiidae). *Bull.Br.arachnol.Soc.* **3**(6): 145-155.

MILLIDGE, A. F. 1977: The conformation of the male palpal organs of linyphiid spiders, and its application to the taxonomic and phylogenetic analysis of the family (Araneae: Linyphiidae). *Bull.Br.arachnol.Soc.* **4** (1): 1-60.

MURPHY, J. & MURPHY, F. 1979: *Theridion pinastri* L. Koch, newly found in Britain. *Bull.Br.arachnol.Soc.* **4**(7): 314-315.

SNAZELL, R. 1978: *Pseudomaro aenigmaticus* Denis, a spider new to Britain (Araneae: Linyphiidae). *Bull.Br. arachnol.Soc.* **4** (6): 251-253.

WUNDERLICH, J. 1976: Zur Kenntnis der mitteleuropäischen Arten der Gattungen *Enoplognatha* Pavesi und *Robertus* O. Pick.-Cambridge (Araneida: Theridiidae). *Senckenberg.biol.* **57**: 97-112.