

## A New Species of the Genus *Stenamma* (Hymenoptera: Formicidae) From China

by

Li-Bin Ma<sup>1\*</sup>, Sheng-Quan Xu<sup>1\*</sup>, Takeda Makio<sup>2</sup>, & Mark DuBois<sup>3</sup>

### ABSTRACT

A new species, *Stenamma sinensis*, n. sp., from the Qinling Mountains, Shaanxi, China, is described. This new species is compared with nearby species. It is mainly distinguished from others by its distinct single dentation at the middle of anterior clypeal margin along with its smaller overall size.

Key words: Hymenoptera, taxonomy, *Stenamma sinensis* sp. nov., China

### INTRODUCTION

Twenty-five species of the genus *Stenamma* have been described from the Palearctic and Oriental faunal regions (DuBois 1998; Lyu *et al.* 2002). So far, only a single gyne of *Stenamma owstoni* Wheeler was reported from Sichuan Province, China (DuBois 1998). Recently, a new species of the genus *Stenamma* was collected by the first author of this article from the Qinling Mountains which are located in the central part of China. This new species is described in this article.

### MATERIALS AND METHODS

Identification was mainly based on workers. The morphological terms and measurement methods recommended by DuBois (1998) were used in this article. All of the measurements are in millimeters (mm).

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<sup>1</sup>Institute of Zoology, Shaanxi Normal University, Xi'an, 710062, China

<sup>2</sup>Insect Science Lab, Kobe University, Kobe 6578501, Japan

<sup>3</sup>116 Burton St., Washington, IL 61571 U.S.A.

\*Correspondence address: Email: xushengquan@snnu.edu.cn

## SUBFAMILY MYRMICINAE

Genus *Stenamma**Stenamma sinensis* n. sp.

(Figs. 1-4)

**Worker Measurements (n=16).**

Measurements and associated statistics are listed in detail in Table 1. Key measurement ranges are presented herein: TL 3.05(2.89-3.32); HL 0.74 (0.68-0.87); HW 0.63 (0.61-0.66); CI 86.23 (75.76-89.29)%; SL 0.50 (0.47-0.53); SI 78.4 (75-82.61)%; EL 0.13 (0.11-0.13); EW 0.11(0.10- 0.12); OI 17.24 (14.29-19.23)%; AL 0.89 (0.83-0.97); PRW 0.43 (0.42-0.45); PL 0.35 (0.33-0.39); PH 0.24 (0.21-0.26); PW 0.22 (0.21- 0.24); PPL 0.19 (0.18-0.24); PPH 0.20 (0.18-0.24); PPW 0.23 (0.21-0.25); EBMI 0.18 (0.14-0.21); ETO 0.38 (0.35- 0.43).

**Holotype Measurements**

TL 3.0, HL 0.71, HW 0.63, CI 88%, SL 0.47, SI 75%, EL 0.13, OI 18%, AL 0.89, PRW 0.42, PL 0.34, PH 0.24, PPL 0.18, PPH 0.21, PPW 0.24.

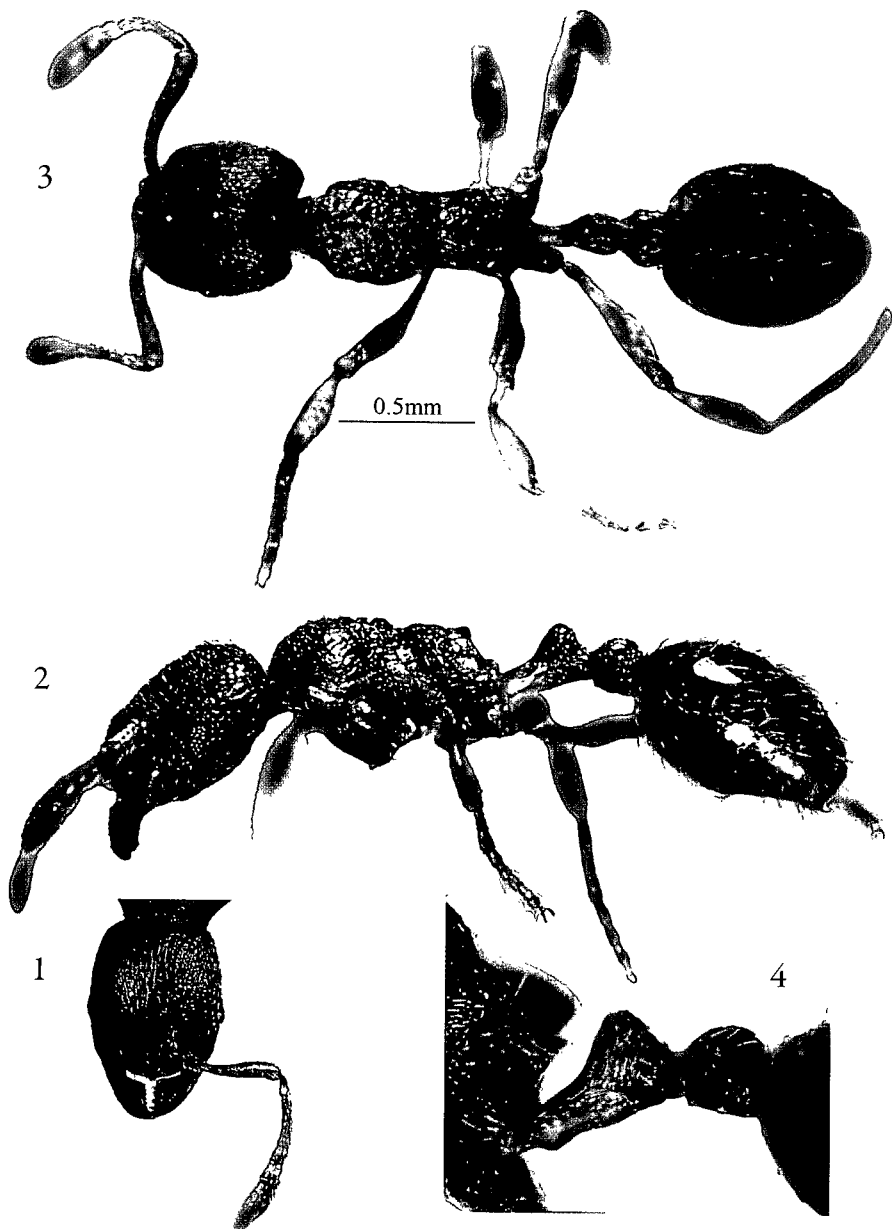
**Worker Description**

Head. Head longer than broad, longer than scape, narrowed toward occiput. Eyes maximum diameter 1/6 length of HL, with six facets in greatest diameter. Scape stout, shorter than HW, compressed at base, thickened near apex. Mandible with seven to nine teeth, two apical teeth largest, gap after second apical tooth before denticles start; mandibles shining, with basal fine rugulose, finely and sparsely punctate. Clypeus smooth, anterior clypeal margin lightly convex and arcuate with median of clypeal margin conspicuously produced a single dentation, exceeding clypeal margin. Depressed frontal area and clypeus shining; frontal lobes rugose; remainder of head with longitudinal rugulae, forming reticulae on sides.

Alitrunk. Pronotal neck punctulate at anterior edge and becoming rugulose towards alitrunk and with transverse carinula at slope. Pronotum, dorsum with longitudinal rugae, mostly moderately coarse, somewhat wavy, widely and unevenly spaced; interspaces shining; laterally with a few rugae, interspaces shining. The posterior ventral edge of the pronotum with a large pit,

Table 1. *Stenamma sinensis* compared with the related species (mean/ median values). Since sample sizes are rather small for most species, reported statistics include median as well as mean values for comparative purposes.

Measurement	<i>Stenamma sinensis</i>		<i>Stenamma koreanensis</i>		<i>Stenamma issurriense</i>		<i>Stenamma nipponense</i>		<i>Stenamma nipponense</i>		<i>Stenamma kairiense</i>	
	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median
AI	47.22	46.86	47.94%	47.96	44.12%	44.29%	44.10%	44.29%	44.65%	44.65	44.65%	44.65
AL	1.00	0.93	1.28	1.25	1.10	1.11	1.15	1.13	1.05	1.05	1.05	1.05
C1	86.44	86.50	87.21%	86.25%	86.08%	85.42%	86.95%	86.67%	85.15%	85.15%	85.15%	85.15%
EL	0.13	0.13	0.11	0.11	0.10	0.10	0.08	0.08	0.11	0.11	0.11	0.11
HL	0.80	0.75	1.01	1.01	0.82	0.83	0.84	0.85	0.81	0.81	0.81	0.81
HW	0.69	0.66	0.88	0.88	0.71	0.71	0.73	0.72	0.69	0.69	0.69	0.69
OI	16.92	17.11	11.13%	11.19%	12.59%	12.96%	9.14%	9.43%	13.86%	13.86%	13.86%	13.86%
PRW	0.47	0.45	0.61	0.60	0.48	0.48	0.51	0.50	0.47	0.47	0.47	0.47
PH	0.26	0.25	0.27	0.26	0.20	0.20	0.21	0.21	0.24	0.24	0.24	0.24
PL	0.38	0.37	0.46	0.48	0.42	0.42	0.46	0.43	0.40	0.40	0.40	0.40
PW	0.22	0.22	0.22	0.23	0.17	0.17	0.17	0.16	0.22	0.22	0.22	0.22
PPH	0.22	0.21	0.28	0.28	0.20	0.21	0.21	0.21	0.23	0.23	0.23	0.23
PPL	0.22	0.20	0.35	0.33	0.26	0.26	0.28	0.27	0.27	0.27	0.27	0.27
PPW	0.25	0.24	0.29	0.28	0.22	0.23	0.21	0.21	0.27	0.27	0.27	0.27
SI	78.72	79.17	85.09%	86.11%	96.55%	86.36	91.01%	89.13%	87.28%	87.28%	87.28%	87.28%
SL	0.54	0.50	0.75	0.78	0.61	0.61	0.67	0.65	0.60	0.60	0.60	0.60
TL	3.38	3.17	4.50	4.53	3.62	3.62	3.80	3.70	3.53	3.53	3.53	3.53



Figs. 1-4. *Stenamma sinensis* n. sp, worker. 1. Head, full face view. 2. Alitrunk, lateral view. 3. Alitrunk, dorsal view. 4. Petiole, lateral view.

and a similar pit between the bases of the meso- and metacoxae; both not lined with micro-setae. Promesonotum without a suture in dorsal view. The median of posterior edge of the propleuron with large dentations towards rear. Sides of propodeum with rugae, dorsum with transverse carinula from basal face to declivitous face, interspaces shining. Spines short and blunt, rectangular in lateral view. Coxae with faintly transverse carinula, remainder of leg smooth.

Petiole. Petiole cuneate in profile view, dorsal face flat, punctulate, sides rugulose. Petiole venter with short blunt tooth at anterior part. Postpetiole, in dorsal view, slightly broader than long, rugulose. Petiole height to length ratio about 0.70.

Gaster. First tergite with basal striae as long as  $1/5$  to  $1/4$  length of postpetiole; first sternite base glassy-smooth with small striae which not extended onto gaster. Remainder of gaster glassy-smooth.

Pilosity. With scattered subdecumbent hairs, longest on clypeus and promesonotum. Head and gaster with numerous decumbent hairs; those of frons short.

Color. Ferruginous, but variable, usually head and gastric segments dark brown.

Etymology: This new species is named after the country where the type locality is located.

## DISTRIBUTION AND ECOLOGY

Collection data of the specimens: CHINA: Mt. Qinling, Shaanxi, 7-18 September 2005, 1-13 August 2006, Li-Bin Ma. The geographic coordinates of the type locality is about  $107^{\circ} 48' E$  by  $33^{\circ} 39' N$ , and the elevation of collections range from 1580m to 1641m. All of the localities are open woodland or sunny slope with moderate temperature and humidity, and some of them are beside a small river. Most individuals were collected from leaf litter. Collection methods followed those of Agosti (2000) and included hand collecting, pitfall trapping, and especially Winkler extraction.

## DISCUSSION

*Stenamma sinensis* appears to be a member of the *owstoni* species group (DuBois 1998) (larger compound eyes, significant punctuation, stalk of

petiole approximately  $\frac{1}{2}$  length of petiole, and base of first gastral tergite with carinas extending from the juncture with postpetiole. It is most likely to be confused with *S. ussuriense* and *S. koreanensis*. It might also be confused with *S. nipponense*, *S. kurilense* or *S. bhutanense*. The remaining members of this species group are simply too large to easily be confused with *S. sinensis*.

*S. sinensis* is most similar to *S. ussuriense* – both have a reasonably shallow metanotal impression and 7 – 9 mandibular teeth. Comparing mean measurements between species yields these main differences. The compound eyes are larger (0.13 vs. 0.10 mm) generating an ocular index of 17.2 vs. 12.6. The scapes are shorter (0.5 vs. 0.6) generating a scape index of 78.4 vs. 96.5 for *S. ussuriense*. Additionally, the carinae on the first gastral tergite are up to  $\frac{1}{2}$  the length of the postpetiole in the latter species and  $\frac{1}{5}$  to  $\frac{1}{4}$  the length of the postpetiole in *S. sinensis*.

The next most similar species to *S. sinensis* is *S. koreanensis*. The latter species has 7-8 mandibular teeth and a shallow metanotal impression as well. However, the propodeal spines are more pronounced in *S. koreanensis*. Comparing mean measurements between species yields these main differences. Specimens of *S. koreanensis* are larger overall (TL 4.5 vs. 3.05). This is reflected throughout in size (for example, AL 1.28 for the latter species and 0.89 for the former species).

*S. sinensis* may also be confused with other species (mentioned above). However, it is smaller than any other member of this species group. It is the only species with AL consistently less than 1.00 mm. Only *S. owstoni* has a similar EL. HL is also shorter than other members of this group.

Material Examined: Holotype worker is deposited in Institute of Zoology, Shaanxi Normal University, Xi'an, China. 26 paratype workers are deposited as follows: Institute of Zoology, Shaanxi Normal University, Xi'an, China, 10 paratype workers, College of Biology Guangxi Normal University, Guilin, China, 10 paratype workers. Mark DuBois Personal Collection, 116 Burton St., Washington, IL 61571 U.S.A, four paratype workers. Museum of Comparative Zoology, two paratype workers.

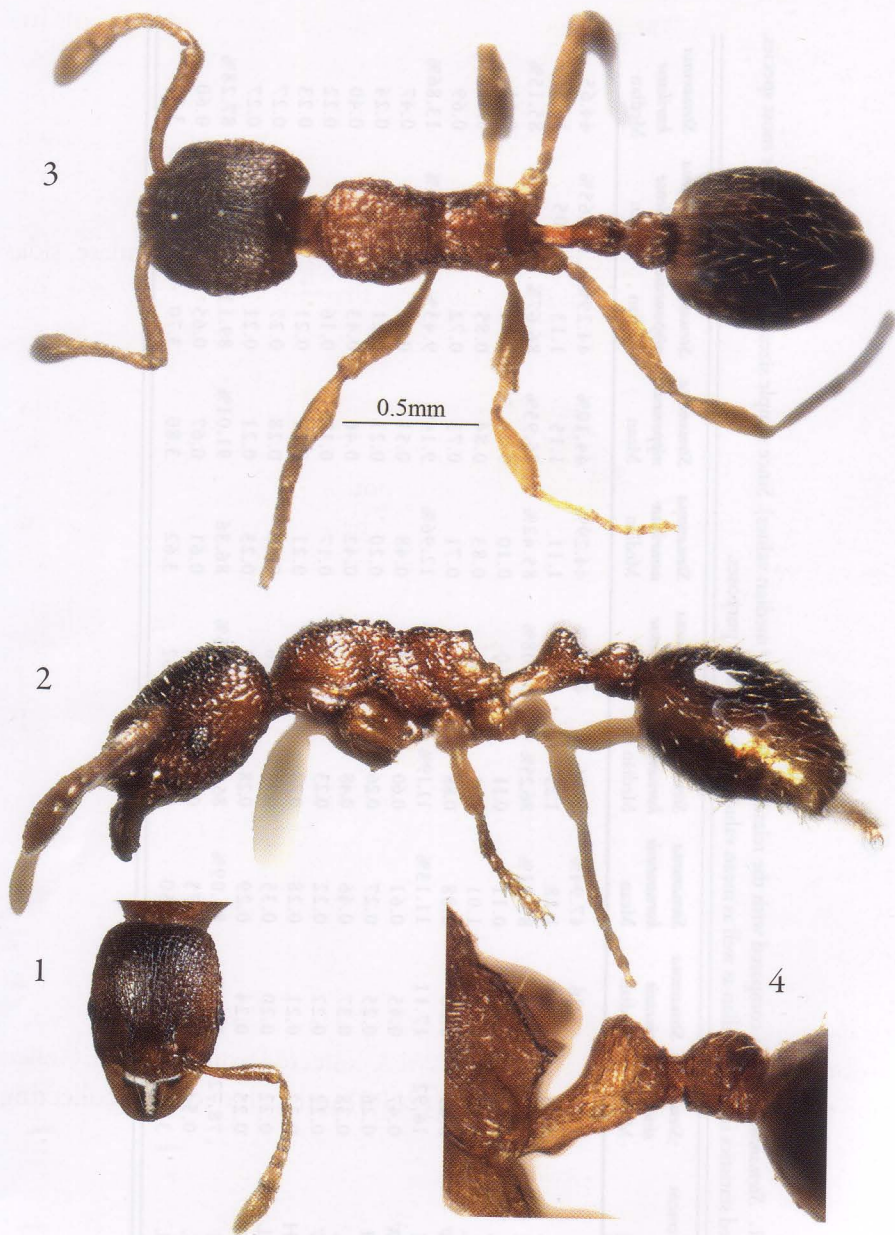
Holotype specimen bears a red, partly handwritten label: *Stenamma sinensis* Holotype. Paratype workers bear yellow, partly handwritten labels: *Stenamma sinensis* Paratype.

## ACKNOWLEDGMENTS

We would like to thank Prof. Shan-Yi Zhou, College of Biology, Guangxi Normal University, for guidance in species identification and providing many references about ant taxonomy. We are grateful to Dr. Donat Agosti, American Museum of Natural History, for offering Prof. DuBois' paper on Oriental *Stenammas*. We express our gratitude to Xiao-Jin Jing, Gong-La Deng, Chao-Zhong Zhang and Ming Su, Shaanxi Normal University, for their help in collecting. We also give thanks to the staff of Foping National Nature Reserve for their help in our fieldwork. This paper is funded by the Natural Science Basic Research Plan in Shaanxi Province of China (2005C<sub>1</sub>14) and the Department of Graduate Studies of SNNU (2006CXS020).

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Figs. 1-4. *Stenamamma sinensis* n. sp, worker. 1. Head, full face view. 2. Alitrunk, lateral view. 3. Alitrunk, dorsal view. 4. Petiole, lateral view.