

***Kikimora palustris* Eskov, 1988 (Araneae: Linyphiidae) found in Europe**

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Kikimora palustris Eskov, an erigonine spider known hitherto from Siberia only, was found in northernmost Finland. Males and females were trapped in a palsa mire in Enontekiö, 1999. Redescription with diagnostic figures is given, and taxonomy, distribution and ecology briefly discussed. Slit sense organs were found on basal part of male cymbium.

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1. Introduction

The monotypic erigonine genus *Kikimora* and the species *K. palustris* were described from Siberia by Eskov (1988). The type locality is Putorana Plateau, Central Siberia, and the range given by Eskov (1988) included Putorana, Evenkia, and upper Kolyma. In this paper, we report *Kikimora palustris* for the first time from Europe, give a redescription of the species, present diagnostic drawings and SEM micrographs on copulatory organs, and discuss systematic relationships of the genus. Also the ecology and distribution of the species is briefly discussed.

2. Redescription

Because Eskov's (1988) description is in Russian, a brief redescription is given here. The name *Kikimora* is from Russian folklore and means an old, ugly woman living mainly on bogs. The type material from Putorana Plateau, examined by YM, is deposited in the Zoological Museum of the Moscow State University.

***Kikimora palustris* Eskov, 1988: 685, figs. 5: 1–5.**

Medium sized, light coloured linyphiid. Male carapace unmodified, slightly elevated in cephalic re-

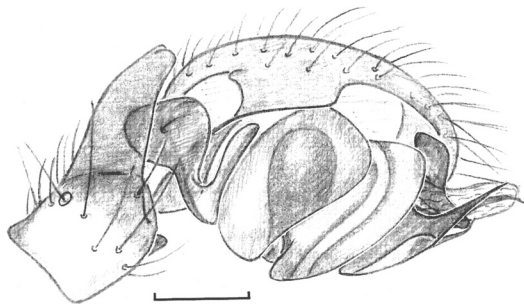


Fig. 1. Male palp of *Kikimora palustris*, retrolateral view, after Eskov (1988). Scale 0.1 mm.

gion. Chelicerae unmodified. Tibial spines — 2222, longer than tibial diameter. Metatarsi I–IV with trichobothrium. TmI — c. 0.5. Male palp (see Figs. 1, 3a–g): Patella swollen, tibia with 2 trichobothria and massive prolateral strongly curved apophysis with broad tip with saddle-like depression (Figs. 3a–b). Paracymbium large with wide leaf-shaped proximal part (Figs. 1, 3b). Short and flat suprategulum without apophysis; column with long frontally directed membrane (Figs. 3d–f). Embolic division complicated (Figs. 3d–g), with spine-like embolus and two flat and spine-like apophyses in apical part. Internal flat apophysis of embolic division with scale-like surface (Fig. 3f). Basal part of embolus with rounded outgrowth (Figs. 3d–e). Median part of embolic division with finger-like process/apophysis (Figs. 3e–f). Basal part of cymbium prolaterally with about 8 slit sense organs (Figs. 3a, c). Epigyne (Figs. 2, 3h–i) without fovea, and with wide median plate. Posterior margin of epigyne rounded. Anterior part of epigynal openings with short fissure. Receptacles large and oval. Male body length 1.85–2.50, female 2.38–2.63 mm. Carapace yellow-brown, length/width 0.98–1.10/0.73–0.75 in male, 1.00–1.15/0.70–0.75 in female. Promargin of chelicerae with four teeth. Legs yellow-brown, thick (relation tibia I length/ diameter — 4.0).

3. Data from Finland

In summer 1999, a field study on spiders was carried out by the author JH in the palsa mire at Iitto in Enontekiö Lapland, Northwest Finland (68°43'N 21°25'E, altitude 400 m a.s.l.; Finnish Grid 763:27). During that time 16 individuals (8 ♂♂

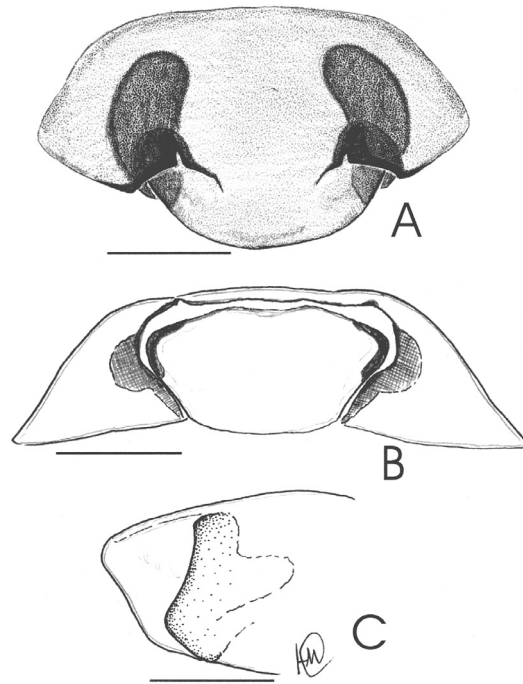


Fig. 2. Female epigyne of *Kikimora palustris*. — a. Ventral view. — b. Posterior view. — c. Lateral view. Scale 0.1 mm.

8 ♀♀) of *Kikimora palustris* were found in pitfall traps (Table 1). Both males and females occurred in the early summer as well as in the autumn. Nine individuals (4 ♂♂, 5 ♀♀) were trapped in a relatively open, slightly hummocky moist mire habitat where the vegetation reached a height of about 10 cm (maximum 20) and consisted mainly of compact *Sphagnum* mosses (*S. fuscum* dominat-

Table 1. The records of *Kikimora palustris* in the palsa mire at Iitto, Finland, 1999. Habitat types: 1 = open, moist *Sphagnum fuscum* mire, 2 = open, moist mire with low *Betula nana*, 3 = scrub mire with *Betula nana* and *Salix* (see text for full description of the habitats).

Capture period	Habitat type (No.)	Specimens
8.VI.–27.VI.	1	2 ♂♂
10.VI.–27.VI.	2	3 ♂♂ 2 ♀♀
8.VI.–27.VI.	3	1 ♂
14.VIII.–2.IX.	1	1 ♂ 1 ♀
2.IX.–4.X.	1	1 ♂ 4 ♀♀
2.IX.–5.X.	2	1 ♀

ing), *Empetrum nigrum*, *Rubus chamaemorus*, *Vaccinium uliginosum*, *Betula nana*, *Andromeda polifolia* and *Vaccinium microcarpum* (Habitat type No. 1). Six specimens (3 ♂♂ 3 ♀♀) were found at a location where rather open, moist and slightly hummocky *Sphagnum* moss mire with low *B. nana* (maximum height 20 cm), *V. uliginosum*, *R. chamaemorus* and *A. polifolia* borders onto a wet *Sphagnum lindbergii* moss carpet with *R. chamaemorus* and *Eriophorum russeolum* (Habitat type No. 2). One male fell into a trap located in dense, 40 cm high dwarf birch (*B. nana*) and willow (*Salix*) scrub, where the ground was moist and hummocky. The undergrowth there consisted of moss (mainly *Sphagnum russowii*), *E. nigrum*, *V. uliginosum* and *V. vitis-idaea* (Habitat type No. 3). The palsa mire at Iitto is only a few hundred m in diameter and represents a mosaic of different habitat types. Individuals of *Kikimora palustris* could be found neither in dry or extremely wet locations nor in the surrounding birch forest.

Abundant co-occurring species included *Pardosa hyperborea* (Thorell), *P. atrata* (Thorell), and *Alopecosa aculeata* (Clerck) (Lycosidae), *Mecynargus sphagnicola* (Holm), *Semljicola faustus* (O.P.-Cambridge), *Diplocentria bidentata* (Emerton), *Pelecopsis mengei* (Simon), *Walckenaeria nudipalpis* (Westring), *Hilaira nubigena* Hull, *Bolyphantes luteolus* (Blackwall), and *Agyneta similis* (Kulczynski) (Linyphiidae), and *Robertus lyriifer* Holm (Theridiidae).

Kikimora specimens are deposited in the Zoological Museum, University of Turku and in JH's private collection.

4. Discussion

Eskov (1988) regarded *Kikimora* to be very similar to the genus *Sciastes* Bishop & Crosby, 1938 (*sensu* Millidge 1984). These genera differ from each other by leg chaetotaxy, number of trichobothria on palpal tibia, shape of tibial apophysis and of paracymbium, length of apophyses of embolic division and by shape of insemination ducts in the median plate (cf. also figure 25 in Hormiga 2000).

Among North European linyphiid genera, the male palp of *Kikimora* is somewhat similar to

Gongylidium (slightly swollen patella, wide retrolateral tibial apophysis directed upwards); but the embolic division of *Gongylidium* is more simple (cf. figure 21 in Millidge [1977] and figure 12 in Hormiga [2000]). By palpal conformation *Kikimora* is rather similar to *Asthenargus helveticus* Schenkel and *A. paganus* (Simon) (cf. figures 154 and 155 in Millidge [1977]). All three species have a complicated embolic division bearing spine/finger-like lateral apophysis.

Slit sense organs have been found commonly on spider appendages (see e.g. Ivanov [2000] and pages 39–42 in Barth [2001]) but seldomly on the palpal cymbium. For example, in the ground spider *Haplodrassus signifer* (C.L. Koch), family Gnaphosidae, slit organs were found only on the coxal lobe, trochanter and femur of the pedipalps (Ovtsharenko 1981). Marusik *et al.* (in prep.) have found slit organs on male palpal tibia of the linyphiid *Praestigia groenlandica* Holm. Plate 58 D in Hormiga (2000) presented a SEM micrograph of the cymbium of *Sciastes truncatus* (Emerton) showing similar slit organs as on cymbium of *Kikimora* (Fig. 3c). Although these two genera seem to be related (cf. Eskov 1988) and share peculiar characters such as cymbial slit organs, they are rather different by the shape of embolic division: complicated in *Kikimora* (Fig 3d–f) and simple in *Sciastes* (cf. figures 25 and 58 in Hormiga [2000]). They differ also by shape and relative size of paracymbium, and by modified protegulum in *Sciastes* (figures 58C, E and F in Hormiga [2000]). Probably slit sense organs can also be found on the palpal cymbium in other linyphiid groups. They may be just overlooked.

Intensive spider studies have been carried out in nearby areas, e.g. Kilpisjärvi in Enontekiö (Palmgren 1965), Torneträsk in Sweden (Holm 1950) and Kevo in Utsjoki, Finland (Koponen 1977). The absence of *Kikimora palustris* in these studies is possibly caused by its ecological requirements, and by the scarcity of palsa mires studied. The 16 individuals captured at Iitto indicate that the occurrence of *K. palustris* is not accidental, but that there is a living population, although the species might be generally rare and confined to a certain kind of habitat. The habitat of *K. palustris* in Siberia seems to be boggy, sparse *Larix* forests, open *Sphagnum* and *Carex* mires and mossy tundra (Eskov 1988, Eshyunin *et al.* 1995). In Fin-

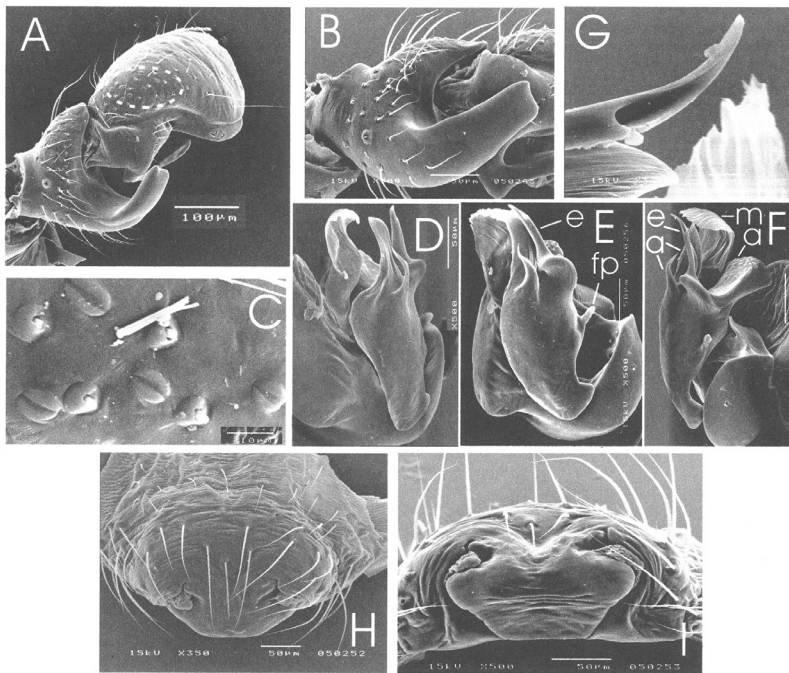


Fig. 3. SEM micrographs on copulatory organs of *Kikimora palustris*. a–g. Male palp. — a. Tibial apophysis and cymbium with location of slit sense organs, dorsal view. — b. Tibial apophysis and paracymbium, retrolateral view. — c. Slit sense organs on basal part of cymbium. — d–f. Embolic division from different angles — g. Tip of embolic division. h–i. Female epigyne. — h. Ventral view. — i. Posteroventral view. Abbreviations in the Figure: a = apophysis, e = embolus, fp = finger-like process, m = membrane. Scale bars: a = 100 μ m, b, d–f, h, i = 50 μ m, c = 10 μ m and g = 5 μ m.

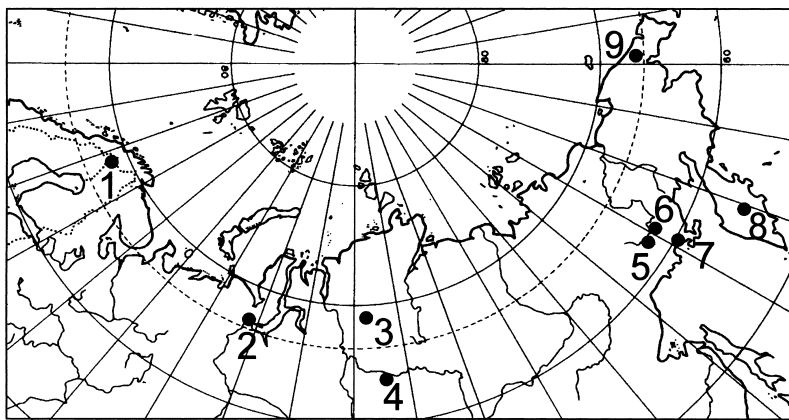


Fig. 4. The distribution of *Kikimora palustris*: 1 — Enontekiö, 2 — South Yamal, 3 — Putorana, 4 — Evenkia, 5–6 — Aborigen & Kontakt stations (Kolyma), 7 — Magadan, 8 — Kamchatka, 9 — Chukotka.

land, almost all specimens were found in open and moist parts of a mire situated in the subarctic zone north of the boreal taiga forest belt.

Nowadays *Kikimora palustris* is known, in addition to northernmost Finland, sparsely throughout Siberia from South Yamal to the Russian Far North-East and Kamchatka (Marusik *et al.* 1992, Eskov & Marusik 1994, Esyunin *et al.* 1995; see Fig. 4).

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