

A gyne of *Ponera coarctata* (Latreille, 1802) (Hym., Formicidae) from Birlingham, Worcestershire with observations on the genus.

Paul F. Whitehead.
 Moor Leys, Little Comberton, Pershore, Worcestershire WR10 3EH.
 Email: paulfw@outlook.com
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Abstract

A spring gyne of the ponerine ant *Ponera coarctata* (Latreille, 1802) found at Birlingham, Worcestershire in 2020 represents a northward range extension of the genus in England. Basic morphometric, skeletal and ecological comparisons with the closely related *Ponera testacea* (Emery, 1895) are provided as an aid to confirming its identity.

Introduction

An alate gyne of an ant *Ponera* sp. found at Birlingham, Worcestershire (52°08'N 02°09'W VC37 SO9342 20 m a.sl. on 17 May 2020 (01 & 03) represents a northerly range extension of a genus which is generally regarded in England as occupying the area south of a line linking the Humber estuary and South Wales (Barrett, 1979; Bolton & Collingwood, 1975; Pontin, 2005). *Ponera coarctata* ssp. *testacea* Emery, 1895 was raised to species status by Csösz & Seifert (2003) and more recently admitted to the British entomofauna (Attewell, Collingwood & Godfrey, 2010). It was therefore necessary to establish the specific identity of the Birlingham gyne and to make comparisons with two British *Ponera* workers (02, 03) available to the author.



01. *Ponera coarctata* alate gyne, habitus. Birlingham, Worcestershire, 17 May 2020. Paul F. Whitehead.

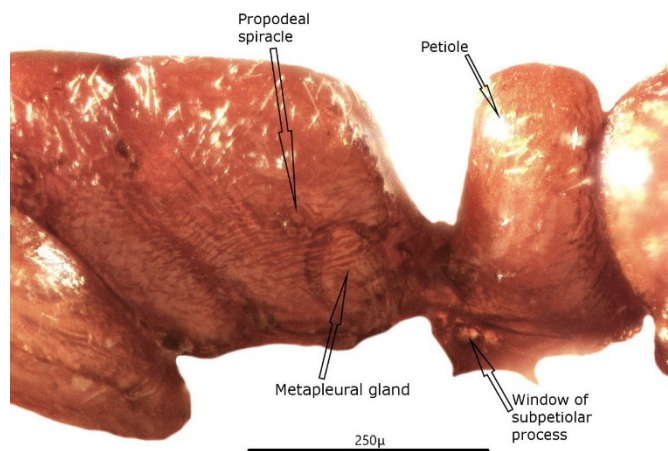
Discussion

In separating *P. testacea* from *P. coarctata* Csösz & Seifert (2003) subjected 411 individuals, both workers and gynes, to morphometrical assessment. They found that *P. testacea* was a

smaller paler species (04) more strongly linked to warm insolated slopes and sediments. *Ponera coarctata* was stated to be generally larger and darker, even blackened (01, 03) and more eurytopic. Some diagnostic skeletal features (02) also enabled the two species to be distinguished. Some of these features are well depicted in Attewell, Collingwood & Godfrey (2010) which should be consulted for additional supporting details.

Comparative features of skeletal micromorphology (02) include:

- a) the morphology of the petiole noting its relative height and lateral width
- b) the relative positioning of the propodeal spiracle to the metapleural gland which in *P. testacea* are closer together than in *P. coarctata* (Csösz & Seifert, 2003, page 217, Fig. 8)
- c) the outline of the subpetiolar process and the presence of a down-curved hastate projection (02) which is more or less absent in *P. coarctata* (note that the Nearctic *Ponera pennsylvanica* Buckley, 1866, of which I have examples, has similar processes)
- d) the size and exact position of the window in the subpetiolar process (Csösz & Seifert, 2003, page 217, Figs 4-5).



02. *Ponera testacea* worker, Brean Down, North Somerset, 19 April 1993. Left lateral view of mesosoma and petiole showing key points of species discrimination. Paul F. Whitehead.

These skeletal features enabled the Birlingham gyne to be identified as *P. coarctata* which identity was also supported by morphometrics (Table 01) and comparative colouration (01 & 03). The two workers here assigned to *P. testacea* Emery, 1895 have the following data:

1. Brean CP, Brean Down, 51°32'N 03°01'W, VC6 North Somerset, ST295588, 32 m a. s. l. littoral, headland, southern xerothermic escarpment, 19 April 1993.
2. Brixham CP, Churston Head, 50°40'N 03°52'W, VC3 South Devon, SX920570, 17 m a. s. l. maritime grassland, 15 August 1993.



03. **Left.** Head of *Ponera coarctata* gyne. Birlingham, Worcestershire, 17 May 2020. Note the well-developed eyes. **Right.** Head and mesosoma of *Ponera testacea* worker, Brean Down, North Somerset, 19 April 1993. Paul F. Whitehead.

	Somatic length	CW	CL	CL+CW/2
<i>Ponera coarctata</i> gyne Birlingham	3.65	0.66	0.76	0.71
<i>Ponera coarctata</i> gynes Csösz & Seifert 2003	>3.50	0.62-0.65	0.74-0.79	0.70 mean
<i>Ponera testacea</i> worker Brean Down	2.60	0.51	0.64	0.57
<i>Ponera testacea</i> worker Churston Head	2.55	0.48	0.66	0.57
<i>Ponera testacea</i> workers Csösz & Seifert 2003	2.50-3.00	-	-	0.57 mean

Table 01. Morphometrics (mm) of the Birlingham *P. coarctata* gyne and two English *P. testacea* workers in relation to the published data. CW = head width, CL = head length.

According to Csösz & Seifert (2003) the preferred habitat of *P. testacea* in Germany is xerothermic grassland on limestone, silicate rock or sand. It had not been found there in xerothermic woodland with higher humidity and seemed to be rare in urban habitats. *Ponera coarctata* was found in a wide range of these habitat types, on average it is less xerothermophilic and, tellingly in this instance: "Is expected to spread farther north."

Although the evidence is limited, the Birlingham gyne points both to subtle differences and subtle similarities between the habitats of both species. It was found on managed grassland near an enclosure hedge on the fringe of a rural settlement on sediments developed from and overlying the well-drained minerogenic sands and gravels of the Wasperon Terrace of the River Avon (Avon No. 2 terrace of Tomlinson, 1925). The immediate area is low lying and the terrace is fronted by alluvium which is regularly inundated; the sediments are therefore subject to episodic changes in ground water levels, a situation which is entirely different to the hot dry limestone escarpment at Brean Down and other sites where *P. testacea* is presently known. Earlier references to *P. coarctata* at Brean Down e.g. Lutley, Alexander & Bullard (1982) surely refer to *P. testacea*.

The northerly range extension of *P. coarctata* on the western side of south-central England described here is perhaps no particular surprise given that the same tendency is presently observed in other groups of winged insects. One further point of discussion concerns the appearance of gynes in time. According to Pontin (2005) these may occur in August in Britain; the Birlingham spring gyne is clearly at variance with this.

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Images

01. *Ponera coarctata* alate gyne, habitus. Birlingham, Worcestershire, 17 May 2020.

02. *Ponera testacea* worker, Brean Down, North Somerset, 19 April 1993. Left lateral view of mesosoma and petiole showing key points of species discrimination.

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Reference for this article

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