A new species of *Centromerus* (Araneae: Linyphiidae) from arable farmland in eastern England

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Summary

In January 1992, staff at ADAS Cambridge found specimens of a small spider amongst pitfall trap catches from a field of winter wheat at Boxworth. The spiders were identified at CSL Harpenden as a species of *Centromerus* new to Britain and referred for expert examination to confirm their status. The species proved to be new to science and is here described as *Centromerus minutissimus* Merrett & Powell, sp. n.

Introduction

As part of an experiment investigating the effects of pesticides on non-target invertebrates, ground-dwelling polyphagous predatory arthropods were sampled weekly using pitfall traps (Powell, Ashby & Wright, 1988). Samples of catches taken at Boxworth, Cambridge, in a field of winter wheat in January to March 1992 were found to contain small male spiders which could not be identified from the available literature. However, examination of the spiders and reference to appropriate keys (Locket & Millidge, 1953; Roberts, 1987) placed them in the genus *Centromerus*. Subsequent investigation showed the species to be new to science.

Centromerus minutissimus Merrett & Powell, sp. n.
(Figs. 1–4)

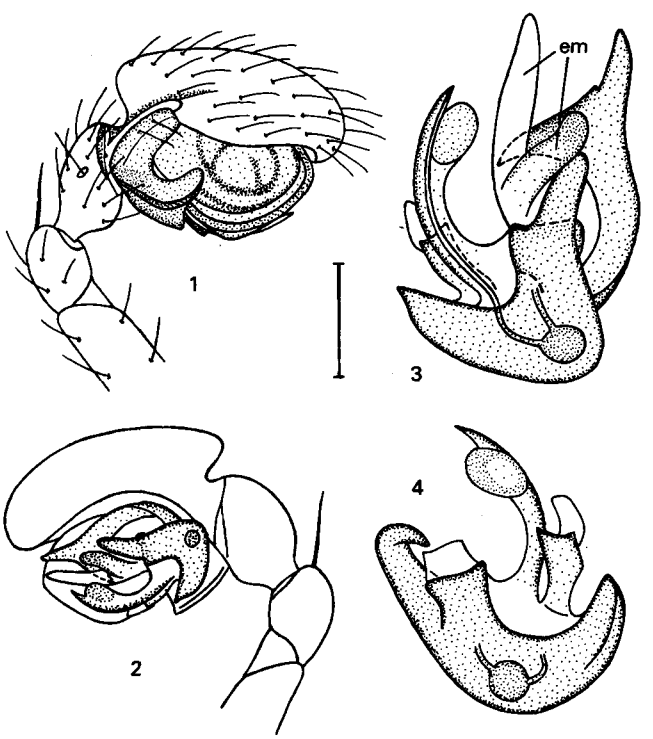
Material: Male holotype, Boxworth, Cambridge, 9 Jan.–19 Mar. 1992, pitfall in wheat field; 11 male paratypes (4 damaged), same data. Holotype and 6 paratypes deposited in British Museum (Natural History) (reg. nos. BM 1993.1.13.1 and BM 1993.1.13.2–7 respectively), 5 paratypes retained in Merrett collection. Seven other males, same data, retained in Powell (CSL) collection.

Etymology: The specific name refers to the very small size of the spider.

Diagnosis: Readily distinguished from all related species by the form of the embolic division and paracymbium. The small body size, chaetotaxy, and shape of the cymbium are also useful characters. It appears to be closest to *Centromerus cinctus* (Simon) (recently redescribed by Bosmans, 1986) and *C. cottarellii* Brignoli, 1979, but differs in details of all the above characters. It is also close to "*C.* sp. prope *subcaecus* Kulczyński", described by Thaler & Höfer (1988) (male in Senckenberg Museum examined), but in *minutissimus* the palp is smaller, the paracymbium has a prominent keel, the distal end of the embolus is much shorter and thinner, and the ventral end of the radix is more pointed rather than oblong. It may be possible to determine its relationships more clearly when the female is known.

Male: Total length ($n=8$) 1.05–1.20 mm. Carapace ($n=12$) length 0.49–0.53 mm, width 0.38–0.41 mm. Femur I length ($n=8$) 0.37–0.42 mm. Carapace pale yellow, greyish at margins, with a few short hairs in midline. Chelicerae with diagonal row of 4 or 5 short curved bristles anteromesally. Eyes rather small, and variable; anterior medians *c.* 1 diam. apart and *c.* 1.25 diam. from laterals, posterior medians *c.* 1.5–2 diam. apart and *c.* 1.25 diam. from laterals. Abdomen pale grey, covered with short hairs. Sternum pale yellow, suffused with grey, especially towards margins, covered with short hairs. Legs pale yellow. Dorsal tibial spines 2222, metatarsi I–II with 1 dorsal spine. Metatarsi I–III with a trichobothrium, TmI 0.33–0.37. One pair of ventral spines on each femur. Palp (Figs. 1–4): With a strong dorsal spine on patella, but no spines on tibia. Cymbium with a small postero-dorsal protuberance. Paracymbium with a lateral curved ridge, and strong ventral keel, but no teeth; 3 short hairs near proximal end. Embolic membrane, arising from between suprategular apophysis and embolic division, carries a slightly curved, club-shaped, semi-membranous process which is covered in small "warts" distally.

Female: Unknown.



Figs. 1–4: *Centromerus minutissimus* Merrett & Powell, sp. n. **1** Right male palp, ectal view; **2** Ditto, mesal view; **3** Suprategular apophysis and embolic division, mesal view (em = embolic membrane); **4** Embolic division, ectal view. Scale line = 0.1 mm (Figs. 1, 2), 0.05 mm (Figs. 3, 4).

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Natural history

A total of 19 males were caught in pitfall traps on a single field site during the period 9 January to 19 March 1992. A further single male was found at the same site on 21 February 1991, but unfortunately it was damaged in transit. Samples of soil and litter from near the traps were examined by hand during early April 1992, but no females, or further males, were found.

The spiders were caught at Boxworth Experimental Husbandry Farm (Agricultural Development and Advisory Service of the Ministry of Agriculture, Fisheries and Food) near Cambridge; Grid ref. SP 339637. The traps were set in a 25 ha crop of winter wheat following a break crop of beans. The field had hawthorn hedge and fence boundaries and a 12 m headland (margin) of predominantly amenity ryegrass mix. The pitfall traps were sited at least 5 m from the grass headland (17 m from the hedge). The soil is a fairly heavy, slightly calcareous, stony clay over Upper Greensand and Gault, and the aspect is fairly exposed with a gentle westerly slope of about 2°.

The nature of the habitat and the small size of the spider suggest that it may live mainly below the surface of the ground, in small fissures in the soil. The habitat is probably similar to that occupied by *Pseudomaro aenigmaticus* Denis and *Hahnia microphthalma* Snazell & Duffey, which are thought to be subterranean, and several other very small species of linyphiids, e.g. *Wiehlea calcarifera* (Simon) and *Jacksonella falconeri* (Jackson) are known to live in the soil to a considerable extent (Merrett, 1963). The eyes of *C. minutissimus* are rather small, but not greatly reduced as in *P. aenigmaticus*. Furthermore, *C. minutissimus* appears to be closely related to a group of cave-dwelling *Centromerus* species from southern Europe, including *C. subcaecus* Kulczyński, *C. dacicus* Dumitrescu & Georgescu and *C. cottarellii* Brignoli, and the soil-dwelling "*C.* sp. prope *subcaecus* Kulczyński" (Thaler & Höfer, 1988) from southern Germany.

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