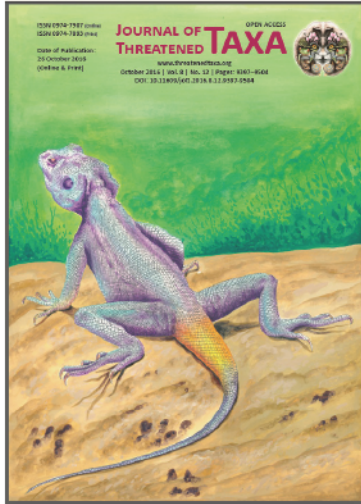


OPEN ACCESS



All articles published in the Journal of Threatened Taxa are registered under Creative Commons Attribution 4.0 International License unless otherwise mentioned. JoTT allows unrestricted use of articles in any medium, reproduction and distribution by providing adequate credit to the authors and the source of publication.



Journal of Threatened Taxa

The international journal of conservation and taxonomy

www.threatenedtaxa.org

ISSN 0974-7907 (Online) | ISSN 0974-7893 (Print)

SHORT COMMUNICATION

NEW RECORDS OF PETIOLATE POTTER WASPS (HYMENOPTERA: VESPIDAE: EUMENINAE) FROM BHUTAN

Tshering Nidup, Thinley Gyeltshen, P. Girish Kumar, Wim Klein & Phurpa Dorji

26 October 2016 | Vol. 8 | No. 12 | Pp. 9467–9472
10.11609/jott.2774.8.12.9467-9472



For Focus, Scope, Aims, Policies and Guidelines visit http://threatenedtaxa.org/About_JoTT.asp
For Article Submission Guidelines visit http://threatenedtaxa.org/Submission_Guidelines.asp
For Policies against Scientific Misconduct visit http://threatenedtaxa.org/JoTT_Policy_against_Scientific_Misconduct.asp
For reprints contact <info@threatenedtaxa.org>

Partner



Publisher/Host





ISSN 0974-7907 (Online)
ISSN 0974-7893 (Print)

NEW RECORDS OF PETIOLATE POTTER WASPS (HYMENOPTERA: VESPIDAE: EUMENINAE) FROM BHUTAN

Tshering Nidup¹, Thinley Gyeltshen², P. Girish Kumar³, Wim Klein⁴ & Phurpa Dorji⁵

^{1,2,4}School of Life Sciences, Sherubtse College, Royal University of Bhutan, Trashigang, Bhutan

³Western Ghat Regional Centre, Zoological Survey of India, Kozhikode, Kerala 673006, India

⁴Honorary Research Associate, Naturalis Biodiversity Centre, 2300 RA Leiden, Netherlands

¹tsheringnidup.sc@sherubtse.edu.bt (corresponding author), ²thinleytshen@gmail.com,

³kpgiris@gmail.com, ⁴klein.wim.f@gmail.com, ⁵phurpa.sc@sherubtse.edu.bt

OPEN ACCESS



Abstract: A total of seven species from five genera, *Delta* de Saussure, 1855, *Eumenes* Latreille, 1802, *Pareumenes* (de Saussure, 1855), *Labus* de Saussure, 1867, and *Zethus* Fabricius, 1804, belonging to the subfamily Eumeninae of the family Vespidae are documented. *Pareumenes quadrispinosus acutus* Liu, 1941, *Delta esuriens* (Fabricius, 1787), *D. conoideum* (Gmelin, 1790), *E. gibbosus* Nguyen, 2015, *Labus pusillus* van der Vecht, 1963 and *Zethus dolosus* Bingham, 1897, including the subspecies *P. q. acutus* Liu, 1941, are new records for Bhutan.

Keywords: Bhutan, Eumeninae, new records, Vespidae.

Abbreviation: BMNH - British Museum of Natural History; IEBR - Institute of Ecology and Biological Resources, Hanoi, Vietnam; SNHM - Sherubtse Natural History Museum, Trashigang, Bhutan; NHMB - Naturhistorisches Museum Basel, Switzerland; NHM - The Natural History Museum, London.

Potter wasps belong to the subfamily Eumeninae of the family Vespidae. Eumeninae is a widely distributed subfamily with more than 150 genera (Srinivasan & Kumar 2010). It is differentiated from other subfamilies of Vespidae in having parategula in most species, claws usually bifid and posterior lingual plate longer than broad. The species are solitary to subsocial, showing a primitive state of social behavior. They build earthen

pot-like cells in burrows or in wood cavities (Das & Gupta 1989). Adults feed on nectar, however, the larvae are fed with small lepidopterous larvae but rarely with larvae of family Tenthredinidae (Craighead 1950; Srinivasan & Kumar 2010). Numerous taxonomic works have been done on potter wasps from Palearctic, Nearctic and various parts of the Oriental Region documenting about 3600 species (Pickett & Carpenter 2010). Nonetheless, knowledge on potter wasp fauna of Bhutan is scarce. Only two species, *Delta pyriforme* (Fabricius, 1775) and *Pareumenes quadrispinosus* (de Saussure, 1855) were reported (Srinivasan & Kumar 2010; Nguyen 2015a). In this paper, five genera and seven species are documented, of which six species are new records for Bhutan.

MATERIAL AND METHODS

A total of 31 specimens were studied from various districts in Bhutan (Fig. 1). The specimens were killed with ethyl acetate and observed under a stereoscopic microscope. Photographs were taken with a Nikon D5100 with an attached AF-S Micro Nikkor 40mm macro lens. Measurements were taken with a digital vernier

DOI: <http://dx.doi.org/10.11609/jott.2774.8.12.9467-9472> | **ZooBank:** urn:lsid:zoobank.org:pub:337C83E3-228E-471C-9351-8E1243B4D6CF

Editor: Nguyen Thi Phuong Lien, Vietnam Academy of Science and Technology, Hanoi, Vietnam.

Date of publication: 26 October 2016 (online & print)

Manuscript details: Ms # 2774 | Received 07 May 2016 | Final received 06 October 2016 | Finally accepted 10 October 2016

Citation: Nidup, T., T. Gyeltshen, P.G. Kumar, W. Klein & P. Dorji (2016). New records of petiolate potter wasps (Hymenoptera: Vespidae: Eumeninae) from Bhutan. *Journal of Threatened Taxa* 8(12): 9467–9472; <http://dx.doi.org/10.11609/jott.2744.8.12.9467-9472>

Copyright: © Nidup et al. 2016. Creative Commons Attribution 4.0 International License. JoTT allows unrestricted use of this article in any medium, reproduction and distribution by providing adequate credit to the authors and the source of publication.

Funding: Bhutan Trust Fund for Environmental Conservation (BT FEC) and Naturalis Biodiversity Centre, Leiden, Netherlands.

Conflict of Interest: The authors declare no competing interests.

Acknowledgements: Acknowledgement is to National Biodiversity Centre (NBC), Bhutan for coordinating the invertebrate documentation project and Mr. Tshering Wangdi, Director, Sherubtse College, Royal University of Bhutan, for supporting us during the field work.



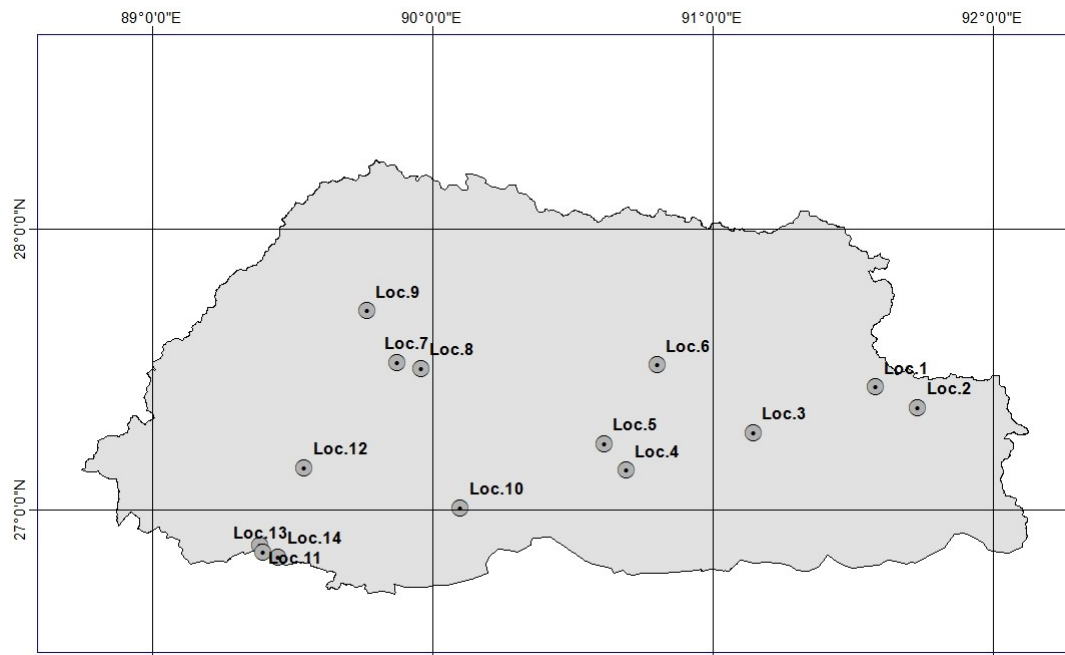


Figure 1. Locality (Loc.) of specimens collected in Bhutan.

Loc. 1 - Doksum, Trashi Yangtse; Loc. 2 - Radhi, Trashigang; Loc. 3 - Menghugang, Mongar; Loc. 4 - Tingtibi, Zhemgang; Loc. 5 - Wangdigang, Zhemgang; Loc. 6 - Dechen Pelrithang, Bumthang; Loc. 7 - Toebirong Chhu, Wangdi Phodrang; Loc. 8 - Chuzomsa, Wangdi Phodrang; Loc. 9 - Kappatapsa, Wangdi Phodrang; Loc. 10 - Tsholingkhar, Tsirang; Loc. 11 - Dhamdangra, Chhukha; loc. 12 - Chapcha, Chhukha; Loc. 13 - Rinchening, Chhukha; Loc. 14 - Pekashing, Chhukha.

caliper nearest to 0.01mm. Measurements refer to the total length (TL = Head + Mesosoma + Metasoma). Identifications are based on the keys and descriptions provided by Bingham (1897), Liu (1941), van der Vecht (1963), Srinivasan & Kumar (2010), Bodlah et al. (2012), Kumar (2012), Nugroho et al. (2013), Siddiqui et al. (2015) and Nguyen (2015a,b). The pinned and dried specimens are deposited in Sherubtse Natural History Museum, Sherubtse College, Royal University of Bhutan. Elevation above sea level (Alt.) are provided in meters (m). Latitudes and longitudes are provided in degrees as denoted in Garmin eTrex 10.

RESULTS AND DISCUSSION

1. *Pareumenes quadrispinosus acutus* Liu, 1941

(Image 1)

Pareumenes acutus Liu, 1941: 255 (key), 262, pl. 1 fig. 5, pl. 2 figs. 3 and 13 (in subgenus *Pareumenes*) – “South China”.

Pareumenes quadrispinosus acutus; van der Vecht, 1963: 23 (China).

Diagnosis: Black; yellow head parts are: clypeus except apical margin, interantennal space extending up to anterior ocelli, ocular sinus, longitudinal mark on temple; yellow thorax parts are: pronotum swim bladder shaped covering nearly the whole of the pronotum, two

parallel lines on mesoscutum, tegula except black dot in center, parategula, postscutellum posteriorly, a spot each on the anterior and posterior part on both sides of the propodeum, two lateral quadrate shape on scutellum; outer face side of antennal scape; yellow abdominal parts are: petiole apically interrupted in middle, two parallel lines on petiole subapically on sternum, apical transverse line on petiole on sternum, gastral tergite II posteriorly interrupted in middle, III-V terga apically, sternum II basally and, II-IV sterna laterally, tibiae and femora I, tibiae II and III in outer view; flavo-hyaline wing; propodeum with dentiform projection; sparsely punctate head and thorax; clypeus pyriform, convex and dentiform; cephalic foveae present; genal carina meeting on occiput; subdiscoidal vein very weakly sclerotized beyond second recurrent nervure; III tergite without apical reflexed extension.

Measurement: 1 female: 19.8mm.

Material examined: HYM/SNHM/001, 14.x.2015, 1 female, Tingtibi, Zhemgang (27°8'33"N & 90°41'30.84"E, 631m), coll. Tshering Nidup & Wim Klein.

Distribution: Bhutan (Loc.4), Myanmar, India, China, Hong Kong, Indonesia, Malaysia, Vietnam (Liu 1941; van der Vecht 1963; Srinivasan & Kumar 2010).

Note: New record for Bhutan.



Image 1. *Pareumenes quadrispinosus acutus*: Habitus.



Image 2. *Delta pyriforme pyriforme*: Habitus.

2. *Delta pyriforme pyriforme* (Fabricius, 1775)

(Image 2)

Vespa pyriformis Fabricius, 1775: 371 – “in China” (BMNH).

Delta pyriforme pyriforme; Gusenleitner, 1988: 184 (Thailand).

Diagnosis: Petiole lacks yellow apical band; pronotum and mesoscutum anteriorly yellow, the latter posteriorly black, petiole and basal third of tergite II reddish-brown; tergite II dark at base and subapically; remaining part of tergite II and visible parts of remaining terga yellow; transverse line on occiput yellow, elongated thick dark marking longitudinally on sternum II.

Measurements: 3 males: 23–26.2 mm; 1 female: 26.7mm.

Material examined: HYM/SNHM/002, HYM/SNHM/003 & HYM/SNHM/004, 8.vi.2015, 3 females, Doksum, Trashi Yangtse (27°26'22.2"N & 91°34'53.76"E, 864m), coll. Tshering Nidup & Phurpa Dorji; HYM/SNHM/005, 23.x.2015, 1 female, Menghugang, Mongar (27°16'35.76"N & 91°8'45.96"E, 762m), coll. Phurpa Dorji & Wim Klein.

Distribution: Bhutan (Loc.1 & Loc.3), India, Cambodia, China, Hawaii, Hong Kong, Indonesia, Malaysia, Moluccas, Myanmar, Nepal, New Guinea, Sri Lanka, Taiwan, Thailand, Vietnam (Bingham 1897; Krombein 1991; Srinivasan & Kumar 2010; Bodlah et al. 2012; Nugroho et al. 2013; Siddiqui et al. 2015).

3. *Delta esuriens* (Fabricius, 1787)

(Image 3)

Vespa esuriens Fabricius, 1787: 293 – “India” (BMNH).

Delta esuriens; Castro and Dvořák, 2009: 296 (Israel).

Diagnosis: This species can be distinguished from other species by having posterior third of second and

visible part of other gastral tergites yellow; apical part of gastral petiole with yellow band; small and slender body; mesoscutum apically black and posteriorly with red variegation and brown infumation on radial cell.

Measurements: 3 males: 17.7–20 mm; 3 females: 17–22 mm.

Material examined: HYM/SNHM/006, 08.vi.2015, 1 female, HYM/SNHM/007, 08.vi.2015, 1 male, Doksum, Trashi Yangtse (27°26'22.2"N & 91°34'53.76"E, 864m), coll. Tshering Nidup & Phurpa Dorji; HYM/SNHM/008, 28.i.2015, 1 female; HYM/SNHM/009 & HYM/SNHM/010, 28.i.2015, 2 males, Toebirong Chhu, Wangdi Phodrang (27°31'34.68"N & 89°52'21.72"E, 1226m), coll. Tshering Nidup & party; HYM/SNHM/006, 09.x.2015, 1 female, Dhamdangra, Chhukha (26°52'25.68"N & 89°23'0.96"E, 310m), coll. Tshering Nidup & Wim Klein.

Distribution: Bhutan (Loc.1, Loc.7 & Loc.11), Arabia, India, Indonesia (Borneo, Java), Iran, Iraq, Israel, Laos, Mauritius, Myanmar, New Caledonia, Oman, Pakistan, Philippines, Qatar, Saudi Arabia, Sri Lanka, Thailand, United Arab Emirates, Vietnam (Bingham 1897; Srinivasan & Kumar 2010; Bodlah et al. 2012; Kumar 2012; Nugroho et al. 2013; Siddiqui et al. 2015).

Note: New record for Bhutan.

4. *Delta conoideum* (Gmelin, 1790)

(Image 4)

Vespa conica Fabricius, 1787: 293 – “China” (BMNH).

Delta conoideum; Gusenleitner, 1987: 269.

Diagnosis: Apical half of gastral tergite II and whole of the remaining tergites red; clypeus, lower half of frons and ocelli sinus yellow; antennal scape in front yellow; broad black band above between eyes; mesosoma and metasoma dark red but legs pale reddish; dark line on mesoscutum medially, base and middle of tergite II dark



Image 3. *Delta esuriens*: Habitus.



Image 4. *Delta conoideum*: Habitus.

(tergite II interrupted medially); wing fuscohyaline.

Measurement: 2 females: 24–24.9 mm.

Material examined: HYM/SNHM/011 & HYM/SNHM/012, 07.x.2015, 2 females, Rinchening, Chhukha (26°51'0.72"N & 89°23'44.88"E, 405m), coll. Tshering Nidup & Wim Klein.

Distribution record: Bhutan (Loc. 13), India, Arabia, China, Malaysia, Myanmar, Nepal, Pakistan, Sri Lanka, Thailand, Vietnam (Bingham 1897; Krombein 1991; Srinivasan & Kumar 2010; Nguyen 2015a).

Note: New record for Bhutan.

5. *Eumenes gibbosus* Nguyen, 2015

(Image 5)

Eumenes gibbosus Nguyen, 2015b: 565, female - Holotype female "Vietnam, Pa Co, Mai Chau, Hoa Binh" (IEBR).

Diagnosis: Female: Black with the following parts orange-yellow: spot between antennae; Following parts orange: two oblique lines on base of clypeus at margins (only in two females), short line at vertex behind eye, irregular shaped band on pronotum, transverse line on metanotum, apical band on terga I & II, sterna I & II, spot on tergum I laterally, outer margins of tegula, fore & mid tibia fully from outer view; wings dark brown, slightly infusate and veins blackish.

Male: Similar but the following parts different: longer orange-yellow line between antennae; clypeus black (two males have orange-yellow marking at base emarginated medially, one male with orange-yellow marking subapically and medially, one male



Image 5. *Eumenes gibbosus*: Habitus.

with combined characters of above but basal marking emarginated deeply with irregular shape.

Measurement: 4 males: 9.68–11.47 mm; 6 females: 9.47–12.00 mm.

Materials examined: HYM/SNHM/013, 15.x.2015, 1 female, Wangdigang, Zhemgang (27°14'13.92"N & 90°36'46.8"E, 1091m), coll. Tshering Nidup & Wim Klein; HYM/SNHM/014, 17.x.2015, 1 female, Dechen Pelrithang, Bumthang (27°31'1.92"N & 90°48'3.96"E, 2483m), coll. Tshering Nidup & Wim Klein; HYM/SNHM/015, 16.vi.2012, 1 female, Chuzomsa, Wangdi Phodrang (27°30'19.44"N & 89°57'37.44"E, 1362m), coll. Wim Klein; HYM/SNHM/016 & HYM/SNHM/017, 2



Image 7. *Labus pusillus*: Habitus.



Image 8. *Zethus dolosus*: Habitus.

females, 26.x.2015, HYM/SNHM/018, HYM/SNHM/019, HYM/SNHM/020 & HYM/SNHM/021, 26.x.2015, 4 males, Kappatapsa, Wangdi Phodrang (27°42'38.88"N & 89°45'54"E, 1476m), coll. Phurpa Dorji & Wim Klein; HYM/SNHM/022, 06.x.2015, 1 female, Chapcha, Chhukha (27°9'1.8"N & 89°32'28.68"E, 2264m), coll. Tshering Nidup & Wim Klein.

Distribution: Bhutan (Loc.5, Loc.6, Loc.8, Loc.9 & Loc.12), Vietnam (Nguyen 2015b).

Note: New record for Bhutan and only the report of this species outside of Vietnam after its original description.

6. *Labus pusillus* van der Vecht, 1963

(Image 6)

Labus pusillus van der Vecht, 1963: 6, figs. 1b-c, female, male - "Deiyannewela, Kandy, Ceylon" (NHMB).

Diagnosis: Female: Propodeum without a tooth on each side; body with yellow, black and brown markings; Yellow parts are: broad transverse mark at the base of clypeus, interrupted oblique mark at pronotum, outer margin of tegula, interrupted transverse line on scutellum apically, lamellar spines of propodeum apically, fore tibia apically, mid tibia wholly, hind tibia basally, fore and mid femur apically, thin transverse band at apex of terga I & II; propodeum and petiole apically red; tarsi brown; wings slightly infumated; mandibles and antennal scape black.

Male: similar to female but clypeus wholly yellow; mandibles with prominent yellow marking; antennal scape yellow in outer view.

Measurement: 6 males: 6.90–8.49 mm; 2 females: 7.29–7.63 mm.

Materials examined: HYM/SNHM/023, 28.i.2015, 1 male, Toebirong Chhu, Wangdi Phodrang (27°31'33.96"N & 89°52'21.72"E, 1226m), coll. Tshering Nidup & party;

HYM/SNHM/024 & HYM/SNHM/025, 12.x.2015, 2 males, Tsholingkhar, Tsirang (27°0'27"N & 90°5'54.96"E, 1159m), coll. Tshering Nidup & Wim Klein; HYM/SNHM/026 & HYM/SNHM/027, 08.x.2015, 2 females, HYM/SNHM/028, HYM/SNHM/029 & HYM/SNHM/030, 08.x.2015, 3 males, Pekashing, Chhukha (26°49'59.88"N & 89°27'1.011"E, 293m), coll. Tshering Nidup & Wim Klein.

Distribution: Bhutan (Loc.7, Loc.10 & Loc.14), India, Nepal, Sri Lanka (van der Vecht 1963; Kumar et al. 2013).

Note: New record for Bhutan.

7. *Zethus dolosus* Bingham, 1897

(Image 7)

Zethus dolosus Bingham, 1897: 332 (key), 333, female - "Burma (Pegu Hills); Tenasserim" (NHM).

Diagnosis: Black; pubescence white; wings fuscohyaline with darker at the costal margin; legs black; head, thorax and abdomen punctate, thinly pubescent; front and vertex coarsely punctate; tegula glabrous; mesoscutum with two parallel impressed lines on disc; scutellum with longitudinal groove medially; densely punctate petiole on broadened region bears obtuse longitudinal carina medially above.

Measurement: 1 male: 15.22mm.

Materials examined: HYM/SNHM/031, 15.xi.2014, 1 male, Radhi, Trashigang (27°21'56.88"N & 91°43'59.52"E, 1763m), coll. Tshering Nidup, Thinley Gyeltshen & Phurpa Dorji.

Distribution: Bhutan (Loc.2); India: Sikkim (Dover & Rao 1922); Burma: Pegu Hills, Tenasserim, Vietnam (Bingham, 1897; Nguyen et al. 2014).

Note: New record for Bhutan.

REFERENCES

- Bingham, C.T. (1897).** *The Fauna of British India, including Ceylon and Burma, Hymenoptera, I - Wasps and Bees.* Taylor and Francis, London, 579+i-xxix.
- Bodlah, I., M. Naeem, M.R. Khan, M.A. Bodlah & T. Akhter (2012).** Genus *Delta* de Saussure (Hymenoptera: Eumeninae: Vespidae) from Punjab Province of Pakistan. *Pakistan Journal Zoology* 44(3): 759–764.
- Castro, L. & L. Dvořák (2009).** New and noteworthy records of vespid wasps (Hymenoptera: Vespidae) from the Palearctic Region (II). *Boletín Sociedad Entomológica Aragonesa* 44: 295–304.
- Craighead, F.C. (1950).** *Insect Enemies of Eastern Forests.* United States Department of Agriculture, Washington, 679pp.
- Das, B.P. & V.K. Gupta (1989).** The social wasps of India and the adjacent countries (Hymenoptera: Vespidae). *Oriental Insects Monograph* 11: 1–292.
- Dover, C. & H.S. Rao (1922).** A note on the Diplopterous wasps in the collection of the Indian Museum. *Journal of Asiatic Society of Bengal* [N.S. XVIII]: 235–249.
- Fabricius, J.C.F. (1775).** *Systema Entomologiae, etc.* Kortii, Flensburgi et Lipsiae, xxviii+832pp.
- Fabricius, J.C.F. (1787).** *Mantissa Insectorum, Sistens Species nuper detectas*, 1, Hafniae I-XX+1–384.
- Gusenleitner, J. (1987).** Über Eumenidae aus Nepal (Hymenoptera Vespoidea). *Linzer biologische Beiträge* 19(1): 255–270.
- Gusenleitner, J. (1988).** Über Eumenidae aus Thailand, mit einer Bestimmungstabelle für orientalischer *Labus*-Arten (Hymenoptera Vespoidea). *Linzer Biologische Beiträge* 20(1): 173–198.
- Krombein, K.V. (1991).** Biosystematic Studies of Ceylonese Wasps, xix: Natural History Notes in Several families (Hymenoptera: Eumenidae, Vespidae, Pompilidae, and Crabronidae). *Smithsonian Contributions to Zoology* 283: 1–41.
- Kumar, P.G. (2012).** Description and new distributional records of *Delta esuriens* (Fabricius) (Hymenoptera: Vespidae: Eumeninae) from Indian States. *Record of Zoological Survey of India* 112(4): 55–60.
- Kumar, P.G., K.P.M. Shareef, L. Kishore & J.M. Carpenter (2013).** A Taxonomic review of the Oriental genus *Labus* de Saussure, 1867 (Hymenoptera: Vespidae: Eumeninae) from the Indian subcontinent. *Biosystematica* 7(2): 29–37.
- Liu, C.L. (1941).** Revisional studies of the Vespidae of China. I. The genus *Pareumenes* Saussure, with description of six new species. *Notes d'Ent. Chin.*, 8: 245–289, 2 pls.
- Nguyen, L.T.P. (2015a).** Taxonomic notes on the genus *Delta* de Saussure (Hymenoptera: Vespidae: Eumeninae) from Vietnam. *Animal Systematics, Evolution and Diversity* 31(2): 95–100; <http://dx.doi.org/10.5635/ASED.2015.31.2.095>
- Nguyen, L.T.P. (2015b).** Potter wasps of the genus *Eumenes* Latreille, 1802 (Hymenoptera: Vespidae: Eumeninae) from Vietnam, with description of a new species and key to species. *Zootaxa* 3974(4): 564–572; <http://dx.doi.org/10.11646/zootaxa.3974.4.7>
- Nguyen, L.T.P., H.T. Dang, J. Kojima & J.M. Carpenter (2014).** An annotated distributional checklist of solitary wasps of the subfamily Eumeninae (Hymenoptera: Vespidae) of Vietnam. *Entomologica Americana* 120(1): 7–17; <http://dx.doi.org/10.1664/13-RA-010.1>
- Nugroho, H., J. Kojima & R. Ubaidillah (2013).** Review of potter wasps with a petiolate metasoma excluding so-called “Zethinae” (Hymenoptera: Vespidae: Eumeninae) in the Lesser Sunda Island of the Indonesian Archipelago. *Zootaxa* 3608(1): 1–25; <http://dx.doi.org/10.11646/zootaxa.3608.1.1>
- Pickette, K.M. & J.M. Carpenter (2010).** Simultaneous analysis and the origin of eusociality in the Vespidae (Insecta: Hymenoptera). *Arthropod Systematics & Phylogeny* 68(1): 3–33.
- Siddiqui, J.A., I. Bodlah, J.M. Carpenter, M. Naeem, M. Ahmad & M.A. Bodlah (2015).** Vespidae (Hymenoptera) of the Pothwar region of Punjab, Pakistan. *Zootaxa* 3914(5): 501–524; <http://dx.doi.org/10.11646/zootaxa.3914.5.1>
- Srinivasan, G. & P.G. Kumar (2010).** New records of potter wasps (Hymenoptera: Vespidae: Eumeninae) from Arunachal Pradesh, India: five genera and ten species. *Journal of Threatened Taxa* 2(12): 1313–1322; <http://dx.doi.org/10.11609/JoTT.o2468.1313-22>
- Vecht, J. van der (1963).** Studies on Indo-Australian and East Asiatic Eumenidae (Hymenoptera: Vespoidea). *Zoologische Verhandlungen Leiden* 60: 1–116.





OPEN ACCESS



All articles published in the Journal of Threatened Taxa are registered under Creative Commons Attribution 4.0 International License unless otherwise mentioned. JoTT allows unrestricted use of articles in any medium, reproduction and distribution by providing adequate credit to the authors and the source of publication.

ISSN 0974-7907 (Online); ISSN 0974-7893 (Print)

October 2016 | Vol. 8 | No. 12 | Pages: 9397–9504
Date of Publication: 26 October 2016 (Online & Print)

DOI: 10.11609/jott.2016.8.12.9397-9504

www.threatenedtaxa.org

Article

Identifying orchid hotspots for biodiversity conservation in Laos: the limestone karst vegetation of Vang Vieng District, Vientiane Province

-- Pankaj Kumar, Stephan W. Gale, André Schuiteman, Somsanith Bouamanivong & Gunter A. Fischer, Pp. 9397–9417

Communications

On the occurrence of Common Baron (Lepidoptera: Nymphalidae: Limenitidinae: *Euthalia aconthea* Cramer, 1777) in the Delhi area and analysis of abiotic factors affecting its distribution in India

-- Rajiv K. Singh Bais, Pp. 9418–9433

Diversity and seasonality of polypore fungi in the moist deciduous forests of Peechi-Vazhani Wildlife Sanctuary, Kerala, India

-- A. Muhammed Iqbal, Kattany Vidyasagaran & P. Narayan Ganesh, Pp. 9434–9442

Short Communications

Camera trapping the Palawan Pangolin *Manis culionensis* (Mammalia: Pholidota: Manidae) in the wild

-- Paris N. Marler, Pp. 9443–9448

Migratory Pallas's Gull *Larus ichthyaetus* (Pallas, 1773): a new record from Sikkim, the eastern Himalaya, India

-- Santosh Sharma & Dinesh Bhatt, Pp. 9449–9453

An inventory of herpetofauna from Wadi Sayq, Dhofar, Oman

-- Lawrence Derek Ball & James Stefan Borrell, Pp. 9454–9460

Species diversity and spatial distribution of snakes in Jigme Dorji National Park and adjoining areas, western Bhutan

-- Bal Krishna Koirala, Dhan Bdr Gurung, Phurba Lhendup & Sonam Phuntsho, Pp. 9461–9466

New records of petiolate potter wasps (Hymenoptera: Vespidae: Eumeninae) from Bhutan

-- Tshering Nidup, Thinley Gyeltshen, P. Girish Kumar, Wim Klein & Phurpa Dorji, Pp. 9467–9472

Recent records of the Pale Jezebel *Delias sanaca sanaca* (Moore, 1857) (Lepidoptera: Pieridae) from Mussoorie hills, western Himalaya, India

-- Arun P. Singh, Pp. 9473–9478

An observation on the fruit feeding behavior of butterflies in some areas of Bangladesh

-- Tahsinur Rahman Shihan, Pp. 9479–9485

Notes

Range extension of the endangered Salim Ali's Fruit Bat *Latidens salimalii* (Chiroptera: Pteropodidae) in the Anamalai Hills, Tamil Nadu, India

-- Claire F.R. Wordley, Eleni K. Foui, Divya Mudappa, Mahesh Sankaran & John D. Altringham, Pp. 9486–9490

A checklist of butterflies of Dakshina Kannada District, Karnataka, India

-- Deepak Naik & Mohammed S. Mustak, Pp. 9491–9504