

## *Neon robustus* Lohmander (Araneae: Salticidae), a fennoscandian spider found in Scotland and Ireland

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### Summary

The salticid spider *Neon robustus* Lohmander, 1945, known previously only from Sweden and Finland, is described from British and Irish material. The presence of the species in Denmark is recorded for the first time. Its distribution and ecology are also described. It is suggested that the species may be more widespread in Britain and Ireland as, although *N. robustus* is usually larger, it is possible that it may previously have been misidentified as *N. reticulatus* (Blackwall) which it closely resembles. Comparative drawings of the palp and epigyne of *N. robustus* and *N. reticulatus* are provided.

### Introduction

While attending the 17th European Colloquium of Arachnology at the University of Edinburgh during July 1997, L.J.J. collected some spiders from sites close to the Pollock Halls Campus. Among these was a female of a small salticid spider, *Neon robustus* Lohmander, which had not previously been recorded from Britain but with which he was familiar, it being present in the Swedish fauna. The news of this discovery prompted J.A.S. to re-examine specimens of *Neon* which he had taken in southern Scotland and R.S. to look again at some specimens taken in Co. Wicklow, Eire in 1981. Specimens of *N. robustus* were identified from two Scottish sites and from the Wicklow site. Both male and female are described from the Irish material.

### Description

#### *Neon robustus* Lohmander, 1945 (Figs. 1–4)

*Neon robustus* Lohmander, 1945: 48, figs. 47–56 (♂♀).  
*N. robustus*: Tullgren, 1946: 130; Heimer & Nentwig, 1991: 510.

**Material examined:** EIRE: County Wicklow, Great Sugarloaf (O/24-37-), among boulders on SW side, 2♂ 1♀, 5 June 1981 (R.S.). SCOTLAND: Peeblesshire, Pirn Craig nr. Innerleithen (Grid ref. NT336372), amongst scree, 1♂ 1♀, 17 May 1982 (J.A.S.); Edinburgh, Holyrood Park (Grid ref. NT268735), under scree, 3♂ 3♀, 7 June 1991 (J.A.S.); same locality, in scree, 1♀, 14

June 1997 (L.J.J.). SWEDEN: Skåne, Vitaby, 2♀, 28 June 1925 (H. Lohmander); Öland, Köping, 2♂ 1♀, 25 May 1928 (H. Lohmander); Gotland, Hagvar, south-west of Ireviken, 2♀, 20 July 1938 (H. Lohmander); Göteborg, Slotsskogen, 1♂, 23 May 1942 (H. Lohmander); Närke, Kil, Ullaviklint, 1♂ 1♀, 14 June 1944 (H. Lohmander); Blekinge, Mjällby, Listershuvud, among lichens in a stony heap, 2♀, 11 June 1988 (L.J.J.); Östergötland, Malexander, among lichens in scree, 2♀, 21 June 1989 (L.J.J.). DENMARK: “Dania”, 1♀ (Braendegaard). Lohmander’s specimens are all from the type series and are deposited in the Museum of Natural History, Gothenburg, Sweden, the Braendegaard specimen in the Zoological Museum, Copenhagen, Denmark, and the rest in the respective authors’ collections.

**Male:** Total length 2.5–2.8 mm. Carapace length 1.20–1.34 mm, width 0.80–1.06 mm. Carapace: yellow-brown with thin, darkened margin and darker radiating striae in thoracic area. Slight darkening around AME, greater darkening round other eyes. Some sparse pale hairs round eyes, otherwise lacking hairs. Eyes: OQ broader than long and parallel sided. Chelicerae: small, yellow with slightly darker longitudinal striae. Two teeth on anterior edge of fang guide, distal small, proximal tiny; one larger tooth on posterior edge. Sternum: scutiform, yellow-brown with darker margin; some sparse, pale hairs present. Legs: 4132. Yellow, darkening to pale brown on femora, tibiae and metatarsi I and II, pale striae dorsally on tibia I; all tarsi very pale yellow. Metatarsi I and II with two pairs of strong ventral spines, tibia I with three pairs of strong ventral spines, tibia II with two single ventral spines. Abdomen: dorsally yellow-brown with chevrons of pale dots, ventrally dark brown with rows of pale dots. Spinnerets: pale yellow. Palp (Figs. 1, 2): cymbium yellow-brown with white tip. Embolus long and slender, particularly distal part; spiculate lobe small.

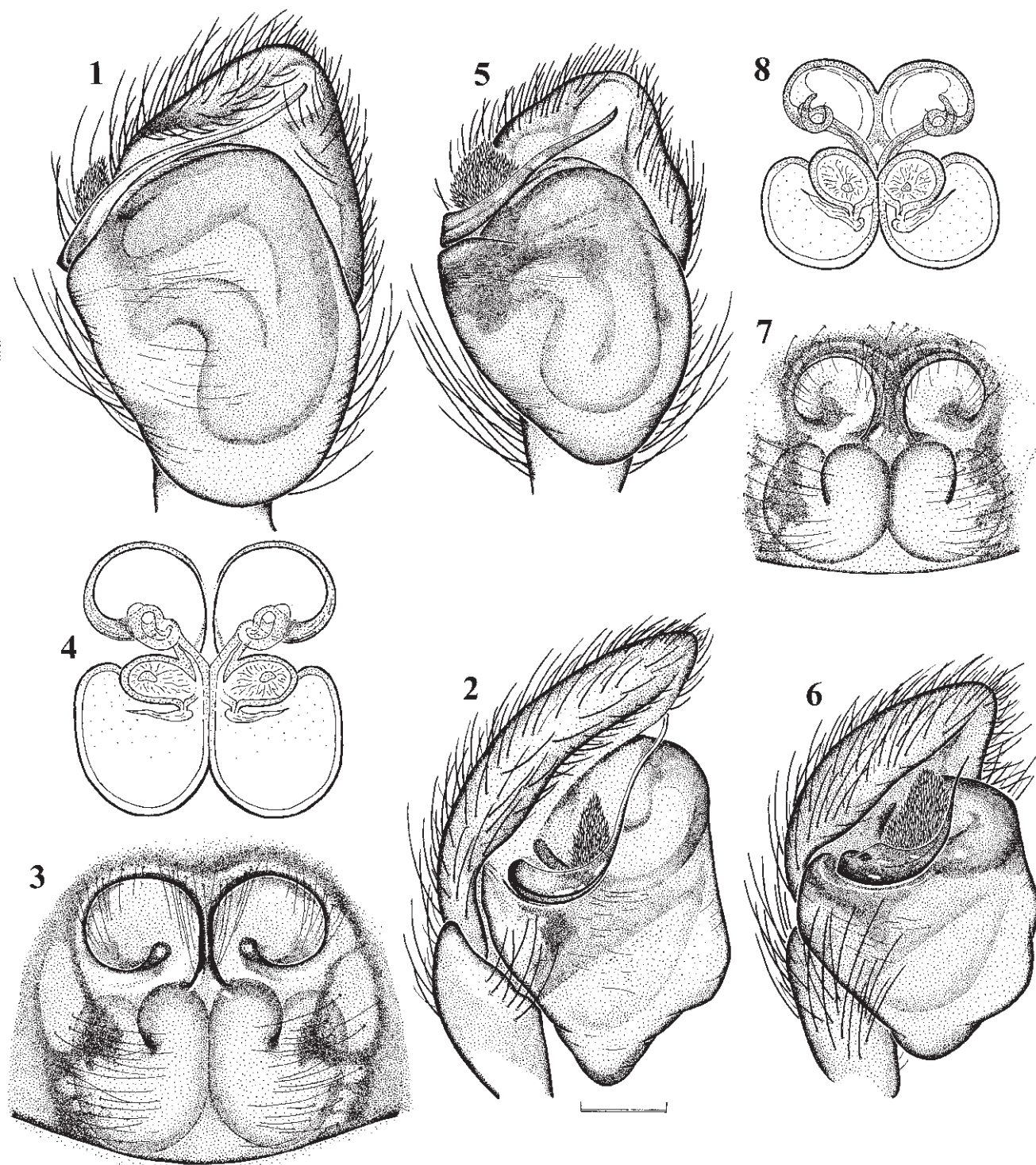
**Female:** Total length 2.5–3.2 mm. Carapace length 1.15–1.38 mm, width 0.80–1.06 mm. As male except: chelicerae slightly larger, abdomen slightly paler. Epigyne (Fig. 3): median septum narrow, atria large. Vulva: Fig. 4.

Carapace length	<i>N. robustus</i>		<i>N. reticulatus</i>	
	♀	♂	♀	♂
0.90			1	2
0.95				2
1.00			1	2
1.05			2	9
1.10			4	14
1.15		1	25	41
1.20	2	5	2	6
1.25	3	9		
1.30	6	13		1
1.35	3	15		
1.40	5	8		
1.45	1	1		

Table 1: Numbers of specimens in 12 classes of carapace length (from Lohmander, 1945 with additional measurements from specimens examined for this study). Measurements in mm.

*Diagnosis:* *N. robustus* is most closely related to the much more widespread *N. reticulatus*. The most obvious difference between the species is that *N. robustus* is, with very little overlap, larger than *N. reticulatus* (Table 1). In *N. robustus*, males and females are very similar in coloration, while in *N. reticulatus* females are usually much paler than males. Females of *N. reticulatus* also tend to be paler than females of *N. robustus*. In males, the abdomen of *N. robustus* is less hairy and the ground colour a darker brown than in *N. reticulatus*. In the

female of *N. robustus* the median septum of the epigyne is usually much narrower than in *N. reticulatus*, the atria are larger, more circular and the copulatory openings broader. In *N. reticulatus* there is a hook-shaped projection of the vulva which is clearly visible in the centre of the atria; this is not seen in *N. robustus*. There is also a band of sclerotisation round the anterior edges of the atria which is much shorter and wider in *N. reticulatus* than in *N. robustus* (Figs. 3-4, cf. Figs. 7-8). In the male palp, the embolus of *N. robustus* is longer and that part



Figs. 1-8: 1-4 *Neon robustus* Lohmander (from Gt. Sugarloaf, Co. Wicklow, Eire). 1 Male palp, ventral view; 2 Ditto, mesal view; 3 Epigyne, ventral view; 4 Vulva, dorsal view. 5-8 *Neon reticulatus* (Blackwall) (from Etchingill Escarpment, Folkstone, Kent). 5 Male palp, ventral view; 6 Ditto, mesal view; 7 Epigyne, ventral view; 8 Vulva, dorsal view. Scale line=0.1 mm.

beyond the spiculate lobe is thinner. Also, the spiculate lobe of *N. robustus* is smaller than that of *N. reticulatus* (Figs. 1–2, cf. Figs. 5–6).

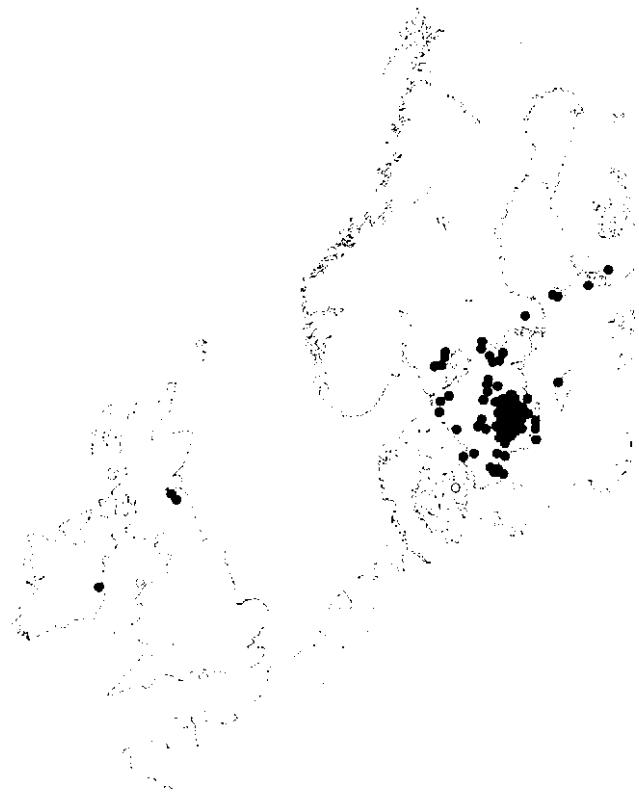
### Occurrence

Although previously recorded from Sweden and Finland, *N. robustus* is relatively common only in southern Sweden, where it has been recorded from about 130 localities and in nearly all provinces south of 60°N. More than half of the records are from the province of Småland in the south-east of Sweden (Lohmander, 1953, 1954), but it has also been recorded from the provinces of Skåne (Lohmander, 1945, 1950; Holm, 1977), Blekinge (Jonsson, unpubl.; Holm, unpubl.), Halland, Öland, Västergötland, Gotland, Närke, Dalsland (Lohmander, 1945), Östergötland (Lohmander, 1948, 1952), Värmland (Lohmander, 1949), Södermanland (Lohmander, 1955) and Uppland (Holm, unpubl.). It is also known from the south-west of Finland (Lehtinen, 1964; Lehtinen *et al.*, 1979; Logunov, 1998). A single female of *N. robustus* was found in the collection of the Zoological Museum in Copenhagen, in a tube labelled “*Neon reticulatus*, Dania, Braendegaard.” Unfortunately the location “Dania” (=Denmark) is not specific but nevertheless this specimen must be regarded as the first record of the species from Denmark. The known range of *N. robustus* (Map 1) has therefore been considerably increased by this record and the new records from Edinburgh and Peeblesshire in Scotland, and from the Great Sugarloaf in Co. Wicklow, south of Dublin, in the Republic of Ireland.

### Ecology

*N. robustus* is a stenotopic, thermophilous species that is often associated with sunny, south and south-west facing rocky slopes, screes and cliffs which have a little leaf litter, moss or lichen. However, in southern Sweden it has been found most frequently on stone walls and other similar anthropogenic habitats, especially in Småland and other parts of south-east Sweden (Lohmander, 1945, 1954). In most cases these sites are further protected by surrounding broad-leafed trees and shrubs. The scree at the Holyrood Park site is protected by bushes.

*N. robustus* has seldom been found near conifers (Lohmander, 1955; Lehtinen *et al.*, 1979). *Neon* species are often described as typical residents of the litter in various types of forest (Logunov, 1998). In Sweden, *N. reticulatus* is regarded as a eurytopic forest species and is rarely found in the same biotopes as *N. robustus*. However, in Britain, Roberts (1995) describes *N. reticulatus* as occurring in two distinct habitats: in leaf-litter (often quite dry) in woodland, and among moss in open, damp, boggy habitats, while *N. valentulus* Falconer is recorded from grass and moss in fens. In southern Sweden, *N. robustus* is often replaced in the most exposed, sunny sites by *N. levis* (Simon). The Scottish and Irish sites are typical south-west facing rocky slopes with quite sparse vegetation.



Map 1: Distribution of *Neon robustus* Lohmander in northern Europe. Filled circles=known locations, unfilled circle=undetermined location.

Males of *N. robustus* have been found in May and June, females from April to October. Adults of both sexes of *N. reticulatus* can be found throughout the year.

### Acknowledgements

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### Reconsideration of *Lepthyphantes montanus* Kulczyński, 1898 and *Lepthyphantes milleri* Staręga, 1972 (Araneae: Linyphiidae)

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#### Summary

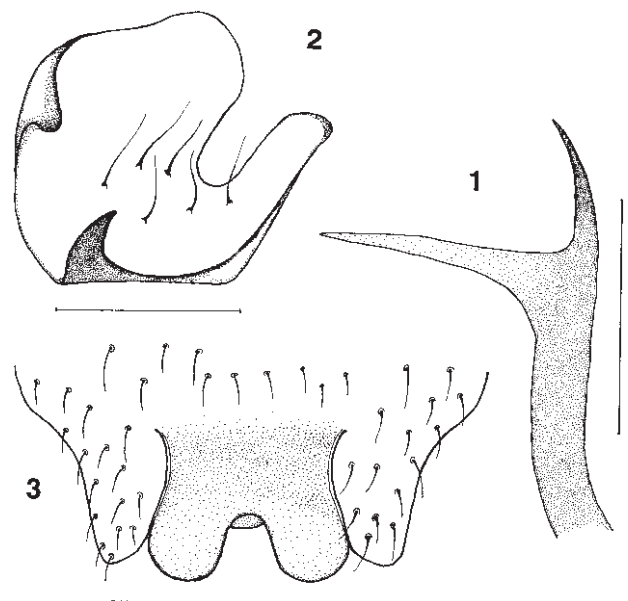
Description and distribution of two sibling species, *Lepthyphantes montanus* Kulczyński, 1898 and *Lepthyphantes milleri* Staręga, 1972, is presented.

#### Introduction

About 60 species of the genus *Lepthyphantes* have been recorded from Central Europe (Bosmans in Heimer & Nentwig, 1991). Out of these, six species belong to the *pallidus* group. *Lepthyphantes montanus* was described by Kulczyński (1898) based on one male collected by B. Kotula in the Alps. The first female of this species was collected by J. Wunderlich 70 years later. Because of having only a single female, Wunderlich failed to relate it to *L. montanus* and described it as *L. charlottae* Wunderlich, 1969. In 1971 Staręga found several females in the Carpathian Mts in Poland that he described as *L. milleri* Staręga, 1972. Soon after, he described a male (Staręga, 1976: 266–7, fig. 1). Closer inspection of this figure showed that this specimen in fact belongs to the *mansuetus* group. The true males of *L. milleri* were collected 30 years ago by Balogh & Loksa (1947) in the Carpathian Mts, but these authors misidentified them as *L. montanus*. In the sixties, a number of males and

females of *L. montanus* were found in several sites in the Alps, and described by Thaler (1973) and Palmgren (1973). Thaler came to the conclusion that *L. charlottae* is a synonym of *L. montanus* and pointed out that *L. milleri* is very close to *L. montanus*. However, he did not revise the material of Balogh & Loksa and concluded that it belonged to *L. montanus*.

Recently, one of the authors collected several male and female specimens of *Lepthyphantes* in Slovakia near the border with Poland in the same mountain range where Staręga captured *L. milleri*. From the first moment it was clear that the females are identical with females of *L. milleri*. Detailed investigation of the males revealed that they are different from males of *L. montanus*. Thanks to comparison with specimens of *L. montanus* from the Palmgren collection we are now able to reconsider the taxonomic status of *L. montanus* and *L. milleri*, and describe their specific differences.



Figs. 1–3: *Lepthyphantes montanus* Kulczyński, 1891. **1** Left palp, lamella characteristica, retrolateral view; **2** Left palp, paracymbium, retrolateral view; **3** Epigyne. Scale lines = 0.1 mm (1, 2), 0.25 mm (3).