

Spider Recording Scheme News

July 2009, No. 64

Editor: Peter Harvey; srs@britishspiders.org.uk

My thanks to those who have contributed to this issue. S.R.S. News No. 65 will be published in November 2009. Please send contributions by the end of September at the latest to Peter Harvey, 32 Lodge Lane, GRAYS, Essex, RM16 2YP; e-mail: grays@peterharvey.freeserve.co.uk

Editorial

I am very grateful to all the contributors who have provided articles for this issue. It goes without saying that the newsletter could not appear without these contributions and I once again implore all recorders to provide articles, long or short, for the newsletter.

Although putting dots on a map is obviously an important part of any recording scheme, gaining better understanding of the autecology of species is probably our single most important aim. This means recorders should aim to observe and record as much information as possible that helps this understanding, based on our phase 2 recording guidelines. The crucial element is for this recording to be structured in a consistent way, so that the data can be used in analyses. MapMate enables all these phase 2 recording features to be recorded in this way, as long as the SRS recording structure is used. Hence please use the SRS Site Details in MapMate to record broad habitat and other site-related features, rather than the MapMate habitat field - anyone can add any habitat to the MapMate habitat field, and whilst the user may well be justified in believing their habitat category is more appropriate, unless it has been agreed for general use by everyone else as well, the information is essentially unusable in any analyses.

The Society has agreed to develop a Recording Scheme website which will provide the latest up-to-date distribution maps at national and regional/county level, dynamically generated from website database tables containing data uploaded from a master SRS dataset held in MapMate. This will enable broad and structural habitat, phenology and other recorded information to be provided graphically for all species, both at national and regional levels.

Public access will be at 10km level or at 5km at county level and this would be linked to Google maps and aerial images so that users can visualise the relevant areas. Although the default will be that no detailed record information is provided to the public, recorders will be able to choose if they want their recorder information to be made available. Registered BAS members and SRS recorders will be able to access the full data behind the dots, and help validate records and submit comments to a validation database.

Species pages will initially include text written for the provisional atlas or subsequently developed for other purposes, but the aim will be for any registered user to edit and add to these so that they become more accurate and also reflect regional differences. Difficult species information will also be made available in a form in which there will be editable species-based or genera-based database entries that registered users can add to, edit and upload images, figures, etc. to help others.

Area Organisers will be able to administer regional or county sections of the website to manage their own pages and provide access to local arachnologists to add their own pages, run their own blogs, advertise local field meetings, provide information on local sites and species of interest and suggest recording targets, etc.

All this is obviously a pretty major undertaking and will take time to develop into a comprehensive resource, but much of the technology already exists, developed by Teknica Ltd for the Essex Field Club on their website at www.essexfieldclub.org.uk. The primary aim is to make a facility that everyone can input

into, develop and improve. The Society is applying to the OPAL project for funding to help get the project off the ground and should know by the end of September if this funding is available (OPAL comprises a partnership of the Natural History Museum, Field Studies Council, National Biodiversity Network, Met Office, Royal Parks and 10 universities across England. OPAL was awarded a grant from the Big Lottery Fund in August 2007 and will run until December 2012).

I was recently able to confirm the third British record of *Synema globosum* from a photograph sent to me by Neil Harvey of EECOS (Essex Ecology Services Ltd) taken by Pat and Simon Cox in their garden at St Osyth in North Essex. Apparently their garden backs onto a wholesale nursery, so it is quite likely that the spider came in with plants and we are no nearer forward in knowing whether this species is now truly established in this country or not.

Area Organiser changes

Eric Philp and Rowley Snazell have been Area Organisers for Kent and Dorset respectively for very many years indeed. Both have done sterling work in collating and verifying records for their counties and submitting data to the Recording Scheme over this time. They have now decided it is time to pass on the baton, and Tony Russell-Smith takes over as AO for Kent and Rob Cumming for Dorset. Many thanks to Eric and Rowley for all the hard work over the years.

Please send your spider records for Kent to Tony Russell-Smith at 1 Bailiffs Cottage, Sharstead Park, Doddington, SITTINGBOURNE, Kent ME9 0JU. Tel: 01795-890209 Email: mrussellsmith@btinternet.com

and for Dorset to Rob Cumming at 7 Monmouth Road, DORCHESTER, Dorset DT1 2DE. Tel: 01305-264092 Email: robc43@aol.com. Both can receive records in MapMate and this is the preferred method. Please contact them for details.

Mike Davidson also takes on VC85 Fife and Kinross, to add to his already valiant total of VCs 87-95: 87 Perth West, 88 Perth Mid, 89 Perth East, 90 Angus (Forfar), 91 Kincardine, 92 Aberdeen South, 93 Aberdeen North, 94 Banff, 95 Moray (Elgin).

Mike's contact details are Mr. Mike B. Davidson, 77 Mile-End Avenue, ABERDEEN, Aberdeenshire, AB15 5PS. Email: mike.davidson55@btinternet.com

Apology

In the article on identification of female *Porrhomma* species in the SRS Newsletter No. 63 for March 2009, I inexplicably failed to acknowledge Mike Roberts. As most readers will have already realised, the majority of figures of the epigynes used in the article were taken, with his permission, from volume 2 of his book, *The Spiders of Great Britain & Ireland*. My very sincere apologies to Mike for this oversight, without who's splendid figures the article would have been impossible.

A. Russell-Smith

Web raider caught in action

by Martin Matthews

During a field meeting of the Gloucestershire Invertebrate Group on Chase End Hill, at the southern end of the Malvern Hills, on 13 September 2008, I noticed a scorpionfly walking on a thread of spider silk stretched between herbs at the edge of the path (see Fig. 1).

Scorpionflies are insects of the family Panorpidae, which is part of the small order Mecoptera ('long-wings'). They are easily recognised by their two pairs of rather narrow wings (usually marked by scattered black patches), long legs, thread-like antennae and red-tipped abdomens. Both sexes have small biting mouthparts at the tip of a long 'beak'. The males display a swollen genital region that curls forward above their abdomen: this may look threatening, but carries no sting.

Scorpionflies are equipped as carnivores, but are thought to scavenge dead and immobilised insects rather than hunt active prey. The adults are said to steal some of their food from spiders' webs, but it is difficult to find first-hand accounts or illustrations of this behaviour.

On this occasion, a male scorpionfly was seen probing the trapped flies with its mouthparts as it moved along the thread of spiders' web, but it was not clear whether it was actually feeding on the corpses. There was no sign of a resident spider. I drew the attention of two fellow entomologists to the sight before capturing the scorpionfly for identification later. I then realised that there was also a female nearby. She was resting on a leaf close to one end of the silken thread, and may have been a mate, or potential mate, of the male I had just caught, which proved to be *Panorpa germanica*, a common and widespread species.



Fig. 1. Scorpion fly on spider's silk
Photograph © Martin Matthews

This observation leaves behind some unanswered questions. What was the spider doing while her larder was under attack? Was the scorpionfly simply searching for food, or did it need an insect corpse to use as a courtship gift? Perhaps readers of this newsletter can provide answers from their own experience.

My thanks go to David Haigh, who read an article about this event in the Gloucestershire Naturalists Society newsletter, and suggested that readers of Spider Recording Scheme News would be interested in a similar account.

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The identification of desiccated, adult spiders in a collection supposedly made by A. R. Jackson in the late 1930s at Wheatfen Broad, Norfolk

by David R. Nellist

In 2001 members of the British Arachnological Society recorded the spiders of Wheatfen Broad (Norfolk) over two weekends, one in May and the other in September. Prior to these visits little was known of the spider fauna of the site. Dr A. R. Jackson had recorded 82 species in 1936; Captain M. J. D. Cockle, a former owner of Wheatfen, added 10 species during the years 1937-1946, and a party led by Dr Eric Duffey added 38 species in 1971. An account of the two BAS surveys, together with a full species list, appeared in the British Arachnological Society Newsletter, No. 97, in 2003.

It was mentioned in the BAS account that at the end of the second visit I had been handed a small box of tubes containing spiders. This had recently been discovered in Wheatfen Cottage, a small isolated dwelling on the fen, and the home for 40 years of Ted Ellis, the well-known writer and broadcaster, and still occupied at the time of our visit by his widow Phyllis. From 1928 to 1956 Ted had been Keeper of Natural History in the Castle Museum in Norwich. He died in 1986. I was told that the specimens had been collected on the fen in 1937 or 1938 by Dr A. R. Jackson and were thus of historical interest. This note describes the separation of the specimens from the detritus in the tubes, their rehydration, their identification to species level (where possible), and the attempt to decipher the very limited information on the labels.

The cardboard box contained a large number of small tubes, each of which had originally been closed with a cork. Over the years the majority of these had disintegrated into lumps of various sizes and indeed in a small number of tubes they had been reduced to little more than powder, completely burying any specimens. In most cases the cork debris was removed from the tubes with forceps without damage to the desiccated specimens, but it was clear that attempting to separate small, brittle specimens from the very fine cork debris would simply lead to more damage and so it was left in place.

In order to rehydrate the specimens di-sodium phosphate and wetting agent were used in the concentrations recommended by Jocqué (Jocqué, 2008). In the absence of *Agepon*, the wetting agent recommended by Jocqué, an alternative was used marketed in the UK by Paterson for photographic purposes. In fact this was also manufactured in Germany and my hunch is that it is in fact re-labelled *Agepon*. The mixture was added to each tube until it was about half-full and covering the specimens and debris. For treatment the tubes were divided into two batches of about 60, but even so it was impossible to ensure that all tubes had exactly the same treatment time and this varied between 10 and 15 days. After treatment the solution and debris were removed by careful use of a very fine suction tube, the specimens washed in water and then transferred back to spirit. At this stage a preliminary examination of the contents of each tube allowed those that contained juveniles or clearly unidentifiable specimens or, indeed, no specimens at all,

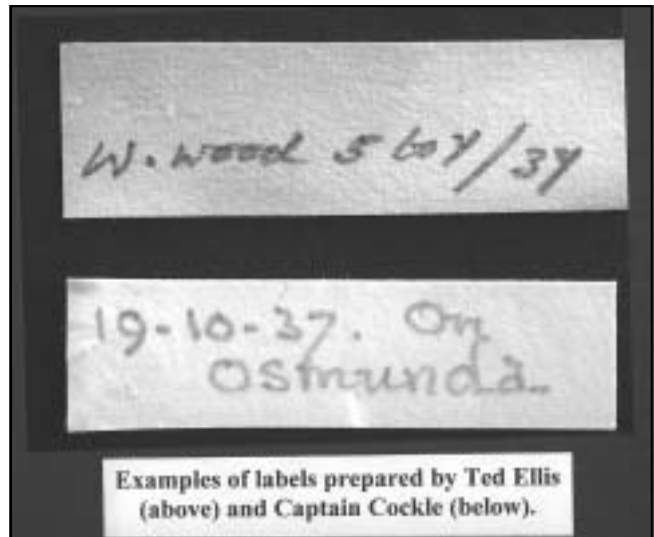
to be discarded. Specimens in 127 tubes then remained for possible identification.

Examination of the specimens after re-swelling showed that although evidence of shrinkage was still present females were, in most cases, readily identified, but care was needed with males where the palps were generally expanded and the structures twisted. The table shows that 64 males and 110 females of 52 species were recorded, the most abundant being *Hylyphantes graminicola* (Sundevall, 1830) with 7 males and 33 females, and *Kaestneria dorsalis* (Wider, 1834) with 1 male and 19 females. Twenty-four species were represented by a single specimen. Three species were new additions to the checklist generated after the BAS visits in 2001 - *Episinus maculipes* Cavanna 1876, *Zygiella stroemi* (Thorell, 1870) and *Oedothorax fuscus* (Blackwall, 1834). The presence of the first two of these was unexpected! *Episinus maculipes* was first recorded in Britain in 1929 by J. E. Hull at Tiptree Heath in Essex over 60 miles south of Wheatfen [Hull, 1934]. Hull did not give any information about the habitat. It has subsequently been recorded from a few sites near the coast from Kent round to the Forest of Dean [Smithers, 1998]. Previous records of *Zygiella stroemi* have been confined to central, southern England, with one isolated record from central Scotland, all far removed from Wheatfen (Harvey, *et al.*, 2002). Because the presence of these two species was surprising Peter Merrett kindly confirmed the identifications.

A paper label, with dimensions of about 1 x 3 cm or less, had been included in most of the tubes, presumably added at the time of collection, with text written in pencil. Before the phosphate treatment these were removed, one by one, the information transferred to a record sheet and the label then replaced in the tube. In a few cases the labels were badly stained and the text, if any, was illegible. Interestingly, the writing style on each label was in one of two hands, lower case block letters or a linked hand-writing style, as shown on the figure. This suggested that two collectors had been at work, although, curiously, one tube included two labels with identical information written in the two different hands! Overall, 65 tubes contained labels written in the lower-case, block style and 58 in the linked, handwriting style. The year on the labels showed that three tubes contained specimens collected in 1927, 1928 and 1936 respectively, 94 tubes held specimens collected in 1937, 10 collected in 1938 and 3 in 1939. Sadly the labels provided very little useful information. To give three typical examples – “*Misumena vatia* f W 1937”, “W wood 5-7, 37” and “19-10-37 on *osmunda*”. Presumably details of the exact locality, habitat, collection date etc. were not regarded as being important at that time, the emphasis being, rather, on the collecting and describing of new species.

Having been told that the collection had been made by A.R. Jackson I assumed that one of the styles on the labels belonged to him and that probably Ted Ellis had produced the other set. Seeking more information I contacted Peter Nicholson, the SRS Area Organiser for Norfolk who, as a volunteer, maintains and catalogues the spider, myriapod and isopod collections in the Castle Museum in Norwich just a few miles from Wheatfen. With the help of Tony Irwin, the Curator of Natural History at the Museum, Peter was able to show that the handwriting on the upper label is that of Ted Ellis whilst the lower is the work of

Captain Maurice Cockle (see following photograph).



Cockle had met Ted when he visited the Castle Museum in 1933 and was at this time the owner of Wheatfen Broad. Although he did not regard himself as a naturalist he was interested in the general natural history of the Broad and encouraged other naturalists to visit and record the wildlife. Any specimens he did collect were passed on to other specialists, and A. R. Jackson would no doubt have identified spiders collected by both Cockle and Ellis. Based on the evidence of the writing on the labels we now know that Ted Ellis collected the four males of *Zygiella stroemi* and Captain Cockle collected the single female of *Episinus maculipes*.

Interestingly, back in 1988 a slim biography of Ellis written by Eugene Stone was published by Jarrold Colour Publications, a company that no longer exists but which at that time was based in Norwich (Stone, E., 1988). I have a copy in my collection and recalled that a photograph of Ted Ellis with Captain Cockle and E.A. Ellis (a snail expert and no relation to Ted) was included in the book. I was unable to trace the author but Peter Nicholson was able to locate a high quality print of the picture in the Castle Museum archives and provided a copy which I have included in this note. It shows Ted Ellis on the left, with Cockle in the middle and E. A. Ellis on the right.



Photograph of Ted Ellis (left), Captain Maurice Cockle (middle) and E. A. Ellis (right) from print in Castle Museum archives, Norwich

Table: Species from Wheatfen Broad
Identified from rehydrated specimens

<u>Taxon</u>	<u>Sex</u>	<u>Taxon</u>	<u>Sex</u>
Theridiidae		Tetragnathidae	
<i>Steatoda bipunctata</i> (Linnaeus, 1758)	1f	<i>Pachygnatha clercki</i> Sundevall, 1823	1m
<i>Episinus maculipes</i> Cavanna, 1876	1f	<i>Pachygnatha degeeri</i> Sundevall, 1830	2m
<i>Anelosimus vittatus</i> (C. L. Koch, 1836)	1m	<i>Metellina segmentata</i> (Clerck, 1757)	2f
<i>Achaearanea lunata</i> (Clerck, 1757)	2f	<i>Metellina mengei</i> (Blackwall, 1869)	1m; 2f
<i>Theridion sisyphium</i> (Clerck, 1757)	5m, 3f	<i>Metellina merianae</i> (Scopoli, 1763)	1m; 1f
<i>Theridion tinctum</i> (Walckenaer, 1802)	1m	Araneidae	
<i>Paidiscura pallens</i> (Blackwall, 1834)	1m, 1f	<i>Zygiella x-notata</i> (Clerck, 1757)	1f
<i>Enoplognatha ovata</i> (Clerck, 1757)	2f	<i>Zygiella stroemi</i> (Thorell, 1870)	4m
Linyphiidae		Lycosidae	
<i>Hylyphantes graminicola</i> (Sundevall, 1830)	7m, 33f	<i>Pardosa amentata</i> (Clerck, 1757)	1f
<i>Gnathonarium dentatum</i> (Wider, 1834)	3m; 2f	Dictynidae	
<i>Gongylidium rufipes</i> (Linnaeus, 1758)	6m; 2f	<i>Dictyna uncinata</i> Thorell, 1856	2m; 1f
<i>Hypomma bituberculatum</i> (Wider, 1834)	2f	<i>Clubiona phragmitis</i> C. L. Koch, 1843	1m; 2f
<i>Baryphma trifrons</i> (O. P.-Cambridge, 1863)	1f	<i>Clubiona brevipes</i> Blackwall, 1841	1m
<i>Oedothorax fuscus</i> (Blackwall, 1834)	1m	Philodromidae	
<i>Oedothorax retusus</i> (Westring, 1851)	2m	<i>Philodromus dispar</i> Walckenaer, 1826	1f
<i>Lophomma punctatum</i> (Blackwall, 1841)	1m	<i>Philodromus aureolus</i> (Clerck, 1757)	2f
<i>Erigonella hiemalis</i> (Blackwall, 1841)	1m	<i>Philodromus cespitum</i> (Walckenaer, 1802)	1f
<i>Diplocephalus cristatus</i> (Blackwall, 1833)	2m	<i>Philodromus albidus</i> Kulczynski, 1911	1f
<i>Diplocephalus picinus</i> (Blackwall, 1841)	1f	<i>Tibellus oblongus</i> (Walckenaer, 1802)	1f
<i>Bathyphantes approximatus</i> (O. P.-Cambridge, 1871)	1f	Thomisidae	
<i>Bathyphantes gracilis</i> (Blackwall, 1841)	1m; 3f	<i>Diaea dorsata</i> (Fabricius, 1777)	1m
<i>Kaestneria dorsalis</i> (Wider, 1834)	1m; 19f	<i>Misumena vatia</i> (Clerck, 1757)	1f
<i>Drapetisca socialis</i> (Sundevall, 1833)	3m; 4f	<i>Xysticus cristatus</i> (Clerck, 1757)	2m; 2f
<i>Tenuiphantes tenuis</i> (Blackwall, 1852)	3m; 2f	<i>Xysticus lanio</i> C. L. Koch, 1835	4m; 1f
<i>Linyphia triangularis</i> (Clerck, 1757)	3f	<i>Xysticus ulmi</i> (Hahn, 1831)	1m
<i>Neriene montana</i> (Clerck, 1757)	1f	<i>Ozyptila trux</i> (Blackwall, 1846)	1m; 3f
<i>Neriene clathrata</i> (Sundevall, 1830)	1f	<i>Ozyptila brevipes</i> (Hahn, 1826)	2m
<i>Neriene peltata</i> (Wider, 1834)	2f	TOTALS	
<i>Microlinyphia impigra</i> (O. P.-Cambridge, 1871)	1m	52 species	174
			[64m; 110f]

Finally, and appropriately, on the 22nd May this year a special gathering in the Castle Museum in Norwich celebrated the 100th anniversary of Ted Ellis' birth.

I am greatly indebted to Peter Nicholson who identified the authors of the labels by comparison with labels in collections of known provenance in the Castle Museum in Norwich, and for providing a high-quality copy of the photograph from the Museum's collection.

References

Jocque, Rudy 2008. How to rehydrate dried spiders. *News. Br. arachnol. Soc.*, **112**: 5.

- Hull, J. E., 1934. Some Essex Spiders. *Essex Naturalist*, **24**: 209-214
- Smithers, P. 1998. *Episinus maculipes* Cavanna, 1876, *News. Br. arachnol. Soc.*, **83**: 5.
- Harvey, P.R., Nellist, D.R. & Telfer, M.G. 2002. *Provisional Atlas of British Spiders (Arachnida, Araneae)*, Vol 2, p. 230.
- Stone, I. 1988. *Ted Ellis: The People's Naturalist*. Jarrold Colour Publications, Norwich.

An update on *Hybocoptus decollatus* in Kent

by A. Russell-Smith

In an earlier article, the author reported the occurrence of *Hybocoptus decollatus* at a number of churchyard locations from East Kent in spring 2007 (SRS Newsletter 60, March 2008). It was clear that, here at least, this species is not as uncommon as previous records suggested. However, all the eight sites at which the species was found were on the chalk of the North Downs and it was thought worthwhile to check for its presence in other parts of Kent. Accordingly, during April and May 2009, surveys of a further 24 churchyards were carried out; twelve on the chalk and twelve in the wealden area of Kent. The latter consists of generally lower lying areas of clay and sandstone south of the North Downs. In each case, between 20 and 40 minutes were spent at each site, beating the lower branches of yew trees and, where present, bushes of holly or box. The combined results of both the 2007 and 2009 surveys are shown in summary form in the map (Fig. 1).

It can be seen that this species was apparently absent from sites on the clays and sandstones of the Weald. By contrast, it was present, often in considerable numbers, at all but two sites on the chalk in East Kent. However, it was not recorded at three sites on the chalk of West Kent (west of the River Medway).

Clearly, in this rather brief study, it is impossible to say that the species is definitely absent from sites where it

was not collected. However, the data do suggest that it is confined to the chalk in Kent. It is too early to say whether it is truly absent from the chalk in W. Kent and further sampling is needed in this part of the county. Exactly why it should only be found on chalk is not at all clear. In the earlier survey, it was noted that the species was most common on yew trees fully exposed to sunlight and absent from heavily shaded trees, for example in woodland. However, this cannot be the explanation for its distribution as many of the yews in wealden churchyards were fully exposed to the sun. During the 2009 survey, shrubs other than yew were sampled in seven churchyards but no *H. decollatus* were found on them. This contrasts with the situation in Dorset where Rowley Snazell collected *H. decollatus* on ornamental conifers (Snazell, pers comm.).

This study has doubled the number of known *H. decollatus* sites in Kent from eight to 16. There is little doubt that if other churchyards on the chalk were visited it would be found there too. It would be extremely interesting to conduct surveys in other counties of southern England with chalk escarpments to establish whether a similar distribution pattern is found there as well.

References

Russell-Smith, A. 2008. Is *Hybocoptus decollatus* common in southern England? *SRS Newsletter* 60: 14.

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Fig. 1. Map of the known distribution of *Hybocoptus decollatus* in Kent.

Key: Black circles, sites where the species is recorded; black triangles, sites where it is apparently absent.
Green shading shows the approximate extent of chalk in the county.

Theridion pinastri at Richmond Park in fogging samples

by Peter Harvey

Peter Hammond passed a number of spider samples on to me for interest recently. These included samples left over from tree fogging undertaken at Richmond Park in 1983-1984. The samples proved to contain various spiders of interest, but the most notable species is probably the presence in the samples of a large number of specimens of *Theridion pinastri* (see Fig.1).

A total of 95 specimens identifiable as *T. pinastri* were found, with 18 males, 18 females and 59 subadults or large juveniles. The samples containing *T. pinastri* were from large oaks along a ride in Sidmouth Wood (TQ1873 and TQ1973) with one sample from birch and one additional sample from a tree between Sidmouth Wood-Queen Elizabeth Plantation (TQ1972). At the time of the fogging survey, these would have represented the second location for this species in this country.



Fig. 1. *Theridion pinastri* female
Photograph © Peter Harvey

Although the original discovery of *T. pinastri* in this country in 1977 was of a male found on the ground in a small open patch fringed with grass among tall heather at Chobham Common (Murphy & Murphy, 1979) and the second record was of a female from pine in the Langshot Bog area of the same site in October 1984, nearly all subsequent records in Britain have been of adults beaten from large oaks, especially where these are in open sunny conditions, very much the typical habitat for spiders such as *Philodromus praedatus* and the much rarer *P. longipalpis*. Several records have been from pines and several from mature scrub in hedgerows, and a single male was collected in pitfall traps at Rainham silt lagoons, an area with little scrub and no woodland.

The species has been collected in the Epping Forest area using a flight interception trap set in the canopy above 5m and a Malaise trap believed to have been set at height in an old oak. Harvey *et al.* (1993) suggested that it is possible that the species usually lives high up in trees and is therefore difficult to sample by usual methods and that this might account for its apparent scarcity. We commented that it would be interesting to have more data from fogging available. The current results seem to justify this view!

Details about the precise location of fogging sampling at Richmond Park and the methods used are found in Stork & Hammond (1996) and Stork *et al.* (2001). A

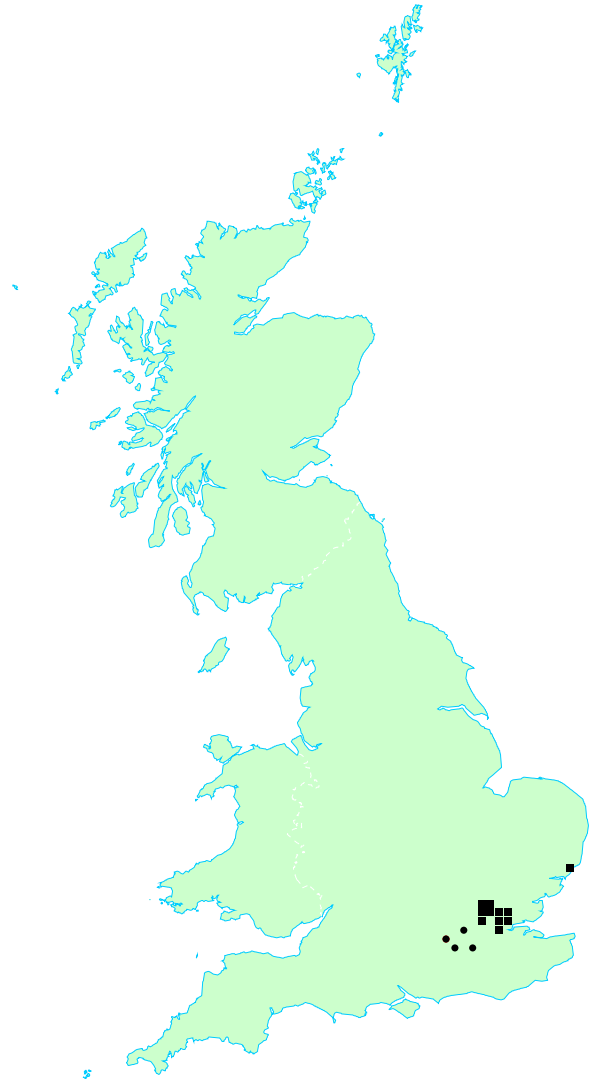


Fig. 2. Distribution of *Theridion pinastri* in Britain

Black circles, records 1977 to 1991
Black squares, records 1992 to present

distribution map showing the current known distribution is provided in Fig. 2.

References

- Harvey, P., Carr, D. & Read, H. 1993. Further records of *Theridion pinastri* L. Koch, 1872. *Newsl. Br. arachnol. Soc.*, **67**: 4-5.
- Murphy, J. & Murphy, F. 1979. *Theridion pinastri* L. Koch, newly found in Britain. *Bull. Br. arachnol. Soc.*, **4** (7): 314-315.
- Stork, N.E. & Hammond, P.M. 1996. *Sampling arthropods from tree-crowns by fogging with knockdown insecticides: lessons from studies of oak tree beetle assemblages in Richmond Park (UK)*, in Stork, N.E., Didham, R. & Adis, R. (Eds.) *Canopy Arthropods*. Chapman & Hall.
- Stork, N.E., Hammond, P.M., Russell, B.L. & Hadwen, W.L. 2001. The spatial distribution of beetles within the canopies of oak trees in Richmond Park, U.K. *Ecological Entomology* **26**: 302-311.

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