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An annotated checklist of the Vespidae (Hymenoptera: Vespoidea) of Bhutan with new records

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Abstract

This checklist covers each of the 73 social and solitary wasps of the family Vespidae currently known from Bhutan. Of these, 11 species in the subfamily Eumeninae, five species in Polistinae and one species in Vespinae are reported as new records for the country.

Key words: checklist, new records, Vespidae, Bhutan

Introduction

Globally, the family Vespidae consists of over 5,000 species in six subfamilies: three social wasps (Stenogastrinae, Polistinae, and Vespinae) and three solitary wasps (Euparagiinae, Masarinae, and Eumeninae). Except for Euparagiinae and Masarinae, all four subfamilies are present in the Indian subcontinent. While Eumeninae is cosmopolitan with over 3,500 species, Stenogastrinae is endemic to the Indo-Malayan area with five of seven genera occurring in South Asia. Two of the four tribes of the cosmopolitan Polistinae, and all four genera of the Holarctic and Oriental Vespinae also occur in the Indian subcontinent (Pham & Li 2015).

Located in the Eastern Himalaya, Bhutan is expected to have a high magnitude of biodiversity as over 70 % of its total land is under forest cover and there is a wide range of elevation spreading from 98 meters above sea level (asl) to over 7,000 meters. Nonetheless, a checklist of vespid wasps has never been produced. Based on previous revisionary taxonomic works and catalogs, this present list provides basic taxonomic information and distribution of Vespidae so far recorded from Bhutan.

Method and materials

This study is based on a series of published articles by Dorji, Gyeltshen, Klein & Nidup (2017); Dorji, Klein & Nidup (2016, 2017a, 2017b); Nidup, Gyeltshen, Kumar, Klein & Dorji (2016); Nidup, Klein & Dorji (2017); Nidup, Klein, Kumar & Dorji (2018); Tenzin & Katel (2019). For the new records, the specimens were gathered with a swift net, euthanized with ethyl acetate, dry mounted and deposited in the National Biodiversity Centre, Bhutan

(NBCB), Serbithang and Sherubtse Natural History Museum (SNHM), Sherubtse College, Trashigang, Bhutan. The specimens were then studied under a stereomicroscope and photographed with a Nikon D5100 with an attached 40 mm macro lens. The identification was based on the keys, descriptions, illustrations and photographs provided by Daglio (2019); Das & Gupta (1989); Gawas & Gupta (2017); Kim (2017); Kojima, Lambert, Nguyen & Saito (2007); Kumar & Carpenter (2018); Kumar, Carpenter, Castro & Sureshan (2017); Kumar, Carpenter & Sharma (2014); Kumar, Carpenter, Srinivasan, Shareef & Kishore (2017); Kumar, Castro, Carpenter & Sheikh (2018); Li & Chen (2014a, 2014b); Lou, Zhang, Chen & Li (2020); Ma, Chen & Li (2016); Nguyen & Kojima (2014); Nguyen, Kojima & Saito (2011); Nguyen, Kojima, Saito & Carpenter (2006); Tan, van Achterberg & Chen (2014); and Tan, van Achterberg, He & Carpenter (2018). This checklist covers all the species of the family Vespidae currently known from Bhutan.

Abbreviation: BMNH—British Museum of Natural History, London, Great Britain; IEBR—Institute of Ecology and Biological Resources, Hanoi, Vietnam; MCZ—Museum of Comparative Zoology, Harvard, USA; MNHN—Muséum National d'Histoire Naturelle, Paris, France; MSNV—Museo di Storia Naturale di Venezia, Venice, Italy; MRSN—Museo Regionale di Scienze Naturali di Torino, Italy; London-NHM—The Natural History Museum, London; MVEN—Museo Civico di Storia Naturale, Venice, Italy; NBCB—National Biodiversity Centre Bhutan, Bhutan; NHMB—Naturhistorisches Museum Basel, Switzerland; NZC—National Zoological Collection, Kolkata, India; OÖLM—Oberösterreichs Landesmuseum, Linz, Austria; OUM—Oxford University Museum of Natural History, England; RMNH—Nationaal Natuurhistorisch Museum (formerly Rijksmuseum van Natuurlijke Historie), Leiden, Netherlands; SMNS—Staatliches Museum für Naturkunde Stuttgart, Germany; SNHM—Sherubtse Natural History Museum, Trashigang, Bhutan; UZMC—Universitetets Zoologiske Museum, København, Denmark; ZMA—Zoölogisch Museum, Amsterdam, Netherlands; ZMB—Zoologisches Museum der Humboldt Universität, Berlin, Germany; ZMUC—Zoological Museum, University of Copenhagen, Denmark; ZMUU—Zoological Museum, Uppsala University, Uppsala, Sweden; ZSIK—Western Ghat Regional Centre, Zoological Survey of India, Kozhikode (= Calicut), India.

Results

The current list of vespid wasps from Bhutan stands at 73 species in 26 genera of four subfamilies (Eumeninae, Stenogastrinae, Polistinae and Vespinae). New distributional records of 17 species are added.

Subfamily: Eumeninae

Allorhynchium van der Vecht, 1963

1. *Allorhynchium argentatum* (Fabricius, 1804)

Vespa argentata Fabricius, 1804, Syst. Piez.: 260, male, "Sumatra" (UZMC).

Rhynchium clypeatum Cameron, 1900: 531.

Allorhynchium argentatum van der Vecht, 1963: 60.

Distribution: Bhutan: Pema Gatshel, Wangduephodrang, Samdrup Jongkhar, Zhemgang, Tsirang (Nidup *et al.* 2018). *Elsewhere:* India; Indonesia; Laos; Malaysia; Myanmar; Nepal; Pakistan; Philippines; Singapore; Thailand (Gawas, Kumar, Pannure, Gupta & Carpenter 2020; Kumar, Carpenter & Sureshan 2016a; Kumar & Sharma 2015a; Nidup *et al.* 2018).



FIGURE 1. *Allorhynchium metallicum* (female): A—dorsal, B—lateral, C—front; *Paraleptomenes darugiriensis* (female): D—dorsal, E—lateral, F—front.

2. *Allorhynchium metallicum* (de Saussure, 1852)

(Figures 1: A, B, C)

Rygchium metallicum de Saussure, 1852: 114. Lectotype: Female, Bengal (MP).

Allorhynchium metallicum van der Vecht, 1963: 60.

Materials examined: NBCB-00522, 5.vi.2017, 1 ♂, Reju (shoulder of the road), Trashigang, Bhutan (27°20'38.7"N & 91°34'29"E, 822 m), Leg.: Wim Klein.

Distribution: Bhutan (**new record**): Trashigang. *Elsewhere:* Pakistan; India; Sri Lanka; Maldives Islands; Nepal, Myanmar; China; Malaysia: Indonesia (Gawas *et al.* 2020; Kumar *et al.* 2016a; Kumar & Sharma 2015a).

Ancistrocerus Wesmael, 1836

3. *Ancistrocerus sikhimensis* (Bingham, 1897)

Odynerus sikhimensis (Bingham, 1897): 363. Type data: BMNH. Type locality: “Rangit Valley, Sikkim, 1000 ft”.

Ancistrocerus sikhimensis Cameron, 1913: 116.

Distribution: Bhutan: Chimakothi under Chhukha Dzongkhag (Giordani Soika 1975). *Elsewhere:* China; India; Nepal (Bingham 1897; Giordani Soika 1975; Tan, Carpenter, *et al.* 2018a).

Antepipona de Saussure, 1855

4. *Antepipona bhutanensis* Giordani Soika, 1975

Antepipona bhutanensis Giordani Soika, 1975, Entomol. Basil. 1: 390, figs 2, 4, male, female, “Bhutan: Thimphu” (holotype, male, NHMB).

Distribution: Endemic to Bhutan: Thimphu, Paro, Chhukha (Giordani Soika 1975; Nidup *et al.* 2018).

5. *Antepipona biguttata* (Fabricius, 1787)

Vespa biguttata Fabricius, 1787, Mant. Ins. 1: 291, “China”, male, (UZMC). *Odontodynerus biguttatus*: van der Vecht, 1959, Arch. Neerl. Zool. Suppl. 1: 241, fig 3 (redescription of type).

Antepipona biguttata van der Vecht & Fischer, 1972: 71.

Antepipona injucunda Giordani Soika, 1973: 104.

Antepipona biguttata takaoensis Giordani Soika, 1982: 207.

Distribution: Bhutan: Tsirang, Pema Gatshel, Chhukha, Wangduephodrang, Punakha (Nidup *et al.* 2018). *Elsewhere:* India; China; Korea; Laos; Malaysia; Myanmar; Thailand; Vietnam (Gawas *et al.* 2020; Kumar, Carpenter & Sureshan 2016b; Nidup *et al.* 2018).

6. *Antepipona tytides* (Cameron, 1904)

Odynerus tytides Cameron, 1904, Entomologist 37: 309, male, female, “Darjeeling, India” (BMNH).

Antepipona tytides Giordani Soika, 1975: 390.

Distribution: Bhutan: Thimphu, Chhukha, Bumthang (Nidup *et al.* 2018). *Elsewhere:* India; Nepal; China; Myanmar; Laos (Gawas *et al.* 2020; Kumar *et al.* 2016b).

Anterhynchium de Saussure, 1863

7. *Anterhynchium flavomarginatum* (Smith, 1852)

7.1. *Anterhynchium flavomarginatum flavomarginatum* (Smith, 1852)

Rhynchium flavo-marginatum Smith, 1852b: 35. Type data: Male, BMNH. Type locality: China.

Odynerus nigrifrons Smith, 1857: 62.

Rhynchium curvimaculatum Cameron, 1903a: 328.

Rhynchium collinum Cameron, 1903a: 329.

Odynerus flavomarginatum Dover, 1926: 233.

Anterhynchium flavomarginatum flavomarginatum van der Vecht, 1963: 78.

Anterhynchium flavomarginatum curvimaculatum van der Vecht, 1963: 78 (key), 81.

Anterhynchium flavomarginatum Gusenleitner, 1987: 267.

Distribution: Bhutan: Samdrup Jongkhar, Tsirang (Nidup *et al.* 2018). *Elsewhere:* China; India; Vietnam; Pakistan; Nepal; Laos; Mongolia; Korea; Japan; Indonesia; Myanmar (Gawas *et al.* 2020; Nguyen 2015c; Nidup *et al.* 2018; van der Vecht 1963).

Antodynerus de Saussure, 1855

8. *Antodynerus limbatus* (de Saussure, 1852)

Rhygchium limbatum de Saussure, 1852, Ét. Fam. Vesp. 1: 117, female, pl. 13 fig. 10, “L’Amerique?” (coll. de Romand).
Rhynchium rugolatum Cameron, 1900: 533.

Distribution: Bhutan: Pema Gatshel, Zhemgang, Chhukha, Wangduephodrang, Mongar, Samdrup Jongkhar, Trashigang (Nidup *et al.* 2018). *Elsewhere:* India; China; Laos; Myanmar; Nepal; Pakistan; Thailand (Gawas *et al.* 2020; Kumar & Carpenter 2013; Nidup *et al.* 2018).

Apodynerus Giordani Soika, 1993

9. *Apodynerus troglodytes troglodytes* (de Saussure, 1856)

Odynerus troglodytes de Saussure, 1855, Ét. Fam. Vesp. 3: 249, male (in subgenus *Odynerus* division *Parodynerus*), “Le Sénégal” (MRSN).
Apodynerus troglodytes troglodytes; Gusenleitner, 1988, Linz. Biol. Beitr. 20: 180.
Antepipona malabarica Lambert, 2004: 554.
Antepipona narendrani Lambert, 2004: 558.

Distribution: Bhutan: Samdrup Jongkhar, Pema Gatshel, Chhukha, Sarpang (Nidup *et al.* 2018). *Elsewhere:* India; China; Borneo; Myanmar; Philippines; Thailand; Laos; Malaysia; Singapore; Indonesia (Gawas *et al.* 2020; Kumar, Carpenter, Kishore & Shareef 2014; Kumar, Shareef, Kishore & Carpenter 2013; Li & Chen 2016a; Nidup *et al.* 2018; Nugroho, Kojima & Ubaidillah 2014).

Coeleumenes van der Vecht, 1963

10. *Coeleumenes burmanica* (Bingham, 1897)

Montezumia burmanica Bingham, 1897, Fauna Brit. India, Hym. 1: 350, fig. 101, female, male, “Tenasserim” (BMNH).
Montezumia bisulcata Cameron, 1900: 535.
Montezumia burmanica var. *malayana* Dover, 1931: 253.
Coeleumenes burmanicus van der Vecht, 1963: 46.

Distribution: Bhutan: Zhemgang (Nidup *et al.* 2018). *Elsewhere:* India; Malaysia; Myanmar; Vietnam; China; Laos; Thailand (Bingham 1897; Gawas *et al.* 2020; Nguyen 2016; Nidup *et al.* 2018; van der Vecht 1963).

11. *Coeleumenes impavidus impavidus* (Bingham, 1897)

Montezumia impavida Bingham, 1897, Fauna Brit. India, Hym., 1: 351, female, Myanmar; Tenasserim, type female, Thaungyin Valley, Tenasserim, (BMNH).
Pseudozumia impavida Giordani Soika, 1941: 165, 168.

Distribution: Bhutan: Trashigang (Nidup *et al.* 2018). *Elsewhere:* India; Laos; Malaysia; Myanmar; Singapore; Sri Lanka; Indonesia; Thailand (Bingham 1897; Gawas *et al.* 2020; Nidup *et al.* 2018; van der Vecht 1963).

***Delta* Fabricius, 1775**

12. *Delta conoideum* (Gmelin, 1790)

Vespa conica Fabricius, 1787: 293—"China" (BMNH).

Delta conoideum Gusenleitner, 1987: 269.

Distribution: Bhutan: Chhukha, Wangduephodrang (Nidup *et al.* 2018). *Elsewhere:* India; Arabia; China; Malaysia; Myanmar; Nepal; Pakistan; Sri Lanka; Thailand; Vietnam; Laos (Bingham 1897; Dorji, Klein, *et al.* 2017a; Gawas *et al.* 2020; Nguyen 2015b; Nidup *et al.* 2018; Srinivasan & Kumar 2010).

13. *Delta esuriens esuriens* (Fabricius, 1787)

Vespa esuriens Fabricius, 1787: 293—"India" (BMNH).

Distribution: Bhutan: Trashi Yangtse, Wangduephodrang, Chhukha (Dorji, Klein, *et al.* 2017a; Nidup *et al.* 2016). *Elsewhere:* 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; Bodlah, Naeem, Khan, Bodlah & Akhter 2012; Dorji, Klein, *et al.* 2017a; Gawas *et al.* 2020; Kumar 2012; Nguyen 2015b; Nidup *et al.* 2016; Nugroho, Kojima & Ubaidillah 2013; Siddiqui *et al.* 2015; Srinivasan & Kumar 2010).

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

Vespa pyriformis Fabricius, 1775: 371—"in China" (BMNH).

Delta pyriforme pyriforme Gusenleitner, 1988: 184.

Distribution: Bhutan: Trashi Yangtse, Mongar (Nidup *et al.* 2016). *Elsewhere:* India; Cambodia; China; Hawaii; Indonesia; Laos; Malaysia; Moluccas; Myanmar; Nepal; New Guinea; Sri Lanka; Thailand; Vietnam (Bingham 1897; Dorji, Klein, *et al.* 2017a; Gawas *et al.* 2020; Nidup *et al.* 2016; Nugroho *et al.* 2013; Srinivasan & Kumar 2010)

***Eumenes* Latreille, 1802**

15. *Eumenes assamensis* Meade-Waldo, 1910

(Figures 2: A, B, C)

Eumenes assamensis Meade-Waldo, 1910: 41, female, male, "Shillong, Assam [= Shillong, Meghalaya]" (BMNH).

Materials examined: NBCB-00523, 01.vi.2017, 1 ♀, Denchi, Pema Gatschel, Bhutan (91°23'47.3"E & 27°01'01.0"N, 682 m), Leg.: Tshering Nidup & Wim Klein; NBCB-00524, 28.v.2019, 1 ♂, Langjophaga (above road), Thimphu, Bhutan (89°38'46"E & 27°30'06"N, 2591 m), Leg.: Karma Lekshey & Phurpa Dorji.

Distribution: Bhutan (**new record**): Pema Gatschel, Thimphu. *Elsewhere:* China (Tibet); India; Nepal; Laos (Gawas *et al.* 2020; Kumar, Carpenter, Castro, *et al.* 2017).

16. *Eumenes atrophicus* (Fabricius, 1798)

(Figures 2: D, E, F)

Vespa atrophica Fabricius, 1798: 264 female "In India orientali" (UZMC).

Polistes atrophica; Fabricius, 1804: 280.

Icaria (?) *atrophica* de Saussure, 1853: 42.

Eumenes compressus de Saussure, 1855: 142.
Eumenes atrophica Schulz, 1912: 101.
Eumenes citreolineatus Giordani Soika, 1941: 135.

Material examined: NBCB-00525, 22.x.2015, 1 ♀, Trashigang Pam, Trashigang, Bhutan (91°32'12.84"E & 27°18'40.68"N, 987 m), Leg.: Phurpa Dorji & Wim Klein; NBCB-00526, 12.x.2015, 1 ♀, Tsholingkhar, Tsirang, Bhutan (90°5'54.96"E & 27°0'27"N, 1159 m), Leg.: Tshering Nidup & Wim Klein; NBCB-00527, 09.x.2015, 1 ♀, Dhamdangra, Chhukha, Bhutan (89°23'0.96"E & 26°52'25.68"N, 310 m), Leg.: Tshering Nidup & Wim Klein.

Distribution: Bhutan (new record): Trashigang, Tsirang, Chhukha. *Elsewhere:* India; China; Indonesia; Singapore; Philippines; Japan; Malaysia; Myanmar; South Korea; Thailand (Gawas *et al.* 2020; Kumar, Carpenter, Castro, *et al.* 2017; Srinivasan & Kumar 2010).



FIGURE 2. *Eumenes assamensis*: A—dorsal, B—lateral, C—front; *E. atrophicus*: D—dorsal, E—lateral, F—front; *E. punctatus*: G—dorsal, H—lateral, I—front.

17. *Eumenes gibbosus* Nguyen, 2015

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

Distribution: Bhutan: Zhemgang, Bumthang, Wangduephodrang, Trashigang, Pema Gatshel, Chhukha (Nidup *et al.* 2016). *Elsewhere:* Vietnam (Dorji, Klein, *et al.* 2017a; Nguyen 2015a; Nidup *et al.* 2016; Tenzin & Katel 2019).

18. *Eumenes punctatus* de Saussure, 1852

(Figures 2: G, H, I)

Eumenes punctata de Saussure, 1852. Et. Fam. Vesp., Mon. Guep. Sol.: 37. Female, Male, Syntypes, Type locality China (BMNH).

Material examined: NBCB-00528, 23.v.2017, 1 ♀, Doksum, Trashi Yangtse, Bhutan (27°26'10.9"N & 91°34'39.2"E, 845 m), Leg.: Phurpa Dorji & Wim Klein; NBCB-00529, 22.x.2015, 1 ♀, Trashigang Pam, Trashigang, Bhutan (91°32'12.84"N & 27°18'40.68"E, 987 m), Leg.: Phurpa Dorji & Wim Klein; NBCB-00530, 27.x.2015, 1 ♀, Walagy-elpo's drupchu, Wangduephodrang, Bhutan (27°31'33.96" N & 89°52'12.72"E, 1245 m), Leg.: Phurpa Dorji & Wim Klein; NBCB-00531, 27.x.2015, 1 ♀, Bajothango, Wangduephodrang, Bhutan (89°53'13.92"E & 27°30'54.72"N, 1218 m), Leg.: Phurpa Dorji & Wim Klein.

Distribution: Bhutan (**new record**): Trashigang, Trashi Yangtse, Wangduephodrang. *Elsewhere:* India; Pakistan; Myanmar; Sri Lanka; China; Mongolia; Russia; South Korea; Japan (Gawas *et al.* 2020; Kim & Yamane 2001; Kumar, Carpenter, Castro, *et al.* 2017; Srinivasan & Kumar 2010).

Labus de Saussure, 1867

19. *Labus pusillus* van der Vecht, 1963

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

Distribution: Bhutan: Wangduephodrang, Tsirang, Trashigang, Chhukha, Paro (Nidup *et al.* 2016). *Elsewhere:* India; Nepal; Sri Lanka, Vietnam; China (Dorji, Klein, *et al.* 2017a; Gawas *et al.* 2020; Kumar 2013b; Li & Carpenter 2018; Nguyen & Carpenter 2020; Nidup *et al.* 2016; van der Vecht 1963)

Paraleptomenes Giordani Soika, 1970

20. *Paraleptomenes darugiriensis* Kumar, Carpenter & Sharma, 2014

(Figures 1: D, E, F)

Paraleptomenes darugiriensis Girish Kumar, Carpenter & Sharma, 2014b: 133. Type data: Holotype female, NZC. Type locality: East Garo Hills, Darugiri, Meghalaya.

Materials examined: NBCB-00532 to NBCB-00537, 27.v.2017, 5 ♂ & 1 ♀, Samdrup Choling, Samdrup Jongkhar, Bhutan (26°53'02.0"N & 91°41'17.2"E, 257m), Leg.: Phurpa Dorji & Wim Klein; NBCB-00538 to NBCB-00547, 27.v.2017, 8 ♂ & 2 ♀, Martshala, Samdrup Jongkhar, Bhutan (26°56'29"N & 91°41'04.9"E, 861 m), Leg.: Phurpa Dorji & Wim Klein; NBCB-00548 to NBCB-00551, 27.v.2017, 2 ♂ & 2 ♀, Sambrang, Samdrup Jongkhar, Bhutan (26°53'33.5"N & 91°49'30.7"E, 385.5 m), Leg.: Phurpa Dorji & Wim Klein; NBCB-00552, 31.v.2017, 1 ♂, Bartseri, Pema Gatshel, Bhutan (27°02'42.9"N & 91°25'11.6"E, 1651 m), Leg.: Phurpa Dorji & Wim Klein.

Distribution: Bhutan (**new record**): Samdrup Jongkhar, Pema Gatshel. *Elsewhere:* India (Gawas *et al.* 2020; Kumar, Carpenter & Sharma 2014).

Pareumenes (de Saussure, 1855)

21. *Pareumenes quadrispinosus acutus* Liu, 1941

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.

Distribution: Bhutan: Zhemgang, Chhukha (Nidup *et al.* 2016). *Elsewhere:* Myanmar; India; China including Hong Kong; Indonesia; Malaysia; Vietnam (Dorji, Klein, *et al.* 2017a; Gawas *et al.* 2020; Nidup *et al.* 2016; Srinivasan & Kumar 2010; van der Vecht 1963)

22. *Pareumenes quadrispinosus quadrispinosus* (de Saussure, 1855)

Eumenes quadrispinosus de Saussure, 1855: 134, pl. VII fig. 2-2g. Type data: Syntypes females, males, BMNH. Type locality: The East Indies (India).
Pareumenes quadrispinosa Dalla Torre, 1904: 19.
Pareumenes quadrispinosus quadrispinosus Gusenleitner, 2011: 1363.

Distribution: Bhutan (Dover 1925); *Elsewhere:* China; India; Korea; Laos; Malaysia; Myanmar (Gawas *et al.* 2020; Gusenleitner 2011).

Phimenes Giordani Soika, 1992

23. *Phimenes flavopictus* (Blanchard, 1845)

Eumenes flavopictus Blanchard, 1840: pl. 2, fig. 21. Type data: MNHN.
Eumenes arcuata continentalis Zimmermann, 1931: 203.
Eumenes flavopictus flavopictus van der Vecht, 1959: 32.
Eumenes flavopictus continentalis van der Vecht, 1959: 36.
Phimenes flavopictum continentale (Zimmermann); Gusenleitner, 2006: 694.
Phimenes flavopictum flavopictum Girish Kumar, 2013: 119.

Distribution: Bhutan: Zhemgang (Nidup *et al.* 2018). *Elsewhere:* India; China (including Hong Kong); Indonesia; Laos; Malaysia; Myanmar; Nepal; Singapore; Sri Lanka; Thailand; Vietnam (Gawas *et al.* 2020; Kumar 2013c; Nguyen, Nguyen & Carpenter 2016; Nidup *et al.* 2018; Srinivasan & Kumar 2010)

Rhynchium Spinola, 1806

24. *Rhynchium brunneum brunneum* (Fabricius, 1793)

Vespa brunnea Fabricius, 1793, Entomol. Syst., 2: 264, Syntype, sex not mentioned, "Tranquebariae, India (UZMC)".
Rhynchium brunneum Spinola, 1808: 189.
Rhynchium brunneum brunneum Gusenleitner, 2006: 692.

Distribution: Bhutan: Zhemgang, Chhukha, Trashigang (Nidup *et al.* 2018). *Elsewhere:* Afghanistan; Bangladesh; Cambodia; China; India; Indonesia; Iran; Iraq; Laos; Malaysia; Marquesas Island; Myanmar; Nepal; New Britain; Pakistan; Palau; Seychelles; Thailand; Vietnam (Gawas *et al.* 2020; Nidup *et al.* 2018; Pham & Kumar 2016).

25. *Rhynchium quinquecinctum quinquecinctum* (Fabricius, 1787)

Vespa quinquecincta Fabricius, 1787: 288, “in China”, ZMUC. Type: sex not indicated.

Rhynchium quinquecinctum Meade-Waldo 1910

Odynerus haemorrhoidalis var. *quinquecincta* Fabr. 1787

Distribution: Bhutan: Samtse, Phuntsholing (Giordani Soika 1975). *Elsewhere:* China; Pakistan (Rafi *et al.* 2017; Rasool *et al.* 2017; Li *et al.* 2019; Tan, Carpenter, *et al.* 2018a).

Stenodyneriellus Giordani Soika, 1962

26. *Stenodyneriellus guttulatus* (de Saussure, 1862)

(Figures 3: A, B, C)

Odynerus guttulatus de Saussure, 1862: 200, female (in subgenus *Odynerus* division Epsilon)—“Sumatra” (ML) [regarded as identical to *O. multipictus* Smith, 1858, but deSaussure proposed to use this name for *O. multipictus* Smith, 1859, now *O. aruanus* Gribodo]

Odynerus multipictus Gribodo, 1892: 297.

Odynerus santabongensis Cameron, 1908: 562.

Odynerus megaspilus Meade-Waldo, 1914: 405.

Odynerus fraternus von Schulthess, 1927: 81.

Odynerus guttulatus var. *heterospilus* [!]; van der Vecht, 1937: 286.

Odynerus guttulatus var. *nigradorsus* van der Vecht, 1937: 287.

Hylodynerus guttulatus Gusenleitner, 1988: 180.

Stenodyneriellus guttulatus Giordani Soika, 1991: 164.

Materials examined: NBCB-00553, 27.v.2017, 1 ♂, Samdrup Choling, Samdrup Jongkhar, Bhutan (26°53'02.0"N & 91°41'17.2"E, 257m), Leg.: Phurpa Dorji & Wim Klein.

Distribution: Bhutan (new record): Samdrup Jongkhar. *Elsewhere:* China; India; Indonesia; Malaysia; Myanmar; Singapore; Thailand; Vietnam (Gawas *et al.* 2020; Kumar, Carpenter, Srinivasan, *et al.* 2017; Li & Chen 2016b; Nguyen, Ngat, Hoa & Thai 2019).

Stenodynerus de Saussure, 1863

27. *Stenodynerus baronii* Giordani Soika, 1975

Stenodynerus baronii Giordani Soika, 1975: 387; 1994: 133, 137

Distribution: Bhutan: Phuntsholing (Giordani Soika 1975). *Elsewhere:* China (Ma *et al.* 2016).

28. *Stenodynerus nepalensis* Giordani Soika, 1985

(Figures 3: D, E, F)

Stenodynerus nepalensis Giordani Soika, 1985: 37, 40. Type data: female, BMNH. Type locality: “NEPAL: Tapleijung Distr., tra Sangu e Tamram, c. 6200 ft”.

Materials examined: NBCB-00554 & NBCB-00555, 28.v.2019, 2 ♀, Langjophaga (above road), Thimphu, Bhutan (89°38'46"N & 27°30'06"E, 2591 m), Leg.: Karma Lekshey & Phurpa Dorji; NBCB-00556, 20.v.2017, 1 ♀, Bumdeling, Trashi Yangtse, Bhutan (27°39'45.2"N & 91°26'04.9"E, 1974 m), Leg.: Phurpa Dorji & Wim Klein; NBCB-00557, 22.v.2017, 1 ♀, Trashi Yangtse, Bhutan (27°36'32.4"N & 91°29'46.3"E, 3053 m), leg.: Phurpa Dorji & Wim Klein; NBCB-00558, 30.viii.2016, 1 ♀, Wangbama, Thimphu, Bhutan (27°18'28.45"N & 89°35'11.03"E, 2317 m), leg.: Phurpa Dorji.

Distribution: Bhutan (new record): Trashi Yangtse, Thimphu. *Elsewhere:* India; Nepal; Thailand; China (Gawas *et al.* 2020; Ma *et al.* 2016).

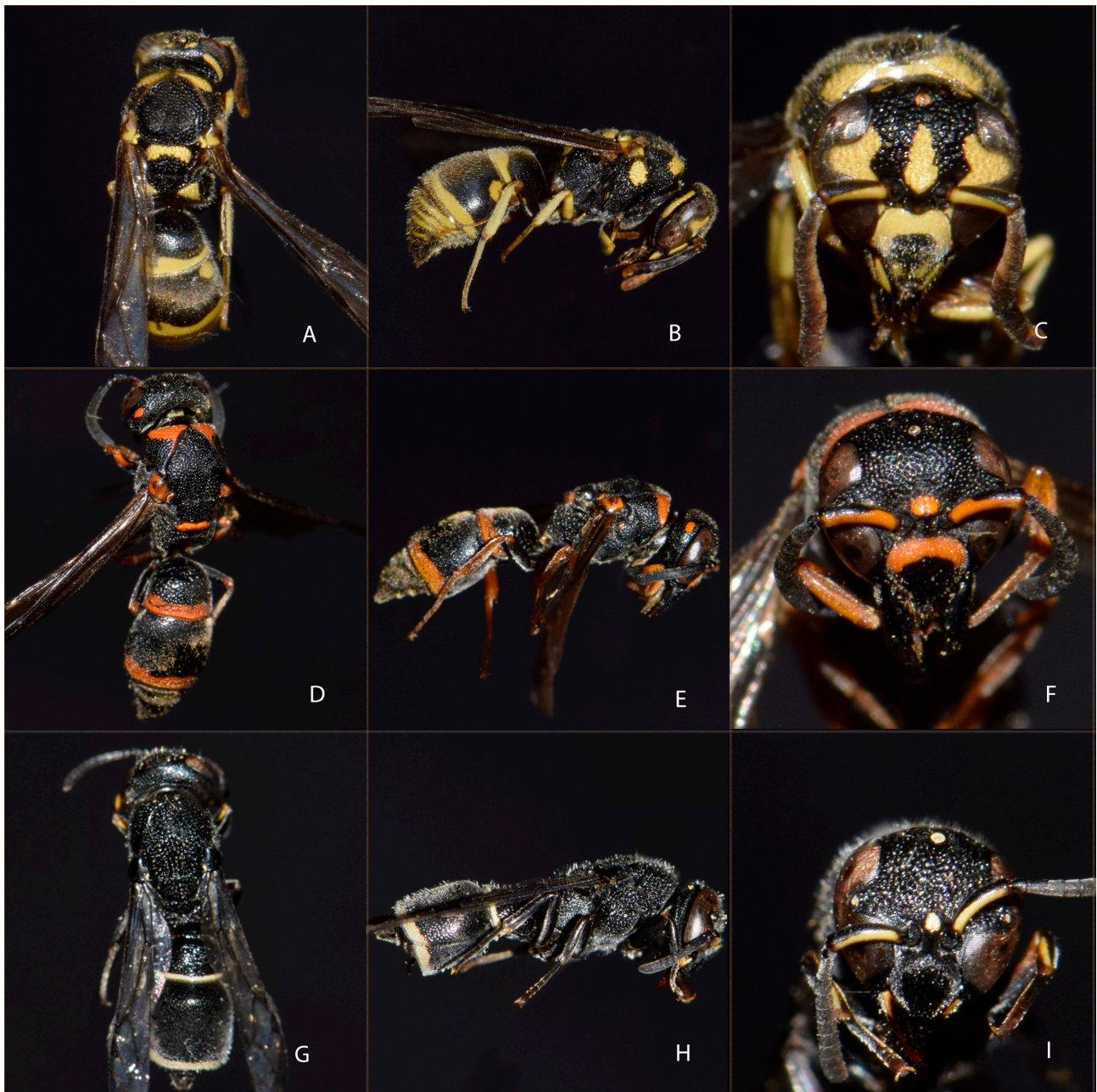


FIGURE 3. *Stenodyneriellus guttulatus*: A—dorsal, B—lateral, C—front; *Stenodynerus nepalensis*: D—dorsal, E—lateral, F—front; *Subancistrocerus sichelii*: G—dorsal, H—lateral, I—front.

Subancistrocerus de Saussure, 1855

29. *Subancistrocerus sichelii* (de Saussure, 1855)

(Figures 3: G, H, I)

Odynerus sichelii de Saussure, 1855: 206. Type data: Male, MNHN. Type locality: “Indes Orientales”.

Odynerus intendens Walker, 1860: 304. Type data: Male, BMNH. Type locality: Ceylon (Sri Lanka).

Ancistrocerus intendens; Motschoulsky, 1863: 23.

Ancistrocerus sichelii Giordani Soika, 1941: 242.

Subancistrocerus sichelii Iwata, 1965: 105.

Subancistrocerus tristis Giordani Soika, 1991: 50.

Materials examined: NBCB-00559, 24.v.2017, 1 ♀, Samdrup Choling, Samdrup Jongkhar, Bhutan (26°53'02.0"N & 91°41'17.2"E, 257m), Leg.: Phurpa Dorji & Wim Klein.

Distribution: Bhutan (**new record**): Samdrup Jongkhar. *Elsewhere:* Bangladesh; Cambodia; Chagos Archipelago; China; Mauritius; Seychelles; India; Sri Lanka; Chagos Archipelago; Nepal; Myanmar; Thailand; Cambodia; Vietnam; Malaysia; Singapore (Gawas *et al.* 2020; Kumar 2013a; Li & Chen 2014a).

Symmorphus Wesmael (1836)

30. *Symmorphus* (*Symmorphus*) *ambotretus* Cumming, 1989

(Figures 4: A, B, C)

Symmorphus ambotretus Cumming, 1989: 5, 21 (key), 28, female, male (in subgenus *Symmorphus*)—"Mt[.]omei [Emei Shan]/Szechuen [Sichuan Province] China/4400 ft" (holotype female USNM); also, from another locality; and Nepal; fig. 11, 13.

Materials examined: NBCB-00560, 20.v.2017, 1 ♀, Bumdeling, Trashi Yangtse, Bhutan (27°39'45.2"N & 91°26'04.9"E, 1974 m), Leg.: Phurpa Dorji & Wim Klein.

Distribution: Bhutan (**new record**): Trashi Yangtse. *Elsewhere:* India; Nepal; China; Korea (Gawas *et al.* 2020; Kim 2017; Kumar *et al.* 2018; Li & Chen 2014b).

31. *Symmorphus* (*Symmorphus*) *tukvarensis* (Meade-Waldo, 1910)

(Figures 4: D, E, F)

Odynerus tukvarensis Meade-Waldo, 1910b: 102. Type data: Holotype female, BMNH. Type locality: Tukvar, Sikkim, India.
Symmorphus tukvarensis Giordani Soika, 1966: 104.

Materials examined: NBCB-00561, 30.viii.2018, 1 ♂, Royal Thimphu College vicinity, Thimphu, Bhutan (27°24'10.68"N & 89°39'33.88"E, 2588 m), Leg.: Phurpa Dorji.

Distribution: Bhutan (**new record**): Thimphu. *Elsewhere:* India (Gawas *et al.* 2020; Kumar *et al.* 2018).

32. *Symmorphus* (*Symmorphus*) *violaceipennis* Giordani Soika, 1966

(Figures 4: G, H, I)

Symmorphus violaceipennis Giordani Soika, 1966: 102; Cumming 1989: 3, 5, 22 (key), 53.

Materials examined: NBCB-00562, 30.viii.2018, 1 ♀, Cheri Monastery vicinity, Thimphu, Bhutan (27°35'40.32"N & 89°37'52.07"E, 2661 m), Leg.: Phurpa Dorji; NBCB-00563, 30.viii.2018, 1 ♂, Royal Thimphu College vicinity, Thimphu, Bhutan (27°24'10.68"N & 89°39'33.88"E, 2588 m), Leg.: Phurpa Dorji.

Distribution: Bhutan (**new record**): Thimphu. *Elsewhere:* India; Nepal; China (Gawas *et al.* 2020; Kumar *et al.* 2018; Li & Chen 2014b)

Zethus Fabricius, 1804

33. *Zethus dolosus* Bingham, 1897

Zethus dolosus Bingham, 1897: 332 (key), 333. Type data: Female, BMNH. Type locality: Pegu Hills, Myanmar.

Zethus cyanopterus Bingham 1890: 244.

Calligaster dolosa Dalla Torre, 1904: 17.

Distribution: Bhutan: Trashigang, Samdrup Jongkhar (Nidup *et al.* 2016). *Elsewhere:* China; India; Myanmar;

Thailand; Vietnam (Bingham 1897; Dorji, Klein, *et al.* 2017a; Gawas *et al.* 2020; Nguyen, Dang, Kojima & Carpenter 2014; Nidup *et al.* 2016; Tan *et al.* 2018b; Pannure *et al.* 2016).



FIGURE 4. *Symmorphus (Symmorphus) ambotretus*: A—dorsal, B—lateral, C—front; *S. (S.) tukvaresis*: D—dorsal, E—lateral, F—front; *S. (S.) violaceipennis*: G—dorsal, H—lateral, I—front.

Subfamily: Stenogastrinae

Eustenogaster van der Vecht, 1969

34. *Eustenogaster scitula* (Bingham, 1897)

Ischnogaster scitula Bingham, 1897: Fauna of British India, Hymenoptera, 1: 377, 379, Types: female, India: Assam: Margherita; Sikkim: Ranjit Valley (NHM).

Eustenogaster scitula (Bingham): Das & Gupta, 1989: 403.

Distribution: Bhutan: Zhemgang, Chhukha (Nidup *et al.* 2017). *Elsewhere:* China; India; Laos; Malaysia; Myanmar; Thailand; Vietnam (Das & Gupta 1989; Gawas *et al.* 2020; Nidup *et al.* 2017; Saito & Kojima 2007; Saito, Nguyen, Carpenter & Kojima 2006; Srinivasan & Kumar 2009).

Parischnogaster von Schulthess, 1914

35. *Parischnogaster mellyi* (de Saussure, 1852)

Ischnogaster mellyi de Saussure, 1852: 25. Type data: Male, MHNG. Type locality: “Java” (Indonesia).

Ischnogaster nigrifrons Smith, 1857: 113. Type data: Male, OUM. Type locality: Sarawak, Borneo.

Stenogaster nigrifrons Dover & Rao, 1922: 241.

Parischnogaster mellyi Schulthess, 1927: 82.

Stenogaster mellyi Pagden, 1962: 95.

Distribution: Bhutan: Chhukha, Zhemgang (Nidup *et al.* 2017). *Elsewhere:* China; India; Indonesia; Malaysia; Myanmar; Philippines; Singapore; Thailand; Vietnam (Das & Gupta 1989; Gawas *et al.* 2020; Nidup *et al.* 2017; Srinivasan & Kumar 2009)

Subfamily: Polistinae

Parapolybia de Saussure, 1854

36. *Parapolybia nodosa* van der Vecht, 1966

Parapolybia nodosa van der Vecht, 1966: 39, 40. Type data: Holotype female, RMNH. Type locality: “Pilam, Formosa” (Taiwan).

Distribution: Bhutan: Zhemgang, Samdrup Jongkhar, Pema Gatshel, Trongsa, Bumthang (Dorji, Klein, *et al.* 2017a, 2017b). *Elsewhere:* India; Nepal; Laos; Myanmar; Thailand; China; Vietnam (Das & Gupta 1989; Dorji, Klein, *et al.* 2017a, 2017b; Gawas *et al.* 2020; Pham & Li 2015; Tenzin & Katel 2019; van der Vecht 1966).

37. *Parapolybia varia* (Fabricius, 1787)

Vespa varia Fabricius, 1787, Mant. Insect. 1: 293 “China”, leg. Pflug (type UZMC). Gmelin, 1790, Syst. Nat., E d. 13, 1 (5): 2754. Olivier, 1791, Encycl. Méth. Insect. 6: 690. — Fabricius, 1793, Entom. Syst. 2: 282.

Polistes varia; Fabricius, 1804: 279.

Polybia orientalis de Saussure, 1854: 208.

Polybia artifex Smith, 1861: 90.

Icaria quadrimaculata Cameron, 1900: 496.

Icaria carinata Cameron, 1900: 499.

Icaria wroughtoni Cameron, 1900: 500.

Icaria fuscipennis Cameron, 1900: 501.

Icaria cameroni Dalla Torre, 1904: 73.

Icaria singaporensis Cameron, 1904: 120.

Icaria carinifera Schulz, 1906: 328.

Icaria annulipes Cameron, 1913: 115.

Stelopolybia disticha du Buysson, 1913: 298.

Distribution: Bhutan: Chhukha, Pema Gatshel, Zhemgang, Trashigang, Tsirang, Wangduephodrang, Gasa (Dorji, Klein, *et al.* 2017a, 2017b). *Elsewhere:* India; Nepal; Myanmar; Thailand; Malaysia; Indonesia; Philippines; China; Korea; Japan; Vietnam (Das & Gupta 1989; Dorji, Klein, *et al.* 2017a, 2017b; Gawas *et al.* 2020; Pham & Li 2015; Sora, Gawas, Gupta & Shaw 2019; Tenzin & Katel 2019; van der Vecht 1966).

***Polistes* Latreille, 1802**

38. *Polistes (Gyrostoma) olivaceus* (De Geer, 1773)

Vespa olivacea De Geer 1773: 582 (type, sexunstated, America, deposited in Naturhistoriska Riksmuseum, Stockholm).

Vespa hebraea Fabricius, 1787: 292.

Vespa undata Olivier, 1792: 684.

Vespa macaensis Fabricius, 1793: 259.

Distribution: Bhutan: Punakha, Wangduephodrang, Trashi Yangtse, Mongar, Trashigang, Trongsa, Bumthang, Samdrup Jongkhar, Sarpang, Zhemgang, Lhuentse (Dorji *et al.* 2016; Dorji, Klein, *et al.* 2017a). *Elsewhere:* Afghanistan; Amirantes; Australia; Bangladesh; Cambodia; Chagos Archipelago; Chile, Easter Is.; China; Egypt; Fiji; French Polynesia; Hawaii; India; Indonesia; Iran; Japan; Laos; Madagascar; Malaysia; Marianas; Mauritius; Myanmar; Nepal; New Caledonia; New Zealand; Oman; Pakistan; Philippines; Réunion; Samoa; Seychelles; Singapore; Society Is.; Sri Lanka; Tanzania; Thailand; Tonga; U.S.A.; Vietnam (Carpenter 1996; Das & Gupta 1989; Dorji *et al.* 2016; Dorji, Klein, *et al.* 2017a; Kumar 2010; Kumar, Kundu & Kazmi 2015; Kumar & Sharma 2014a, 2015b; Mahmood, Ullah, Aziz, Hasan & Inayatullah 2012; Nguyen & Carpenter 2019; Pham & Li 2015; Siddiqui *et al.* 2015; Sora *et al.* 2019; Tan, van Achterberg, Duan & Chen 2014; Tenzin & Katel 2019; Yamane & Yamane 1979).

39. *Polistes (Gyrostoma) tenebricosus* Lepeletier, 1836

Polistes tenebricosus Lepeletier 1836: 529. Type locality: Java, Indonesia.

Polistes sulcatus Smith, 1852a: 38. Type data: Female, male BMNH. Type locality: Ningpo, China.

Polistes hoplitus de Saussure, 1853: 55. Type data: Female, MHNG. Type locality: Indes Orientales.

Polistes hoplites de Saussure, 1854: 255.

Polistes rugifrons Cameron, 1900: 412.

Polistes varicornis Cameron, 1905: 67.

Polistes javanicus Cameron, 1905: 68.

Polistes tenebricosus var. *leopoldi* Bequaert, 1934: 9.

Polistes tenebricosus var. *sibuyanensis* Bequaert, 1940: 266.

Distribution: Bhutan: Trashigang, Mongar, Wangduephodrang, Chhukha, Pema Gatshel, Zhemgang, Lhuentse (Dorji *et al.* 2016; Dorji, Klein, *et al.* 2017a). *Elsewhere:* China; India; Nepal; Vietnam; Myanmar; Indonesia; Philippines (Carpenter 1996; Das & Gupta 1989; Dorji *et al.* 2016; Dorji, Klein, *et al.* 2017a; Gawas *et al.* 2020; Kumar 2010; Kumar & Sharma 2014a, 2015b; Nguyen & Carpenter 2019; Pham & Li 2015; Sora *et al.* 2019; Tan, van Achterberg, Duan, *et al.* 2014; Tenzin & Katel 2019; Yamane & Yamane 1979).

40. *Polistes (Gyrostoma) rothneyi rothneyi* Cameron, 1900

Polistes rothneyi Cameron, 1900: 410. Type data: Male, OUM. Type locality: Barrackpore, West Bengal, India.

Polistes rufolineatus Cameron, 1900: 411. Type data: Female, male, OUM. Type locality: India.

Polistes yayeyamae Matsumura, 1911: 106. Type data: Female, male, UMHU. Type locality: Okinawa.

Polistes rothneyi sikkimensis van der Vecht, 1968: 102.

Polistes rothneyi tibetanus van der Vecht, 1968: 102.

Polistes rothneyi koreanus van der Vecht, 1968: 104.

Polistes rothneyi grahami van der Vecht, 1968: 104.

Polistes rothneyi iwatai van der Vecht, 1968: 104.

Polistes rothneyi hainanensis van der Vecht, 1968: 106.

Polistes rothneyi gressitti van der Vecht, 1968: 106.

Distribution: Bhutan: Trashigang, Punakha, Lhuentse, Trongsa, Bumthang (Dorji *et al.* 2016; Dorji, Klein, *et al.* 2017a). *Elsewhere:* Nepal; India (Carpenter 1996; Das & Gupta 1989; Dorji *et al.* 2016; Dorji, Klein, *et al.* 2017a; Dvořák 2007; Gawas *et al.* 2020; Rafi *et al.* 2017; Tenzin & Katel 2019).

41. *Polistes (Polistella) adustus* Bingham, 1897

Polistes adustus Bingham, 1897: 397. Type data: Holotype female, BMNH. Type locality: Sikkim, India.

Distribution: Bhutan: Bumthang, Trashigang, Chhukha, Thimphu, Tsirang (Dorji *et al.* 2016; Dorji, Klein, *et al.* 2017a). *Elsewhere:* India; Nepal; China (Das & Gupta 1989; Dorji *et al.* 2016; Dorji, Klein, *et al.* 2017a; Gawas *et al.* 2020; Ghosh, Kumar, Tripathy & Chandra 2020; Nguyen *et al.* 2011; Tenzin & Katel 2019).

42. *Polistes (Polistella) dawnae* Dover & Rao, 1922

(Figures 5: A, B, C)

Polistes dawnae Dover & Rao, 1922: 248. Type data: Female, NZC. Type locality: Dawna Hills, Myanmar.

Materials examined: NBCB-00564, 12.x.15, 1 ♀, Tsholingkhar, Tsirang, Bhutan (27°00'27"N & 90°05'55"E, 1159 m), Leg.: Tshering Nidup & Wim Klein; NBCB-00565 to NBCB-00568, 12.x.15, 4 ♀, Sithikhet & Ninzoer-gang, Tsirang, Bhutan (27°00'24"N & 90°08'24"E, 1256 m), Leg.: Tshering Nidup & Wim Klein; NBCB-00569 & NBCB-00570, 25.v.2017, 2 ♀, Martshala, Samdrup Jongkhar, Bhutan (26°56'29"N & 91°41'04.9"E, 861 m), Leg.: Phurpa Dorji & Wim Klein; NBCB-00571, 14.iv.2016, 1 ♀, Nganglam, Pema Gatshel, Bhutan (26°49'45"N & 91°14'18"E, 720 m), Leg.: Phurpa Dorji, Thinley Gyeltshen & Tshering Nidup.

Distribution: Bhutan (**new record**): Tsirang, Pema Gatshel, Samdrup Jongkhar. *Elsewhere:* India; Myanmar; Laos; Vietnam (Das & Gupta 1989; Gawas & Gupta 2017; Gawas *et al.* 2020; Ghosh *et al.* 2020; Nguyen & Kojima 2014; Nguyen *et al.* 2011; Sora *et al.* 2019).

Remarks: Its habitat extends to Bhutan from Arunachal Pradesh and South East Asia.

43. *Polistes (Polistella) [cf] japonicus* de Saussure, 1858

(Figures 5: D, E, F)

Polistes japonicus de Saussure, 1858: 260, female, "le Japon" [lectotype in the Museum d'Histoire Naturelle, Gèneve]

Materials examined: NBCB-00572 to NBCB-00574, 18.iv.16, 3 ♀, Nganglam, Pema Gatshel, Bhutan (around Al-abari village, 26°49'45.12"N & 91°14'17.63"E, 349 m), Leg.: Phurpa Dorji, Tshering Nidup & Thinley Gyeltshen; NBCB-00575, 01.x.2015, 1 ♀, Kanglung, Trashigang (27°17'13.99"N & 91°31'18.01"E, 1823 m), Leg.: Phurpa Dorji & Tshering Nidup.

Distribution: Bhutan (**new record**): Pema Gatshel, Trashigang. *Elsewhere:* Vietnam (Nguyen & Kojima 2014; Pham & Li 2015).

44. *Polistes (Polistella) nigratarsis* (Cameron, 1900)

Polistes nigratarsis Cameron, 1900: 413. Type data: Male, OUM. Type locality: Barrackpore, West Bengal, India.

Distribution: Bhutan: Chhukha (Dorji, Klein, *et al.* 2017a, 2017b). *Elsewhere:* India; Vietnam (Das & Gupta 1989; Dorji, Klein, *et al.* 2017a, 2017b; Gawas *et al.* 2020; Ghosh *et al.* 2020; Nguyen & Carpenter 2016; Pham & Li 2015; Sora *et al.* 2019).

45. *Polistes (Polistella) rubellus* Guisenleitner, 2006

(Figures 5: G, H, I)

Polistes (Polistella) rubellus Guisenleitner, 2006: 684. Type data: Holotype female, SMNS. Type locality: Yuksom, Sikkim, India.

Materials examined: NBCB-00576, 23.v.17, 1 ♀, Doksum, Trashhi Yangtse, Bhutan (27°26'10.9"N & 91°34'39.2"E, 846 m), Leg.: Phurpa Dorji & Wim Klein; NBCB-00577, 09.vi.17, 1 ♀, Yongkola, Mongar, Bhutan (27°17'40.8"N & 91°09'53.7"E, 1515 m), Leg.: Wim Klein.

Distribution: Bhutan (**new record**): Trashhi Yangtse, Mongar. *Elsewhere:* India; Nepal (Dvořák & Castro 2007; Gawas *et al.* 2020; Ghosh *et al.* 2020; Gusenleitner 2006; Nguyen *et al.* 2011).



FIGURE 5. *Polistes (Polistella) dawnae*: A—dorsal, B—lateral, C—front; *Polistes (Polistella) [cf] japonicus*: D—dorsal, E—lateral, F—front; *Polistes (Polistella) rubellus*: G—dorsal, H—lateral, I—front.

46. *Polistes (Polistella) santoshae* Das & Gupta, 1989

Polistes santoshae Das & Gupta, 1989: 72. Type data: Holotype female, NZC. Type locality: Shillong, Meghalaya, India.

Distribution: Bhutan: Wangduephodrang, Tsirang, Trashigang, Bumthang, Mongar, Gasa (Dorji *et al.* 2016; Dorji, Klein, *et al.* 2017a). *Elsewhere:* India; Nepal; Vietnam (Carpenter 1996; Das & Gupta 1989; Dorji *et al.* 2016; Dorji, Klein, *et al.* 2017a; Gawas *et al.* 2020; Nguyen *et al.* 2011; Pham & Li 2015; Tenzin & Katel 2019).

***Ropalidia* Guérin-Méneville, 1831**

47. *Ropalidia fasciata* (Fabricius, 1804)

Eumenes fasciata Fabricius, 1804: 290. Type data: Syntype males, UZMC. Type locality: “Java” (Indonesia).

Polistes bioculata Fabricius 1804: 278.

Icaria picta de Saussure, 1854: 238.

Icaria intermedia Cameron, 1905: 70.

Ropalidia fasciata van der Vecht, 1959a [1958]: 245.

Distribution: Bhutan: Wangduephodrang, Trongsa, Bumthang (Dorji *et al.* 2016; Dorji, Klein, *et al.* 2017a). *Elsewhere:* China; Japan; Indonesia; Laos; Malaysia; Nepal; Myanmar; Pakistan; Philippines; Sri Lanka; Thailand; Timor; Vietnam (Das & Gupta 1989; Dorji *et al.* 2016; Dorji, Klein, *et al.* 2017a; Gawas *et al.* 2020; Ghosh *et al.* 2020; Kumar, Kundu, *et al.* 2015; Pham & Li 2015; Rafi *et al.* 2017; Sora *et al.* 2019; Tan, van Achterberg & Chen 2014; Tenzin & Katel 2019; Yamane & Yamane 1979).

48. *Ropalidia hongkongensis* (de Saussure, 1854)

(Figures 6: A, B, C)

Icaria hongkongensis de Saussure, 1854: 239. Type data: Female, BMNH. Type locality: “La Chine, HongKong”.

Ropalidia hongkongensis hongkongensis Das & Gupta, 1983: 418.

Ropalidia hongkongensis juncta van der Vecht, 1941: 141.

Materials examined: NBCB-00578, 11.v.2015, 1 ♀, Nganglam, Pema Gatshel, Bhutan (26°46'59.88"N & 91°15'0"E, 133 m), Leg.: Phurpa Dorji, Thinley Gyeltshen & Tshering Nidup.

Distribution: Bhutan (**new record**): Pema Gatshel. *Elsewhere:* China; Indonesia; India; Laos; Myanmar; Vietnam (Barthélémy, Lee & Kojima 2014; Bui, Tran, Bozdođan & Nguyen 2020; Das & Gupta 1989; Gawas *et al.* 2020; Gusenleitner 2011; Kojima *et al.* 2007; Nguyen, Kojima, *et al.* 2006; Pham 2014; Pham & Li 2015; Tan, van Achterberg & Chen 2014).

49. *Ropalidia jacobsoni* (du Buysson)

Icaria jacobsoni du Buysson, 1908: 123. Type data: Lectotype female, RMNH. Type locality: “aux environs de Batavia [=Jakarta]”.

Ropalidia jacobsoni jacobsoni Das and Gupta, 1984: 418.

Ropalidia jacobsoni flavoscutellata Das and Gupta, 1989: 171.

Ropalidia bangalorica Lambert and Narendran, 2005a: 1920.

Distribution: Bhutan: Chhukha, Trashigang (Dorji *et al.* 2016; Dorji, Klein, *et al.* 2017a). *Elsewhere:* India; Myanmar; Indonesia (Das & Gupta 1989; Dorji *et al.* 2016; Dorji, Klein, *et al.* 2017a; Gawas *et al.* 2020; Ghosh *et al.* 2020; Kojima & Carpenter 1997; Kojima *et al.* 2007; Kumar & Sharma 2014a, 2014b, 2015b; Nguyen, Kojima, *et al.* 2006; Pham 2014; Sora *et al.* 2019)

50. *Ropalidia nigrita* Das & Gupta, 1989

(Figures 6: D, E, F)

Ropalidia (Anthreneida) nigrita Das and Gupta, 1989: 130. Type data: Holotype male, NZC. Type locality: Moirang, Manipur, India.

Materials examined: NBCB-00579, 19.vii.15, 1 ♀, Bangtar, Samdrup Jongkhar, Bhutan (27°53'31"N & 91°41'42"E, 258m), Leg.: Tshering Nidup & Phurpa Dorji; NBCB-00580, 15.iv.2016, 1 ♀, Pangbang, Zhemgang, Bhutan (26°50'36.6"N & 90°59'34.7"E, 390 m), Leg.: Thinley Gyeltshen, Phurpa Dorji & Tshering Nidup; NBCB-00581,

27.x.2015, 1 ♀, Bajo Thango, Wangduephodrang, Bhutan (27°30'55"N & 89°53'14"E, 1218 m), Leg.: Phurpa Dorji & Wim Klein; NBCB-00582 & NBCB-00583, 26.x.2015, 2 ♂, Kapatapsa, Wangduephodrang, Bhutan (27°42'39"N & 89°45'54"E, 1476 m), Leg.: Phurpa Dorji & Wim Klein.

Distribution: Bhutan (**new record**): Samdrup Jongkhar, Zhemgang, Wangduephodrang. *Elsewhere:* Nepal; India; Vietnam (Bui *et al.* 2020; Das & Gupta 1989; Gawas *et al.* 2020; Kojima *et al.* 2007; Nguyen, Kojima, *et al.* 2006; Pham 2014; Pham & Li 2015)

Remarks: Specimens of *R. nigrita* were misidentified as *R. artifex* (Dorji, Gyeltshen, *et al.* 2017; Dorji, Klein, *et al.* 2017b). According to Kojima *et al.* (2007), the Indian-subcontinent is devoid of *R. artifex*.



FIGURE 6. *Ropalidia hongkongensis*: A—dorsal, B—lateral, C—front; *Ropalidia nigrita*: D—dorsal, E—lateral, F—front; *Vespa orbata*: G—dorsal, H—lateral, I—front.

51. *Ropalidia ornaticeps* (Cameron, 1900)

Icaria ornaticeps Cameron, 1900: 496. Type data: Female, OUM, BMNH. Type locality: Khasia Hills, Meghalaya, India.
Ropalidia flavopicta ornaticeps van der Vecht, 1962: 49.
Ropalidia ornaticeps Yoshikawa *et al.* 1969: 167.

Distribution: Bhutan: Samdrup Jongkhar, Trashigang (Dorji, Klein, *et al.* 2017a, 2017b). *Elsewhere:* China; Cambodia; India; Malaysia; Myanmar; Thailand; Vietnam (Bui *et al.* 2020; Dorji, Klein, *et al.* 2017a, 2017b; Gawas *et al.* 2020; Ghosh *et al.* 2020; Gusenleitner 2011; Kojima *et al.* 2007; Pham 2014; Sora *et al.* 2019; Tan, van Achterberg & Chen 2014).

52. *Ropalidia rufocollaris* (Cameron, 1900)

Icaria rufocollaris Cameron, 1900: 497. Type data: Holotype female, BMNH. Type locality: Khasia Hills, Meghalaya, India.
Ropalidia rufocollaris atrata van der Vecht, 1941: 139.
Ropalidia (Anthreneida) rufocollaris rufocollaris Das & Gupta, 1989: 125.
Ropalidia sridharani Lambert and Narendran, in Lambert *et al.* 2005: 268–270.

Distribution: Bhutan: Zhemgang, Chhukha, Samdrup Jongkhar, Pema Gatshel (Dorji *et al.* 2016; Dorji, Klein, *et al.* 2017a). *Elsewhere:* China (Tibet); India; Laos; Myanmar; Thailand; Vietnam (Das & Gupta 1989; Dorji *et al.* 2016; Dorji, Klein, *et al.* 2017a; Gawas *et al.* 2020; Ghosh *et al.* 2020; Kojima *et al.* 2007; Kumar & Sharma 2015b; Pham & Li 2015; Sora *et al.* 2019; Tan, van Achterberg & Chen 2014).

53. *Ropalidia rufoplagiata* (Cameron, 1905)

Icaria rufoplagiata Cameron, 1905: 71. Type data: Lectotype female, ZMA. Type locality: “Tjandi near Semarang”.
Ropalidia gravelyi Dover and Rao (1922): 244.
Ropalidia rufoplagiata van der Vecht, 1941: 111, 165.
Ropalidia rufoplagiata var. *gravelyi* van der Vecht (1941): 168.
Ropalidia rufoplagiata nursei van der Vecht, 1941: 167.
Ropalidia rufoplagiata rufoplagiata van der Vecht, 1962: 32.
Ropalidia nursei Richards, 1978: 57.

Distribution: Bhutan: Pema Gatshel, Trashigang, Samdrup Jongkhar (Dorji, Klein, *et al.* 2017a, 2017b). *Elsewhere:* India; Myanmar; Thailand; Malaysia; Indonesia; Timor; Vietnam (Bui *et al.* 2020; Das & Gupta 1989; Dorji, Klein, *et al.* 2017a, 2017b; Gawas *et al.* 2020; Kojima *et al.* 2007; Nguyen, Kojima, *et al.* 2006; Nugroho 2012; Pham 2014; Pham & Li 2015).

54. *Ropalidia santoshae* Das & Gupta, 1989

Ropalidia (Antreneida) santoshae Das & Gupta, 1989: 123. Type data: Holotype male, NZC. Type locality: Shillong, Meghalaya, India.

Distribution: Bhutan: Lhuentse, Trashigang, Zhemgang, Chhukha, Wangduephodrang, Tsirang (Dorji *et al.* 2016; Dorji, Klein, *et al.* 2017a). *Elsewhere:* China (Tibet); India (Das & Gupta 1989; Dorji *et al.* 2016; Dorji, Klein, *et al.* 2017a; Gawas *et al.* 2020; Kojima *et al.* 2007; Tan, van Achterberg & Chen 2014).

55. *Ropalidia stigma* (Smith, 1858)

Polybia stigma Smith, 1858: 114. Type data: Male, OUM. Type locality: Sarawak, Malaysia.
Parapolybia stigma Schulthess, 1913a: 164.

Icaria stigma du Buysson, 1913: 296.
Ropalidia artifex Bequaert, 1918: 247.
Ropalidia stigma stigma van der Vecht, 1941: 110, 126.
Ropalidia stigma rufa van der Vecht, 1941: 130.
Ropalidia stigma nigrolineata van der Vecht, 1962: 18.

Distribution: Bhutan: Lhuentse, Trashigang, Zhemgang, Chhukha, Wangduephodrang, Tsirang (Dorji, Klein, *et al.* 2017a, 2017b). *Elsewhere:* India; Nepal; Myanmar; Sri Lanka; Philippines; Thailand; Malaysia; Vietnam; Indonesia; China; Singapore (Barthélémy *et al.* 2014; Bui *et al.* 2020; Das & Gupta 1989; Dorji, Klein, *et al.* 2017a, 2017b; Gawas *et al.* 2020; Gawas, Kumar, Pannure & Sureshan 2019; Ghosh *et al.* 2020; Gusenleitner 2011; Kojima *et al.* 2007; Kumar & Sharma 2015b; Pham 2014; Pham & Li 2015; Sora *et al.* 2019; Tan, van Achterberg & Chen 2014).

Subfamily: Vespinae

Vespa Linnaeus, 1758

56. *Vespa affinis* (Linnaeus, 1764)

Apis affinis Linnaeus, 1764: 417. Type data: Female, ZMUU. Type locality: “in Calidis regionibus” (Oriental Region).
Vespa affinis Fabricius, 1787: 287.
Vespa unifasciata Olivier, 1792: 677.
Vespa alduini Guérin-Méneville, 1831: 264.
Vespa bimaculata Guérin-Méneville, 1838: 264.
Vespa nigripennis de Saussure, 1854: 156.
Vespa cincta var. *picea* du Buysson, 1905a (1904): 537.
Vespa indosinensis Pérez, 1910: 8.
Vespa formosana Sonan, 1927: 125.
Vespa affinis var. *continentalis* Bequaert, 1936: 350.
Vespa affinis var. *hainanensis* Bequaert, 1936: 349.
Vespa affinis nigriventris van der Vecht, 1957: 29.
Vespa affinis archboldi van der Vecht, 1957: 32.
Vespa affinis rufonigrans van der Vecht, 1957: 29.
Vespa affinis moluccana van der Vecht, 1957: 32.
Vespa affinis alticincta van der Vecht, 1957: 33.

Distribution: Bhutan: Chhukha, Samdrup Jongkhar (Dorji, Gyeltshen, *et al.* 2017; Dorji, Klein, *et al.* 2017a). *Elsewhere:* India; Nepal; Bangladesh; Myanmar; Sri Lanka; China; Thailand; Laos; Cambodia; Vietnam; Malaysia; Singapore (Archer 2012; Daglio 2019; Das & Gupta 1983, 1989; Dorji, Gyeltshen, *et al.* 2017; Dorji, Klein, *et al.* 2017a; Gawas *et al.* 2020; Ghosh *et al.* 2020; Gusenleitner 2006; Kumar, Kundu, *et al.* 2015; Kumar, Mazumdar & Pham 2015; Kumar & Sharma 2014a; Nguyen, Saito, Kojima & Carpenter 2006; Nugroho 2012; Pham & Li 2015; Smith-Pardo *et al.* 2020; Sora *et al.* 2019; van der Vecht 1959).

57. *Vespa analis* Fabricius, 1775

Vespa analis Fabricius, 1775: 363. Type data: BMNH. Type locality: Probably Java.
Vespa crabro sphinx Christ, 1791: 217.
Vespa tyrannica Smith, 1857: 119.
Vespa japonica Smith, 1868: 279.
Vespa japonica Radoszkowski, 1857, and *Vespa japonica* de Saussure, 1858 (= *Vespula flaviceps* (Smith)).
Vespa parallela André, 1884: lxi.
Vespa insularis Dalla Torre, 1894: 147.
Vespa tridentata Cameron, 1903: 278.
Vespa nigrans du Buysson, 1903: 175.
Vespa parallela var. *Biroi* du Buysson, 1905 (1904): 513.

Vespa analis var. *tenebrosa* du Buysson, 1905 (1904): 516.
Vespa analis var. (or subsp.) *barbouri* Bequaert, 1939: 40.
Vespa analis var. (or subsp.) *kuangsiana* Bequaert, 1939: 42.
Vespa analis eisa Yamane, 1987: 631.
Vespa analis nagatomii Yamane, 1987: 632.
Vespa maguanensis Dong, 2001: 82.
Vespa hekouensis Dong and Wang, 2003: 407.

Distribution: Bhutan: Zhemgang, Sarpang (Dorji, Gyeltshen, *et al.* 2017; Dorji, Klein, *et al.* 2017a). *Elsewhere:* India; Nepal; Myanmar; Thailand; Malaysia; Singapore; China; Korea; Japan; Laos; Tenasserim; Russia; Indonesia, Vietnam (Archer 2012; Carpenter & Kojima 1997; Choi & Kwon 2015; Daglio 2019; Das & Gupta 1983, 1989; Dorji, Gyeltshen, *et al.* 2017; Dorji, Klein, *et al.* 2017a; Dubatolov & Dolgikh 2009; Gusenleitner 2006, 2011; Kumar & Srinivasan 2010; Nguyen, Saito, *et al.* 2006; Pham & Li 2015; Rafi *et al.* 2017; Smith-Pardo *et al.* 2020; van der Vecht 1957, 1959; Yamane 1974).

58. *Vespa basalis* Smith, 1852

Vespa basalis Smith, 1852: 46, female, “Nepaul” (London-NHM).
Vespa obliterata Smith, 1852: 47.
Vespa basilis Dover, 1929: 48.

Distribution: Bhutan: Trashigang, Samdrup Jongkhar, Punakha, Trongsa, Bumthang (Dorji, Gyeltshen, *et al.* 2017; Dorji, Klein, *et al.* 2017a). *Elsewhere:* India; Nepal; Pakistan; China; Myanmar; Laos; Malaysia; Indonesia; Thailand; Vietnam; Korea (Archer 1989, 2012; Carpenter & Kojima 1997; Daglio 2019; Das & Gupta 1983, 1989; Dorji, Gyeltshen, *et al.* 2017; Dorji, Klein, *et al.* 2017a; Gawas *et al.* 2020; Ghosh *et al.* 2020; Gusenleitner 2011; Kim, Moon & Yoon 1994; Kumar, Kundu, *et al.* 2015; Kumar & Srinivasan 2010; Nguyen, Saito, *et al.* 2006; Nugroho 2012; Pham & Li 2015; Qasim *et al.* 2018; Rafi *et al.* 2017; Siddiqui *et al.* 2015; Sora *et al.* 2019; Smith-Pardo *et al.* 2020; Tenzin & Katel 2019; van der Vecht 1959, 1979).

59. *Vespa bicolor* Fabricius, 1787

Vespa bicolor Fabricius, 1787: 288. Syntypes, sex not stated; China (COPENHAGEN).
Vespa lutea Coquebert, 1804: 94.
Vespa auraria var. *citriventris* du Buysson, 1905 (1904): 552.

Distribution: Bhutan: Zhemgang, Samdrup Jongkhar, Tsirang (Dorji, Gyeltshen, *et al.* 2017; Dorji, Klein, *et al.* 2017a). *Elsewhere:* India; Nepal; China; Myanmar; Vietnam; Laos; Cambodia; Thailand; Spain; France; Portugal; Belgium; Italy; Germany; the Netherlands; Great Britain (Archer 1989, 1994, 2012; Barthélémy *et al.* 2014; Carpenter & Kojima 1997; Castro 2019; Daglio 2019; Das & Gupta 1983, 1989; Dorji, Gyeltshen, *et al.* 2017; Dorji, Klein, *et al.* 2017a; Gawas *et al.* 2020; Ghosh *et al.* 2020; Gusenleitner 2006, 2011; Kumar & Srinivasan 2010; Nguyen, Saito, *et al.* 2006; Smith-Pardo *et al.* 2020; Sora *et al.* 2019).

60. *Vespa binghami* du Buysson, 1905

Vespa binghami du Buysson, 1905 (1904): 488 (key), 523. Type data: Lectotype female, MNHN. Type locality: Taungoo Hills, Myanmar.
Vespa suprunenkoi Birula, 1925: 92.

Distribution: Bhutan: Trongsa, Bumthang (Tenzin & Katel 2019). *Elsewhere:* India; Myanmar; Thailand; Laos; China; Russia; Korea (Archer 2012; Carpenter & Kojima 1997; Das & Gupta 1989; Gawas *et al.* 2020; Ghosh *et al.* 2020; Kumar & Srinivasan 2010; Sora *et al.* 2019; Smith-Pardo *et al.* 2020; Tenzin & Katel 2019; van der Vecht 1959).

61. *Vespa fumida* van der Vecht, 1959

Vespa variabilis du Buysson, 1905 (1904): 522. Lectotype female (designated by van der Vecht, 1959: 228); China: Mou-pin (PARIS). Nec *Vespa variabilis* Fabricius, 1781.

Vespa variabilis fumida van der Vecht, 1959: 228. Holotype female; India: 'British Bootan', Padong' (PARIS).

Distribution: Bhutan: Mongar (Dorji, Gyeltshen, *et al.* 2017; Dorji, Klein, *et al.* 2017a). *Elsewhere:* Nepal; India; Myanmar; China (Archer 1989, 2012; Carpenter & Kojima 1997; Dorji, Gyeltshen, *et al.* 2017; Dorji, Klein, *et al.* 2017a; Gawas *et al.* 2020; Ghosh *et al.* 2020; Kumar & Srinivasan 2010; Smith-Pardo *et al.* 2020).

62. *Vespa mandarinia* Smith, 1852

Vespa mandarinia Smith, 1852: 38. Holotype female; China: 'Teitung, near Ning-po-foo' (LONDON-NHM).

Vespa magnifica Smith, 1852: 45.

Vespa japonica Radoszkowski (*in* Motschulsky), 1857: 410.

Vespa bellona Smith, 1871: 248.

Vespa magnifica var. *latilineata* Cameron, 1903: 278.

Vespa mandarina; Dalla Torre, 1894: 149.

Vespa magnifica var. *nobilis* Sonan, 1929: 140.

Vespa magnifica sonani Matsumura, 1930: 1.

Distribution: Bhutan: Chhukha, Trongsa, Zhemgang, Mongar, Trashigang (Dorji, Gyeltshen, *et al.* 2017; Dorji, Klein, *et al.* 2017a). *Elsewhere:* India; Nepal; Sri Lanka; China; Japan; Thailand; Myanmar; Laos; Malaysia; Russia; Korea; Pakistan; Vietnam (Archer 1989, 2012; Barthélémy *et al.* 2014; Carpenter & Kojima 1997; Choi & Kwon 2015; Das & Gupta 1983, 1989; Dorji, Gyeltshen, *et al.* 2017; Dorji, Klein, *et al.* 2017a; Dubatolov & Dolgikh 2009; Gawas *et al.* 2020; Ghosh *et al.* 2020; Gusenleitner 2006, 2011; Kim *et al.* 1994; Kumar & Srinivasan 2010; Nguyen, Saito, *et al.* 2006; Pham & Li 2015; Rafi *et al.* 2017; Sora *et al.* 2019; Smith-Pardo *et al.* 2020; Tenzin & Katel 2019; van der Vecht 1959).

63. *Vespa tropica* (Linnaeus, 1758)

Sphex tropica Linnaeus, 1758: 571. Holotype female; 'in Indiis' (UPPSALA).

Vespa cincta Fabricius, 1775: 362.

Vespa crabro tenebrionis Christ, 1791: 216.

Vespa deusta Lepeletier, 1836: 506.

Vespa unicolor Smith, 1863: 44.

Vespa cinta Wroughton, 1889: 35.

Vespa eulemoides du Buysson, 1905 (1904): 530.

Vespa affinis var. *tresignata* Pérez, 1910: 8.

Vespa rubricans Pérez, 1910: 10.

Vespa tropica var. *anthracina* Bequaert, 1936: 341.

Vespa tropica var. *haematodes* Bequaert, 1936: 338.

Vespa tropica leefmansi van der Vecht, 1957: 19.

Vespa tropica trimeres van der Vecht, 1957: 19.

Vespa tropica cebuana Kojima and Reyes, 1984: 260.

Distribution: Bhutan: Trashigang, Samdrup Jongkhar, Chhukha, Tsirang (Dorji, Gyeltshen, *et al.* 2017; Dorji, Klein, *et al.* 2017a). *Elsewhere:* Afghanistan; India; Myanmar; Thailand; Vietnam; Laos; Cambodia; Malaysia; Singapore; Brunei; Philippines; Indonesia; China; Nepal; Pakistan; Sri Lanka (Archer 1989, 2012; Das & Gupta 1983, 1989; Dorji, Gyeltshen, *et al.* 2017; Dorji, Klein, *et al.* 2017a; Gawas *et al.* 2020; Gawas *et al.* 2019; Ghosh *et al.* 2020; Gusenleitner 2006, 2011; Kumar & Sharma 2014a, 2015b; Nguyen, Saito, *et al.* 2006; Nugroho *et al.* 2011; Qasim *et al.* 2018; Rafi *et al.* 2017; Rauf *et al.* 2018; Sora *et al.* 2019; Smith-Pardo *et al.* 2020; van der Vecht 1959).

64. *Vespa velutina* Lepeletier, 1836

Vespa velutina Lepeletier, 1836: 507. Type data: Female, MNHN. Type locality: Java, Indonesia.

Vespa auraria Smith, 1852a: 46.

Vespa crabro var. *immaculata* Morawitz, 1889: 161.

Vespa fruhstorferi Stadelmann, 1894: 89.

Vespa velutina var. *ardens* du Buysson, 1905 (1904): 550.

Vespa auraria var. *nigrithorax* du Buysson, 1905 (1904): 553.

Vespa velutina var. *celebensis* Pérez, 1910: 12.

Vespa velutina var. *megei* Pérez, 1910: 13.

Vespa mongolica var. *divergens* Pérez, 1910: 16.

Vespa flavitarsus Sonan, 1929: 137 & 142.

Vespa auraria flavitarsis Ma, 1937: 31.

Vespa velutina sumbana van der Vecht, 1957: 40.

Vespa velutina variana van der Vecht, 1957: 37.

Vespa velutina karnyi van der Vecht, 1957: 38.

Vespa velutina timorensis van der Vecht, 1957: 40.

Vespa velutina floresiana van der Vecht, 1957: 40.

Vespa velutina pruthii van der Vecht, 1959: 228.

Distribution: Bhutan: Trashigang, Tsirang, Thimphu, Wangduephodrang, Mongar (Tenzin & Katel 2019). *Elsewhere:* Afghanistan; Pakistan; India; Nepal; China; Myanmar; Thailand; Laos; Korea; Vietnam; Malaysia; Indonesia; Japan; Belgium; France; Spain; Portugal; United Kingdom; Italy; Yemen (Archer 1989, 2012; Barthélémy *et al.* 2014; Carpenter & Kojima 1997; Choi & Kwon 2015; Das & Gupta 1983, 1989; Gawas *et al.* 2020; Ghosh *et al.* 2020; Gusenleitner 2011; Husemann, Sterr, Maack & Abraham 2020; Kim, Choi & Moon 2006; Kumar, Mazumdar, *et al.* 2015; Mahmood *et al.* 2012; Nguyen, Saito, *et al.* 2006; Nugroho *et al.* 2011; Pham & Li 2015; Porporato, Manino, Laurino & Demichelis 2014; Qasim *et al.* 2018; Rafi *et al.* 2017; Rauf *et al.* 2018; Sora *et al.* 2019; Smith-Pardo *et al.* 2020; Tenzin & Katel 2019; Ueno 2014).

65. *Vespa vivax* Smith, 1870

Vespa vivax Smith (*in* Horne and Smith), 1870: 190. Holotype female; India: Binsar, 'Binsur, Kumaon' (London-NHM).

Vespa velutina var. *mediozonalis* Pérez, 1910: 14.

Vespa wilemani Meade-Waldo, 1911: 104.

Distribution: Bhutan: Haa, Bumthang (Dorji, Gyeltshen, *et al.* 2017; Dorji, Klein, *et al.* 2017a, 2017b). *Elsewhere:* India; Nepal; Myanmar; Thailand; China (Archer 1989, 2012; Carpenter & Kojima 1997; Das & Gupta 1983, 1989; Dorji, Gyeltshen, *et al.* 2017; Dorji, Klein, *et al.* 2017a, 2017b; Gusenleitner 2006; Kumar & Srinivasan 2010; Smith-Pardo *et al.* 2020; Tenzin & Katel 2019; van der Vecht 1959).

Provespa Ashmead, 1903

66. *Provespa barthelemyi* (du Buysson, 1905)

Vespa barthelemyi du Buysson, 1905 (1904): 492, 618. Type data: Lectotype female, MNHN. Type locality: Phnom Penh, Cambodia.

Provespa barthelemyi van der Vecht, 1936: 165.

Distribution: Bhutan: Trashigang, Tsirang (Dorji, Gyeltshen, *et al.* 2017; Dorji, Klein, *et al.* 2017a). *Elsewhere:* India; Myanmar; Thailand; Laos; Cambodia; Malaysia; Vietnam; China; Bangladesh (Archer 2000, 2012; Carpenter & Kojima 1997; Das & Gupta 1983, 1989; Dorji, Gyeltshen, *et al.* 2017; Dorji, Klein, *et al.* 2017a; Ghosh *et al.* 2020; Gusenleitner 2006; Madl 2012; Mahmood *et al.* 2012; Nguyen & Kojima 2013; Nugroho 2012; Pham & Li 2015; Sora *et al.* 2019; van der Vecht 1957, 1959).

Dolichovespula Rohwer, 1916

67. *Dolichovespula lama* (du Buysson, 1903)

Vespa lama du Buysson, 1903: 175. Type data: Holotype female, MNHN. Type locality: Sikkim, India.
Dolichovespula nyalamensis Lee, 1986: 197

Distribution: Bhutan: Bumthang, Wangduephodrang, Mongar (Dorji, Klein, *et al.* 2017a, 2017b). *Elsewhere:* India; Nepal; China (Archer 1989, 1999, 2006, 2012; Carpenter & Kojima 1997; Daglio 2019; Das & Gupta 1983, 1989; Dorji, Klein, *et al.* 2017a, 2017b).

68. *Dolichovespula xanthicincta* Archer, 1981

Dolichovespula pacifica xanthicincta Archer, 1981 (1980), Entomon 5 (4): 341, 343, female [male = female]—"CHINA-TIBET BORDER, near Tang Gu, 4,300 m" (Washington); also, from Xizang; Myanmar.

Distribution: Bhutan (Archer 1999). *Elsewhere:* Myanmar, China (Archer 1999, 2006, 2012; Daglio 2019).

Vespula Thomson, 1869

69. *Vespula flaviceps* Smith, 1870

Vespa japonica de Saussure, 1858: 261. Type data: Female, MHNG. Type locality: "Japon".
Vespa flaviceps Smith, 1870: 174, 191.
Vespa "*Lewisii*", Sauss; Cameron, 1903c: 280.
Vespa saussurei Schulz, 1906: 231.
Vespa karenkona Sonan, 1929: 137 (key), 148.
Vespa 4-maculata Sonan, 1929: 137 (key), 148.
Vespa vulgaris var. *flavior* Stolfa, 1934: 49
Vespula japonica pionganensis Giordani Soika, 1976: 287, 290.
Vespula gracilia Lee, 1986b: 201, 203, 206.

Distribution: Bhutan: Trashigang (Dorji, Klein, *et al.* 2017a, 2017b). *Elsewhere:* India; Pakistan; Nepal; Myanmar; Thailand; Laos; Vietnam; Malaysia; China; Russia; Korea; Japan (Archer 1989, 2012; Barthélémy *et al.* 2014; Carpenter & Kojima 1997; Choi & Kwon 2015; Daglio 2019; Das & Gupta 1983, 1989; Dorji, Klein, *et al.* 2017a, 2017b; Dvořák 2007; Gawas *et al.* 2020; Ghosh *et al.* 2020; Gusenleitner 2011; Kumar & Carpenter 2018; Mahmood *et al.* 2012; Nguyen, Vu, Daglio & Wiśniowski 2019; Rafi *et al.* 2017; Sora *et al.* 2019; Starr 1992).

70. *Vespula nursei* Archer, 1981

Vespula nursei Archer, 1981b: 54, 57. Type data: Holotype female, BMNH. Type locality: Kashmir, India.

Distribution: Bhutan: Wangduephodrang, Thimphu, Bumthang (Dorji, Klein, *et al.* 2017a, 2017b). *Elsewhere:* India; Pakistan; China; Philippines (Archer 1989, 2012; Carpenter & Kojima 1997; Daglio 2019; Das & Gupta 1983, 1989; Dorji, Klein, *et al.* 2017a, 2017b; Gawas *et al.* 2020; Kumar & Carpenter 2018; Mahmood *et al.* 2012; Rafi *et al.* 2017).

71. *Vespula orbata* du Buysson, (1902)

(Figures 6: G, H, I)

Vespa orbata du Buysson, 1902: 140. Type data: Lectotype female, MNHN. Type locality: Darjeeling, West Bengal, India.

Vespa minuta Dover, 1925: 304. Type data: Holotype female, BMNH. Type locality: “Tenasserim”, Myanmar.
Vespula nujiangensis Dong and Wang, 2004: 146.

Materials examined: NBCB-00584, 15.x.18, 1 ♀, Menchuna, Wangduephodrang, Bhutan (27°30'50.82"N & 89°46'09.99"E, 2274 m), Leg.: Tshewang Lhendup & Phurpa Dorji; NBCB-00585, 20.viii.2016, 1 ♀, Kanglung, Trashigang, Bhutan (27°17'13.99"N & 91°31'18.01"E, 1823 m), Leg.: Phurpa Dorji & Wim Klein; NBCB-00586, 28.x.18, 1 ♀, Pasakha, Chhukha, Bhutan (26°50'05.21"N & 89°27'40.47"E, 324 m), Leg.: Tshering Nidup & Phurpa Dorji; NBCB-00587, 15.x.2016, 1 ♀, Kanglung, Trashigang, Bhutan (27°16'08.14"N & 91°30'05.65"E, 2097 m), Leg.: Phurpa Dorji & Tshering Nidup; NBCB-00500, 1 ♀, Trashy Yangtse, Bhutan (27°36'32.4"N & 91°29'46.3"E, 1746 m), Leg.: Phurpa Dorji & Wim Klein.

Distribution: Bhutan (**New record**): Wangduephodrang, Trashigang, Chhukha, Trashy Yangtse. *Elsewhere*: India; Nepal; Myanmar; Laos; Thailand; Vietnam; China (Archer 1989, 2012; Carpenter & Kojima 1997; Daglio 2019; Das & Gupta 1989; Gawas *et al.* 2020; Ghosh *et al.* 2020; Kumar & Carpenter 2018; Nguyen & Kojima 2013; Nguyen, Vu, *et al.* 2019; Pham & Li 2015; Sora *et al.* 2019).

72. *Vespa structor* (Smith, 1870)

Vespa structor Smith, 1870: 191. Type data: Female, BMNH. Type locality: Binsar, Uttarakhand, India.

Vespa orbata var. *aurulenta* du Buysson, 1905 (1904): 579.

Vespa structrix Schulz, 1906: 231.

Vespula gongshanensis Dong, 2005: 65.

Distribution: Bhutan: Wangduephodrang, Haa, Bumthang (Dorji, Klein, *et al.* 2017a, 2017b). *Elsewhere*: India; Nepal; Myanmar; China; Thailand; Laos (Archer 1989, 2012; Carpenter & Kojima 1997; Daglio 2019; Das & Gupta 1983, 1989; Dorji, Klein, *et al.* 2017a, 2017b; Gawas *et al.* 2020; Ghosh *et al.* 2020; Gusenleitner 2011; Kumar & Carpenter 2018; Sora *et al.* 2019; Tan, Tan, Zhang, Tian & Jian 2018).

73. *Vespa vulgaris* (Linnaeus, 1758)

Vespa vulgaris Linnaeus, 1758: 572. Type data: Lectotype female, LSL. Type locality: “in Europa”.

Vespa sexcincta Panzer, 1799: 1.

Vespa vulgaris var. *pseudogermanica* Stofa, 1932: 26.

Vespa mixta “Schenck” Edwards, 1980: 363.

Vespula rufosignata Eck, 1998: 299.

Vespula vulgaris vetus Eck, 1999: 309, 329.

Vespula yunlongensis Dong and Wang, 2003: 212.

Distribution: Bhutan: Wangduephodrang, Haa, Trongsa (Dorji, Klein, *et al.* 2017a, 2017b). *Elsewhere*: Albania; Argentina; Australia; Austria; Azerbaijan; Belarus; Belgium; Bosnia & Herzegovina; Bulgaria; Chile; China; Croatia; Czech Republic; Denmark; Estonia; Finland; France; Georgia; Germany; Greece; Hungary; Iceland; Iran; Ireland; Israel; Italy; Japan; Kazakhstan; Korea; Kyrgyzstan; Latvia; Liechtenstein; Lithuania; Luxemburg, Macedonia; Mexico; Moldova; Mongolia; Netherlands; New Zealand; Norway; Pakistan; Poland; Portugal; Romania; Russia; Serbia; Slovakia; Slovenia; South Africa; Spain; Sweden; Switzerland; Syria; Tahiti; Turkey; U.K.; Ukraine (Archer 1989, 2012; Carpenter & Kojima 1997; Das & Gupta 1989; Dorji, Klein, *et al.* 2017a, 2017b; Dubatolov & Dolgikh 2009; Dvořák & Castro 2007; Fateryga 2018; Gawas *et al.* 2020; Kumar & Carpenter 2018; Rafi *et al.* 2017; Rauf *et al.* 2018; Yildirim 2012).

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