

## A new species and new data on distribution of the shore bugs of China (Hemiptera: Heteroptera: Saldidae)

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**Abstract.** *Rupisalda austrosinica* sp. nov. is described from Guangdong and Yunnan provinces of China. The new species is closely related to *Rupisalda thailandana* (Cobben, 1985). The remaining Oriental species previously included in the '*Saldula fletcheri*' group sensu COBBEN (1986) are transferred here to *Rupisalda*: *R. championi* (Drake, 1954) comb. nov., *R. edita* (Drake & Hoberlandt, 1951) comb. nov., *R. fletcheri* (Distant, 1909) comb. nov., and *R. pusana* (Distant, 1909) comb. nov. The male genitalia and 5<sup>th</sup> instar nymph of *Calacanthia grandis* Cobben, 1985 are described and illustrated for the first time. The following species are recorded for the first time for some regions of China: *Chiloxanthus kozlovi* (Kiritshenko, 1912) from Gansu Province, *Micracanthia ornatula* (Reuter, 1881) from Jiangsu Province, *Saldula fucicola* (J. Sahlberg, 1878) from Qinghai and Sichuan Provinces, *Saldula recticollis* (Horváth, 1899) from Guangxi Autonomous Region and Guangdong Province, and *Saldula saltatoria* (Linnaeus, 1758) from Qinghai Province.

**Key words.** Heteroptera, Leptopodomorpha, Saldidae, new combination, new species, new records, taxonomy, faunistics, China, Palaearctic Region

### Introduction

Shore bugs, belonging to the small predaceous family Saldidae, occur in wet habitats and are distributed in an array of habitats, ranging from sea coasts and lowlands up to mountains of high altitude. Generally the faunal composition of this group in China has been reviewed quite satisfactorily (CHEN & LINDSKOG 1994). However, due to the secretive life style and difficulties in species-level identification, investigations in most regions of the country remain insufficient. Most of the available data on the shore bugs of China is concentrated in the following works of JAKOVLEV (1889), KIRITSHENKO (1912), DRAKE & MAA (1954), CHEN (1987, 1988a,b, 1992, 1996a,b, 1999), CHEN & LING (1987), CHEN & ZHENG (1987), CHEN & LINDSKOG (1994), LINDSKOG (1995), NONNAIZAB et al. (1999), LI et al. (2008), LUO & VINOKUROV (2011),

VINOKUROV (2004, 2008), VINOKUROV & LUO (2011), VINOKUROV et al. (2012), AUKEMA et al. (2013), and VINOKUROV & KMENT (2015).

At present, 49 species of shore bugs from 16 genera and two subfamilies, Chiloxanthinae and Saldinae, are reported from China (including Taiwan), although subsequent studies of this fauna should reveal several new species and new records of the previously described species. New material kindly sent to me for investigation from the National Museum, Prague, Czech Republic and the All-Russian Research Institute of Plant Protection, St. Petersburg, Russia has revealed new data on the shore bugs fauna of China. The present article provides new records of shore bugs for some regions of China, describes a new species of the genus *Rupisalda* J. T. Polhemus, 1985, and describes the male genitalia of *Calacanthia grandis* Cobben, 1985, which was previously known only from a single female.

### Material and methods

Dorsal colour images were made with a Nikon SMZ 1500 stereomicroscope equipped with Nikon D700 digital camera. Observations, measurements, and Figures 13–15 were made with a MSP 2 (var. 4) stereomicroscope equipped with Canon EOS 1100 D digital camera. Images of genitalia were made with a Nikon Eclipse 80i upright microscope and a Nikon Digital Camera DXM1200C. All taxa mentioned in this paper are listed in alphabetical order. All measurements are given in millimeters.

The material examined is deposited in the following institutions:

- MMBC Moravian Museum, Brno, Czech Republic;  
 NKUM Nankai University, Department of Biology, Tianjin, P.R. China;  
 NMPC National Museum, Prague, Czech Republic;  
 ZISP Zoological Institute, Russian Academy of Science, St. Petersburg, Russia.

### Taxonomy

Subfamily Chiloxanthinae Cobben, 1959

#### *Chiloxanthus kozlovi* (Kiritshenko, 1912)

(Fig. 1)

**Material examined.** CHINA: XIZANG: E Tibet, Tamala Shan's pass, road Quamdo–Toba, 20 km NE Quamdo, 31°16'N 97°18'E, ca. 4800 m a.s.l., alpine meadow, 16.vii.1997, 1 ♂, M. Trýzna & O. Šafránek lgt. (MMBC). GANSU: Qilian Shan, S of Zhangye, 20 km SSW of Huazhaizi, right source of Tayogou (= Dayekou) River, 38°28'42"N 100°15'26"E, 3400–3900 m a.s.l., 24.vii.1999, 1 ♂, I. Belousov & I. Kabak lgt. (ZISP); Qilian Shan, S of Zhangye, SSW of Huazhaizi, S of Zhangye, Tayogou (= Dayekou) River, 38°30'N 100°14'E, 2400–2800 m a.s.l., 22.vii.1999, 1 ♂ 1 ♀ 1 spec. (damaged), I. Belousov & I. Kabak lgt. (ZISP); Qilian Shan, S of Zhangye, 20 km SSW of Huazhaizi, right source of Tayogou (= Dayekou) river, 38°29'46"N 100°15'19"E, 2900–3400 m a.s.l., 25.vii.1999, 1 ♀, I. Belousov & I. Kabak lgt. (ZISP).

**Habitat.** In Gansu this species was collected at the altitude of 2400–3900 m on river banks in forest zone (I. Kabak, pers. comm.).

**Distribution.** This species (Fig. 1) was previously known only from Tibet and Qinghai (KIRITSHENKO 1912, CHEN & LINDSKOG 1994). New species for Gansu Province.

Subfamily Saldinae Amyot & Serville, 1843  
Tribe Saldoidini Reuter, 1912

*Calacanthia grandis* Cobben, 1985

(Figs 2–7)

**Material examined.** CHINA: SICHUAN: E Danba, E Suopo, 30°52'53"N 102°02'51"E, 4343 m a.s.l., 14.viii.2004, 1 ♂ 1 ♀, I. Belousov & I. Kabak lgt. (ZISP); SW of Jiabi, 31°27'54"N, 102°41'38"E, 3780 m a.s.l., 9.viii.2007, 2 ♂♂ (1 ♂ teneral), 1 5<sup>th</sup> instar larva, I. Belousov & I. Kabak lgt. (ZISP); Kangding, NNE Yalaxiang, Shuangyanwo, 30°13'46"N 101°59'30"E, 4170 m, 7.vii.2013, 1 ♀, I. Belousov & I. Kabak lgt. (ZISP).

**Additions to the description and variability.** In the examined adults coloration and vestiture are similar to those of the holotype. Females are larger than the holotype of *C. grandis*: body length 8.0–8.5 mm and width 3.7–3.8 mm (Fig. 2). Males are shorter than females: body length 6.5 mm, width 3.0 mm. (For detailed measurements of these specimens refer to Table 1). Distribution of pale spots on corium of two females and one male are almost identical to those of the holotype, the clavus near the apex having a small triangular pale spot (Fig. 7). Membrane is almost entirely black, veins black, cells with pale spots near apex, and small spots in middle brown. An unusually dark male from Jiabi has an entirely black clavus, and the corium is provided with only three pale spots: one on apex of exocorium and two on endocorium near RM-vein, at middle and close to apex.

**Description of male genitalia.** Paramere with high and narrowed processus sensualis bearing long thin setae, base of processus hamatus thick and gradually narrowed towards end (Fig. 3). Parandria as in Fig. 4, median endosomal sclerite wide (Figs 5, 6).

**Description of 5<sup>th</sup> instar larva.** Body black, dull shiny. Head, pronotum and wing buds with scarce, short, black setae. Antennae thin, black, covered with adpressed long straight setae

Table 1. Measurements of *Calacanthia grandis* and *Rupisalda austrosinica* sp. nov. (in mm). Measurements of the holotype of *C. grandis* adopted from COBBEN (1985).

| Locality                                       | sex      | total length | total width | Head  |                           |                           |               |                         | Pronotum |                 |                   | Antennal segments |      |      |      | length of length of metatibia | length of meta-tarsus |
|--|----------|--------------|-------------|-------|---------------------------|---------------------------|---------------|-------------------------|----------|-----------------|-------------------|-------------------|------|------|------|-------------------------------|-----------------------|
|  |          |              |             | width | vertex at level of ocelli | fronts at narrowest width | ocellus width | distance between ocelli | length   | width of collar | width at the base | I                 | II   | III  | IV   |                               |                       |
| <b><i>Calacanthia grandis</i> Cobben, 1985</b> |          |              |             |       |                           |                           |               |                         |          |                 |                   |                   |      |      |      |                               |                       |
| SW of Jiabi                                    | male     | 6.5          | 2.95        | 1.60  | 0.64                      | 0.42                      | 0.10          | 0.03                    | 0.79     | 0.94            | 2.20              | 0.64              | 1.39 | 0.90 | 0.90 | 3.63                          | 1.33                  |
|  | male     | 6.5          | 3.00        | 1.64  | 0.64                      | 0.50                      | 0.09          | 0.03                    | 0.83     | 0.93            | 2.23              | 0.70              | 1.43 | 0.89 | –    | 3.85                          | –                     |
| E of Suopo                                     | female   | 8.8          | 4.00        | 1.60  | 0.74                      | 0.54                      | 0.10          | 0.06                    | 0.93     | 1.00            | 2.63              | 0.77              | 1.57 | 0.96 | –    | 4.36                          | 1.40                  |
|  | female   | 8.0          | 3.68        | 1.69  | 0.71                      | 0.50                      | 0.11          | 0.06                    | 0.93     | 1.00            | 2.63              | 0.71              | 1.60 | 0.90 | 1.03 | 4.38                          | 1.43                  |
| SW of Jiabi                                    | instar 5 | 4.5          | 2.5         | 1.42  | –                         | –                         | –             | –                       | 0.50     | –               | 1.88              | 0.55              | 1.13 | 0.85 | 0.95 | 3.00                          | 0.55                  |
| Holotype                                       | female   | 7.5          | 3.8         | 1.64  | 0.78                      | 0.52                      | 0.1           | 0.08                    | 0.92     | 1.00            | 2.40              | 0.72              | 1.72 | 1.00 | 1.12 | 4.16                          | 1.28                  |
| <b><i>Rupisalda austrosinica</i> sp. nov.</b>  |          |              |             |       |                           |                           |               |                         |          |                 |                   |                   |      |      |      |                               |                       |
| Lake Xiang-long                                | male     | 3.7          | 1.6         | 1.03  | 0.40                      | 0.30                      | 0.06          | 0.04                    | 0.50     | 0.64            | 1.28              | 0.40              | 0.78 | 0.52 | 0.75 | 2.00                          | 0.70                  |
|  | male     | 3.6          | 1.6         | 1.03  | 0.40                      | 0.28                      | 0.06          | 0.04                    | 0.48     | 0.62            | 1.34              | 0.40              | 0.80 | 0.52 | 0.62 | 2.05                          | 0.98                  |
|  | male     | 3.5          | 1.7         | 1.06  | 0.38                      | 0.30                      | 0.05          | 0.03                    | 0.50     | 0.60            | 1.32              | 0.40              | 0.80 | 0.60 | 0.54 | 2.03                          | 0.73                  |
|  | male     | –            | –           | 1.06  | 0.40                      | 0.30                      | 0.05          | 0.04                    | 0.48     | 0.60            | 1.30              | 0.38              | 0.86 | 0.60 | 0.60 | 2.05                          | 0.70                  |
|  | female   | –            | –           | 1.14  | 0.40                      | 0.32                      | 0.06          | 0.03                    | 0.44     | 0.66            | 1.35              | 0.42              | 0.84 | 0.60 | 0.54 | 2.10                          | 0.74                  |
|  | female   | 4.1          | 2.0         | 1.08  | 0.42                      | 0.32                      | 0.06          | 0.04                    | 0.52     | 0.70            | 1.50              | 0.40              | 0.84 | 0.60 | 0.62 | 2.13                          | 0.70                  |
| Jizu Shan Mt.                                  | female   | 4.4          | 1.9         | 1.10  | 0.40                      | 0.34                      | 0.06          | 0.04                    | 0.48     | 0.70            | 1.58              | 0.42              | 0.88 | 0.56 | 0.60 | 2.25                          | 0.90                  |

and scarce black erect setae; segment II short, 1.3 times as long as segment III; segments III and IV almost equal in length to corresponding antennal segments of adults. Labium long, brownish-black, surpassing hind coxae. Legs blackish-brown. Fore femora with a row of long erect spines ventrally. All tibiae with short semi-adpressed straight stiff black setae and scarce, long, erect, black bristles equal in length to thickness of tibia; these bristles located on ventral surface of front tibiae and on dorsal surface of middle and hind tibiae. Abdomen with scarce, long, black erect setae and with black stiff bristles along lateral margins of abdominal segments. Body length 4.5 mm, body width 2.5 mm (for detailed measurements see Table 1).

**Habitat.** Recently, three additional males, two females and one 5<sup>th</sup> instar larva of this species were collected in Sichuan at the altitudes of about 4000 m a.s.l. on forest river banks and in lower alpine zone habitats (I. Kabak, pers. comm.).

**Note.** COBBEN (1985) described this species, the largest representative of the genus *Calacanthia* Reuter 1891, from a single female sampled in Sichuan Province, China. The holotype of *C. grandis* is retained in the ZISP collection and badly damaged, with all appendages missing.

### *Macrosaldula bogdashana* Luo & Vinokurov, 2011

(Figs 8, 30)

**Material examined.** CHINA: XINJIANG: E Tien-Shan: S slope of Bogdo-Shan Range, Yuldun-Terek-Gol R., 2 km upstream Mochchenga vill., 43°25'59"N 88°55'28"E, 2000 m a.s.l., 14.vii.1999, 1 ♀, I. Belousov & I. Kabak lgt. (ZISP).

**Distribution.** This species was described from the northern slope of the Bogda Shan Mountain Range (LUO & VINOKUROV 2011). One more female of this species was collected by Belousov and Kabak on the southern slope of the Bogda Shan Mt. Range (Fig. 8). For distribution of the species see Fig. 30.

### *Micracanthia ornata* (Reuter, 1881)

**Material examined.** CHINA: JIANGSU: Nankin, 1939, 1 ♀, Jenjurist lgt. (ZISP).

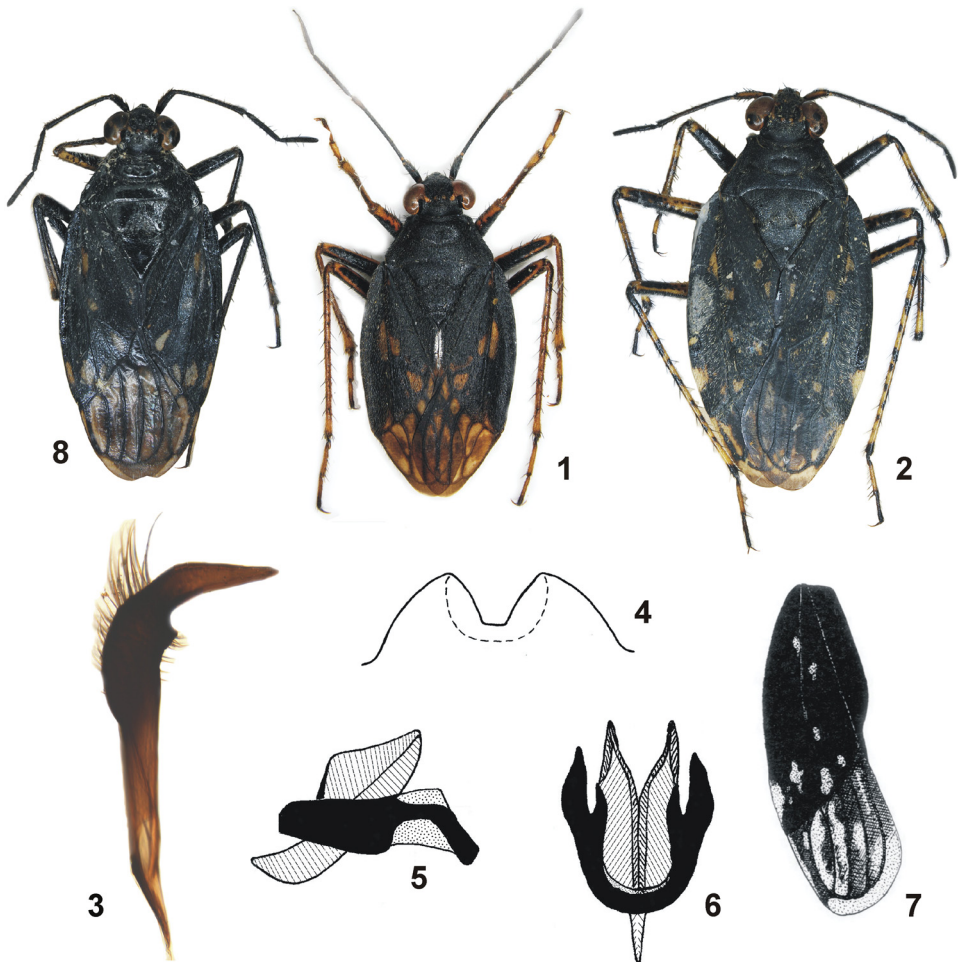
**Distribution.** Widely distributed in tropics and subtropics of the Old World including Afrotropical, South Palaearctic and Oriental Region (LINDSKOG 1995, VINOKUROV 2012, POLHEMUS & POLHEMUS 2012, AUKEMA et al. 2013, VINOKUROV & KMENT 2015). Within China, this species was previously reported from Fujian, Hainan, Taiwan, and Yunnan (CHEN & LINDSKOG 1994). New record for Jiangsu Province.

### *Rupisalda austrosinica* sp. nov.

(Figs 9–21, 31)

**Material examined.** HOLOTYPE: ♂, CHINA: GUANGDONG: Danxia Shan NP, Xianglong lake (wet rock), 25°01.244'N 113°44.342'E, 98 m a.s.l. [Fig. 32], 23.–26.iv.2013, J. Hájek & J. Růžička lgt. (NMPC). PARATYPES: 3 ♂♂ 2 ♀♀, same data as holotype (2 ♂♂ 1 ♀ – NMPC, 1 ♂ 1 ♀ – ZISP). YUNNAN: Shanzi env., Jizu Shan Mt., Zhusheng monastery, 25°57.7'N, 100°23.6'E, 2180 m a.s.l. [Fig. 33], 22.–24.vi.2007, 1 ♀, J. Hájek & J. Růžička lgt. (NMPC).

**Diagnosis.** Recognized by the moderate body size (3.5–4.4 mm); colour of antennal segments III yellowish-white in middle or black, segment IV bicolorous, whitish in basal portion and black in apical portion, or nearly all whitish; labium long, bicolored yellow and dark-brownish, extending far beyond apex of metacoxae; and structure of male (Figs 15–20) and female

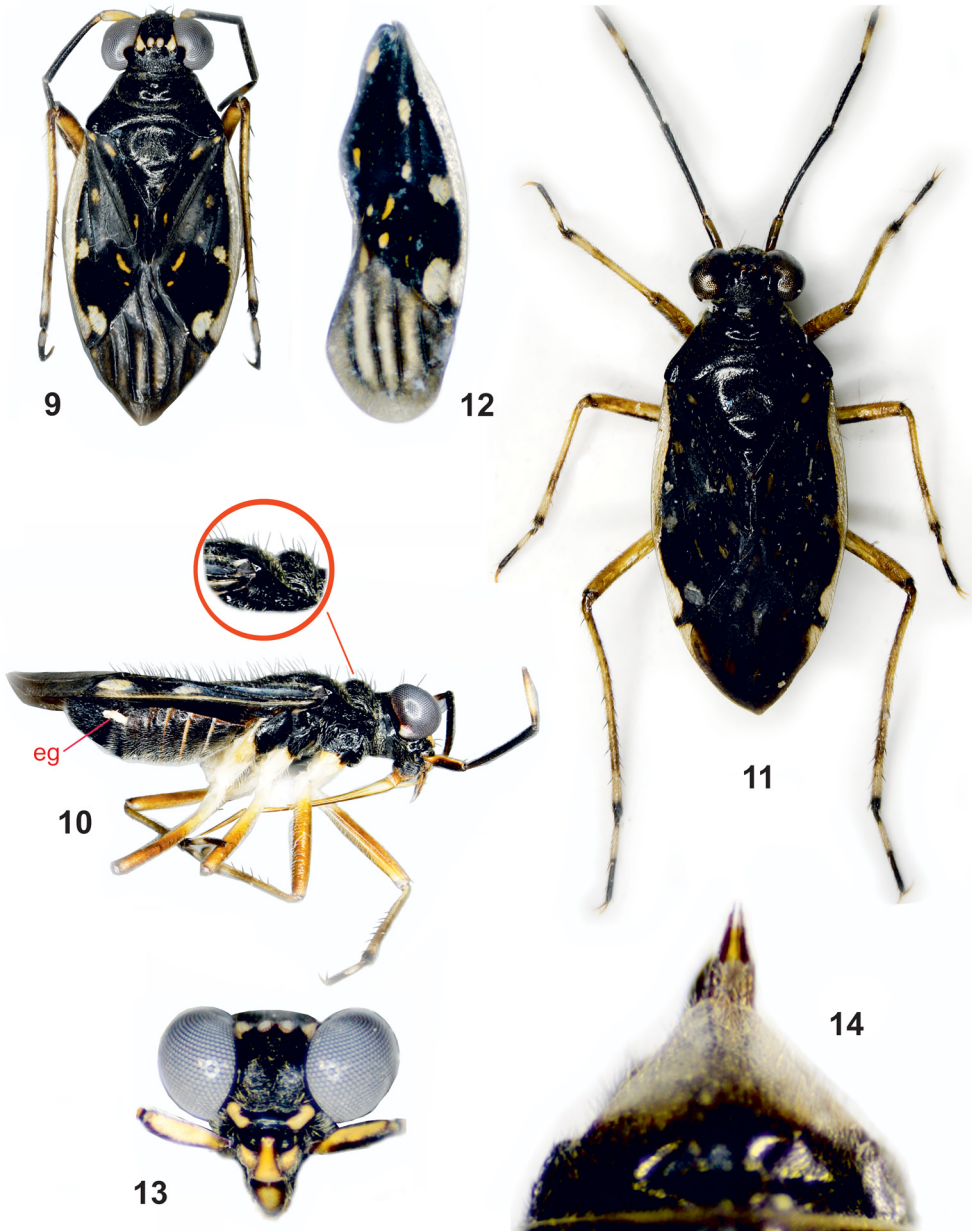


Figs 1–8. 1 – *Chiloxanthus kozlovi* (Kiritshenko, 1912), female (Sichuan). 2–7 – *Calacanthia grandis* Cobben, 1985; 2 – female (Gansu); 3 – paramere; 4 – parandria; 5–6 – medial endosomal sclerite (5 – lateral view, 6 – ventral view); 7 – female, holotype, forewing (after COBBEN 1985). 8 – *Macrosaldula bogdashana* Luo & Vinokurov, 2011, female (Xinjiang).

(Figs 14, 21) genitalia and terminalia. The new species is similar to the Oriental *Rupisalda thailandana* (Cobben, 1986) which is distinguished from *R. austrosinica* by the different colour pattern of apical antennal segments (III dark-brownish, IV brownish with middle part somewhat paler coloured), labium uniformly dark brown, reaching only apex of metacoxae, and features of male and female genitalia (Figs 23–29). See also Table 2.

**Description. Male** (Fig. 9). Body black, elongate-oval, body length 3.5–3.7 mm, 2.1–2.3 times as long as wide, hemelytra submacropterous or macropterous. See Table 1 for detailed measurements.





Figs 9–14. *Rupisalda austrosinica* sp. nov.: 9–10 – male (Guangdong); 11 – female (Yunnan); 12 – forewing; 13 – head, frontal view; 14 – female subgenital plate, ventral view. Abbreviations: eg – eversible gland.

*Head* (Fig. 13). Eyes large, bluish-gray. Frons dimly shining, with shallow longitudinal groove at middle, wrinkled, smooth along inferior margins of eyes, with short gray adpressed setae and scarce long black hairs shorter than trichobothria. Vertex around ocelli smooth and shiny, with small transverse wrinkles near collar. Ocelli noticeably elevated from surface of vertex, bluish-gray, with narrow yellow margin, separated from each other by  $3/4$  of width of ocellus. Preocellar spots distinct, yellow, rounded, elongated, with longest side along eyes. Maxillary and mandibular plates yellow, transverse swelling black, shiny; clypeus brown-yellow. Gular area black. Labrum yellow, with dark brown margins. Labium long, extending far beyond apex of metacoxae and reaching base of abdomen, yellow, laterally dark brown. Ratio of antennal segment I to remaining segments: II – 2.0–2.1, III – 1.3–1.54, IV – 1.3–1.6. Segment I ventrally black, with semierect, thin, short black setae, dorsally yellow, flat, with short thick black setae at sides. Segment II black, with narrow yellow ring at base, shiny, densely covered with short black semierect setae. Segment III with thick gray setae, yellowish-white in middle or completely black. Segment IV entirely white, or with dark bands at middle or at middle and apex.

*Thorax*. Pronotum trapeziform, covered with gray adpressed and long erect black setae, posterior lobe with thin transverse wrinkles; flattened lateral margins narrow, slightly concave, with a row of dark short setae anteriorly. Callus distinctly convex (Fig. 10), smooth, separated from posterior lobe by distinct furrow, reaching anterolateral part of pronotal sides; medial pit deep, with pair of small cavities laterally and posteriorly. Scutellum convex, black, shiny, depressed at middle. Ventral side of thorax, including all acetabula black, shiny, with long white erect setae. Base of pro- and mesocoxae with large black to brown spots, yellow to pale-yellow at middle and white apically; metacoxae white, with small dark spot at base. Femora dark red, with white base and brown flat sides. Tibiae dark-yellow, with a yellowish-white ring subapically and a narrowly dark brown apex. Metatibiae weakly arched in basal part. Tarsal segments I and III dark brown, segment II pale. Forewing (Fig. 12) with short adpressed recumbent golden setae and long erect black setae with curved apex. Hypocostal lamina without secondary suture. Clavus velvety-black, with sub-basal and subapical oblong yellow spots. Corium black and matt, with shiny, wide whitish edge along lateral margin. Endocorium ashy gray at base. Two spots on proximal part of endocorium and two spots on apical part of exocorium white or yellowish white. Two or three small rounded and elongated spots on inner corner of endocorium and in some examined specimens narrow longitudinal yellow spot along R-vein. Membrane dark brown, with pale oblong stripes within cells.

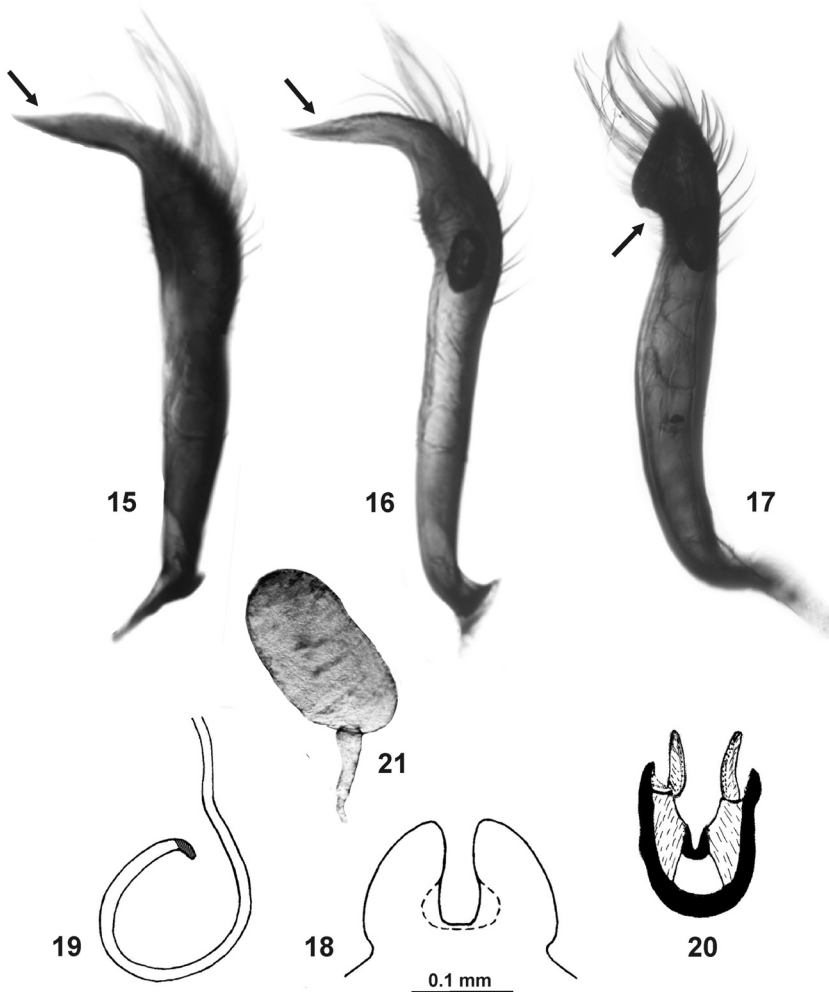
*Abdomen* black, with white adpressed setae, lateral margins of segments with narrow yellow stripes.

*Genitalia*. Eversible gland of male genitalia reaching middle of genital segment (Fig. 10: eg) or missing. Paramere stout, with comb of long, thin, dark brown hair on smoothly rounded dorsal side, apex of processus hamatus tapered and upturned, processus sensuality flat, with short setae, lateral side with deep notch (Figs 15–17). Outer side of parandria widely narrowed, distance between them narrow (Fig. 18). Penisfilum coiled 1 time (Fig. 19), medial endosomal sclerite horseshoe-shaped (Fig. 20).

**Female** (Fig. 11). Body length 4.1–4.4 mm. Habitus, coloration, vestiture, and colour pattern of forewing as in male. Subgenital plate triangular, yellow (Fig. 14), spermatheca oblong-oval, thick-walled, without flange (Fig. 21).

**Etymology.** The species name is an adjective composed of Latin *australis* (-is, -e) (= southern) and *sinicus* (-a, -um) (= Chinese), referring to its area of distribution.

**Differential diagnosis** (see also Table 2). The new species is closely related to *Rupisalda thailandana* (Cobben, 1986) and can be considered as its northern counterpart. Both species are similar in vestiture of dorsum, topography of spots on clavus and corium. *Rupisalda*

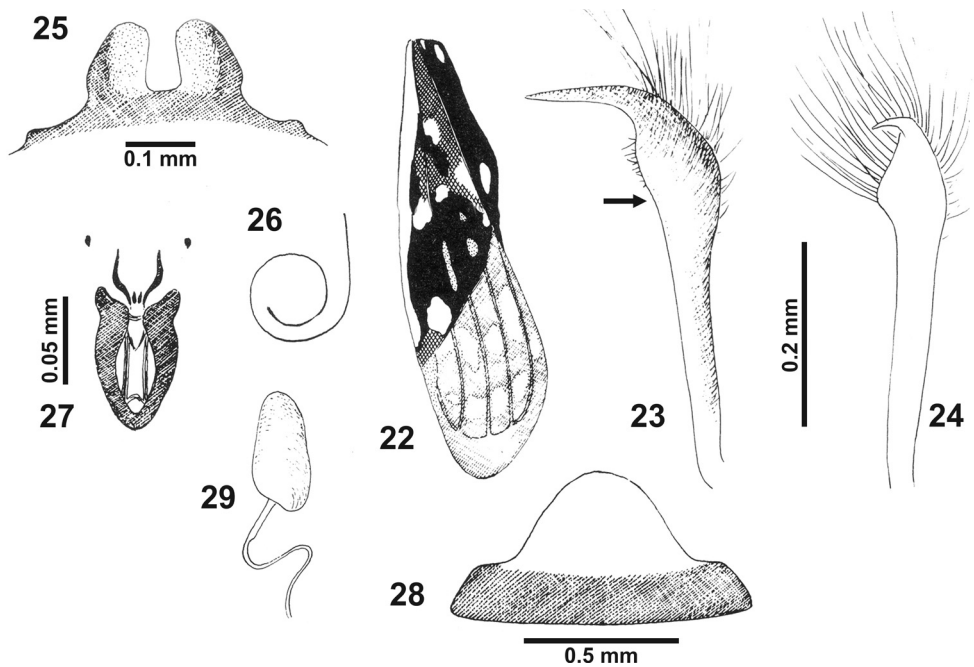


Figs 15–21. *Rupisalda austrosinica* sp. nov.: 15–17 – paramere in various positions, 18 – parandria, 19 – penisfilum, 20 – median endosomal sclerite in ventral view, 21 – spermatheca.



Table 2. Distinguishing taxonomic characters of *Rupisalda austrosinica* sp. nov. and *R. thailandana* (Cobben, 1986). Data on *R. thailandana* adopted from COBBEN (1986).

| Character                     | <i>Rupisalda austrosinica</i>   | <i>Rupisalda thailandana</i>                                       |
|-------------------------------|---|--|
| ratio of body length to width | 2.1–2.3   | 2.3–2.6  |
| length of setae on frons      | twice shorter than trichobothria  | long, the longest of them equal to length of trichobothria         |
| antennal segment III          | widely pale in middle part or black                                     | entirely black   |
| antennal segment IV           | entirely white or with dark bands at middle or at middle and apex       | brownish, middle part paler  |
| labium                        | yellow, laterally dark-brown extending far beyond apex of metacoxae     | dark-brown, reaching apex of metacoxae                             |
| membrane                      | with longitudinal pale stripes on veins                                 | with 2 rows of grayish spots on veins                              |
| paramere                      | apex of processus hamatus turned up, paramere laterally with deep notch | apex of processus hamatus strait, paramere laterally without notch |
| penisfilum                    | coiled 1 time   | coiled 1.5 times   |
| median endosomal sclerite     | wide, horseshoe-shaped  | narrow and longitudinal  |
| spermatheca                   | oblong-oval   | pyriform   |

Figs 22–29. *Rupisalda thailandana* (Cobben, 1986): 22 – forewing; 23, 24 – paramere in various positions; 25 – parandria; 26 – penisfilum; 27 – median endosomal sclerite; 28 – subgenital plate; 29 – spermatheca. Figures after COBBEN (1986).

*thailandana* differs from the new species by the slender body, very long protruding setae on frons, colour of antennal segments III and IV and labium, bluish-gray hue in anterior half of corium and arrangement of spots within cells on membrane (Fig. 22). The former species also differs in the following features of male and female genitalia: apex of processus hamatus of paramere straight (Fig. 23), lateral side without notch (Fig. 24), end of parandria rounded (Fig. 25), penisfilum coiled 1.5 times (Fig. 26), median endosomal sclerite narrowed (Fig. 27), spermatheca pyriform (Fig. 29).

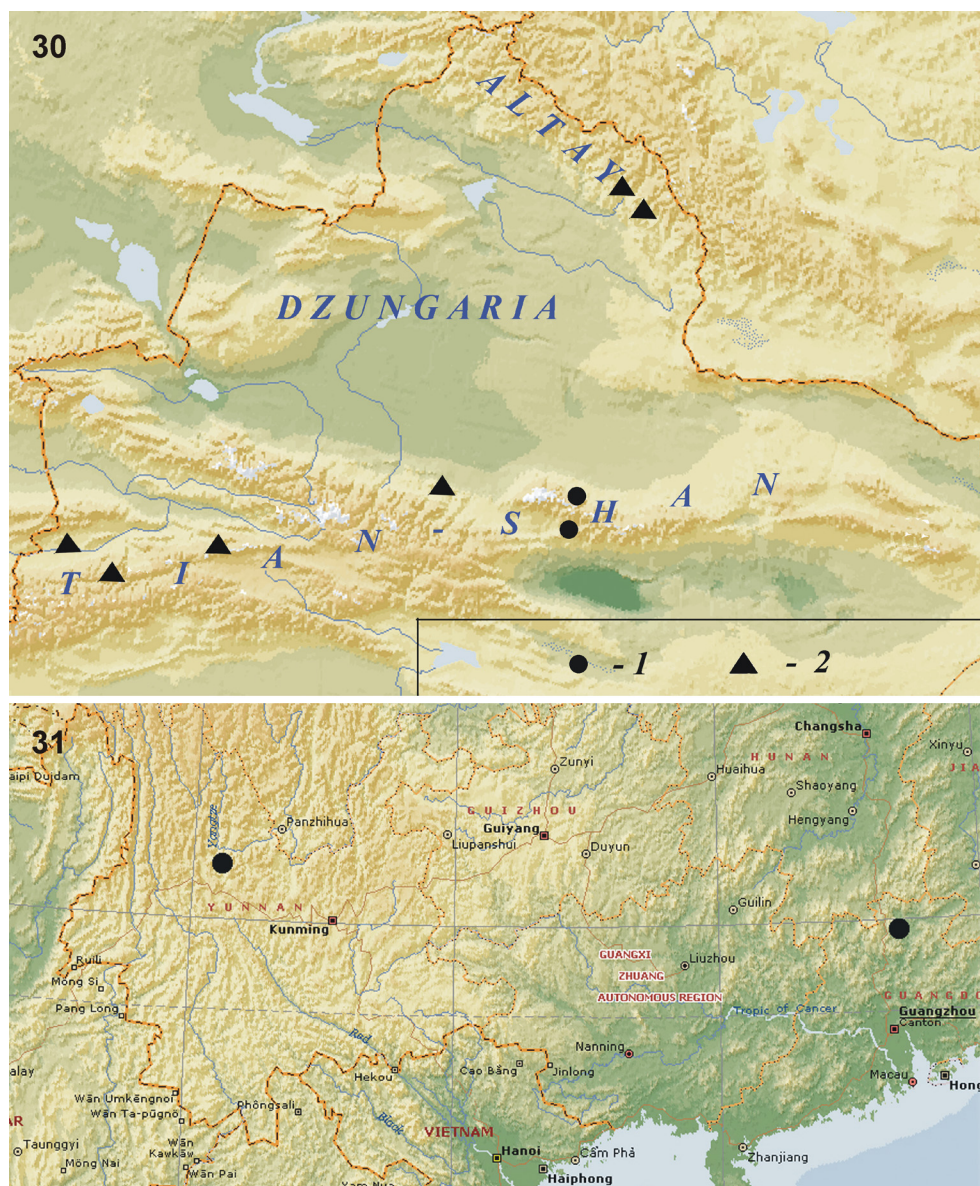
**Habitat.** At type locality, *Rupisalda austrosinica* sp. nov. was collected on a vertically exposed wet rock (Fig. 32); the single female from Yunnan was collected in gravelly bank of a forest stream (Fig. 33) (J. Hájek, pers. comm.)

**Distribution.** China: Guangdong and Yunnan Provinces (Fig. 31).

**Systematic placement.** *Rupisalda austrosinica* sp. nov. belongs to the Indo-Malayan *Saldula fletcheri*-group defined by COBBEN (1986) and including so far five species: *S. championi* Drake, 1954, *S. edita* Drake & Hoberlandt, 1951, *S. fletcheri* (Distant, 1909), *S. pusana* (Distant, 1909), and *S. thailandana* Cobben, 1986. COBBEN (1986) provided the following comment on this species group: 'The generic attribution of both species [i.e. *S. fletcheri* and *S. thailandana*] considered above needs further study. They apparently belong to a clade which harbours other morphologically more advanced species in the same geographic region, viz. *S. championi*, *edita* and *pusana*. Although detailed habitat descriptions are not available, I presume that this clade has adapted towards a lapidicolous way of life. This group of 5 species shares the plesiomorphous absence of a secondary hypocostal ridge and spermathecal flange. It is further characterized by the following apomorphic traits: proportionally long antennae, first antennal segment flattened dorsally and last segments provided with signal colouration, bowed hind tibiae, loss of abdominal larval organ, displacement of abdominal stigmata towards sternites lateral margin. Some of these and other characteristics are shared by species groups either assigned to *Macrosaldula* (Europa and northern Asia, COBBEN 1985), or to the genus *Rupisalda* (Neotropics and Africa, POLHEMUS 1981, 1985, COBBEN 1987). The validity and mutual relationships of these species groups require a more careful cladistics evaluation than has been undertaken up till now.'

However, in a recent monograph on Malayan Leptopodomorpha, POLHEMUS & POLHEMUS (2012) published new data on *S. thailandana*, based on material from Malaysia and Thailand, and placed this species within the genus *Rupisalda*. They provided the following comment: 'Although originally described in the genus *Saldula* (COBBEN 1986), the lack of a secondary hypocostal ridge on the ventral hemelytron, coupled with its general habitus and preference for rheocrenes, places this species in the genus *Rupisalda*.' Unfortunately, POLHEMUS & POLHEMUS (2012) did not comment on the remaining species of '*Saldula*' *fletcheri* species-group.

As the '*Saldula*' *fletcheri* species-group sensu COBBEN (1986) seems to be a monophyletic clade, the current placement of its included taxa in two different genera is unacceptable and confusing. Therefore, I suggest to include the entire '*S.*' *fletcheri* species-group in *Rupisalda* providing the following new combinations: *Rupisalda championi* (Drake, 1954) comb. nov., *R. edita* (Drake & Hoberlandt, 1951) comb. nov., *R. fletcheri* (Distant, 1909) comb. nov., and *R. pusana* (Distant, 1909) comb. nov.



Figs 30–31. 30 – Distribution of *Macrosaldula bogdashana* Luo & Vinokurov, 2011 (1) and *Saldalittoralis littoralis* (Linnaeus, 1758) (2) in Xinjiang. 31 – distribution of *Rupisalda austrosinica* sp. nov.





Figs 32–36. 32–33 – habitats of *Rupisalda austrosinica* sp. nov.: 32 – Danxia Shan NP, Xianglong lake, 33 – Jizu Shan Mt. 34 – habitat of *Saldula burmanica* Lindskog, 1975, Haba Xueshan Mts. 35–36 – habitats of *Saldula recticollis* (Horváth, 1899): 35 – Nanling NNR, Dadongshan; 36 – Danxia Shan NP, slopes of Elder peak (Photo: J. Hájek).

***Saldula burmanica* Lindskog, 1975**

**Material examined.** CHINA: SICHUAN: SW of Jiabi, 31°27'54"N 102°41'38"E, 3780 m a.s.l., 9.viii.2007, 3 ♀♀, I. Belousov & I. Kabak lgt. (ZISP). YUNNAN: 1.3–2 km S of Haba, Haba Xueshan Mts., 27°22.1'N 100°08.2'E, 2830–3000 m a.s.l. [Fig. 34], 17.–20.vi.2007, 1 ♂ 2 ♀♀, J.Hájek & J. Růžička lgt. (NMPC).

**Habitat.** In Yunnan, the species was found near a streamlet flowing through an alpine meadow (Fig. 34) (J. Hájek, pers. comm.).

**Distribution.** A Himalayan species recorded from Pakistan, north India, Nepal, north-east Myanmar, north Vietnam, and China (Shaanxi, Sichuan, Tibet, Yunnan) (LINDSKOG 1975, COBBEN 1985, CHEN & LINDSKOG 1994, LINDSKOG 1995, VINOKUROV 2012).

***Saldula fucicola* (J. Sahlberg 1878)**

**Material examined.** CHINA: QINGHAI: Haibeizhan, Menyuan, 14.vii.1989, 1 ♀, collector unknown (NKUM); Jianguan, 26.vi.1990, 1 ♂, M-87, collector unknown (NKUM). SICHUAN: Jiuzhaigou County, N Dajisi Vill., 33°20'49"N 103°48'31"E, 2770 m a.s.l., 21.vi.2012, 1 ♂, I. Belousov, I. Kabak, G. Davidian & A. Korolev lgt. (ZISP).

**Distribution.** Euro-Siberian forest species distributed in northern areas of Europe, Ukraine, Crimea, Caucasus, Asian part of Kazakhstan, Mongolia, northwestern China, Siberia, and Far East of Russia; in Balkan, Caucasus and Central Asia the species occurs in mountains (LINDSKOG 1995, VINOKUROV 2004, AUKEMA et al. 2013, VINOKUROV & KMENT 2015). In China known from Inner Mongolia (LI et al. 2008) and Xinjiang (CHEN & LINDSKOG 1994, VINOKUROV et al. 2012). New for Qinghai and Sichuan provinces.

***Saldula nobilis* (Horváth, 1884)**

**Material examined.** CHINA: QINGHAI: Huangzhong env., Taer Si (= Kumbun) lamasery (36°28.8–29.5'N 101°34.0–34.1'E), 2665–2780 m a.s.l., 17.vii.2005, 2 ♂♂ 2 ♀♀, J. Hájek & J. Růžička lgt. (NMPC).

**Habitat.** The specimens were collected in waterlogged banks of small pools in ruderal habitats close to lamasery (J. Hájek, pers. comm.).

**Distribution.** A species distributed in mountains of Central Europe (Austria, Germany, Slovakia, Switzerland, Ukraine: Transcarpathia), in Russia (Central European Territory: Ekaterinburg Province, West Siberia: Tyumen Province, East Siberia, Far East), Kazakhstan, Mongolia, China, and Japan (LINDSKOG 1995, VINOKUROV 2004, AUKEMA et al. 2013). In China it is known from Hebei, Heilongjiang, Inner Mongolia, Jilin, Shaanxi, Sichuan, and Tibet (CHEN & LINDSKOG 1994). New for Qinghai province of China.

***Saldula orthochila* (Fieber, 1859)**

**Material examined.** CHINA: XINJIANG: Mailitau Mt. R., SW Toli, 45°30'34"N, 83°01'58"E, 2595 m a.s.l., 27.vii.2012, 2 ♀♀, I. Kabak lgt. (ZISP); S slope of Bogdo-Shan Range, Yuldun-Terek-Gol R., 2 km upper vill. Mochchenga, 2000 m a.s.l., 43°25'59"N 88°55'28"E, 14.vii.1999, 1 ♀, I. Belousov & I. Kabak lgt. (ZISP); Boro-Horo Mt. R., S slope, Nilki River, 44°00'43"N 82°47'13"E – 44°01'26"N 82°49'07"E, 2480 m a.s.l., 6.viii.2013, 1 ♂ 1 ♀, I. Kabak lgt. (ZISP).

**Distribution.** Euro-Siberian and Central Asian montane species, also recorded from China, Pakistan, and India (Jammu and Kashmir) (LINDSKOG 1995, VINOKUROV 2012, AUKEMA et al. 2013, VINOKUROV & KMENT 2015). In China known from Sichuan (CHEN & LINDSKOG 1994) and Xinjiang (VINOKUROV et al. 2012).

### *Saldula recticollis* (Horváth, 1899)

**Material examined.** CHINA: GUANGDONG: Nanling National Natural Reserve, Dadongshan, 24°55.768'N 112°42.960'E, 680 m a.s.l. [Fig. 35], 19.–21.iv.2013, 1 ♂ 2 ♀♀, J. Hájek & J. Růžička (NMPC); Danxia Shan NP, slopes of Elder peak, 25°01.6'N 113°44.2'E, 190 m a.s.l. [Fig. 36], 26.iv.2013, 3 ♂♂, J. Hájek & J. Růžička lgt. (NMPC). GUANGXI: Jiandí, 25°55.6'N 110°14.8'E, 365 m a.s.l., 12.iv.2013, 1 ♀, J. Hájek & J. Růžička lgt. (NMPC).

**Habitat.** In Guangdong, *Saldula recticollis* was found on exposed wet rocks (Figs 35, 36) (J. Hájek, pers. comm.).

**Distribution.** South of the Far East of Russia, China, Korea, and Japan (LINDSKOG 1995, AUKEMA et al. 2013). In China known from eastern and southern territories (Hebei, Heilongjiang, Henan, Hubei, Guizhou, Fujian, Sichuan, Qinghai, Yunnan) (CHEN 1987). New records for Guangdong Province and Guangxi Autonomous Region.

### *Saldula saltatoria* (Linnaeus, 1758)

**Material examined.** CHINA: QINGHAI: Haiheizhan, Menyuan, 14.–15.vii.1989, 2 ♂♂, collector (NKUM). XINJIANG: E Tian-Shan, Narat Range, Ural R., right tributary of Kshi-Kushtai River, 42°50'40"N 82°06'36"E, 3000 m a.s.l., 16.vi.1999, 1 ♀, I. Belousov & I. Kabak lgt. (ZISP).

**Distribution.** Widely distributed Holarctic species extending to Nepal (LINDSKOG 1995, AUKEMA et al. 2013, VINOKUROV & KMENT 2015). In China known from several regions throughout the territory (NONNAIZAB et al. 1999, LI et al. 2008, CHEN & LINDSKOG 1994, VINOKUROV et al. 2012). New for Qinghai province.

## Tribe Saldini Amyot & Serville, 1843

### *Salda littoralis* (Linnaeus, 1758)

(Fig. 30)

**Material examined.** CHINA: XINJIANG: N Tien-Shan, ESE Shaty, 42°38'19"N 80°42'44"E, 3055 m a.s.l., 2.vii.2012, 1 ♂ 2 ♀♀, I. Kabak lgt. (ZISP); Narat Mt.R. Tshon-Dzhergalan River, 43°08'57"N 83°30'53"E, 2515 m a.s.l., 19.vii.2102, 1 ♀, I. Kabak lgt. (ZISP); S Altai Mts, Keshtau Mt., ENE Qinghe, 46°47'21"N 90°44'42"E, 2730 m a.s.l., 12.viii.2013, 1 ♀, I. Kabak lgt. (ZISP); S Altai Mts, NE of Koktokay Vill., 47°18'03"N 89°58'47"E, 1410 m a.s.l., 14.viii.2013, 3 ♀♀, I. Kabak lgt. (ZISP).

**Distribution.** Holarctic species (LINDSKOG 1995, AUKEMA et al. 2013, FERENCA et al. 2014). In China known from Inner Mongolia, Sichuan and Xinjiang (CHEN & LINDSKOG 1994, VINOKUROV et al. 2012). In Xinjiang, this species occurs in Tien Shan Mts. and Mongolian Altai Mts. at altitudes of 1400 to 3000 m a.s.l. (Fig. 30).



### *Teloleuca pellucens* (Fabricius, 1779)

**Material examined.** CHINA: GANSU: Xiahe (= Labrang) env., 35°11.5'N, 102°30.6'E, 2940 m a.s.l., 19.–22. vi.2005, 1 spec., J. Hájek, D. Král & J. Růžička lgt. (NMPC); S Zhoni Village, N slope Guangai Shan Mt. Range, Shuiergou Valley, 34°30'04"N 103°27'4"E, 2800–3000 m a.s.l., 30.vii.1990, 2 ♀♀ 1 larva, I. Belousov & I. Kabak lgt. (ZISP); Zhuggu county, Dahe env., 33°51'15"N 103°53'25"E, 3798 m a.s.l., 30.vii.2004, 1 ♀, I. Belousov & I. Kabak lgt. (ZISP).

**Habitat.** The specimen from Xiahe was collected near the stream flowing in close valley with loess loam (J. Hájek, pers. comm.).

**Distribution.** Holarctic species (LINDSKOG 1995, AUKEMA et al. 2013). In China earlier recorded only from Gansu province (CHEN & LINDSKOG 1994).

### Acknowledgements

The author is thankful to colleagues P. Kment and J. Hájek (NMPC), I. Belousov, I. Kabak and E. N. Belousova (All-Russian Research Institute of Plant Protection, St. Petersburg, Russia), F. Konstantinov (St. Petersburg State University, Russia), P.-p. Chen (Naturalis, Leiden, the Netherlands) and D. Rédei (NKUM) for their support, valuable advice and corrections of English translation, providing material of Saldidae for study and hard-to-find literature, for information on collecting circumstances and habitat photographs, and for taking the colour images of the bugs. Funding for this study was provided by the Russian Foundation for Basic Research, projects No 13-04-00660 to N. Vinokurov.

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