

Range extension for *Lycosa praegrans* C.L. Koch, 1836 (Araneae: Lycosidae): first record from the Republic of Kosovo and notes on ontogenetic colour change

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Abstract. *Lycosa praegrans* C.L. Koch, 1836 is reported for the first time from the Republic of Kosovo, three specimens collected allow some discussion and illustration of ontogenetic colour change in this taxon.

Keywords. Balkans; Distribution; Faunistics; Lycosid; Spider; Wolf spider.

INTRODUCTION

Lycosa praegrans C.L. Koch, 1836 is a large and robust lycosid species, widely distributed across southeastern Europe and parts of western and central Asia, including Albania, Armenia, Azerbaijan, Bulgaria, Cyprus, Georgia, Greece, Iran, Kazakhstan, North Macedonia, Russia, Turkey, and Ukraine (Nentwig *et al.*, 2025; World Spider Catalog, 2025). This species typically inhabits dry, open habitats such as steppes, gravelly riverbeds, and anthropogenically disturbed environments, where it constructs silk-lined burrows in compact soil. Its morphology is well studied, with both sexes thoroughly described and illustrated by Zyuzin & Logunov (2000) and Armiach Steinpress *et al.* (2022). A distinguishing feature of the genus *Lycosa* Latreille, 1804 is the striking ventral colouration often observed on the femora and coxae, thought to have a role in intraspecific communication or predator deterrence.

Although the Balkan Peninsula hosts a rich diversity of Lycosidae, *L. praegrans* has not previously been recorded from the Republic of Kosovo. The spider fauna of this country remains comparatively understudied, with recent efforts gradually improving knowledge of its taxonom-

ic composition and distribution. Current records indicate the presence of over 280 spider species from more than 30 families (Geci & Naumova, 2021a, 2021b; Grapci-Kotori *et al.*, 2022; Geci *et al.*, 2023; Ibrahim *et al.*, 2024; Geci *et al.*, 2024; Geci *et al.*, 2025a, 2025b) but comprehensive faunistic surveys remain limited, especially for open and arid habitats.

In the Republic of Kosovo, the family Lycosidae is represented by at least 35 species across 8 genera. The most commonly recorded genera are *Alopecosa*, *Arctosa*, *Hogna*, *Pardosa*, and *Pirata*. Particularly widespread species such as *Pardosa agrestis*, *P. alacris*, *P. amentata*, and *Hogna radiata* have been documented in a variety of habitats, ranging from dry grasslands to moist riparian zones. The genus *Pardosa* is the most speciose among the Kosovar lycosids, with a total of 18 species recorded (Nentwig *et al.*, 2025).

In this work, we report the first confirmed records of *L. praegrans* from the Republic of Kosovo, based on fieldwork conducted in 2025. Three specimens were collected, one juvenile, a sub-adult male, and an adult male, allowing for documentation of ontogenetic colour changes. Additionally, we provide a photograph of the adult male's burrow *in situ*.

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MATERIAL AND METHODS

Fieldwork was conducted in July and August 2025 in the central and western parts of the Republic of Kosovo, focusing on dry steppe-like habitats and ruderal zones with sparse vegetation and loose, sandy soil. Active searching was carried out during daylight hours by visually scanning the ground surface and burrow entrances. Specimens were hand-collected using forceps and

placed in plastic vials with 70% ethanol. GPS coordinates and elevation were recorded for each collection site using a handheld GPS device.

Morphological identification was performed under a stereomicroscope (Olympus SZ16) at 10–40 × magnification. Diagnostic characters were compared to published descriptions and illustrations in Zyuzin & Logunov (2000) and Armiach Steinpress *et al.* (2022). Photographs of habitus were made using an Olympus Tough TG6 cam-

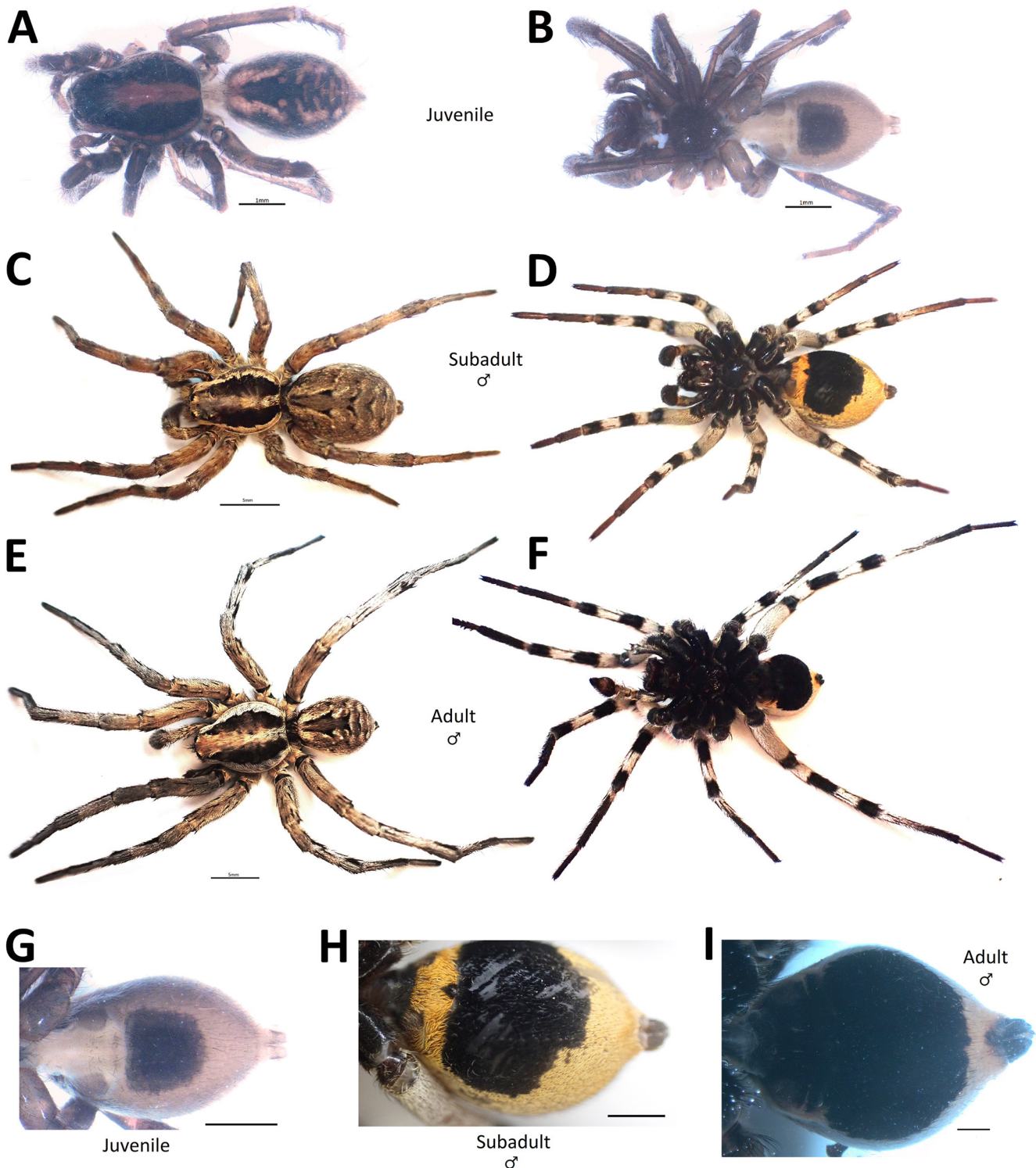


Figure 1. Three life stages of *Lycosa praegrands* C.L. Koch, 1836. (A–B) dorsal and ventral habitus of juvenile of indeterminate sex (UP AR00005), photographed in alcohol, (C–D) Ibid of subadult male (UP AR00004), photographed dry after 10 mins immersion in alcohol, (E–F) Ibid of adult male (UP AR00003), photographed dry after 10 mins immersion in alcohol, (G) abdomen, ventral view, of juvenile, (H) Idem of subadult male, (I) Idem of adult male.

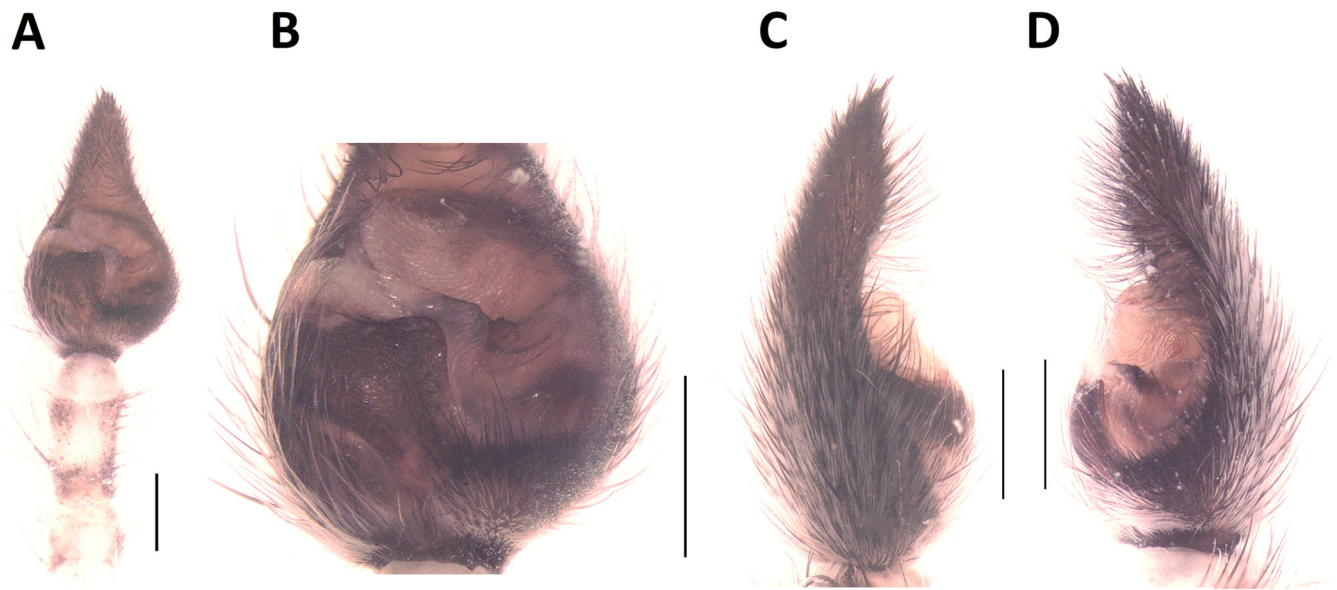


Figure 2. Left pedipalp of adult male *Lycosa praegrans* C.L. Koch, 1836 (UP AR00003). (A) ventral view, (B) close-up of sclerites, ventral view, (C) prolateral view, (D) retrolateral view. Scale bar: 1 mm.



Figure 3. Adult male *Lycosa praegrans* C.L. Koch, 1836 (UP AR00003) *in situ*. (A) dorsal habitus *in vivo*, whilst restrained, (B) *idem*, ventral view, (C) burrow from which male was collected.

era, photographs of genitalia were made using an Olympus SZX16 stereomicroscope with an Olympus SC50 camera, with photographs stacked in Helicon Focus software, those of the burrow were taken in the field using a Samsung A34 camera using macro mode. Colouration and morphological traits were documented for each specimen, with particular attention paid to ontogenetic variation.

All specimens are stored in the arachnological collection of the University of Prishtina, (UP) preserved in 70% ethanol and labelled with detailed collection data. Abbreviation: imm. = immature.

RESULTS

Lycosa praegrands C.L. Koch, 1836

Material examined: 1♂ (UP AR00003), Kërveni, Republic of Kosovo (42.1149381, 21.2408427), from burrows,

14/06/2025, leg. D. Geci and D. Sherwood; 1 imm. ♂ (UP AR00004), same data; 1 imm. (UP AR00005), same data.

Remarks: In juveniles, the black spot on the ventral opisthosoma is relatively small, and the rest of the ventral face is grey (Fig. 1B, G), the ventral face of the legs lacks black and white setae, the carapace and dorsal opisthosoma exhibit typical patterning for *Lycosa* species (Fig. 1A). In the subadult male, colouration of the carapace and dorsal opisthosoma are essentially unchanged (Fig. 1C), but the ventral face of the legs now have alternative black and white annulations (Fig. 1D), and black spot on the venter of the abdomen is enlarged (Fig. 1H). In the adult male, the legs change dorsally from the black and yellow annulations found in immature specimens to a light grey pubescence (Figs. 1E, 3A), found also on the pattern on the carapace (Fig. 1E) which is yellow-beige in immature specimens. The ventral leg colouration of alternate black and white banding re-

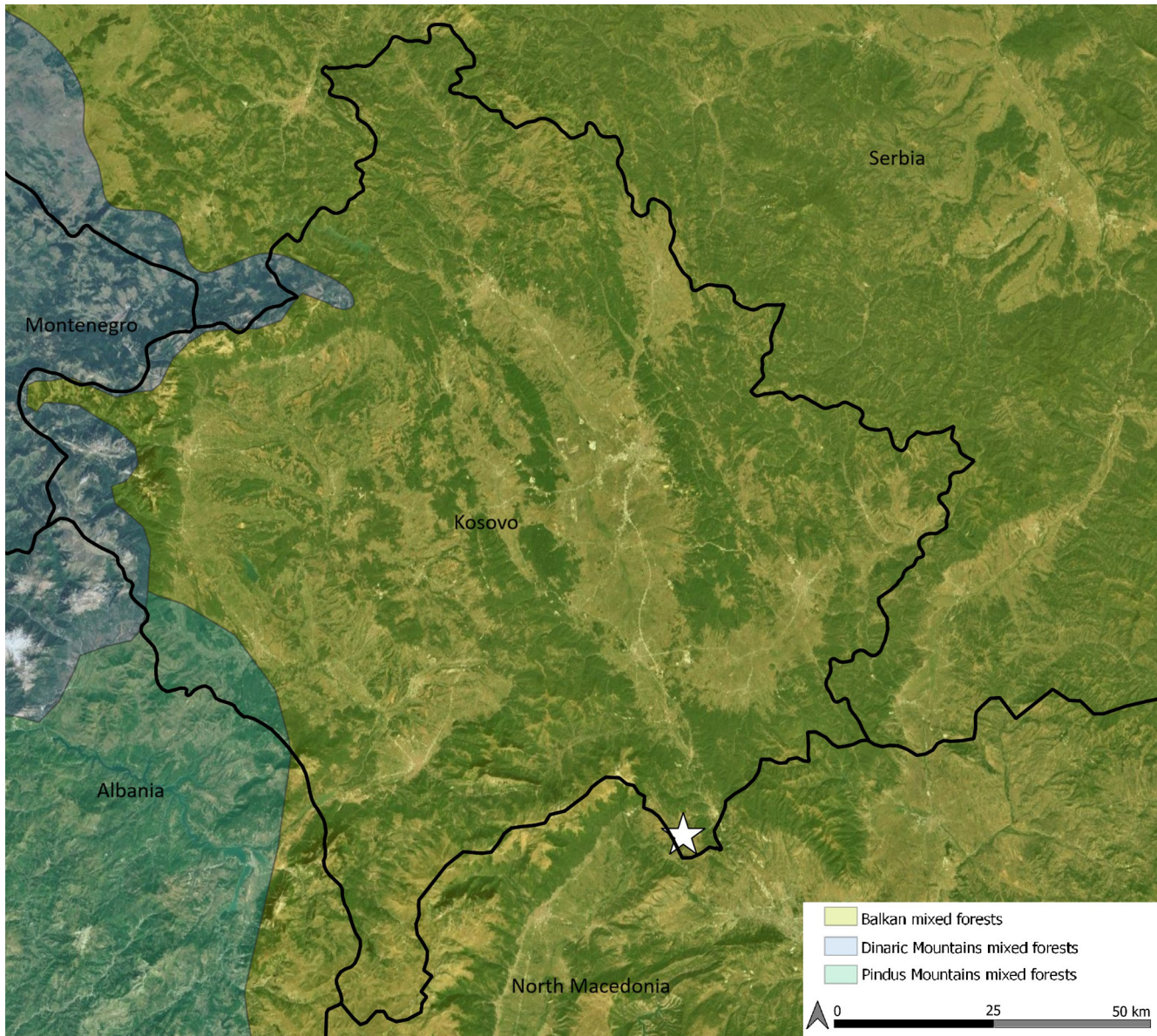


Figure 4. Map showing the distribution of *Lycosa praegrands* C.L. Koch, 1836 (star) in the Republic of Kosovo.

mains (Fig. 1F). The venter presents almost completely black as the black spot increases to fill almost the entire ventral face of the opisthosoma (Figs. 1F, I, 3B); only a small area between the edge of the spot and the spinnerets (also black) is beige-orange. To our knowledge, this is the first time this ontogenetic colour change has been documented in the peer-reviewed literature for this species; unfortunately only the adult male was able to be photographed *in vivo* (Figs. 3A-B), with the other two specimens being collected directly into a tube filled with ethanol. Palpal morphology of the adult male (Figs. 2A-D) confirms the identity of the species, reported herein for the first time from the Republic of Kosovo. We also photographed the burrow of the adult male (Fig. 3C), which was evidently last used as a moulting chamber as the male had very recently undergone ecdysis. The first locality for *L. praegrans* within Kosovo is herein mapped (Fig. 4).

DISCUSSION

The observed ontogenetic changes in ventral colouration, where a small central black spot in juveniles develops ontogenetically to an almost completely black venter in adult males, appears to be a previously undocumented aspect of the morphology of this species. This ontogenetic change may have functional significance related to thermoregulation, camouflage, or sexual maturity, and warrants further investigation. Our findings also emphasize the importance of collecting individuals across developmental stages to better understand intraspecific variation in colouration.

This confirmed record of *L. praegrans* from the Republic of Kosovo expands the known range of this species within the Balkan Peninsula and fills an important gap in its distribution. Given its presence in neighbouring countries such as Albania, North Macedonia, and Bulgaria, its absence in previous papers treating spiders from this country likely reflects limited arachnological sampling undertaken within the Republic of Kosovo. Although more than 280 species of spider have been recorded from the Republic of Kosovo to date, the true diversity is almost certainly higher, especially in xeric habitats such as those preferred by *Lycosa*. Our results underline the importance of focused field surveys in diverse habitat types, which continue to yield new national records and improve baseline biodiversity data.

Future spider research in the Republic of Kosovo should aim to systematically sample across various ecological zones and in different seasons to elucidate the true extent of biodiversity of this group within this country. Additionally, live observation of both sexes and various developmental stages in natural conditions could be beneficial in better understanding the life history and ecology of *L. praegrans* and other large lycosids in the region.

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