



New and little-known species of the genus *Lacon* Laporte, 1838 (Coleoptera: Elateridae) of China

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Abstract

Two new species of the genus *Lacon* Laporte, 1838 are described from Yunnan province of China: *L. diqingensis* sp. nov. and *L. lijiangensis* sp. nov. *Lacon salvazai* (Fleutiaux, 1918) is recorded for the first time in China. The position of these species within the genus and their geographical distribution are discussed. A preliminary key to the known species of *Lacon* of mainland China is provided.

Key words: Coleoptera, Elateridae, click beetles, Agrypninae, new species, new records, Palaearctic region, China

Introduction

The genus *Lacon* Laporte, 1838 is a relatively large and diverse group of the elaterid subfamily Agrypninae Candèze, 1857 (Hayek 1973). The fauna of the Palaearctic region includes 53 species of this genus (Mertlik & Dušánek 2006; Cate *et al.* 2007; Platia 2010, 2015; Platia & Németh 2011), about eight of them are known from mainland China. The *Lacon* fauna of China is poorly known; only a few scattered records and descriptions are available (Liu 1932; Fleutiaux 1940; Jiang 1993; Kishii & Jiang 1994; Jiang & Wang 1999). It is very likely that additional new and previously unrecorded *Lacon* species will be discovered in China in the future.

In the course of studying the elaterid fauna of China, I recognized two undescribed *Lacon* species and one species of the same genus previously unrecorded. The results of this study are presented below.

Material and methods

The material was provided by my colleagues (see acknowledgements), with the exceptions of one specimen from the collection of the Zoological Museum of Moscow State University (Moscow, Russia; hereinafter ZMMU).

All the type material will be stored in the collection of the Zoological Institute of the Russian Academy of Sciences (St. Petersburg, Russia; hereinafter ZISP).

The examined specimens were mounted on transparent plastic plates (the pinned specimen of *L. salvazai* (Fleutiaux, 1918) was remounted on a plate). The genitalia were removed, cleaned and fixed beside the body of the specimen in glycerol mounts. The procedure of making such mounts was described by Prosvirov & Savitsky (2011).

The material was studied under a MBS-1 stereomicroscope and a Micromed 3 Professional trinocular microscope.

Photographs were taken with Canon EOS-40D and Canon EOS-6D cameras with a Canon MP-E 65 mm lens. Extended focus technology was used. Photographs of the genitalia were taken from glycerol mounts.

Body length of the specimens was measured from the apical margin of the frons to the apices of the elytra. Body width was measured at the widest point of the body (usually near the middle of the elytra) using a measuring eyepiece of the stereomicroscope.

Types of the new species were marked with red labels indicating the type status, the name of the species and the author. The labels of the specimens are quoted verbatim; additional geographical information is given in square brackets.

Taxonomy

Lacon diqingensis sp. nov.

(Figs. 1, 4, 7)

Type locality. Chinna, Yunnan Province, Diqing Prefecture, Shangri-La City County.

Type material. Holotype, female, **China**: “Yunnan, Lijiang->Shangrila, 214 Ntn. Road, WSW of Edi Vill., 27°20'03"N, 99°52'34"E, 30.V.2013, H=3365 m, I.A. Belousov, I.I. Kabak, G.E. Davidian leg.” [China, NW Yunnan, Diqing Prefecture, Shangri-La City County, Lijiang->Shangrila, 214 Ntn. Road, WSW of Edi Vill., 27°20'03"N, 99°52'34"E, 30 May 2013, H=3365 m, I.A. Belousov, I.I. Kabak, G.E. Davidian leg.] (ZISP).

Diagnosis. *L. diqingensis* sp. nov. is closely related to *L. lijiangensis* sp. nov. It can be easily distinguished from this species by the larger body (body lengths are 13.20 mm and 9.50 mm, respectively), by different proportions of the pronotum and the elytra (ratios of lengths of the pronotum/lengths of the elytra are 0.46 and 0.50, respectively; ratios of widths of the pronotum/widths of the elytra are 0.94 and 1.00, respectively), by the different sculpture of the pronotum, by the distinct shape of the hind and front angles of the pronotum, by the different shape of the scutellum, by the incompletely reduced wings and by the different structure of the sclerotized plates in the bursa copulatrix. The new species is apparently rather distantly related to all other species of the genus.

Description. Female: Length 13.20 mm; width 4.25 mm. Body flattened, rather broad, oblong. Weakly shining, almost matt, all body dark reddish brown; hind angles and sides of pronotum, disc of elytra lighter; beaded part of prosternal lobe, base of pronotum, scutellum along margin, anterior slope of elytra and elytral suture darkened; maxillar and labial palpi and labium light brown. Body covered with golden, rather dense and short, recumbent scale-like setae; pubescence on dorsum and in basal 2/3 of prosternum distinctly longer than on other parts of body.

Head. Clearly wider than long (length/width 0.65); frons deeply depressed almost over all width; this depression extended up to middle part of vertex, being, however, shallow and obsolete medially. Punctures coarse and dense, notably smaller than on pronotum; intervals between punctures subequal to or smaller than half as great as diameter of one puncture. Antennae reaching slightly beyond middle of pronotum, weakly serrate from antennomere 4. Antennomere 1 long, dilated; antennomere 2 almost globose, 0.8 times as long as antennomere 3; antennomere 4 1.2 times as long as antennomere 3; antennomeres 5 to 10 subequal in length, about 0.9 times as long as antennomere 4; last antennomere oblong, subapically slightly tapered (ratio of length/width of antennomeres from 1 to 5 as 2; 1; 1.5; 1.4; 1.2, respectively). Pubescence of antennae rather dense, setae slenderer and shorter than on other dorsal surfaces; recumbent setae interspersed with some erect ones. Mandible with tooth; last segment of maxillar palpus noticeably broadened at apex, almost obtriangular.

Thorax. Pronotum more than 2.5 times as wide as head, slightly wider than long (length 3.80 mm; width 4.00 mm), widest near middle, narrowed toward front angles more sharply than toward hind angles, notably sinuate before hind angles; weakly convex, flattened laterally. Front angles of pronotum rather short, rounded, extending to and covering half of length of eyes. Median impression on disc of pronotum very shallow, but extended from base almost to anterior margin. Disc of pronotum with two pairs of foveae, first one near middle, second one near base; distinct transverse impressions situated sublaterally near anterior margin of pronotum; obsolete lateral impressions situated near middle of pronotum. Hind angles of pronotum depressed, short, broadly rounded at apex, clearly divergent, without carina. Punctures coarse, dense; intervals between punctures mostly smaller than half as great as diameter of one puncture.

Prosternal sutures deeply grooved up to about 2/3 their length, then simply furrowed. Prosternal lobe broadly rounded, rather short, partially covering labium, laterally separated from rest of prosternum by obsolete transverse impression at about anterior 1/4 of prosternum, with distinctly carinate anterior margin. Prosternum lower than prosternal lobe at about its anterior 1/3 with other short, obsolete, transverse lateral impressions. Prosternal

punctures coarse, dense, at basal 2/3 of prosternum notably larger than on pronotum; intervals between punctures smaller than half as great as diameter of one puncture; in anterior 1/3 of prosternum punctures smaller, intervals between punctures equal to or smaller than half as great as diameter of one puncture. Anterior and lateral parts of hypomerone with dense punctation, intervals between punctures on average smaller than diameter of one puncture; basal half of hypomerone near prosternal suture with larger and sparser punctation, intervals between punctures on average subequal to or greater than diameter of one puncture; intervals between punctures on hypomerone matt. Hypomerone with rather deep depression for insertion of profemora at base; this depression impunctate; hypomerone slightly impressed along prosternal suture in basal 1/2. Prosternal process with weak prominence near apex, about 3 times as long as diameter of procoxal cavity, slightly bent inwards immediately beyond procoxal cavities. Mesoventrite and metaventrite similarly punctate, intervals between punctures about half as great as diameter of one puncture, punctures subequal in size to those on anterior and lateral parts of hypomerone. Metaventrite about as long as wide (length/width 0.96), without depressions. Metepisternum slender, almost parallel-sided. Broad part of metacoxal plates about 4 times as wide as narrow part.

Scutellum short, slightly longer than wide, quadrangular, weakly convex, with punctation as on elytra. Elytra ellipsoidal, slightly wider than pronotum, widest near middle, more than twice as long as pronotum (length: 8.20 mm; width: 4.25 mm); tapering more strongly to apex than to base; shoulders obtusely rounded. Disc of elytra flat, faintly convex lateral of scutellum; elytra distinctly sloping at posterior 1/3; elytra flattened along external margin, slightly divergent along suture near apex, blunted at apex; without striae, more or less evenly punctate; punctures about same size as on head or smaller, rather sparse, intervals between punctures subequal to 1–4 diameters of one puncture.

Metathoracic wings reduced, reaching about middle of elytra.

Abdomen. Punctation of abdomen rather sparse, intervals between punctures subequal to or greater than diameter of one puncture; punctures slightly smaller than on metaventrite.

Female genitalia. (Figs. 4, 7). Ovipositor relatively long; baculum long, strongly sclerotized (ratio length baculum/length ovipositor 0.79); coxite moderately sclerotized, with several setae, narrowed to apex, with very small, almost indistinct stylus. Bursa copulatrix with typical large sclerotized plate covered with short spinules and long spines, distally with small sclerotized plate with short spinules; several dark sac-like spermatophores contained inside bursa copulatrix.

Male. Unknown.

Larva. Unknown.

Distribution. China: northwestern Yunnan province, the Hengduan Mountains.

Bionomics. This species was collected at the mid-altitude forest. The habitat of *L. diqingensis* **sp. nov.** is a mixed forest with conifers, open meadow areas, rhododendrons and partially with bamboo (I.I. Kabak, *pers. comm.*). Other aspects of the biology of this species remain unknown.

Etymology. From the type locality.

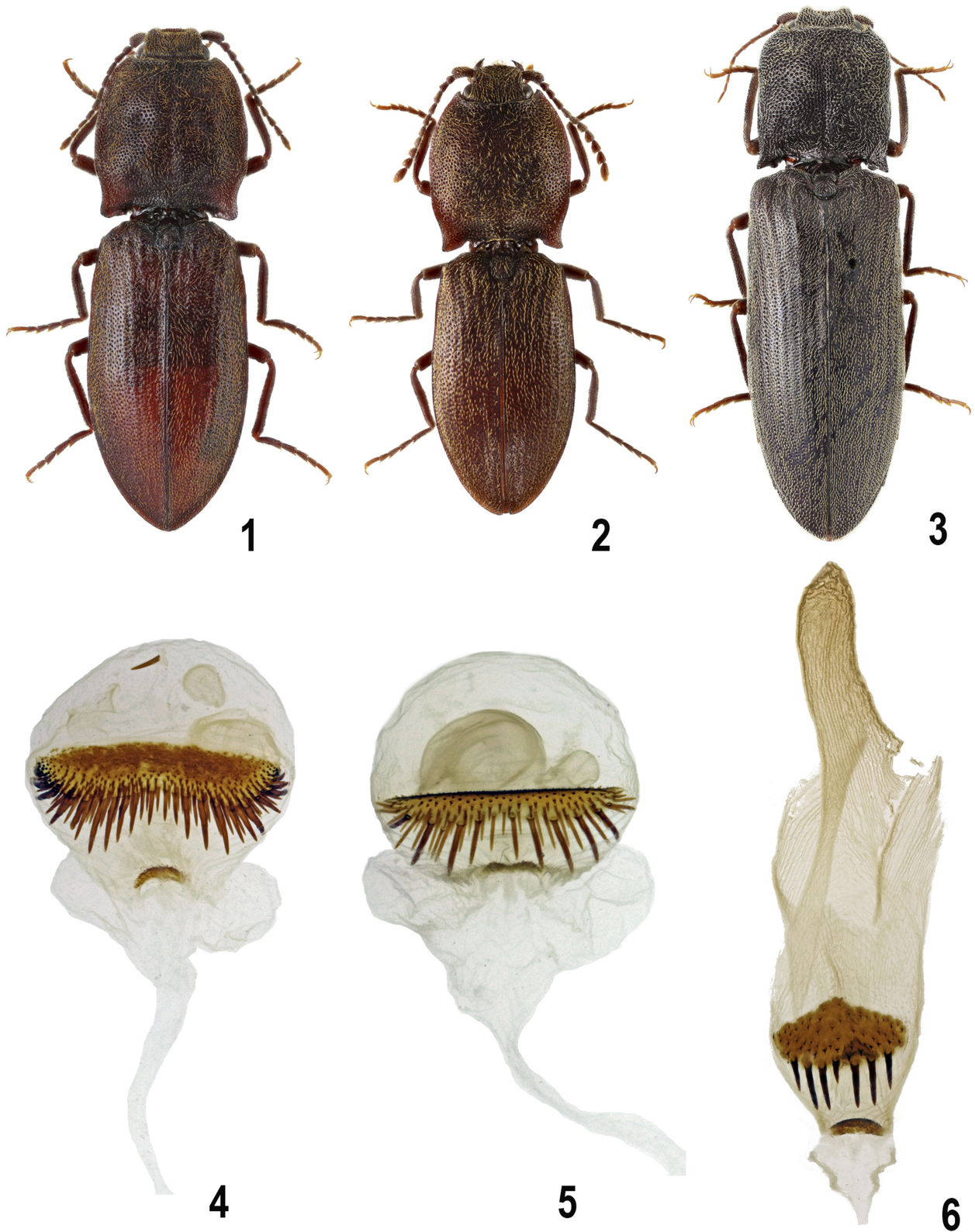
***Lacon lijiangensis* sp. nov.**

(Figs. 2, 5, 8)

Type locality: China, Yunnan, Lijiang City Prefecture, Yulong County.

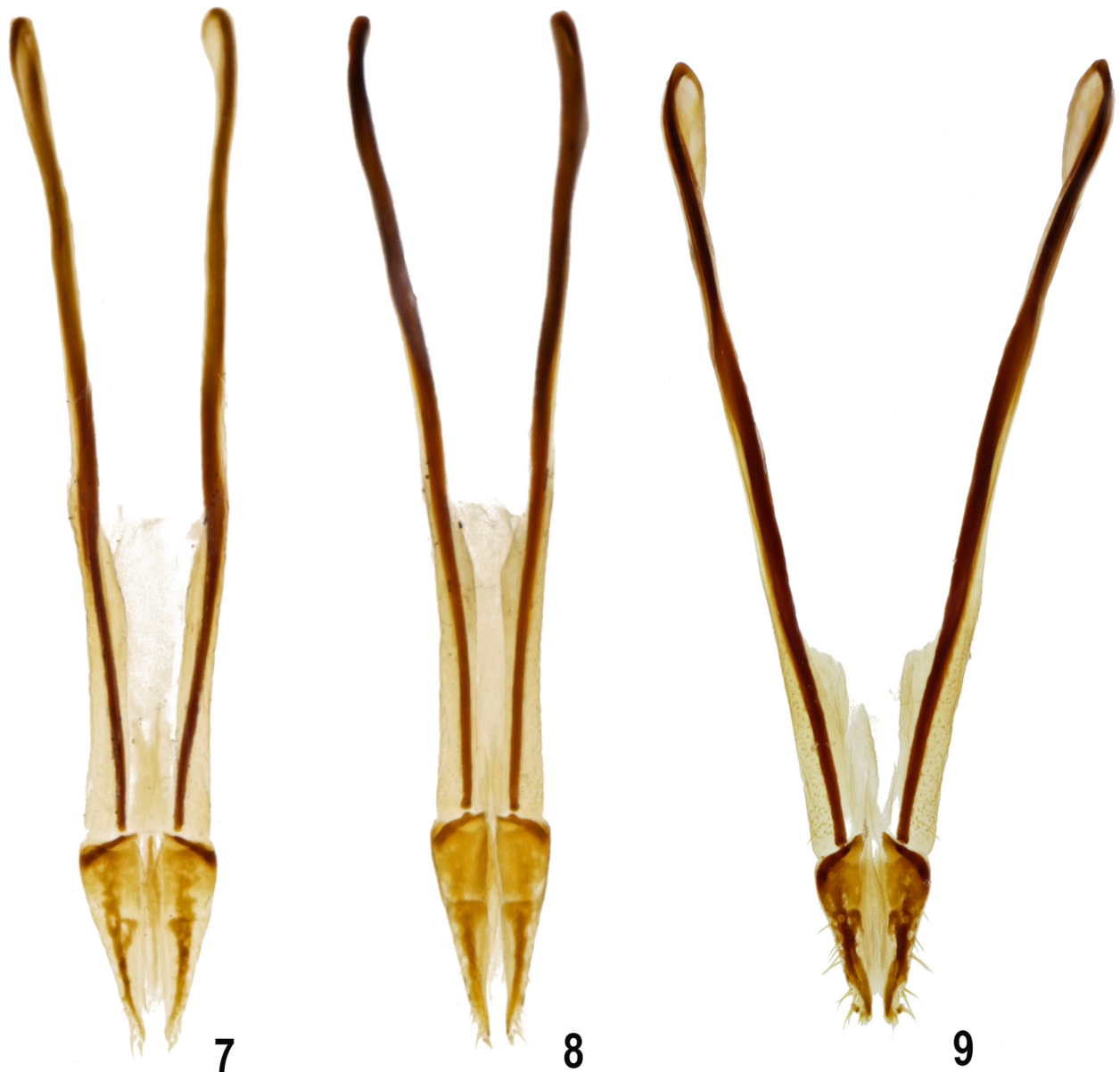
Type material. Holotype, female, **China:** “Yunnan, NNE Wexi City, 3.7 km WNW Yizhiduileigu Vill., 27°26'22" N, 99°25'45" E, h=3405 m, 6.VI.2015, I.A. Belousov, I.I. Kabak, G.E. Davidian leg.” [China, NW Yunnan, Lijiang City Prefecture, Yulong County, NNE Wexi City, 3.7 km WNW Yizhiduileigu Vill., 27°26'22" N, 99°25'45" E, h=3405 m, 6 June 2015, I.A. Belousov, I.I. Kabak, G.E. Davidian leg.] (ZISP).

Diagnosis. *L. lijiangensis* **sp. nov.** is closely related to *L. diqingensis* **sp. nov.** It can be easily distinguished from this species by the smaller body (body lengths are 9.50 mm and 13.20 mm, respectively), by different proportions of the pronotum and elytra (ratios of lengths of the pronotum/lengths of the elytra are 0.50 and 0.46, respectively; ratios of widths of the pronotum/widths of the elytra are 1.00 and 0.94, respectively), by the different sculpture of the pronotum, by the distinct shape of the hind and front angles of the pronotum, by the different shape of the scutellum, by the absence of wings, by the different structure of the sclerotized plate in the bursa copulatrix. The new species is apparently rather distantly related to all other species of the genus.



FIGURES 1–3. Habitus of *Lacon* species, dorsal view. 1. *L. diqingensis* sp. nov., female, holotype (13.2 mm). 2. *L. lijiangensis* sp. nov., female, holotype (9.5 mm). 3. *L. salvazai*, female (20.1 mm; China, Yunnan). Not to scale.

FIGURES 4–6. Female genital tract of *Lacon* species, general view. 4. *L. diqingensis* sp. nov., holotype. 5. *L. lijiangensis* sp. nov., holotype. 6. *L. salvazai* (partially damaged; China, Yunnan). Not to scale.



FIGURES 7–9. Ovipositor of *Lacon* species, ventral view. 7 *L. diqingensis* sp. nov., holotype. 8. *L. lijiangensis* sp. nov., holotype. 6. *L. salvazai* (China, Yunnan). Not to scale.

Description. Female: Length 9.50 mm; width 2.85 mm. Body flattened, rather narrow, oblong. Weakly shining, almost matt, all body dark reddish brown; pronotum mostly slightly darker; beaded part of prosternal lobe, base of pronotum, scutellum along margin and anterior slope of elytra darkened; maxillar and labial palpi and labium light brown. Body covered with golden, rather dense and short, recumbent scale-like setae; pubescence on prosternum distinctly longer than on other parts of body.

Head. Clearly wider than long (length/width 0.60); frons deeply depressed almost over all width; this depression extended up to middle part of vertex, being, however, shallow and obsolete medially. Punctures coarse and dense, notably smaller than on pronotum; intervals between punctures smaller than half as great as diameter of one puncture. Antennae reaching slightly beyond middle of pronotum, weakly serrate from antennomere 4. Antennomere 1 long, dilated; antennomere 2 almost globose, 0.8 times as long as antennomere 3; antennomere 4 1.2 times as long as antennomere 3; antennomeres 5 to 10 subequal in length, about 0.8 times as long as antennomere 4; last antennomere oblong, subapically slightly tapered (ratio of length/width of antennomeres from 1 to 5 as 2; 1.3; 1.25; 1.2; 1.25, respectively). Pubescence of antennae rather dense, setae slenderer and shorter than on other parts of dorsum; recumbent setae interspersed with some erect ones. Mandible with tooth; last segment of maxillar palpus noticeably broadened at apex, almost obtriangular.

Thorax. Pronotum more than twice as wide as head, as long as wide (length 2.85 mm; width 2.85 mm), widest near middle, narrowed toward front angles more sharply than toward hind angles, notably sinuate before hind angles; flattened laterally. Front angles of pronotum rather short, pointed, extending to and covering half of length of eyes. Median impression on disc of pronotum very shallow, but extended from base almost to anterior margin. Disc of pronotum with two pairs of obsolete foveae, first one near middle, second one near base; distinct transverse impression situated sublaterally near anterior margin of pronotum. Hind angles of pronotum depressed, short, narrowly rounded at apex, clearly divergent, without carina. Punctures coarse, dense; intervals between punctures smaller than half as great as diameter of one puncture.

Prosternal sutures deeply grooved up to about 2/3 their length, then furrowed. Prosternal lobe broadly rounded, slightly elongate, completely covering labium, laterally separated from rest of prosternum by obsolete transverse impression at about anterior 1/4 of prosternum, with distinctly carinate anterior margin. Prosternum lower than prosternal lobe at about its anterior 1/3 with other short, obsolete, transverse lateral impressions. Prosternal punctures coarse, dense, at basal 2/3 of prosternum notably larger than on pronotum; intervals between punctures smaller than half as great as diameter of one puncture; in anterior 1/3 of prosternum punctures notably smaller, intervals between punctures equal to or smaller than half as great as diameter of one puncture. Anterior and lateral parts of hypomerone with dense punctation, intervals between punctures on average smaller than diameter of one puncture; basal half of hypomerone near prosternal suture with larger and sparser punctation, intervals between punctures on average subequal to or greater than diameter of one puncture; intervals between punctures on hypomerone matt. Hypomerone with rather deep depression for insertion of profemora at base; this depression impunctate; hypomerone slightly impressed along prosternal suture in basal 1/2. Prosternal process with weak prominence near apex, about 3 times as long as diameter of procoxal cavity, slightly bent inwards immediately beyond procoxal cavities. Mesoventrite and metaventrite similarly punctate, intervals between punctures smaller than half as great as diameter of one puncture, punctures subequal in size to those on anterior and lateral parts of hypomerone. Metaventrite as long as wide, without depressions. Metepisternum slender, almost parallel-sided. Broad part of metacoxal plates about 4 times as wide as narrow part.

Scutellum oblong, pentagonal, weakly convex, with punctation as on elytra. Elytra ellipsoidal, as wide as pronotum, widest near middle, about twice as long as pronotum (length 5.65 mm; width 2.85 mm); tapering more strongly to apex than to base; shoulders obtusely rounded. Disc of elytra flat, faintly convex lateral of scutellum; at posterior 1/3 elytra distinctly sloping; elytra flattened along external margin, slightly divergent along suture near apex, weakly blunted at apex; without striae, more or less evenly punctate; punctures about same size as on head or smaller, rather sparse, intervals between punctures subequal to 1–4 diameters of one puncture.

Metathoracic wings absent.

Abdomen. Punctation of abdomen rather sparse, intervals between punctures subequal to or greater than diameter of one puncture; punctures slightly smaller than on metaventrite.

Female genitalia. (Figs. 5, 8). Ovipositor relatively long; baculum long, strongly sclerotized (ratio length baculum/length ovipositor 0.77); coxite moderately sclerotized, with several setae, narrowed to apex, with very small, almost indistinct stylus. Bursa copulatrix with typical large sclerotized plate covered with short spinules and long spines, distally with small sclerotized plate with short spinules; several dark sac-like spermatophores contained inside bursa copulatrix.

Male. Unknown.

Larva. Unknown.

Distribution. China: northwestern Yunnan province, the Hengduan Mountains.

Bionomics. This species was collected at the mid-altitude forest. The habitat of *L. lijiangensis* **sp. nov.** is a mixed forest with conifers, open meadow areas, rhododendrons and partially with bamboo (I.I. Kabak, *pers. comm.*). Other aspects of the biology of this species remain unknown.

Etymology. From the type locality.

***Lacon salvazai* (Fleutiaux, 1918)**

(Figs. 3, 6, 9)

Fleutiaux, 1918a: 184 (*Adelocera*); 1918b: 206 (*Adelocera salvazei* [sic!]); 1920: 113, 114 (*Adelocera*); 1924: 34 (*Adelocera*); Schenkling, 1925: 12; Fleutiaux, 1927: 64, 68, pl. 2, fig. 42; 1947: 272, 276; Hayek, 1973: 81.

Material. 1 female: “Юньнань, 50 км южн. Чэли, 700 м, 11.4.57, Д. Панфилов” [China, Yunnan, Xishuangbanna Prefecture, 50 km S of Tscheli (at present—Jinghong City County), 700 m, 11 April 1957, D. Panfilov leg.] (ZMMU).

L. salvazai previously was known from Laos (provinces Luang Prabang, “Xieng-Khouang” [at present—Xiangkhouang], “Haut-Mékong” [at present—Luang Namtha]) and Thailand (“Siam, Bangkok”) (Fleutiaux 1920, 1947). Hayek (1973) erroneously attributed the type locality (“Xieng-Khouang”) to North Vietnam. **First record for China.**

Remarks. *L. salvazai* is rather distinctive species of the genus. According to Fleutiaux (1918, 1927), it is similar to *L. robustus* (Fleutiaux, 1902) and *L. laoticus* Fleutiaux, 1927. The female specimen in my disposal complies well with the diagnosis of Fleutiaux (1918, 1947); it is 20.1 mm long and 6.1 mm wide.

Little is known about this species. The structure of the genitalia of both sexes is unknown, so I give additional notes on characters of the ovipositor and bursa copulatrix.

The ovipositor (Fig. 9) is rather long; baculum long, strongly sclerotized (ratio length baculum/length ovipositor 0.79); coxite rather strongly sclerotized, with quite a few setae, slightly narrowed to apex, with small but distinct stylus. There are two plates inside the bursa copulatrix: large and small (Fig. 6). The large plate inside the bursa copulatrix has a rather specific shape and sculpture; in addition to small spinules it has only few long spines. In most of known Palaearctic *Lacon* species such plates bear many long spines (e.g. Fig. 4, 5) and usually have different shapes. The small plate is situated distally to the large one and bears short spinules. The general shape of the bursa copulatrix is also rather unusual for species of the genus, as it is not rounded or ellipsoidal as typically, but strongly oblong. It should be noted that the walls of the bursa copulatrix are visibly weakly sclerotized. According to Kishii (1995), similar structure of plates in the bursa copulatrix is also found in *L. kintauroi* Kishii, 1990 described from Taiwan. Otherwise this species is also similar to *L. salvazai*.

Discussion

L. diqingensis **sp. nov.** and *L. lijiangensis* **sp. nov.** share several unusual characters and are closely related to each other. The shape of the flattened and rather broad body of these species is quite different from that found in the most Palaearctic *Lacon* species and looks more similar to those of the genera *Agrypnus* Eschscholtz, 1829 and *Compsolacon* Reitter, 1905. Another unusual character is the partial or complete reduction of the wings, which is also atypical of *Lacon* in general. Nevertheless, other external morphological characters as well as the structure of the female genitalia are typical of the genus. I suppose that these species are specialized mountain forms and should be treated as a separate species-group within the genus. As far as the whole subgeneric division of the *Lacon* remains poorly developed, I don't establish for this group any taxonomic rank for the present.

Habitats of both species are also very similar and situated in the same region, the Hengduan Mountains. This region is the southeastern edge of the Tibetan Plateau and has a very complex and highly dissected topography, supporting a wide range of habitats (Ye *et al.* 2015). These conditions are very favorable for allopatric and sympatric speciation within different groups of plants and animals and for the preservation of relict elements (Ge *et al.* 2011; López-Pujol *et al.* 2011; Grebennikov 2014). This is highly probable that other short-winged or wingless *Lacon* species related to *L. diqingensis* **sp. nov.** and *L. lijiangensis* **sp. nov.** are also present in this region. Moreover, since the Hengduan Mountains are geographically and faunistically connected to the rest of the Tibetan Plateau, such species could also be distributed in other areas of this plateau.

L. salvazai has such a distinct set of characters as robust body, strongly elongated elytra and almost quadrangular and markedly convex pronotum. In addition to the above-mentioned *L. robustus*, *L. laoticus* and *L. kintauroi*, it also more or less superficially resembles several other species that inhabit the East Palaearctic and the Oriental region: *L. oliveri* (Candèze, 1874), *L. collisus* (Candèze, 1889), *L. carinensis* (Candèze, 1891), *L. duchoni* (Schwarz, 1905), *L. recticollis* Fleutiaux, 1927, *L. yunnanus* Fleutiaux, 1940 and *L. jeanvoinei* Fleutiaux, 1941 (Candèze 1874, 1889, 1891; Schwarz 1905; Fleutiaux 1927, 1940, 1941; Binaghi 1941). Since most of these species are known only by the rather short original descriptions, their true relationships remain unclear.

The presence of *L. salvazai* in southern Yunnan is not surprising, since this species also is distributed in the adjacent Laos. It is highly probable that *L. salvazai* is also present in Vietnam, Myanmar and Cambodia, which border with the known range of this species.

Thus, about ten species of *Lacon* are known at present from mainland China. The following preliminary key could be used for identification of these species:

Key to known species of *Lacon* Laporte, 1838 of mainland China*

1. Elytra with distinct striae. 2
- Elytra without distinct striae 3
2. Head and pronotum black, elytra reddish brown. Body on average longer (length 22 mm) and broader. Pronotum strongly rounded, coarsely and densely punctate; punctures large, intervals between punctures smaller than diameter of one puncture (China: Yunnan) *rubripennis* Fleutiaux, 1940
- Head and pronotum dark brown, elytra reddish brown. Body on average smaller (length 18.5 mm) and narrower. Pronotum only slightly rounded, punctation distinctly finer; punctures rather small; intervals between punctures subequal to or greater than diameter of one puncture (China: Yunnan) *bicolor* Fleutiaux, 1940
3. Body distinctly flattened. Metathoracic wings absent or reduced 4
- Body only slightly flattened or convex. Metathoracic wings normally present 5
4. Body larger (length 13.20 mm; width 4.25 mm). Hind angles of pronotum broadly rounded at apex. Metathoracic wings reduced, reaching about middle of elytra (China: Yunnan) *diquingensis* sp. nov.
- Body smaller (length 9.50 mm; width 2.85 mm.). Hind angles of pronotum narrowly rounded at apex. Metathoracic wings absent (China: Yunnan) *lijiangensis* sp. nov.
5. Elytra more elongate, usually more than 2.4–2.5 times as long as wide 6
- Elytra less elongate, usually 2.2–2.3 times as long as wide or narrower 8
6. Body on average smaller (length 15 mm) and strongly elongate (China: Yunnan) *yunnanus* Fleutiaux, 1940
- Body on average larger (longer than 15 mm), slightly elongate. 7
7. Body smaller (length 16–21 mm). Prosternal sutures deeply grooved about over their entire length (China: Yunnan. Laos, Thailand). *salvazai* (Fleutiaux, 1918)
- Body larger (length 22–25 mm). Prosternal sutures deeply grooved over about half their length, posteriorly furrowed (“Himalaya”, Laos) *robustus* (Fleutiaux, 1902)
8. Pronotum without tubercles and large median impression 9
- Pronotum with two pairs of tubercles, first one at anterior part and second one behind middle, and large median impression (China: Xinjiang. Siberia and Far East of Russia, Kazakhstan, Mongolia) *altaicus* (Candèze, 1882)
9. Pronotum with shallow median impression extended almost over entire length. Body on average larger (length 18.9 mm), reddish brown (China: Gansu) *rotundicollis* Kishii & Jiang, 1994
- Pronotum only with short impression near base. Body on average smaller (length less than 17 mm), darker 10
10. Body larger (length 16 mm), dark brown. Hind angles of pronotum longer, acute (China: Yunnan) *obscurus* Fleutiaux, 1940
- Body smaller (length 14 mm), brownish, with elytra reddish brown. Hind angles of pronotum short, narrowly rounded (“Himalaya”) *monticola* (Candèze, 1897)

**L. maeklinii maeklinii* (Candèze, 1865) and *L. parallelus parallelus* (Lewis, 1894) reported from mainland China (Cate *et al.* 2007) are not included in this key, because these records apparently erroneous. *L. monticola* (Candèze, 1897) and *L. robustus* (Fleutiaux, 1902) were recorded from “Himalaya” without exact localities and are included in the key because they are possibly present in China.

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