

## The spider wasps of Fiji (Hymenoptera: Pompilidae)<sup>1</sup>

JAMES P. PITTS, JOSEPH S. WILSON

*Department of Biology, Utah State University, 5305 Old Main Hill, Logan, Utah 84322, USA;*  
*email: jpitts@biology.usu.edu*

FRANK D. PARKER

*4516 China Rose Circle, Reno, Nevada 89502, USA*

**Abstract.** The spider wasps of Fiji (Hymenoptera: Pompilidae) comprise five species: *Anoplius caerulescence* (Dalla Torre), **n. comb.** (= *Dendropompilus vitiensis* Williams, **n. syn.**), *Anoplius elatus* (Smith) **n. comb.**, *Anoplius vitiensis* (Williams), *Cyphononyx vitiensis* Turner, and *Heterodontonyx guerini* Banks (first record from Fiji).

### INTRODUCTION

Of particular interest to studies of biogeography of Fiji are the distributions of strong flying insects, such as spider wasps. Various authors have published on the pompilid fauna of Fiji in the past, but this fauna has never been treated in a coherent fashion. Smith (1865) described many new species of wasps, including several spider wasps, from islands of Sumatra, Gilolo, Salwatty and New Guinea. Later, Smith (1879) described various new species of wasps found in the British Museum from throughout Oceania. His treatment included the spider wasp *Pompilus caerulescens* (as *P. caerulens*), which was collected at sea on the voyage of the “Herald”, and, at the time of the publication, it was unknown whether the species was endemic to New Hebrides (= Vanuatu), the Fijian Archipelago, or the Solomon Islands. Williams (1947) surveyed the aculeate wasp fauna of Fiji, but his study was based on a limited number of specimens. He described the new genera *Nesopompilus* and *Dendropompilus* based exclusively on females and these genera are currently known only from Fiji. He also listed *Sphictostethus nitidus* (Fabricius) (as *Chrysocurgus nitidus*) as being present on Fiji and Australia, while Harris (1987) stated that this species is endemic only to New Zealand leaving the true identity of the Fijian wasp in question. The only systematic survey of spider wasps in the region is that of Banks (1941), which covers the Solomon Islands, Prince of Wales Island, and New Caledonia.

The study reviews the Pompilidae or spider wasp fauna of Fiji. Specifically, we determine that *Pompilus caerulescens* and *Sphictostethus nitidus* are present on Fiji and describe the heretofore unknown males, and determine generic affinity for both *Nesopompilus* and *Dendropompilus*. This study should provide a foundation on which future biodiversity studies of surrounding islands can be built. The specimens used in the study are primarily those obtained by the Terrestrial Arthropod Survey of Fiji.

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1. Contribution No. 2007-001 to the NSF-Fiji Arthropod Survey.

## MATERIALS AND METHODS

Material was examined from or deposited into the Natural History Museum, London (BMNH); the Bishop Museum, Honolulu, Hawai'i (BPBM); the Department of Biology Insect Collection, Utah State University, Logan, Utah (EMUS), the Museum of Comparative Zoology, Harvard University, Cambridge, Massachusetts (MCZC) and New Zealand Arthropod Collection, Landcare Research, Auckland, New Zealand (NZAC). Vouchers deriving from the Fiji Terrestrial Arthropod Survey will be deposited in the Fiji National Insect collection, Suva.

## SYSTEMATICS

### *Anoplius caerulescens* (Dalla Torre), **n. comb.**

*Pompilus caeruleus* Smith, 1879: 151. Female (BMNH Hymenoptera Type no. 19–334). Preoccupied.

*Pompilus caerulescens* Dalla Torre, 1897: 278. Replacement name for *Pompilus caeruleus* Smith, 1879.

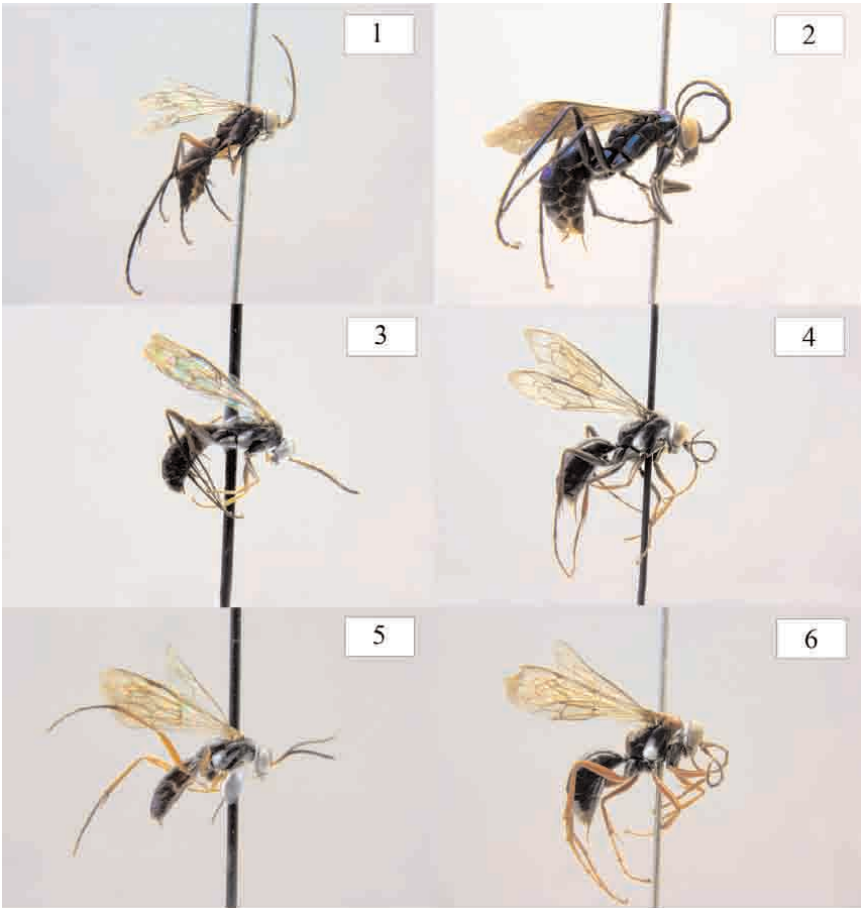
*Dendropompilus vitiensis* Williams, 1947: 328–329. Female (BPBM). **N. Syn.**

**Diagnosis.** The male is easily differentiated from other Fijian spider wasps by having ferruginous integument covered with metallic purple setae except for the head (Fig. 1), which has black integument with typically blue metallic setae, and by having a mesopleuron with tubercles projecting laterally over mesocoxa more prominent than in the female. A unique combination of characters is also useful for identifying the female and includes having the claws bifid (Fig. 24), having the apical tarsomere of the hindleg without a median row of spines ventrally, having unique genitalic morphology (Fig. 17), and having an elongate subgenital plate (Fig. 18) with a rounded apex. The female can be diagnosed easily due to the black integument covered with metallic blue setae (Fig. 2) and the mesopleuron tuberculate projecting laterally over mesocoxa. Also, the forewing is infuscated while the hind wing is hyaline (Fig. 11), the claws are dentate, and the apical tarsomere of the hind leg has a median row of spines ventrally. Both males and females have the propodeum tuberculate laterally and the wing venation is unique (Figs. 11 and 12) with the second submarginal cell being acute basally and being 4-sided rather than 5-sided.

**Description of male.** Length 7.4–10.8 mm. Color of head black, remainder ferruginous usually including clypeus with mesonotum slightly darker (Fig. 2); forewing slightly infuscated; hindwing hyaline (Fig. 12). Pubescence of mesosoma, metasoma, and head dorsal to antennal insertions metallic purple (Fig. 2); tarsi with black setae; dense silvery setae present on head ventral to antennal insertions. Purple setae decumbent, short and scale-like. Integument not obscured by setae.

Clypeus about 2 x as broad as high, its apical margin slightly arcuately concave. Front broad, middle interocular distance about 0.5 x transfacial distance. Inner orbits converging very slightly above. Ocelli close, forming acute triangle; ocellocular distance ~2 x greatest diameter of later ocellus. First four antennal segments in ratio of about 15:7:20:15, flagellomere III from 4–4.5 x as long as its greatest width. Pronotum angulate posteriorly. Propodeum sloping gradually and evenly. Lateral margin of propodeum with large tubercle located midway between anterior and posterior margins. Mesopleuron with ventral tubercle projecting laterally over mesocoxa. Last segment of tarsus slightly produced on inner margin; claws only slightly asymmetrical. Claws deeply bifid; foretarsus with outer claw similar to others while inner claw asymmetrical to others, curved 90° and more deeply bifid (Fig. 24); subapical teeth rounded. Wing venation as in Fig. 12; hindwing with cu-a meeting M+CuA slightly basal to origin of M.

Metasoma subfusiform, first segment slender. S4 without median patch of specialized setae. S6



**Figures 1-6.** Habitus: *Anoplius caerulescence*, 1. male and 2. female; *A. elatus*, 3. male and 4. female; *A. vitiensis*, 5. male and 6. female.

with deep emargination; emargination tuberculate laterally. Subgenital plate elongate, rounded apically, lacking subapical plumose process, with basal ridge (Fig. 18). Genitalia as in Fig. 17 with basal hooklets present.

**Distribution.** Australia (Queensland), Indonesia, Papua New Guinea, New Caledonia, Fiji.

**Material Examined.** FIJI: **Taveuni:** Tavuki Village, Mt. Devo, 892 m, 1♂, 14–31.VII.04 (FBA: 099456), 1♀, 31.VII–14.VIII.2004 (FBA 113977), coll. E.I. Schlinger & M. Tokota'a; 5.5 km SE of Tavuki Village, 1188 m, 2♂, 30.VI–14.VIII.04 (FBA 070445, 070447), coll. E.I. Schlinger & M. Tokota'a; 5.3 km SE Tavuki Village, Mt. Devo, 1054 m, 5♂, 10–17.X.02 (FBA 134587–134590), 2♂, 24–31.X.02 (FBA 105942, 105944), 1♂, 31.X–14.XI.02 (FBA 089333), 1♀, 30.VI–31.VII.2004 (FBA 148344), 8♂, 2–10.X.2002 (FBA 108469–108476), 1♂, 17–24.X.2002 (FBA 126333), 1♂ 1♀, 31.X–14.XI.2002 (FBA 148997, 148996), 22♂, 1♀, 3–20.XII.2002 (FBA 154682–154703, 154681), 5♂,

20–27.XII.2002 (FBA 128590, 128592–128595), 8♂, 27.XII.2002–3.I.2003 (FBA 146955–146962), coll. E.I. Schlinger & M. Tokota'a; 5.3 km SE Tavuki Village, Mt. Devo peak, 1054 m, 4♀, 14. XI–21.XI.02 (FBA 054056–054058, 054060), 5♂, 10–17.X.2002 (FBA 053023–053025, 053027, 053028), coll. E.I. Schlinger & M. Tokota'a; 5.6 km SE Tavuki Village, Mt. Devo peak, 1187 m, 2♀, 14.XI–21.XI.02 (FBA 110560, 134423), 3♂, 14.XI–21.XI.02 (FBA 129791, 134424, 134425), 1♂, 3♀, 20–27.XII.2002 (FBA 144892, 144890, 144891, 144893), 7♂, 30.VI–14.VIII.2004 (FBA 151461–151467), 1♀, 21.XI–13.XII.2002 (FBA 150163), coll. E.I. Schlinger & M. Tokota'a; Mt. Devo Peak, 1♀, 10–16.I.03 (FBA 039087), coll. M. Irwin, E.I. Schlinger, & M. Tokota'a; Mt. Devo Peak Radio Tower, 1200 m, 1♂, 10–16.I.03 (FBA 050920), 2♀, 3–20.XII.2002 (FBA 020175, 020176), 1♀, 2–10.X.02 (FBA 021741), coll. M. Irwin, E.I. Schlinger, & M. Tokota'a; Mt. Devo Forest Reserve, 800 m, 16♂, 3♀, 3–10.I.03 (FBA m, 012526, 012528–012529, 012531–012532, 012534, 012536–012541, 012543–012545, 012547, 012549, 012450, 012553), coll. M. Irwin; E.I. Schlinger; & M. Tokota'a; **Vanua Levu:** Batiqere Range, 6 km NW Kilaka Village, 146 m, 2♂, 2♀, 28.VI–21.VII.04 (FBA 105437, 105438, 105439, 105441), 11♂, 3♀, 3–10.VI.2004 (FBA 115579–115580, 115582–115586, 115588–115589, 115591–115592, 115590, 115593–115594), coll. E. Schlinger, & M. Tokota'a; Batiqere Range, 6 km NW Kilaka, 146 m, 1♂, 13–26.IV.04 (FBA 059495), 1♂, 15–28.VI.04 (FBA 072303), coll. E. Schlinger, & M. Tokota'a; Kilaka, 154 m, 3♂, 1♀, 28.VI–2.VII.04 (FBA 048989, 048991, 048995, 048994), coll. M.E. Irwin, E. Schlinger, & M. Tokota'a; **Viti Levu:** 1 km E Abaca Village, Koroyanitu National Park, 800m. Savuione Trail, 1♀, 19–26.X.02 (FBA 088871), 1♀, 7–12.X.02 (FBA 081025), coll. E. Schlinger & Tokota'a; Navai Villiage, Eteni. 700m, 1♀, 15.V–2.VI.03 (FBA 041724), 1♀, 6.VI–15.VII.03 (FBA 013819), 2♀, 24.X–8.XI.03 (FBA 036759–036760, 037316), coll. M. Irwin, E. Schlinger, & Tokota'a; 3.2 km E Navai Village, Veilaselase Track, 1020m, 1♀, 26.I–13.II.2004 (FBA 122305), coll. E. Schlinger & M. Tokota'a; Koroyanitu Eco Park, 0.5 km N Abaca Village, 800m, 1♂, 1♀, 12–19.XI.2002 (FBA 110089, 110086), coll. E. Schlinger & Tokota'a; PABITRA Wabu Baseline Survey, 1034m, 10♂, 5♀, 17–20.XI.03 (FBA 065048–065050, 065054–065055, 065057, 065059, 065063, 065065–065066, 053204–053205, 065056, 065060), coll. D. Veikovi (BPBM).

**Remarks.** Study of this species has revealed that it is best placed in the cosmopolitan genus *Anoplius* Dufour. The females of this species have numerous stout bristle-like setae on the pygidium and a strong pulvillar comb. The males have bifid, asymmetrical fore claws. Both sexes have a short malar space, slender antennal segments (3rd segment at least 3 x longer than thick), a pronotum that is shorter than the mesonotum, the forewing with three submarginal cells, the anal vein of the hind wing meeting the media before (males) or at the origin (females) of the cubitus, and a transverse postnotum. This species should be placed in the subgenus *Anoplius* because the females lack a tarsal comb and the males have bifid claws and a gently sloping propodeum, but lack a plumose process at the base of the subgenital plate. As such, *Dendropompilus* is a junior synonym of *Anoplius*.

***Anoplius elatus* (Smith), n. comb.**

*Pompilus elatus* Smith, 1865:82. Female (BMNH).

*Pompilus inquirendus* Vachal, 1907: 117. Male and female. [synonym by Turner, 1919]

**Diagnosis.** The male is easily separated from other Fijian spider wasps because of the



**Figures 7-10.** Habitus: *Cyphononyx vitiensis*, 7. male and 8. female; and *Heterodontonyx guerini*, 9. male and 10. female.

completely black integument, except the forelegs and underside of the antennae are yellow, and the femora and tibiae of hindlegs are tinged with yellow (Fig. 3). The female also has completely black integument with silvery setae (Fig. 4) and the mesopleuron tuberculate is only slightly projecting laterally over mesocoxa. Both the males and the females have bifid tarsal claws (e.g., Fig. 25), but the claws are not as deeply bifid as in *Anoplius caerulescens* and the subapical tooth is acute rather than rounded. Both sexes also have the second submarginal cell oblique basally and 5-sided (Fig. 13). The female has a median row of ventral spines on the apical tarsal segment of the hind leg; the male lacks this row of spines. Only the females have the propodeum tuberculate laterally. Male genitalic morphology and subgenital plate are similar to *A. vitiensis* (Fig. 19). The subgenital plate also is similar to *A. caerulescens*, but the apex is emarginated (e.g. Fig. 18).

**Distribution.** Known only from Fiji. A possible distribution that includes the Solomon Islands and Vanuatu (suggested in the original description) has not been demonstrated.

**Material Examined.** FIJI: **Taveuni:** Mt. Devo Forest Reserve, 800 m, 2 ♀, 3–10.I.03 (FBA 012527, 012552), coll. M. Irwin, E.I. Schlinger, & M. Tokota'a; 5.3 km SE Tavuki Village, Mt. Devo Peak, 1054 m, 2 ♀, 10–17.X.02 (FBA 053026, 053030), 1 ♀, 14–21.XI.2002 (054059), coll. E.I. Schlinger & M. Tokota'a; Mt. Devo Peak, 1 ♀, 10–16.I.03 (FBA 03984), coll. M. Irwin, E.I. Schlinger, & M. Tokota'a; Mt. Devo Peak Radio Tower, 1200 m, 1 ♀, 10–16.I.02 (FBA 050918), coll. M. Irwin, E.I. Schlinger, & M. Tokota'a; Tavuki Village, Mt. Devo, 892 m, 1 ♂, 14–31.VII.2004 (FBA 151849), 2 ♀, 31.VII–14.VIII.2004 (FBA 113978–113979), coll. E.I. Schlinger & M. Tokota'a; 5.3 km

SE Tavuki Village, Mt. Devo, 1054 m, 1 ♀, 30.VI–31.VII.2004 (FBA 148343), 3 ♀, 17–24.X.02, 2 ♀ (FBA 098687–098689), 1 ♂, 2 ♀, 24–31.X.02 (FBA 105940, 105941, 105943), 1 ♀, 31.X–14.XI.02 (FBA 089334), 1 ♂, 1 ♀, 20–27.XII.2002 (FBA 128591, 128596), 1 ♀, 27.XII.2002–3.I.2003 (FBA 145963), coll. E.I. Schlinger & M. Tokota'a; 5.6 km SE Tavuki Village, Mt. Devo peak, 1187 m, 1 ♀, 31.X–14.XI.02 (FBA 057331), 2 ♀, 14–21.XI.02 (FBA 110559, 110561), coll. E.I. Schlinger & M. Tokota'a; **Vanua Levu:** Rokosalase, 105 m, 2 ♂, 26.III–9.IV.04 (FBA 047266, 047268), coll. M. Irwin, E. Schlinger & M. Tokota'a; Kilaka, 154 m, 3 ♀, 3–10.VI.04 (FBA 034430, 040335–040336), 4 ♀, 28.VI–21.VII.04 (FBA 028845, 048993, 048997, 048999), coll. M.E. Irwin, E. Schlinger, & M. Tokota'a; Batiquere Range, 6 km NW Kilaka, 113 m, 2 ♀, 3–15.VI.04 (FBA 069282–069283), 1 ♂, 13–26.IV.04 (FBA059496), 3 ♀, 3–10.VI.2004 (FBA 11444–114445, 115587), coll. E. Schlinger, & M. Tokota'a; **Viti Levu:** 1 km E Abaca Village, Kordyanitu National Park, 800 m, Savuione Trail, 1 ♂, 26.X–5.XI.02 (FBA 082617), coll. E. Schlinger & Tokota'a; PABITRA Wabu Baseline Survey, 1034 m, 1 ♀, 17–20.XI.03 (FBA 065058), coll. D. Veikovi (BPBM).

**Remarks.** Study of this species has revealed that it is best placed in *Anoplius* in the subgenus *Anoplius*. The reasoning is the same as mentioned above for *A. caerulecens*. Both this species and the following species have a distinct transverse groove on the second sternite, which is a character normally associated with Pepsinae. We were unable to locate Vachal's type, which is possibly in the Muséum National d'Histoire Naturelle, Paris.

#### *Anoplius vitiensis* (Williams), new combination

*Nesopompilus vitiensis* Williams, 1947: 327. Female (BPBM).

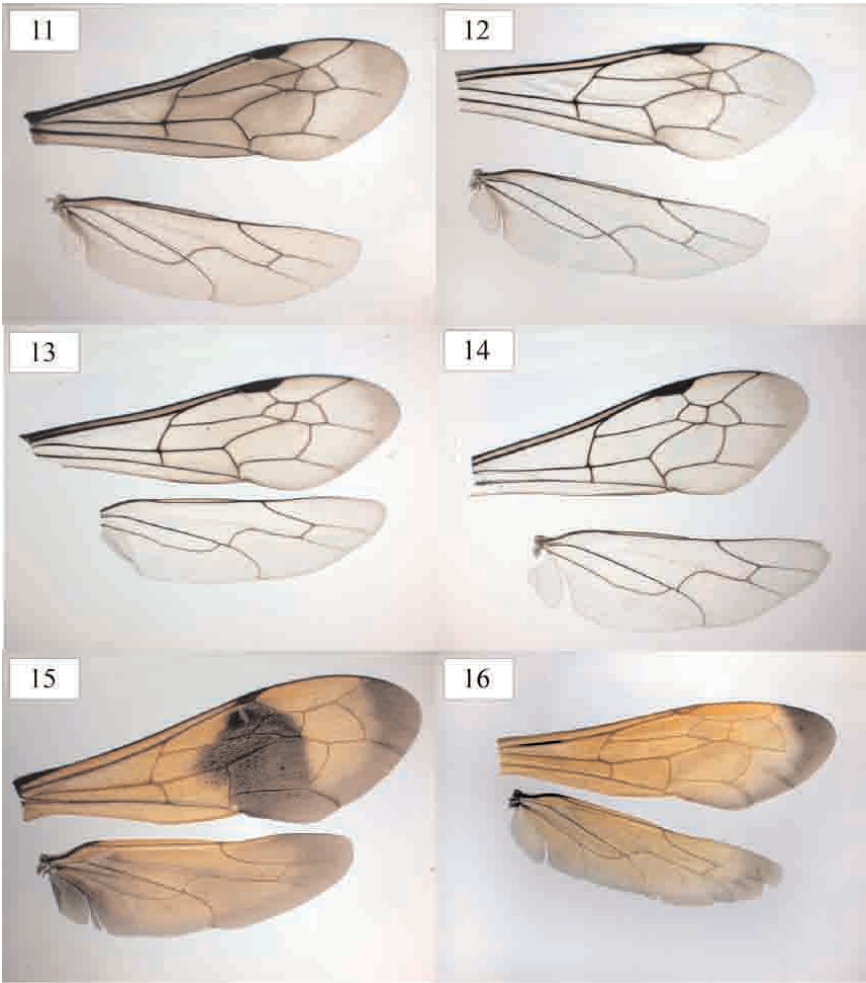
**Diagnosis.** This species is very similar to *Anoplius elatus*, including wing venation (Fig. 14), and the male subgenital plate and genitalia (Fig. 20), but differs in coloration. The male has black integument except for the pronotum, the anterior half of the mesonotum, sometimes the metapleuron, the antennae ventrally, the forelegs, and the trochanters through the tibiae of the mid and hind legs ferruginous (Fig. 5). The female is similar in coloration to the male (Fig. 6), except that the apical margin of the clypeus is ferruginous.

**Description of male.** Length 6.0–7.2 mm. Clypeus about 2 x as broad as high, its apical margin rounded. Front broad, middle interocular distance about 0.58 x transfacial distance. Inner orbits converging very slightly above. Ocelli close, forming acute triangle; ocellocular distance ~3 x greatest diameter of later ocellus. First four antennal segments in ratio of about 15:5:13:12, flagellomere III from 2.5–3 x as long as its greatest width. Pronotum angulate posteriorly. Propodeum sloping gradually and evenly. Lateral margin of propodeum without large tubercle located midway between anterior and posterior margins. Mesopleuron without ventral tubercle projecting laterally over mesocoxa. Last segment of tarsus slightly produced on inner margin; claws only slightly asymmetrical. Claws bifid with subapical tooth acute (Fig. 25). Wing venation as in Fig. 14 with second submarginal cell 5-sided; hindwing with cu-a meeting M+CuA distinctly basal to origin of M.

Metasoma subfusiform, first segment slender. S4 without median patch of specialized setae. S6 with deep emargination; emargination tuberculate laterally. Subgenital plate elongate, emarginated apically, lacking subapical plumose process, with basal ridge (e.g., Fig. 18). Genitalia as in Fig. 20 with basal hooklets present.

**Distribution.** Fiji.

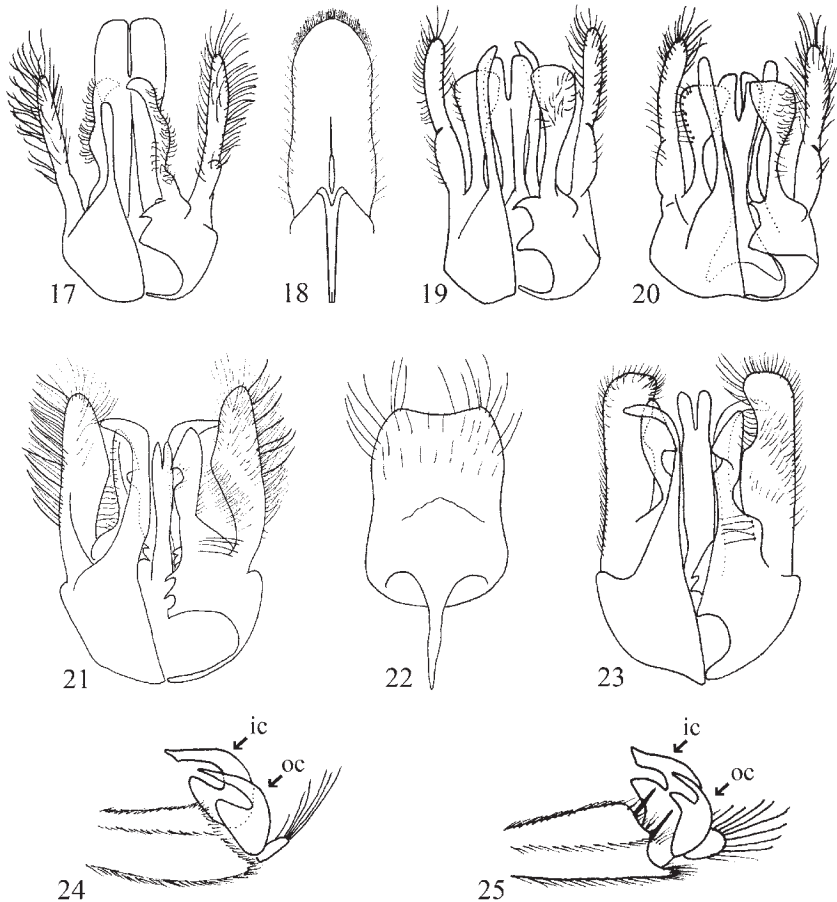
**Material Examined.** FIJI: **Kadavu:** 0.25 km SW Solodamu Village, Moanakaka Bird Sanctuary, 60 m, 1 ♂, 7.III–11.IV.2004 (FBA 112711), coll. E Schlinger & M. Tokota'a; **Taveuni:** Soqulu House in Soqulu Estate, 140 m, 1 ♂, 4–21.XI.02 (FBA



**Figures 11-16.** Wings. *Anoplius caerulescence*, 11. female and 12. male; *A. elatus*, 13. female; *A. vitiensis*, 14. female; *Cyphononyx vitiensis*, 15. male; and *Heterodontonyx guerini*, 16. female.

099895), coll. E Schlinger & M Tokota'a; **Vanua Levu:** Batiquere Range, 6 km NW Kilaka, 146 m, 1♂, 15–28.VI.04 (FBA 072304), 1♂, 13.IV–26.IV.04 (FBA 059494) coll. E Schlinger & M Tokota'a; Batiquere Range, 6 km NW Kilaka Village, 98 m, 5♂, 28.VI–21.VII.2004 (FBA 141563–141567), coll. E Schlinger & M Tokota'a; **Viti Levu:** Koroyanitu, Abaca Village, 1♀, 2.VI.03, coll. D. Yanega; 3.8 km N Veisari. Waivudawa Log Rd., 300 m, 1♀, 25.IV–25.V.03 (FBA 055042), coll. E. Schlinger & M. Tokota'a; 2 km SE Nabukavesi Village, Ocean Village Pacific Resort, 40 m, 1♀, 26.IV–5.V.2004 (FBA 118882), coll. E. Schlinger & M. Tokota'a; Sigatoka Sand Dunes National Park, 4 m, 2♀, 24.XI–15.XII.03 (FBA 030048–030049), coll. M, Irwin, E. Schlinger, & M. Tokota'a; 1.8 km E Navai Village, 700 m, old trail to Mt. Tomaniivi, 2♂, 2♀, 7–26.I.2004

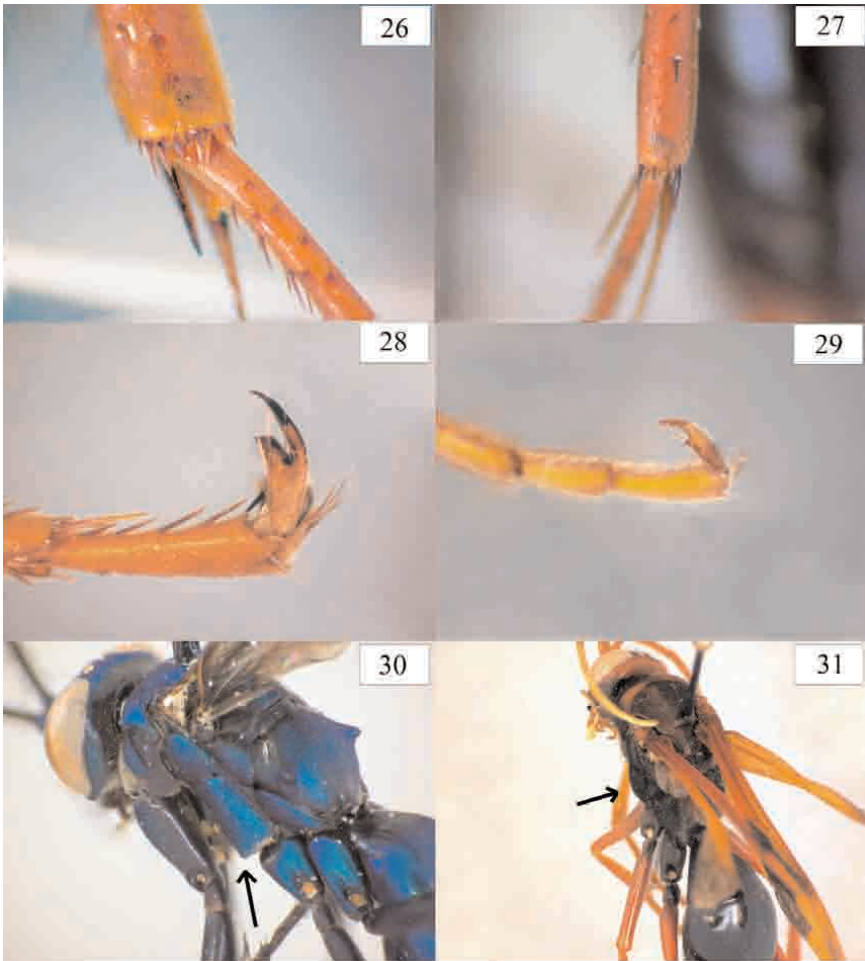




**Figures 17-25.** *Anoplius caerulescence*, 17. genitalia (dorsal view left and ventral view right) and 18. subgenital plate; *A. elatus*, 19. genitalia; *A. vitiensis*, 20. genitalia; *Cyphononyx vitiensis*, 21. genitalia and 22. subgenital plate; *Heterodontonyx guerini*, 23. genitalia; *A. caerulescence*, 24. male foreclaw; and *A. vitiensis*, 25. male foreclaw (in = inner claw; oc = outer claw).

(FBA 120231, 120233, 120232, 120234), coll. E Schlinger & M Tokota'a; 2 km E Navai Village, 700 m, old trail to Mt. Tomaniivi, 1 ♀, 26.IX–11.X.2003 (FBA 125135), coll. E Schlinger & M Tokota'a; 3.2 km E Navai Village, Veilaselase track, 1020 m, 1 ♂, 19.IV–14.V.2004 (FBA 155543), coll. E Schlinger & M Tokota'a; Nakobalevu Mt., 340 m, 1 ♀, 24–29.X.03 (FBA 026377), coll. M. Irwin, E. Schlinger, & M. Tokota'a; Navai Village, Eteni, 700 m, 1 ♀, 13–18.II.04 (FBA 039657), 19 ♀, 6.VI–15.VII.03 (FBA 029778–029788, 029790–029792, 029794–029798), 12 ♀, 24.X–8.XI.03 (FBA 037310, 037317, 037319–037321, 036757, 036761–036765, 036961, 1 ♀, 9–20.XII.03 (FBA 032392), coll. M. Irwin, E. Schlinger, & M. Tokota'a; Eteni, Navai, 700 m, 7 ♀,





**Figures 26-31.** 26. Auxiliary spines, *Cyphononyx vitiensis*; 27. auxiliary spines, *Anoplius caerulenscens*; 28. bifid claws, *C. vitiensis*; 29. dentate claws, *Heterodontonyx guerini*; 30. tuberculate mesopleuron, *A. caerulenscens*; 31. unmodified mesopleuron, *C. vitiensis*.

5.VI–15.VII.03 (FBA 013810, 013816–013818, 013820, 013822–013823), coll. M. Irwin, E. Schlinger, & M. Tokoka'a; Eteni, Navai, 4 km WSW Colo-1–Suva Village, Mt. Nakobalevu, 372 m, 1 ♀, 4–14.XI.03 (FBA 096654), 1 ♀, 25.II–17.III.03 (FBA 103368), 2 ♂, 17.III–9.IV.03 (FBA 097922–097923), 1 ♀, 24.IV–12.V.04 (FBA 065490), 2 ♂, 2 ♀, 9–30.V.03 (FBA 094340, 094335–094336), coll. E. Schlinger & Tokota'a; Koroyanitu National Park, Abaca Village, 400 m, 3 ♀, 6–26.V.03 (FBA 022044, 022046, 022046), coll. E. Schlinger, M. Irwin, & M. Tokota'a; 1 km E Abaca Village, Kordyanitu National Park, 800 m Kokabula trail, 5 ♂, 3 ♀, 19–26.X.02 (FBA 085222, 085227, 085232–085233, 085237, 085239), 2 ♂, 7–12.X.02 (FBA 081039, 081043), 2 ♂, 2 ♀,

12–19.XI.02 (FBA 086069–086070, 086071–086072), 3♂, 26.XI–3.XII.02 (FBA 076471–076473) coll. E. Schlinger & Tokota'a; Koroyanitu National Park, Savuione Trail, 450 m, 5♀, 21.X–18.XI.03 (FBA 049569–049570, 049576, 049579, 049581) coll. M. Irwin, E. Schlinger, & M. Tokota'a; 1.5 km SW Vaturu Dam, 550 m, 3♂, 1♀, 2–14.VII.2004 (FBA m, 135819–135821, f, 135822), coll. E. Schlinger & M. Tokota'a; Koroyanitu Eco Park, Mt. Evan's Range, 0.5 km N Abaca Village, 800 m, 1♂, 26.X–5.XI.02 (FBA 080329), 3♂, 26.XI–3.XII.02 (FBA 073991–073993), coll. E. Schlinger & Tokota'a; Koroyanitu Park, 1 km E Abaca Village, 800 m, 4♂, 26.X–5.XI.2002 (FBA 133430–133433), 2♀, 22.IV–6.V.03 (FBA 100633–100634) coll. E. Schlinger & Tokota'a; Koroyanitu Park, 1 km E Abaca Village, 800 m, Siuione Trail, 1♀, 12–19.X.02 (FBA 133395), 10♂, 2♀, 7–12.X.2002 (FBA 081024, 081030–081031, 081037–081038, 081040–081044, 081020, 081023), 4♂, 1♀, 19–26.X.02 (FBA 088870, 088873–088875, 088872), 5♂, 1♀, 26.XI–5.XII.02 (FBA 082619–082623, 082616), coll. E. Schlinger & Tokota'a; Koroyanitu Eco Park, 0.5 km N Abaca Village, 800 m, 1♂, 2♀, 12–19.XI.02 (FBA 110090, 110087–110088), 5♂, 1♀, 7–12.X.02 (FBA 133521, 133838–133839, 133842, 133840), 7♂, 21.IX–7.X.02 (FBA 133520, 133523–133528), coll. E. Schlinger & Tokota'a; Koroyanitu National Park, 0.5 km N Abaca Village, 800 m, 1♀, 7–12.X.02 (FBA 056090), coll. E. Schlinger & Tokota'a (BPBM).

**Remarks.** Study of this species has revealed that it is best placed *Anoplius* in the subgenus *Anoplius*. The reasoning is the same as mentioned above for *A. caeruleascens*. As such, *Nesopompilus* is a junior synonym of *Anoplius*. This species is extremely similar to *A. elatus* and the two species may be synonyms. However, no specimens were collected showing a transition between the two species, and they should be treated as distinct species at this time.

This species seems to be the most common spider wasp in Fiji.

### *Cyphononyx vitiensis* Turner

*Cyphononyx vitiensis* Turner, 1917: 78–80. Male and Female (BMNH Hymenoptera Type no. 19-2).

**Diagnosis.** This species is easily identified by its large size and coloration; the integument is black except for head, which is ferruginous except for a transverse band of black across the ocelli, the lateral margins of the pronotum and mesonotum (sometimes completely), the antennae, the legs from femora to tarsi, and mesosoma segments 4–6 which are ferruginous (Fig. 8). In the males, the dorsum of the mesosoma including the propodeum medially is sometimes ferruginous. The wings are orange with apical and medial infuscated bands (Fig. 15). Also for both sexes, the pronotum, mesonotum and scutellum are covered with bronze to orangish decumbent setae differing from surrounding setal coloration, the propodeum is tuberculate laterally and is transversely rugose with the wrinkles stronger in the male, the claws are bifid, and the apical tarsomere of the hind legs has lateral rows of spines beneath. The male genitalia (Fig. 21) and subgenital plate (Fig. 22), which is quadrate without a median carina, differs from the other species on Fiji.

**Material Examined.** FIJI: **Kadavu:** Namalata, 50 m, 1♂, 15–28.VII.04 (FBA 051727), coll. ME Irwin, E Schlinger, M Tokota'a; **Taveuni:** Devo Forest Reserve, 800 m, 2♂, 3–10.I.03 (FBA 012551, 012554), coll. E. Schlinger, M. Tokota'a, & M. Irwin; Peak Radio Tower, 1200 m, 1♂, 10–16.I.03 (FBA 050919), coll. E. Schlinger, M. Tokota'a, & M. Irwin; Eteni, Navai., 700 m, 1♀, 6.VI–15.VII.03 (FBA 013821), coll. E.

Schlinger M, Irwin, & Tokota'a; **Viti Levu:** Navai Village, Eteni, 700 m, 1 ♂, 6.VI–15.VII.03 (FBA 029793), coll. E. Schlinger M, Irwin, & Tokota'a; Nakobalevu Mt. area, 350 m, 1 ♀, 30.V.03, coll. D. Yanega; Koroyanitu National Park, Abaca Village, 1 ♂, 2.VI.03 (FBA 028256), coll. F.D. Parker; Koroyanitu National Park, Abaca Village, 400 m, 1 ♂, 6.V–26.V.03 (FBA 022045), coll. E. Schlinger, M. Irwin, & M. Tokoka'a; 1 km E Abaca Village, Kordyanitu National Park, 800 m, Kokabula trail, 1 ♂, 2 ♀, 19–26.X.02 (FBA 085226, 085228, 085234), coll. E. Schlinger & Tokota'a; Koroyanitu Eco Park, Mt. Evan's Range, 0.5 km N Abaca Village, 800m, 1 ♂, 26.X–5.XI.02 (FBA 080328), coll. E. Schlinger & Tokota'a; 6 km NW Kilaka, Batiquere Range, 145 m, 1 ♂, 15.VI–28.VI.04 (FBA 072305), coll. E. Schlinger & Tokota'a; 0.6 km S of Rokosalase Village, 180 m, 3 ♂, 2 ♀, 23.IV–8.V.04 (FBA 054403–054405, 054402, 054406), coll. E. Schlinger & Tokota'a (BPBM).

**Distribution.** Fiji, the Solomon Islands, and New Caledonia.

**Remarks.** Turner (1917) described this species based on specimens from Fiji only. Banks (1941) listed this species as present on the Solomon Islands and New Caledonia. This is the largest species on Fiji.

### *Heterodontonyx guerini* Banks

*Heterodontonyx guerini* Banks, 1941: 234. Female and male (MCZC).

**Diagnosis.** This species is easily identified by its coloration; the integument is black except for head, which is yellow except for a transverse band of black across the ocelli and the occipital region, the antennae, the legs from apex of femora to tarsi, mesosomal tergite 2 medially and mesosoma terga 3–6 which are yellowish. Mesosomal sterna 4–6 are brownish (Fig. 10). In the males, the front of the head is black medially almost down to antennal insertions and the pronotum is ferruginous (Fig. 9). The wings are orange with an apical infuscated band on the forewing and the hindwing with the apical and posterior margin infuscated (Fig. 16). Also for both sexes, the claws are dentate except for the foreclaws of the male which are bifid, and the apical tarsomere of the hind legs has lateral rows of spines beneath. Also, the pronotum, mesonotum and scutellum are covered with dark brown decumbent setae, and the propodeum lack tubercles laterally, but is transversely rugose. The male genitalia (Fig. 23) and subgenital plate, which is similar to *C. vitiensis* but has a median carina and a spinose apical margin, differs from the other species on Fiji.

**Material Examined.** FIJI: **Viti Levu:** Nacocokuvu, Res. Station, 1 ♂, 4.II.1980, coll. P.A. Maddison (NZAC); Sigatoka Province, Sigatoka Sand Dunes National Park, 1 ♀, 22.XII.02–3.I.03 (FBA 45495), coll. M. Irwin, E. Schlinger & M. Tokota'a (BPBM).

**Distribution.** Queensland (Australia), Solomon Islands, and Fiji.

**Remarks.** This species was described by Banks (1941) based on specimens from Cape York, Australia and the Solomon Islands.

This species has been confused with other species in the past. Haupt (1930) and subsequently Williams (1947) stated that *Sphictostethus nitidus* (Fabricius) (as *Chrysocurgus nitidus*) was present in Australia, New Zealand and Fiji. However, *Sphictostethus nitidus*, only occurs in New Zealand (Harris, 1987). It is probable that Haupt was confusing a complex of species in the Pepsinae with similar coloration patterns.

This species is the most rarely collected of the Fijian spider wasps.

## KEY TO POMPILIDAE OF FIJI

1. Auxiliary spines at apex of hind tarsus of uniform length, not splayed (Fig. 26); forewing without pocket at posterobasal corner (Figs. 15, 16); wings brightly colored yellow–orange with at least apex infuscated (Figs. 15, 16) ... (Pepsinae) ... 2
- Auxiliary spines at apex of hind tarsus of unequal length, irregularly spaced and splayed (Fig. 27); forewing with pocket at posterobasal corner (Figs. 11–14); wings not brightly colored, hyaline to infuscated (Figs. 11–14) ... (Pompilinae) ..... 3
2. Mid and hind claws bifid (Fig. 28, e.g. Figs. 24–25); forewing with apex and longitudinal medial region infuscated (Fig. 15)..... **Cyphononyx vitiensis** Turner
- Mid and hind claws dentate (Fig. 29); forewing with only apex infuscated (Fig. 16) ..... **Heterodontonyx guerini** Banks
3. Second marginal cell with acute angle basally, 4-sided (Figs. 11, 12); mesopleuron distinctly tuberculate laterally overlying mesocoxa (Fig. 30); with metallic blue to purple setae (Figs. 1–2, 30); males with inner tooth of both claws of foreleg rounded (Fig. 24); females with claws dentate (e.g. Fig. 29); females with indistinct transverse concavity on the second sternite ..... **Anoplius caeruleus** (Dalla Torre)
- Second marginal cell with oblique angle basally, 5-sided (Figs. 13, 14); mesopleuron not distinctly tuberculate laterally overlying mesocoxa (e.g. Fig. 31); lacking metallic blue to purple, predominately black (Figs. 3–6); males with inner tooth of both claws of foreleg acute (Fig. 25); females with claws bifid (e.g., Figs. 25, 28); females with distinct transverse groove on the second sternite ..... 4
4. Integument of mesosoma black (Figs. 3,4) ..... **Anoplius elatus** (Smith)
- Integument of at least pronotum ferruginous, remainder black (Figs. 5, 6) ..... **Anoplius vitiensis** (Williams)

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