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Rediscovery and description of a new species of *Losgna* (Cameron 1903): reviving a forgotten ichneumonid genus in India

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Abstract

The Darwin wasp genus *Losgna* (Cameron, 1903) (subfamily Ichneumoninae), is poorly documented in India, with no new species described since Heinrich's work in 1965. Here we rediscover the genus in India and describe a new species collected from an urban dry scrub forest in Chandigarh. A taxonomic key for the identification of Indian *Losgna* is provided along with the illustrations of the new species and Generitype. The study significantly extends the known distribution of *Losgna* in the Oriental region and highlights the under-explored diversity of Ichneumoninae in India and the need for further taxonomic research.

Key words: Ichneumonidae, Darwin wasps, parasitic wasps, Chandigarh

Introduction

The subfamily Ichneumoninae, a notable division within the Darwin wasps (Ichneumonidae), predominantly parasitises Lepidoptera larvae. This group, encompassing nearly 4,400 species globally (Yu *et al.*, 2016), displays remarkable diversity, particularly within Southeast Asia. Despite this, the ichneumonine diversity in regions such as the Shivaliks of India remains insufficiently documented. Ichneumoninae species, characterised by their primarily koinobiont endoparasitoid nature, distinctive five-sided areolet, and colourful appearance, have historically been grouped into various tribes. However, recent taxonomic revisions have consolidated several tribes into Ichneumonini, expanding its classification to include over 300 genera (Broad *et al.* 2018).

This paper focuses on the genus *Losgna* Cameron 1903, distinguished by its flat, keeled scutellum, dilated antennae, spined tarsi, and seven abdominal segments, with fifteen Oriental and two Madagascan species. The Oriental species are predominantly black, adorned with intricate light markings and distinct banding on the tergites. This genus of Darwin wasps is not typically found at higher elevations in the mountains and is limited to the tropical forest belt located at the base of the mountains and in the mid-mountain region, showing a preference for limestone (Heinrich 1965). Despite its widespread occurrence across Southeast Asia, records of *Losgna* in India are remarkably sparse. Previous studies (Heinrich 1965) documented species such as *Losgna indica* and *Losgna bambusicola indicola* from East India and neighbouring Myanmar, but no subsequent collections or descriptions have been reported from the region in nearly six decades. This lack of data underscores the need for renewed surveys and taxonomic assessments to better understand the diversity and distribution of *Losgna* and other Ichneumoninae in India.

This paper describes a new species of *Losgna* collected from an urban dry scrub forest in Chandigarh, India. The study provides a comprehensive morphological description, differential diagnosis, and distributional data for the new species, alongside an updated key and annotated catalogue of all five *Losgna* species from India. By resolving historical nomenclatural ambiguities and contextualising the genus within India's understudied Ichneumoninae fauna, this work addresses critical gaps in biodiversity documentation.

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Methodology

The specimen was collected using a (sweep net) d-net in an urban, dry and scrub forest belt of Chandigarh, India. The specimen was stored in alcohol and later dry mounted and photographed using Nikon D850 camera with 105 mm lens mounted with a Godox ring flash. Images were processed and stacked with Helicon Focus software. The specimen was then compared with Heinrich's collection of *Losgna* in the Natural History Museum, London (NHMUK), the Bavarian State Collection of Zoology (ZSM) and Hope Collection in Oxford Museum (OUMNH), and then run through Heinrich's (1965) key for the genus. Morphological description follows Broad *et al.* (2018).

Abbreviations:
NHMUK—British Museum of Natural History (London, England).
OUMNH—Oxford University Museum of Natural History (Oxford, England)
WII—Wildlife Institute of India (Dehradun, India)
ZSM—Bavarian State Collection of Zoology (Munich, Germany)

Results

Taxonomy

Family Ichneumonidae
Tribe Ichneumonini, 1802
Genus *Losgna* Cameron, 1903

Key to Indian species of *Losgna* Cameron, 1903

1. Hind tibiae yellowish on basal two-thirds (apex black); hind coxa black; all tergites with apical bands with tergites 3–4 often narrowed/interrupted medially . . . . . *simulator* (Townes & Gupta 1961)
- Hind tibiae entirely black; hind coxa pale fulvous (Fig 2E); tergites 2 and 3 without continuous apical bands with only pale lateral markings (Fig 2G) 2
2. Mesonotum without pale longitudinal lines; hind femur reddish brown with dark base (Fig 2E); large species, 15.0 mm long . . . . . *forticeps* (Cameron, 1903)
- Mesonotum with two short longitudinal lines in the middle; hind femur almost or completely reddish yellow; smaller species, 10.0–13.0 mm long. 3
3. Clypeus, face and gena entirely white; hind tibia and tarsus dark brown; posterior bands of 4th and 5th tergites wider, usually complete, not interrupted medially. . . . . *indica* (Heinrich, 1965)
- Clypeus, face and gena (cheeks) patterned with black; hind tibia red with black base and apex; 4th tergite with very narrow posterior band often interrupted in the middle, 5th tergite with narrow white posterior margin 4
4. 1st flagellomere 3.0 × longer than wide; fore coxa, mid coxa extensively red at base; hind coxa light red with clearly delimited yellow spots dorsally; small species, 9.0 mm long . . . . . *bambusicola indicola* (Heinrich, 1965)
- 1st flagellomere 2 × longer than wide; fore coxa, mid coxa ivory; hind coxa black with one large white spot dorsally (Fig 1B); larger species, 12.8 mm . . . . . *occidentalis* sp. nov.

Losgna occidentalis sp. nov. (Om Chaudhary & Reinisch, 2025)

(Figs 1A–D)

Holotype: ♂ India: Chandigarh, Manimajara, 30°42'34''N, 76°50'04''E, 366 m.a.s.l., urban landscape, General Collection, 05.xii.2023, coll. Anu Chaudhary. Deposited in the Wildlife Institute of India (WII) National Repository.

Description: Male. Body length 12.8 mm

Head: Flagellum with 40 flagellomeres, bristle shaped, sharply pointed at apex, 1st flagellomere 2 × longer than wide, strongly broadened in middle, widest flagellomeres 1.1 × wider than long. Temple short and thin, narrowed behind eye. Frons convex, setose and weakly punctate . Punctures separated by width of more than one and a half punctures. Face weakly and sparsely punctate. Clypeus strongly punctate medially and weakly punctate laterally

(Fig. 1A). Labrum short, transverse and wider than long with a shallow median depression. Malar space almost as long as width of mandibular base. Gena sparsely punctate posteriorly. Genal carina meeting occipital carina just before base of mandibles. Posterior and medial part of mandibles covered in plumose hairs (Fig. 1B).

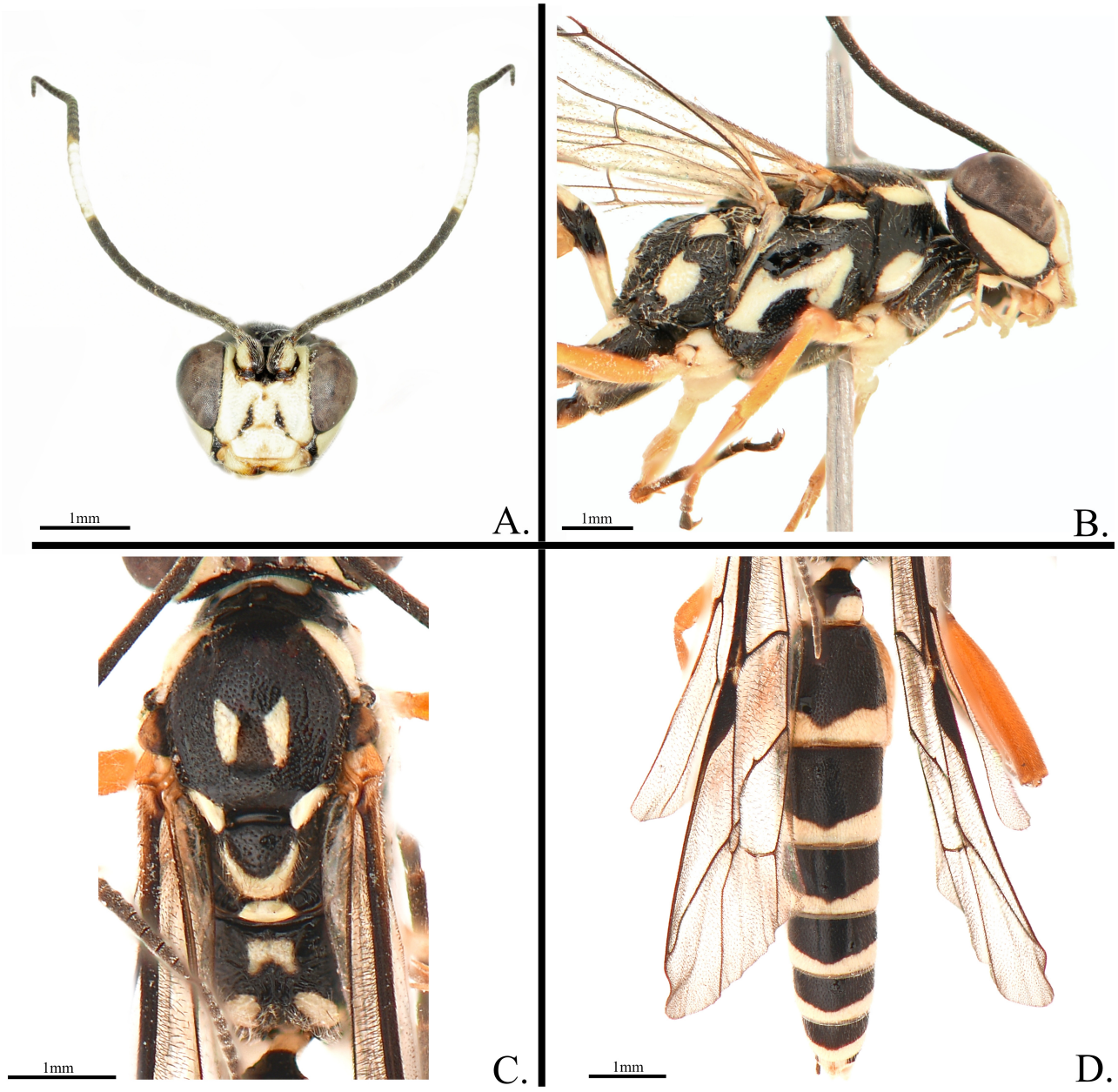

FIGURE 1. *Losgna occidentals* **sp. nov.** A—face, frontal view, B—face and propodeum side view C—propodeum, dorsal view, D—basal tergites, dorsal view.

Mesosoma: Notaulus distinct on anterior 0.6 of mesoscutum. Mesoscutum strongly punctate and sparsely setose. Scutellum slightly raised, longer than wide, evenly punctate with sparse setae. Mesopleuron smooth and shining above mesopleural fovea and weakly and finely punctate below. Metapleuron densely and coarsely punctate, juxtacoxal carina present. Propodeum (Fig. 1C) partially carinated, with apophysis. Area superomedia small, slightly wider than long, with coarse rugae; costula reaching at 4/10 of its length. Hind coxa with dense and fine punctures with scopa, and hind femur 4.6 × longer than wide.

Metasoma: 1st sternite smooth and not carinate. Postpetiole distinctly widened, with fine sparse punctures laterally, smooth surface with median field not defined. Gastrocoelus longer than wide, with some ridges. Thyridium large, slightly oblique, 1.5 × as wide as the interval between thyridia (Fig. 1D). 2nd tergite densely rugose-punctate, third tergite about as wide as long. 3rd and following tergites dull with fine punctures and fine and sparse setae.

Gonosqama triangular with rounded apex; 8th sternite sharply pointed medially with projection facing nearly vertically downwards.

Colour: Black, richly patterned with ivory white markings. Scape and pedicel laterally yellowish, black centrally with brown base. Flagellomeres 14–19 ivory, others black. Palps, mandible except teeth, clypeus, face except blackish central markings, ivory (Fig. 1A). Gena ivory, outlined in black posteriorly, eye orbits completely ivory, face ivory except for narrow triangular black stripes extending dorsally from anterior tentorial pit to dorsum of facial protuberance, malar sulcus and frons black. Collar, antero-ventral stripes and upper margin of pronotum ivory. Two short posteromedian stripes on mesoscutum, subtegular ridge, wide ventral band on mesopleuron, apical spot on metapleuron and prescutellar ridge ivory. Scutellum laterally and posteriorly, postscutellum, spot in front of propodeal spiracle and posterolateral spot on propodeum ivory (Fig. 1B, Fig. 1C). Posterolateral spot on postpetiole and p osterior bands of tergites ivory. Tergites 2–6 triangularly narrowed medially, with emargination becoming shallower on posterior tergites. Coxae and trochanters ivory, hind coxa black with ivory markings ventrally (Fig. 1D). Legs reddish; fore and mid coxae and trochanters and hind coxa ventrally and internally ivory, hind coxae black with white dorsal spot, fore femur & tibia light orange, second tarsomere brown and final two tarsal segments dark brown to black, mid femur & tibia light red with proximal half of basitarsus light brown darkening to dark brown to black final tarsomere. Hind legs light red with dark brown and black joints, dark brown tibia apex and black tarsus. Wings hyaline with slight brown colouration and pterostigma uniformly black

Female: Unknown

Biology: Unknown

Distribution: The cities of Chandigarh and Dehradun in India.

Etymology: The specie name *occidentalis* translates to western as it this is the westernmost extent for species of this genus in the oriental region.

Remarks: This species runs to *Losgna bambusicola indicola* (Heinrich, 1965) in the key to Oriental *Losgna* species (Heinrich 1965) but differs by its larger size, ivory fore and mid coxae dorsally white, black hind coxae and the presence of complete, white posterior bands, triangularly indented but not interrupted medially on all the metasomal tergites.

Losgna forticeps (Cameron, 1903)

(Figs 2 E–G)

Generitype ♀ India: Khasia Hills, Assam. Type no. ENT-HYME1616 Col. Hope department, OUMNH.

Remarks: This specimen is the type for the genus *Losgna,* collected by George Alexander James Rothney and later described by Cameron in 1903 as the first species in this genus. Cameron had described the same genus under four different names within five years. However, certainty was strengthened by the highly distinctive characteristics presented in the original description of the genus, such as the distinct *notauli*, the transversely striated *areae dentiparae*, and the sculpture of tergites 1–3 (Heinrich, 1965).

Distribution: Khasi Hills (Previously known as Khasia hills in Assam), Meghalaya, India and Myanmar

Losgna bambusicola indicola (Heinrich, 1965)

Holotype ♀ W, India, Ranchi. Type no. ZSM-Hym- 00664 coll. Gerd H. Heinrich.

Remarks: Subspecies of *Losgna bambusicola* but differs by having fore and mid coxae red at the base and a less broadened flagellum.

Distribution: Ranchi, Jharkhand, India.

Losgna indica (Heinrich, 1965)

Holotype ♀ W, Myanmar (Burma), Maymyo, 800 m, XII.37. Type no. ZSM-*Hym-00663 coll. Gerd H. Heinrich.*

Remarks: One of the most common *Losgna* species and prefers sparse grassy forest areas at the lowest mountain levels as per Heinrich, however no records of this species exists after Heinrich's description.

Distribution: Maymyo, Mt. Popa, and Mt. Victoria in Myanmar and Sikkim, India.

Losgna simulator (Townes & Gupta 1961)

Holotype ♀ India: Sikkim, 36.1858, NHMUK.

Remarks: This species was separated from *Losgna cariniscutis* (Cameron 1905) by Townes & Gupta and the holotype is kept in the NHMUK.

Distribution: Sikkim, India and Mt. Victoria and Maymyo in Myanmar.

FIGURE 2. *Losgna forticeps* (Cameron 1903). E—face and propodeum side view F—labels, G—propodeum and basal tergites, dorsal view.

Discussion

During comparative morphological analyses of Ichneumoninae specimens at the NHMUK, an examination of historical material revealed 4 specimens labeled under "*Losgna quintaxa*" from the mid 1900s with holotype designation. Two of these specimens had identical diagnostic characters to *Losgna occidentalis*; however, an extensive literature review alongside database searches showed no published description associated with this name. Consultation with

Ichneumonidae specialist Dr Gavin Broad (NHMUK) confirmed that *L. quintaxa* represents a *nomen nudum* due to the absence of a formal species description, and therefore bearing no nomenclatural status under the International Code of Zoological Nomenclature. *Losgna occidentalis* sp. nov. serves as the first valid description of this taxon, with the type specimen designated serving as the holotype. These findings reveal taxonomic discrepancies within examined specimens and highlight challenges in reconciling collection material with existing frameworks. The dispersal of type specimens across several institutions, combined with limited historical collection data have created substantial barriers to achieving robust taxonomic resolution.

Given that, despite extensive sampling efforts in north-east India, this genus had not been recorded from the country since 1965 emphasises the persistent challenges confronting Indian taxonomy. Challenges that Dar *et al.* (2012) have attributed to a shortage of trained taxonomists, inadequate reference collections, limited funding, and poor coordination between institutions. Equally, Kumar (2011) has called for a digital revival in taxonomy to surmount these impediments. Alternatively, it is plausible that the historical records reflect a genuine decline or even local extirpation of the genus, a scenario that merits further investigation. As India's biodiversity faces escalating anthropogenic pressures, such efforts are critical to conserving poorly known taxa and informing evidence-based conservation policies. The unexpected occurrence of *L. occidentalis* sp. nov. in the transitional zone from oriental to palearctic may be due to historical under-sampling in north-west India, as evidenced by our year-long collection efforts in the region, which failed to yield any additional *Losgna* specimens.

Considerable temporal gaps in the documentation of the *Losgna* lineage continue to leave fundamental questions regarding parasitoid biology and ecology of this group highlighting that while taxonomy is essential for describing and naming species, it is equally imperative to understand their biology and ecological functions to fully appreciate their roles in the ecosystem. Nevertheless this description of *L. occidentalis* sp. nov. represents a significant contribution to the systematics of this enigmatic genus.

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