

Episinus maculipes Cavanna (Araneae, Theridiidae): rediscovery in Britain

P. D. Hillyard

Department of Zoology,
British Museum (Natural History),
Cromwell Road,
London SW7 5BD

Summary

The theridiid spider *Episinus maculipes* is reported from the south coast of the Isle of Wight, and a British male is described and illustrated for the first time. Photographs show the spider and its web *in situ* and aspects of behaviour are compared with the two better-known species of the genus in Britain.

Introduction

For over half a century *Episinus maculipes* Cavanna, 1876 (Theridiidae) has remained one of this country's rarest spiders with only one specimen ever having been taken. In fact the discovery of the species in Britain (Hull, 1934) at Tiptree Heath (Essex) in 1929, was accepted for the British list only some years later when the specimen (♀) became available for examination and its identification was confirmed by Locket & Millidge (1957). Earlier, Bristowe (1939) had remarked "Until a male is discovered to remove all doubts as to the presence of this southern European species in Britain, I do not include it in the list."

Despite further searches at Tiptree Heath which have continued to the present, *Episinus maculipes* has never reappeared. Now, however, the discovery of a considerable population on the south coast of the Isle of Wight establishes the species as an undoubted member of the British fauna. In the summer of 1981 and again in 1982, many specimens (both male and female) were taken from an approximately three mile stretch of the coastland between Niton and Ventnor. Known as The Undercliff, this locality has a southerly aspect and receives the highest sunshine totals in England; the vegetation is deciduous woodland and scrub but the habitat is interspersed by residential and holiday developments.

Episinus maculipes Cavanna (Figs. 1-7)

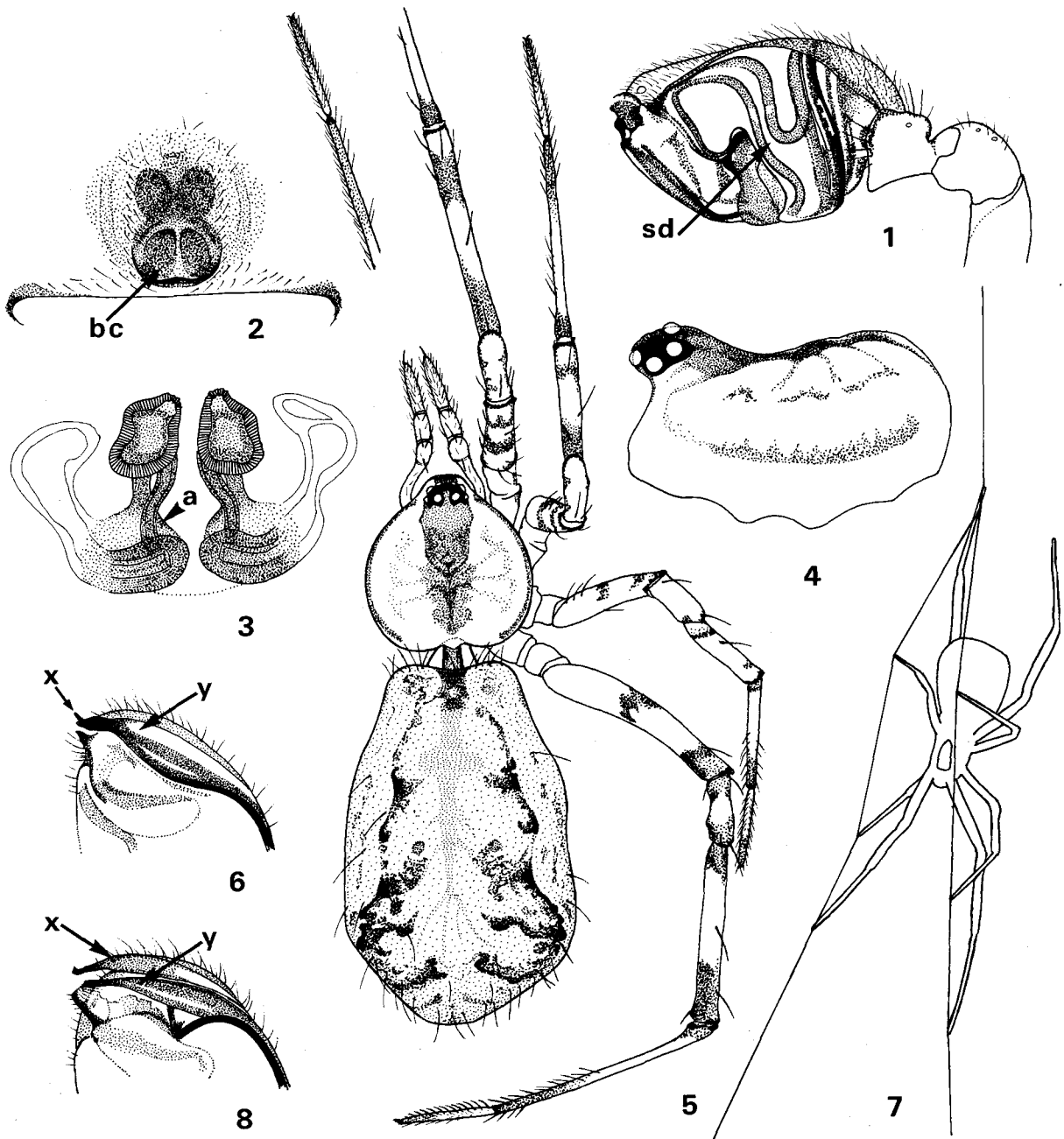
Episinus maculipes G. Cavanna, 1876, pp. 288, 291; W. Kulczyński, 1905, p. 435, pl. xi; J. E. Hull, 1934, p. 211; G. H. Locket & A. F. Millidge, 1957, p. 487; P. M. Brignoli, 1967, pp. 188, 189, fig. 8; G. H. Locket, A. F. Millidge & P. Merrett, 1974, pp. 48, 49, fig. 26.

Male

Total length: 3.9-4.3 mm. **Coloration:** Lighter than either *E. angulatus* (Bl.) or *E. truncatus* Latr. Carapace yellowish white with dark margin and well-defined central band of dusky brown which continues to the chelicerae. Sternum sooty with pale median stripe. Legs yellowish white with annulations of dusky brown (often indistinct). Abdomen creamy white with dark brown foliar pattern most marked towards posterior but variable in intensity. Dark markings on venter only around spinnerets and epigastric region. **Carapace:** Length 1.6 mm, width 1.5 mm, almost circular. **Chelicerae:** Weak, armed with only one small distal tooth. **Eyes:** Grouped together on prominent tubercle and outlined in black. Relative positions typical of genus, AM one diameter apart and slightly smaller than others, PM 0.75 d. apart and similar distance from PL. AL contiguous with PL and AM. **Clypeus:** Concave, overhung by ocular tubercle and c. 5-6 x d. of AM. **Sternum:** Longer than wide (1.3:1). **Abdomen:** Subtriangular, narrowing anteriorly, c. twice as long as wide. Furnished with longish hairs (sometimes lacking). **Legs:** Relative lengths 1/4/2/3, 1st leg 13.5-14.5 mm. Degree of hairiness variable, segments other than tarsi often without hairs. Dorsal tibial spines 2212, patellae 2222, spines on femora weak. **Palp:** Bulb as long as femur, all structures complex (Fig. 1). Two appressed sclerites combine to form a functional conductor (sclerites x and y, Fig. 6).

Female

Total length: 4.3-5.6 mm. **Coloration:** As ♂. **Carapace:** Length 1.7 mm, width 1.6 mm. **Chelicerae, eyes, clypeus & sternum:** As ♂. **Abdomen:** c. 1.5 x as long as wide, more strongly shaped 'shoulders' and posterior tubercles than ♂. **Legs:** Stronger and more heavily marked than ♂, 1st leg 13.0-14.0 mm. Spinal formula as ♂ but spines stronger and less often missing. **Epigyne:** Spermathecae and other structures visible below relatively transparent integument



Figs. 1-7: *Episinus maculipes* Cavanna. 1 Left palp, lateral view (sd = seminal duct); 2 Epigyne (bc = bursa copulatrix); 3 Vulva (a = apodeme); 4 Carapace, lateral view; 5 Female, dorsal view; 6 Functional conductor of palp comprising two appressed sclerites, x and y; 7 Female in position on web.

Fig. 8: *Episinus truncatus* Latreille. Conductor with sclerite y clearly separated from x distally.

(Fig. 2). *Vulva*: Apodemes not connected (Fig. 3), unlike *E. angulatus* and *E. truncatus*.

Diagnosis

The prominence of the ocular tubercle (lateral view, Fig. 4) and the almost circular outline of the carapace (dorsal view, Fig. 5) distinguish both sexes from the two other species of the genus in Britain. The male is further distinguished by the particular convolutions of the seminal duct in the palpal tegulum (Fig. 1) and by a functional conductor comprised of two appressed sclerites instead of two clearly separated sclerites (Fig. 6, cf. Fig. 8). The female may be recognised by the clear separation of the dark bodies adjacent to the introductory ducts (bursae copulatrix) in the epigyne (Fig. 2).

Observations

The cosmopolitan genus *Episinus* Latreille, 1809 is known for the construction of minimal webs which trap surface-moving invertebrates. Photographs of *E. maculipes* (Figs. 9-11), taken by flashlight at night *in situ*, show that the web is even more reduced in structure than that of *E. angulatus* as portrayed by Holm (1938) and Bristowe (1958). Though their respective illustrations differ in detail, both show a pair of threads above and below the hub forming an 'X' or an 'H' frame. The last pair of legs of *E. angulatus* hold on to the upper arms of the web or hang from a cross-thread, if one is present. *E. truncatus* is similar (F. Murphy, pers. comm.) but, by contrast, *E. maculipes* hangs by just one rear leg from a single vertical thread close to the point at which it bifurcates (Figs. 7, 10). The unattached rear leg does not contact any of the threads in this inverted 'Y' frame. In all of the British *Episinus* the other three pairs of legs hold on to the two lower arms of the web.

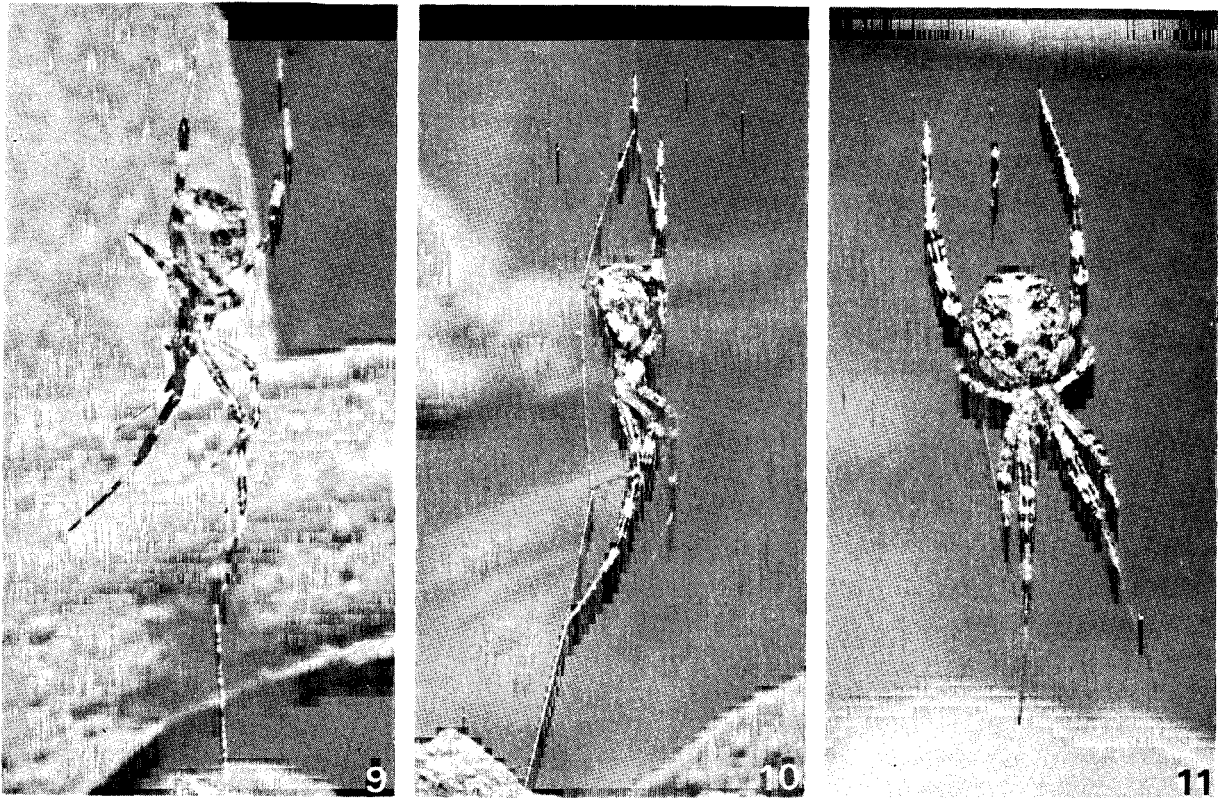
E. angulatus and *E. truncatus* occur in vegetation of the ground layer but all specimens of *E. maculipes* from the Isle of Wight were found well above the ground on the foliage of trees and shrubs. Among a wide range of woody plants, which includes many introduced species, the spider is perhaps most frequent on sycamore (*Acer pseudoplatanus* L.) and holm oak (*Quercus ilex* L.), and also on ivy (*Hedera helix* L.) growing on trunks. Among shrubs a degree

of rigidity appears to be necessary; it occurs on bramble (*Rubus* spp.) but not on elder (*Sambucus nigra* L.). While the spider may be beaten from vegetation during the day, its inactivity and low density (in the order of one or two individuals per tree) render it impossible to spot before nightfall when the web is constructed. Adult males are not found in webs but are most often seen moving through the vegetation.

The webs are sited to span gaps varying from 5 cm between adjacent leaves to more than 20 cm between neighbouring branches. The upper threads, in particular, are variable in length. Sticky globules appear to be present along the entire length of the lower threads between tarsi I and the substrate (Figs. 9, 10). In spite of the web's apparent simplicity, a considerable proportion of the female spiders (estimated at 30-50%) have caught prey and are feeding within one hour of darkness on favourable nights in July and August. At this season two of the most numerous insects on the vegetation are green lacewing larvae (Chrysopidae) and capsid bugs of the genus *Phytocoris* (Miridae). As prey both sorts of insects have been photographed; in Fig. 12 a green lacewing larva can be seen running on the foliage while another is being eaten by the spider. When consuming prey the spider adopts a curious stance. Lying between two threads in a hammock position, it contrives to support itself dorsal-side uppermost. One front leg holds the forward thread while both legs of the last pair hold the thread which extends from the spinnerets to the vegetation above. The weight of a heavy victim may demand that it is held below but the position is the same when the prey is small and light in weight.

Occurrence

Approximately 12 specimens (♀♀♂♂) were collected on the south coast of the Isle of Wight between Niton (Grid ref. SZ 510758) and Ventnor (SZ 554774) from sites as close as 50 m from high water mark to 300-400 m inland. Spiders were collected or photographed on 25 and 26 July 1981 and 7 and 14 August 1982. Deliberate searches for the species in woodlands elsewhere on the Isle of Wight, including Brightstone Forest, Firestone Copse and Burnt Wood, were unsuccessful. On the Continent



Figs. 9-12: *Episinus maculipes* Cavanna. 9-11 Female on web from three angles; 12 Female eating green lacewing larva.

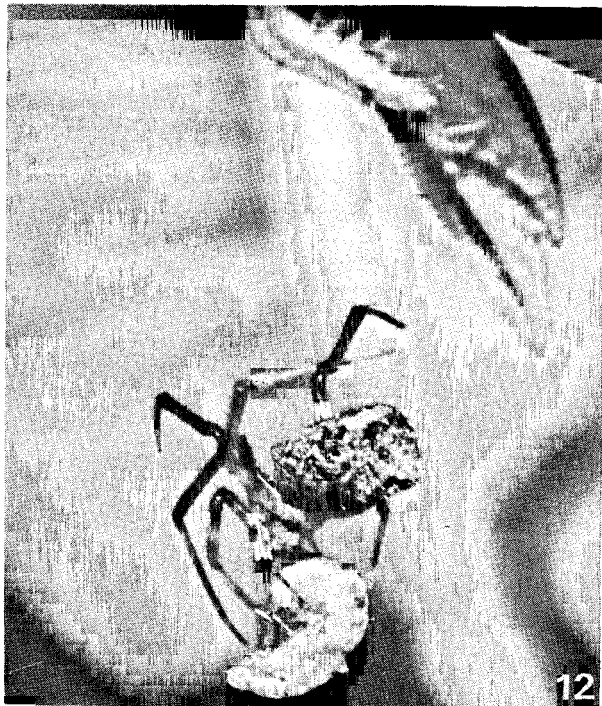
the species has a south-western distribution occurring in France, Spain and Italy; the variety *numidica* Kulcz. is found in Algeria.

Acknowledgement

I am grateful to Kate Hawkins of the Colchester Museum for up-to-date information about Tiptree Heath.

References

- BRIGNOLI, P. M. 1967: Notizie sui Theridiidae del Lazio (Araneae). *Fragm.ent.* **4**(10): 177-197.
 BRISTOWE, W. S. 1939: *The comity of spiders* **1**: 1-228. Ray Society, London.
 BRISTOWE, W. S. 1958: *The world of spiders*, 1-304. Collins, London.
 CAVANNA, G. 1876: Studie ricerche d'Aracnologia. *Boll. Soc.ent.ital.* **8**: 271-291.



- HOLM, A. 1938: Beiträge zur Biologie der Theridiiden. *Festschr. Strand* 5: 56-67.
- HULL, J. E. 1934: Some Essex spiders. *Essex Nat.* 24: 209-214.
- KULCZYŃSKI, W. 1905: Fragmenta arachnologia. De Episinis. *Bull. int. Acad. Sci. Lett. Cracovie* 3(6): 430-440.
- LOCKET, G. H. & MILLIDGE, A. F. 1957: On new and rare British spiders. *Ann. Mag. nat. Hist.* (12), 10: 481-492.
- LOCKET, G. H., MILLIDGE, A. F. & MERRETT, P. 1974: *British spiders* 3: 1-314. Ray Society, London.

Nomenclatural Notes

1. The following Opinion has been published by the International Commission on Zoological Nomenclature in *Bull. zool. Nom.* 40 (1): 39, on 29 March 1983.

Opinion No. 1245 *Linyphia tenebricola* Wider, 1834 (Arachnida): to be interpreted in the sense of Kulczynski, 1887.

2. The International Commission on Zoological Nomenclature gives six months' notice of the possible use of its plenary powers in the following case, published in *Bull. zool. Nom.* 40 (1), on 29 March 1983,

and welcomes comments and advice from interested zoologists.

Case No. 2223 Request for a ruling to correct homonymy in names of the family-groups based on *Myrmecia* (Insecta) and *Myrmecium* (Arachnida).

Correspondence should be addressed to R. V. Melville, Secretary ICZN, c/o British Museum (Natural History), Cromwell Road, London SW7 5BD, if possible within six months of the original date of publication of this notice.

Editor