

A SYSTEMATIC STUDY ON THE ANT GENUS *AMBLYOPONE* ERICHSON FROM CHINA (HYMENOPTERA: FORMICIDAE)

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Abstract The Chinese species of the ant genus *Amblyopone* Erichson are treated. Two new species are described from Yunnan Province. Seven species of the genus are known in China to date: *A. bruni* (Forel) and *A. sakaii* Terayama from Taiwan Province; *A. silvestrii* (Wheeler) from Taiwan and Zhejiang Provinces; *A. rothneyi* Forel from Macao; *A. rubiginosa* Wu et Wang from Hunan Province; *A. triloba* sp. nov. and *A. crenata* sp. nov. from Yunnan Province. A key based on worker caste is provided for the 13 species known in East and South Asia.

Key words Hymenoptera, Formicidae, *Amblyopone*, Systematics, China.

The ant genus *Amblyopone* Erichson is distributed in the world tropics and temperate zones. According to Bolton (1995), 62 species were recorded in the world. Brown (1960) had a revision on the genus and more than 30 species were treated. Baroni Urbani (1978) reported 6 species of the Mediterranean region. The Philippine species were described by Wheeler et al. (1925). The Melanesian species were treated by Taylor (1978).

In East and South Asia, Emery (1895) firstly recorded *A. feae* in Burma. Forel (1900) described *A. bellii* and *A. rothneyi* from India. Later, Baroni Urbani (1978) recorded another Indian species, *A. pertinax*. Wheeler (1928) reported the first Japanese species *A. silvestrii*. In 1987, Terayama described the second species, *A. fulvida*, from Japan. Karavaiev (1935) described *A. amblyops* and *A. quadrata* from Vietnam.

Forel (1912) described the first Chinese species, *A. bruni*, from Taiwan Province. Wheeler (1930-1931) recorded *A. rothneyi* Forel in Macao. In 1989, Terayama reported *A. silvestrii* in Taiwan Province for the first time and described another Chinese species, *A. sakaii*, from the province. Wu et al. (1992) described *A. rubiginosa* from Hunan Province. Recently, Tang et al. (1995) reported the distribution of *A. silvestrii* in China mainland. In this study, 2 new species of *Amblyopone*, *A. triloba* sp. nov. and *A. crenata* sp. nov., are described from Gaoligong Mountain Nature Reserve and Xishuangbanna Nature Reserve of Yunnan Province respectively. Up to now, 7 species of the genus are known in China.

Standard measurements and indices are as defined by Taylor (1967) and Taylor (1978): TL-Total length, HL-Head length, HW-Head width, CI-Cephalic index = $HW \times 100 / HL$, SL-Scape length, SI-Scape index = $SL \times 100 / HW$, PW-Pronotum width, AL-Alitrunk length, ED-Maximum diameter of eye, ML-Mandible length, DPW-Dorsal petiole width, DPL-Dorsal petiole length, PH-Petiole height. All measurements are expressed in millimeters.

The type specimens are deposited in the Insect Collection, Southwest Forestry College, Kun-

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Amblyopone Erichson

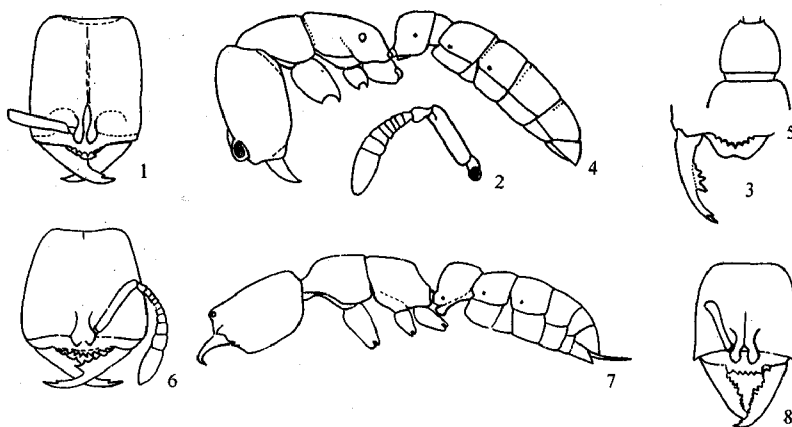
Amblyopone Erichson, 1842. *Arch. Naturg.*, 5(2): 260. Type-species: *Amblyopone australis*, by monotypy.

Key to species of *Amblyopone* of East and South Asia based on worker caste

1. Antenna 10-segmented. Head rectangular with lateral sides parallel (Figs. 1-5) (Japan) *A. fulvida* Terayama
 Antenna 11- or 12-segmented 2
2. Antenna 11-segmented 3
 Antenna 12-segmented 4
3. Head as broad as long. Anterior margin of clypeus weakly convex (Figs. 6-7) (India) *A. pertinax* Baroni Urbani
 Head distinctly longer than broad. Anterior margin of clypeus strongly convex (Figs. 9-10) (China: Taiwan Province)
 *A. sakaii* Terayama
4. Anterior margin of clypeus straight, without teeth or denticles. Anterolateral corner of head without genal tooth. Eye with 35-40 facets. Head as broad as long. Total length 8.3 mm (India) *A. bellii* Forel
 Anterior margin of clypeus straight or convex, with teeth or minute denticles 5
5. Anterior margin of clypeus divided into 3 lobes, the middle lobe with 4 denticles, the lateral lobes each with 2 denticles (Figs. 11-13) (China: Yunnan Province) *A. triloba* sp. nov.
 Anterior margin of clypeus not divided into lobes 6
6. Anterior margin of clypeus with 4-9 teeth 7
 Anterior margin of clypeus with more than 10 teeth or denticles 10
7. Anterior margin of clypeus with 4-6 teeth 8
 Anterior margin of clypeus with 7-9 teeth 9
8. Anterolateral corner of head with acute genal tooth. Eye tiny, puncture-form (Fig. 8) (Vietnam)
 *A. amblyops* (Karavaiev)
 Anterolateral corner of head without genal tooth. Eye larger, with 7-8 facets (Figs. 14-15) (China: Hunan Province)
 *A. rubiginosa* Wu et Wang
9. Eye with less than 10 facets. Total length 3.5-4.5 mm. Body in color yellowish brown to reddish brown (Figs. 16-17) (China: Zhejiang and Taiwan Provinces; Korea Peninsula, Japan) *A. silvestrii* (Wheeler)
 Eye with 35 facets. Total length 6.0-6.5 mm. Body in color darkish brown (Myanmar) *A. feae* (Emery)
10. Anterior margin of clypeus straight, with 12 rectangular teeth, flanked by triangular corner tooth on each side (China: Taiwan Province) *A. bruni* (Forel)
 Anterior margin of clypeus weakly or strongly convex, with 10-12 minute triangular denticles 11
11. Head nearly as broad as long. Anterior margin of clypeus weakly convex. Occipital margin almost straight. Total length 9 mm. Body in color darkish brown (Vietnam) *A. quadrata* (Karavaiev)
 Head distinctly longer than broad. Anterior margin of clypeus evenly or strongly convex. Occipital margin distinctly concave. Total length 6.7-8.0 mm. Body in color brownish black to black 12
12. Eye with 100-120 facets. Total length 8 mm. Body in color brownish black (China: Macao; India) *A. rothneyi* Forel
 Eye with 18-19 facets. Total length 6.7-7.4 mm. Body in color black (Figs. 18-20) (China: Yunnan Province)
 *A. crenata* sp. nov.

***Amblyopone triloba* sp. nov. (Figs. 11-13)**

Holotype worker (Unit: mm). TL 4.5, HL 1.00, HW 0.85, CI 85, SL 0.53, SI 62, PW 0.55, AL 1.23, ED 0.00, ML 0.65, DPW 0.50, DPL 0.45, PH 0.55. Head roughly trapezoid, longer than broad, widened forward. Occipital margin weakly concave, occipital corners roundly prominent, lateral sides weakly convex. Anterolateral corner of head with acute genal tooth. Mandibles slender, relatively straight, inner and masticatory margins about equal in length, inner margin with 5-6 teeth, masticatory margin with 4 teeth. Anterior margin of clypeus roundly convex and divided into 3 lobes, middle lobe with 4 denticles, lateral lobes each with 2 denticles, besides an extra tooth present between middle lobe and right lateral lobe. Antennae short, 12-segmented, apex of scape reached to 2/3 of the distance from antennal socket to occipital corner, segments 2-10 each broader than long. Eyes absent. In profile view, dorsum of thorax weakly convex, promesonotal suture distinctly notched, metanotal groove slightly de-

Figs. 1-8 *Amblyopone* workers

1-5. *A. fulvida* Terayama 6-7. *A. pertinax* Baroni Urbani 8. *A. amblyops* (Karavaiev) 1, 6, 8. head in full face view 2. antenna in ventral view 3. clypeus and right mandible in dorsal view 4, 7. body in profile view 5. petiole in dorsal view 1-5. after Terayama (1987), pilosity omitted 6-7. after Baroni Urbani (1978), pilosity omitted 8. after Karavaiev (1935)

pressed. Dorsum of propodeum straight, longer than declivity, declivity flat, posterodorsal corner of propodeum bluntly angled. In profile view, petiolar node roughly trapezoid, narrowed backward, anterior face truncate and straight, dorsum weakly convex, anterodorsal corner nearly a right angle, ventral face oblique. Subpetiolar process large, nearly square, with large elliptic fenestra, anteroventral corner rounded, posteroventral corner bluntly angled. In dorsal view, petiolar node nearly square, length: width = 9:10, anterior and lateral borders weakly convex, posterior border nearly straight. Constriction distinct between the 2 basal segments of gaster. Mandibles longitudinally striate, with apex smooth and shining. Clypeus finely and longitudinally striate. Head densely and coarsely punctured, with the longitudinal central stripe of dorsum finely and longitudinally striate, dull. Pronotum with lateral sides densely and coarsely punctured, but smooth on the dorsum. Lateral sides of mesothorax, metathorax and propodeum finely and longitudinally striate, dorsum of propodeum punctured, declivity smooth. Petiole with lateral sides densely punctured but smooth on dorsum. First segment of gaster with lateral sides finely and densely punctured but smooth on dorsum. Segments 2-5 of gaster smooth. The whole body surface and appendages with sparse suberect short hairs and dense decumbent pubescence. Body in color reddish brown. Legs brownish yellow.

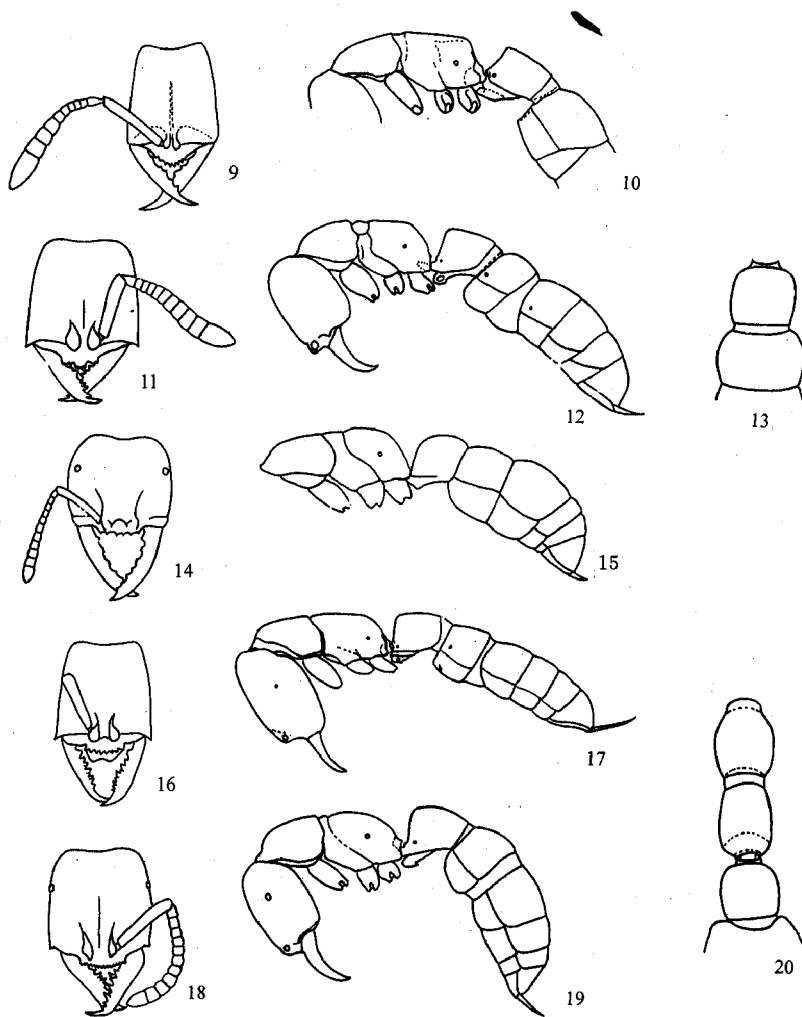
Holotype worker, No. A99-27, 2 500 m, Pianma, Lushui County, Yunnan Province, 25. Apr. 1999, collected by Mr. XU Zheng-Hui in sub-alpine moist evergreen broad-leaf forest of the Gaoligong Mountain Nature Reserve in western Yunnan.

This new species is close to *A. silvestrii* (Wheeler) (Figs. 16-17), but anterior margin of clypeus strongly convex and divided into 3 lobes; eyes absent; subpetiolar process large and nearly square.

***Amblyopone crenata* sp. nov.** (Figs. 18-20)

Holotype worker. TL 7.4, HL 1.53, HW 1.28, CI 84, SL 0.90, SI 71, PW 0.85, AL 2.00, ED 0.11, ML 1.18, DPW 0.78, DPL 0.78, PH 0.83. Head roughly trapezoid, longer than broad, weakly widened forward. Occipital margin weakly concave, occipital corners rounded, Lateral sides weakly convex, anterolateral corner of head with small genal tooth. Mandibles

slender, relatively straight, with 2 rows of teeth, the dorsal row with 6 teeth, the ventral row with 5 ones. Anterior margin of clypeus weakly convex, with 12 minute denticles. Median furrow present on the anterior 2/3 dorsum of head. Antennae 12-segmented, apex of scape reached to 3/4 of the distance from antennal socket to occipital corner, segments 4-10 about as broad as long. Eyes relatively large, situated behind the midline of head, each with 19 facets. In profile view, pronotum weakly convex, both promesonotal suture and metanotal groove distinctly notched. Dorsum of propodeum evenly convex, longer than declivity, the latter truncate, posterodorsal corner of propodeum rounded. In profile view, petiolar node roughly trapezoid, narrowed backward, anterior face truncate and straight, dorsum evenly convex, anterodorsal corner bluntly prominent and close to a right angle, ventral face oblique. Subpetiolar process nearly rectangular, without fenestra, rounded anteriorly, posteroventral corner toothed. In dorsal view, mesothorax strongly constricted, petiolar node nearly square, as broad as long, anterior and later-



Figs. 9-20 *Amblyopone* workers

9-10. *A. sakaii* Terayama 11-13. *A. triloba* sp. nov. 14-15. *A. rubiginosa* Wu et Wang 16-17. *A. silvestrii* (Wheeler) 18-20. *A. crenata* sp. nov. 9, 11, 14, 16, 18. head in full face view 10, 12, 15, 17, 19. body in profile view 13. petiole and first segment of gaster in dorsal view 20. thorax and petiole in dorsal view 9-10. after Terayama (1989), pilosity omitted 14-15. after Wu et al. (1995) 16-17. after Terayama (1990), pilosity omitted

al borders weakly convex, posterior border straight. Constriction distinct between the 2 basal segments of gaster. Mandibles longitudinally and obliquely striate, with apex smooth. Clypeus longitudinally striate. Head with dense large punctures, dull. Thorax, petiole and first segment of gaster with dense mid-size punctures, less dull. Segments 2-5 of gaster with sparse fine punctures, relatively shining. The whole body surface and appendages with sparse suberect hairs and dense decumbent pubescence. Body in color black. Mandibles, clypeus, antennae, legs and apex of gaster reddish brown.

Paratype workers. TL 6.7-7.3, HL 1.43-1.53, HW 1.25-1.30, CI 85-88, SL 0.90, SI 69-72, PW 0.83-0.85, AL 1.88-2.00, ED 0.13, ML 1.00-1.10, DPW 0.75-0.80, DPL 0.73-0.78. PH 0.78-0.85 (3 individuals measured). As holotype but eye with 18-19 facets, gaster black or brownish black.

This new species is close to *A. rothneyi* Forel, but eye much smaller, with only 18-19 facets; body smaller with TL 6.7-7.3 mm; body in color black with appendages reddish brown. This new species is also close to *A. quadrata* (Karavaiev), but head distinctly longer than broad; eye smaller with ED 0.11-0.13 mm; body smaller with TL 6.7-7.3 mm; body in color black with appendages reddish brown.

Holotype worker, No. A97-1680, 900 m, Manzhuang Village, Mengla County, Yunnan Province, 14. Aug. 1997, collected by Mr. HE Yun-Feng in semi-evergreen monsoon forest of Xishuangbanna Nature Reserve in southern Yunnan. Paratypes: 3 workers, No. A97-3042, 1 000 m, Man'gang Village, Menglun Town, Mengla County, Yunnan Province, 9 July 1997, collected by Mr. HU Gang in a fragment of mountain rain forest of Xishuangbanna Nature Reserve.

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中国钝猛蚁属系统分类研究

(膜翅目: 蚁科)

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摘 要

研究了钝猛蚁属 *Amblyopone* Erichson 的中国种类, 描述云南省 2 新种。目前为止在中国已知该属昆虫 7 种: 布农钝猛蚁 *A. bruni* (Forel)、酒井钝猛蚁 *A. sakaii* Terayama 分布于台湾省; 西氏钝猛蚁 *A. silvestrii* (Wheeler) 分布于台湾省和浙江省; 罗思尼钝猛蚁 *A. rothneyi* Forel 分布于澳门; 褐红钝猛蚁 *A. rubiginosa* Wu et Wang 分布于湖南省; 三叶钝猛蚁 *A. triloba* sp. nov.、细齿钝猛蚁 *A. crenata* sp. nov. 分布于云南省。提供了东亚和南亚地区该属已知 13 个种的工蚁检索表。

关键词 膜翅目, 蚁科, 钝猛蚁属, 系统分类, 中国.

中图分类号 Q 969.554.2