

Genus *Euhybus* (Diptera: Empididae) Newly Found in Shaanxi Province with Description of a New Species

Authors: Liu, Xiaoyan, Wang, Mengqing, and Yang, Ding

Source: Florida Entomologist, 97(4) : 1598-1601

Published By: Florida Entomological Society

URL: <https://doi.org/10.1653/024.097.0433>

BioOne Complete (complete.BioOne.org) is a full-text database of 200 subscribed and open-access titles in the biological, ecological, and environmental sciences published by nonprofit societies, associations, museums, institutions, and presses.

Your use of this PDF, the BioOne Complete website, and all posted and associated content indicates your acceptance of BioOne's Terms of Use, available at www.bioone.org/terms-of-use.

Usage of BioOne Complete content is strictly limited to personal, educational, and non - commercial use. Commercial inquiries or rights and permissions requests should be directed to the individual publisher as copyright holder.

BioOne sees sustainable scholarly publishing as an inherently collaborative enterprise connecting authors, nonprofit publishers, academic institutions, research libraries, and research funders in the common goal of maximizing access to critical research.

GENUS *EUHYBUS* (DIPTERA: EMPIDIDAE) NEWLY FOUND IN SHAANXI PROVINCE WITH DESCRIPTION OF A NEW SPECIES

XIAOYAN LIU^{1,2}, MENGQING WANG^{1,3} AND DING YANG^{1*}

¹Department of Entomology, College of Agronomy and Biotechnology, China Agricultural University, Beijing 100193, China

²Hubei Insect Resources Utilization and Sustainable Pest Management Key Laboratory, College of Plant Science and Technology, Huazhong Agricultural University, Wuhan 430070, China

³Institute of Plant Protection, Chinese Academy of Agricultural Sciences, Beijing 100081, China

*Corresponding authors; E-mail: mqwang@ippcaas.cn, mengqingsw@163.com (Wang); dyangcau@126.com, dyangcau@aliyun.com (Yang)

ABSTRACT

The genus *Euhybus* has only 6 known species in the Oriental Region, which are distributed in Guangdong and Taiwan of south China and in southern Tibet of southwestern China. Here this genus is reported in Shaanxi Province of Northwest China for the first time. One species, *Euhybus qinlingensis* **sp. nov.**, is described as new to science. A key to the known species in China is provided.

Key Words: dance fly, *Euhybus qinlingensis*, Shaanxi

RESUMEN

El género *Euhybus* tiene sólo 6 especies conocidas en la Región Oriental, que se distribuyen en Guangdong y Taiwán al sur de China y en el sur del Tíbet al sudoeste de China. Aquí este género se reporta por primera vez para la provincia de Shaanxi al noroeste de China. Se describe *Euhybus qinlingensis* **sp. nov.**, como nueva especie para la ciencia. Se presenta una clave para las especies conocidas en China.

Palabras Clave: mosca danza, *Euhybus qinlingensis*, Shaanxi

Euhybus Coquillett comprises 64 known species worldwide, including 14 species in the Nearctic Region, 46 in the Neotropical Region and 6 in the Oriental Region (Yang et al. 2007; Liu et al. 2011; Wang et al. 2013). We have not found major differences between New and Old World species. As this genus is weakly defined, it is likely paraphyletic and needs to be more clearly identified, especially in comparison to the Neotropical *Neohybos* Ale-Rocha & Carvalho (Wang et al. 2013). All the Oriental species are endemic to Guangdong and Taiwan of South China and Tibet of Southwest China.

Shaanxi Province is located in northwest China. It includes portions of the Loess Plateau straddling the middle reaches of the Yellow River in addition to the Qinling Mountains across the southern part of this province. Here *Euhybus* is newly recorded from Shaanxi Province. A new species, *Euhybus qinlingensis* **sp. nov.**, is found in Qinling Mountains. The type is deposited in the Entomological Museum of China Agricultural University, Beijing (CAU). Morphological termi-

nology follows McAlpine (1981) and Cumming & Wood (2009). The following abbreviations are used: acr = acrostichal seta(e), ad = anterodorsal seta(e), av = anteroventral seta(e), d = dorsal seta(e), dc = dorsocentral seta(e), h = humeral seta(e), oc = ocellar seta(e), npl = notopleural seta(e), pd = posterodorsal seta(e), prsc = prescutellar seta(e), psa = postalar seta(e), pv = posteroventral seta(e), sc = scutellar seta(e), v = ventral seta(e).

GENUS *EUHYBUS* COQUILLETT

Diagnosis

Eyes contiguous or nearly so beneath antennae in both sexes. Proboscis distinctly shorter than head, thickened, apically obtuse with pseudotracheae (not constricted for piercing); palpus short. R_{4+5} and M_1 convergent apically (occasionally parallel); anal cell longer than basal cells; Rs rather short (Liu et al. 2004; Wang et al. 2013).

Distribution

Oriental, Nearctic and Neotropical Regions.

KEY TO SPECIES OF *EUHYBUS* IN CHINA [MODIFIED FROM WANG ET AL. (2013)]

1. Arista minutely pubescent; costal cell and anal lobe enlarged; hind tibia with 2-3 dorsal setae 2
- Arista bare; costal cell and anal lobe not enlarged; hind tibia without dorsal setae 4
2. Thorax black; legs black, at most tarsomeres 1–2 dark yellow; hind femur at most twice as thick as mid femur 3
- Thorax brownish yellow; legs dark brownish yellow except tarsomeres 3–5 dark brown; hind femur 2.5 times as thick as mid femur. Guangdong *E. sinensis* Liu, Yang & Grootaert
3. At most mid tarsomeres 1–2 yellow; first flagellomere blackish. Tibet
- Tarsomeres 1–2 on all legs dark yellow; first flagellomere dark brownish yellow. Guangdong *E. nigratarsis* Wang, Li & Yang
4. Mid tibia yellow or dark yellow; stigma short and rounded, about 1/6 as long as cell R_1 , not filling apex of cell r_1 5
- Mid tibia black; stigma long, about 1/3 as long as cell R_1 , completely filling apex of cell r_1 . Guangdong *E. xui* Yang & Grootaert
5. All femora entirely black 6
- Fore and mid femora black with brownish yellow or dark brownish yellow tips. Tibet
- *E. longiseta* Wang, Li & Yang
6. First flagellomere 2 times longer than wide; right surstylus without marginal denticles. Taiwan.
- *E. taiwanensis* Liu, Li & Yang
- First flagellomere 1.5 times longer than wide; right surstylus with marginal denticles. Shaanxi
- *E. qinlingensis* **sp. nov.**

EUHYBUS QINLINGENSIS **SP. NOV.**

(Figs. 1-6)

Diagnosis

Flagellomere 1.5 times longer than wide. Arista bare. All femora entirely black. Mid tibia dark yellow. Hind tarsomere 1 brownish yellow. Hind tibia without dorsal setae. Costal cell and anal lobe not enlarged. Stigma short and rounded (about 1/6 as long as cell r_1 , not filling apex of cell r_1). Hypandrium with subtriangular apical process.

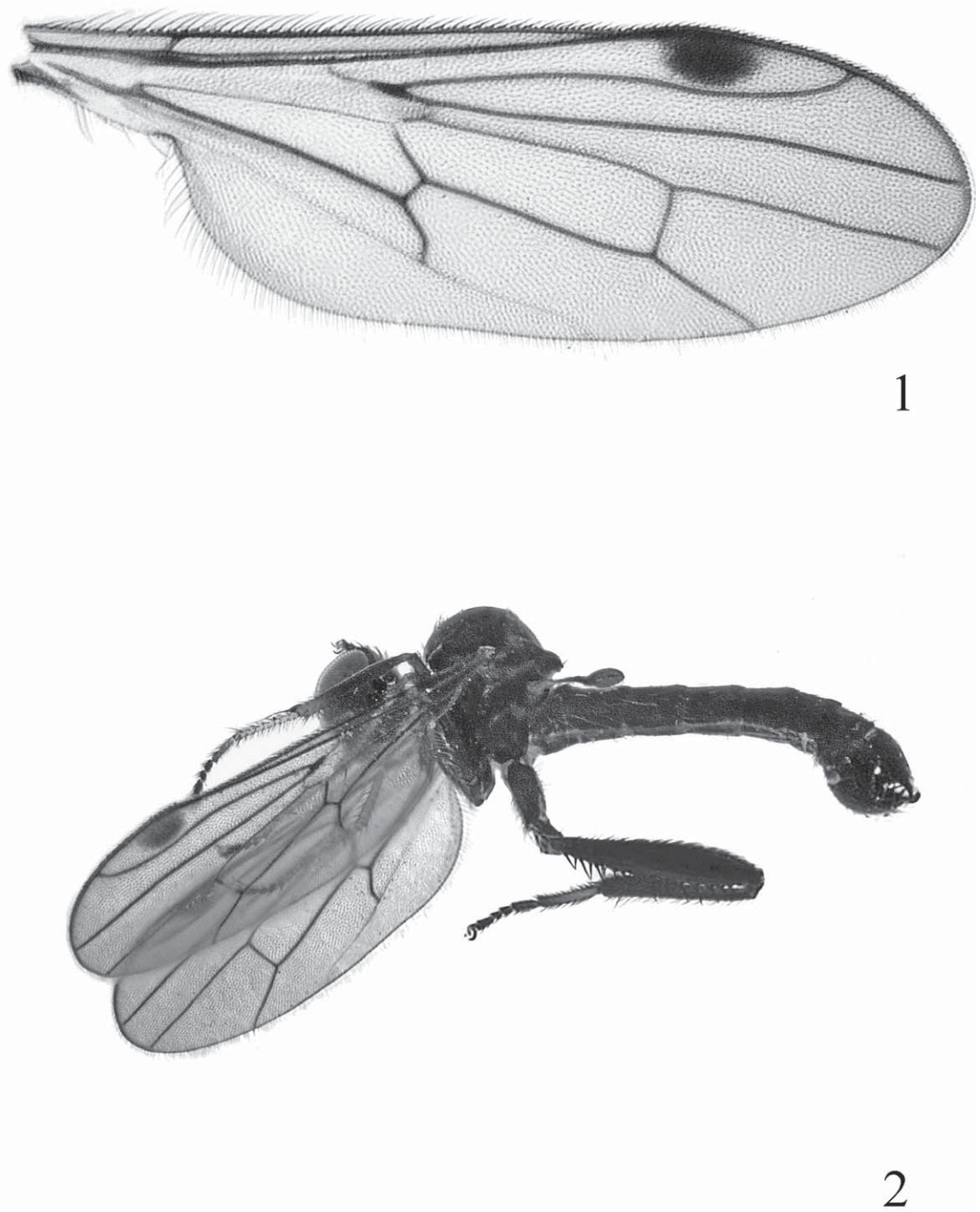
Male

Body length 3.1 mm, wing length 2.7 mm.

Head black with pale gray pollinosity. Eyes brown with enlarged upper facets dark yellow. Setae and setulae on head black; ocellar tubercle weak, with 2 long oc and 2 short posterior setulae. Antenna blackish; pedicel with circlet of subapical setulae; first flagellomere nearly as long as scape +

pedicel, 1.5 times longer than wide, without dorsal setae; arista 4.5 times as long as first flagellomere, dark brown, bare, with apical 1/4 thin. Proboscis brownish, distinctly shorter than head, thickened, nearly obtuse apically; palpus dark brown with 1 long curved seta at extreme tip.

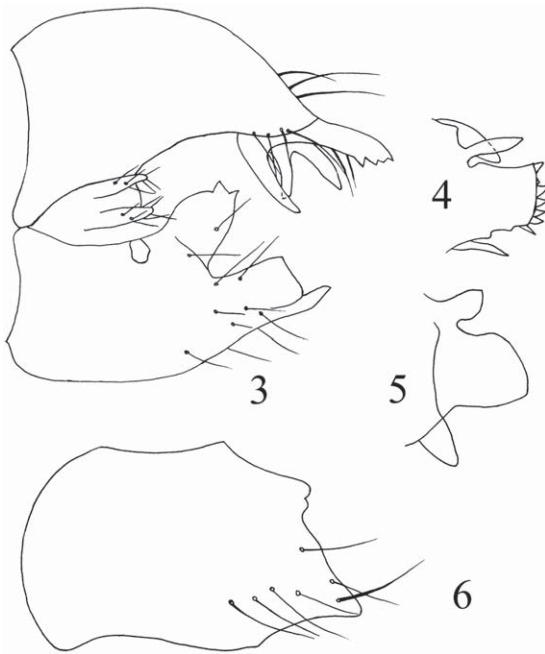
Thorax black with pale gray pollinosity, except mesoscutum glossy black with posterior portion pollinose. Setae and setulae on thorax black; h absent, 2 long strong npl; hair-like acr biseriate; hair-like dc uniseriate except only 1 posteriormost dc slightly long, 1 psa; scutellum with 8 marginal setulae (2 setulae between sc) and 2 long sc. Legs black except tip of fore tibia and entire mid tibia dark yellow; tarsi blackish except fore and mid tarsomeres 1–2 yellow and hind tarsomere 1 brownish yellow. Setae and setulae on legs black. Fore femur nearly as wide as mid femur; hind femur 2 times as wide as mid femur, with 3 long thin preapical ad. Hind femur with row of long av spines, basal portion with row of pv spines. Fore tibia thickened; apically with 3 thin setae (1 posterior seta long). Mid tibia with 3 ad; apically



Figs. 1-2. *Euhybus qinlingensis* **sp. nov.**, male. 1. Wing; 2. Adult.

with 4 thin setae (of which 1 pv is relatively thick, very long, slightly shorter than mid tarsomere 1). Hind tibia without dorsal setae; apically with 1 short thick av, 1 long thin preapical dorsal seta and 1 long pd. Fore and mid tarsomere 1 with sev-

eral slightly long setulae; mid tarsomere 1 with 1 long pv at base. Hind tarsomere 1 with some short strong ventral setae. Wing (Fig. 2) lightly infuscate; costal vein with longer setae on basal 2/3; dark brown stigma short and rounded (about



Figs. 3-6. *Euhybus qinlingensis* sp. nov., male. 3. Genitalia, dorsal view; 4. Right surstylus, lateral view; 5. Left surstylus, lateral view; 6. Hypandrium, ventral view.

1/6 as long as cell r_1 , not filling apex of cell r_1 ; veins dark brown, R_{4+5} and M_1 more or less parallel apically. Squama brown with brown setulae. Halter dark brown.

Abdomen subglossy black with gray pollinosity; hypopygium distinctly swollen. Setae and setulae on abdomen blackish except tergites 1–3 with dark yellow setae and setulae and sternites 1–3 with dark yellow setulae.

Male genitalia (Figs. 3–6): Left epandrial lamella slightly narrower than right epandrial lamella, with inner margin weakly incised; left surstylus rather wide, with three apical processes (median process very wide, two lateral processes rather narrow). Right epandrial lamella with slightly incised inner margin; right surstylus rather wide with four apical processes (median process very wide with marginal denticles, three lateral processes narrow and acute). Hypandrium distinctly longer than wide, with subtriangular apical process.

Female

Unknown.

Type Material

HOLOTYPE ♂, CHINA: Shaanxi, Ningshan, Huoditang (N 33° 26' 2.00" E 108° 26' 53.26"), 1505 m, 2013.VIII.14, Yuqiang Xi. The specimen was collected with a sweep net in subtropical forest.

Distribution

China (Shaanxi).

Remarks

The new species is very similar to *Euhybus taiwanensis* Liu, Li & Yang from Taiwan, but may be separated from the latter by the first flagellomere 1.5 times longer than wide and right surstylus with the marginal denticles. In *Euhybus taiwanensis*, the first flagellomere is 2 times longer than wide, and the right surstylus has no marginal denticles (Liu et al. 2011).

Etymology

The specific name refers to the type locality Qinling Mountains.

ACKNOWLEDGMENTS

We are very grateful to Mr. Yuqiang Xi (Beijing) for collecting the specimens, and to Mr. Pengda Yang, Ms. Shuangmei Ding and Ms. Cufei Tang (Beijing) for his help during the study. Three anonymous reviewers are thanked for providing useful comments on an earlier draft of this paper. The research was funded by the National Natural Science Foundation of China (31272354), National "Twelfth Five-Year" Plan for Science & Technology Support (2012BAD19B00) and the Ministry of Science and Technology of the People's Republic of China (2012FY111100).

REFERENCES CITED

- CUMMING, J. M., AND WOOD, D. M. 2009. Adult morphology and terminology, pp. 9-50 In B. V. Brown, A. Borkent, J. M. Cumming, D. M. Wood, N. E. Woodley and M. A. Zumbado [eds.], *Manual of Central American Diptera*. Vol. 1. NRC Research Press, Ottawa.
- LIU, X. Y., LI, Z., AND YANG, D. 2011. *Euhybus* newly recorded from Taiwan with one new species (Diptera: Empidoidea). *Transactions of the American Entomological Society* 137(3-4): 363-366.
- LIU, X. Y., YANG D., AND GROOTAERT, P. 2004. The discovery of *Euhybus* in the Oriental realm, with description of one new species (Diptera: Empidoidea; Hybotinae). *Transactions of the American Entomological Society* 130(1): 85-89.
- MCALPINE, J. F. 1981. Morphology and terminology – adults, pp. 9-63. In J. F. McAlpine, B. V. Peterson, G. E. Shewell, H. J. Teskey, J. R. Vockeroth and D. M. Wood [Coords.], *Manual of Nearctic Diptera*. Vol. 1. Agriculture Canada Monograph 27.
- WANG, N., LI, Z., AND YANG, D. 2013. *Euhybus* newly recorded from Tibet with descriptions of two new species (Diptera: Empidoidea, Hybotinae). *Zootaxa* 3686(3): 373-380.
- YANG, D., AND GROOTAERT, P. 2007. Species of *Euhybus* from the Oriental region (Diptera: Empidoidea; Hybotinae). *Transactions of the American Entomological Society* 133(3-4): 341-345.
- YANG, D., ZHANG, K. Y., YAO, G., AND ZHANG, J. H. 2007. *World catalog of Empididae (Insecta: Diptera)*. China Agric. Univ. Press, Beijing, 599 pp.