

***SINOCNEMIS YANGBINGI* GEN. NOV., SP. NOV.
AND *SINOCNEMIS DUMONTI* SP. NOV., NEW PLATYCNEMIDIDS
FROM SOUTH-WEST CHINA (ODONATA: PLATYCNEMIDIDAE)**

Keith D. P. Wilson¹ & Zhou² Wen-bao

¹6F, 25 Borrett Road, Mid-levels, Hong Kong, CHINA
<wislonhk@hk.super.net>

²Zhejiang Museum of Natural History,
Jiaogonglu 71, Hang Zhou-310012, CHINA

Received 29 August 2000, revised and accepted 18 September 2000.

Key words: Odonata, China, Platycnemididae, *Sinocnemis*.

Abstract

A new genus, *Sinocnemis* gen. n., is established to receive two new species of platycnemidid described here as *Sinocnemis yangbingi* sp. n., from Emeishan, Sichuan, China and *Sinocnemis dumonti* sp. n. from Xishui, Guizhou, China.

Introduction

The Old World zygopteran family Platycnemididae Tillyard (1917) is divided into two subfamilies; Calicnemidinae Fraser, (1957) and Platycnemidinae Tillyard (1917). According to Bridges (1994) Calicnemidinae is comprised of 23 genera and Platycnemidinae just two genera. Both subfamilies are poorly defined. Members of the Platycnemidinae have more or less rectangular discoidal cells and males possess expanded tibia. Davies & Tobin (1984) summarised the characteristics of Calicnemidinae as damselflies with lower distal corner of discoidal cell acute and anal vein reaching R3, 4-6 cells behind origin and males without expanded tibia. In China representatives of five platycnemidid genera are recorded. These comprise *Calicnemia* Strand, *Coelliccia* Kirby, and *Indocnemis* Laidlaw from Calicnemidinae and *Copera* Kirby and *Platycnemis* Burmeister from Platycnemidinae. A distinct species, ostensibly belonging to Calicnemidinae, has been found at Emeishan in Sichuan Province and a second related species at Xishui Nature Reserve, Guizhou. A new genus, *Sinocnemis*, is erected here to receive them.

***Sinocnemis* gen. nov.**

Sinocnemis is characterised by three main features; (i) R4+5 arises at a point distinctly proximal to the level of the nodus, (ii) the presence of intercalated sectors cells located between IR2 and IR3, and (iii) IR2 arising closer to nodus than pterostigma. The discoidal cell (dc) is elongate; approximately four times longer than wide.

Distal corner of dc is pointed and more or less acute. Costal side of dc is approximately one fifth shorter than posterior margin. Ac joins ab at point distal to where ab joins wing margin and close to the level of distal antenodal nerve. Petiolation of wing begins slightly proximal to point where ac joins ab. Second antenodal vein is located proximal to arc. There are three to four cells between dc and point where oblique vein descends from subnodus. Pterostigma is elongate, nearly three times as long as broad, broader at middle than at either end. It subtends two to three cells and the proximal side is always braced. The proximal side is acutely pointed with distal side angled perpendicular to radius. Anal appendages of male are robust and not markedly complex. Penile organ is simple, with tip unbranched and curled over to embrace stem of organ. Tibias of males are not dilated.

Type species: *Sinocnemis yangbingi* sp. nov.

Sinocnemis dumonti sp. n. (Figs 1-7)

Material: holotype and paratype are from Xishui Nature Reserve, 28°30' N, 106°20' E. Guizhou province, China, 8-VI-2000. Holotype and paratype are deposited at the Zhejiang Museum Natural History.

Etyymology: Named in honour of Prof. Dr. H.J. Dumont (Ghent, Belgium).

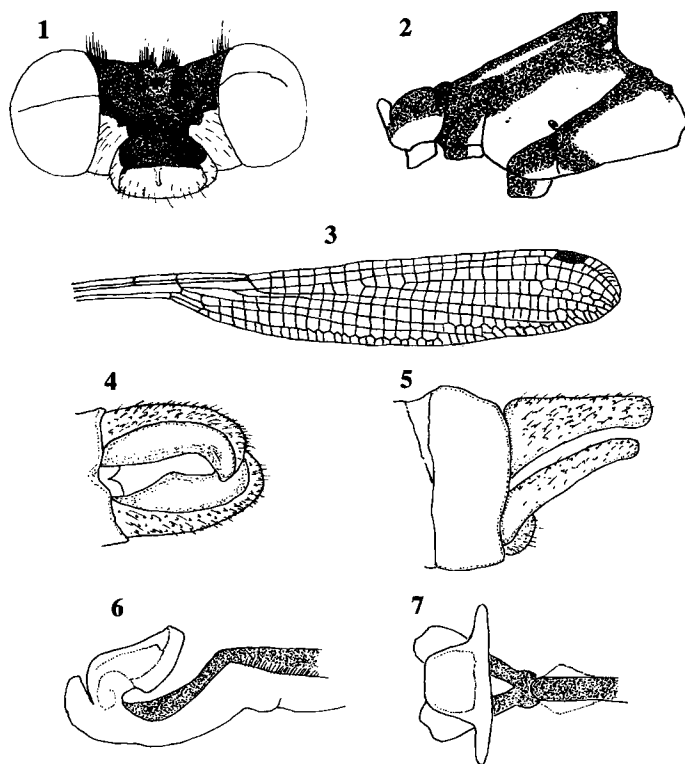
Description: *Male* — Head (Fig. 1). Labium black. Labrum, base of mandibles and genae greenish-yellow. Rest of head dull black, with black hairs. Prothorax black, anterior lobe yellow, a large greenish-yellow spot on each side of the middle lobe. Thorax black, marked with very narrow antehumeral yellow stripes, a small spot on each side of the alar sinus, a rudimentary humeral stripe represented by a small upper spot, metepisternum with broad greenish-yellow stripe covering the spiracle, lower metepimeron with broad stripe not extending to anterior border. Legs black, coxae with outer margins yellow spots. Wings hyaline, pterostigma black, nearly three times as long as broad, covering 2 ½ cells, 20 postnodal nerves in fore wing, 16 in the hind. Abdomen black, segment 1 yellow laterally, segment 2 with a lateral yellow stripe, segments 3-5 with a small lateral yellow spots at the base. Anal appendages black. Superior appendages slightly longer inferior appendage, forcipate, strongly curved. Inferior appendages broad at the base, the apex curling inwards. Penile organ (Figs 6-7).

Measurements (mm): Male abd. + app. 41.5, hw. 31.5.

Female — Not known.

Sinocnemis yangbingi sp. nov. (Figs 8-16)

Material: Holotype: male, Emeishan, Sichuan, China, 6-X-1992, leg. Yang Bing. Paratypes: 2 males, Emeishan, Sichuan, China, 6-X-1992, leg. Yang Bing; 3 females, do, 6-X-1992. The holotype and one female paratype material will be deposited with the BMNH. One male and female paratype to be deposited at the Zhejiang Museum Natural History.

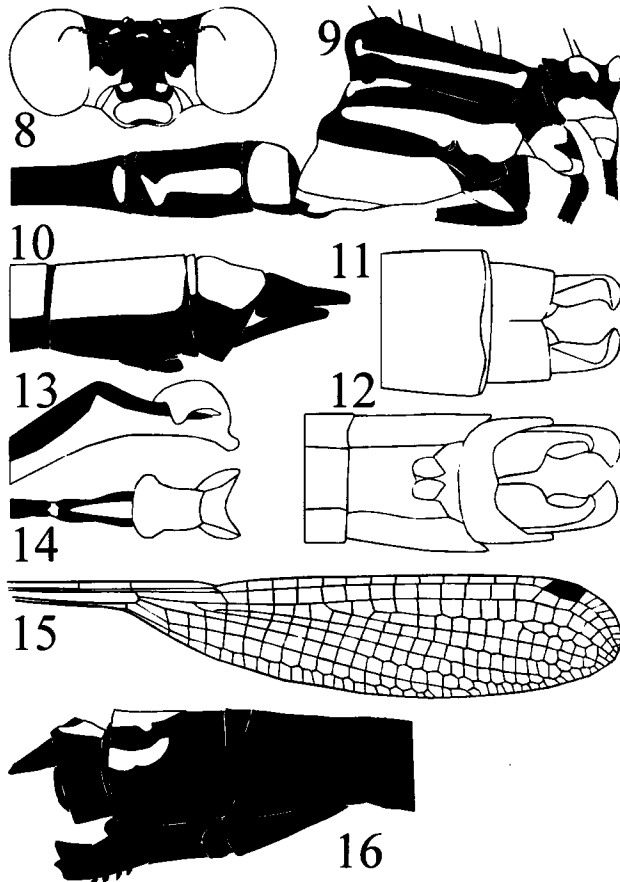


Figures 1-7. *Sinocnemis dumonti* gen. n., sp. n., male, Guizhou: (1) head, dorsal view; (2) thorax, lateral view; (3) wing (4) caudal appendages, dorsal view; (5) caudal appendages, lateral view; (6) penile organ, lateral view; (7) penile organ, dorsal view.

Etymology: Named after Yang Bing who discovered and collected the type and paratype material.

Description: *Male* – Medium sized blackish platycnemidid with bluish-tipped abdomen. Face of head illustrated in Fig. 8. Labium blackish. Labrum pale yellow with areas of pale bluish green. Base of mandibles and genae pale brownish orange. Clypeus with a pair of quadrate pale brownish orange spots at base. A small pale brownish orange spot is located anterior to each lateral ocelli. Otherwise top of head and antennae black. Thorax and base of abdomen is shown in Fig. 9. Prothorax matt black with pale yellow spots with pale bluish green highlights occupying frontal lobe, central dorsal prominence and lower lateral margin. Dorsum of synthorax matt black with pale yellowish orange dorsal stripe. Sides of thorax matt black with lower mesepimeron, metepimeron, and metaposternum coloured yellowish orange with pale bluish green highlights. A small indented similarly coloured stripe occupies the upper posterior corner of the mesepimeron. Coxae predominantly pale creamy yellow. Legs black. Hind wing as shown in Fig. 15. R4+5 arises well proximal to level of nodus, by 1.5

cell widths. Intercalated areas are variable with some wings containing the main area of extra cells between IR2 and R3 and others with the main area of extra cells between R3 and IR3. In Fig 15 the base of IR3 extends proximally beyond the point where the oblique vein extends down from the subnodus. In the majority of wings examined this extension is not present i.e. IR3 begins at the subnodal oblique vein. Pterostigma black and braced proximally and occasionally braced distally. Abdomen matt black with sides of segment 1 predominantly coloured pale orange with pale bluish green highlights. Segment 2 black with similarly coloured broad stripe along lateral margin. A small brownish orange oval spot is located at lateral base of segments 3 to 7, decreasing in size towards segment 7. Dorsum of segments 7-10 cyan blue with slight greyish highlights. Caudal appendages as illustrated in Figs 10-12. Superior appendages black, simple, stout and slightly forcipate at tips. Inferior appendages black, shorter than superior appendages and also simple and slightly forcipate. Penile organ simple as shown in Figs 13-14.



Figures 8-16. [8-15] *Sinocnemis yangbingi* gen. n., sp. n., Sichuan, male: (8) head, frontal view; (9) thorax, lateral; (10) caudal abdomen, lateral; (11) caudal appendages, dorsal; (12) caudal appendages, ventral; (13) penile organ, lateral; (14) penile organ, dorsal; (15) hind wing; [16] *Sinocnemis yangbingi* gen. n., sp. n., Sichuan, female: caudal abdomen, lateral.

Female – Almost identical colouration to male with the following exceptions. The labrum is dark brown and the small quadrate spots on the clypeus are very much reduced to minute spots. Abdominal segment 3 has a broad isolated lateral stripe, which does not extend to the hind margin or the segments isolated basal oval spot. The caudal tip of the abdomen is illustrated in Fig. 16. The dorsum of segments 9 and 10 are predominantly matt black with isolated spots coloured pale brownish orange. The frontal margin of the pronotum is raised and curved with a smooth central indentation.

Measurements (mm): male ab. + app. 35.0-36.5, hw. 27.0-31.0; female abd. + app. 30.0-33.0, hw. 28.0-31.0.

Remarks: Emeishan is a large isolated mountain located in southwest China (29°32'N, 103°20'E), which rises to 3,099 metres. It is located on the southeastern edge of the Tibetan plateau with the low-lying Sichuan basin located to the east. It is a very important type locality for a large number of species endemic to China (MacKinnon et al., 1996).

Discussion

The two new platycnemidid species described here do not appear to be closely related to any other members of the Platycnemididae. Their robust and simple caudal genitalia, simple form of penile organ, wings with intercalculated cells and extreme basal origin of R4+5 indicate they are primitive platycnemidids.

Acknowledgements

Dr. Allen Davies is thanked for this advice and supply of material of *Sinocnemis yangbingi*. Mr. Yang Bing is also gratefully acknowledged for his discovery and collection of *S. yangbingi* material.

References

- Bridges, C.A., 1994. *Catalogue of the family-group, genus-group and species-group names of the Odonata of the World* (3rd edn.). Backhuys, Leiden, 913 pp., col. frontispiece, figs, tabs.
- Davies, D.A.L. & P. Tobin, 1984. The Dragonflies of the World: A systematic list of the extant species of Odonata. Vol.1. Zygoptera, Anisozygoptera. *Societas Internationalis Odonatologica*, Rapid Communication (Supplements) No. 3. Utrecht. ix + 127 pp.
- Fraser, F.C., 1957. *A Reclassification of the Order Odonata*. Sydney, Royal Zoological Society, New South Wales 133 pp.
- Mackinnon, J., M. Sha, C. Cheung, G. Carey, Z. Xiang & D. Melville, 1996. *A Biodiversity Review of China*. World Wide Fund for Nature International China Programme.
- Tillyard, R.J., 1917. *The biology of dragonflies*. (Odonata or Paraneuroptera). Cambridge cxii + 396 pp.