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## **Spider Wasps**

**(Hymenoptera: Vespoidea: Pompilidae: Pompilinae)  
of Jaldapara Wildlife Sanctuary, West Bengal, India**

**Second contribution**

**Samrat BHATTACHARJEE, Sumana SAHA, Dinendra RAYCHAUDHURI & Raymond WAHIS**

### **Abstract**

Five pompilid wasps of the subfamily Pompilinae are recorded for the first time from Jaldapara Wildlife Sanctuary, West Bengal, India. Descriptions of the recorded species with suitable illustrations and their distributions are given. All the species are newly reported from the state of West Bengal.

Key words: Pompilidae, Pompilinae, *Batozonellus*, *Anoplius*, *Tachypompilus*, Jaldapara Wildlife Sanctuary.

### **Introduction**

BHATTACHARJEE et. al. (2011) while dealing with 7 pepsine wasps of Jaldapara Wildlife Sanctuary, West Bengal candidly indicated the poor state of knowledge on the Indian Pompilidae. They (op. cit.) could cite the works of BINGHAM (1897), WAHIS (1992,

1999, 2003, 2006) and GUPTA (1995, 1997) only which is why those were once again described and illustrated confirming their present taxonomic status. Beside describing and illustrating the species, a new combination *Leptodialepis zelotypus* was proposed for *Salius zelotypus* BINGHAM.

Now we are providing the detail taxonomy of the 5 pompilid species namely *Anoplius (Arachnophroctonus) beatus* (CAMERON), *Anoplius (Orientanoplius) canifrons* (SMITH), *Batozonellus annulatus* (FABRICIUS), *Batozonellus maculifrons braccatus* (BINGHAM) and *Tachypompilus analis* (FABRICIUS). For details on the literatures referred, study area, materials and methods and abbreviations used see DAY (1974), WAHIS (1992) and BHATTACHARJEE et. al. (2011).

### Zusammenfassung

Fünf Pompiliden-Arten der Subfamilie Pompilinae werden zum erstmalig vom Jaldapara Wildlife Sanctuary, West Bengalalen, Indien, festgestellt. Beschreibungen der festgestellten Arten mit entsprechenden Abbildungen sowie Angaben zur Verbreitung werden mitgeteilt. Die genannten Arten wurden kürzlich aus dem State West Bengal gemeldet.

Während der Bearbeitung der 7 Pepsinen Arten von Wildlife Sanctuary, West Bengal BHATTACHARJEE et. al. (2011) zeigte sich deutlich die schlechte Kenntnis der Indischen Pompiliden. Im obigen Zitat werden folgende Arbeiten genannt BINGHAM (1897), WAHIS (1992, 1999, 2003, 2006) und GUPTA (1995, 1997). Durch Redeskription und Neuabbildung ist ihr jetziger taxonomischer Status fixiert. Neben Beschreibungen und Abbildungen wird die neue Kombination *Leptodialepis zelotypus* für *Salius zelotypus* BINGHAM vorgeschlagen.

Weiters bringen wir die detaillierte Taxonomie von folgenden Pompilinae-Arten: *Anoplius (Arachnophroctonus) beatus* (CAMERON), *Anoplius (Orientanoplius) canifrons* (SMITH), *Batozonellus annulatus* (FABRICIUS), *Batozonellus maculifrons braccatus* (BINGHAM) und *Tachypompilus analis* (FABRICIUS). Für Details in der verwendeten Literatur, Untersuchungsgebiet, Material und Methoden und verwendeten Abkürzungen siehe DAY (1974), WAHIS (1992) and BHATTACHARJEE et. al. (2011).

### Taxonomy

#### **Subfamily: P o m p i l i n a e LATREILLE 1805**

Apical spines of hind tibia of equal length, irregularly spaced and more or less splayed out (Fig. 4E); sternum 2 in female without a sharp transverse groove, though sometimes with a shallow, broad, transverse impression; mid and hind femora with 1 or several subapical small spines or spine pits; dorsal inner surface of hind coxa distinctly raised or somewhat lamellate; hind tibia in female dorsally without a row of scale like teeth nor a serrate carina.

## **Genus *Anoplius* DUFOUR 1834**

*Anoplius* DUFOUR 1834 - Ann. Soc. Ent. Fr. 2: 483.

**D i a g n o s i s** (♀): Frons not distinctly tuberculate just above bases of antennae on midline; propodeum without a well defined large concave posterior face or teeth on side; antennae slender, 3<sup>rd</sup> segment more than 3.2 x as long as wide, and flagellar segments without an outer flattened sensory side; orbicular large, more than 0.5 x as wide as tarsomere 5, its pecten consisting of subparallel strong setae, those shorter than orbicular or at least not notably longer; tergum 6 with dense stiff bristles; metasoma stout, more than 1.2 x as broad as mesosoma.

**Type species:** *Sphex fusca* LINNAEUS 1761, by subsequent designation (LATREILLE 1803: 158).

**D i s t r i b u t i o n** : Widely distributed, found in all zoogeographical regions.

### ***Anoplius (Arachnoproctonus) beatus* (CAMERON) (Figs 1A-E)**

*Pompilus beatus* CAMERON 1891 - Mem. Proc. Manchester Literary Phil. Soc. 4: 457, 473.

*Pompilus beatus* CAMERON 1897 - Bingham Fauna Brit. India: 164.

*Anoplius (Arachnoproctonus) beatus* (CAMERON) - WAHIS 2006 Notes fauniques de Gembloux 59 (1): 37-45

**D e s c r i p t i o n** (♀): TL: 11; WL: 8/6; UID: MID: LID: 13: 19: 17. Black, shining, with abdominal segment 1 excepting base, segment 2 and basal 2/3<sup>rd</sup> of abdomen orangish; body finely striate all over; head somewhat triangular with a very few scattered hairs; frons medially slightly convex with an inconspicuous groove running down to the antennal bases; vertex slightly raised at the ocellar area, ocelli in triangle, distance between posterior ocelli more than the distance between anteroposterior ocelli; antennae downwardly placed just above the clypeus, scape and pedicel striate, flagellar segment 3:4= 12:5, 3<sup>rd</sup> segment 4 x its width; eyes convex, slightly convergent above; clypeus broad, rectangular, sides oblique, apical margin medially slightly incurved, posteriorly sloped, surface with adpressed pubescence; labrum medially notched with stiff brown hairs; mandibles long, crossing each other, surface strongly grooved, margin with 2 strong teeth; malar space reduced; tempora about ½ width of eye; thorax somewhat elongate, swollen; pronotum transverse, nearly straight, anterolateral angles obtusely round; mesoscutum subquadrate, posterior half raised; mesoscutellum broad, V shaped, narrowing posteriorly; metanotum transverse, weakly arched; propodeum broad, gibbous, gradually sloped posteriorly; metasoma elongate, parallel sided, convergent apically; wings fuscous brown, clothed with small hairs, with 3 submarginal cells, 2<sup>nd</sup> and 3<sup>rd</sup> receive 1 recurrent nervure each in the middle; apex of discoidal cell acute; fore leg with 1 pectinate spur, mid and hind legs with 2 unequal spurs; claws simple, with a small tooth near the middle.

**M a t e r i a l e x a m i n e d** : 1♀, 24.iv.02, Sissamara; Jalpaiguri; West Bengal; India; coll. Sumana Saha.

**D i s t r i b u t i o n** : India (Assam, Karnataka, Meghalaya, West Bengal), China, Indonesia, Malaysia, Myanmar, Philippines, Taiwan, Vietnam (BINGHAM 1897; WAHIS 2006).

***Anoplius (Orientanoplius) canifrons* (SMITH) (Figs 2A-D)**

*Pompilus canifrons* SMITH 1855 - Cat. hym. ins. coll. Brit. Mus. Part III. Lond.:146.

*Anoplius (Orientanoplius) canifrons* (SMITH) – DAY 1974, Bull. Brit. Mus. (Nat. Hist.) Ent. Lond.: 382-387.

**Description** (♀): TL: 12; WL: 12/7; UID: MID: LID: 23: 50: 47. Black, the labrum and mandibles brown black; body covered with sparse white brown pubescence; head round, micropunctate, shallowly convex; frons squarish with an inconspicuous medially impressed line running down from anterior ocellus to between antennae; vertex comparatively narrow, slightly convex, ocellar area slightly raised, ocelli in triangle, distance between posterior ocelli more than distance between anteroposterior ocelli; temple broadly convergent behind the eyes; antennae somewhat downwardly placed just above clypeus, flagellar segment 3:4= 37:31, 3<sup>rd</sup> segment 7.5 x as long as wide; eyes slightly convergent anteriorly, medially slightly emarginate; clypeus broad, convex, apical margin slightly incurved, basal margin medially outwardly produced, sides bent inwardly; labrum brown black, apical margin notched; mandibles long, narrow, with a basal tooth; malar space reduced; tempora about ½ width of eye; thorax elongate, convex, laterally compressed; pronotum broad, anteriorly sloping, apical margin roofed, surface with whitish cinerous pubescence; mesoscutum subquadrate, parapsidal sutures extending more or less upto middle, lateral margins oblique, reflexed; tegula convex, laterally slightly expanded; mesoscutellum V shaped, medially raised, elongate; metanotum narrow in the middle, broad laterally, medially tuberculate; propodeum broad, quadrate, gibbous, apical and lateral margins slightly reflexed and laminate; propodeal orifice round; metasoma elongate, slightly longer than mesosoma, sides parallel; segments 2-4 with basal band of cinerous white pubescence, apical segment with long hairs; basal segment shallowly sloping towards propodeum; tibia and tarsi spinose; fore leg with 1 broad, flattened, pectinate spur, mid and hind legs with 2 pectinate unequal spurs; claws simple, with a small medial tooth; wings dark, fuscous with coppery effulgence, with 3 submarginal cells, 2<sup>nd</sup> one receiving 1<sup>st</sup> recurrent nerve near end of base whereas 3<sup>rd</sup> one receives 2<sup>nd</sup> recurrent nerve slightly beyond middle of base; apex of discoidal cell acute; stigma and nervures black.

**Material Examined**: 1♀, 26.iii.02, Jaldapara; 1♀, 28.iv.02, Dhaidhaighat; Jalpaiguri; West Bengal; India; coll. Samrat Bhattacharjee.

**Distribution**: Widely distributed throughout forests of Oriental region and Indonesia, extending into Queensland, Australia (DAY 1974).

**Genus *Batozonellus* ARNOLD 1937**

**Diagnosis** (♀): Pronotum usually shorter than mesoscutum along midline; supra antennal area of frons not produced anteriorly into a 'frontal ledge', at most tuberculate on midline; clypeus more or less convex; metapostnotum more or less developed, not completely concealed dorsally, arcuately broadened on each side of midline and constricted at propodeal spiracle; antennal scape not flattened; vertex posterior to ocelli not raised; fore wing with 3 submarginal cells; propodeum shallowly irregularly punctate; inner margin of eyes strongly convergent above and divergent below; fore tarsal claws bifid; tergum I covered with dense adpressed squamiform pubescence.

Type species: *Pompilus fuliginosus* KLUG 1834

Distribution: China, Ethiopian (Africa, Madagascar), Japan, Oriental (India), North Africa, Middle East, South Europe (Mediterranean Area).

***Batozonellus annulatus* (FABRICIUS) (Figs 3A-D)**

*Ichneumon annulatus* FABRICIUS 1793 - Ent. Syst. II: 179.

*Pompilus exortivus* SMITH 1873 - Trans. Soc. Lond.: 188.

Description (♀): TL: 22; WL: 17/10; UID: MID: LID: 40:65:70. Black, the head except the labrum and mandibles at apex, the pronotum except an anterior median spot, mesoscutum except the basal margin and 2 lateral bands, mesoscutellum except its basal margin narrowly, metanotum excepting the sides brownish yellow, legs except the coxae, trochanter, base of femur and tarsal segments chocolate brown, abdomen with some oval spots on basal segment. A yellow transverse band at base of 2<sup>nd</sup> segment and the apex of apical 2 segments yellowish; pubescence golden yellow; head round, somewhat elongate, surface micropunctate and with small scattered punctures, beset with short black hairs, surface with reddish, plumose pubescence; frons broad, convex, area around antennae shallow, transversely striate, interantennal area raised, an inconspicuous line from anterior ocellus to between the antennae; vertex convex, transverse, with brownish hairs, ocelli somewhat anteriorly placed, anterior ocellus within a shallow depression, clearly visible from front, ocellar area not raised, ocelli in triangle, distance between posterior ocelli greater than distance between anteroposterior ocelli; eyes convex, convergent anteriorly; antennae downwardly placed, flagellar segments 3:4= 60:40, 3<sup>rd</sup> segment 3 x as long as wide; clypeus broad, convex, basolateral margin outwardly produced, middle of basal segment slightly curved outwards; labrum convex, somewhat inverted triangular shaped, surface with stiff hairs, apical margin arcuate; mandibles long, crossing each other, surface strongly carinate with stiff hairs, margin with 3 teeth; malar area very small, eye width 2.1 x temporal width; thorax long, swollen, midlongitudinally sulcate, submedially lobular; pronotum anteriorly sloping with long black hairs, apical margin round; mesoscutum subquadrate, lateral margins reflexed; tegula convex, apical margin round; mesoscutellum V shaped, medially swollen, lateral margin lamellate; metanotum medially narrow, laterally broad; propodeum quadrate, swollen, with long hairs, apically strongly margined; propodeal orifice round; metasoma about as long as mesosoma, convex, sides parallel, studded with silky white pubescence; wings fulvous, with apical margin fuscous, densely studded with golden pubescence, with 3 submarginal cells, 2<sup>nd</sup> one receives 1<sup>st</sup> recurrent nervure much beyond middle of base whereas 3<sup>rd</sup> one receives 2<sup>nd</sup> recurrent nervure a little beyond middle of base; apex of discoidal cell acute; stigma and nervures brown; fore leg with 1 spur, mid and hind legs with 2 equal pectinate spurs; claws simple, with a small tooth in the middle.

Material examined: 1♀, 28.iv.02, Dhaidhaighat; 1♀, 07.vi.02, Siltorsa; Jalpaiguri; West Bengal; India; coll. Dinendra Raychaudhuri.

Distribution: China, India (West Bengal), Japan, Myanmar (BINGHAM 1897).

***Batozonellus maculifrons braccatus* (BINGHAM) (Figs 4A-E)**

*Pompilus braccatus* BINGHAM 1890 -J. Bomb. Nat. Hist. Soc. 5: 236.

*Pompilus braccatus* BINGHAM 1897 - Fauna Brit. India: 164.

**D e s c r i p t i o n** (♀): TL: 13; WL: 14/6; UID: MID: LID: 22:31:34. Black, the head except a mark descending from ocellar area to above the antennal base, the antennae except the apical flagellar 4<sup>th</sup> segment onwards, apical margin of clypeus, labrum except a spot in the middle, a broad median mark on the mesoscutum and oval spot on mesoscutellum, the legs except coxa, trochanter, base of femur, metatarsus yellowish brown; head round, micropunctate with some black scattered hairs; frons broad with a midlongitudinal line descending down from anterior ocellus to base of antennae; vertex small, ocellar area weakly raised, ocelli in triangle, distance between posterior ocelli more than distance between anteroposterior ocelli; eyes slightly convergent above; antennae well separate, pubescent, downwardly placed, flagellar segment 3:4= 20:19, 3<sup>rd</sup> segment 5 x as long as wide; clypeus broad, convex, rectangular, sides broadly round, laminate, anteriorly sinuate at the middle, posteriorly little produced at the angles, medially too; labrum round, with long stiff hairs; mandibles long, crossing each other with some long tawny hairs and a single tooth; malar space very much reduced; tempora 2 x width of eye; thorax micropunctate; pronotum arched, anteriorly straight, with angles broadly round, medially with a faint longitudinal black band, 2 oblique such bands extending from the middle to the lateral margin; mesoscutum subquadrate, posteriorly narrowing, laterally raised, laminate; mesoscutellum V shaped, laterally compressed; metanotum narrow, strongly arched; propodeum broad, little narrow posteriorly, medially deeply grooved, gradually sloped, thickly pilose with few long stiff, lateral hairs; metasoma narrowed at ends, black with metallic blue pubescence, apical 2 segments brownish yellow; wings fuscous with a bluish purple effulgence visible in certain lights, fore wing apically infuscated; with 3 submarginal cells, 2<sup>nd</sup> and 3<sup>rd</sup> receiving 1 recurrent nervure each beyond middle of base; apex of discoidal cell acute; fore leg with 1 pectinate tibial spur, mid and hind legs with 2 unequal simple spurs; claws simple, with single tooth a little beyond the middle.

**M a t e r i a l e x a m i n e d** : 1♀, 26.vi.03, Mantharam, Jalpaiguri; West Bengal; India. coll. Samrat Bhattacharjee

**D i s t r i b u t i o n** : India (Sikkim, West Bengal), Myanmar (BINGHAM 1897).

**Genus *Tachypompilus* ASHMEAD 1902**

**D i a g n o s i s** (♀): Malar space, if present, shorter than half the antennal pedicel, labrum atleast partly concealed beneath clypeus, frons distinctly tuberculate above bases of antennae; pronotum usually shorter than mesoscutum along midline, metapostnotum transverse with parallel sides; posterior face of propodeum without dense, upright, felt-like pubescence, with a concavity with sides toothed or humped above and below.

**T y p e S p e c i e s** : *Pompilus ferrugineus* SAY, by original designation.

***Tachypompilus analis* (FABRICIUS - BINGHAM 1897) (Figs 5A-D)**

*Sphex analis* FABRICIUS 1871 - Ent. Syst. ii: 209.

*Pompilus analis* (FABRICIUS - BINGHAM 1897) - 1897. Faun. Brit. India: 150.

*Salius pavianus* SAUSSURE 1904 - 199-200 (syn. by WAHIS 2006).

*Tachypompilus analis* (FABRICIUS) - WAHIS 2006, Notes fauniques de Gembloux **59** (1): 44.

**Description** (♀): TL: 16; WL: 11.5/ 8.5; UID: MID: LID: 33:42:41. Black, with blue metallic reflection in certain light, metasomal segments III-VI and sting orange; body with fine silvery, shining pubescence, hairs sparse, scattered, specially on sides of head, mesoscutum and apical metasomal segments; head somewhat transversely round, frons broad, elongate; vertex narrow, ocellar area slightly raised, distance between posterior ocelli more than distance between anteroposterior ocelli; eyes slightly convergent above; antennae close, placed just above the clypeal margin, flagellar segment 3:4=21:19, 3<sup>rd</sup> segment about 4 x its width; clypeus convex, apical margin slightly reflexed; labrum concealed beneath clypeus; mandibles elongate, crossing each other; malar space reduced; tempora broad, about 1/5<sup>th</sup> diameter of eye; thorax elongate, pronotum broad, rather swollen; mesoscutum subquadrate, mesoscutellum medially triangularly raised; metanotum narrow, band-like curved; propodeum apically roundly excavate; metasoma elongate, convex; wings transparent with 3 submarginal cells, 2<sup>nd</sup> one receiving 1<sup>st</sup> recurrent nervure beyond middle of base while 3<sup>rd</sup> one receives 2<sup>nd</sup> in the middle of base, apex of discoidal cell acute; fore leg with 1 pectinate spur, mid leg without any spur while hind leg with 2 unequal pectinate spurs, claw simple, basally toothed.

**Material examined**: 1♀, 26.iv.02, Jaldapara, Jalpaiguri; West Bengal; India. coll. Samrat Bhattacharjee.

**Distribution**: Cambodia (SAUSSURE et al. 1904), India, Sri Lanka, Myanmar (BINGHAM 1897).

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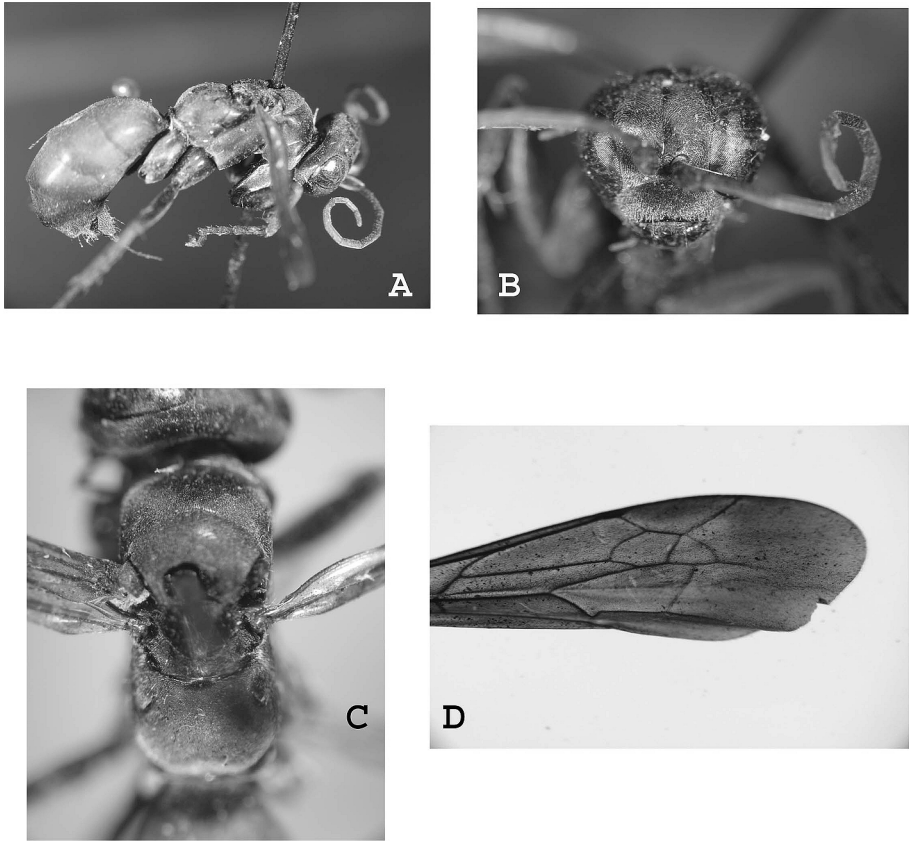
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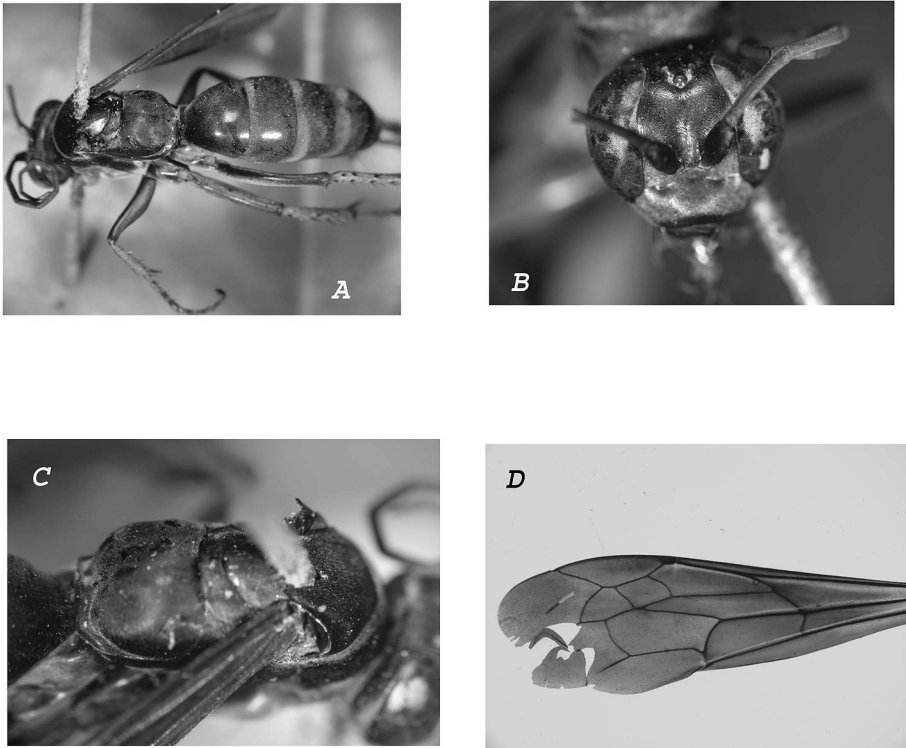
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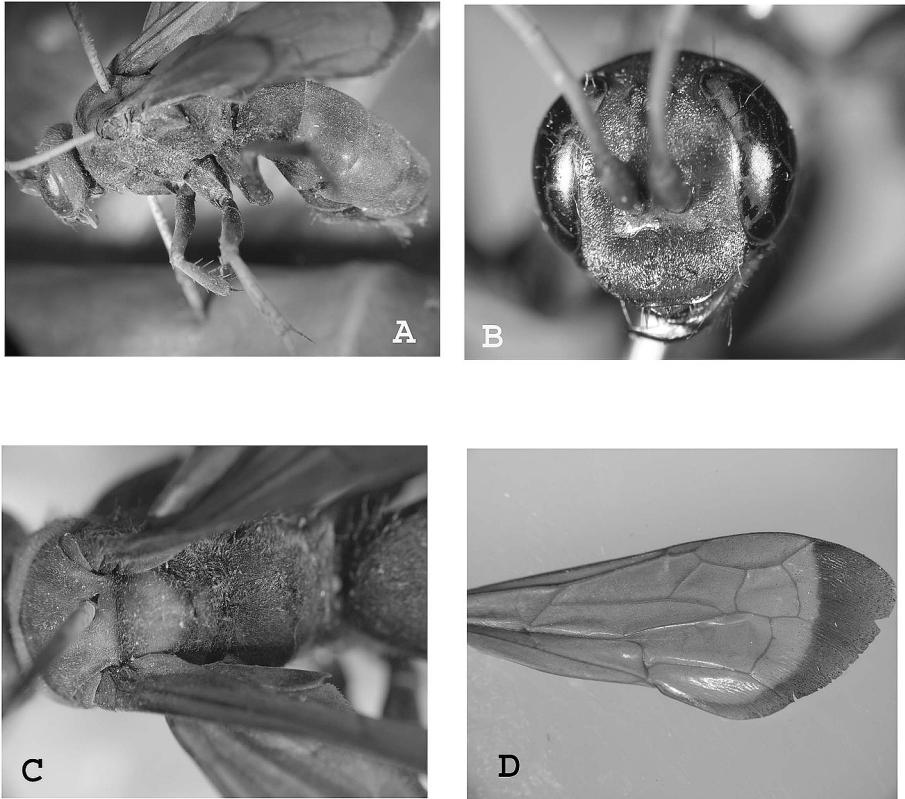
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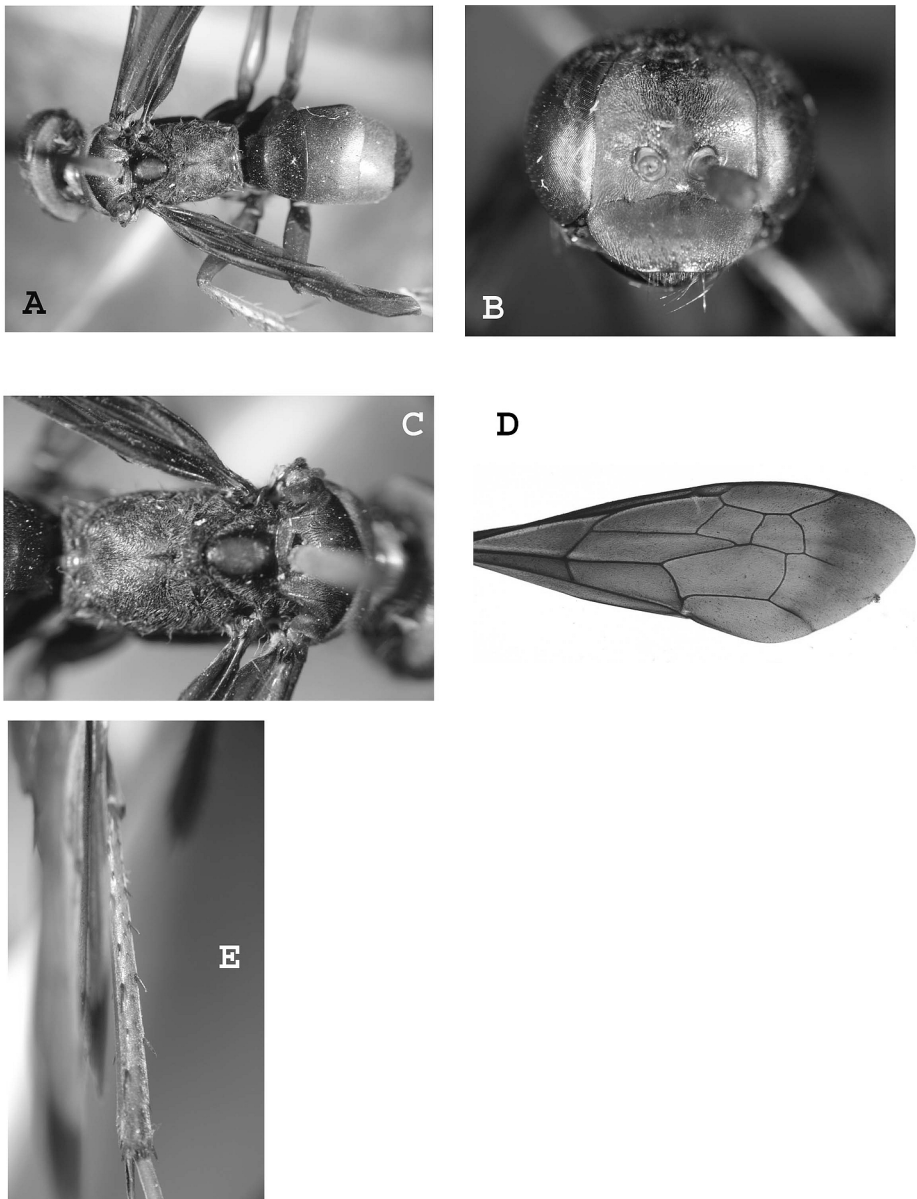
**Fig. 1:** *Anoplius (Arachnoproctonus) beatus* (CAMERON): (A) general habitus; (B) face from front; (C) thorax from dorsal; (D) fore wing.



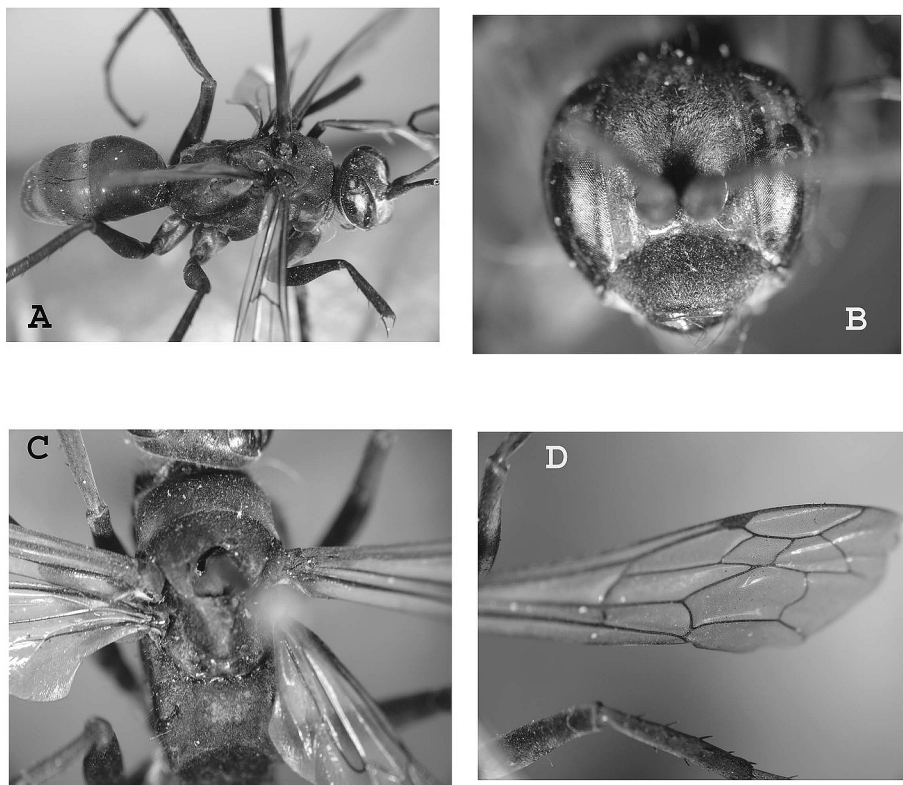
**Fig. 2:** *Anoplius (Orientanoplius) canifrons* (SMITH): (A) general habitus; (B) face from front; (C) thorax from dorsal; (D) fore wing.



**Fig. 3:** *Batozonellus annulatus* (FABRICIUS): (A) general habitus; (B) face from front; (C) thorax from dorsal; (D) fore wing.



**Fig. 4:** *Batozonellus maculifrons bracatus* (BINGHAM): (A) general habitus; (B) face from front; (C) thorax from dorsal; (D) fore wing; (E) hind tibia.



**Fig. 5:** *Tachypompilus analis* (FABRICIUS): (A) general habitus; (B) face from front; (C) thorax from dorsal; (D) fore wing.



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