

REDESCRIPTION OF THE ANT *LEPTOTHORAX* (S. STR.)  
*SCAMNI* RUZSKY, 1905

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ABSTRACT

Worker and queen caste of the ant *Leptothorax* (sensu stricto) *scamni* Ruzsky, 1905 are formally described and a neotype is designated. The species is distinguished from other *Leptothorax* (s. str.) by extraordinarily long, finger-shaped propodeal spines. *L. scamni* appears to be a rather rare, patchily distributed ant in alpine coniferous forests in the Caucasus (Russia and Armenia) and northern Turkey.

INTRODUCTION

The myrmicine ant genus *Leptothorax* comprises several hundred species of small to medium-sized ants, which live in inconspicuous, small colonies under stones, in rotting wood, or in hollow twigs. Most species occur in temperate or subtropical biomes and belong to the subgenera *Myrafant* M. R. Smith, *Macromischa* Roger, and others (e.g., Baroni-Urbani 1978, Bolton 1982). The subgenus *Leptothorax* (s. str.) (= *Mychothorax* Ruzsky), on the other hand, is comparatively poor in species, which all are confined to boreal and alpine habitats. In addition to three or four social parasites, *Leptothorax* (s. str) consists of about half a dozen of nearctic taxa, most of which are as yet not reliably defined (Creighton 1951, Brown 1955, Heinze 1989), and three well-studied palaeartic species: *Leptothorax acervorum* (Fabricius, 1793), *L. muscorum* (Nylander, 1846), and *L. gredleri* Mayr, 1855. A fourth palaeartic taxon, *L. scamni* Ruzsky, 1905 was originally described as a Caucasian variety of *L. muscorum* and later transformed into a good species without additional information by Arnol'di (1977). It appears that neither Ruzsky (1905) nor Arnol'di (1977) did designate

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type material. An additional taxon, *Leptothorax oceanicum* Kuznetzov-Ugamskij, 1928, was described as a subspecies of *L. muscorum* from eastern Siberia (southern Primorsky and Khabarovsk districts; Kuznetzov-Ugamskij 1928, 1929; Kupianskaya 1990) and is considered a good species after examination by one of us (A. G. R.).

We recently collected specimens of an apparently rare *Leptothorax* (s. str.) in Turkey (J. H., A. S.) and the Caucasus (A. G. R.), which exactly fit Ruzsky's description of *L. scamni*. As this species has been widely ignored by myrmecologists studying *Leptothorax* (s. str.) we here give a tentative translation of Ruzsky's Russian original description, a complete description of *Leptothorax scamni*, and summarize the scanty information we have on its occurrence and biology.

#### Original description (Ruzsky 1905)

*L. muscorum* var. *scamni* nov. var.

Worker: Propodeal spines large, long, slightly curved, finger-shaped. At least  $3/4$  as long as length of dorsal surface of propodeum (in typical *L. muscorum* only  $1/2$ ). The spines are rather broad at their bases, but immediately become narrow and remain narrow, rounded, and evenly thin all the way to the tip (for  $2/3$  or  $3/4$  of their length). The tip is rounded and blunt (the spines of typical *L. muscorum* narrow steadily and end in an acute tip). The sculpture of the body is finer and denser than in the type; petiole and a large part of the thorax with predominantly fine puncturing. Posterior side of the petiolar node markedly convex. Color and size as in the type. Individual workers were collected from a bench on a mountain path in the district of Abastumani (July 14, 1899 [Georgia]). In the district of Vladikavkaz [from appr. 1930 to 1990 Ordzhonikidze, North Ossetia] a small colony was found in the bark of a hollow beech (July 3, 1899).

#### Note by Arnol'di (1977)

*Leptothorax (Mychothorax) scamni*

*L. muscorum* v. *scamni* Ruzsky, 1905: 620.

A large compact ant distinguished by strongly developed rod-like spines; a distinct species that is widely distributed in the upper forest and subalpine zone of the Caucasus.

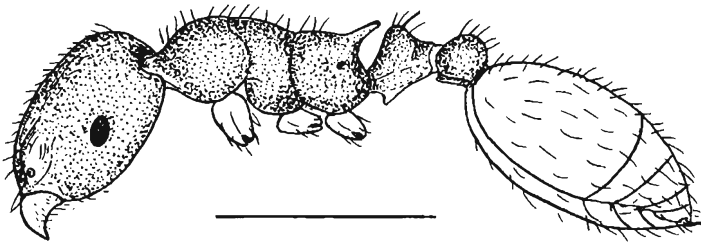


Fig. 1. Habitus of neotype worker of *Leptothorax* (s. str.) *scamni* from Shuntuck, Maykop distr., Russia (scale: bar = 1 mm) (drawing by A. G. R.)

*Leptothorax scamni* Ruzsky, 1905

*Description of the worker*

Neotype: Worker from Shuntuck, Maykop distr. (northern Caucasus: Adygey Aut. Oblast, Russia), Nr. A 6008 (leg. K. Arnol'di, without date), deposited at the Zoological Museum of Moscow State University, Moscow, Russia (Fig. 1).

Total length appr. 3.5 mm, head length (excluding mandibles) 0.81, head width (behind eyes) 0.71, scape length 0.56, maximum eye diameter 0.15, thorax length (diagonal) 1.06, thorax width 0.46, length of petiole in lateral view 0.38, height of petiole at node in lateral view 0.28, maximum width of petiole 0.19, length of postpetiole in lateral view 0.24, height of postpetiole 0.25, maximum width of postpetiole 0.27, length of hind femur 0.63, length of hind tibia 0.51. Antennae 11-segmented with a 3-jointed apical club. Clypeus deeply notched. Promesonotal suture very distinct, but appearing only slightly impressed in side view. Propodeal spines long, rod-shaped, distal part slightly curved with a blunt tip. Propodeal spine index (Buschinger 1966) appr. 2.0. Head, thorax, petiole, and postpetiole with fine punctulation, head with shallow rugae in addition. Head and gaster dark brown, thorax, petiole, postpetiole, scapes and legs yellowish-brown.

Specimens collected at Gurgentepe Geçidi (Ordu prov., northern Turkey) and material from various areas in the Caucasus closely resemble the neotype. Workers from Artvin (northeastern Turkey)

differ in that their propodeal spines are more acute, the ventral petiolar process is more pronounced, and the promesonotal suture is less strongly impressed. Size measurements of material from the Caucasus vary as follows: head length 0.80–0.90 mm, head width 0.67–0.74, scape length 0.56–0.60, thorax length 1.06–1.19.

#### *Description of the queen*

Dealate queen from Yeniçağa Gölü, Bolu prov., northern Turkey

Total length appr. 4.1 mm, head length 0.86, head width 0.74, scape length 0.58, maximum eye diameter 0.21, thorax length 1.32, maximal width of thorax 0.62, length of petiole 0.38, height of petiole 0.44, width of petiole 0.20, length of postpetiole 0.28, height of postpetiole 0.28, width of postpetiole 0.34, length of hind femur 0.76, length of hind tibia 0.58.

The habitus of the neotype queen (Fig. 2) is similar to that of queens of other *Leptothorax* (s. str.). Antennae 11-segmented with a 3-jointed apical club. Mandibles with six teeth. Three ocelli present. Anterior border of clypeus with a distinct notch as in *L. gredleri* (e.g., Buschinger 1966) or *L. retractus* (Francoeur 1986). Propodeal spines very long, rod-like, with a blunt tip; propodeal spine index appr. 1.9. In lateral view, petiolar node flat, grading smoothly into the weakly convex posterior surface, but separated from the concave anterior surface by a right angle. Postpetiole in dorsal view slightly trapezoidal, in lateral view with a small, sharp ventral tooth. Head, pronotum and scutum rugulose with interrugal spaces punctulate, rest of thorax, petiole and postpetiole finely

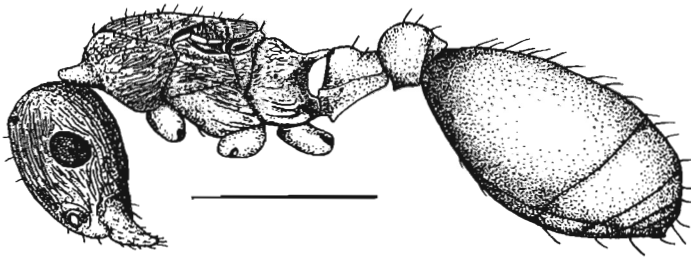


Fig. 2. Habitus of a queen of *Leptothorax scamni* from Ilgazdagi Geçidi, Çankiri prov., Turkey (scale: bar = 1 mm) (drawing by J. H.).

punctulate, gaster smooth and shining. Body covered with long, erect or suberect hairs, legs and scapes with moderately abundant appressed hairs. Coloration a light brown, dorsal parts of thorax and gaster darker brown.

#### *Disposition of types*

The neotype worker is deposited in the Zoological Museum of Moscow State University, Moscow, Russia (Nr. A 6008). In this collection, several additional specimens of *L. scamni* were identified. A queen from Yeniçaga Gölü (Bolu prov., northern Turkey) and a worker from Gürgentepe Geçidi (Ordu prov., northern Turkey) are deposited in the Museum of Comparative Zoology, Harvard University, Cambridge, Mass. Two workers are in the collection of the Musée d'histoire naturelle in Geneva, Switzerland.

#### *Diagnosis*

As Ruzsky (1905) clearly mentioned in the original description, the most distinctive characters of *L. scamni* are the extraordinarily long, finger-shaped propodeal spines in both female castes. Only in *L. acervorum* and in an as yet undescribed nearctic *Leptothorax* sp. A are the spines as long. However, in those species the spines are acutely tapering, not rod-shaped. In addition, *L. scamni* differs from holarctic *L. acervorum* in the lack of erect, stiff hairs on scapes and legs and by its notched clypeus. From nearctic *Leptothorax* sp. A, *L. scamni* differs in the shapes of the petiole in lateral view and of the postpetiole in dorsal view. In *Leptothorax* sp. A, the ventral petiolar process is very pronounced and drop-shaped and the postpetiole as seen from above is distinctly trapezoidal (for a more detailed diagnosis of the latter species see Heinze and Buschinger 1987, Heinze and Alloway 1991).

#### *Biology*

According to Arnol'di (1971), *L. scamni* is a common ant throughout alpine coniferous forests in the Caucasus, and indeed, in the Zoological Museum of Moscow State University, several specimens from various parts of the Caucasus are deposited (Shuntuck, Majkop distr.; Khamyshky, Kuban distr.; Karaklis, Armenia; Caucasian Natural Reservation). Nevertheless, an examination of specimens of *Leptothorax* (s. str.) collected in the Caucasus by B. Seifert, Naturkundliches Museum Görlitz, F. R. G.,

revealed numerous *L. acervorum* and *L. muscorum*, but not a single *L. scamni*, and only few specimens of *L. scamni* are present in the material collected in the Caucasus by A. G. R. One worker, e.g., was collected in the district of Shamshadinsk, Armenia, at an elevation of 2000 m (Aug. 13, 1986). From Turkey, at present only five workers and two queens are known, all collected in mountainous areas in the north of the country, less than one hundred kilometers from the Black Sea coast. The two dealate *L. scamni* queens, probably colony foundresses collected shortly after the mating flight, were found without workers and brood, one under bark in a poplar plantation at the Yeniçaga Gölü (Bolu prov., 1000 m elev., July 8, 1986, J. H.) and the other in a south-exposed, rotting tree stump in an alpine fir (*Abies nordmanniana*) forest at Ilgaz Dagi Geçidi (Çankiri prov., 1800 m elev., July 8, 1986, J. H.). Three workers were collected in an oak forest near Gürgentepe Geçidi, (Ordu prov., appr. 1200 m elev., July 5, 1989, A. S.), the remaining two workers are from the collection of the Musée d'histoire naturelle in Geneva, Switzerland and bear labels with the location designations "Artvin, SW Artvin, 1900 m" (9.6.1986; Besuchet-Löbl, Burckhardt) and "Artvin, Pirnalli, massif du Karkal Dagi, 1600 m" (June 11, 1986, Besuchet-Löbl, Burckhardt) (Artvin prov., northeastern Turkey). A thorough search for complete colonies in 1991 at the very site at Ilgaz Dagi Geçidi, where a dealate queen had been found five years before, was unsuccessful, though some thirty colonies of *L. acervorum* and *L. muscorum* were collected. In several museum and private collections, specimens of *L. acervorum* and *L. muscorum* from Turkey are present, but none of *L. scamni*. We therefore suggest that the latter species rarely occurs in dense populations, but may be a patchily distributed habitat specialist, such as *L. gredleri* in Central Europe.

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