

NEW DISTRIBUTIONAL RECORDS OF THE NOCTURNAL WASP *PROVESPA BARTHELEMYI* (DU BUYSSON) (HYMENOPTERA: VESPIDAE; VESPINAE) FROM VARIOUS STATES OF INDIA

P. Girish Kumar and Lien T. P. Nguyen*

Zoological Survey of India, M-Block, New Alipore, Kolkata- 700 053, India

* Department of Insect Ecology, Institute of Ecology and Biological Resources, Hanoi, Vietnam

e- mail: kpgiris@gmail.com; e- mail: phuonglientit@yahoo.com.

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ABSTRACT – The nocturnal wasp *Provespa barthelemyi* (du Buysson) is reported here for the first time from Arunachal Pradesh, Manipur, Mizoram, Nagaland, Tripura and West Bengal states of India.

Key words : *Provespa barthelemyi* (du Buysson), Vespinae, Vespidae, Hymenoptera, India.

INTRODUCTION

Provespa barthelemyi (du Buysson) is a nocturnal wasp and attracted to the artificial lights. This species is endemic to Oriental region and distributed from India in the west to the Malay Peninsula in the east. This species can be identified by using any of the keys by van der Vecht (1936, 1957), Archer (1989) or Das and Gupta (1989). In India this species has been recorded from Assam, Meghalaya and Sikkim (Das and Gupta, 1989; Carpenter and Kojima, 1997; Gusenleitner, 2006). In this paper we are reporting the extended distribution of this species from Arunachal Pradesh, Manipur, Mizoram, Nagaland, Tripura and the Darjeeling hills of West Bengal.

MATERIALS AND METHODS

Specimens were collected by using light traps. The pinned specimens were observed under Wild Heerbrugg Stereozoom microscope and the drawings were made with a drawing tube attached to the microscope.

All the studied specimens were deposited at the Hymenoptera Section of the Zoological Survey of India, Kolkata (NZSI).

RESULTS AND DISCUSSION

Provespa barthelemyi (du Buysson)

(Figs. 1- 6)

Vespa barthelemyi du Buysson, 1905. *Ann. Soc. Ent. France*, 73: 492 (key), 618, pl. V figs 3, 4, female, male- “Cambodge, Pnom- penh” (lectotype female in Laboratoire d’ Entomologie, Museum National d’ Histoire Naturelle, Paris); also from India; Vietnam, Myanmar.- van der Vecht, 1957, *Zool. Verh., Leiden* 34:10 (designation of lectotype).

Provespa barthelemyi: van der Vecht, 1935. *Ent. Meded. Nederland - Indie*, 1: 41,43.

This species is characterized by female having apical margin of clypeus (Fig. 1) only slightly emarginate medially, almost truncate; mesoscutum (Fig. 2) hardly longer than wide and first gastral tergite (Fig. 3) 2 times as wide as long at its apex. The male is characterized by having antenna (Fig. 4) with tyloids and apical branches of the aedeagus (Fig. 6) with subparallel sides, not pointed laterally, the space between them long and narrow.

Diagnostic characters: Female : Body generally honey yellow, clypeus pale yellow, dark along margins, frons brown with a triangular yellow mark between the antennae, vertex brownish. Wings hyaline with a slight yellowish tinge, costal cell and median cell of forewing yellowish brown except the lowermost part of median cell. Body moderately shiny, impunctate, except on the mandibles, which bear a number of scattered punctures; pubescence slightly denser and distinct. Inner margin of mandible almost straight; apical margin of clypeus (Fig. 1) only slightly emarginate medially, almost truncate, the lateral apical angles broadly rounded but not prominent or projecting; mesoscutum (Fig. 2) hardly longer than wide; first gastral tergite (Fig. 3) relatively shorter and wider, its width at apex in strict dorsal view about 2x its length.

Male : Similar to female in general appearance. Antenna (Fig. 4) long, with tyloids on the lower surface of flagellar segments, last segment strongly curved and squarely truncate at apex; inner margin of mandible inwardly curved; apical margin of clypeus (Fig. 5) slightly emarginate, almost straight; ventral margin of parameres with a distinct blunt tooth before the apex; apical branches

of aedeagus (Fig. 6) with subparallel sides, not pointed laterally, the space between them long and narrow.

Size : Female 14- 20 mm; Male 17- 20 mm.

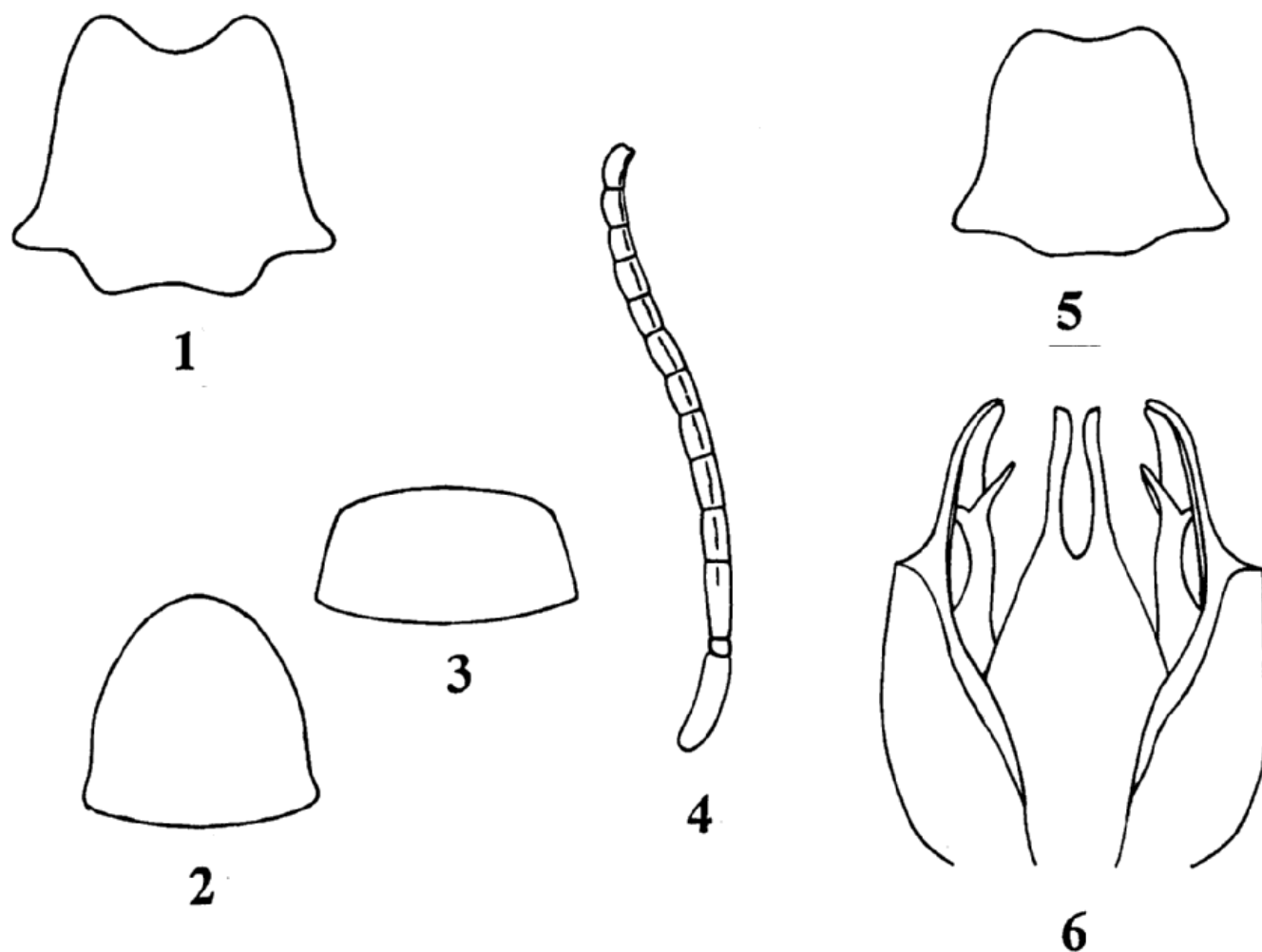
Variations : Honey yellow colour of the body varies from pale to darker. In some specimens frons entirely yellow except a small brown mark on inner ocular sinus.

Discussion : This species comes close to *Provespa anomala* (de Saussure) but distinctly differ from it in having: (1). Mesoscutum hardly longer than wide (in *P. anomala* mesoscutum distinctly longer than wide); (2). First gastral tergum shorter, about half as long as wide (in *P. anomala* first gastral tergum more than half as long as wide); (3). Clypeus pale yellow, darker along margins (in *P. anomala* clypeus brownish); (4). Male flagellum with tyloids (in *P. anomala* male flagellum without tyloids); (5). Apical branches of aedeagus with subparallel sides not pointed laterally, space between them long and narrow (in *P. anomala* apical branches of aedeagus triangular, pointed laterally, space between them oval, long and narrow).

This species differ from the other species *Provespa nocturna* van der Vecht in having: (1). Anterior margin of the clypeus only slightly emarginate medially, almost truncate (in *P. nocturna* anterior margin of the clypeus deeply emarginate, the lateral apical angles roundly prominent and slightly projecting); (2). Clypeus pale yellow, darker along margins (in *P. nocturna* clypeus brownish); Male flagellum with tyloids (in *P. nocturna* male flagellum without tyloids); (4). Apical branches of aedeagus with subparallel sides not pointed laterally, space between them long and narrow (in *P. nocturna* apical branches of aedeagus triangular, pointed laterally, space between them oval, long and narrow).

Material examined : 1 Female, Arunachal Pradesh: West Kameng dist., Kalaktang, Alt. 1373 m, 16.iii.1961, coll. K.C.J. & Party, Reg. No. 12037/H3; 1 Female, Arunachal Pradesh: Tirap dist., Miao, near to Namdapha National Park, 26.i.1962, coll. C. B. Srivastava & Party, Reg. No. 3525/H3; 1 Female, Arunachal Pradesh: Changlang dist., Namdapha National Park, 18.iv.1981, coll. S. Biswas & Party, Reg. No. 12038/H3; 2 Female, Arunachal Pradesh: Changlang dist., Namdapha National Park, Gibbons land, 2.v.1981, coll. S. Biswas & Party, Reg. Nos. 12039/H3 & 12040/H3; 1 Female, Arunachal Pradesh: Tirap dist., Miao, near to Namdapha National Park, 5.v.1981, coll. S. Biswas & Party, Reg. No. 12041/H3; 1 Female, Arunachal Pradesh: Changlang dist., Namdapha National Park, Gibbons land, 17.xii.1982, coll. S. Biswas & Party, Reg. No. 12042/H3; 1 Female, Arunachal Pradesh: Changlang dist., Namdapha National

Park, 14.i.1985, coll. S. Biswas & Party, Reg. No. 12043/H3; 2 Female, Arunachal Pradesh: Debang Valley, Kornu North, 1.ii.2000, coll. S.K. Mandal & Party, Reg. Nos. 12044/H3 & 12045/H3; 1 Female, Arunachal Pradesh: Lower Debang Valley dist., Iduli, 14.ix.2000, coll. A.R. Lahiri & Party, Reg. No. 12046/H3; 1 Female, Arunachal Pradesh: Lohit dist., Parasuram Kund, 17.ii.2003, coll. R.S. Mridha & Party, Reg. No. 12047/H3; 1 Female, Assam: Goalpara dist., Kochugaon reserve forest, 24.v.1972, coll. S.S. Saha & Party, Reg. No. 12048/H3; 1 Female, Manipur: 16 miles north of Imphal on Dimapur road, Alt. 3500 ft., 20-30.ix.1945, coll. M.L. Roonwal & Party, Reg. No. 12049/H3; 1 Female, Manipur: Chandel dist., Moreh, 23.ix.1975, coll. M.S. Shishodia & Party, Reg. No. 12050/H3; 1 Male, Meghalaya: West Garo Hills dist., above Tura, Alt. 3500-3900 ft., 15.vii-30.viii.1917, coll. S. Kemp & Party, Reg. No. 1059/H3; 1 Female, Meghalaya: Garo Hills, 6.iv.1973, coll. S. Biswas & Party, Reg. No. 12051/H3; 1 Male, Meghalaya: West Garo Hills dist., Tura, Alt. 1412 m, 3.v.1979, coll. J.K. Jonathan & Party, Reg. No. 12052/H3; 2 Female, Meghalaya: West Garo Hills dist., Kherapara, 19.ii.1988, coll. R.K.G. & Party, Reg. Nos. 12053/H3 & 12056/H3; 1 Female, Meghalaya: West Garo Hills dist., Selbalgiri, Alt. 2000 ft, 10.v.1988, coll. C. Radhakrishnan, Reg. No. 12054/H3; 1 Male, Meghalaya: West Garo Hills dist., Balphakram National Park, 12.v.1988, coll. V.T. Darleng & Party, Reg. No. 12055/H3; 1 Female, Meghalaya: South Garo Hills dist., Dombe Wari Lakeside, 10.x.1988, coll. K.K. Ray & Party, Reg. No. 12057/H3; 1 Female & 1 Male, Meghalaya: Jaintia Hills dist., Garampani, 22.v.1990, coll. M.S. Shishodia & Party, Reg. Nos. 12058/H3 & 12059/H3; 1 Female, Meghalaya: East Khasi Hills dist., Cherrapunjee, 24.v.1990, coll. M.S. Shishodia & Party, Reg. No. 12060/H3; 1 Female, Meghalaya: East Garo Hills dist., Matahokgiri, 7.v.1991, coll. B.N. Das & Party, Reg. No. 12061/H3; 1 Female, Mizoram: Lawngtlai dist., Lawngtlai, 17.ix.1993, coll. A.R. Lahiri & Party, Reg. No. 12062/H3; 1 Female, Mizoram: Lawngtlai dist., Lawngtlai, 16.i.1994, coll. S.K. Saha & Party, Reg. No. 12063/H3; 1 Female, Mizoram: Lawngtlai dist., Lawngtlai, 3.iv.1994, coll. A.K. Hazra & Party, Reg. No. 12064/H3; 1 Female, Mizoram: Aizwal dist., Teirei, 11.xi.1995, coll. M.S. Shishodia & Party, Reg. No. 12065/H3; 1 Female, Nagaland: Mokokchung dist., Tuli, 28.iii.1994, coll. P. Mukhopadhyay & Party, Reg. No. 12066/H3; 1 Female, Nagaland: Dimapur dist., Rangapahar, 30.iii.1994, coll. P. Mukhopadhyay & Party, Reg. No. 12067/H3; 1 Female, Sikkim: West Sikkim dist., Dentam, 18.x.1995, coll. S.C. Mitra & Party, Reg. No. 12068/H3; 1 Female, Tripura: West Tripura dist., Kathalia, 5.xii.1969, coll. V.C. Agrawal & Party, Reg.



Figs. 1- 6 : *Provespa barthelemyi* (du Buysson)

Figs. 1- 3 : Female, Fig. 1. Clypeus, Fig. 2. Mesoscutum, Fig. 3. First gastral segment in dorsal view, **Figs. 4- 6.** Male, Fig. 4. Antenna, **Fig. 5 :** Clypeus, Fig. 6. Genitalia

No.12069/H3; 1 Male, Tripura: South Tripura dist., Garjee, 14.v.1978, coll. J.K. Jonathan & Party, Reg. No.12070/H3; 1 Female, Tripura: South Tripura dist., Belonia, 15.v.1978, coll. J.K. Jonathan & Party, Reg. No.12071/H3; 1 Male & 4 Female, Tripura: Dhalai dist., Ambassa, 25.v.1978, coll. J.K. Jonathan & Party, Reg. Nos.12072/H3 to 12076/H3; 1 Female, Tripura: Dhalai dist., Ambassa, 26.viii.1978, coll. S.K. Chanda & Party, Reg. No. 12077/H3; 6 Female, Tripura: West Tripura dist., Agarthala, 27.viii.1978, coll. S.K. Chanda & Party, Reg. No. 12078/H3 to 12083/H3; 1 Female, Tripura: South Tripura dist., Udaipur, 23.ii.1991, coll. G.K. Srivastava & Party, Reg. No. 12084/H3; 1 Male, Tripura: Dhalai dist., Ambassa, 12.v.1992, coll. B. Mitra & Party, Reg. No. 12085/H3; 1 Female, West Bengal: Darjeeling dist., Bhudbari, 14.ix.1959, coll. B. K. Tikader & Party, Reg. No. 3519/H3. 3 Female, West Bengal: Darjeeling dist., Kurseong, date of collection and name of collector unknown, Reg.

Nos. 12086/H3 to 12088/H3; 7 Female, West Bengal: Darjeeling dist., Sukna forest, 11.iii.2004, coll. S. Chattopadhyay & Party, Reg. Nos. 12089/H3 to 12095/H3 (NZSI).

Distribution: India: Arunachal Pradesh (new record), Assam, Manipur (new record), Meghalaya, Mizoram (new record), Nagaland (new record), Sikkim, Tripura (new record), West Bengal (new record).

Elsewhere: Bhutan, Cambodia, China, Laos, Malaysia, Myanmar, Thailand, Vietnam.

Remarks: In India this species is widely distributed in Northeastern part and the Darjeeling hills of West Bengal and Sikkim of Eastern India. Earlier workers were wrongly identified and reported as *Provespa anomala* (de Saussure) from Arunachal Pradesh, Meghalaya, Tripura and West Bengal (Roy and Kundu, 1985; Jonathan *et al*, 1999, 2000a,b; Kundu *et al*, 2006).

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REFERENCES

- Archer M E (1989) A key to the world species of the Vespinae (Hymenoptera). *Res. Monogr. College of Ripon & York St. John* **2**, 1- 41.
- Buysson R du (1905) Monographie des guepes ou *Vespa*. *Ann. Soc. Ent. France* **73**, 485- 556.
- 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.
- Das B P and Gupta V K (1989) The social wasps of India and the adjacent countries (Hymenoptera: Vespidae). *Orient. Ins. Monogr.* **11**, 1- 292.
- Gusenleitner J (2006) Uber Aufsammlungen von Faltenwespen in Indien (Hymenoptera: Vespidae). *Linzer biol. Beitr.* **38**, 677- 695.
- Jonathan J K, Ray K K and Kundu B G (2000a) Insecta: Hymenoptera: Vespidae. *Zool. Surv. India, Fauna of Tripura, State Fauna Series*, **7**, 377- 390.
- Jonathan J K, Roy S B and Kundu B G (1999) Insecta: Hymenoptera: Vespidae. *Zool. Surv. India, Fauna of West Bengal, State Fauna Series* **3**, 149- 182.
- Jonathan J K, Roy S B and Kundu B G (2000b) Insecta: Hymenoptera: Vespidae. *Zool. Surv. India, Fauna of Meghalaya, State Fauna Series* **4**, 117- 160.
- Kundu B G, Ghosh S N and Roychowdhury S (2006) Insecta: Hymenoptera: Aculeata (Vespidae and Apidae). *Zool. Surv. India, Fauna of Arunachal Pradesh, State Fauna Series* **13**, 427- 448.
- Roy S B and Kundu B G (1985) Fauna of Namdapha, Arunachal Pradesh, India (Insecta: Hymenoptera). *Rec. Zool. Surv. India.* **82**, 221- 229.
- Vecht J van der (1935) On a new species of *Provespa* Ashmead (Hymenoptera: Vespidae). *Ent. Med. Nederland. Indie.* **1**, 41- 44.
- Vecht J van der (1936) Some further notes on *Provespa* Ashmead. *J. Fed. Malay State Mus.* **18**, 159- 166.
- Vecht J van der (1957) The Vespinae of the Indo- Malayan and Papuan areas (Hymenoptera: Vespidae). *Zool. Verh.* **34**, 1- 83.