

New records of tiger beetles (Coleoptera, Cicindelidae) from India and Sri Lanka with description of a new subspecies

Новые находки жуков-скакунов (Coleoptera, Cicindelidae) из Индии и Шри-Ланки с описанием нового подвида

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Ключевые слова: Coleoptera, Cicindelidae, жуки скакуны, *Jansenia*, Индия, новый подвид, новые находки.

Abstract. Based on recent field collections and new records from museums, new localities and known range extensions are provided for several species of tiger-beetles from India and Sri Lanka. *Jansenia tetrastacta delhiensis* Matalin et Anichtchenko, **ssp.n.** is described from New Delhi and is distinguished from the nominotypical subspecies by the absence, or if present, a small middle spot of elytra, unicoloured pale inner surface of hind femurs, as well as more transverse labrum in males.

Резюме. По результатам обработки полевых сборов и музейных коллекций приводятся точки новых находок жуков-скакунов из различных районов Индии и Шри-Ланки. Из Нью-Дели описывается *Jansenia tetrastacta delhiensis* Matalin et Anichtchenko **ssp.n.**, отличающийся от номинативного подвида отсутствием или очень мелким размером срединных пятен элитры, однотонной палевой окраской внутренней поверхности бёдер и более поперечной верхней губой самцов.

As of 2000 the tiger beetle fauna of India (with Andaman and Nicobar Islands) included 208 species, and that of Sri Lanka held 56 species [Cassola, Pearson, 2000]. During the subsequent 11 years, 19 additional species and one subspecies of Cicindelidae have been described from various Indian and Sri Lanka regions [Naviaux, Moravec, 2001; Naviaux, 2002, 2003, 2004, 2010; Cassola, Werner, 2003; Sawada, Wiesner, 2006; Werner, Wiesner, 2008; Cassola, 2009]. Recent collections from different Indian states and Sri Lanka provinces have provided additional records. We studied specimens from these new collections and found distribution extensions for some tiger beetles species and one new subspecies. The specimens used in this study are housed in the following museums and private collections: ZISP — Zoological Institute of Russian

Academy of Science (St.-Petersburg, Russia); NHM — Zoological Museum Natural History Museum of Denmark (Copenhagen, Denmark); MPU — Moscow State Pedagogical University (Moscow, Russia); cAA — collection of Alexander Anichtchenko (Daugavpils, Latvia); cIO — collection of Igor' Ovsyannikov (Moscow, Russia); cPU — collection of Pavel Udovichenko (Moscow, Russia); cSD — collection of Sergey Dementiev (Moscow, Russia).

Pronyssa montanea Sawada et Wiesner, 1999

Material. 1♂, 1♀ — NE India: Assam, 60 km N Tezpur, 24 July 1997, leg. V. Sinjaev (cPU).

Note. This species was described from NE India — Tura, West Garo Hills region, Meghalaya state [Sawada, Wiesner, 1999a, b]. A new locality in adjacent state Assam is about 300 km northeast of the type area.

Setinteridentia rhytidopteroides (W. Horn, 1924)

Material. 1♂ — E India: Sikkim, Rangpo environs, h-400 m, 30 June 2008, leg. Grigoriev (cIO).

Note. Previously *S. rhytidopteroides* was known only from Nepal and the Indian states of Uttar Pradesh and West Bengal [Naviaux, 1985; Pearson, Ghorpadé, 1987; Acciavatti, Pearson, 1989; Probst, 1996; Puchkov, Matalin, 2003]. This specimen represents the first record of this species for Sikkim.

Cylindera (Ifasina) henryi (W. Horn, 1925)

Material. 1♂ — Sri Lanka: Matale district, ca 10 km NE Dambulla, Amaya Lake Hotel, at night light, 16 October 2009, leg. S. Dementiev, T. Repina (MPU).

Note. Previously *C. henryi* was known from three districts of Sri Lanka: Hambantota (Southern Province), Anuradhapura (North-Central Province) [Naviaux, 1984; Acciavatti, Pearson, 1989] and Matale (Central Province) [Naviaux, 1986]. This specimen represents a new locality in

Central Province, near the border with North-Central Province. From other Sri Lankan species of the subgenus *Ifasina* Jeannel, *C. (I.) henryi* is best distinguished by sparse setigerous punctures along lateral side of pronotum, brown nonmetallic labrum as well as long and slender apical lobe of aedeagus.

Jansenia chloropleura chloropleura Chaudoir, 1865

Material. 4♂♂ — N India: Uttarakhand, left side of Kosi river, 5 km N Ramnagar, 29.432° N, 79.140° E, 7–11 June 2011, leg. A. Anichtchenko (cAA).

Note. According to last review of tiger beetles of Indian subcontinent the nominotypical subspecies of *J. chloropleura* occurs in the Indian states of Jammu and Kashmir, Himachal Pradesh, Uttar Pradesh, Sikkim and West Bengal [Pearson, Ghorpadé, 1987; Acciavatti, Pearson, 1989; Puchkov, Matalin, 2003] as well as in Nepal [Naviaux, 1985; Acciavatti, Pearson, 1989; Probst, 1996; Puchkov, Matalin, 2003]. However, because in 2000 Uttarakhand (from 2000 to 2006 — Uttaranchal) separated from Uttar Pradesh as the 27th Indian state, all known localities of *J. chloropleura* are now placed in Uttarakhand, not in current Uttar Pradesh.

Jansenia corticata (Putzeys, 1875)

Material. 1♂ — Sri Lanka: Matale district, ca 10 km NE Dambulla, Amaya Lake Hotel, at night light, 16 October 2009, leg. S. Dementiev, T. Repina (MPU).

Note. According to Naviaux [1984] and Acciavatti and Pearson [1989], *J. corticata* occurs only in the southern parts of Sri Lanka — in districts Ratnapura (Sabaragamuwa Province), Moneragala (Uva Province) and Hambantota (Southern Province). The related species *J. carrhidia* Acciavatti et Pearson, 1989 is found in the northern parts of island — in districts Anuradhapura (North-Central Province), Mannar and Jaffna (North Eastern Province). However, Naviaux [1986] recorded *J. corticata* from Sigiriya Matale district, Central Province. We now add it to another locality in Matale district, near the border of North-Central Province. *J. corticata* is easily distinguished from *J. carrhidia* by uneven sculpture of elytra and distinct elytral punctures; darkened metallic femora as well as short, gradually recurved apical hook of aedeagus.

Jansenia stuprata (W. Horn, 1909)

Material. 2♂♂ — S India: Kerala, 15 km SW Munnar, Kallar valley, h-1250 m, 10°02' N, 76°58' E, 01–09 May 1997, leg. Dembicky, Pacholatko (cPU).

Note. This species was previously reported from the Anamalai Hills, Tamil Nadu, southern India [Acciavatti, Pearson, 1989; Cassola, Werner, 2003]. This new locality expands its known range into the neighboring state of Kerala, about 50–70 km distant from the type area.

Jansenia tetrastacta tetrastacta (Wiedemann, 1823)

Cicindela tetrastacta Wiedemann, 1823

Material. Lectotype, ♂ — «Bengal, juli 1808, *tetrasticta* Wied.» [handwritten white], «Type» [red rectangle label], «♂» [white], «Mus. Westerm.» [white], «Zool. Museum DK Kopenhagen» [printed white], «Lectotype, *Cicindela tetrastacta* Wiedemann by R.E. Acciavatti, 83» [red rectangle] (NHM). Paralectotype, ♂ — «Bengala, Westermann, *tetrasticta* Wied.» [handwritten

white], «Type» [printed red], «Zool. Museum DK Kopenhagen» [printed white], «Paralectotype, *Cicindela tetrastacta* Wiedemann by R.E. Acciavatti, 83» [red rectangle] (NHM). 2♂♂ — Juranda, Ind. Or., E. Suenson (NHM).

Distribution. The nominotypical subspecies occurs in the north-western Indian states of West Bengal, Bihar, Orissa, Madhya Pradesh and Andhra Pradesh [Acciavatti, Pearson, 1989] as well as in Nepal [Wiesner, 1975].

Jansenia tetrastacta delhiensis
Matalin et Anichtchenko, **ssp.n.**

Type material. Holotype, ♂, Northern India, New Delhi, Central Ridge Reserve Forest, 25–26 June 2001, leg. A. Anichtchenko (ZISP). Paratypes: 8♂♂, 8♀♀ — same labeled as holotype (1♂, 1♀ — ZISP, 1♂, 1♀ — MPU, 6♂♂, 6♀♀ — cAA).

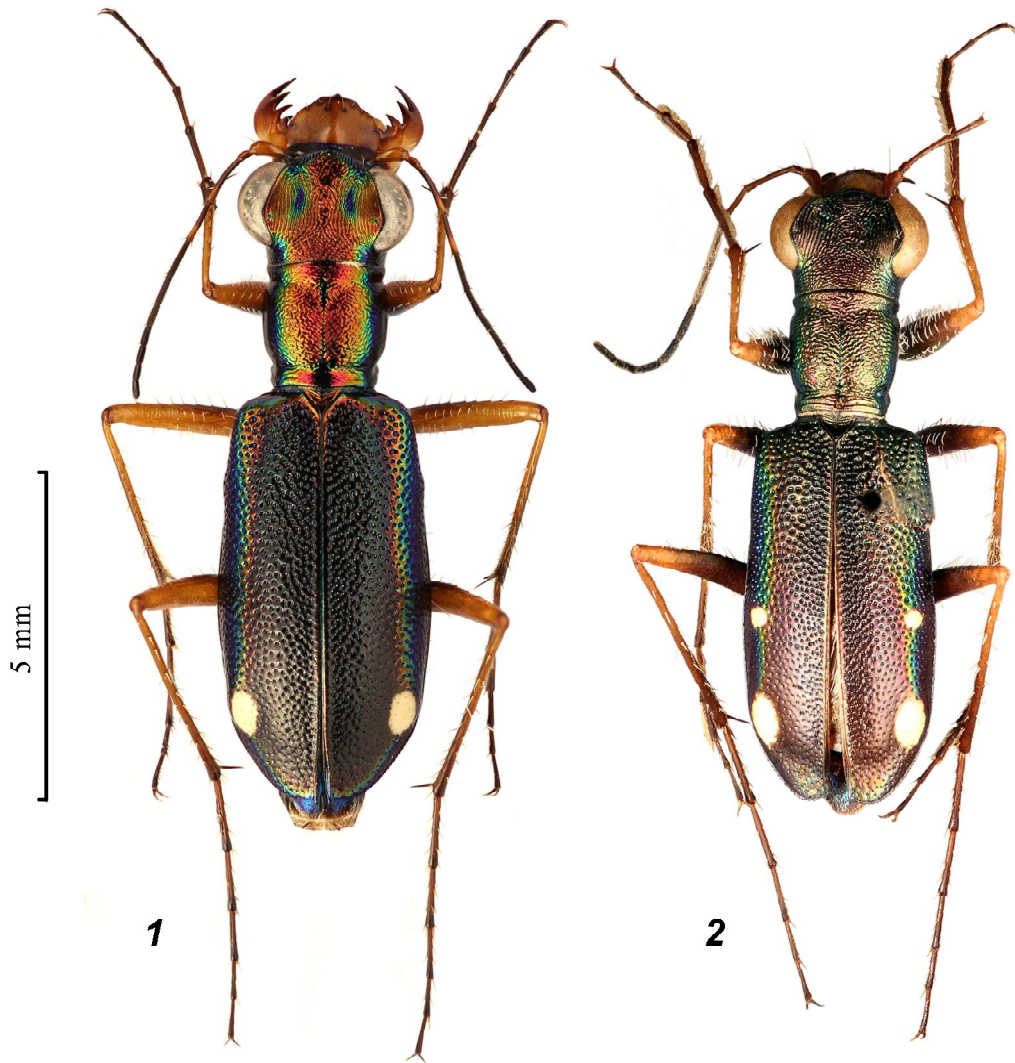
Description. Total length (without labrum): 8.9–9.5 mm (mean 9.3 mm, n = 8) in males, and 9.5–10.3 mm (mean 9.9 mm, n = 7) in females.

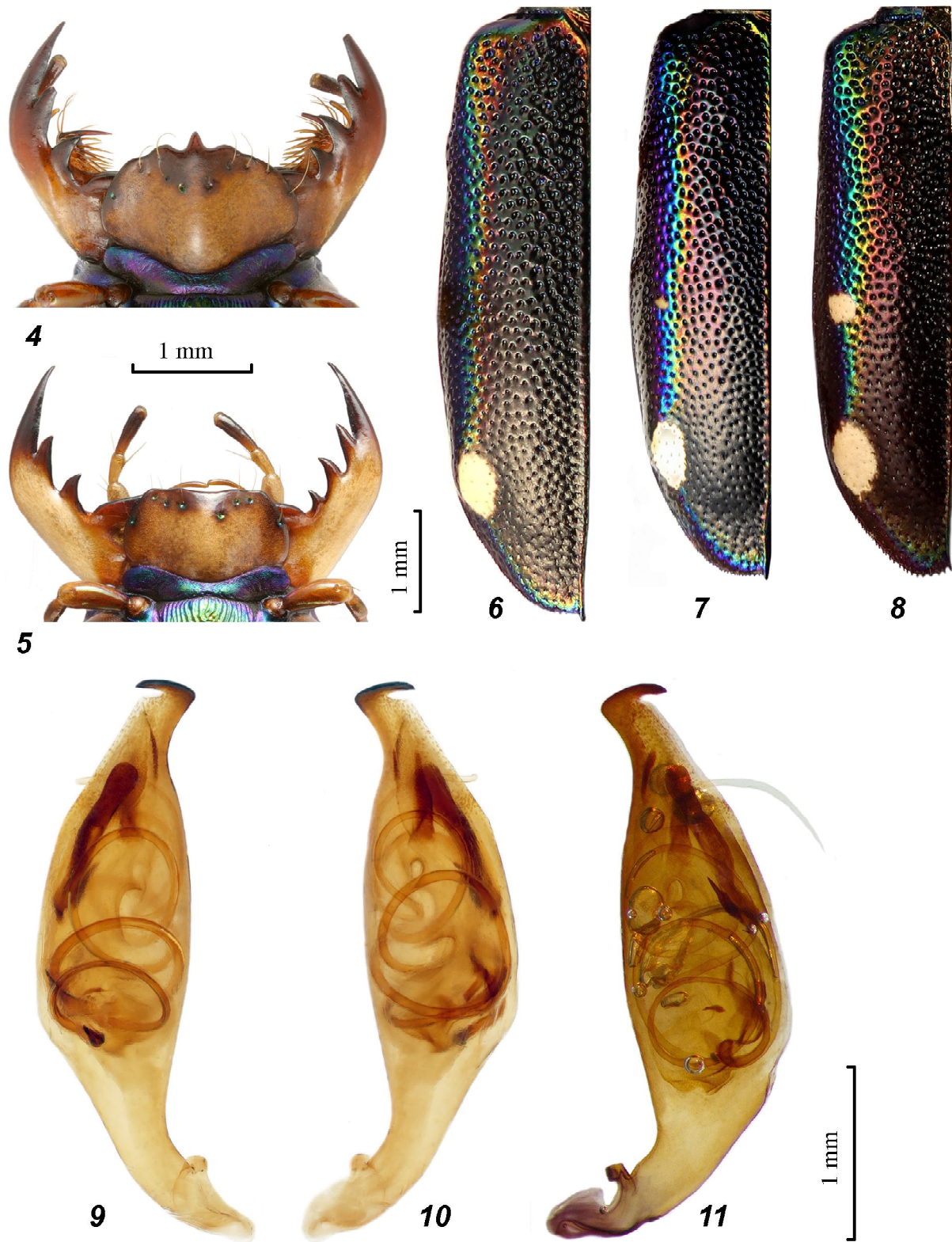
Head with eyes distinctly wider than pronotum; mandibles pale except brown teeth, right mandible with three, and left mandible with four teeth; antennae relatively long, filiform, four first segments pale with light golden-green luster, scapus with one apical seta, third antennomere with three, while fourth — with one short white setae on external surface, 5–11-th antennomeres brown, finely but tightly pubescent with numerous short yellow setae. Labrum pale except dark brown anterior margin; transverse, shorter in males — 1.7–2.3 (mean 1.9, n = 8) times as wide as long, and distinctly longer in females — 1.1–1.4 (mean 1.3, n = 7) times as wide as long; with wide medial carina and single medial tooth on anterior edge in females (Fig. 4), but with smooth anterior edge in males (Fig. 5); eight to ten submarginal setae originate from large metallic greenish setigerous punctures; labial and maxillar palpi pale except dark brown apical joints, penultimate labial palpomeres distinctly de-lated. Genae glabrous, finely longitudinal striated, deep violet with bluish-green anterior area; clypeus smooth, bluish-green with light purple luster; frons finely rugose with concentric semicircular rugae that have vertical lateral portions and transverse medial ones, golden-cupric in centre and bright green with golden reflection in clypeal border and small violet area above base of antennae; vertex coarse rugose with deep parallel slightly wavy ridges, bright cupric with golden tinge, suborbital area with six-eight deep sub-parallel striae and two setae near anterior and posterior eye edge, cupric with bright violet-green spot in the base of anterior part.

Pronotum indistinctly longitudinal in both sexes, 1.0–1.1 (mean 1.06, n = 15) times as long as wide; with thin midline and relatively deep anterior and posterior transverse grooves; pronotal disc coarsely wrinkled with irregular wavy ridges and shallow transverse parallel striae laterally, bright cupric in central area and violet laterally with golden-greenish luster along border of color blend. Thoracic segments glabrous, metallic bluish-green, pro- and mesosternum asetose, metasternum with numerous white setae along lateral edges; proepisterna violet, smooth, in males pubescent with sparse white setae along anterior, basal and posterior margins, but in females — only along basal edge; mesepisterna with a few (in females) or a cluster (in males) of setae near

Figs 1–3. *Jansenia tetrastacta* subspecies: 1 — *Jansenia tetrastacta delhiensis*, ssp.n., paratype, ♀; 2 — *Jansenia tetrastacta tetrastacta* Wiedemann, lectotype, ♂; 3 — second author, A.V. Anichtchenko, in the type habitat for *Jansenia tetrastacta delhiensis*, ssp.n.

Рис. 1–3. Подвиды *Jansenia tetrastacta*: 1 — *Jansenia tetrastacta delhiensis*, ssp.n., паратип, ♀; 2 — *Jansenia tetrastacta tetrastacta* Wiedemann, лектотип, ♂; 3 — второй автор, А.В. Анищенко, в типовом местообитании *Jansenia tetrastacta delhiensis*, ssp.n.





Figs 4–11. Details of *Jansenia tetrastacta* subspecies: 4–5 — labrum; 6–8 — left elytra; 9–11 — aedeagus (9 — left lateral view, 10–11 — right lateral view); 4–7, 9–10 — *J. t. delbiensis*, ssp.n., (5, 9–10 — holotype, ♂; 4, 6–7 — paratype, ♀); 8, 11 — *J. t. tetrastacta* Wiedemann, lectotype, ♂.

Figs 4–11. Детали строения подвидов *Jansenia tetrastacta*: 4–5 — верхняя губа; 6–8 — левое надкрылье; 9–11 — эдеагус (9 — слева, 10–11 — справа); 4–7, 9–10 — *J. t. delbiensis*, ssp.n., (5, 9–10 — голотип, ♂; 4, 6–7 — паратип, ♀); 8, 11 — *J. t. tetrastacta* Wiedemann, лектотип, ♂.

basal margin, coupling sulcus a deep elongate pit near posterior edge; metepisterna in males covered by numerous white setae, but in females only with few sparse ones.

Legs long and slim; coxae metallic bluish-green, front and middle ones covered by sparse white setae along anterior edge, hind ones with a single long seta in medial area and sparse white more short setae along basal lateral margin; trochanters pale, front and middle ones with subapical seta; femora pale except metallic bluish-green antero-basal surface; tibiae testaceous, slightly dark in apical portion; tarsus dark brown, first-third tarsomeres of front and middle legs in males dilated and pilose beneath.

Elytra 1.7–1.96 (mean 1.9, n = 8) times as long as wide in males, and 1.7–1.84 (mean 1.77, n = 7) — in females; scutellum cupric with golden-green reflection; elytral disc with numerous small rounded pits that are distinctly shallower in apical third, shiny black with light purple tinge, lateral margins with violet, blue, green and cupric wide iridescence area; each elytron with one oval white apical spot near lateral margin (Fig. 6), in some specimens small submedial white spot present (Fig. 7), elytral edge on apical margin microserrulate, in males gradually rounded; sutural spine small.

Abdominal sternites glabrous, metallic violet-blue except brown sixth sternum in females; first – third sterna with several short white appressed setae and finely shallow striae near lateral margin.

Aedeagus as in nominotypical subspecies, but more slender in basal part (Figs 9–11).

Differential diagnosis. A new subspecies distinguished from the nominotypical subspecies by a lack of or indistinct small middle spots on elytra (Figs 6–8) [see also Horn, 1938; Acciavatti, Pearson, 1989], unicoloured pale inner surface of hind femora as well as more transverse labrum in males (1.7–2.3 (1.9) times as wide as long in *J. tetrastacta delhiensis* ssp.n., compared to 1.6–1.8 (1.7) times as wide as long in *J. tetrastacta tetrastacta*).

Distribution. At the present time a nominotypical subspecies occurs in the eastern Indian states West Bengal, Bihar, Orissa, Madhya Pradesh and Andhra Pradesh [Acciavatti, Pearson, 1989] as well as in Nepal [Wiesner, 1975]. On the contrary *J. tetrastacta delhiensis* ssp.n. is known only from the type locality (New Delhi). However the range area of a new subspecies would be much vast, because six males and nine females of *J. tetrastacta* were collected in July – August of 1986 by Karl Werner [1987] in Rishikesh (Uttarakhand State). Unfortunately we did not see these specimens.

Ecology. The beetles occur within Central Ridge Reserve Forest (New Delhi) in the shade of *Acacia* sp. trees (Fig. 3).

Derivatio nominis. A new subspecies is named after its type locality, the city of New Delhi.

Lophyra (Spilodia) parvimaclata (Fowler, 1912)

Material. 10♂♂, 8♀♀ — N India: Uttarakhand, left side of Kosi river, 5 km N Ramnagar, 29.432° N, 79.140° E, 7–11 June 2011, leg. A. Anichtchenko (MPUI, cAA).

Note. Until recently this rare interesting species was known only from West Bengal and Arunachal Pradesh [Pearson, Ghorpadé, 1987; Acciavatti, Pearson, 1989; Sawada, Wiesner, 2006; Puchkov, Matalin, 2003] as well as from central and eastern Nepal [Cassola, 1990; Probst, 1996; Puchkov, Matalin, 2003]. This new locality expands the known range of *L. (S.) parvimaclata* to the north-west. *Lophyra (S.) parvimaclata* is easily distinguished from the closely related *L. (S.) multiguttata* (Dejean, 1825), *L. (S.) striolata* (Illiger, 1800) and *L. (S.) lineifrons* (Chaudoir,

1865) by its glabrous genae and scape, penicillum on fourth antennomere of male, reduced elytral pattern as well as shape of aedeagus.

Calochroa bicolor haemorrhoidalis (Wiedemann, 1823)

Material. 1♀ — Sri Lanka: Matale district, 10 km NE Dambulla, Amaya Lake Hotel, 16 October 2009, leg. S. Dementiev, T. Repina (cSD).

Note. Previously *C. bicolor haemorrhoidalis* had been recorded in Indian states Madhya Pradesh, Bihar, Orissa, Maharashtra, Andhra Pradesh, Karnataka, Tamil Nadu [Fowler, 1912; Acciavatti, Pearson, 1989], and Rajasthan [Werner, Wiesner, 2008]. In Sri Lanka it was known from three localities: Southern Province, Hambantota district, Kataragama [Naviaux, 1984], Central Province, Matale district, Sigiriya [Naviaux, 1986], and North-Central Province, Anuradhapura districts [Naviaux, 1986]. This new locality places the species on the border of North-Central and Central Provinces. According to a personal report of Mrs. Tatiana Repina and Mr. Sergey Dementiev, they observed another individual of *C. bicolor haemorrhoidalis* in late October of 2008 in environs of Club Palm Bay Hotel (Marawila, 35 km N Katunayaka, Puttalam district, North Western Province of Sri Lanka). In both cases the beetles were observed in the afternoon, about 16.00, on a dirt road bordered by short grass.

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References

- Acciavatti R.E., Pearson D.L. 1989. The tiger beetles genus *Cicindela* (Coleoptera, Insecta) from the Indian subcontinent // *Annals of Carnegie Museum*. Vol.58. Art.4. P.77–355.
- Cassola F. 1990. Riscoperta, valore specifico e posizione sistematica di *Cicindela parvimaclata* Fowler, 1912 (Coleoptera, Cicindelidae) // *Fragmenta Entomologica*, Roma. T.22. No.1. P.61–66.
- Cassola F. 2009. A new *Cylindera* (subgenus *Ifasina*) from Andhra Pradesh, Central India (Coleoptera: Cicindelidae) // *Zeitschrift der Arbeitsgemeinschaft Österreichischer Entomologen*. T.61. S.15–18.
- Cassola F., Pearson D.L., 2000. Global patterns of tiger beetle species richness (Coleoptera: Cicindelidae): Their use in conservation planning // *Biological Conservation*. Vol.95. P.197–208.
- Cassola F., Werner K. 2003. Two new *Jansenia* species from South India (Coleoptera: Cicindelidae) // *Mitteilungen des Internationalen Entomologischen Vereins*. Bd.28. H.3/4. S.77–92.
- Fowler W.W. 1912. The Fauna of British India including Ceylon and Burma. Coleoptera. General Introduction and Cicindelidae and Paussidae. London: Taylor and Francis Publ. 529 p.
- Horn W. 1938. 2000 Zeichnungen von Cicindelinae // *Entomologische Beihafte aus Berlin – Dahlem*. T.5. S.1–71+90 pls.
- Naviaux R. 1984. Coleoptera, Cicindelidae. Les Cicindèles de Sri Lanka // *Revue Scientifique du Bourbonnais*. Année 1984. P.57–80.
- Naviaux R. 1985. Étude faunistique sur les cicindelides du Nepal // *Revue Scientifique du Bourbonnais*. Année 1985. P.49–92.

- Naviaux R. 1986. Coleoptera, Cicindelidae. Premier complément aux Cicindèles de Sri Lanka // Revue Scientifique du Bourbonnais. Année 1986. P.58–67.
- Naviaux R. 2002. Les Tricondylina (Coleoptera, Cicindelidae). Révision des genres *Tricondyla* Latreille and *Derocrania* Chaudoir et descriptions de nouveaux taxons // Mémoires de la Société entomologique de France. No.5. S.1–106.
- Naviaux R. 2003. Diagnoses de trois *Collyris* (s. lato) de l'Inde du Sud (Col., Cicindelidae) // Bulletin de la Société entomologique de France. T.108. No.4. S.404.
- Naviaux R. 2004. Les *Collyris* (Coleoptera, Cicindelidae). Complément à la «Révision du genre *Collyris* (sensu lato)» et description de nouveaux taxons // Bulletin Mensuel de la Société linnéenne de Lyon. T.73. No.3. S.56–142.
- Naviaux R. 2010. *Jansenia biundata*, nouvelle espèce du sud de l'Inde (Coleoptera, Cicindelidae) // Bulletin de la Société entomologique de France. T.115. No.4. P.417–419.
- Naviaux R., Moravec J. 2001. *Deroscrania dembickyi*, nouvelle espèce de l'Inde du Sud (Coleoptera, Cicindelidae) // Bulletin de la Société entomologique de France. T.106. No.2. S.161–162.
- Pearson D.L., Ghorpadé K. 1987. Tiger beetles (Coleoptera: Cicindelidae) of the Siliguri-Darjeeling area in India // Colemania. Vol.4. P.1–22.
- Probst J. 1996. Beitrag zur Kenntnis der Cicindeliden Nepals (Coleoptera: Cicindelidae) // Koleopterologische Rundschau. T.66. S.19–37.
- Puchkov A.V., Matalin A.V. 2003. Subfamily Cicindelinae Latreille, 1802. P.99–118 // Löbl I., Smetana A. (Eds): Catalogue of Palaearctic Coleoptera. Vol.1. Archostemata – Myxophaga – Adephaga. Stenstrup: Appolo Book. 819 p.
- Sawada H., Wiesner J. 1999a. Die Arten der Gattung *Pronyssa* (Coleoptera: Cicindelidae) // Entomologische Zeitschrift mit Insektenbörse. Bd.109. No.6. S.250–258.
- Sawada H., Wiesner J. 1999b. Records of tiger beetles collected in North India (Coleoptera: Cicindelidae) // Entomological Review of Japan. Vol.54. No.2. P.189–195.
- Sawada H., Wiesner J. 2006. Records of tiger beetles collected in North India II (Coleoptera: Cicindelidae) // Entomologische Zeitschrift, Stuttgart. Bd.116. No.3. P.127–134.
- Werner K. 1987. Collecting Cicindelidae in West Africa and India (Coleoptera) // Yes Quarterly. Vol.4. No.1. P.25–30.
- Werner K., Wiesner J. 2008. New records of tiger beetles from India with description of new taxa (Coleoptera: Cicindelidae) // Entomologische Zeitschrift, Stuttgart. Bd.119. No.1. P.15–18.
- Wiesner J. 1975. Notes on Cicindelidae of India & Sri Lanka // Cicindela. Vol.7. No.4. P.61–70.

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