

Occurrence of a New Cave Species of *Jujiroa* (Coleoptera, Carabidae, Platyninae) from Central Sichuan, Southwest China

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Abstract A new cave species of the platynine genus *Jujiroa* is described from a conglomerate cave in central Sichuan, Southwest China, and is named *Jujiroa satoi* to the memory of the late Dr. Masataka SATÔ. It is a peculiar species, isolated from the other congeners by lacking dorsal and preapical pores on the elytra and modified protarsomeres in the male.

The platynine genus *Jujiroa* has rather a wide range of distribution in East Asia. More than thirty species of the genus have hitherto been known from Central and West Japan (cf. SASAKAWA, 2006), Taiwan (UÉNO & SAITO, 1991), Mainland China and North Vietnam (cf. DEUVE, 2004). In Mainland China, these subterranean platynines are extremely rare and their occurrence is quite sporadical, all the four species hitherto described having been known from only single specimens (JEDLIČKA, 1961, pp. 177, 218–219, fig. 44; VIGNA TAGLIANTI, 1995, p. 180, figs. 1–3; UÉNO & KISHIMOTO, 2001, p. 31, figs. 1–3; DEUVE, 2004, p. 362, fig. 1). Though a few additional species were discovered in Sichuan in the past three years, they remain undescribed until now due to inadequacy of available specimens.

In the middle autumn of 2006, I had an opportunity to visit a peculiar limestone cave located in central Sichuan. This cave, called Longmen Dong, is a long one developed in conglomerate lying near the top of a low hill, and has long been well known to local people as a show cave though never examined by cave biologists. It is relatively dry for the most part, but there are wet places fed by trickles. At a turning point of the tourist route, there is a paved rest station with chairs and dustbins, the latter of which contained leftovers of lunches, confectioneries and juice bottles, forming appropriate attractor for subterranean animals. All the cavernicoles of interest, including *Jujiroa*, *Quedius*, eyeless lithobiid centipede, and so on, were found in or around those dustbins. Three specimens of *Jujiroa* were found from under them.

After a close examination, it became apparent that the platynine was considerably different from other congeners, though looking similar in general appearance to typical Chinese forms. It belongs to an isolated new species beyond all doubt, and is described in the present paper to the memory of the late Dr. Masataka SATÔ (1937–2006). Having been a leading coleopterologist specializing in aquatic beetles, SATÔ had a wide interest

in various insects including those living in caves, and served as a council of the Speleological Society of Japan for a long time. He was a very good partner in my biological investigations of Chinese caves. Together we explored many caves in Sichuan, Shaanxi, Hubei, Guizhou and Guangxi, always looking for cave beetles and often achieving good results. Besides trechine beetles, we discovered *Jujiroa* in Sichuan, which remain undescribed until now since we have been unable to obtain sufficient material. Instead of dedicating those species, I would like to name after him another remarkable species on the basis of plural specimens, for the first time for Chinese *Jujiroa*.

The abbreviations used herein are the same as those explained in previous papers of mine.

I wish to express my hearty thanks to my friend, Mr. FAN Ting of the Academia Sinica, for his elaborate arrangement for investigating Longmen Dong Cave. Mr. FAN is also a friend of SATÔ's.

Jujiroa satoi S. UÉNO, sp. nov.

(Figs. 1-3)

Length: 11.9–13.4 mm (from apical margin of clypeus to apices of elytra).

Not unlike *J. clarkei* DEUVE (2004, p. 362, fig. 1) in general appearance, but the eyes are more atrophied, the pronotum bears more widely reflexed lateral parts, in particular near front angles, and the elytra are more pointed and denticulate at the apices and devoid of both dorsal and preapical setae. Besides, the male protarsomeres are not distinctly modified, though bearing one or two vestiges of atrophied adhesive appendages.

Concolorously dark reddish brown, shiny except for elytra, which are subopaque. Body elongate, with narrow head and moderately slender appendages; apterous; microsculpture very fine and more or less degenerated on head and pronotum, mostly consisting of transverse lines, more apparent on elytra though also consisting of fine transverse lines.

Head narrow, obviously longer than wide, HL/HW 1.28–1.35 (M 1.32), widest a little before the middle, and gradually narrowed posteriad towards neck constriction, which is not sharply marked; neck short and nearly parallel-sided; genae feebly convex, eyes completely flat and not faceted; dorsum moderately convex, with two pair of supraorbital setae lying on subparallel lines; frontal impressions distinct; labrum transverse, with the apical margin very slightly bisinuate; mandibles fairly long, sharply arcuate inwards at the apical parts; mentum bifoveolate along labial suture and bisetose, with broad mental tooth evidently bifid at the tip; palpi long and slender, penultimate segments gradually dilated towards apices, a little longer than apical segment in labial palpus, about as long as apical segment in maxillary palpus; antennae slender, reaching apical fourth of elytra in ♂, apical third of elytra in ♀, scape long, thickest of all the antennomeres, pedicel the shortest, two-fifths as long as scape or antennomere 4 and one-third as long as antennomere 3, antennomeres 5–10 gradually decreasing in length

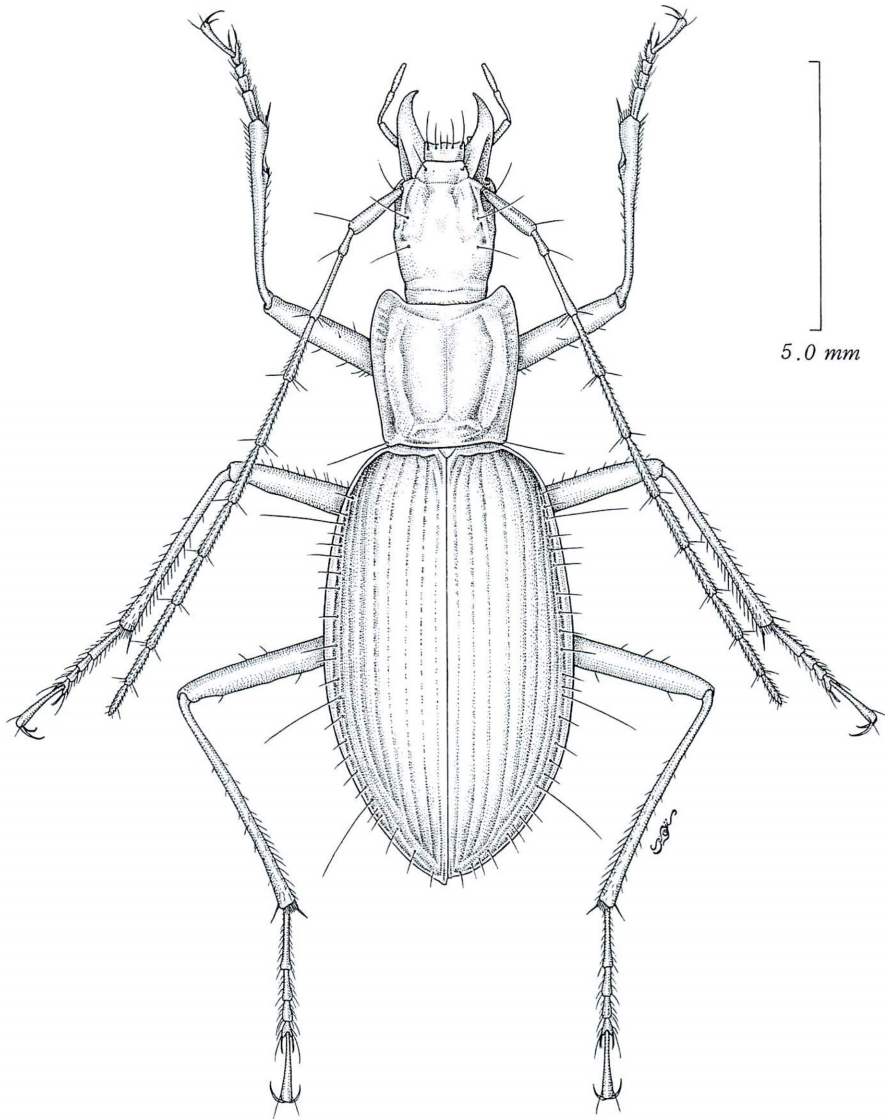
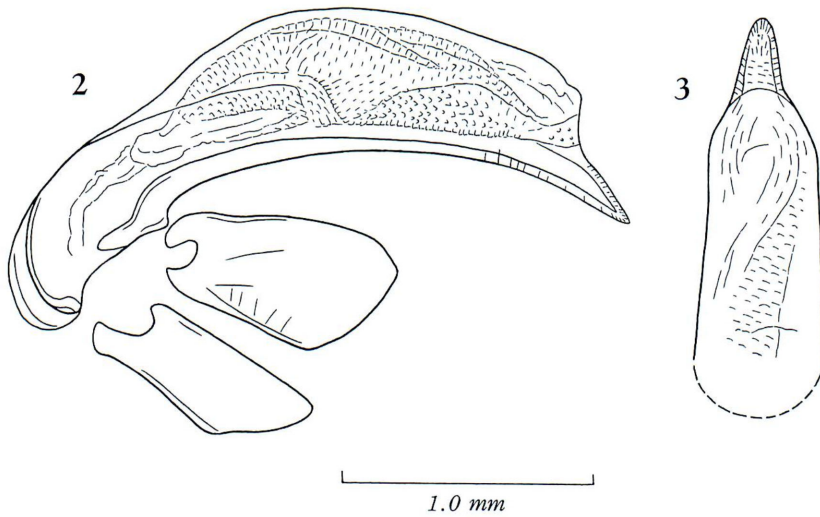


Fig. 1. *Jujiroa satoi* S. UÉNO, sp. nov., ♂, from Longmen Dong Cave in Lushan Xian, central Sichuan.

towards terminal antennomere, which is about as long as 10 and about two-thirds as long as 3, antennomeres 3–5 each about six times as long as wide.

Pronotum a little shorter than head in mid-line, subquadrate with large protruding front angles, widest at about two-thirds from base, and straightly but gently narrowed posteriad; PL/HL 1.05–1.08 (M 1.06), PW/HW 1.43–1.50 (M 1.46), PW/PL 1.04–1.06



Figs. 2-3. Male genitalia of *Jujiroa satoi* S. UÉNO, sp. nov., from Longmen Dong Cave in Lushan Xian, central Sichuan; left lateral view (2), and apical part of aedeagus, dorso-apical view (3).

(M 1.05), PW/PA 1.30-1.41 (M 1.35), PW/PB 1.22-1.24 (M 1.23); sides widely explanate and sharply reflexed throughout, feebly arcuate in front and nearly straight behind middle, reflexed lamellar parts coarsely punctate especially in anterior two-thirds, remarkably widened near front angles, and also near hind angles though less so than in the anterior parts; a pair of postangular setae present on hind angles, the anterior pair of marginal setae absent; apex a little narrower than base, PA/PB 0.87-0.96 (M 0.91) [PB/PA 1.05-1.15 (M 1.10)], nearly straight at the median part, with large subtriangular front angle on each side, which is remarkably produced forwards and somewhat blunt at the tip; base mostly straight, very slightly oblique on each side inside hind angle, which is somewhat obtuse though nearly rectangular; dorsum moderately convex, with sharply impressed median line between the two transverse impressions, of which the anterior one merges into marginal gutter at each lateral end and the posterior one reaches it on each side; basal foveae not sharply defined; basal area smooth, basal margin narrowly bordered.

Elytra elongate, amygdaloid, much wider than prothorax, widest at about four-ninths from bases, and more regularly narrowed towards apices than towards bases; EW/PW 1.66-1.73 (M 1.71), EL/PL 3.04-3.18 (M 3.12), EL/EW 1.74-1.75 (M 1.74); shoulders effaced, with prehumeral borders oblique and feebly arcuate; sides moderately bordered except for humeral parts, where the borders become narrower, very slightly arcuate before middle, feebly so in apical halves, and devoid of preapical emargination; apices moderately pointed, not truncated, each either sharp or briefly spinous but not distinctly mucronate; dorsum gently convex though widely depressed on the disc, steeply declivous at the narrow lateral parts; striae entire, moderately impressed and distinctly punctate on the disc, but becoming shallower at the side, striae 3-4 and 5-6 usually

anastomosing at the apical ends, stria 7 extending to elytral apex, stria 8 deepened in apical half; scutellar striole sharply impressed; intervals mostly flat even on the disc; basal pore reduced and not setiferous; dorsal and preapical pores obliterated altogether; three or four apical pores present, one at the apex of interval 1 and the others adjoining the apical part of stria 7; marginal umbilicate series composed of about 21 pores inclusive of three that bear longer hairs.

Ventral surface smooth; visible sternites 3–5 each with a pair of paramedian setae; anal sternite with a pair of marginal setae in ♂, with two pair of them in ♀. Legs long; protibiae straight, gradually dilated towards apices; tarsi fairly long, tarsomeres 1–4 longitudinally bisulcate on dorsal surface; tarsomere 1 longer than tarsomeres 2 and 3 combined in both meso- and metatarsi; tarsomere 4 deeply bilobed in pro- and mesotarsi, deeply emarginate at the apex in metatarsus; claw segment devoid of additional setae; in ♂, protarsomeres hardly modified, though bearing one or two vestiges of atrophied adhesive appendages on the ventral surface.

Male genital organ small and lightly sclerotized, more elongate than in *J. deliciola* S. UENO et KISHIMOTO (2001, p. 31, figs. 1–3), the only Chinese species whose male genitalia are known, with longer apical lobe and larger sagittal aileron. Aedeagus about one-third as long as elytra, elongate, gently arcuate, and widely membranous on dorsum, with the left aedeagal wall much more reduced than the right, above all before apical lobe; basal part narrow and straight, hardly curved ventrad, with small basal orifice whose sides are only slightly emarginate; sagittal aileron fairly large though narrow; apical lobe long, ventro-apically produced, rapidly tapered apicad to pointed extremity in lateral view, gradually narrowed towards blunt extremity in dorsal view; ventral margin widely but shallowly emarginate in profile, a little more deeply so at the base of apical lobe; inner sac inerm though wholly covered with minute, hardly sclerotized scales. Left paramere conchoidal, large but not so broad, with the apical margin feebly arcuate; right paramere narrow and smaller than the left, with blunt apex.

Type series. Holotype: ♂, allotype: ♀, paratype: 1 ♂, 22–X–2006, S. UENO leg. Deposited in the collection of the Department of Zoology, National Science Museum (Nat. Hist.), Tokyo.

Type locality. Limestone (conglomerate) cave called Longmen Dong, 960 m in altitude, at Longmen Cun of Longmen Zhen in Lushan Xian of central Sichuan, Southwest China.

Notes. Though described in comparison with *J. clarkei*, true affinity of this new species does not seem very close to it in spite of the similarity in general appearance. Lamellar front angles of the pronotum remarkably protrudent forwards, the absence of both the dorsal and preapical pores on the elytra, and the reduction of protarsal modification in the male are unique for *J. satoi*. Besides, the type locality of *J. clarkei* is the farthest of the three caves from which troglobiontic *Jujiroa* were previously known, well more than 700 km distant to the southeast from that of *J. satoi*. Incidentally, the type locality of *J. deliciola* is a little more than 300 km distant to the southeast, and that of *J. iolandae* is a little more than 370 km distant to the east by north.

要 約

上野俊一: 中国四川省中央部の礫岩洞にすむホラアナヒラタゴミムシの1新種. —— 中国四川省芦山县龙门镇龙门村に位置する龙门洞は、礫岩のなかに発達した特異な洞窟だが、これまでに生物学的な調査のなされたことがなかった。2006年の秋にこの洞窟を調べたところ、ホラアナヒラタゴミムシの一種が発見されたが、外見的にはほかの既知種に似ているにもかかわらず、細部には特異な点が多くて、明瞭な新種であると認められた。この新種を、四川省や貴州省の洞窟調査になんども同行され、さらなる調査行を希望されながら実現できずに逝去された故佐藤正孝博士に捧げて、*Jujiroa satoi* S. UÉNO と命名し、公私にわたって長い年月のあいだわたしを支えてくださったご厚意に感謝するよすがとしたい。

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