

TWO NEW SPECIES OF THE ANT GENUS *DOLICHODERUS* LUND FROM YUNNAN, CHINA* (HYMENOPTERA: FORMICIDAE)

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Abstract Two new species of the ant genus *Dolichoderus* Lund are described from the tropical rain forest of southern Yunnan Province, China. Up to date, 10 species of the genus are recorded in China: *D. sibiricus* Emery, *D. sagmanotus* Xu, sp. nov. *D. feae* Emery, *D. flatidorsus* Zhou, *D. pilosus* Zhou, *D. taprobanae* (Smith), *D. affinis* Emery, *D. incisus* Xu, *D. thoracicus* (Smith), *D. squamanodus* Xu, sp. nov. A key based on worker caste is provided for the 10 known Chinese species.

Key words Hymenoptera, Formicidae, *Dolichoderus*, new species, China.

The ant genus *Dolichoderus* Lund is distributed in the Palearctic, Oriental, Indo-Australian, Australasian, Nearctic, and Neotropical regions. Shattuck (1992) had a generic revision of the ant subfamily Dolichoderinae and *Dolichoderus* was treated as a valid genus. According to Bolton (1995a), 110 species were recorded in the world: 54 in Neotropical, 4 in Nearctic, 2 in Palearctic, 9 in Oriental, 20 in Indo-Australian, and 21 in Australasian. The Indo-China species were reported by Forel (1895), Santschi (1920) *et al.*, and the South Asia species were recorded by Bingham (1903).

Wheeler (1930) reported 2 species and 6 varieties of *Dolichoderus* in mainland of China. Chou *et al.* (1991) recorded 1 species in Taiwan Province of China. Xu (1995) had a taxonomic study on *Dolichoderus* in China and 5 species were recorded, a new species, *D. incisus*, was described. Wu *et al.* (1995) reported 4 species in China and *D. fuscus* Emery was recorded in China for the first time. Tang *et al.* (1995) also recorded 2 species in China. Recently, Zhou (1997) described 2 new species of the genus, *D. flatidorsus* and *D. pilosus*, from Guangxi, China. According to Emery (1912) and Bolton (1995b), the species *D. fuscus* Emery was a subspecies of *D. feae* Emery. And according to Donisthorpe (1932) and Bolton (1995b), the species *D. bituberculatus* (Mayr) was a junior synonym of *D. thoracicus* (Smith). In this study, 2 new species are described from the tropical rain forest of southern Yunnan Province. Up to date, 10 species of the genus are known in China.

Standard measurements and indices are as defined by Holldobler *et al.* (1990): TL-Total length, HL-Head length, HW-Head width, CI-Cephalic index, SL-Scape length, SI-Scape index, PW-Pronotal width, AL-Alitrunk length, ED-Maximum diameter of eye. All measurements are expressed in mm.

The type specimens are deposited in the Insect Collection, Faculty of Resources, Southwest Forestry College, Kunming, Yunnan Province, China.

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Key to species of *Dolichoderus* of China based on worker caste

1. Head and thorax foveolate 2
 Head punctured or smooth, not foveolate 3
2. Dorsa of thorax and gaster without standing hairs. In dorsal view posterior margin of propodeum concave. Head reddish brown or black. The basal two segments of gaster each with a pair of yellowish spots (Figs. 1-3) (China: Xinjiang, Anhui, Hubei, Hunan, Zhejiang, Jiangxi, Fujian, Guangxi, Guangdong, Hong Kong; Japan; Korea; Russia) *D. sibiricus* Emery
 Dorsa of thorax and gaster with standing hairs. In dorsal view posterior margin of propodeum weakly convex. Head reddish brown. The basal two segments of gaster each without a pair of yellowish spots (Figs. 4-6) (China: Yunnan)
 *D. sagmanotus* sp. nov.
3. Dorsa of thorax and gaster without standing hairs. Posterior margin of propodeum deeply notched. Head and thorax with fine and dense punctures. Body black or blackish brown (Figs. 7-9) (China; Yunnan; Myanmar) *D. feae* Emery
 Dorsa of thorax and gaster with standing hairs. Posterior margin of propodeum straight or convex 4
4. Head and pronotum smooth and shining. Body bicolor, head and thorax yellowish brown to reddish brown, gaster black (Figs. 10-12) (China: Yunnan, Hunan, Zhejiang, Fujian, Guangxi, Guangdong, Hainan, Hong Kong, Macau; India; Sri Lanka; Myanmar; Laos; Vietnam; Indonesia) *D. taprobanae* (Smith)
 Head punctured or smooth, pronotum punctured or rugose 5
5. Body distinctly bicolor, thorax reddish brown or brownish red, gaster black 6
 Body distinctly unicolor, usually black, sometimes brownish black 7
6. Promesonotal suture distinct but not depressed. In profile view dorsum of propodeum flat. Head black and moderately reticulate (Figs. 25-26) (China: Guangxi) *D. flatidorsus* Zhou
 Promesonotal suture quite distinct and depressed. In profile view dorsum of propodeum convex. Head brownish red and coarsely reticulate (Figs. 27-28) (China: Guangxi) *D. pilosus* Zhou
7. Pronotum densely punctured 8
 Pronotum longitudinally rugose 9
8. Head weakly and finely punctured, relatively shining. In profile view posterodorsal corner of propodeum weakly protruding (Figs. 13-15) (China: Yunnan, Guangxi, Guangdong; Sikkim; Myanmar; Thailand) *D. affinis* Emery
 Head coarsely and densely punctured, dim. In profile view posterodorsal corner of propodeum strongly protruding (Figs. 16-18) (China: Yunnan) *D. incisus* Xu
9. Head and thorax densely and finely rugulose and punctured, dim. In profile view propodeum not elevated, dorsum convex (Figs. 19-21) (China: Yunnan, Guangxi, Guangdong, Fujian, Taiwan; Sikkim; India; Myanmar; Laos; Vietnam; Cambodia; Philippines; Malaysia; New Guinea; Australia) *D. thoracicus* (Smith)
 Head weakly and finely punctured or smooth, relatively shining or shining. Thorax densely foveolate, interface formed coarse rugo-reticulation, dim. In profile view propodeum elevated and formed a horizontal plane, almost as high as pronotum, dorsum straight (Figs. 22-24) (China: Yunnan) *D. squamanothus* sp. nov.

***Dolichoderus sagmanotus* sp. nov.** (Figs. 4-6)

Holotype worker. TL 3.7, HL 0.90, HW 0.80, CI 89, SL 0.80, SI 100, PW 0.57, AL 1.17, ED 0.27. Head longer than broad, narrowed forward. In full face view occipital margin straight, occipital corners rounded, lateral sides convex. Anterior margin of clypeus straight. Masticatory margin of mandible with 15 teeth. Scape of antenna surpassed occipital corner by about 1/8 of its length. Eyes large and convex. In profile view, pronotum weakly convex, without margin. Promesonotal suture shallowly impressed. Mesonotum evenly convex. Metanotal groove wide and deep. Dorsum of propodeum strongly convex, longer than declivity, posterodorsal corner formed an acute angle. Declivity concave and margined along the lateral and dorsal margins. Node of petiole thick and inclined forward, anterior face short and vertical, posterior face long and slope down, dorsal face roundly convex. In dorsal view posterior margin of propodeum complete and weakly convex. In front view upper margin of petiolar node weakly convex. Mandibles with dense micro-punctures and sparse large punctures. Clypeus densely and longitudinally striate. Head and thorax foveolate. Foveolae of head relatively sparse, diameter of foveola about equal to distance between foveolae, interface with dense micro-punctures. Foveolae of tho-

rax dense, interface formed coarse rugo-reticulation. Lower portion of lateral side of pronotum finely punctured. Lower portion of lateral side of mesonotum, lateral side of metanotum, and declivity of propodeum smooth and shining. Node of petiole finely and densely punctured. Gaster smooth and shining. Dorsum of head and body with sparse erect or suberect hairs and sparse decumbent pubescence, hairs on head shorter and relatively abundant. Scapes of antennae and tibiae of legs with sparse suberect hairs and sparse decumbent pubescence. Head, thorax, and petiole reddish brown. Mandibles, antennae, and legs yellowish brown. Eyes and gaster black.

Holotype. worker, No. A98-429, 900 m, Manzhuang Village, Mengla County, Yunnan Province, 10 Apr. 1998, collected in the semi-evergreen monsoon forest by Mr. LIU Tai-Yong.

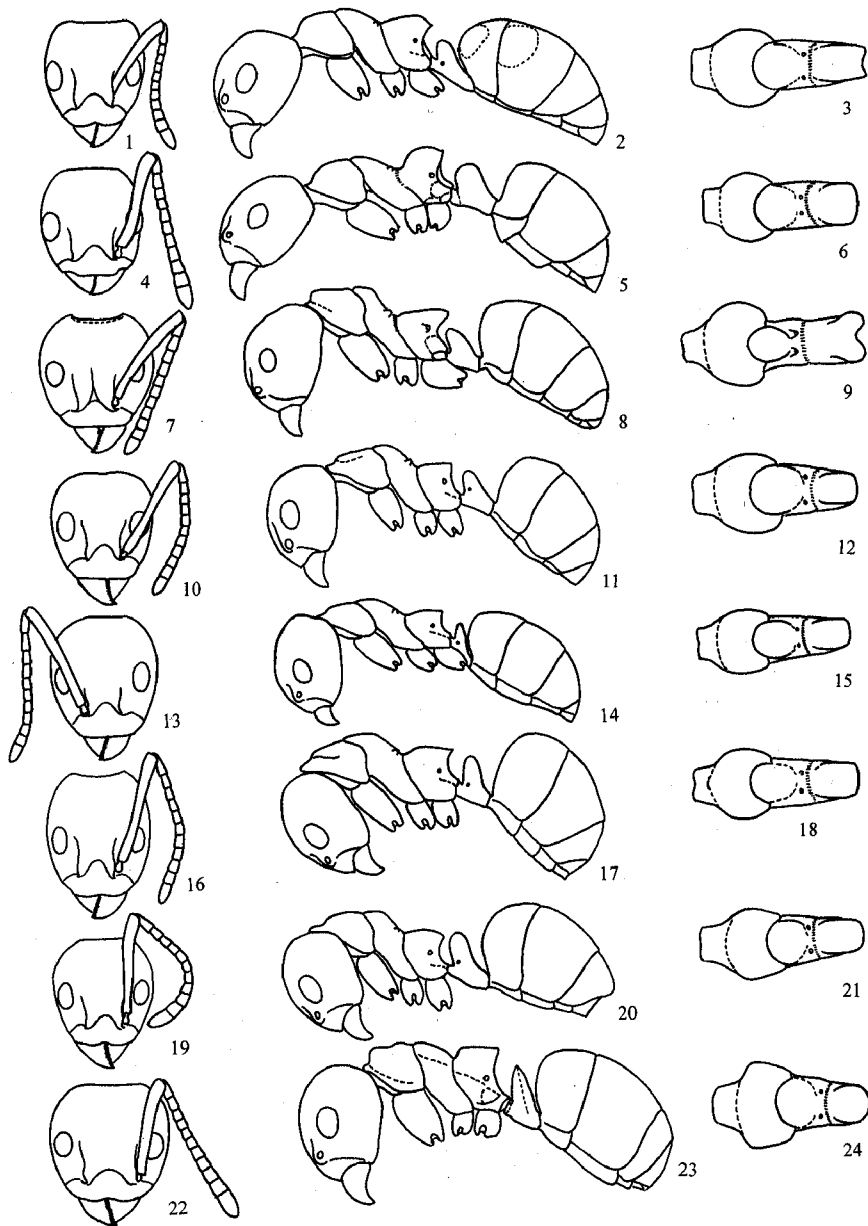
This new species is close to *D. siggii* Forel from Thailand, but gaster black, head longer than broad, masticatory margin of mandible with 15 teeth, only $1/8$ length of antennal scape surpassed occipital corner. The new species is also close to *D. sibiricus* Emery, but the basal two segments of gaster each without a pair yellowish spots, dorsum of thorax and gaster with standing hairs, posterior margin of propodeum not concave.

***Dolichoderus squamanodus* sp. nov.** (Figs. 22-24)

Holotype worker. TL 3.5, HL 0.97, HW 0.93, CI 97, SL 0.80, SI 86, PW 0.67, AL 1.23, ED 0.27. Head as broad as long, distinctly narrowed forward. Occipital margin nearly straight, occipital corners rounded, lateral sides evenly convex. Anterior margin of clypeus shallowly concave in the middle. Mandible multi-dentate on inner and masticatory margins, inner margin with 7 teeth, masticatory margin with 11 ones. Scape of antenna surpassed occipital corner by about $1/7$ of its length, segments 2-8 longer than broad. Dorsum of pronotum plane, anterior border marginate, the shoulder corners strongly convex, promesonotal suture distinct and shallowly impressed. In profile view mesonotum convex and lowered down posteriorly, metanotal groove deeply notched. Propodeum elevated and formed a horizontal plane, almost as high as pronotum, anterior face nearly vertical, posterodorsal corner protruding in an acute angle, declivity roundly concave and about 1.4 times as long as dorsum. In dorsal view posterior margin of propodeum roundly convex. In profile view petiolar node relatively thin and erect, scale-like, both anterior and posterior faces weakly convex, in front view upper margin straight. Mandibles with dense micro-punctures. Head finely and weakly punctured, clypeus sparsely and longitudinally striate. Thorax densely foveolate, interface formed coarse rugo-reticulation, dorsum of pronotum coarsely and longitudinally rugose. Lateral side of pronotum densely and finely punctured. Lateral side of metanotum and declivity smooth and shining. Petiolar node and gaster with dense micro-punctures, relatively shining. Dorsum of body with abundant erect hairs and decumbent pubescence, Scapes and tibiae with sparse erect hairs and abundant decumbent pubescence. Head and alitrunk black, petiolar node and gaster brownish black. Mandibles, clypeus, antennae and legs yellowish brown.

Paratype workers. TL 2.7-3.7, HL 0.78-0.93, HW 0.80-0.93, CI 100-102, SL 0.60-0.80, SI 75-86, PW 0.53-0.67, AL 0.90-1.20, ED 0.20-0.27 (5 workers measured). As holotype, but in some individuals with head, petiolar node and gaster very weakly punctured and relatively shining or smooth and shining.

Holotype. worker, No. A96-590, 760 m, Bubang Village, Mengla County, Yunnan Province, 11 Mar. 1996, collected in the seasonal rain forest by DU Yong-Chao. Paratypes: 5 workers, with same data as holotype; 6 workers, with same data as holotype, but Nos. A96-628, A96-632, collected by CHEN Zhi-Ping; 2 workers, with same data as holotype, but No. A96-

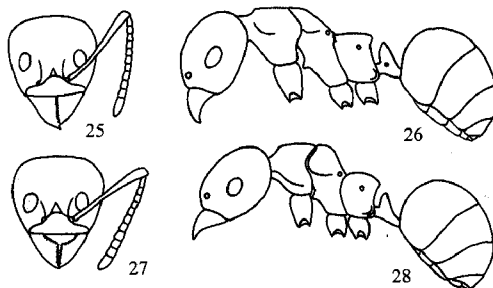
Figs. 1-24 *Dolichoderus* workers

1-3. *D. sibiricus* Emery 4-6. *D. sagmanotus* sp. nov. 7-9. *D. feae* Emery 10-12. *D. taprobanae* (Smith)
 13-15. *D. affinis* Emery 16-18. *D. incisus* Xu 19-21. *D. thoracicus* (Smith) 22-24. *D. squamanodus*
 sp. nov. 1, 4, 7, 10, 13, 16, 19, 22. head in full face view 2, 5, 8, 11, 14, 17, 20, 23. body in profile view
 3, 6, 9, 12, 15, 18, 21, 24. thorax in dorsal view; pilosity omitted

694, collected by YANG Zhong-Wen; 9 workers, with same data as holotype, but No. A97-3217, 790 m, 13 Dec. 1997, collected by HU Gang; 6 workers, No. A97-3008, 1 000 m, Mangang Village, Menglun Town, Mengla County, Yunnan Province, 9 Dec. 1997, collected in the mountain rain forest by HU Gang; 9 workers, with same data as No. A97-3008, but No. A97-

3015; 7 workers, No. A97-886, 1 120 m, Guanping Village, Jinghong City, Yunnan Province, 7 Aug. 1997, collected in the mountain rain forest by HE Yun-Feng; 9 workers, with same data as No. A97-886, but No. A98-965, 1 100 m, 5 Mar. 1998, collected by XU Zheng-Hui.

This new species is close to *D. brevis* Santschi from Laos, but propodeum elevated and formed a horizontal plane, almost as high as pronotum, dorsum as broad as long or slightly broader than long. The new species is also close to *D. carbonarius* Emery from West Malaysia, but mandibles brown, scapes of antennae and legs with standing hairs.



Figs. 25-28 *Dolichoderus* workers
25-26. *D. flatidorsus* Zhou 27-28. *D. pilosus* Zhou
25, 27. head in full face view 26, 28. body in profile view
25-28. after Zhou (1997), pilosity omitted

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中国云南臭蚁属二新种记述 (膜翅目:蚁科)

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摘 要

描述了中国云南省南部热带雨林臭蚁属 *Dolichoderus* Lund 2 新种。目前为止已在中国记载该属昆虫 10 种:西伯利亚臭蚁 *D. sibiricus* Emery、鞍背臭蚁 *D. sagmanotus* Xu, sp. nov.、费氏臭蚁 *D. feae* Emery、黑腹臭蚁 *D. taprobanae* (Smith)、平背臭蚁 *D. flatidorsus* Zhou、毛臭蚁 *D. pilosus* Zhou、邻臭蚁 *D. affinis* Emery、凹头臭蚁 *D. incisus* Xu、黑可可臭蚁 *D. thoracicus* (Smith)、鳞结臭蚁 *D. squamanodus* Xu, sp. nov.。提供了 10 个中国已知种的工蚁分种检索表。

关键词 膜翅目,蚁科,臭蚁属,新种,系统分类。

中图分类号 Q969.554.2