

Description of *Myopopone castanea* (Smith) (Hymenoptera: Formicidae) from Himalaya Region

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Abstract: The ant genus *Myopopone* Roger is distributed in Oriental and Indo-Australian regions. Only one valid species, *M. castanea* (Smith), is recognized in the genus up to date. *M. castanea* (Smith) is recorded in Tibet, China, for the first time. Complete information, including characters of the genus, detailed measurements, descriptions, and illustrations of worker and queen castes of *M. castanea*, is provided.

Key words: Hymenoptera; Formicidae; Amblyoponinae; *Myopopone castanea*; Tibet; China

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Introduction

The ant genus *Myopopone* was established by Roger (1861) based on the type-species *M. maculata*, a junior synonym of *M. castanea* (Smith) (Bolton, 1995). Totally, 10 species and 4 varieties were described in the genus, but 9 species and 4 varieties were revised as junior synonyms of *M. castanea* by Wilson (1958) and Brown (1960) respectively.

Up to date, only one valid species, *M. castanea* (Smith), was recognized in the genus. The worker caste of the species was originally described by Smith (1860) in the genus *Amblyopone* of Ponerinae. Afterwards, the species was transferred to *Myopopone* by Roger (1962), and the queen caste was firstly recorded by Mayr (1867). According to the geographical distribution of *M. castanea*, *Myopopone* was ranged in Oriental and Indo-Australian regions (Bolton, 1995). Wilson (1958) recorded the distribution of *M. castanea* in Hainan, China, for the first time.

Although the worker and queen castes of *M. castanea* were described in detail by Smith (1860), Roger (1861), Bingham (1903), and Donisthorpe (1938, 1942, 1947, 1948), but no body had provided detailed measurements and illustrations for the two castes of the species. In the Rapid Assessment Program of Biodiversity of Medog Nature Reserve in 2008, the worker and queen castes of *M. castanea* was obtained on the south slope of Mt. Himalaya, Medog County, Tibet. It is necessary to record the species with complete information including detailed measurements, descriptions, and illustrations of the worker and queen castes.

Materials and methods

Three workers and one queen were collected by a search-collecting method inside decayed woods in the subtropical evergreen broadleaf forest and tropical rain forest from the south slope of Mt. Himalaya. Descriptions and measurements were made under a XTB-1 stereo microscope with a micrometer. Illustrations were made under a Motic stereo microscope with illustrative equipment.

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Standard measurements (in millimeters) and indexes were as defined in Bolton (1975): TL-Total length, HL-Head length, HW-Head width, CI-Cephalic index = $HW \times 100 / HL$, SL-Scape length, SI-Scape index = $SL \times 100 / HW$, ML-Mandible length, PW-Pronotal width, AL-Alitrunk length, ED-Maximum diameter of eye, PH-Petiole height, PL-Petiole length, LPI-Lateral petiole index = $PH \times 100 / PL$, DPW-Dorsal petiole width, DPI-Dorsal petiole index = $DPW \times 100 / PL$.

Myopopone Roger, 1861, new record to China Mainland

Myopopone Roger, 1861: 49. Type species: *Myopopone maculata* (junior synonym of *Myopopone castanea*), by subsequent designation of Bingham, 1903: 33.

Worker. Head nearly rectangular, occipital margin concave, anterolateral corners without spines or denticles. Mandibles elongate and linear, masticatory margin short but distinct, both masticatory and inner margins dentate. Clypeus narrow and transverse, anterior margin minutely dentate. Frontal lobes large and close together, distinctly broader than the distance between them, and well protruding forward and surpass the anterior margin of clypeus. Antennal sockets completely concealed by the frontal lobes. Antennae short, 12-segmented, scapes not surpass occipital corners, antennal clubs distinct and compressed. Eyes reduced and small, well behind the midline of the head. Ocelli absent. Dorsum of alitrunk about at the same level. Promesonotal suture and metanotal groove distinct and notched. Pronotum and propodeum long, mesonotum very short and transverse. Propodeal lobes narrow and reduced. Propodeal spiracles elliptic and vertical, placed at the center of the lateral sides. Metapleural gland bullae small and elliptic. Legs relatively short and robust, tarsi and outer surfaces of middle tibiae with strong spines. Hind tibiae with a curved pectinate spur and a simple spur. Claws simple. Petiolar node large, nearly rectangular, broadly attached to anterior face of the tergite of first gastral segment. Subpetiolar process small. Constriction between the two basal gastral segments distinct. Sting long and strong.

Taxonomic position. Formicidae: Amblyoponinae.

Geographical range. Oriental and Indo-Australian.

Myopopone castanea (Smith, 1860), new record to China Mainland (Figs. 1-6)

Amblyopone castaneus Smith, F. 1860: 105 (worker), Indonesia.

Myopopone castanea (Smith): Roger, 1862: 292; Mayr, 1867: 90 (queen); Bolton, 1995: 270.

Worker (Figs. 1-3). TL 7.3-8.7, HL 1.57-1.90, HW 1.63-2.00, CI 104-105, SL 0.80-0.93, SI 47-49, ML 1.10-1.20, PW 1.03-1.30, AL 2.20-2.67, ED 0.15-0.18, PH 0.73-0.83, PL 1.03-1.20, LPI 69-73, DPW 0.83-1.03, DPI 81-86 (3 individuals measured).

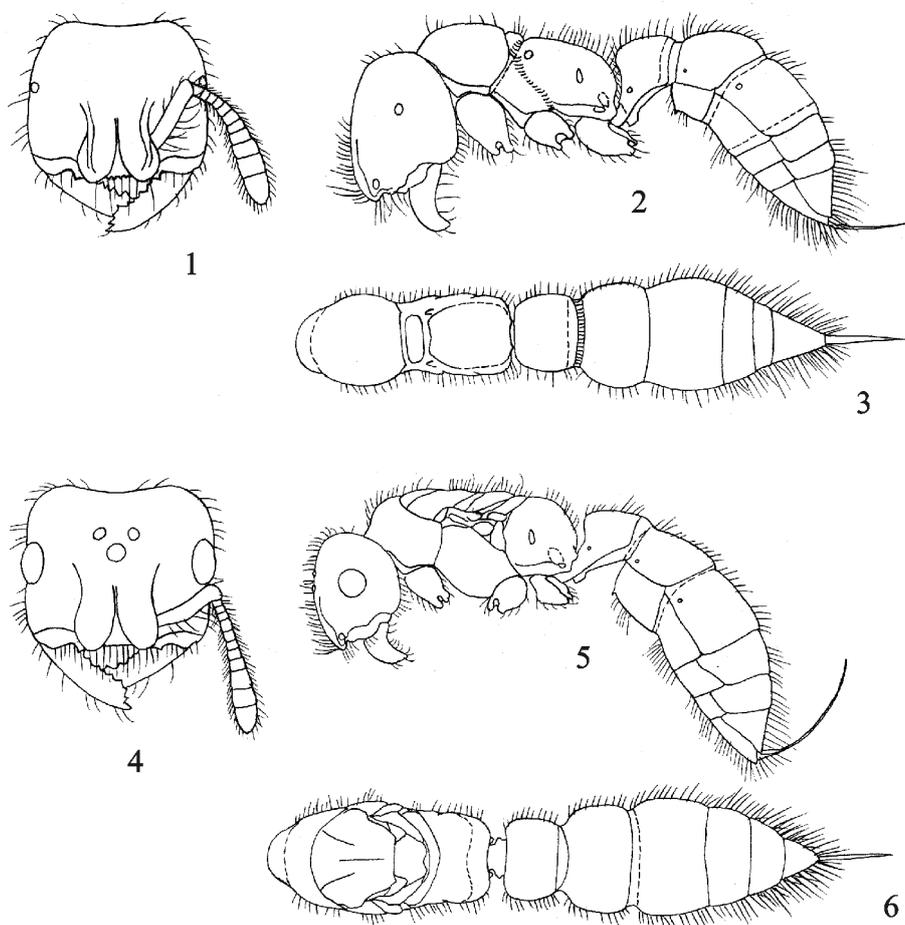
Head in full face view rectangular, about as long as broad, slightly widen forward. Occipital margin evenly concave. Occipital corners roundly prominent. Lateral sides weakly convex. Clypeus narrow and transverse, anterior margin straight, with a row of about 6 minute denticles. Frontal lobes developed and relatively close together, concealed antennal sockets, protruding forward divergently and surpassed anterior margin of clypeus. Mandibles narrow and linear. Masticatory margin distinct, with 4 teeth, about 1/2 length of inner margin. Inner margin with 5 teeth. Frontal carinae short, extending backward to midline of head. Antennae short and stout, apexes of scapes reached to 1/2 of the distance from antennal sockets to occipital corners. Antennal clubs 6-segmented, incrassate and depressed. Eyes small, with about 15 facets, well behind the midline of the head. Ocelli absent.

In profile view, dorsum of alitrunk relatively straight, lateral sides nearly vertical. Pronotum long, weakly convex. Promesonotal suture and metanotal groove distinctly notched. Mesonotum very short and transverse. Dorsum of propodeum straight, longer than declivity, about as long as pronotum. Declivity roundly convex. Propodeal lobes small, rounded at apex. Propodeal spiracles elliptic and vertical, located at center of the lateral sides. In profile view, petiolar node nearly trapezoid, broadly attached to first gastral tergite. Dorsal

face weakly convex, longer than anterior face. Anterior face weakly depressed. Ventral face weakly concave. Subpetiolar process small, nearly rectangular. In dorsal view, petiolar node broader than long, slightly widen backward, anterior margin straight, lateral sides moderately convex. Constriction between the two basal gastral segments distinct. Sting developed and extruding.

Mandibles smooth, with sparse punctures. Clypeus densely transversely striate. Dorsum of head smooth, with sparse punctures, but densely longitudinally striate on anterior portion. Ventral face of head and frontal lobes sparsely longitudinally striate. Lateral sides of alitrunk densely longitudinally striate. Dorsum of alitrunk smooth, with sparse punctures. Posterior 2/3 of propodeal dorsum densely punctate, declivity transversely striate. Dorsal and anterior surfaces of petiole smooth, with sparse punctures, lateral sides longitudinally striate. Dorsum of peduncle transversely striate. Gaster smooth, with sparse punctures.

Head and body with sparse erect to subdecumbent hairs. Clypeus, propodeum, petiole, and gaster with abundant hairs. Gastral apex with dense hairs. Antennal flagella, propodeum, and dorsum of petiole with dense decumbent pubescence. Antennal scapes and hind tibiae with sparse subdecumbent hairs. Outer surfaces of tarsi and middle tibiae with strong spines. Color brownish red. Mandibles, clypeus, frontal lobes, and antennal flagella reddish brown. Eyes grey. Hairs golden yellow.



Figs. 1-6 Worker and queen of *Myopopone castanea* (Smith): 1-3. Worker; 4-6. Queen
1, 4. head, full face view; 2, 5. head and body, profile view; 3, 6. body, dorsal view

Queen (Figs. 4-6). TL 13.7, HL 2.47, HW 2.63, CI 107, SL 1.17, SI 44, ML 1.60, PW 2.07, AL 4.33, ED 0.63, PH 1.27, PL 1.93, LPI 66, DPW 1.70, DPI 88 (1 individual measured). Head similar to the worker, in full face view slightly broader than long, not narrowed forward. Anterior margin of clypeus straight, without denticles. Eyes large, located at midpoints of lateral sides of head. With 3 ocelli. In profile view, alitrunk massive, dorsum nearly straight, mesonotum weakly convex. Propodeal dorsum shorter than declivity, the latter weakly convex. In dorsal view, mesonotum with a pair of oblique longitudinal furrows on anterior portion, and a longitudinal central furrow on posterior portion of scutum. Transverse groove between scutum and scutellum distinct and straight. Posterior margin of scutellum concave. Metanotum crescent, narrow and transverse. Petiole and gaster similar to the worker.

Sculptures similar to the worker, but occipital margin longitudinally striate, lateral sides of promesothorax longitudinal striate and abundantly punctured, propodeal dorsum densely punctuate. Pilosity similar to the worker, but anterior face of petiolar node without hairs, hind tibiae with sparse subdecumbent hairs and abundant decumbent pubescence. Color black. Mandibles, clypeus, apexes of frontal lobes, antennae, and coxae reddish brown. Tibiae, tarsi, and gastral apex brownish red. Ocelli light yellow. Hairs golden yellow.

Materials examined. 2 workers, China: **Tibet**, Medog County, Medog Town, Medog, N29°19.603', E95°19.622', secondary tropical rain forest, 1 080 m, nest in decayed wood, 17-V-2008, leg. XU Zheng-hui, No. A08-556; 1 worker and 1 queen, China: **Tibet**, Medog County, Damu Town, 96K, N29°35.151', E95°28.041', subtropical evergreen broadleaf forest, 1 430 m, nest in decayed wood, 16-V-2008, leg. XU Zheng-hui, No. A08-448.

Identification notes. The worker and queen castes from the same nest were obtained from the south slope of Mt. Himalaya, specimens of both castes conform well to the descriptions of worker and queen castes of *Myopopone castanea* (Smith).

Distribution. China (Tibet, Hainan), India (Bingham, 1903), Myanmar (Bingham, 1903), Sri Lanka (Forel, 1913; Donisthorpe, 1942), Cambodia (Donisthorpe, 1942), Philippines (Viehmeyer, 1916; Stitz, 1925), Malaysia (Emery, 1911; Donisthorpe, 1942), Indonesia (Smith, 1860; Roger, 1861; Emery, 1887; Stitz, 1925; Donisthorpe, 1938, 1942, 1947, 1948, 1949), New Guinea (Donisthorpe, 1942, 1947, 1948, 1949), Solomons (Wilson, 1958), Melanesia (Wilson, 1958), Australia (Emery, 1911).

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REFERENCES

- [1] Bingham C T. *The fauna of British India, including Ceylon and Burma*. Hymenoptera 2. Ants and Cuckoo-Wasps[M]. London: Taylor and Francis, 1903, 1-506.
- [2] Bolton B. A revision of the ant genus *Leptogenys* Roger in the Ethiopian region, with a review of the Malagasy species[J]. *Bulletin of the British Museum (Natural History)* (Entomology), 1975, 31: 235-305.
- [3] Brown W L, Jr. Contributions toward a reclassification of the Formicidae. 3. Tribe Amblyoponini[J]. *Bulletin of the Museum of Comparative Zoology at Harvard College*, 1960, 122: 145-230.
- [4] Donisthorpe H. New species of ants and a new subgenus of *Dolichoderus* from various localities[J]. *Annals and Magazine of Natural History*, 1938, (11) 2: 498-504.
- [5] Donisthorpe H. *Myopopone wollastoni* sp. n., with notes on other forms in the genus and descriptions of the males of two species[J]. *Entomologist's Monthly Magazine*, 1942, 78: 29-31.
- [6] Donisthorpe H. Ants from New Guinea, including new species and a new genus[J]. *Annals and Magazine of Natural History*, 1947, (11) 13: 577-595.
- [7] Donisthorpe H. A second instalment of the Ross Collection of ants from New Guinea[J]. *Annals and Magazine of Natural History*, 1948, (11) 14: 297-317.

- [8] Donisthorpe H. A fifth instalment of the Ross Collection of ants from New Guinea[J]. *Annals and Magazine of Natural History*, 1949, (12) 1: 487-506.
- [9] Emery C. Catalogo delle formiche esistenti nelle collezioni del Museo Civico di Genova. Parte terza. Formiche della regione Indo-Malese e dell'Australia (continuazione e fine)[J]. *Annali del Museo Civico di Storia Naturale di Genova*, 1887, (2) 5 [25]: 427-473.
- [10] Emery C. Hymenoptera, Fam. Formicidae, subfam. Ponerinae[M]//Wytsman P. Genera Insectorum, Fasc., 1911, Brussels: Wytsman P, 1-124.
- [11] Forel A. Wissenschaftliche Ergebnisse einer Forschungsreise nach Ostindien, ausgeführt im Auftrage der Kgl. Preuss. Akademie der Wissenschaften zu Berlin von H. v. Buttel-Reepen. 2. Ameisen aus Sumatra, Java, Malacca und Ceylon. Gesammelt von Herrn Prof. Dr. v. Buttel-Reepen in den Jahren 1911-1912[J]. *Zoologische Jahrbücher. Abteilung für Systematik, Geographie und Biologie der Tiere*, 1913, 36: 1-148.
- [12] Mayr G. Adnotationes in monographiam formicidarum Indo-Neerlandicarum[J]. *Tijdschrift voor Entomologie*, 1867, (2) 2: 33-117.
- [13] Roger J. Die *Ponera*-artigen Ameisen. (Schluss.)[J]. *Berliner Entomologische Zeitschrift*, 1861, 5: 1-54.
- [14] Roger J. Synonymische Bemerkungen[J]. *Berliner Entomologische Zeitschrift*, 1862, 6: 283-297.
- [15] Smith F. Catalogue of hymenopterous insects collected by Mr. A.R. Wallace in the Islands of Bachian, Kaisaa, Amboyna, Gilolo, and at Dory in New Guinea[J]. *Journal of the Proceedings of the Linnean Society, Zoology*, 1860, 5 (supplement to volume 4): 93-143.
- [16] Stitz H. Ameisen von den Philippinen, den malayischen und ozeanischen Inseln[J]. *Sitzungsberichte der Gesellschaft Naturforschender Freunde zu Berlin*, 1925, 1923: 110-136.
- [17] Viehmeyer H. Ameisen von den Philippinen und anderer Herkunft[J]. *Entomologische Mitteilungen*, 1916, 5: 283-291.
- [18] Wilson E O. Studies on the ant fauna of Melanesia. 1. The tribe Leptogenyini. 2. The tribes Amblyoponini and Platythyreini[J]. *Bulletin of the Museum of Comparative Zoology at Harvard College*, 1958, 118: 101-153.

喜马拉雅地区红矛猛蚁 *Myopopone castanea* (Smith) 记述

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矛猛蚁属 *Myopopone* Roger 分布于东洋界和马来西亚界, 目前为止该属仅知 1 种: 红矛猛蚁 *M. castanea* (Smith)。首次在中国西藏记录到红矛猛蚁的分布, 并系统记述了矛猛蚁属的特征、红矛猛蚁工蚁和蚁后的特征, 提供了详尽的测量数据和插图。

关键词: 膜翅目; 蚁科; 钝猛蚁亚科; 红矛猛蚁; 西藏; 中国