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First record of *Loxoncus renitens* (Bates, 1886) and additional records of *Idiomelas fulvipes indus* Kataev, 1997 from India (Coleoptera, Carabidae, Harpalinae)

Kuzhikkatil Nijisha
Entomology Research Unit, Post Graduate & Research Department of Zoology, College Research Centre Affiliated to University of Calicut, St. Joseph's College (Autonomous), Devagiri, Calicut 673008, Kerala, India.
✉ *nijishak71@gmail.com* https://orcid.org/0000-0002-0638-8400

Thomas K. Sabu
Department of Zoology, University of Calicut, Thenhipalam, 673635, Kerala, India.
✉ *sabukthomas@gmail.com* https://orcid.org/0000-0002-8701-0484

Viswanath D. Hegde
Zoological Survey of India Western Ghats Regional Centre, Kozhikode 673006, Kerala, India.
✉ *hegde67@yahoo.co.in* https://orcid.org/0000-0001-9506-5170

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ABSTRACT. New record of carabid species *Loxoncus renitens* (Bates, 1886) from Indian mainland with additional records of subspecies *Idiomelas fulvipes indus* Kataev, 1997 from the states of Kerala, Tamil Nadu and Karnataka with notes on their geographical distribution are provided.

Keywords: first report, ground beetles, *Idiomelas*, *Loxoncus*, south India

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INTRODUCTION

Genus *Loxoncus* Schmidt-Göbel, 1846 belongs to the tribe Stenolophini of subfamily Harpalinae with 36 species world-wide (Lorenz, 2021) and most commonly occurs in the subtropics and tropics of the eastern hemisphere (Kataev, 2003) with two subgenera, *Loxoncus* Schmidt-Göbel, 1846 and *Xoloncus* Kataev, 2003. At present five *Loxoncus* species are reported from India (Nijisha & Sabu, 2023) in which four species belong to subgenus *Loxoncus* and one belongs to subgenus *Xoloncus*. Another species, *Loxoncus renitens* of the subgenus *Loxoncus*, is recorded here for the first time from Indian mainland.

Genus *Idiomelas* Tschitschérine, 1900 belongs to the tribe Stenolophini of subfamily Harpalinae (Lorenz, 2021) and is distributed in Palearctic, Afrotropical and Oriental realms (Kataev, 1997). *Idiomelas* is represented by two subgenera, *Idiomelas* Tschitschérine, 1900 confined to the Palearctic realm (from Asia Minor to Mongolia and China) with two species, *I. morio* (Ménétriés, 1832) and *I. nigripes* (Reitter, 1894), and *Egaploa* Alluaud, 1916 with two species, *I. crenulatus* (Dejean, 1829) and *I. fulvipes* (Erichson, 1843), recorded from Afrotropical, Palearctic and Oriental realms (Kataev, 1997, 2014). Three subspecies of *I. fulvipes* are known with two subspecies (*I. fulvipes himalayensis* Della Beffa, 1931 and *I. fulvipes indus* Kataev, 1997) from Oriental [India, Myanmar, Nepal (Kataev, 1997, 2014)] and Palearctic [Pakistan (Kataev, 2014)] and one subspecies (*I. fulvipes fulvipes* (Erichson, 1843)) from Palearctic [Iraq, Oman, Saudi Arabia, Yemen (Kataev, 1997, 2014); Arab Emirates (Felix, 2009)] and Afrotropical [Angola,

Corresponding author: Kuzhikkatil Nijisha ✉ *nijishak71@gmail.com*

Botswana, Cape Verde Is., Djibouti, Madagascar, Mozambique, Seychelles, Sudan, Tanzania (Kataev, 1997, 2014); Ethiopia, Ghana, Kenya, Kongo, Liberia, Namibia, Zambia, Zimbabwe (Jaeger et al., 2016)] realms. The present study reports additional records of the subspecies of *Idiomelas fulvipes, I. fulvipes indus*, from the states of Kerala, Tamil Nadu and Karnataka and also discussing about color variation among the same subspecies with an unusual trait observed in one specimen.

MATERIAL AND METHODS

Specimens attracted to light in a residential building were collected from Krishnan Kovil located in the foothill of the Western Ghats (09°33'51.3"N, 77°40'51.7"E) in Virudhunagar District, Tamil Nadu state and with light trap from forest at Aralam Wildlife Sanctuary (11°58'03.4"N, 75°46'19.2"E) from Kannur district in the north Malabar region of southern Kerala and loaned out from National Insect Collections of Zoological Survey of India Western Ghats Regional Centre, Kozhikode (ZSIK). Tribe and genus level identification was done by using the key modified from Habu (1973). Species level identification was done using the keys from Kataev (1997, 2003, 2014). Images were taken using Leica® M205C stereo zoom microscope fitted with Leica® MC170 HD digital camera and were enhanced with the help of Leica® Application Suite (LAS) version 4.12. Studied specimens were deposited in the National Insect Collections of Zoological Survey of India Western Ghats Regional Centre, Kozhikode (ZSIK).

Abbreviations. TL – body length from the anterior margin of the clypeus to the elytral apex; PL – length of pronotum along median line; PW – maximum width of pronotum; EL – maximum length of closed elytra; EW – maximum width of elytra.

RESULTS

Taxonomic hierarchy

Class Insecta Linnaeus, 1758

Order Coleoptera Linnaeus, 1758

Family Carabidae Latreille, 1802

Subfamily Harpalinae Bonelli, 1810

Genus *Loxoncus* Schmidt-Göbel, 1846

Type species: *Loxoncus elevatus* Schmidt-Göbel, 1846.

***Loxoncus renitens* (Bates, 1886)** (Fig. 1A–B)

Material examined *(n = 1).* 1♂, 26.ii.2022, light trap, Aralam Wildlife Sanctuary (11°58'03.4"N, 75°46'19.2"E), Kannur, Kerala, India, coll. K. Shigina, deposited in ZSIK, SJC-ZOO-AWSNK004.

Measurements. (Male), TL = 7.07 mm, PL = 1.49 mm, PW = 2.21 mm, EL = 4.35 mm, EW = 2.92 mm.

Distribution. India [Kerala: Kannur: Aralam Wildlife Sanctuary (**New record**)]; Sri Lanka (Bates, 1886:79; Kataev, 2003:367).

Genus *Idiomelas* Tschitschérine, 1900

Type species: *Idiomelas morio* (Ménétriés, 1832).

***Idiomelas fulvipes indus* Kataev, 1997** (Fig. 2A–D)

Material examined *(n = 5).* 1♂, 08.viii.2019, light attracted, Krishnan Kovil (9°33'51.3"N, 77°40'51.7"E), Virudhunagar District, Tamil Nadu, India, coll. K. Nijisha; deposited in ZSIK. ZSIK Regd. No.SJC-ZOO-KKVNK001; 1♂, 26.ii.2022, light trap, Aralam Wildlife Sanctuary (11°58'03.4"N, 75°46'19.2"E), Kannur, Kerala, India, coll. K. Shigina, deposited in ZSIK. ZSIK Regd. No.SJC-ZOO-AWSNK001; 2♀♀, 26.ii.2022, light trap, Aralam Wildlife Sanctuary (11°58'03.4"N, 75°46'19.2"E), Kannur, Kerala, India, coll. K. Shigina, deposited in ZSIK. ZSIK Regd. No. SJC-ZOO-AWSNK002–003; 1♂, 18.vi.2022, light trap, Mookambika Wildlife Sanctuary, (13°53'55.4"N, 74°44'42.4"E), Areshiroor, Karnataka, India, coll. V.D. Hegde & Party, deposited in ZSIK.

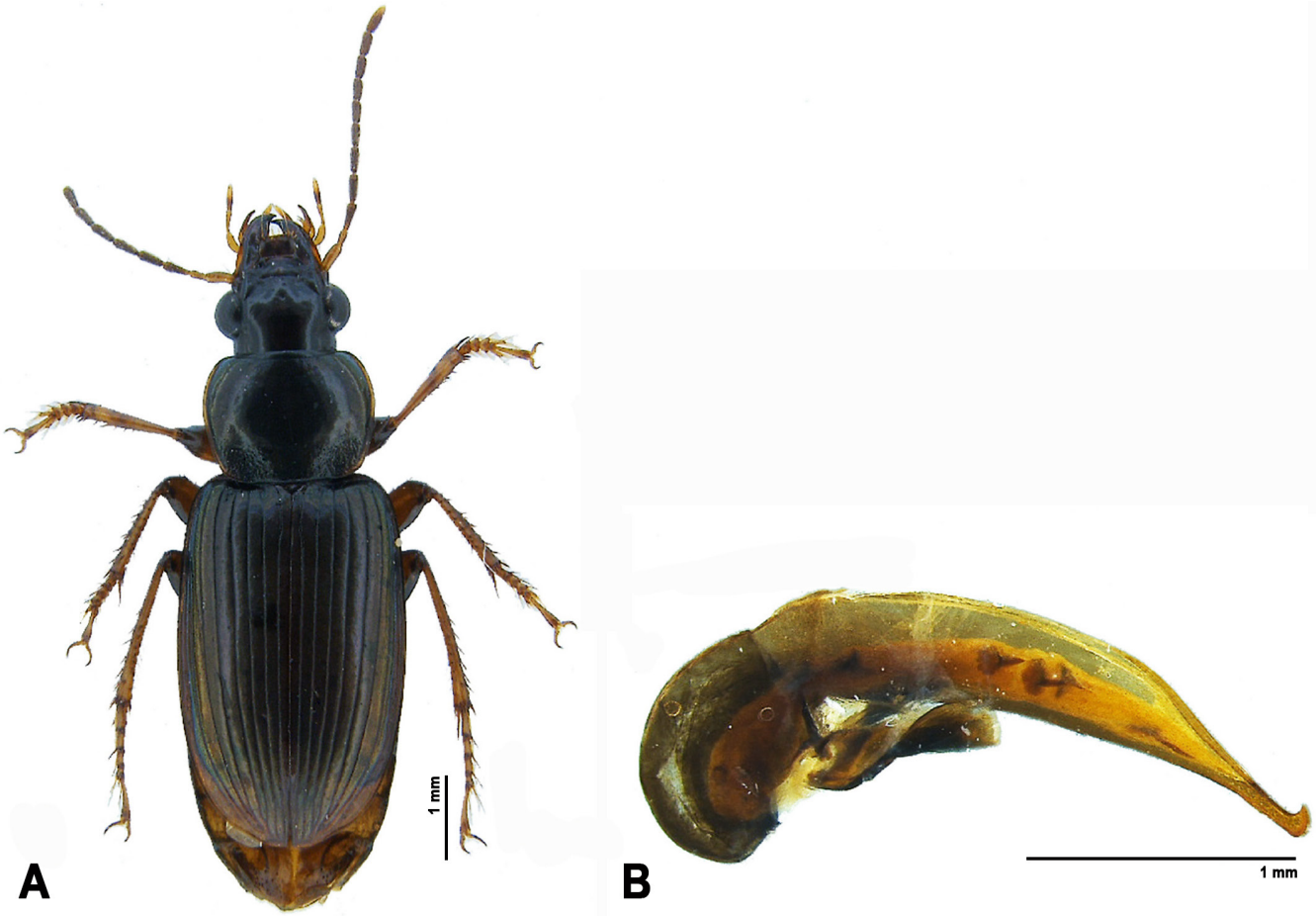

Figure 1. *Loxoncus renitens* (Bates, 1886). **A.** Habitus, dorsal view; **B.** Aedeagus, lateral view.

Measurements. (Males), TL = 7.7 mm, PL = 1.6 mm, PW = 2.4 mm, EL = 4.7 mm, EW = 2.9 mm. (Females), TL = 7.7 mm, PL = 1.7 mm, PW = 2.4 mm, EL = 4.7 mm, EW = 3 mm.

Distribution. India: Chhattisgarh: Jagdalpur, Forest rest house (Nijisha & Sabu, 2023:466); Odisha: Surada, Ganjam (Andrewes, 1924:39); Goa: Südgoa, Canacona Raj Baga Beach (Kataev, 2014: 249); Karnataka: Bangalore (Kataev, 2014:249), Mookambika Wildlife Sanctuary (Present study); Tamil Nadu: Krishnanan Kovil (Present study), Chennai, Coimbatore (Kataev, 2014:249), Kodaikanal (Alluaud, 1916:73; Jeannel, 1948:695), Tiruchirappalli (Kataev, 2014:249); Kerala: Kannur, Aralam Wildlife Sanctuary (Nijisha & Sabu, 2023:466); Myanmar (Kataev, 2014:249); Nepal (Kataev, 1997:348).

Remarks. Among the five specimens collected, one shows entirely black coloration, two exhibits dark reddish-brown legs while the other two specimens with pale yellowish-brown legs. However, upon closer comparison of aedeagus, it becomes evident that all these specimens belong to the same taxon *Idiomelas fulvipes indus* and the coloration of their legs may vary in this subspecies (Boris M. Kataev, pers. com.). Additionally, one specimen with black color exhibits a remarkable deep emargination in the basal edge of pronotum, an unusual trait in harpalines and it may be an aberrant character (Boris M. Kataev, pers. com.).

All the type specimens of the species of *Idiomelas* are in European museums (Erichson, 1843; Kataev, 1997) and the present study leads to deposition and availability of the studied specimens of *I. fulvipes indus* in Indian National depository at ZSI Calicut.

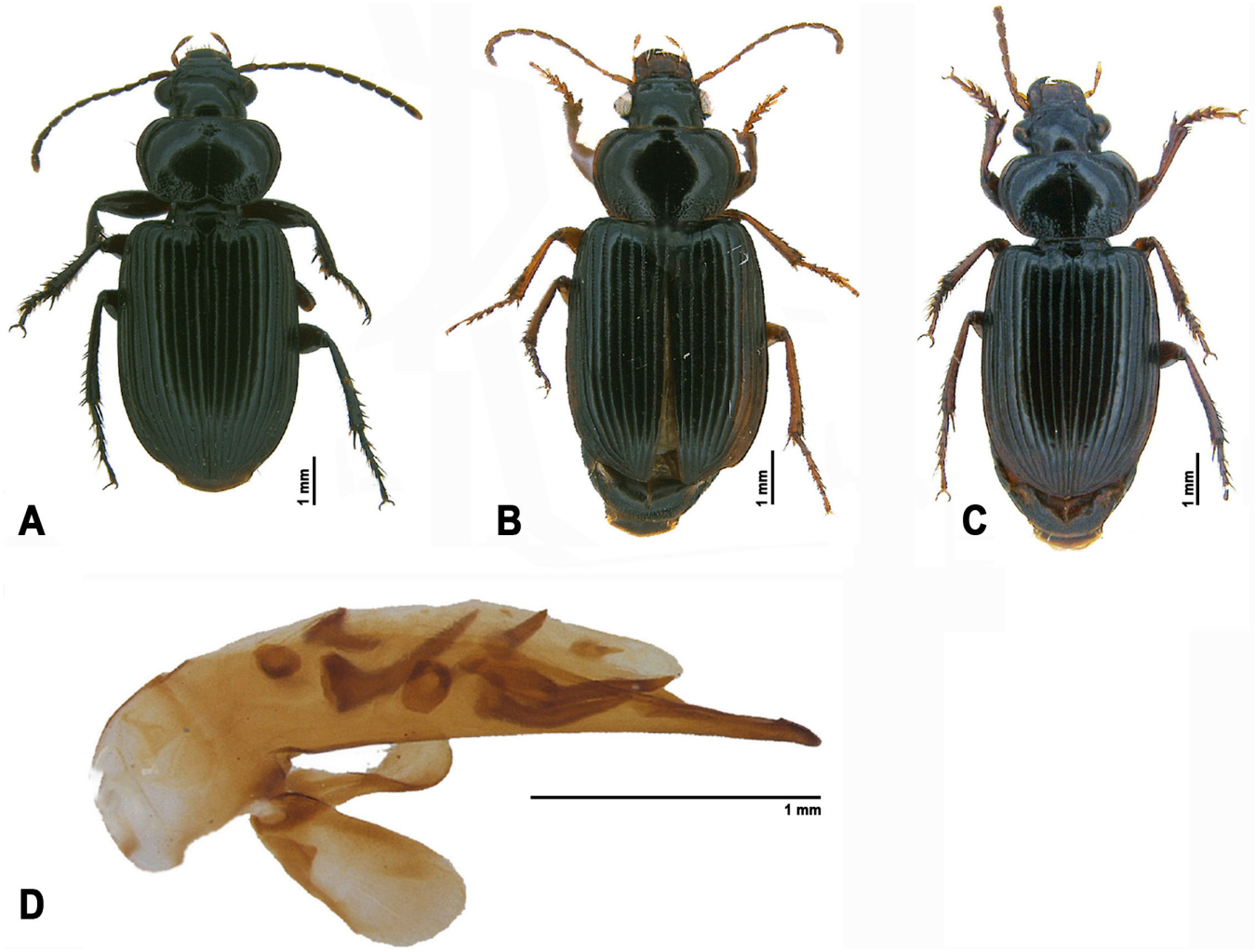

Figure 2. *Idiomelas fulvipes indus* Kataev, 1997, colour variation among specimens, and the male genitalia. **A.** Entirely black body; **B.** Pale yellowish brown legs; **C.** Dark reddish brown legs. **D.** Aedeagus.

DISCUSSION

Loxoncus renitens was described from Colombo and is known only from Sri Lanka (Kataev, 2003). It is the first report of the species from India and verification was done by comparing with the aedeagal illustrations provided in Kataev (2003). *Idiomelas fulvipes indus* was previously reported from Indian states of Chhattisgarh, Odisha, and Goa, in addition to Kerala, Tamil Nadu and Karnataka. Additional records of *I. fulvipes indus* from the states of Kerala, Tamil Nadu and Karnataka are provided.

AUTHOR'S CONTRIBUTION

The authors confirm their contribution to the paper as follows: K. Nijisha: Identification, digital imaging of specimens and drafting the manuscript; T.K. Sabu: Confirmation of the identified species and technical review of the manuscript; V.D. Hegde: Technical review of the manuscript. The authors read and approved the final version of the manuscript.

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AVAILABILITY OF DATA AND MATERIAL

The specimens listed in this study are deposited in the National Insect Collections of Zoological Survey of India Western Ghats Regional Centre, Kozhikode (ZSIK) and are available from the curator, upon request.

ETHICS APPROVAL AND CONSENT TO PARTICIPATE

This study only included plants and arthropod material, and all required ethical guidelines for the treatment and use of animals were strictly adhered to in accordance with international, national, and institutional regulations. No human participants were involved in any studies conducted by the authors for this article.

CONSENT FOR PUBLICATION

Not applicable.

CONFLICT OF INTERESTS

The authors declare that there is no conflict of interest regarding the publication of this paper.

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نخستین گزارش *Loxoncus renitens* (Bates, 1886) و ثبت گزارش‌های بیشتر *Idiomelas fulvipes indus* (Coleoptera, Carabidae, Harpalinae) Kataev, 1997 از هند

کوژیکاتیل نیجیشا[1*]، توماس کی سابو[1] و ویشواناث هگ[3]

۱ واحد بخش تحقیقات حشرات، گروه تحصیلات تکمیلی و تحقیقات جانورشناسی، مرکز تحقیقات دانشگاه کالیکات، کرالا ۶۷۳۰۰۸، هند
۲ بخش جانورشناسی، دانشگاه کالیکات، تنهیپالام، ۶۷۳۶۳۵، کرالا، هند
۳ مرکز منطقه‌ای گهات غربی، بخش مطالعات جانورشناسی هند، کرالا-۶۷۳۰۰۶، هند.

* پست الکترونیک نویسنده مسئول مکـاتبه: *nijishak71@gmail.com*

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چکیـده: گزارش جدید گونه سوسک زمینی *Loxoncus renitens* (Bates, 1886) از شبه قاره هند به همراه گزارش‌های بیشتر از زیرگونه *Idiomelas fulvipes indus* Kataev, 1997 از ایالت‌های کرالا، تامیل نادو و کارناتاکا در هند، به‌علاوه نکاتی از انتشار جغرافیایی آن‌ها ارایه شد.

واژگـان کلیدی: اولین گزارش، سوسک زمینی، *Idiomelas*، *Loxoncus*، جنوب هند، Stenolophini