

Short communication

Records of Two *Vespula* Species from Mountainous Region of Thailand (Hymenoptera, Vespidae)

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INTRODUCTION

During our survey on social Hymenoptera in Thailand, we found two *Vespula* species (Hymenoptera, Vespidae) from the northern and northwestern mountainous regions. Although two species of *Vespula*, *V. flaviceps* (Smith, 1872) and *V. koreensis* (Radoszkowski, 1887), have been recorded in Thailand (Carpenter and Kojima, 1997), no reliable collection data have been available in the literature (Archer, 2012). Species of this genus is principally inhabitants of the temperate region, and in the subtropics most species occur in mountainous regions (Yamane *et al.*, 1980; Matsuura and Yamane, 1990). In this paper we present reliable data for two species of this genus, one of which is recorded for the first time from Thailand.

MATERIAL AND METHODS

The specimens examined here were mainly collected recently during the survey organized by the Natural History Museum of the National Science Museum. Since the body colour pattern of *V. flaviceps* varies greatly among geographical races (Yamane *et al.*, 1980), detailed descriptions of colour pattern of the worker and queen are given below. The

terminology principally follows Yamane *et al.* (1980).

Abbreviations. SKYC: Sk. Yamane Collection. THNHM: Thailand Natural History Museum, National Science Museum, Thailand.

Vespula flaviceps (Smith, 1870) (Fig. 1)

Specimens examined. 1 worker, Pha Hom Pok NP, Mae Ai, Mae Ai distr., Chiang Mai prov. (N20°06'00.2", E99°16'22.4"), 28.v.2008, T. Jeenthong leg. (THNHM); 1 queen, Doi Cha Rod Pha (1850 m alt.), Umphang Wildlife Sanctuary, 28.v.2015, Sk. Yamane (THNHM).

Worker. Head width: 3.65 mm; forewing length: 8.9 mm. Ground body colour black. Yellow are: gena and temple entirely, mandibles and clypeus almost entirely, heart-shaped large marking on frons that is connected posterolaterally to yellow markings on ocular sinus, ocular sinus entirely, anterior margin of antennal scape, narrow continuous line along posterior margin of pronotum, wedge-shaped marking in upper portion of mesopleuron, margins of tegula except laterally, anterior band on

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Figure 1. *Vespula flaviceps* queen. A, Habitus in dorsal view; B, head in frontal view. (Photos: T. Kawano)

mesoscutellum that is weakly widened laterally, axilla, anterior band on metanotum that is narrowed medially, metapostnotum, pair of large markings on propodeum below, pair of very small spots near anterior margin of dorsal face of gastral tergite 1, narrow posterior bands on gastral tergites 1-5, those on sternites 1-5, fore leg extensively, outer margin of mid-coxa, outer face of mid-femur in apical half, tibiae and tarsi of mid- and hind legs almost entirely. Light brown to brown are: vertex extensively except black square area around ocelli, dorsal face of antennal scape, pair of elongate markings on occiput, dorsal face of fore femur, mid- and hind femora extensively.

Queen. Head width: 4.20 mm (including eyes); forewing length: 12.5 mm. Head extensively yellow to yellowish brown; vertex dark brown; frons along basal margin of clypeus and area around antennal base black; from this marking pair of narrow black lines extending to dark area of vertex; a black marking present on lower frons between antennal bases; temple and gena entirely yellow. Clypeus yellow, medially with three brown spots. Mandible entirely yellow except for masticatory margin and teeth dark brown. Antennal scape dorsally

brownish and anteriorly yellowish; other segments black. Ground colour of mesosoma and gaster black. Posterior margin of pronotum, medially interrupted band on mesoscutellum and narrow posterior band on metanotum yellowish; uppermost portion of mesopleuron yellow; tegula mostly yellow. Each side of dorsal face of propodeum with two large yellow spots; Gastral tergites 1-5 each with an apical yellowish band; gastral tergite 6 entirely yellowish brown with a dark brown spot at middle. Coloration of legs similar to that in worker.

Remarks. The worker and queen specimens in structure and colour pattern basically agree with specimens from India and South Korea. The queen was flying close to the ground surface, apparently looking for a nesting site, suggesting that during May this species initiates new colonies.

Distribution. Northern India, Nepal, Myanmar, Thailand, China, Taiwan, Russia (Primorie), Korean Peninsula, and Japan (Carpenter and Kojima, 1997 erroneously cited Amami Is.).

***Vespula orbata* (Buysson, 1902)**
(Fig. 2)

Specimens examined: 3 workers, Masekh-longki station (1,200 m alt.), Umphang Wildlife Sanctuary, NW Thailand, hill evergreen forest, 25.i.2015, K. Somsri and Sk. Yamane leg. (THNHM, SKYC).

Worker. Head width 3.68, 3.75 mm; Forewing length: 10.4, 10.5 mm (two individuals measured).

Remarks. This species is newly recorded from Thailand. In the worker this species is easily distinguished from other species from Thailand by its peculiar colour pattern: antenna entirely orange brown, mesoscutum always with reddish brown area anteriorly, gastral tergites 1 and 2 black and each with a narrow yellow apical band, following tergites almost entirely orange. The specimens examined well agreed in colour pattern with those from Nepal. Updated distribution range is presented by Nguyen and Kojima (2013)



Figure 2. *Vespula orbata* worker. A, Head in frontal view; B, habitus in dorsal view. (Photos: T. Kawano)

Key to species of *Vespula* (workers) from Thailand

- 1 Occipital carina incomplete, not reaching mandibular base; posterior face of propodeum completely lacking rugulae; dorsal face of gastral tergite 1 flat. *Vespula flaviceps* (Smith)
- Occipital carina strong and complete, reaching mandibular base; posterior face of propodeum entirely rugulose or laterally with short but distinct rugulae along basal margin; dorsal face of gastral tergite 1 slightly elevated at base, with a shallow depressed area behind the elevation. 2
2. Posterior face of propodeum entirely and strongly rugose; apical bands on gastral tergites of same colour, generally orange yellow; antenna at least partly dark brown to black. *Vespula koreensis* (Radoszkowski)
- Posterior face of propodeum with much weaker rugulae or sometimes confined to area along its basal margin; apical bands on gastral tergites 1 and 2 much narrower and paler in colour than those on subsequent tergites; antenna almost entirely yellow to orange. *Vespula orbata* (du Buysson)

and Tan *et al.* (2015).

Distribution. Northern India, Nepal, Myanmar, Vietnam, China, and Thailand.

DISCUSSION

We could not examine any specimen of

Vespula koreensis collected in Thailand. So far two species, *V. flaviceps* and *V. orbata*, are confined to mountain regions of northern and northwestern parts in Thailand. However, Bingham (1897) recorded *V. flaviceps* from Tenasserim, Myanmar, suggesting the occurrence of this species in mountainous areas of southern Thailand.

At present we have scarce information about the biology of *Vespula* species in Thailand. The three specimens of *V. orbata* taken at Maekhlongki station were attracted to cooked chicken liver. This species may be a generalist/scavenger, even collecting meat from vertebrate corpus as has been observed in other species of *Vespula* in Japan (Iwata, 1971).

Most interesting is their life cycle. The fact that even in late January workers of *V. orbata* were foraging indicates colonies remained active during 'winter'. On the other hand the queen of *V. flaviceps* was apparently in search of a nesting site during May. However, we cannot infer their life cycle from these fragmentary observations.

ACKNOWLEDGEMENTS

We would like to express our sincere gratitude to National Science Museum (Thailand) and Department of National Parks, Wildlife and Plant Conservation (Thailand) for their support in our field surveys. We are grateful to Mr. Tadsanai Jeenthong (National Science Museum, Thailand) and Mr. Kittisak Somsri (Um Phang Wildlife Sanctuary, Thailand) for their help in collecting specimens. Mr. Taisuke Kawano (Kyushu University) kindly took the photos of the specimens. Last but not least we would like to thank Dr. Thi Phuong

Lien Nguyen, Institute of Ecology and Biological Resources, Hanoi, for her valuable comments on an earlier draft of the manuscript.

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