

## Short Communication

# NEW RECORDS OF HORNET WASPS OF THE GENUS *VESPA* LINNAEUS (HYMENOPTERA: VESPIDAE) FROM INDIAN STATES AND BANGLADESH

### INTRODUCTION

The members of the genus *Vespa* of the subfamily Vespinae of the family Vespidae are commonly known as hornet wasps. Hornet wasps are predominantly found in the Oriental and Palaearctic Regions of the world. There are 23 valid species are reported worldwide of which 16 species from the Indian subcontinent and 15 species from India (Carpenter & Kojima, 1997). Economically, hornet wasps can be both beneficial and harmful. They are beneficial as predators of agricultural, forest and hygienic pests. The larvae and pupae of them are utilized as food in some parts of the world. They are harmful as they sting human beings and domesticated animals, they are the natural enemies of honey bees and they are damaging fruits by feeding just prior to harvest.

Recently, Girish Kumar & Srinivasan (2010) reviewed the Indian species of hornet wasps. In this paper, we are reporting new distributional records of some species of hornet wasps from various states of India and some adjacent countries.

### MATERIAL AND METHODS

This study is based on the specimens present in the Hymenoptera Section of the Zoological Survey of India, Kolkata, collected from various localities of the Indian subcontinent. The specimens were studied and photographed by using a Leica Stereo microscope with LAS software version 3.6.0. All the specimens were properly preserved and added to the 'National Zoological Collections' of the Hymenoptera Section of the Zoological Survey of India, Kolkata.

The following abbreviations used in the text for the Museums: LSL — Linnean Society, London, England; MNHN — Museum National d'Histoire Naturelle, Paris, France; NZC — Zoological Survey of India, Kolkata, India; ZMUU — Zoological Museum, Uppsala University, Uppsala, Sweden.

Abbreviations used for the terms: S = Metasomal sternum; T = Metasomal tergum.

### RESULTS

#### 1. *Vespa affinis affinis* (Linnaeus, 1764)

(Figs. 1-3)

1764. *Apis affinis* Linnaeus, 417, Type ♀, "in *Calidis regionibus*" (Oriental Region) (ZMUU).

1936. *Vespa affinis affinis*; Bequaert, 347.

**Diagnosis:** Body slender and moderate in size; apical margin of clypeus less hairy and in females with short broadly rounded lobes on each side of the median emargination; punctures on vertex, temple, mesoscutum, scutellum, metanotum, metapleuron and propodeum small and crowded; T2 largely or entirely orange yellow; body hairs fine, shorter and comparatively dense.

**Colour:** Head largely bright reddish brown; antenna reddish brown; mesosoma largely black except reddish brown markings on pronotum, scutellum and metanotum; legs black with reddish brown markings; T1 orange-yellow except at base reddish brown; T2 orange-yellow; S1 reddish brown; S2 orange-yellow mixed with reddish brown; remaining tergites and sternites black.

**Size:** Sterile female: 20 mm.

*Material examined:* BANGLADESH: Dhaka Division, Netrakona, 1 ♀, 4.x.1909, Coll. J. N. Bagchi, NZC Regd. No. 16497/H3.

*Distribution:* India: Bihar, Maharashtra, Tripura, West Bengal. *Elsewhere:* Bangladesh (new record), Myanmar; Nepal, Sri Lanka.

## 2. *Vespa orientalis* Linnaeus, 1771

(Figs. 4-6)

1771. *Vespa orientalis* Linnaeus, 540, Type ♀, "Oriente" (LSL).

*Diagnosis:* Clypeus rather flat and elongate, as wide as long or a little longer, with scattered moderate sized punctures, in females apical margin emarginate with rounded lateral lobes; hairs on head and mesosoma short, sparse, stiff and bristle-like; metasoma almost hairless dorsally.

*Colour:* Body brown with clypeus, frons, ventral side of scape, apical margin of T1 narrowly, T3 and T4 almost entirely, posterolateral corner of S2, S3 almost entirely and S4 partly yellow; T3 and T4 with blackish brown spot laterally; the yellow marks on T1 emarginate medially; T3 with a median triangular blackish mark basally.

*Size:* Fertile female: 22-28 mm; Sterile female: 17-22 mm.

*Material examined:* INDIA: Madhya Pradesh, Jabalpur, 4 ♀, vi.1922, Coll. S. Ribeiro, NZC Regd. Nos. 16512/H3-16515/H3; Hoshangabad, 1 ♀, 14.iii.1919, Coll. F. H. Gravely, NZC Regd. No. 16516/H3.

*Distribution:* India: Andhra Pradesh, Bihar, Delhi, Haryana, Jammu & Kashmir, Jharkhand, Madhya Pradesh (new record), Maharashtra, Odisha, Punjab, Rajasthan, Uttarakhand, Uttar Pradesh, West Bengal. *Elsewhere:* Afghanistan, Albania, Algeria, Bahrein, Bulgaria, China, Cyprus, Egypt, Ethiopia, Greece, Iran, Iraq, Israel, Italy, Jordan, Lebanon, Libya, Madagascar, Malta, Nepal, Oman, Pakistan, Palestine, Romania, Russia, Saudi Arabia, Somalia, Syria, Tajikistan, Turkmenistan, Turkey, U.A.E., Uzbekistan and Yemen.

## 3. *Vespa soror* du Buysson, 1905

(Figs. 7-9)

1905. *Vespa ducalis* var. *soror* du Buysson, 490 (key), 519,

Lectotype ♀, "China: Kiangsi" (MNHN).

1991. *Vespa soror*; Archer, 161.

*Diagnosis:* Head strongly widened and produced behind the eyes; temple in profile more than 1.8x as wide as eye; posterior ocelli 3x farther from occiput than from eye; clypeus coarsely punctate. In female clypeus strongly emarginate apically, lateral lobes largely and broadly rounded.

*Colour:* Head, scutellum, metanotum, two large marks on propodeum, area around propodeal spiracle and anterior border of pronotum yellow or brownish yellow; area around ocelli black; T1 and T2 yellow with reddish brown stripe at the middle; T3-T6 entirely black.

*Size:* Sterile female, 23-29 mm.

*Material examined:* INDIA: Nagaland, Naga Hills, 1 ♀, date of collection unknown, Coll. Butler, NZC Regd. No. 16228/H3. Uttar Pradesh, Lakhimpur Kheri district, Dudhwa National Park, 1 ♀, 22.ix.1974, Coll. P. K. Maity & Party, NZC Regd. No. 16229/H3.

*Distribution:* India: Arunachal Pradesh, Meghalaya, Nagaland (new record), Uttar Pradesh (new record). *Elsewhere:* China, Laos, Myanmar, Thailand, Vietnam.

## 4. *Vespa velutina* Lepeletier, 1836

(Figs. 10-12)

1836. *Vespa velutina* Lepeletier, 507, Type ♀, "Inde: Java" (MNHN).

*Diagnosis:* Apical margins of clypeus emarginate with distinct lateral lobes in female and quadrate in male.

*Colour:* Upper half of head including upper half of temple largely black; antenna black dorsally and reddish brown ventrally; clypeus orange or reddish brown coloured; mandible concolorous with clypeus except at apex including teeth brownish black to black; lower half of temple reddish brown; mesosoma wholly black; legs black with tarsi yellowish brown; T1-T3 black with yellow or yellowish brown bands at apical



PLATE I

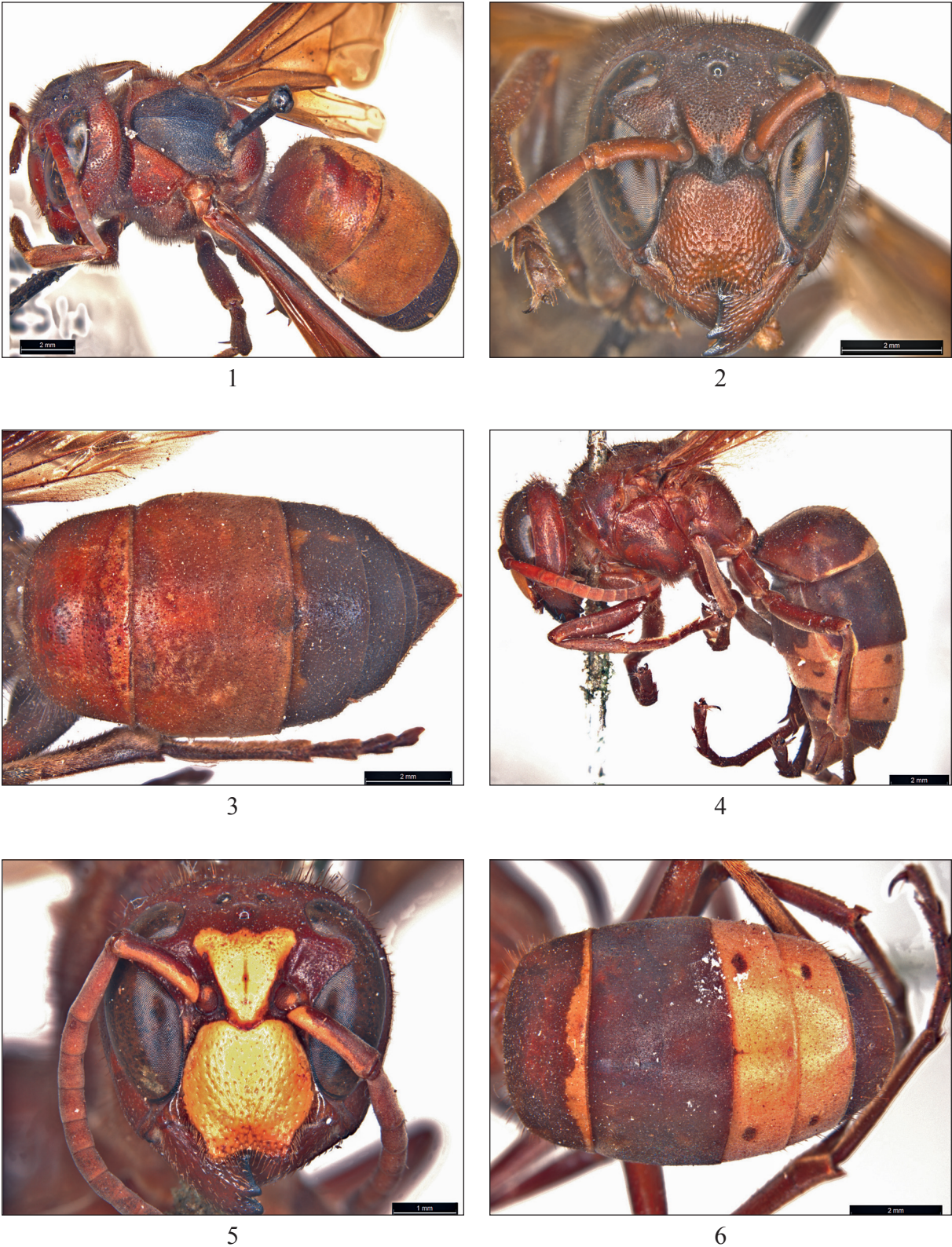


Fig. 1-3. *Vespa affinis affinis* (Linnaeus) Female. 1. Body profile; 2. Head frontal view; 3. Metasoma dorsal view. Figs. 4-6. *Vespa orientalis* Linnaeus Female. 4. Body profile; 5. Head frontal view; 6. Metasoma dorsal view.



## PLATE II



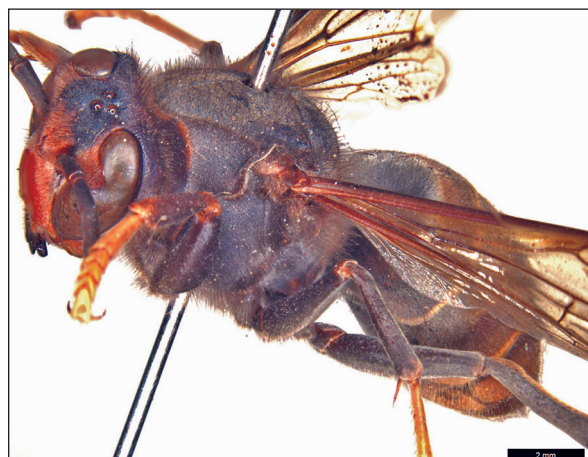
7



8



9



10



11



12

Fig. 7-9. *Vespa soror* du Buysson Female. 7. Body profile; 8. Head frontal view; 9. Metasoma dorsal view. Figs. 10-12. *Vespa velutina* Lepeletier Female. 10. Body profile; 11. Head frontal view; 12. Metasoma dorsal view.

margin; visible part of remaining tergites yellowish brown; S2 and S3 black with yellow or yellowish brown band apically, bands strongly emarginate at medially; visible part of remaining sternites yellowish brown; wings brownish hyaline; body covered with fine blackish erect hairs.

*Size:* Sterile female: 19 mm.

*Material examined:* INDIA: Meghalaya, East Khasi Hills district, Cherrapunji, 1 ♀, 23-26. iv.1979, Coll. J. K. Jonathan & Party, NZC Regd. No. 11294/H3.

*Distribution:* India: Arunachal Pradesh, Assam, Meghalaya (new record), Sikkim, West Bengal.

*Elsewhere:* Bhutan, China, Indonesia, Laos, Malaysia, Myanmar, Pakistan, Taiwan, Thailand, Vietnam.

## SUMMARY

In this paper, the following new distributional records of four hornet wasps are recorded for the first time from various states of India and also from the adjacent countries: *Vespa affinis affinis* (Linnaeus) from Bangladesh; *V. orientalis* Linnaeus from Madhya Pradesh; *V. soror* du Buysson from Nagaland and Uttar Pradesh; and *V. velutina* Lepeletier from Meghalaya.

## ACKNOWLEDGEMENTS

The authors are grateful to the Director, Dr. Kailash Chandra, Scientist-G & Divisional-in-Charge of Entomology Division (A), and Dr. Gaurav Sharma, Officer-in-Charge, Hymenoptera Section, Zoological Survey of India, Kolkata for providing facilities and encouragements.

## REFERENCES

- Archer, M.E. 1991. The number of species that can be recognized within the genus *Vespa* (Hym., Vespinae). *Ent. Mon. Mag.*, **127**: 161-164.
- Bequaert, J. 1936. The common Oriental hornets, *Vespa tropica* and *Vespa affinis* and their color forms. *Treubia*, **15**: 329-351.
- Buysson, R. du. 1905. Monographie des guetes ou *Vespa*. *Ann. Soc. Ent. France*, **73**: 485-556, 565-634.
- Carpenter, J.M. and Kojima, J. 1997. Checklist of the species in the subfamily Vespinae (Insecta: Hymenoptera: Vespidae). *Nat. Hist. Bull. Ibaraki Univ.*, **1**: 51-92.
- Girish Kumar, P. and Srinivasan, G. 2010. Taxonomic studies of hornet wasps (Hymenoptera: Vespidae; *Vespa* Linnaeus) of India. *Rec. zool. Surv. India*, **110** (2): 57-80.
- Linnaeus, C. 1764. Museum S: ae Rae Mtis Ludo Ulri. Regi. Suec., Goth., Van. In. quo animalia rariora, exotica imprimis. Insecta & Conchilia describuntur & determinatur. *Pridromi instar*: 1-719 Holmiae.
- Linnaeus, C. 1771. Mantissa Plantarum altera, *Linn. Soc. London*, **2**: 540.

**P. GIRISH KUMAR<sup>1</sup>, P.C. MAZUMDAR<sup>2</sup> AND PHONG HUY PHAM<sup>3</sup>**

<sup>1&2</sup>Zoological Survey of India, M-Block, New Alipore,  
Kolkata, West Bengal-700053, INDIA.

E-mail: kpgiris@gmail.com

<sup>3</sup>Institute of Ecology and Biological Resources,  
Vietnam Academy of Science and Technology,  
18 Hoang Quoc Viet Road, Hanoi, Vietnam.