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金色蝗属的分类研究及一新种记述 (直翅目: 剑角蝗科)

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摘要: 本文记述采自内蒙古贺兰山地区金色蝗属 *Chrysacris* 1 新种, 即白纹金色蝗 *Chrysacris albonemus* Zheng, Zhang *et* Zeng sp. nov. 该新种近似于山间金色蝗 *Chrysacris montanis* Zhang *et* Zheng, 1993, 主要区别为: 1)头顶及头部背面具中隆线; 2)前胸背板沟前区长为沟后区长的 1.6 ~ 1.8 倍; 3)前翅前缘脉域宽为中脉域宽的 1.5 ~ 2 倍。附有金色蝗属分种检索表。模式标本保存于陕西师范大学动物研究所昆虫标本室。

关键词: 直翅目; 剑角蝗科; 金色蝗属; 分类; 新种; 中国
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A review of the genus *Chrysacris* Zheng (Orthoptera: Acridoidea) with the description of one new species

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Abstract: This paper reports one new species of the genus *Chrysacris* from Helan Mountain, namely *Chrysacris albonemus* Zheng, Zhang *et* Zeng sp. nov. The new species is allied to *Chrysacris montanis* Zhang *et* Zheng, 1993, but differs in: 1) with a median keel in vertex and back of head; 2) length of prozona 1.6 - 1.8 times that of metazona; 3) width of costal area of tegmina 1.5 - 2 times that of medial area. Type specimens are deposited in the Institute of Zoology, Shaanxi Normal University.

Key words: Orthoptera; Acrididae; *Chrysacris*; taxonomy; new species; China

金色蝗属 *Chrysacris* 为郑哲民(1983)建立, 以秦岭金色蝗 *C. qinlingensis* Zheng, 1983 为模式种; 该属近似于绿洲蝗属 *Chrysochraon* Fisch 及鸣蝗属 *Mongolotettix* Rehn, 其区别于绿洲蝗属为前胸背板侧隆线在沟前区明显, 在沟后区消失; 而区别于鸣蝗属为雌雄前翅均超过后足股节顶端, 顶圆形。廉振民和郑哲民(1987)报道了 *C. robusta* Lian *et* Zheng, 1987 及 *C. viridis* Lian *et* Zheng, 1987; 郑哲民(1988)报道了 *C. liaoningensis* Zheng, 1988 及 *C. sinucarinata* Zheng, 1988; 任炳忠等(1991)报道了 *C. heilongjiangensis* Ren, Zhang and Zheng, 1991; 梁铬球和贾凤龙(1992)报道了 *C. flavida* Liang *et* Jia, 1992; 张凤岭等(1993)报道了 *C. montanis* Zhang *et al.*, 1993; 任炳忠等(1993)报道了 *C. humengensis* Ren, Zhang and Zheng, 1993; 郑哲民(1993a)报道了 *C. wulingshanensis*, 1993; 牛瑶(1994)报道了 *C. stenosterna* Niu, 1994; 任炳忠等(1994)报道了 *C. jiamusi* Ren, Zhang and Zheng, 1994 及 *C. changbaishanensis* Ren, Zhang and Zheng, 1994; 郑一平等(1995)报道了 *C. tato* Zheng, Zhang and Ren, 1995; 郑一平等(1996)报道了 *C. manzhoulensis* Zheng, Ren and Zhang, 1996。至此, 金色蝗属共计有 15 种, 分布于中国黑龙江、吉林、辽宁、内蒙古、陕西、河南及贵州等省区。

2010 年 7 - 8 月, 内蒙古贺兰山国家级自然保护区管理局组织了贺兰山地区昆虫调查, 陕西师范大学动物研究所参加了直翅目蝗虫部分的考察。在采到的标本中, 发现有剑角蝗科金色蝗属 1 新种, 现报道如下。模式标本保存于陕西师范大学动物研究所昆虫标本室。

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金色蝗属 *Chrysacris* Zheng, 1983

Chrysacris Zheng, 1983, *Entomotaxonomia*, 5(3): 259; Zheng, 1985, Acridoidea from YGCSN Regions, 369; Liu, 1990, A Handbook for Identifying Grasshoppers of China, 173, 178; Zheng, 1993b, Acritaxonomy, 374, 384; Yin, Shi and Yin, 1996, A Synonymic Catalogue of Grasshoppers and Their Allies of the World, 177; Ren, 2001, Grasshoppers and Locusts from Northeast, 133.

模式种: *Chrysacris qinlingensis* Zheng, 1983

体中型。颜面倾斜，头部背面具中隆线。触角狭剑状。前胸背板侧隆线在沟前区明显，近平行，在沟后区消失。前翅发达，超过后足股节顶端，顶圆形；中脉域不具闰脉。雄性后足股节内侧下隆线具发音齿；下膝侧片顶锐角形。雄性腹部末节背板具尾片。

金色蝗属分种检索表

1(2) 雄性后胸腹板侧叶相毗连，中胸腹板侧叶间中隔较狭，其长为最狭处宽的3.5倍。分布于河南 …… **狭胸金色蝗 *C. stenosterna***

2(1) 雄性后胸腹板侧叶分开，中胸腹板侧叶间中隔较宽

3(24) 前胸背板侧隆线在沟前区平行，直

4(9) 前翅前缘脉域与中脉域等宽

5(8) 雌性颜面隆起侧缘平行，在中央单眼之下具纵沟；触角粗短，中段一节的长为宽的1.8～2倍

6(7) 雌性复眼纵径为横径的1.28倍；前胸背板沟后区最宽处为沟前区宽的1.6倍。分布于辽宁、吉林 …… **粗壮金色蝗 *C. robusta***

7(6) 雌性复眼纵径为横径的1.42倍；前胸背板沟后区最宽处为沟前区宽的1.39倍。分布于内蒙古 …… **呼盟金色蝗 *C. humengensis***

8(5) 雌性颜面隆区侧缘向下渐宽，全长具纵沟；触角细长，中段一节的长为宽的2.5～2.7倍。分布于黑龙江 …… **黑龙江金色蝗 *C. heilongjiangensis***

9(4) 前翅前缘脉域与中脉域不等宽

10(13) 雌性下产卵瓣下缘端部具凹口

11(12) 雌性复眼纵径为眼下沟长的1.3倍。前翅前缘脉域最宽处为中脉域宽的2倍；前缘脉域基部具淡白色纵纹。分布于陕西、河南 …… **秦岭金色蝗 *C. qinlingensis***

12(11) 雌性复眼纵径与眼下沟等长。前翅前缘脉域最宽处为中脉域宽的1.5倍；前缘脉域基部不具白纹。分布于贵州 …… **武陵山金色蝗 *C. wulingshanensis***

13(10) 雌性下产卵瓣下缘端部不具凹口

14(17) 雌雄两性前翅前缘脉域与肘脉域等宽

15(16) 中胸腹板侧叶间中隔长宽相等。分布于辽宁 …… **辽宁金色蝗 *C. liaoningensis***

16(15) 中胸腹板侧叶间中隔较狭，其最狭处小于其长1.5倍。分布于内蒙古 …… **满洲里金色蝗 *C. manzhoulensis***

17(14) 雌雄两性前翅前缘脉域与肘脉域不等宽

18(19) 前翅径脉不呈黑褐色，与翅同色。分布于内蒙古 …… **绿金色蝗 *C. viridis***

19(18) 前翅径脉黑褐色

20(21) 雌性前翅前缘脉域基部具白色纵纹；前缘脉域宽为中脉域宽的1.41～1.50倍。分布于黑龙江 …… **踏头金色蝗 *C. tato***

21(20) 雌性前翅前缘脉域基部无白色纵纹；前翅前缘脉域宽为中脉域宽的1.53～2.0倍

22(23) 雄性前翅前缘脉域宽为中脉域宽的2～2.5倍；复眼纵径为眼下沟长的1.27～1.33倍；雌性复眼纵径与眼下沟近等长；上产卵瓣略长于下产卵瓣。分布于黑龙江 …… **佳木斯金色蝗 *C. jiamusi***

23(22) 雄性前翅前缘脉域宽为中脉域宽的2倍；复眼纵径为眼下沟长的1.32～1.52倍；雌性复眼纵径略大于眼下沟长；上、下产卵瓣等长。分布于吉林、黑龙江 …… **长白山金色蝗 *C. changbaishanensis***

24(3) 前胸背板侧隆线在沟前区略弯曲

25(26) 触角细长，中段一节的长为宽的2.5倍；头及前胸背板中央具黑褐色纵纹。分布于河南 …… **曲线金色蝗 *C. sinucarinata***

26(25) 触角较粗短，中段一节的长为宽的1.2～1.5倍；头及前胸背板中央不具黑褐色纵纹

27(28) 中胸腹板侧叶间中隔长为最狭处宽的1.25倍；前翅前缘脉域宽为中脉域宽的2倍；前缘脉域基部不具白色纵纹。分布于内蒙古 …… **浅金色蝗 *C. flavida***

28(27)中胸腹板侧叶间中隔长为最狭处宽的1.7～2倍；前翅前缘脉域宽为中脉域宽的1.3～1.5倍；前缘脉域基部具白色纵纹

29(30)雌性，触角中段一节长为宽的1.5倍；头顶背面具中隆线；前胸背板沟前区长为沟后区长的1.3倍；前翅前缘脉域宽为中脉域宽的1.3倍；下生殖板后缘中央三角形突出。分布于辽宁 …… **山间金色蝗 *C. montanis***

30(29)雌性，触角中段一节长为宽的1.25倍；头顶及头部背面具中隆线；前胸背板沟前区长为沟后区长的2倍；前翅前缘脉域宽为中脉域宽的1.5倍；下生殖板后缘呈角状突出。分布于内蒙古…… **白纹金色蝗 *C. albonemus* sp. nov.**

Key to species of *Chrysacris* Zheng

1(2) Metasternal lobes of male contiguous each other, interspace of mesosternal lobes narrower, its length 3.5 times the narrowest width. Distributed in Henan …… ***C. stenosterna***

2(1) Metasternal lobes of male separated each other, interspace of mesosternal lobes wider.

3(24) Lateral keels of prozona parallel, straight.

4(9) Width of costal area of tegmina equal to width of medial area.

5(8) Lateral margin of frontal ridge paralle in female, with longitudinal furrow under median ocellus; antennae stout, length of middle segment 1.8－2 times its width.

6(7) Longitudinal diameter of female eyes about 1.28 times horizontal diameter; width of metazoan at widest 1.6 times width of prozona. Distributed in Liaoning, Jilin …… ***C. robusta***

7(6) Longitudinal diameter of female eyes about 1.42 times horizontal diameter; width of metazoan at widest 1.39 times width of prozona. Distributed in Inner Mongolia …… ***C. humengensis***

8(5) Lateral margin of frontal ridge wider downwards in female, all length with longitudinal furrow; antennae filiform, length of middle segment 2.5－2.7 times its width. Distributed in Heilongjiang …… ***C. heilongjiangensis***

9(4) Width of costal area of tegmina not equal to width of medial area.

10(13)Top of lower margin of lower valvula of ovipositor with concavity in female.

11(12)The longitudinal diameter of eyes in female 1.3 times subocular furrow. Costal area of tegmina 2 times medial area in width; basal part of costal area with light white longitudinal grain. Distributed in Shaanxi, Henan …… ***C. qinlingensis***

12(11)The longitudinal diameter of eyes in female equal to subocular furrow. Costal area of tegmina 1.5 times medial area in width; basal part of costal area without white grain. Distributed in Guizhou …… ***C. wulingshanensis***

13(10)Top of lower margin of lower valvula of ovipositor without concavity in female.

14(17)Costal area of tegmina equal to cubital area in width both in male and female.

15(16)Interspace of mesosternal lobes narrower, its length equal to its width. Distributed in Liaoning … ***C. liaoningensis***

16(15)Interspace of mesosternal lobes narrower, its width at narrowest less than 1.5 times its length. Distributed in Inner Mongolia …… ***C. manzhoulensis***

17(14)Costal area of tegmina not equal to cubital area in width both in male and female.

18(19)Radial of tegmina not dark brown, same color as for tegmina. Distributed in Inner Mongolia …… ***C. viridis***

19(18)Radial of tegmina dark brown.

20(21)Basal part of costal area of tegmina of female with white longitudinal grain; costal area of tegmina 1.41－1.50 times medinal area. Distributed in Heilongjiang …… ***C. tato***

21(20)Basal part of costal area of tegmina of female without white longitudinal grain; costal area of tegmina 1.53－2.0 times medinal area.

22(23)Width of costal area in male tegmina 2－2.5 times medinal area; longitudinal diameter of eyes 1.27－1.33 times subocular furrow; longitudinal diameter of eyes in female nearly equal to subocular furrow; upper valvula of ovipositor slightly longer than lower valvula of ovipositor. Distributed in Heilongjiang …… ***C. jiamusi***

23(22)Width of costal area in male tegmina 2 times medinal area; longitudinal diameter of eyes 1.32－1.52 times subocular furrow; longitudinal diameter of eyes in female slightly longer than subocular furrow; upper valvula of ovipositor slightly equal to lower valvula of ovipositor. Distributed in Heilongjiang, Jilin …… ***C. changbaishanensis***

24(3) Lateral keels of prozona slightly curve.

25(26) Antenna slender, length of middel segment 2.5 times its width; middle of head and pronotum with dark brown longitudinal grain. Distributed in Henan …… ***C. sinucarinata***

26(25) Antenna quite stout, length of middel segment 1.2 – 1.5 times its width; middle of head and pronotum without dark brown longitudinal grain.

27(28) Length of interspace of mesosternal lobes 1.25 times its width; width of costal area of tegmina 2 times width of medial area. Basal part of costal area without white longitudinal grain. Distributed in Inner Mongolia ····· ***C. flavida***

28(27) Length of interspace of mesosternal lobes 1.7 – 2 times its width; width of costal area of tegmina 1.3 – 1.5 times width of medial area. Basal part of costal area with white longitudinal grain.

29(30) In female, length of middle segment of antenna 1.5 times its width; disc of vertex with midkeel; prozona 1.3 times metazona; width of costal area of tegmina 1.3 times width of medial area; hind margin of subgenital plate with a triangular process in the middle. Distributed in Liaoning ····· ***C. montanis***

30(29) In female, length of middle segment of antenna 1.25 times its width; disc of head and vertext with midkeel; prozona 2 times metazona; width of costal area of tegmina 1.5 times width of medial area; hind margin of subgenital plate angular protruding. Distributed in Inner Mongolia ····· ***C. albonemus* sp. nov.**

白纹金色蝗，新种 *Chrysacris albonemus* Zheng, Zhang and Zeng sp. nov.（图 1 ~ 6）

雌性：体中型。头部大，略短于前胸背板，头顶长几与复眼前最宽处相等，头顶及头部背面具明显的中隆线。缺头侧窝。颜面侧观极倾斜，颜面侧隆线直。触角剑状，粗短，中段一节的长为宽的1.25倍。复眼卵圆形，复眼纵径为横径的1.3倍，而与眼下沟几等长。前胸背板背面较平，前缘平直，后缘微弧形几直，中隆线全长明显，侧隆线在沟前区明显，略弯曲，在沟后区消失，仅后横沟切断中隆线，沟前区长为沟后区长的2倍。中胸腹板侧叶间中隔的长为最狭处宽的1.66倍；后胸腹板侧叶分开。前翅发达，超过后足股节顶端，翅顶圆形，翅长为宽的5.6倍，前缘脉域最宽处为中脉域宽的1.5倍，而与肘脉域等宽，径脉域与中脉域等宽，各个脉域均不具闰脉。后翅与前翅等长。后足

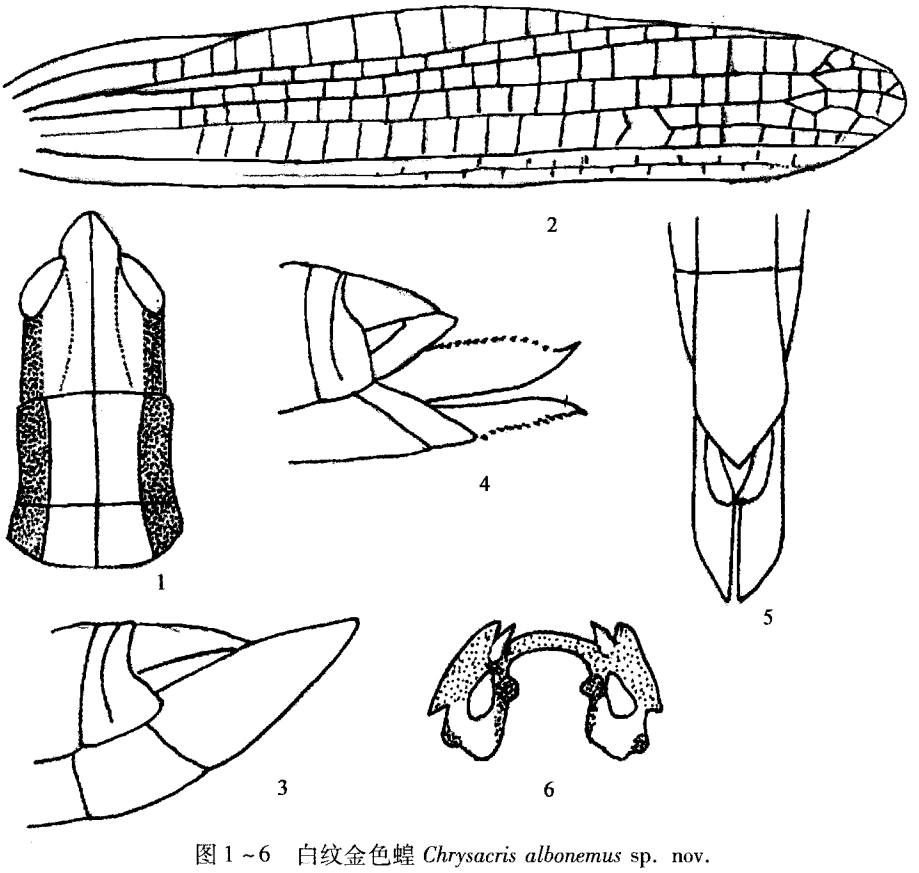

图 1 ~ 6　白纹金色蝗 *Chrysacris albonemus* sp. nov.

Figs. 1 – 6　*Chrysacris albonemus* sp. nov.

1：头、前胸背板背面 Head and pronotum, dorsal view; 2：前翅 Elytra, ♂; 3：雄性腹端侧面 Terminalia, lateral view, ♂; 4：雌性腹端侧面 Terminalia, lateral view, ♀; 5：雌性腹端腹面 Terminalia, ventral view, ♀; 6：阳具基背片 Epiphallus.

股节较细长，长为宽的 6.5 倍，中侧中隆线平滑，下膝侧片顶圆形。后足胫节外侧具刺 11 ~ 14 个，内侧具刺 12 ~ 13 个，缺外端刺；后足跗节第 1 节长为第 2、3 节长之和；爪间中垫大，超过爪长之 1/2。肛上板三角形，中央具宽浅纵沟。尾须短锥形。产卵瓣较粗短，上产卵瓣长为宽的 3.1 ~ 3.8 倍，上、下产卵瓣均具细齿。下生殖板长大于宽，后缘角形突出。

体黄褐色，头部背面具 1 对黑褐色纵纹，具黑色眼后带，前胸背板侧隆线淡色，侧片上半部黑色；前翅黄褐色，前缘脉、亚前缘脉、径脉及中脉基部黑褐色，前缘脉域基部具白色纵纹；上膝侧片黑色；后足胫节黄褐色。

雄性：体较雌性细瘦，触角剑状，中段一节长为宽的 1.5 倍；前胸背板沟前区长为沟后区长的 1.83倍；中胸腹板侧叶间中隔长为最狭处宽的 2 倍；前翅长为宽的 5.2 倍；前缘脉域最宽处为中脉域宽的 2 倍，为肘脉域宽的 1.3 倍；后足股节较细长，长为宽的 5 倍；后足胫节外侧具刺 12 个，内侧具刺 13 个；肛上板三角形，中央具宽浅纵沟。尾须长锥形；下生殖板长锥形，阳具基背片如图 6。体色同雌性。

体长：♂20 mm；♀ 25 ~ 27 mm；前胸背板长：♂3.5 mm；♀ 4 ~ 4.5 mm；前翅长：♂15 mm；♀ 17 ~ 18 mm；后足股节长：♂9.5 mm；♀ 11.5 ~ 12 mm。

正模♀，内蒙古：贺兰山（甘树湾）105°08′E，38°06′N，2010-Ⅶ-31，曾慧花，张红利采；副模：1♂1♀，同正模；1♀，内蒙古：贺兰山(南寺)，2010-Ⅷ-14，曾慧花，张红利采。

该新种近似于山间金色蝗 *C. montanis* Zhang *et al.*，1993，主要区别为：1)触角粗短，中段一节长为宽的 1.25 倍；2)头顶及头部背面具中隆线；3)前胸背板沟前区长为沟后区长的 2 倍；4)前翅前缘脉域宽为中脉域宽的 1.5 倍；5）雌性下生殖板后缘呈角状突出。

词源：新种名以拉丁字“*alb*”(白)及“*nemus*”(纹)为名。

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Appendix: Brief descriptions of new taxa

Chrysacris albonemus sp. nov. (Figs. 1 - 6)

The new species is allied to *Chrysacris montanis* Zhang *et* Zheng, 1993, but differs in: 1) length of middle segment of antenna 1.25 times its width; 2) with a median keel in vertex and back of head; 3) length of prozona 2 times the length of metazona; 4) width of costal area 1.5 times medial area; 5) hind margin of subgenital plate of female angular protruding.

Length of body: ♂20 mm; ♀ 25 - 27 mm; length of pronotum: ♂3.5 mm; ♀ 4 - 4.5 mm; length of elytra: ♂15 mm; ♀ 17 - 18 mm; length of hind femur: ♂9.5 mm; ♀11.5 - 12 mm.

Holotype ♀, Inner Mongolia: Helan Mountain, 105°08′E, 38°06′N, 31. Ⅶ. 2010, collected by ZENG Hui-Hua and ZHANG Hong-Li; paratypes 1 ♂1 ♀, same data as for holotype, 1 ♀, Inner Mongolia: Helan Mountain, 105°08′E, 38°06′N, 14. Ⅷ. 2010, collected by ZENG Hui-Hua and ZHANG Hong-Li.

Etymology: The specific name is derived from the Latin words "*alb*" and "*nemus*".