

## STUDIES IN PACIFIC BOMBYLIIDAE (DIPTERA)

VI. Description of a new anthracine genus from the western Pacific, with notes on some of Matsumura's *Anthrax* types<sup>1</sup>By Neal L. Evenhuis<sup>2</sup>

*Abstract.* A new genus, *Brachyanax*, is described to include the following new species: *B. costalis*, *B. magnipennis*, *B. chichijimensis*, *B. thelestrephones*, *B. australensis*, *B. papuanus*, and *B. oceanicus*. Also included are the following described species: *B. yamashiroensis*, n. comb., *B. bifuscatipennis*, n. comb., *B. philippinensis*, n. comb., and *B. leucostigma*, n. comb. Notes are provided on the types of *Anthrax koshunensis* and *A. ogasawarenis*, with *A. ogasawarenis* transferred to *Exhyalanthrax*.

The genus *Anthrax* is one of the best-represented genera of Bombyliidae in the Pacific Basin. The only large works including this genus are Brunetti (1920) on the Oriental fauna and Roberts (1928) on the Australian fauna. Most descriptions of species of *Anthrax* from the Pacific islands and surrounding areas were brief, made in the late 1800's and early 1900's by Walker, de Meijere and van der Wulp, and were based mainly on scanty material. In addition, many of the types (especially Walker's) are presumed either destroyed or lost. Because of this unfortunate set of circumstances and the fact that certain species-groups of *Anthrax* from this area contain species which are extremely similar in appearance, few attempts have been made to clarify the existing relationships among the species of this varied genus from the Pacific Basin. The position of a small portion of the species of *Anthrax* sensu lato from the Pacific Region is clarified here. Future papers in this series will involve larger revisionary studies of this genus from the Pacific, Australian and Southeast Asian areas.

Attempts at separating *Anthrax* sensu lato into separate genera (e.g., Macquart 1840, Sack 1909) have resulted in much difficulty and confusion in the systematics of this large taxon due to the amount of variability among species and overlapping characters in the various genera proposed. *Anthrax* sensu lato, on a worldwide basis, is very heterogeneous; however, a relatively homogeneous group of species has been found which could be justifiably separated generically.

The new genus, *Brachyanax*, proposed herein, possesses numerous characters separating it from *Anthrax* sensu stricto. The wing venation and absence of pile on the metapleuron appear to relegate this genus to a position between Anthracini and

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Exoprosopini, with closer affinities to the Anthracini. The wing venation and head morphology (excepting the antennal shape) liken it to the Xeramoebini of Hull (1973); however, the structure of the 3rd antennal segment and the male genitalia will separate *Brachyanax* from that tribe.

### **Brachyanax Evenhuis, new genus**

♀. *Length*: 3.5–11.0 mm. *Wingspan*: 10.0–28.0 mm. *Head* (FIG. 2): equal to or narrower than thorax; eyes separated at vertex by 2.5–3.0× width of ocellar tubercle; front narrow, narrowest at vertex becoming widest at level of antennal sockets, greatest width never more than ½ width of head, short black pilose, often with sparse tomentum; face receding, black pilose, white hairs may be present at sides of oral margin; vertex and ocellar tubercle bare, rarely with black hairs; occiput bare or with sparse tomentum laterally; occipital fringe consisting of short dense pile of various colors; gula bare; antennae (FIG. 3) black, placed below middle of head, bases approximate to each other, separated by no more than .75× width of 1st antennal segment; antennal segment I short, squarish, cylindrical, with black pile equal in length to that segment; segment II short, subequal in length to segment I, spherically cone-shaped, apex fitting into basal recess of segment III, short black pilose; segment III with extremely enlarged bulbous base most pronounced ventrally, tapering abruptly to long, straight, stalklike portion apically, stalk equal in length to segments I and II combined; style minute, separated from segment III by a suture, with cirlet of hairs at apex; proboscis short, labellate, contained within oragenal cup; palpus brown with brown hairs. *Thorax*: mesonotum and scutellum dull to subshining brown to black; mesonotum dense pilose anteriorly and anterolaterally, sparse short pilose or pile wanting dorsally and posteriorly, often with metallic-colored tomentum dorsally; humeral and postalar calli often with dark bristles; 3–4 strong black prealar macrochaetae, smaller macrochaetae on posterior portion of mesopleuron and subalar; scutellum sparse short pilose and tomentose, long dark pile posteriorly; pleura gray to black, lighter pilose than anterior mesonotum; metapleuron bare; sternopleuron often with pale tomentum ventrally; halter brown to dark brown. *Legs*: thin, sparsely spinose; fore coxa dense white to yellow pilose and tomentose; mid and hind coxae often with dark pile intermixed with light pile; fore femur often without spines; mid and hind femora with sparse short black spines ventrally; tibiae and tarsi with small spines and setulae; claw black; pulvilli well developed, as long as claw. *Wing*: narrow to well developed, basal ⅓ to ⅔ of wing infuscated opaque dark brown, hyaline beyond; fenestrate spot often present in infuscation of 1st posterior cell; vein  $R_{2+3}$  arising near r-m crossvein, gently curving 90° to wing margin, without appendix at base; vein  $R_4$  without appendix at base; r-m crossvein just before middle of discal cell; anal cell closed before wing margin, often with a short stalk; axillary and alular lobes well developed or greatly reduced, both infuscated opaque dark brown; squama brown to dark brown with fringe of short brown hairs. *Abdomen*: cylindrical, slightly narrower than thorax, flattened slightly dorsoventrally; tergites black; tergite I dense pilose dorsolaterally, patch of white to yellow tomentum posterolaterally; tergites II–VII black pilose laterally, sparse black pilose dorsally overlying tomentum; tergite V often with patch of tomentum laterally.

♂. Indistinguishable from ♀ except for genitalia.

*Type of genus.* *Brachyanax thelestrephones* Evenhuis, n. sp., by present designation.

This genus can be separated from *Anthrax* by the shape of the 3rd antennal segment, the bases of the antennae in close approximation to each other, the head and abdomen both narrower than the thorax, and the lack of appendices at the bases of veins  $R_{2+3}$  and  $R_4$ .

The infuscation pattern of the wing of *Brachyanax* is very similar to the *A. cephus* group of Marston (1970) and the lack of appendices at the bases of veins  $R_{2+3}$  and  $R_4$  is also typical of the *A. virgo-aethiops* group of Hull (1973: 439); however, the diagnosis above should easily separate *Brachyanax* from these species groups.

Species previously described in *Anthrax* and now relegated to *Brachyanax* include

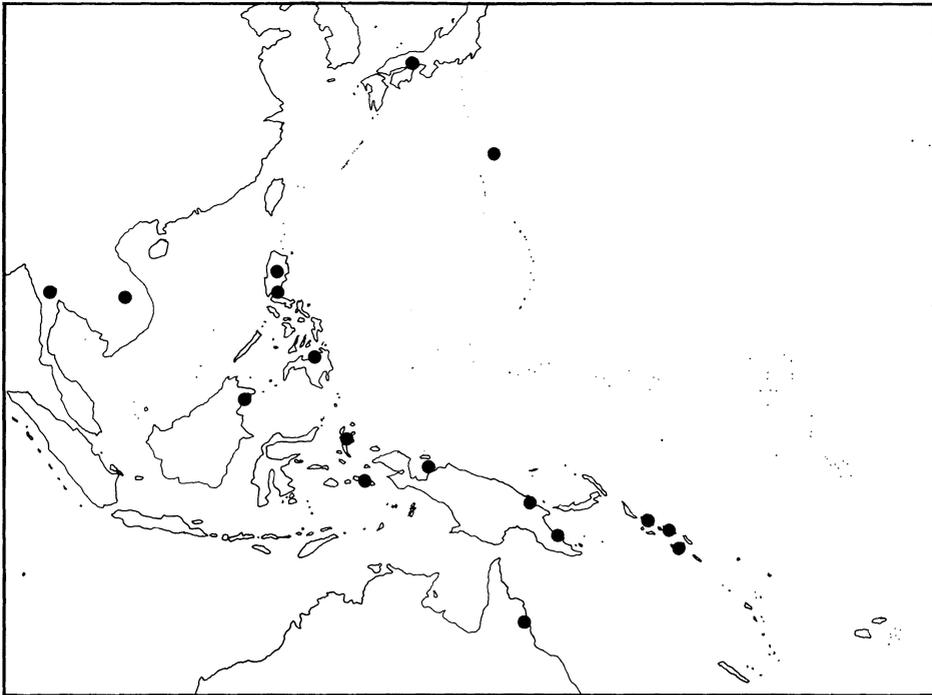


FIG. 1. Map of western Pacific, showing distribution of the genus *Brachyanax* (dots).

*Brachyanax yamashiroensis* (Matsumura), n. comb., *B. leucostigma* (Wulp), n. comb., *B. bifuscatipennis* (Evenhuis & Arakaki), n. comb., and *B. philippinensis* (Evenhuis & Arakaki), n. comb. *Anthrax boninensis* (Matsumura) and *A. ater* Roberts may also be members of *Brachyanax*, but specimens of these species were not available for examination. *Anthrax carbo* Rondani from Borneo (notes and drawing of the type kindly supplied to me by Dr Roberto Poggi of the Museo Civico di Storia Naturale, Genova) appears to be very closely related to *Brachyanax*, possessing many of the characters in the genus except for the conspicuous enlargement of the base of the 3rd antennal segment. Until longer series of this species can be examined, it is left in *Anthrax*. The circlet of hairs at the apex of the 3rd antennal segment precludes *A. carbo* from being a member of *Villa*, as Painter (1932) has suggested.

KEY TO SPECIES OF *Brachyanax*

- 1. Third posterior of cell of wing not infuscated; axillary cell and alula reduced ..... 2
- Third posterior cell of wing with at least basal infuscation; axillary lobe and alula reduced or well developed ..... 3
- 2. Infuscation of wing extending anteriorly to end of marginal cell; anal cell entirely infuscated ... Laos ..... **costalis, n. sp.**

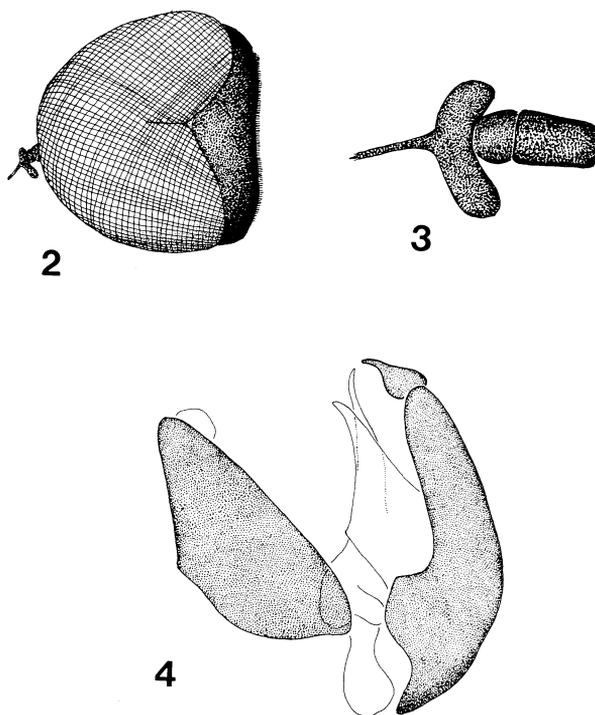


FIG. 2-4. 2-3, *Brachyanax magnipennis*: 2, lateral view of head; 3, lateral view of antenna; 4, *B. leucostigma*, ♂ genitalia, lateral view.

- Infuscation of wing extending anteriorly to end of costal cell, hyaline beyond; apex of anal cell hyaline; tiny species (length 3-5 mm) . . . Micronesia . . . . . **chichijimensis, n. sp.**
3. Submarginal cell infuscation coalesced with basal infuscation . . . . . 4  
 Submarginal cell infuscation separate from basal infuscation . . . . . 10
4. Wings fenestrate in infuscated portion . . . . . 5  
 Wings entirely opaque in infuscated portion . . . . . 7
5. Wingspan abnormally large (30 mm); fenestrate spot present only in 1st posterior cell; abdominal tergite I without black hairs dorsolaterally; dorsolateral tomentose patches on abdominal tergite I yellow . . . . . **magnipennis, n. sp.**
- Wingspan normal; fenestrate spot present in 3rd posterior cell (present also in 1st posterior cell in *australensis*); abdominal tergite I with sparse black hairs mixed with pale dorsolateral pile; tomentose patch of tergite I silver . . . . . 6
6. First submarginal cell entirely infuscate; axillary cell reduced; fenestrate spot present only in 3rd posterior cell . . . . . **leucostigma**  
 First submarginal cell with hyaline portion; axillary cell well developed; fenestrate spots in 1st and 3rd posterior and discal cells . . . **australensis, n. sp.**

7. Face black pilose with a few white hairs intermixed . . . . . **papuanus, n. sp.**  
 Face entirely black pilose, white pile wanting . . . . . 8
8. Abdominal tergite I yellow pilose dorsolaterally; propleuron yellow to white  
 pilose . . . . . **oceanicus, n. sp.**  
 Abdominal tergite I white pilose dorsolaterally . . . . . 9
9. Propleuron black to brown pilose . . . Philippines . . . . . **philippinensis**  
 Propleuron white pilose . . . Japan . . . . . **yamashiroensis**
10. Abdominal tergite I black pilose dorsolaterally; occipital fringe predomi-  
 nantly white; oral margin black pilose . . . . . **thelestrephones, n. sp.**  
 Abdominal tergite I white pilose dorsolaterally; occipital fringe brown; oral  
 margin black pilose with a few white hairs mixed in . . . . . **bifuscatipennis**

*Brachyanax* is distributed throughout the western Pacific, occupying the Palearctic, Oriental, Australian, and Pacific (Oceanic) Regions (FIG. 1). Further study and more concentrated collecting may reveal more species from the more western areas of the Oriental Region (especially the Indian subcontinent) and China, as well as the Australian mainland.

All primary types and paratypes of new species described below are deposited in the Bishop Museum, Honolulu (BISHOP).

### ***Brachyanax leucostigma* (Wulp), new combination**

FIG. 4-5

*Anthrax terminalis* Wulp, 1868: 108 (preocc. *A. terminalis* Wiedemann 1830).

*Anthrax leucostigma* Wulp, 1898: 419 (new name for *A. terminalis* Wulp).

*Villa terminalis* (Wulp): Hull, 1973: 374.

*B. leucostigma* can be separated from its congeners by the infuscation pattern of the wing (FIG. 5) and the entirely white pilose hind coxae. The male genitalia are as follows (FIG. 4): basistylus subtriangular, indented on dorsal edge, large clawlike process basally; dististylus small, with bulbous base tapering to thin blunt apex; epiphallus with 2 dorsally recurved apical processes; aedeagus spadelike in dorsal view, basal aedeagal bulb large; basal apodeme and lateral rami small, reduced; epandrium subtriangular.

The specimens referred to and described by Wulp (1898) from Astrolabe Bay are not typical *B. leucostigma*. Wulp's description, which states "die schwarze Umsäumung der Flügelspitze ist etwas unterbrochen und wie wenn drei Flecken zwischen den Längsadern wären," comes closer to either *B. papuanus*, n. sp. or *B. thelestrephones*, n. sp., both of which have this type of wing infuscation.

*Specimens examined.* [PNG]: NEW GUINEA (NE): 1 ♀, Morobe Distr: Wau, 1250 m, 20.III.1965, malaise trap, J. & M. Sedlacek (BISHOP).

*Distribution.* Halmahera Is, Ceram, Papua New Guinea (new record).

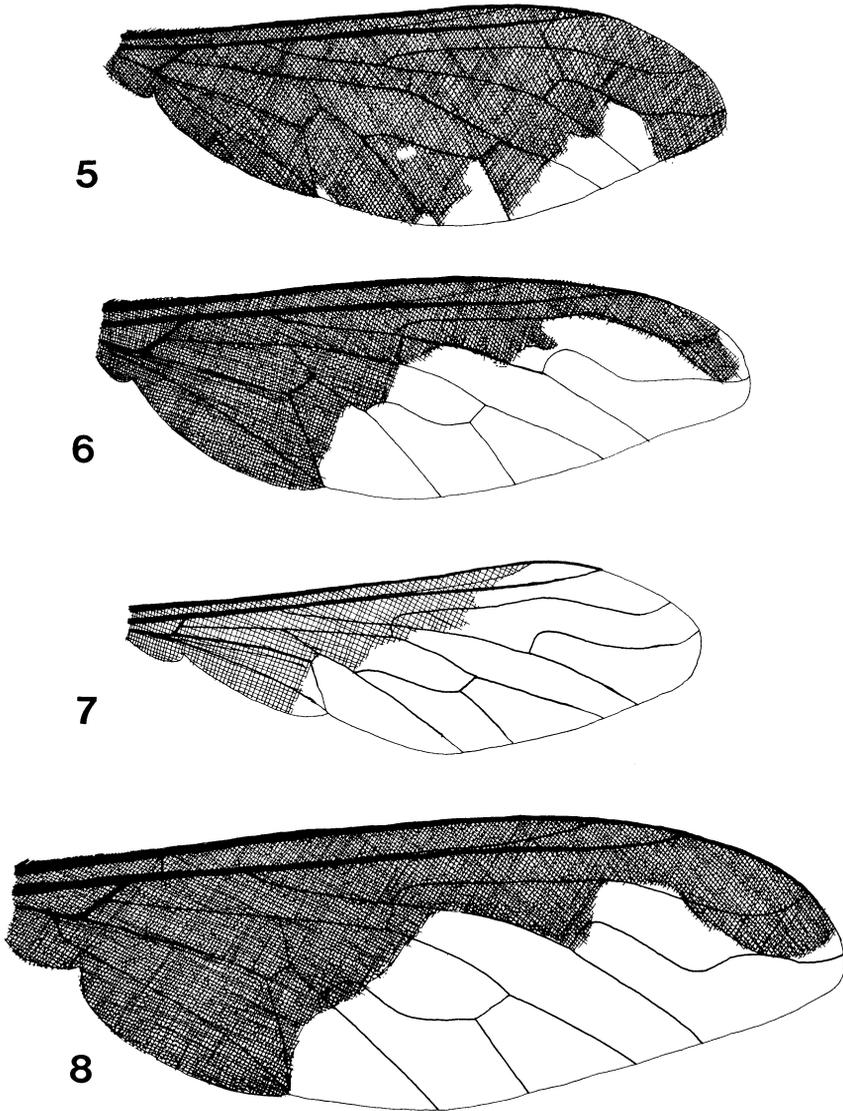


FIG. 5-8. *Brachyanax* wings: 5, *B. leucostigma*; 6, *B. costalis*; 7, *B. chichijimensis*; 8, *B. yamashiroensis*.

***Brachyanax costalis* Evenhuis, new species**

FIG. 6

♂. Length: 5.0 mm. Wingspan: 13.0 mm. Head: black, black pilose; face and oral margin short white pilose; occipital fringe brown above, white below. Thorax: mesonotum and scutellum brown, sparse black pilose; mesonotum dense white pilose anteriorly; pleura gray; mesopleuron black pilose above, white pilose and tomentose below; pro- and sternopleura white pilose; halter brown. Legs: coxae gray-brown; fore coxa white pilose, a few black hairs apically; mid coxa white pilose; hind coxa mixed white and black pilose; femora brown; fore femur with fine brown setulae, sparse white scales laterally; mid and hind femora with

sparse white scales dorsally, sparse black spines ventrally; tibiae sienna, spines black; tarsi brown, spines black; claw black; pulvilli well developed, as long as claw. *Wing* (FIG. 6): infuscation as in figure; r-m crossvein just before middle of discal cell;  $R_{2+3}$  arising just before r-m crossvein. *Abdomen*: tergum black; tergite I white pilose dorsolaterally, appressed black pile dorsally and posteriorly, patch of white tomentum posterolaterally on each side; tergites II–VII black tomentose dorsally, black pilose laterally; tergite V with small patch of white tomentum anterolaterally each side. *Genitalia*: not dissected.

♀. Unknown.

Holotype ♂, LAOS: Wapikhamthong Prov: Wapi, 30.III.1967, light trap, native collector (BISHOP 11,565).

*Brachyanax costalis* can be separated from its congeners by the reduced wing infuscation (reaching only to end of marginal cell) and the white pilose face.

### ***Brachyanax magnipennis* Evenhuis, new species**

FIG. 2, 9

♀. *Length*: 11 mm. *Wingspan*: 28 mm. *Head* (FIG 2): black; front black pilose, coppery tomentose; face and oral margin black pilose, a few white hairs mixed in on sides; vertex black pilose; occiput sparse coppery tomentose laterally, otherwise bare; occipital fringe dark reddish brown. *Thorax*: mesonotum and scutellum black, coppery tomentose, sparse black pilose dorsally and posteriorly; mesonotum dense yellowish brown pilose anteriorly; pleura dark gray to black, predominantly yellow to golden pilose and tomentose, sparse black pile on upper mesopleuron; humeral and postalar calli with black hairs and bristles; halter dark brown. *Legs*: coxae black; fore coxa yellow pilose; mid coxa mixed yellow and black pilose; hind coxa black pilose; femora black basally, brown apically; fore femur with fine black to brown pubescence; mid and hind femora with sparse black spines ventrally; tibiae and tarsi amber, spines black; claw black; pulvilli as long as claw. *Wing* (FIG. 9): infuscation as in figure; r-m crossvein just before middle of discal cell; squama dark brown with dark brown fringe of hairs. *Abdomen*: black; tergum coppery tomentose dorsally and laterally; tergite I dense yellow pilose dorsolaterally, yellow tomentose patches posterolaterally; tergites II–VII short black pilose dorsally, longer black pilose laterally; sternites I–II sparse yellowish white pilose; sternites III–VII coppery tomentose, sparse short black pilose. *Genitalia*: not dissected.

♂. Unknown.

Holotype ♀, SOLOMON IS: Choiseul I: Kitipi Riv, 80 m, 13.III.1964, malaise trap, P. Shanahan (BISHOP 11,566).

This species can be separated from its congeners by the large wingspan, yellow tomentose patches on tergite I and absence of tomentose patches anterolaterally on tergite V.

### ***Brachyanax chichijimensis* Evenhuis, new species**

FIG. 7

♀. *Length*: 3.5 mm. *Wingspan*: 10.0 mm. *Head*: black, black pilose; occipital fringe brown. *Thorax*: mesonotum and scutellum dark brown, white pilose anteriorly, sparse black pilose dorsally overlying golden brown tomentum; pleura gray, white pilose and tomentose; propleuron white pilose; halter brown. *Legs*: coxae gray, white pilose and tomentose; rest of legs brown; hind femur with white scales dorsally and laterally. *Wing* (FIG. 7): infuscation as in figure. *Abdomen*: tergum black; tergite I white pilose, silver-white tomentose patches dorsolaterally; tergites II–VII appressed black pilose and tomentose; tergite V with silver-white tomentose patches laterally; sternum brown, white pilose and tomentose. *Genitalia*: not dissected.

♂. Unknown.

Holotype ♀, MICRONESIA: BONIN IS: Chichi Jima: Omura "Camp beach," 5.V–9.VI.1958, F.M. Snyder (BISHOP 11,574).

*B. chichijimensis* can be easily separated from its congeners by the reduced wing

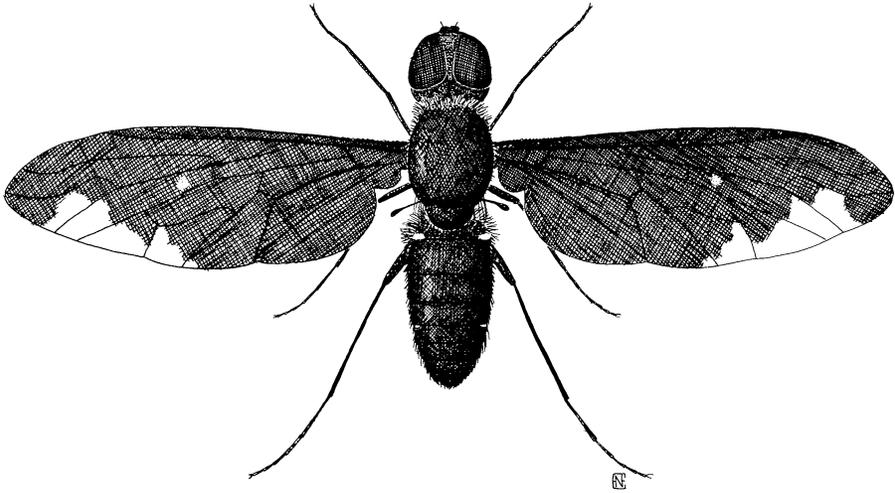


FIG. 9. *Brachyanax magnipennis*, ♀ habitus.

infuscation, axillary cell, and alular lobe. This species may belong in a separate genus due to the wing characters, but is placed in *Brachyanax* until further studies can be carried out.

***Brachyanax yamashiroensis* (Matsumura), new combination**

FIG. 8

*Anthrax yamashiroensis* Matsumura, 1916: 280.

*Villa yamashiroensis* (Matsumura): Painter, 1932: 365.

*B. yamashiroensis* can be separated from its closest apparent relative, *B. philippinensis*, by the white pilose propleura and the wing infuscation.

The unique type ♀ was examined in this study. It is very greasy and the mesonotum and abdominal tergum are badly rubbed, otherwise it corresponds very well to the original description. The wing pattern is illustrated in FIG. 8.

***Brachyanax thelestrephones* Evenhuis, new species**

FIG. 10

♀. *Length*: 4.5–6.0 mm. *Wingspan*: 14 mm. *Head*: black, black pilose; occipital fringe white pilose, brown pilose laterally. *Thorax*: mesonotum and scutellum black, sparse yellowish brown tomentose dorsally, sparse black hairs posteriorly; mesonotum dense black pilose anteriorly; pleura brown, black pilose except lower portion of humeral callus and entire propleuron white pilose; halter dark brown. *Legs*: brown; fore coxa with white scales, black pilose apically; mid and hind coxae black pilose; fore femur with fine black and brown pubescence, sparse short black hairs; mid femur with brown and yellowish brown scales, sparse black spines ventrally; hind femur with dense black to brown scales, sparse black spines; tibiae and tarsi with spines black; claw black; pulvilli as long as claw. *Wing* (FIG. 10): infuscation as in figure; r-m crossvein before middle of discal cell; squama and squamal fringe brown. *Abdomen*: black, blackish brown pilose; tergite I black pilose dorsolaterally, silvery white tomentose patches posterolaterally; tergite V with antero-lateral patches of silvery white tomentum. *Genitalia*: not dissected.

♂. Unknown.

Holotype ♀, MALAYSIA: SABAH (Borneo): Tawau, Quoin Hill, 3–7.VII.1962, Y. Hirashima (BISHOP 11,567).

This species is easily separated from its congeners by the dark pile of the 1st tergite in addition to the infuscation pattern of the wing.

***Brachyanax australensis* Evenhuis, new species**

FIG. 11

♀. *Length*: 6.0 mm. *Wingspan*: 14.0 mm. *Head*: black, black pilose; occipital fringe brown. *Thorax*: mesonotum black, scutellum brown; mesonotum dense dark brown pilose anteriorly, sparse brown pilose and golden tomentose dorsally; scutellum brown pilose and tomentose; humeral and postalar calli with dark brown bristles. *Legs*: coxae reddish brown; fore coxae yellow pilose; mid and hind coxae black pilose; rest of legs brown; fore femur with sparse brown scales; mid and hind femora with sparse brown spines; tibiae and tarsi with spines dark brown; claw black; pulvilli as long as claw. *Wing* (FIG. 11): infuscation as in figure; r-m crossvein before middle of discal cell; squama and squamal fringe dark brown. *Abdomen*: black; tergum black pilose and tomentose; tergite I yellowish white pilose dorsolaterally, silvery white tomentose; tergite I yellowish white pilose dorsolaterally, silvery white tomentose patches posterolaterally; tergite V with silvery white tomentose patch anterolaterally. *Genitalia*: not dissected.

♂. Unknown.

Holotype ♀, AUSTRALIA: Queensland, Cairns, 1920, ex scrub, A.P. Dobb (BISHOP 11,568). 1 ♀ paratype, same data as holotype (BISHOP).

*B. australensis* can be separated from its closest apparent relative, *B. leucostigma*, by the well-developed axillary lobe and the presence of more than 1 fenestrate spot in the wing infuscation.

***Brachyanax oceanicus* Evenhuis, new species**

FIG. 12

♀. *Length*: 8.0–8.5 mm. *Wingspan*: 12.5–14.0 mm. *Head*: black; front black pilose, sparse yellow tomentose; face and oral margin brown pilose; occiput sparse reddish brown tomentose laterally; occipital fringe brown, black laterally. *Thorax*: black; mesonotum dense yellowish brown pilose anteriorly, yellow tomentose dorsally; scutellum sparse black pilose, yellow tomentose; mesopleuron mixed yellow and black pilose; propleuron yellow pilose; sternopleuron white tomentose; halter stem amber, knob brown. *Legs*: coxae and femora brown; fore coxa white pilose; mid and hind coxae black pilose, white tomentose; femora with sparse black spines; tibiae and tarsi yellow, spines black; claw black, pulvilli as long as claw. *Wing* (FIG. 12). *Abdomen*: tergum black, black pilose dorsally; tergite I yellow pilose dorsolaterally, a few black hairs mixed in; tergites II–VII black tomentose; tergite V with white tomentose patches anterolaterally; sternum brown, brown pilose and tomentose; sternites I–III sparse white pilose. *Genitalia*: not dissected.

♂. Unknown.

Holotype ♀, SOLOMON IS: Guadalcanal I: Eiwi, creek, 15.VII.1944, H.E. Milliron (BISHOP 11,570). Paratypes. SOLOMON IS: Guadalcanal I: 2 ♀, Honiara, 18.I.1975, X.1972, N.L.H. Krauss; San Cristobal I: 1 ♀, Kira-Kira, 0–200 m, 7.XI.1964, malaise trap, R. Straatman; 1 ♀, Wugiroga, 8.VIII.1960, C.W. O'Brien (BISHOP).

*B. oceanicus* is very similar to *B. philippinensis* but can be separated from it by the difference in wing infuscation pattern and the propleuron having yellow pile (propleural pile in *B. philippinensis* is black).

***Brachyanax papuanus* Evenhuis, new species**

FIG. 13

♀. *Length*: 8.0 mm. *Wingspan*: 18.0 mm. *Head*: black; front black pilose, brassy tomentose; face and oral margin black pilose, a few white hairs mixed in on sides of oral margin; occipital fringe brown. *Thorax*: mesonotum and scutellum black; mesonotum dense orange-yellow pilose anteriorly, sparse golden tomentose dorsally, sparse brown pile dorsally and posteriorly; scutellum sparse brown pilose, black hairs pos-

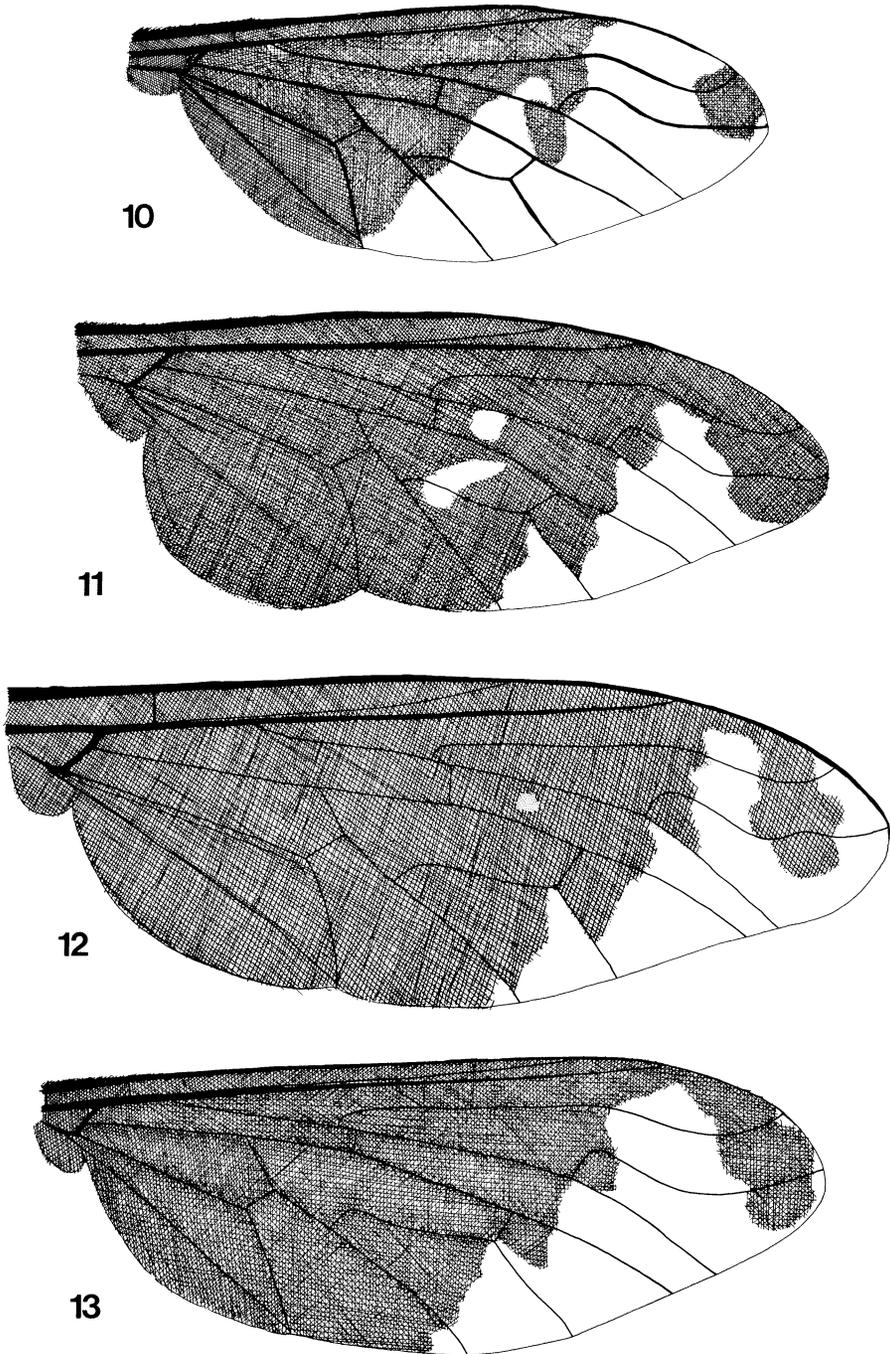


FIG. 10-13. *Brachyanax* wings: 10, *B. thelestrephones*; 11, *B. australensis*; 12, *B. oceanicus*; 13, *B. papuanus*.

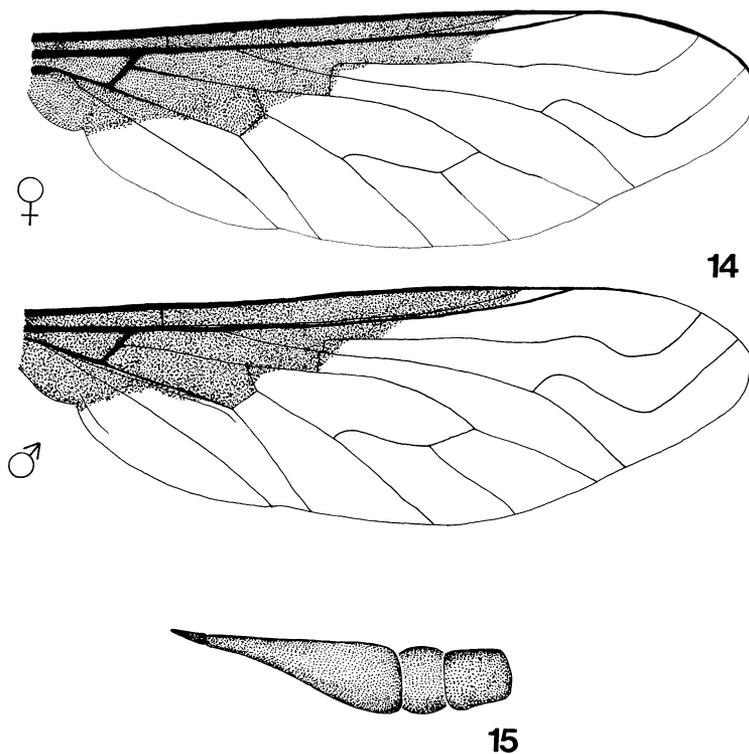


FIG. 14–15. *Exhyalanthrax ogasawarensis*: 14, ♀ and ♂ wings; 15, antenna, lateral view.

teriorly; pleura gray, white pilose and tomentose; mesopleuron with a few black hairs mixed in; humeral and postalar calli with black hairs; halter stem dark brown, knob brown, yellow apically. *Legs*: coxae gray; fore coxa white pilose; mid and hind coxae mixed white and black pilose; femora dark brown to black; fore femur with sparse brown pubescence; mid and hind femora with sparse black spines; tibiae and tarsi brown, spines black; claw black; pulvilli as long as claw. *Wing* (FIG. 13): infuscation as in figure; r-m crossvein before middle of discal cell; squama and squamal fringe dark brown. *Abdomen*: tergum black, black pilose and tomentose; tergite I yellowish white pilose dorsolaterally, a few black hairs mixed in, silvery white tomentose patches posterolaterally; tergites II–VII reddish brown tomentose dorsally; tergite V silvery white tomentose anterolaterally; sternum brown-black, white pilose and tomentose; sternites V–VII brown pilose. *Genitalia*: not dissected.

♂. Unknown.

Holotype ♀, PNG: NEW GUINEA (SE): nr Port Glasgow: Mamai Plain, 21.I.1965, light trap, R. Straatman (BISHOP 11,569). 1 ♀ paratype, IRIAN: NEW GUINEA (NW): Japen I: SSE Sumberbaba: Dawai Riv, X.1962, N. Wilson (BISHOP).

This species can be separated from its congeners by the gray coxae and the wing infuscation pattern.

During this study, I was privileged to be able to examine 3 of Matsumura's type specimens of *Anthrax* which he described in 1916. The type of *A. yamashiroensis* has been discussed earlier in this paper where it has been transferred to *Brachyanax*. The

type of *Argyromoeba boninensis* Matsumura was not found in the type collection of Hokkaido University and may be lost.

**Exhyalanthrax ogasawarensis** (Matsumura), **new combination**

FIG. 14-15

*Anthrax ogasawarensis* Matsumura, 1916: 281.

*Villa ogasawarensis* (Matsumura): Painter, 1932: 364.

Examination of the type ♀ shows this species to belong to the *E. afer* group, whose species are known to parasitize pupae of cyclorrhaphous Diptera. The type and 13 specimens (both ♂ and ♀) in the Bishop Museum correspond very well to the original description. Males tend to have a less-extensive infuscation pattern than females (FIG. 14). The antenna is illustrated in FIG. 15.

**Anthrax koshunensis** Matsumura

*Anthrax koshunensis* Matsumura, 1916: 282.

Examination of the type ♀ shows this species to belong to the *Anthrax distigma* group, commonly found throughout the Pacific. *A. koshunensis* can be separated from *A. distigma* Wiedemann by the white hairs at the base of the halter (these hairs are black or mixtures of black and brown or aeneous hairs in *A. distigma*). The type specimen is in good condition except for the badly rubbed abdominal tergum.

Specimens of *Anthrax* from Hawaii previously determined as *A. distigma* are actually *A. koshunensis*. The lack of spotting in the hyaline portion of the wing in the type is a variation in the species, as is shown in the numerous specimens of this species in the Bishop Museum.

LITERATURE CITED

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