Spider Recording Scheme News
July 2005, No. 52

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

Editorial

Don't forget the December 2005 deadline for new data

Thank you very much indeed to everyone who has been sending in their new data. Please continue to send in your records, and if you haven't yet provided post-atlas records please try and do so before the **December 2005 deadline**. Also if you hold records with adult male/female information that you have not already provided in the form of records, please send it in for inclusion, even if the distributional data were already submitted for the atlas – duplication of distributional information is not a problem if you can add phenology or any other phase 2 ecological information to data previously submitted.

The provisional atlas dataset holds 517,839 records, but we are now receiving increasing amounts of new data by MapMate, or in spreadsheet and tabular form that I will continue to add to MapMate as time allows. I currently hold 150,456 spider records in MapMate of which probably half were included in the provisional atlas but for which we now have centralised and quantifiable male/female and other information. The post-atlas card total stands at 1570, of which 1168 are the old RA65 cards, 269 new RA65 cards and the remainder GEN7, 13 and 14 cards. BRC Monks Wood has agreed to include the computerisation of the old RA65 and GEN cards into their 2005 schedule.

So we should have a very substantial amount of new information with which to update the maps and start to use in analysis to help clarify the ecology and phenology of our species. As an example of the kind of analysis we can now easily generate from MapMate data I have produced some queries that MapMate has provided as a patch which can be used to analyse spider data for various phase 2 features such as structural habitat, broad habitat and management. We would easily be able to use these and many other similar queries on the spider dataset in the future.

Area Organiser changes

In the last newsletter I reported the retirement of Jim Stewart as Area Organiser after long service and much hard work for the British Arachnological Society and Spider Recording Scheme. Mike Davidson has very kindly volunteered to take on Angus and Perthshire, which means that he is now AO for VCs 87 (Perth West), 88 (Perth Mid), 89 (Perth East), 90 (Angus or Forfar), 91 (Kincardine), 92 (Aberdeen South), 93 (Aberdeen North), 94 (Banff) and 95 (Moray or Elgin). Please send records for these VCs to Mike at 1, Crowmallie Cottages, Pitcaple, Inverurie, Aberdeenshire AB51 5HR; email: mike.davidson@sepa.org.uk

Clarification on the Usage of Some of the S.R.S. Phase Two Terms

by Peter Harvey

Phase two of the recording scheme has profiling of the ecological characteristics of each British spider species as one of its most important aims, and many of the features we would like arachnologists to record are designed to help achieve this. The use of categories is essential if these data are to be usable in analyses, but whatever system is used, there will be difficulties – we will always be trying to balance the recording of useful information with a system that is realistically simple! The result will be a compromise and there will be instances where things do not fit easily into any category. Since we will use these data to generate an ecological profile for every British species of spider, it is important that we all have the same understanding of the meaning of the categories. The use of SRS-based queries in MapMate has highlighted some confusion over the use of a few of the phase two terms.

Habitat Structure & Detail (or MapMate Status & Method)

The **Structural Habitat** (**MapMate Status**) categories seem to have caused a number of problems. I am not a trained ecologist, so there may be plenty of scope for argument, but we do all need to use a similar interpretation if the resultant data are going to provide useful analyses. The thinking behind the categories is based on the vegetation layers used in woodland ecology – the climax vegetation assumed to be characteristic of most of the British Isles.

My understanding is as follows: the **canopy** refers to the overhead foliage and branches of the trees and shrubs in a woodland; the **field layer** refers to the herbaceous vegetation growing underneath and the **ground layer** refers to the ground or litter layer above the underlying substrate, but would include ground expanses of encrusting lichen and moss. '**Shrub and low canopy to 5 m**' and '**Shrub and low canopy above 5m'** are simply an attempt to separate the ability to sample scrub, hedgerows and the lower canopy of woodland edge e.g. by beating, with the fauna that may be associated with higher canopy beyond reach of normal fieldwork, but which can be sampled e.g. by fogging or by scaling trees to reach the tree tops – we don't expect too many records for this category, even though the results might be of great interest!

In phase two of the recording scheme these terms are applied to habitats other than woodlands, hence grasslands and heathlands etc also have a ground layer and field layer, and if there is a significant scrub component then also a "Shrub/low canopy" element (in MapMate '4.0 Shrub/low canopy to 5 m'). In a situation where moorland or heathland has tall woody ericaceous plants for example,

there may be a difficulty in allocating this to the field layer or to the shrub/canopy below 5 m. I personally think in general this could be categorised as a field layer >20 cm unless the ericaceous vegetation is very tall, very woody and the associated fauna is comparable to that typically found on scrub or the lower branches of trees. To some extent it is a question of how the spiders use the vegetation – are they using the structural features provided by the woody heather in the same way as in shrubs/scrub, or are the structural features of non-woody heather shoots more significant? If the situation defies easy resolution it is almost certainly best left 'Not recorded' and noted in the Comments field!

The features refer to the habitat or structural feature **IN WHICH YOU HAVE FOUND** the spider – not to the surrounding habitat or to features above the structural layer you sample. Hence you should not record a spider from 'Shrub/low canopy to 5 m' unless you actually found it in this structural layer or beat it from the layer. Similarly if you find a spider by grubbing (on the ground) it should be recorded as from the ground layer (i.e. in MapMate, 1.0 -1.5 options for the Ground layer) regardless of whether the ground layer is in the open or under dense woodland (the broad habitat is already recorded elsewhere). A bare litter ground layer in woodland or open grassland or heathland would be 1.1 Ground layer: bare ground; the ground layer in a dense herbaceous woodland field layer or densely vegetated grassland meadow would be 1.4 Ground layer: dense veg. cover. Similarly the low vegetation and field layer options apply to the 'herbaceous' layer of plants growing to a height of <20 cm (Low vegetation <20 cm) or above 20 cm (Field layer >20 cm). Evidently there may be problems with assigning these to a particular situation, but I would advise taking an approximate average view to the vegetation height (and density) and if you can't make up your mind then don't record that feature, or record details in the comment field. In general the sampling method will often be related to the structural vegetation layer you are sampling – grubbing and pitfall traps set in the ground will be associated with the ground layer, sweeping with low vegetation and the field layer and beating with shrub/canopy below 5 m.

The structural or MapMate Status categories are also intended to be based on structural vegetation layers rather than simply on height above the ground. Hence if, for example, a spider was found on a tree trunk, under bark, or in aerial litter, then whatever level it was found in it **should not** be listed as 'Canopy above 5 m', since vegetation structure is not really applicable in these situations. In these instances the Structural Habitat should not be recorded (or in MapMate the Status should be 'Not recorded'), and instead the phase two Detail or MapMate Method can be recorded as 'On tree trunk', 'Under bark' or 'Aerial litter, birds nests etc' respectively. We can then ultimately query the data to obtain numerical information on those species found in these micro-habitats and at what time of year.

In phase one the broad habitat categories contained 'Cultivated land, including gardens (13)' and 'Buildings (14)'. To try and separate information on spiders found inside buildings with those more often associated with gardens, phase two changed these to 'Buildings, indoors (14)' and 'Gardens, parks (36)', but retained 'Cultivated land, including gardens (13)' to maintain continuity with the data already submitted in phase one. Since it would really have been better to separate 'Cultivated land, including gardens' into three categories, 'Cultivated fields', 'Gardens' and 'Parks' to avoid the risk of overlap, it would now be best to treat the phase two 'Cultivated land, including gardens (13)' as 'Cultivated fields (13)'. We know of course that some species, such as *Zygiella x-notata* or *Salticus scenicus,* are usually found on walls/fences or the outsides of houses. These should be recorded with the detail (in MapMate the Method) 'On fence' and 'On wall'. The broad habitat will already have been recorded as 'Gardens, parks'. As Ian Dawson (Dawson, 2003) has recommended, because MapMate associates sites with a broad habitat type, where one locality contains more than one habitat each habitat needs to be set up as a separate site – e.g. Tempsford, Station Road 122a (house) and Tempsford, Station Road 122a (garden). Hence *Salticus scenicus* recorded on the outside of the house (but in the garden, not indoors) should be recorded under site Tempsford, Station Road 122a (garden) but with Detail or Method 'On wall'. Similarly if the species is recorded on a wall or building in the middle of moorland then it should be recorded at the site with moorland as the broad habitat, but with the Detail or Method 'On wall'. This should cover most eventualities, and if you can't satisfactorily match, then leave that feature as 'Not recorded'. Additional information can always be included in the Comment field (although this will not then be easily available for use in analysis).

Because MapMate associates a site with a broad habitat it can seem difficult at first to enter records where sites contain a number of habitats. However, it becomes much easier once you get used to the way the software works, and it is in fact really quite logical to create a separate site for each major habitat (or compartment) e.g. Oxshott Heath (woodland); Oxshott Heath (heath); Oxshott Heath (sand pit) each associated with the relevant broad habitat type. If at all possible when entering sites for the S.R.S. please use one of the SRS phase 2 habitat categories and record the associated substrate and management features if they are apparent or you have that information. It is even possible to enter different management categories as separate sites e.g. Hitchcock Meadow (pre-grazing) and Hitchcock Meadow (post-grazing) in order to compare species associated with the same site but after a different management regime has been introduced. Remember that each site only has to be entered once and is then available for all species records. In addition remember that as long as you are consistent with the way you name sites then you can query them either separately or all together by using wildcards e.g. '*Oxshott Heath*' will find all sites containing 'Oxshott Heath' in their name.

In summary, in cases where you are unsure about how to record something, then it is best not to record that feature (or in MapMate to choose 'Not recorded'). On the other hand we should try to record as much as feasible so that we can build up a better understanding of the ecology and behaviour of each species. If recorders still have questions over interpretation of the phase two features, please don't hesitate to request clarification. We do need to use a similar interpretation if we are to make use of what should become extremely valuable ecological information about the habits and behaviour of our species.

I am very grateful to Tony Russell-Smith for reading the text and making helpful suggestions.

Reference

Dawson, I. (2003) MapMate and the Spider Recording Scheme. *S.R.S. News No. 46.* In *Newsl. Br. Arachnol. Soc.* **97**: 12–13.

32, Lodge Lane, GRAYS, Essex, RM16 2YP; email: grays@peterharvey.freeserve.co.uk

Clubiona caerulescens in Bedfordshire

by T. J. Thomas

In the north-western part of Bedfordshire are a number of woodlands on heavy clay. For the past ten years or so I have been regularly visiting one of these as part of a study by the Ouse & Nene Branch of The British Naturalist's Association. Known locally as Knotting Wood, there are two parts, West Wood and Sheeprack Wood, separated by a long narrow section called Dean Lane Meadow. An historical survey has shown that West Wood (as it is marked on the maps) is over 900 years old e.g. there is on record an argument over grazing rights in the meadow and the adjacent compartments in 1247. Also, particular plants in the ground flora tend to confirm that the woodland is old though clearance, then replanting in the 1920s, has resulted in oak and ash trees of a measured 80–90 years of age, giving the superficial appearance of a young wood.

In order to make my spider collecting more interesting I usually concentrate on particular habitats or even single plants. Whilst working the wood during May 1st 2005, I chose to compare Midland Hawthorn, in full flower, and Common Hawthorn with the buds beginning to break open. Both plants are plentiful throughout the woods. A mature male of the uncommon spider, *Clubiona caerulescens***,** was beaten from a Midland Hawthorn that was on the edge of a compartment of West Wood. The spider was distinctive for its large and dark palps though it was not recognised until examined later. This capture is a new record for the wood and the county.

142, Selbourne Road, LUTON, Beds., LU4 8LS.

The Distribution of *Theridion hemerobium* Simon, 1914 Throughout the Navigable Canal System of Great Britain

by Nick Law

Introduction

A chance encounter with *Theridion hemerobium* Simon, 1914 during field work in Shropshire; a need to find a topic for an M.Sc. dissertation; and finally, the suggestion that *T. hemerobium* "..is quite likely to be found to be commonplace along most of our canal and river systems throughout southern Britain", (Daws, 2003), collectively provided the catalyst for a detailed survey, of the navigable canal system of Great Britain, for this species. This was undertaken by the author during July–August 2004.

Methodology

A map of the Inland Waterways of Great Britain was marked off with 10 km² grid squares. These were then analysed, and a note made of those which contained a length of navigable canal. Omitted from this analysis were:

- Short lengths of navigable canal which were not connected to the main canal system
- Navigations; including tidal river navigations and non-tidal river navigations
- Navigable drains
- Navigable canals within London
- 10 km² squares for which (at that time) there were published records for *T. hemerobium* from canals (Daws, 2003).

This analysis resulted in 191, 10 km² squares (within 8, 100 km^2 squares) for potential survey. It was then decided that approximately 20% of these would be surveyed using a stratified random sample. Selection of the final 40 survey squares was achieved using random numbers: generated within an Excel spreadsheet.

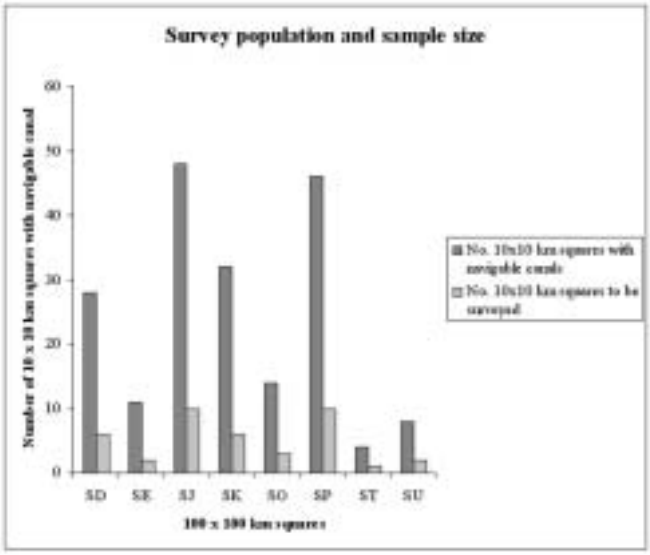

Figure 1. Survey population and sample size.

In order to expediently cover the considerable distance of canal to be surveyed, a bicycle was transported to each site: the towpath system providing suitable cycle access.

Initially, a process of hand searching solid structures, and beating vegetation adjacent to the canal, was employed. However, it soon became apparent that hand searching would be the most suitable method. Therefore, with the exception of a couple of squares, the survey technique involved cycling the towpath until the preferred habitat was located and duly searched. If no *T. hemerobium* were found, the next area of preferred habitat was located and searched. And so on, until all of the canal (along the accessible towpath) had been covered. If the preferred habitat was not present, other structures known to be used by *T. hemerobium*, e.g. wooden fences and stiles (Daws, 2003), were searched: normally on the return journey.

Results

Of the 40 10 km² squares surveyed, *T. hemerobium* was recorded in 37 (92.5%). Although not as yet subjected to any statistical analysis, these results would seem to confirm that *T. hemerobium* is distributed widely, throughout the British canal system; from the wide

Gloucester & Sharpness Canal, in the south west; as far north as the Lancaster Canal.

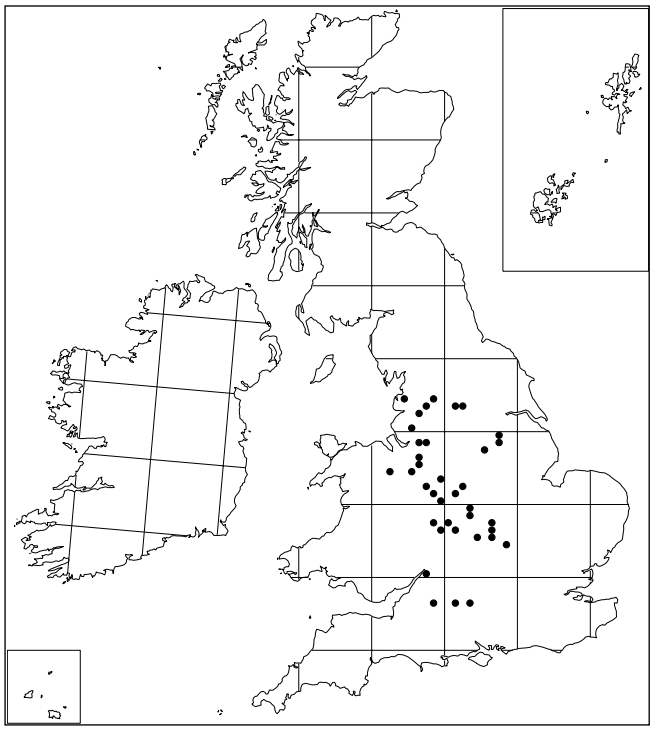

Figure 2. Distribution map of 10 km² survey squares where *T. hemerobium* was recorded.

Discussion

90% of the records, at individual locations, were from galvanised steel pilings. This reflects an apparent preference by *T. hemerobium* for this sub-habitat; and consequently, a bias towards searching these areas during the survey. Specifically, it is the horizontal bar running parallel to the canal surface of the pilings (Fig. 3) which is used. I have called this a tie-bar; apparently, in canal terminology, this refers to something else and this rail is therefore known as the 'bumper' (pers. comm. O'Dea).

In many instances where there were long stretches of this piling, large populations were present; and *T. hemerobium* was recorded very quickly. This was not always the case though: on the Shropshire Union Canal (Llangollen Branch), close to Llangollen, many hours were spent searching the favoured habitat until a single female was found close to the lift bridge at SJ22794233.

Webs are constructed across the face of the piling and the spiders are generally located beneath the overhang of the upper rib of the bumper. Often they will be concealed within a small retreat, constructed from debris, or in a silk cocoon. Unlike *T. varians*, which was occasionally encountered occupying this niche habitat with *T. hemerobium*, specimens would not normally tend to drop immediately when disturbed. It was also noticed that once placed in a specimen tube, *T. varians* would be very active; whilst *T. hemerobium* would, in contrast, be relatively sedate in its movements.

The Kennet & Avon Canal has only been restored relatively recently, and here, there was very little in the way of piling present: most of the banks had soft margins with emergent vegetation. However, even in the absence of the preferred habitat, *T. hemerobium* was still present; mainly on wooden structures close to the canal.

T. hemerobium was not found in; SD81 (Rochdale Canal), SK38 (Sheffield & Tinsley Canal) or SP09 (Tame Valley Canal and Rushall Canal); all urban areas.

Very few adult males were recorded. Often juvenile males (most likely *T. hemerobium*) would be close to webs with spiderlings, but not normally if a female was nearby.

A great variation in abdominal markings and coloration was observed within collected specimens. This was particularly notable on the Worcester & Birmingham Canal at Alvechurch Marina (SP022117221). Here, specimens resembled; *T. pictum*, *T. varians* and *T. tinctum*. Despite becoming very familiar with the species in the field, the author never acquired sufficient confidence to identify juveniles, because of these variations.

Another type of canal piling encountered was one consisting of vertical concrete slabs, with a tie-bar (bumper) resembling a length of railway track. This bar was invariably rusty; and therefore, both rougher in texture and darker in colour, than the more commonly encountered galvanised piling. Specimens taken from these tended to be noticeably darker in colour. It is therefore possible, that the species is capable of some degree of adaptation in response to its environment: a degree of melanism possibly affording some camouflage in these situations.

Whilst this survey has considerably furthered our knowledge of the distribution of this species, it has inevitably raised many questions and other avenues of potential investigation. It seems somewhat surprising that a species which is widespread across the country, in an easily accessible habitat, has been so overlooked: many of the survey records are expected to be first vice county records. One possibility is that this is a recent colonist, which has spread rapidly. If this is the case, have boats assisted with this rapid dispersal?

It is expected that others will now be able to readily make records for *T. hemerobium* in the 80% of the 10 km^2 not surveyed. However, this will not add significantly to our wider knowledge of the distribution of *T. hemerobium* in Britain. On the other hand much of the navigation system excluded from the survey is connected to the canal system; perhaps this is where recording effort should now be directed?

Figure 3. Bumper on galvanised steel piling.

Site	Grid ref	10 Km	VC	No.	Date	Comment
Lancaster Canal	SD4746	SD44	60	2 f	29-Aug-04	Galvanised steel piling tie-bar, SD47574654.
Leeds & Liverpool Canal	SD5908	SD50	59	2 f	30-Aug-04	Galvanised steel piling tie-bar. SD59120841
Leeds & Liverpool Canal	SD6424	SD62	59	2 f	29-Aug-04	Galvanised steel piling tie-bar, SD64292485.
Leeds & Liverpool Canal	SD7631	SD73	59	2 f	28-Aug-04	Rusty railway track tie-bar over concrete pilings, SD76543136.
Leeds & Liverpool Canal	SD8846	SD84	59	2 f	28-Aug-04	Galvanised steel piling tie-bar, SD88644628.
Leeds & Liverpool Canal	SE1739	SE13	63	2 f	28-Aug-04	Galvanised steel piling tie-bar, SE17093922.
Leeds & Liverpool Canal SSSI	SE2335	SE23	63	2 f	28-Aug-04	Galvanised steel piling tie-bar, SE23653594.
Shropshire Union Canal - Llangollen	SJ2242	SJ24	50	1 f	30-Aug-04	Galvanised steel piling tie-bar. SJ22794233, by swing bridge.
Shropshire Union Canal - Llangollen	SJ5646	SJ54	58	2 f	03-Aug-04	Galvanised steel piling tie-bar, SJ56864686.
Shropshire Union Canal - Middlewich	SJ6257	SJ65	58	5 f	03-Aug-04	Galvanised steel piling tie-bar, SJ62975741.
Shropshire Union Canal	SJ6761	SJ66	58	2 f	03-Aug-04	Galvanised steel piling tie-bar, SJ67056104.
Bridgwater Canal	SJ6987	SJ68	58	1 f	27-Aug-04	Underneath wooden bench on towpath, SJ69578749.
Shropshire Union Canal	SJ7029	SJ72	40	1 f	01-Aug-04	Wooden fence around sluice gear, SJ70592936.
Bridgwater Canal	SJ7286	SJ78	58	1 f	27-Aug-04	Underneath rail on wooden fence, SJ72708694.
Shropshire Union Canal	SJ8317	SJ81	39	2 f	24-Jul-04	Underneath wooden seat by bridge 26, SJ832172.
Staffordshire & Worcestershire Canal	SJ9308	SJ90	39	2 f	01-Aug-04	Galvanised steel piling tie-bar, SJ93110814.
Wyrley & Essington Canal	SJ9800	SJ90	39	2 f	01-Aug-04	Rusty railway track tie-bar over concrete pilings, SJ98570056.
Trent & Mersey Canal	SJ9330	SJ93	39	1 f	23-Jul-04	Galvanised steel piling tie-bar, SJ932302.
Trent & Mersey Canal	SK1115	SK11	39	2 f	07-Aug-04	Galvanised steel piling tie-bar, SK11211519.
Trent & Mersey Canal	SK2222	SK22	39	2 f	10-Aug-04	Galvanised steel piling tie-bar, SK22182213.
Chesterfield Canal SSSI	SK5879	SK57	56	3 f	15-Aug-04	Galvanised steel piling tie-bar, SK58077923.
Chesterfield Canal SSSI	SK7283	SK78	56	1 f	31-Jul-04	Galvanised steel piling tie-bar, SK72568369.
Chesterfield Canal SSSI	SK7090	SK79	56	1 f	31-Jul-04	Galvanised steel piling tie-bar, SK70799036.
Gloucester & Sharpness Canal	SO7406	SO70	34	4 f	25-Aug-04	Rusty railway track tie-bar over concrete pilings, SO74210679.
Staffordshire & Worcestershire Canal	SO8277	SO87	37	1 f	04-Aug-04	Galvanised steel piling tie-bar, SO82837718.
Worcester & Birmingham Canal	SO9465	SO96	37	1 f	20-Aug-04	Galvanised steel piling tie-bar, SO94126585.
Worcester & Birmingham Canal	SP0272	SP07	37	5 f	04-Aug-04	Galvanised steel piling tie-bar, SP02217221.
Stratford-upon-Avon Canal	SP1967	SP16	38	1 f	20-Aug-04	Galvanised steel piling tie-bar, SP19006704.
Oxford Canal	SP3883	SP38	38	1 f	06-Aug-04	Galvanised steel piling tie-bar, SP38668313.
Ashby Canal	SP3997	SP39	38	1 f	06-Aug-04	Galvanised steel piling tie-bar, by bridge 25, SP39219720.
Ashby Canal	SP3997	SP39	38	1 m	06-Aug-04	Galvanised steel piling tie-bar, by bridge 25, SP39219720.
Coventry Canal	SP3196	SP39	38	1 f	28-Jul-04	Galvanised steel piling tie-bar, SP31479629.
Oxford Canal	SP4650	SP45	23	2 f	22-Aug-04	Galvanised steel piling tie-bar, SP46455018.
Oxford Canal	SP4453	SP45	38	2 f	22-Aug-04	Galvanised steel piling tie-bar, SP44085375.
Grand Union Canal	SP6657	SP65	32	1 f	21-Aug-04	Rusty railway track tie-bar over concrete pilings, SP66785762.
Grand Union Canal	SP6765	SP66	32	1 f	21-Aug-04	Galvanised steel piling tie-bar, SP67605650.
Grand Union Canal	SP6075	SP67	32	1 f	06-Aug-04	Wooden fence & gate approx. 7m from the canal, SP60527503.
Grand Union Canal	SP6075	SP67	32	4 f	06-Aug-04	Galvanised steel piling tie-bar, SP60557502.
Grand Union Canal	SP6075	SP67	32	1 m	06-Aug-04	Galvanised steel piling tie-bar, SP60557502.
Grand Union Canal	SP8240	SP84	24	1 f	21-Aug-04	Galvanised steel piling tie-bar, SP82594091.
Grand Union Canal	SP8241	SP84	24	1 f	21-Aug-04	Galvanised steel piling tie-bar, SP82114133.
Kennet & Avon Canal	ST8059	ST85	7	1 f	25-Aug-04	Under wooden handrails on steps rising from underpass, ST80435995. Outside survey area, not mapped in Fig. 1.
Kennet & Avon Canal	ST8060	ST86	7	2 f	25-Aug-04	Under wooden seat on aqueduct, ST80406005
Kennet & Avon Canal	SU1561	SU16	7	1 f	26-Aug-04	Under rail of wooden fence. SU15346120.
Kennet & Avon Canal	SU1561	SU16	7	1 f	26-Aug-04	Underneath wooden seat on towpath, SU15806109.
Kennet & Avon Canal	SU3368	SU36	22	1 f	26-Aug-04	Underneath wooden seat by lock, SU33626876
Kennet & Avon Canal	SU3568	SU36	22	1 f	26-Aug-04	Underneath wooden stile in fence by lock, SU35146819.

Table 1. Records of *Theridion hemerobium* from the 2004 survey of British canals.

References

Daws, J. (2003). *Theridion hemerobium* Simon, 1914: Are you looking in the right places? *S.R.S. News. No.* 47. ***In*** *Newsl. Br. arachnol. Soc.* **98**: 10.

2, Woodside Cottages, Linton, SWADLINCOTE, DE12 6PB.

Steatoda nobilis in Warwickshire

by Rob Bate

Although first recorded in Britain about a hundred years ago, *S. nobilis* is assumed to be an immigrant species introduced from Madeira and the Canary islands with bananas. The British Arachnological society website notes that it had been unclear whether or not recordings were chance introductions but it is now considered to be a thriving species along the South Coast.

Hampton on the Hill is a small village in S Warwickshire, close to the county town of Warwick and close to the M40 motorway and A46 main road. I have noticed the local flora and fauna to be that described in the textbooks as typical of the southern half of the country, compared with Birmingham twenty or so miles north; hornets are seen in the summer and there have been reports of rare bees, moths etc. in the locale.

During the late Autumn it was noted that there were a number of spiders active after dark, easily seen by torchlight around the outside porch and shed. There were many walnut orb weavers *Nuctenea*, very many *Zygiella* and some *Steatoda bipunctata* and various others, all actively spinning webs or hunting. All garden spiders *Araneus diadematus* had disappeared by late November. A large well marked spider was noted upside down in a tangle web in the corner of the porch, and this was provisionally identified as a *Steatoda* of some description. The spider was photographed with a Canon EOS 10D digital SLR with a 100mm Macro lens and ringflash and the pictures e-mailed to Peter Harvey for help in identification. The spider was captured using a simple net and kept in a glass 5 litre aquarium (£10 from local B&Q) where she rapidly produced a large tangle web and fed well on fisherman's maggots (available at a time when other prey is unreliable) and has reached a good adult size.

Detailed searching revealed several other smaller specimens which appeared identical to the big spider. Although the abdominal pattern of a well marked specimen is fairly typical, precise identification is dependent on detailed microscopic examination of the spider's palps and epigyne by experienced observers. Accordingly a specimen was sent off and positively confirmed as *S. nobilis*. This is, I believe, the first Warwickshire record for this species.

As a simple experiment, a small specimen of *S. bipunctata* and one of the supposed *S. nobilis* were placed in separate plastic boxes and fed over a period of a few weeks. At the conclusion the *S. bipunctata* was a chubby little 5 to 6 mm, the *S. nobilis* was over a centimetre (cephalothorax and abdomen) with a well defined abdominal pattern, a gold mark reminiscent of the old leather stamp, the hidemark, with a pronounced gold anterior abdominal ring. To date there are six decent-sized specimens and a number of smaller ones, still too young to accurately assess. Having observed the others closely, my feeling is that they are immature *S. nobilis* spiders.

How did they get here? We are regular visitors to Devon and travel down to Hampshire to photograph

Steatoda nobilis female. Photo by Rob Bate.

orchids. A spiderling could easily have travelled back with us. However we have a breeding population here and this would imply either the introduction of a sexually mature fertilised female (= a big spider) or else the introduction of spiderlings in such proximity as to meet and mate. Could the spider have simply increased its range further than expected? A brief search has not revealed any other specimens on a neighbouring farm or in the local area. This will, I suspect, be a Spring project.

S. nobilis is a member of the comb-footed spiders, Theridiidae, with the N. European species showing considerable variation in size, shape and colouring. In the genus *Steatoda* the European species are all fairly heavily built, all have a light band around the anterior abdomen and variable abdominal patterns ranging from a few light dots to a well defined and species-identifying marking. *S. nobilis* is typical of the larger *Steatoda*, with a mature female roughly the same size as a common Garden Spider *Araneus diadematus*, usually seen in a tangle web comprising multiple vertical strands built in a corner, window frame or similar. The spider hangs upside down in the web (as opposed to *Tegenaria* which run over the upper surface) and hides in crevices when disturbed. It is very similar to the closely related *S. grossa* and the European *S. paykulliana* and, more alarmingly, the Black Widow spiders (*Lactrodectus* spp.). Indeed the larger *Steatoda* species are often called "False Widow Spiders", the general outline and appearance being very similar to their more dangerous cousins, this being especially so in the case of *S. paykulliana* (S. Europe) which sometimes has a red abdominal pattern that often causes alarm!

There have been reports in recent years of the spider biting people (Jackson, 2003; Warrell *et al*., 1991), it being apparent that there is a systemic effect of envenomation as well as the expected emotional component consequent upon the painful bite of a large and brightly coloured spider, the cases described in the medical literature suggest a direct neurotoxic effect with hypersecretion of synaptic neurotransmitter (acetylcholine) and associated parasympathetic stimulation (internet source: http://www.kingsnake.com/toxinology/old/arachnid/arachnid.html) in which respect the venom would appear to mimic that of the Black Widow (lactrotoxin). Lactrotoxin antivenin has been successfully used to treat envenomation from the larger *Steatoda* (Graudins *et al*., 2002). The toxin does appear to initiate excess production of neurotransmitter rather than block its breakdown via inhibition of acetylcholinesterase (cf. organophosphate nerve gas) and on casual observation produces very rapid immobility of insect prey.

References

Jackson, L. (2003) Biting spider strikes Winton mother. http://snap.bournemouth.ac.uk/doc.asp?docId=7178

Warrell, D. A., Shaheen, J., Hillyard, P. D. & Jones, D. (1991) Neurotoxic envenoming by an immigrant spider (*Steatoda nobilis*) in southern England. *Toxicon* **29** (10): 1263–1265.

Graudins, A. N. Gunja, Broady, K. W. & Nicholson, G. M. (2002) Clinical and in vitro evidence for the efficacy of Australian red-back spider (*Latrodectus hasselti*) antivenom in the treatment of envenomation by a cupboard spider (*Steatoda grossa*). *Toxicon* **40** (6): 767–775.

Damson Cottage, 17, Henley Road, HAMPTON ON THE HILL, Warwick, CV35 8QT; e-mail: rob_bate@hotmail.com

Steatoda nobilis female. Photo by Rob Bate.

Sitticus distinguendus (Simon, 1868), New to Britain

by Peter Harvey* and Tony Russell-Smith°

In September 2003 two males and one sub-female of a small jumping spider were collected in pitfall traps set at a location in Thurrock, S. Essex where a complex of various habitat types are developed on old pulverised fly ash (PFA) substrate. Although not altogether happy at the time, the first author had identified these as the Nationally Scarce (Notable/Nb) dune species *Sitticus saltator* known from two Essex sites, and considered Vulnerable in the county. The collection of live specimens (males and females) in the same area in April 2005 made it clear the spider was not this species and that it was not any other species previously recognised in the British fauna. Specimens were sent to Dmitri Logunov, an expert on the Salticidae, and he identified them as *Sitticus distinguendus*. The spider is evidently well established within a small area with a number of males and females being found in quite a short time of searching. It is interesting that the size of the males seems quite variable, some being substantially larger than the two specimens collected in 2003.

In June 2004, the second author collected in sparse grassland at Swanscombe Marshes in N. Kent in the company of David Nellist and Doug Marriott. A single female of a *Sitticus* species was collected which at the time was provisionally identified as *S. pubescens*. As with the Thurrock specimens, this identification was regarded as slightly suspect on habitat grounds alone. When this specimen was subsequently compared with those collected at Thurrock, it was immediately clear that it was also a female of *Sitticus distinguendus*.

S. distinguendus has a Palaearctic nemoral range from France to Maritime Province and Japan, north to Tansk and South Yakutia and south to Shanxi (Logunov & Marusik, 2000). This publication provides the following habitat details for the species: zonal forb-grass steppes, salt marshes, sloping shrub-stony steppes, screes and cobble-gramineous stands, bird cherry stand, stony river banks and taiga edges, larch forests and mountain steppe-

West Thurrock PFA. *Sitticus distinguendus* habitat. Photo by Peter Harvey.

semidesert, cliffs and screes. In addition Bonte *et al*. (2003) record the species as fairly common on grey dunes at Boulonnais in northern France, Żabka (1997) describes the habitat as sandy places covered with sparse vegetation and Krasnobayev (2004) describes habitats in some regions of European Russia as upland meadows and pine forests, sandy and cretaceous sloping steppes and on riverbanks.

In Thurrock the very localised habitat is dry sparsely vegetated ground close to seasonally wet areas on a substrate of fine almost sand-like PFA and stony clinker that has a distinctly saline character. In the area immediately adjacent to where the spider has been found salt can often be seen encrusted on the surface and plants such as glasswort *Salicornia* grow. Much of the rest of the site comprises dry flower-rich grasslands with plant species associated with calcareous substrates as well as sparsely vegetated 'sandy' areas that provide a mosaic with features of heathland. At Swanscombe Marshes, the very sparse, open grassland in which the specimen was collected has developed on a substrate of cement factory flue-ash. In terms of soil texture and possibly micro-climate this is likely to be rather similar to the PFA habitat at Thurrock. The character of the habitat where the spider has been found in Britain appears to have distinct ecological similarities to most of its recorded habitats in Europe, for example grey dune vegetation has high affinities with heathland and chalk grassland vegetation and at Boulonnais the grey dunes make contact with chalk grassland (Bonte *et al*. 2003).

Whilst Dmitri Logunov comments that there are no zoogeographical constraints on this species occurring in Britain and even expresses surprise that the species has not been found in Britain before, it seems that suitable habitat may be hard to come by in this country. Certainly the male spider is quite distinctive in life, and it seems unlikely that it has been overlooked to the extent that it will turn out to be widespread on dune systems in England. It would seem that despite the somewhat unusual (and unique) habitat of the two known populations there is no reason to suppose that the occurrence of *S. distinguendus* in Britain is the result of anything other than natural colonisation of suitable habitat. It seems most likely that these newly identified British populations have originated from the north European coast.

Reference to checklists available for western and central European countries indicates that *S. distinguendus* is evidently widespread, listed for France, Netherlands, Belgium, Sweden, Norway, Germany, Switzerland, Austria, Czech Republic, Hungary, Romania and Poland. However although Bonte *et al*. (2003) record the species as fairly common at the sites sampled at Boulonnais in northern France, they did not record it from sites sampled in Belgium and the Netherlands and also note that grey dunes are now heavily fragmented and patchily distributed within a matrix of dense dune vegetation. *S. distinguendus* is listed as Endangered in the Czech Republic (Buchar & Růžička, 2002) and in Flanders (Instituut voor Natuurbehoud, 2005). It has a Proposed Red List status of Endangered and Declining in Norway, as Vulnerable in Poland (Żabka, 1997), and there is only one 10km dot for the species in the Spiders of Serbia. It is also regarded as one of the most interesting species from Antwerp (Vanuytven, 1997).

Unfortunately both places in Britain where the spider has been found are brownfield sites in the Thames Gateway, and as such are highly threatened by development in the near future. Similar habitat is unlikely to be widespread in the region, and will also be under the same development threat. However, it will certainly be worth investigating any post-industrial sites such as de-commissioned power stations or cement works where such poorly vegetated, fine-grained, alkaline substrates might occur in the hope that this species may be found in new sites.

We are very grateful to Dmitri Logunov for making the original identification and for providing information on the distribution and habitat of *S. distinguendus*.

References

Aakra & Hauge (2005) *Provisional list of rare and potentially threatened spiders in Norway*
http://www.nina.no/archive/nina/Publikasjoner/fagrapport/fr42/NINA%20forskninsrapport%2042%20.pdf

Bontel, D., Criel1, P., Van Thournout, I. & Maelfait, J.-P. (2003) Regional and local variation of spider assemblages (Araneae) from coastal grey dunes along the North Sea. *J. Biogeography*, **30**: 901–911.

Buchar, J. & Růžička, V. (2002) *Catalogue of spiders of the Czech Republic*. Peres, Prague.

Deltshev, C. C., Ćurčić, B. P. M. & Blagoev, G. A. (2003) *The spiders of Serbia*. Belgrade - Sofia.

Instituut voor Natuurbehoud (2005) *Species - Red List Categories Flanders*.
www.instnat.be/content/page.asp?pid=EN_CEL1_Spiders_Redlist

Krasnobayev, Yu. P. (2004) *Catalogue of spiders (Aranei) of the middle reaches of River Volga, Samara*. 213 pp. [in Russian].

Logunov, D. V. & Marusik, Yu. M. (2000) *Catalogue of the jumping spiders of northern Asia (Arachnida, Araneae, Salticidae)*. KMK Scientific Press, 299 pp.

Marusik, Yu. M., Logunov, D. V. & Koponen, S. (2000) *Spiders of Tuva, South Siberia*. Russian Academy of Sciences, Magadan.

Vanuytven, H. (1997) Spinnen van het havengebied op de Antwerpse rechter Scheldeover. *Newsbr. Belg. Arachnol. Ver*., **12** (1): 1–24.

Żabka, M. (1997) Salticidae. Pająki skaczące (Arachnida: Araneae). *Fauna Poloniae*, **19**. Polska Akademia Nauk, Warszawa. 189 pp. [in Polish].

*32, Lodge Lane, GRAYS, Essex, RM16 2YP.

°1, Bailliffs Cottage, Doddington, SITTINGBOURNE, Kent, ME9 0JU.

Sitticus distinguendus male. Photo by P. Harvey.

Selecting Potential Priority Spider Species for Biodiversity Action Plans

by Tony Russell-Smith* & Peter Harvey°

In Summer 2004, the Society was approached by Buglife who requested that we take part in the UK Biodiversity Action Plan review for spiders. The first stage of this process involved selecting a shortlist of species from the British fauna that appeared to satisfy a set of four criteria relating to their conservation status. Following this, a second stage will address the issue of what (if anything) could be done to conserve each species on the short list while in stage three consideration will be given to the best ways in which conservation can be implemented. After consultation in Council, it was agreed that a small *ad hoc* group of members would be set up to take this forward and that the wider membership would be consulted through the Newsletter. This article reports on the results of stage one of this ongoing process.

Criteria for inclusion of species and method of assessment against criteria

Criterion 1. International threat.
There are no species within the British fauna for which any prior assessment of global threat is available. Furthermore, because knowledge of the distribution and, to some extent, abundance of the British spider fauna is well in advance of that for other European countries, there are no hard data on which the direct threat to spiders throughout Europe can be assessed. The data sources used to make an assessment of the status of spiders elsewhere in Europe were:

- Mapping of distribution of spiders in Germany http:// www.spiderling.de.vu/
- Checklists of species from 20 European countries
- References to Europe in species accounts in the Provisional Atlas of British Spiders.

While the German distribution maps are interesting and valuable, they are based on non-systematic survey work and apply to a very different bio-geographic region of Europe from Britain. It was decided therefore to use the proportion of countries in Europe from which a species had been recorded as a proxy for the threat criterion. This approach has very obvious drawbacks, not least that the occurrence of a species in a checklist tell us nothing about its status in that country, but at least it provides a consistent assessment against this criterion. For the purpose of this exercise, species which were found in 8 or fewer countries out of 20 were considered as potentially threatened. A few additional species were included here where members of the group felt there was other evidence for decline within Europe as a whole, or loss and threat to habitat seemed likely to have resulted and continues to result in a significant decline. A total of 22 species fell into this category.

Criterion 2. International responsibility & UK decline.
Species included were those which have shown >25% UK decline over the relevant period and which are known from 15 or fewer European countries (out of 20). The method of estimating decline is explained under Criterion 3. In total, 20 species fell into this category.

Criterion 3. Marked decline in UK.
The basis for estimating decline in the UK was the dataset used in the construction of the Provisional Atlas of British Spiders (Harvey, Nellist & Telfer, 2002) and is thus derived from species presence in 10 km grid squares. Data for all UK species were analysed and each species that showed a decline was further assessed to remove any artefacts – in particular those due to patchy recording effort. Decline was measured between two time periods, 1951–1986 and 1987–2000. These two survey periods were chosen on the basis that 1951–1986 represents the first major modern survey of spiders resulting from the publication in 1951 of British Spiders by Locket & Millidge and 1987–2000 is the second major survey of spiders resulting from the instigation of the Spider Recording Scheme and the publication in 1985 and 1987 of The Spiders of Great Britain and Ireland by Michael Roberts. The second survey period was much more intensive than the first, despite its shorter time period. To take account of this, species were compared for 10 km squares with a minimum of 100 records in both survey periods. There was a clear proportional relationship (see Fig. 1) between these results, enabling predictions to be made of the expected numbers of 10 km squares for each species resulting from the increased effort of the second survey period. 39 species out of a total of 49 were included under this criterion.

Criterion 4. Other factors.
It was thought important to not simply consider individual species in isolation, but to take account of their relevance to appropriate Habitat Action Plans (HAPs) as many of these species are likely to be sensitive indicators of habitat change. We believe that the species groups included should be listed under the appropriate HAPs and indicate here what we believe these to be. In addition, several coastal habitats are either already threatened or likely to be threatened in future by sea-level rise associated with global warming and we have indicated this potential threat here. Although montane habitats are only included currently as a broad habitat action plan, they are likely to be under threat from global warming and one species from this habitat type is highlighted here.

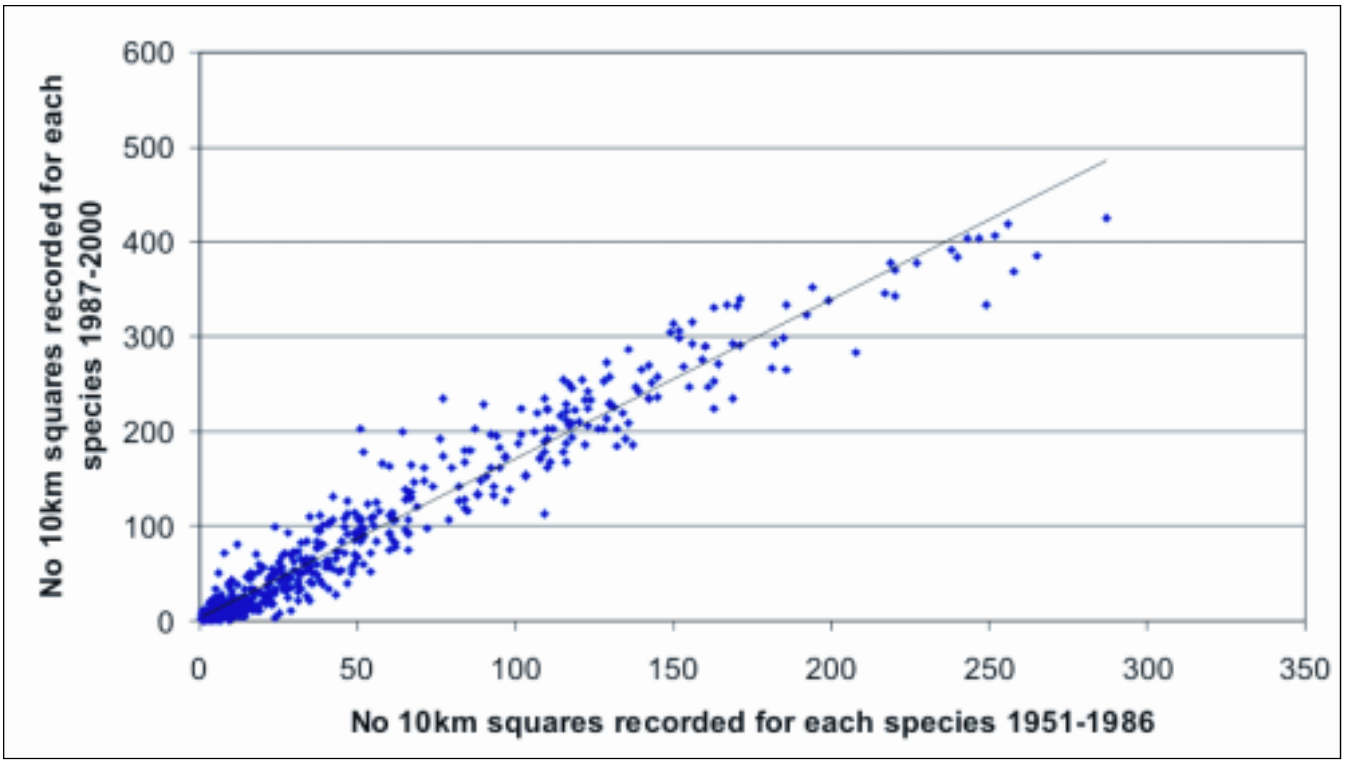

Figure 1. Graph of relationship between numbers of 10 km squares recorded for each species, for those squares (457 in total) with at least 100 records in both survey periods.

Summary of assessment of species against BAP criteria.
Table 1 summarises the species believed to satisfy each of the four criteria for inclusion in the BAP list. A number of interesting points emerge from this selection. Firstly, not all of the species are necessarily rare at present. Some, such as *Atypus affinis*, *Dictyna pusilla* and *Meioneta mollis* are still fairly widespread in Britain but nevertheless have shown a decline of more than 50% between the two survey periods. Since this was not attributable to any obvious changes in recording effort, they have been included in the list as species that certainly need close monitoring in the future. Another group of species have shown smaller proportional declines (25–50%) but, from the limited information we have on their distribution in Europe, it appears that the UK might hold a significant proportion of the total population. They include, for example, *Zelotes electus*, *Sitticus saltator* and *Baryphyma maritimum*. It is possible that some of these species may eventually be removed from the list when better information on their European populations becomes available. Finally, a large majority of the species (84%) could be assigned to habitats for which an Action Plan already exists. It seems likely therefore that a major delivery mechanism for conserving these species will be through habitat conservation.

Species excluded from the BAP list.
Although not strictly relevant to the topic, it is perhaps of interest to highlight certain groups of species which, while apparently fulfilling one or more of the criteria for inclusion, were excluded from the list because the evidence was inadequate (see Table 2). The first group included those species for which it was likely that the apparent decline was due to differences in recording effort in the two survey periods. A particularly obvious case was that of species recorded from Dorset heathlands and the New Forest during systematic surveys conducted by Peter Merrett and Rowley Snazell during the 1970s. Many of these species, such as *Scotina palliardii, Haplodrassus dalmatensis* and *Talavera petrensis*, are most reliably sampled in pitfall traps. Their apparent decline is quite likely due to the fact that there have been no systematic surveys using pitfall traps in these areas since the 1980s. Another, smaller group of species that have apparently declined are those that inhabit specific micro-habitats that are rarely sampled by conventional collecting techniques. They include species that live exclusively in ants' nests such as *Mastigusa macrophthalma, Acartauchenius scurrilis* and *Thyreosthenius biovatus*. There has been little systematic survey of spiders in ants' nests since the days of Donisthorpe in the 1930s. Equally poorly known are species that live in fissures in the soil or underlying bedrock. They include, for example, *Wiehlea calcarifera*, *Pseudomaro aenigmaticus* and possibly *Mioxena blanda*. This exercise has highlighted the need for focused surveys of both particular areas (e.g. the Dorset heathlands) and particular specialised microhabitats in order to establish the real status of many apparently rare and declining species. In the case of specialised microhabitats, there may well be a need to develop dedicated sampling techniques for the species concerned. Such surveys might well form the basis of projects which could be undertaken by B.A.S. members, either individually or as small teams.

Reference

Harvey, P. R., Nellist, D. R. & Telfer, M. G. 2002. *Provisional atlas of British Spiders.* Vols. I & II. Huntingdon: Biological Records Centre.

*1, Bailliffs Cottage, Doddington, SITTINGBOURNE, Kent, ME9 0JU.

°32, Lodge Lane, GRAYS, Essex, RM16 2YP.

BRC No.	Species	Int. Threat	UK resp. & decline	>50% Decline in UK	Other factors
101	*Atypus affinis*	Yes ?	Yes?		Calcareous Grassland HAP
201	*Eresus sandaliatus*	Phase 2		Yes	Heathland HAP
404	*Dictyna pusilla*			Yes	Heathland HAP
701	*Argenna patula*			Yes	Saltmarsh HAP. Hab. threat
801	*Altella lucida*	Yes	Yes	Yes	Heathland HAP
1901	*Haplodrassus dalmatensis*			Yes	Sand dune HAP. Hab. threat
2202	*Zelotes electus*		Yes ?		Saltmarsh HAP. Hab. threat
2204	*Zelotes petrensis*		Yes ?		Heathland HAP
2902	*Clubiona caerulescens*			Yes	
2907	*Clubiona juvenis*		Yes ?		Fen HAP
2914	*Clubiona rosserae*	Yes		Yes	Fen HAP
2915	*Clubiona frisia*	Yes ?		Yes	Sand dune HAP. Hab. threat
3202	*Agroeca cuprea*			Yes	Sand dune HAP. Hab. threat
3601	*Zora armillata*	Yes		Yes	Heathland HAP
4404	*Ozyptila nigrita*			Yes	Calc. Grassland HAP
4507	*Philodromus fallax*			Yes	Sand dune HAP. Hab. threat
4509	*Philodromus margaritatus*			Yes	
5302	*Neon valentulus*			Yes	Fen HAP
5402	*Pseudeuophrys obsoleta*	Yes		Yes	Shingle HAP
5501	*Sitticus caricis*			Yes	Fenland HAP
5601	*Sitticus saltator*		Yes ?		Sand dune HAP. Hab. threat
6301	*Oxyopes heterophthalmus*		Yes ?		Heathland HAP
6703	*Alopecosa fabrilis*			Yes	Heathland HAP
6902	*Arctosa fulvolineata*			Yes	Saltmarsh HAP. Hab. threat
7402	*Dolomedes plantarius*	Phase 2		Yes	Fen HAP
8903	*Dipoena inornata*			Yes	Sand dune HAP. Hab. threat
8906	*Dipoena torva*	Yes	Yes ?		Native Pine Woodlands HAP
9605	*Robertus scoticus*			Yes	Native Pine Woodlands HAP
11303	*Araniella displicata*			Yes	Pine trees/heather
12307	*Walckenaeria corniculans*			Yes	Heathland HAP
12319	*Walckenaeria stylifrons*	Yes		Yes	
12506	*Entelecara omissa*	Yes		Yes	Fen HAP
13501	*Hybocoptus decollatus*	Yes		Yes	Beech & yew woodland HAP
13601	*Baryphyma duffeyi*	Yes		Yes	Saltmarsh HAP. Hab. threat
13603	*Baryphyma maritimum*	Yes	Yes		Sand dune HAP. Hab. threat
14503	*Silometopus incurvatus*			Yes	Sand dune HAP. Hab. threat
14601	*Mecopisthes peusi*	Yes		Yes	Heathland HAP
15502	*Tapinocyba mitis*	Yes		Yes	Heathland HAP
16001	*Monocephalus castaneipes*		Yes ?		
16501	*Notioscopus sarcinatus*			Yes	Wet woodland HAP
16601	*Glyphesis cottonae*	Yes		Yes	Lowland raised bog HAP
17710	*Erigone welchi*	Yes		Yes	Blanket Bog HAP
18101	*Semljicola caliginosus*	Yes		Yes	Blanket Bog HAP
19904	*Meioneta mollis*			Yes	Lowland acid grassland HAP
20312	*Centromerus serratus*			Yes	Beech & yew woodland HAP
20802	*Saaristoa firma*			Yes	
22112	*Midia midas*	Yes		Yes	Beech & yew woodland HAP ?
22117	*Lepthyphantes pinicola*	Yes		Yes	Montane. Hab. Threat
22741	*Nothophantes horridus*	Yes		Yes	Highly specialised habitat
22123	*Megalepthyphantes* n. sp.	Yes			Shingle HAP

Note: Three species on this list have existing BAPs, *Eresus sandaliatus, Clubiona rosserae* & *Dolomedes plantarius*

Table 1. List of spider species proposed for BAPs with criteria believed to be satisfied. See text for explanation of assessment of criteria.

BRC No.	Species
403	*Dictyna major*
603	*Lathys stigmatisata*
1905	*Haplodrassus soerenseni*
1906	*Haplodrassus umbratilis*
2101	*Phaeocedus braccatus*
2205	*Zelotes longipes*
2502	*Drassyllus praeficus*
2601	*Gnaphosa leporina*
2602	*Gnaphosa lugubris*
2801	*Micaria alpina*
2803	*Micaria romana*
2804	*Micaria silesiaca*
2805	*Micaria subopaca*
2906	*Clubiona genevensis*
3002	*Cheiracanthium pennyi*
3204	*Agroeca lusatica*
3207	*Agroeca dentigera*
3401	*Scotina celans*
3402	*Scotina gracilipes*
3403	*Scotina palliardii*
3603	*Zora silvestris*
4301	*Xysticus acerbus*
4308	*Xysticus luctator*
4309	*Xysticus luctuosus*
4310	*Xysticus robustus*
4407	*Ozyptila scabricula*
4410	*Ozyptila pullata*
4506	*Philodromus emarginatus*
5405	*Euophrys herbigrada*
5407	*Talavera petrensis*
5701	*Evarcha arcuata*
6409	*Pardosa paludicola*
6417	*Pardosa lugubris s.s.*
6901	*Arctosa cinerea*
8201	*Mastigusa arietina*
8202	*Mastigusa macrophthalma*
8203	*Tuberta maerens*
8501	*Hahnia candida*
8703	*Episinus truncatus*
8901	*Dipoena coracina*
8902	*Dipoena erythropus*
8905	*Dipoena prona*
9002	*Crustulina sticta*
9101	*Steatoda albomaculata*
9302	*Achaearanea riparia*
9503	*Enoplognatha oelandica*
9505	*Enoplognatha tecta*
10701	*Araneus alsine*
11301	*Araniella alpica*
11601	*Singa hamata*
12312	*Walckenaeria incisa*
12314	*Walckenaeria mitrata*
12316	*Walckenaeria nodosa*
13202	*Dismodicus elevatus*
14403	*Pelecopsis nemoralioides*
14801	*Acartauchenius scurrilis*
14903	*Trichoncus saxicola*
15101	*Evansia merens*
15901	*Thyreosthenius biovatus*
16403	*Micrargus laudatus*
16702	*Erigonella ignobilis*
17401	*Typhochrestus digitatus*
17402	*Typhochrestus simoni*
17602	*Wabasso replicatus*
17707	*Erigone psychrophila*
17901	*Mecynargus morulus*
18501	*Leptothrix hardyi*
18701	*Halorates distinctus*
18802	*Carorita paludosa*
18901	*Wiehlea calcarifera*
19001	*Mioxena blanda*
19301	*Jacksonella falconeri*
19401	*Pseudomaro aenigmaticus*
19711	*Porrhomma cambridgei*
19911	*Meioneta fuscipalpa*
20101	*Maro minutus*
20102	*Maro lepidus*
20103	*Maro sublestus*
20301	*Centromerus brevivulvatus*
20302	*Centromerus albidus*
20308	*Centromerus semiater*
20309	*Centromerus levitarsis*
20701	*Oreonetides vaginatus*
22120	*Lepthyphantes whymperi*
22402	*Neriene furtiva*
22703	*Zodarion rubidum*
22801	*Orchestina* sp.

Table 2. List of spider species excluded from the BAP list, but which are considered to need further research.