

This article was downloaded by: [University of Bath]

On: 13 February 2014, At: 12:45

Publisher: Taylor & Francis

Informa Ltd Registered in England and Wales Registered Number: 1072954 Registered office: Mortimer House, 37-41 Mortimer Street, London W1T 3JH, UK



## Journal of Natural History

Publication details, including instructions for authors and subscription information:

<http://www.tandfonline.com/loi/tnah20>

### Review of the Caribbean species of Dohrniphora Dahl (Diptera: Phoridae)

Giar-Ann Kung<sup>a</sup> & Brian V. Brown<sup>a</sup>

<sup>a</sup> Natural History Museum of Los Angeles County, Los Angeles, CA, USA

Published online: 28 Nov 2010.

To cite this article: Giar-Ann Kung & Brian V. Brown (2006) Review of the Caribbean species of Dohrniphora Dahl (Diptera: Phoridae), Journal of Natural History, 40:32-34, 1931-1945, DOI: [10.1080/00222930601046493](https://doi.org/10.1080/00222930601046493)

To link to this article: <http://dx.doi.org/10.1080/00222930601046493>

PLEASE SCROLL DOWN FOR ARTICLE

Taylor & Francis makes every effort to ensure the accuracy of all the information (the "Content") contained in the publications on our platform. However, Taylor & Francis, our agents, and our licensors make no representations or warranties whatsoever as to the accuracy, completeness, or suitability for any purpose of the Content. Any opinions and views expressed in this publication are the opinions and views of the authors, and are not the views of or endorsed by Taylor & Francis. The accuracy of the Content should not be relied upon and should be independently verified with primary sources of information. Taylor and Francis shall not be liable for any losses, actions, claims, proceedings, demands, costs, expenses, damages, and other liabilities whatsoever or howsoever caused arising directly or indirectly in connection with, in relation to or arising out of the use of the Content.

This article may be used for research, teaching, and private study purposes. Any substantial or systematic reproduction, redistribution, reselling, loan, sub-licensing, systematic supply, or distribution in any form to anyone is expressly forbidden. Terms & Conditions of access and use can be found at <http://www.tandfonline.com/page/terms-and-conditions>

# Review of the Caribbean species of *Dohrniphora* Dahl (Diptera: Phoridae)

GIAR-ANN KUNG & BRIAN V. BROWN

Natural History Museum of Los Angeles County, Los Angeles, CA, USA

(Accepted 28 September 2006)

## Abstract

Based on previous records and newly collected material, we review the species of *Dohrniphora* of the Caribbean islands, not including Trinidad. Five species are present: *D. cornuta* (Bigot), *D. dispar* (Enderlein), *D. divaricata* (Aldrich) and two new species, *D. seriata* and *D. sexspinoso*. We redescribe the three previously known species, and illustrate all with scanning electron micrographs of the posterior face of the hind femur and drawings of the male genitalia. Both of the new species are unusual in having six scutellar setae instead of the usual four. The species *D. cavifemur* Borgmeier is synonymized with *D. divaricata*, and the allotype male identified as *D. cornuta*. A key to the males of Caribbean species of *Dohrniphora* is provided.

**Keywords:** Caribbean, *Dohrniphora*, Phoridae, taxonomy

## Introduction

The genus *Dohrniphora* Dahl is a large group (currently 167 species) of phorids found worldwide. Although the life history of most species is unknown, some have larvae that are scavengers, fungivores, kleptoparasites, facultative predators, and parasitoids (Disney 1994). One species, *D. cornuta* (Bigot), has been accidentally introduced around the world, and is occasionally of economic importance, entering houses, infesting food, and causing human myiasis.

We are currently revising the New World species of the genus (Kung and Brown 2005), with over 80 described species. As part of this revision, we herein treat the species found in the Caribbean islands, excluding Trinidad (the fauna of which is essentially South American and has been partly covered by Disney 1995), based on older material and newly collected specimens from recent survey projects.

## Methods and materials

This study, like most modern revisions of *Dohrniphora* species, is based on male specimens. Female *Dohrniphora* are much less distinctive than the males, and lack the most important

---

Correspondence: Giar-Ann Kung, Natural History Museum of Los Angeles County, 900 Exposition Boulevard, Los Angeles, CA 90007, USA. Email: gkung@nhm.org

Published 4 December 2006

ISSN 0022-2933 print/ISSN 1464-5262 online © 2006 Taylor & Francis

DOI: 10.1080/00222930601046493

diagnostic characters (the setae and sculpturing of the inner face of the hind femur) used for species recognition. Most specimens in this study were collected into alcohol, critical point-dried, and either card point-mounted or glued to insect pins. In addition to the usual specimen labels, all specimens were labelled with a unique number (often with a barcode), and entered into a database. The barcode numbers are cited for holotypes to facilitate their later recognition.

Maps of species distributions based on the records cited herein, as well as other, non-Caribbean records, are available at [www.discoverlife.org](http://www.discoverlife.org). Users can type “*Dohrniphora*” on the search page, then click on the name of the species of interest, and then “Global Map.”

SEM illustrations of all species will be deposited in MorphBank ([www.morphbank.org](http://www.morphbank.org)).

The following collection abbreviations are used: CMNH, Carnegie Museum of Natural History; LACM, Natural History Museum of Los Angeles County; MCZC, Museum of Comparative Zoology, Harvard University; USNM, United States National Museum, Smithsonian Institution.

## Species treatments

### *Dohrniphora cornuta* (Bigot, 1857)

(Figures 1, 2, 23, 24)

*Phora cornuta* Bigot 1857, p 348 (French edition: 1857, p 827).

*Diploneura (Dohrniphora) cornuta*: Schmitz 1926, p 44.

*Dohrniphora cornuta*: Borgmeier 1960, p 277, Figure 28.

*Phora navigans* Frauenfeld 1867, p 154.

*Phora cleghorni* Bigot 1890, p 191.

*Phora chlorogastra* Becker 1901, p 32.

*Phora mordax* Brues 1911, p 531, Figure 1.

*Dohrniphora venusta*: Malloch 1912, p 432.

*Dohrniphora bequaerti* Schmitz 1914, p 105, Figure 1.

*Apocephalus flaviventris* Silva Figueroa 1916, p 15, Figure 8.

*Dohrniphora divaricata* var. *basalis* Santos Abreu 1921, p 11.

*Dohrniphora divaricata* var. *obscura* Santos Abreu 1921, p 11.

*Dohrniphora fulva* Santos Abreu 1921, p 12, Figure AB, Plate figure 1.

*Dohrniphora opposita* Borgmeier 1925, p 107, Plate 2, Figure 6; 1960, p 277.

*Dohrniphora crockeri* Van Duzee 1933, p 70.

*Dohrniphora willowosi* Van Duzee 1933, p 70.

*Dohrniphora cavifemur* Borgmeier 1969, p 1–2 (in part, male only), misidentification.

Syntypes: ♂, ♀. Cuba (Paris Museum) (not examined).

## Diagnosis

*Dohrniphora cornuta* has distinctive fine dorsobasal setae on the posterior face of the hind femur, in addition to a group of four to five ventrobasal peg-like setae (Figures 1, 2). In his 1969 Dominica paper, Borgmeier describes the mid coxa as dark brown. We have examined specimens from the same localities, and the mid coxa is clearly yellow, the same colour as the rest of the legs.

We also examined the holotype female of *Dohrniphora cavifemur* Borgmeier, described from Dominica, and hereby synonymize it with *D. divaricata* (see below). The hind femur of the allotype male of *D. cavifemur*, however, resembles that of *D. cornuta*, except for the

“dorsal excavation”. A specimen of *D. divaricata* we examined had a similar distortion of the hind femora when placed in phenol, and thus the defining character of *D. cavifemur* is shown to be an artifact of preparation.

### Description

*Male.* Mean body length 1.70 mm; range 1.62–2.25 mm. Mean frontal ratio 0.54; range 0.50–0.59. Frons dark brown to black. Ventral fronto-orbital setae at approximately same level as ventral interfrontal setae. Flagellomere 1 brown. Palpus orange, with five apical setae. Scutum and scutellum dark brown. Two pairs of scutellar setae present; posterior pair approximately 3.5 times length and thickness of anterior pair. Dorsal half of pleuron brown, ventral half yellow. Anepisternum slightly dark posteriorly. Mean wing length 1.69 mm; range 1.62–2.25 mm. Mean costal length 0.51 wing length; range 0.47–0.53. Mean costal sector ratio 8.96:2.14:1.00; range 6.80–11.67:1.50–3.00:1.00. Halter yellow. Legs yellow. Postcoxal lobes small, yellow. Posterior face of hind femur (Figures 1, 2) with short, fine, sparse dorsal setae in basal third, in addition to a group of four or five thicker ventral peg-like setae. Hind tibia without isolated setae. Abdominal tergites mostly dark brown, with or without yellow to orange markings medially. Tergite 1 yellow laterally, anterior half of tergite 2 yellow. Venter of abdomen white. Mean cercus length 0.22 mm; range 0.19–0.28 mm (Figures 23, 24).

### Distribution

Cosmopolitan.

### Material examined

**Bahamas:** South Bimini Island, 1♂, July 1951, 2♂, August 1951, C. and P. Vaurie, 1♂, 10–14 April 1952, E. Mayr (USNM). **Dominica:** Anse Bouleau, 1♂, 10 October 1964, P. J. Spangler, Bredin-Archbold Smithsonian Biodiversity Survey (=BASBS); Clarke Hall, 1♂, 10–20 April 1964, O. S. Flint, light trap (allotype of *D. cavifemur*), 4♂, 11–20 January 1965, 7♂, 21–31 January 1964, 3♂, 11–20 February 1965, 1♂, 1–10 March 1965, 1♂, 11–20 March 1965, W. W. Wirth, Malaise trap, BASBS; Fond Figs River, 1♂, April 1966, R. J. Gagne, 400 ft; Manets Gutter, 1♂, 5 March 1965, W. W. Wirth, BASBS; Saint Paul, Springfield Estate, 2.5 km ENE Canefield, 15.35°N, 61.37°W, 1♂, 11–18 June 1991, J. E. Rawlins, S. A. Thompson, 450 m; South Chiltern Estate, 1♂, 2 February 1965, W. W. Wirth, BASBS; Woodford Hill, 1♂, 27 February 1965, W. W. Wirth, swamp forest, BASBS (USNM). **Dominican Republic:** Pedernales, 23.5 km N Cabo Rojo, 18.10°N, 71.63°W, 2♂, 13–19 July 1990, 11♂, 19–25 July 1990, L. Masner, J. Rawlins, C. Young, intercept trap, deciduous forest, 540 m, 26 km N Cabo Rojo, 18.10°N, 71.63°W, 9♂, 13–20 July 1990, 1♂, 13–25 July 1990, L. Masner, J. Rawlins, C. Young, intercept trap, deciduous forest, 730 m, La Abeja, 38 km NNW Cabo Rojo, 18.15°N, 71.63°W, 1♂, 15 July 1987, J. C. Rawlins, R. L. Davidson, 1250 m (CMNH). **Jamaica:** Runaway Bay, 1♂, 1–8 March 1970, W. W. Wirth, Malaise trap (USNM). **Nevis:** Dasents Estate, 17.12°N, 62.57°W, 1♂, 28 August to 21 September 1985, L. Coote, T. Blanchette, Malaise trap, citrus orchard (LACM). **Puerto Rico:** Rio Grande, El Verde Station, 2.1 km WNW Pico El Yunque, Sierra de Luquillo, 18.32°N, 65.82°W, 1♂, 3–6 June 1996, C. Young, R. Davidson, M. Klingler, W. Zanol, J. Rawlins, S. Thompson, 355 m (CMNH). **Saint Kitts:** 17.35°N, 62.73°W, 1♂, 1–27 August 1985, L. Coote, Malaise trap, 300 m (LACM). **Saint Lucia:** Anse Galet, 1 km SSW Anse La Raye, 13.93°N, 61.05°W, 1♂, 21–30 June 1991, J. E. Rawlins, S. A. Thompson, 50 m (CMNH).

***Dorhniphora dispar*** (Enderlein, 1912)

(Figures 3, 4, 19, 21, 22, 25, 26)

*Phora dispar* Enderlein 1912, p 29 (♂; Hamônia, Santa Catarina).

*Dorhniphora dispar*: Schmitz 1923, p 55–56.

*Diploneura (Dorhniphora) dispar*: Borgmeier 1935, p 431, Figures 2, 3, 5, Plate 5, Figure 4.

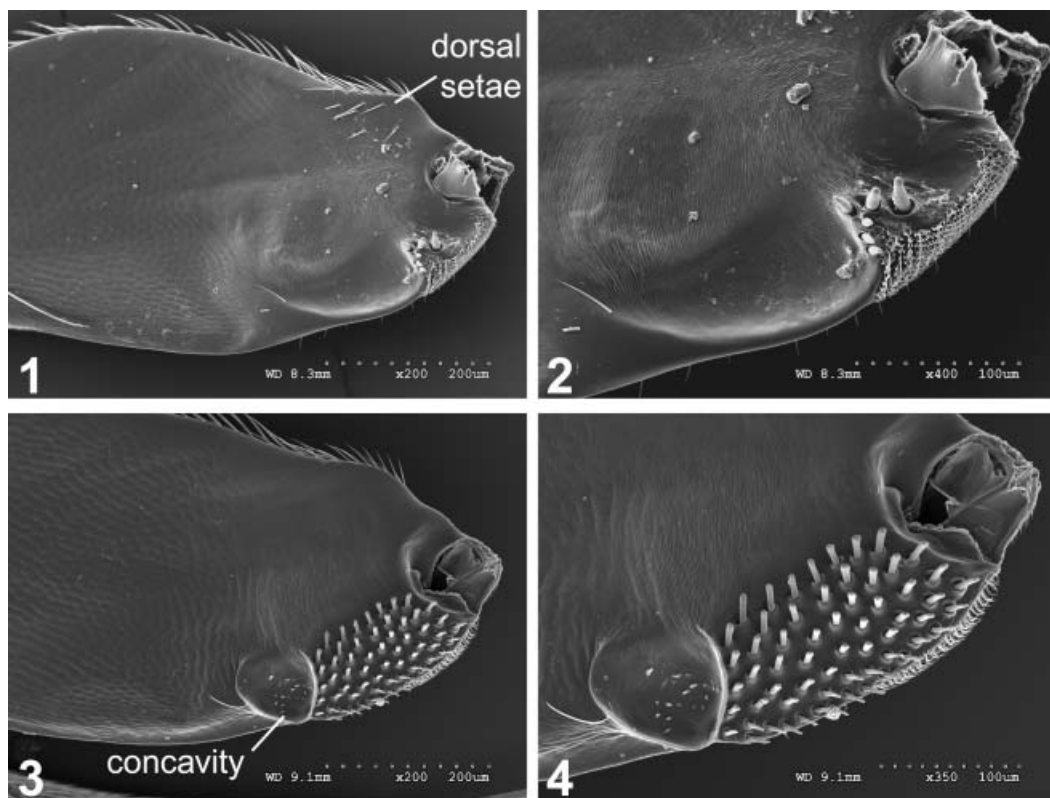
Holotype: ♂. Brazil: Santa Catarina, Lüderwaldt, Polish Academy of Science, Warszawa, Poland (not examined).

*Diagnosis*

*Dorhniphora dispar* is recognized by the orange, enlarged flagellomere 1 (Figures 21, 22) and the unusually broad and darkened fore tarsomere 5 (Figure 19). The distinct dark, circular carina on the posterior face of the hind femur, posterior to a group of approximately 60 ventrobasal peg-like setae also help distinguish it from other species (Figures 3, 4).

*Description*

*Male*. Mean body length 2.33 mm; range 1.97–2.81 mm. Mean frontal ratio 0.46; range 0.42–0.48. Frons brown. Ventral fronto-orbital setae at approximately same level as



Figures 1–4. Posterior face of hind femur. (1, 2) *Dorhniphora cornuta* [LACM ENT 186301]. (3, 4) *D. dispar* [LACM ENT 219829].

ventral interfrontal setae. Flagellomere 1 orange, enlarged, approximately one-half length of eye (Figures 21, 22). Palpus orange, with five apical setae. Scutum and pleuron yellow. Scutellum brown, sometimes yellow, with two pairs of scutellar setae. Posterior pair approximately 3.5 times length and thickness of anterior pair. Mean wing length 2.30 mm; range 2.19–2.62 mm. Mean costal length 0.49 wing length; range 0.47–0.52. Mean costal sector ratio 10.47:2.22:1.00; range 7.50–12.50:1.57–2.50:1.00. Halter yellow. Legs, including coxae, yellow. Fore tarsomere 5 dark brown to black, broadening towards apex, with medial, apical point; pulvilli enlarged (Figure 19). Postcoxal lobes not developed. Posterior face of hind femur (Figures 3, 4) with dark, ventral circular carina surrounding concavity, apical to group of approximately 60 basal, apically-rounded, curve-tipped, peg-like setae. Hind tibia without isolated setae. Abdominal tergites with yellow anterior and posterior margins, yellow medially, dark brown laterally. Venter of abdomen white to yellow. Mean cercus length 0.27 mm; range 0.23–0.30 mm (Figures 25, 26).

### *Distribution*

Brazil, Panama, Ecuador, West Indies.

### *Material examined*

**Dominica:** Antrim, 1♂, 10 March 1956, J. F. G. Clarke, 305 m; path to Cabrits, 1♂, 2 April 1966, R. Gagne, Bredin-Archbold Smithsonian Biological Survey (=BASBS); Clarke Hall, 1♂, 8–10 January 1965, 11♂, 11–20 March 1965, 3♂, 21–31 March 1965, W. W. Wirth, BASBS, 1♂, 11–20 January 1965, 1♂, 21–31 January 1965, 2♂, 1–10 February 1965, 7♂, 21–28 February 1965, 3♂, 21–31 March 1965, W. W. Wirth, light trap, BASBS, 6♂, 21–31 January 1965, W. W. Wirth, Malaise trap, BASBS; Clark Hall Estate, 1♂, 28 March 1966, 1♂, 6 April 1966, 5♂, 24 April 1966, 5♂, 27 April 1966, R. J. Gagne, BASBS, 1♂, 12 May 1966, 1♂, 29 May 1966, 1♂, 30 May 1966, 7♂, 4 June 1966, 1♂, 6 June 1966, 1♂, 7 June 1966, 1♂, 13 June 1966, G. Steyskal, BASBS; Fond Figue River, 1♂, 25 January 1965, W. W. Wirth, BASBS, 2♂, April 1966, 1♂, 12 April 1966, 3♂, 29 April 1966, R. J. Gagne, 122 m, BASBS; mouth of Hodges River, 1♂, 27 February 1965, W. W. Wirth, swamp forest, BASBS; Manets Gutter, 2♂, 1 March 1965, 6♂, 5 March 1965, 3♂, 1 March 1965, W. W. Wirth, BASBS; Tareau Cliffs, La Fanchette, 1♂, 13 April 1966, R. J. Gagne; Trafalgar Falls, 2♂, 5–6 April 1966, R. J. Gagne, 366 m; South Chiltern Estate, 3♂, 20 February 1965, W. W. Wirth, BASBS (LACM, USNM). **Dominican Republic:** Hato Mayor, Parque Los Haitises, 3 km W Cueva de Arena, 19.07°N, 69.48°W, 6♂, 7–9 July 1992, R. Davidson, J. Rawlins, S. Thompson, C. Young, mesic lowland forest; Pedernales, 23.5 km N Cabo Rojo, 18.10°N, 71.63°W, 2♂, 13 July 1990, C. Young, J. Rawlins, S. Thompson, 540 m, 6♂, 13–19 July 1990, 5♂, 13–25 July 1990, 12♂, 19–21 July 1990, 8♂, 19–25 July 1990, L. Masner, J. Rawlins, C. Young, intercept trap, deciduous forest, 540 m; 26 km N Cabo Rojo, 18.10°N, 71.63°W, 20♂, 13–20 July 1990, 15♂, L. Masner, J. Rawlins, C. Young, intercept trap, wet deciduous forest, 730 m (CMNH). **Jamaica:** Hardwar Gap, 1♂, 10 March 1970, Wirth and Farr; Runaway Bay, 12♂, February 1969, W. W. Wirth, stream bed, 3♂, 1–8 March 1970, W. W. Wirth (USNM); 1♂, other data illegible (MCZC). **Montserrat:** Cassava Ghaut, Beattie House, 16°45.91'N, 62°12.95'W, 1♂, 30 June to 4 July 2002, A. Krakower, Malaise trap, 632 ft; White River, 1♂, November 1967, N. L. H. Krauss (USNM). **Puerto Rico:** Isabela, Bosque Estatal de Guajataca,

Montanas Aymamon, 18.42°N, 66.96°W, 1♂, 14–15 June 1996, J. Rawlins, W. Zanol, R. Davidson, C. Young, M. Klingler, S. Thompson, forest, 210 m (CMNH); Mayaguez, 1♂, 5–12 May 1930, G. S. Tulloch (USNM); Rio Grande, El Verde Station, 3.1 km WNW Pico El Yunque, Sierra de Luquillo, 10.32°N, 65.82°W, 2♂, 3–6 June 1996, C. Young, R. Davidson, M. Klingler, W. Zanol, J. Rawlins, S. Thompson, 355 m (CMNH); Utuado, Bosque Estatal de Rio Abajo, 4.9 km W Dos Bocas, 18.33°N, 66.72°W, 1♂, 17 June 1996, C. Young, J. Rawlins, R. Davidson, W. Zanol, S. Thompson, M. Klingler, 380 m (CMNH).

***Dorhniphora divaricata* (Aldrich, 1896)**

(Figures 5–12, 20, 27, 28)

*Phora divaricata* Aldrich 1896, p 437.

*Dohrniphora divaricata*: Borgmeier 1961, p 111.

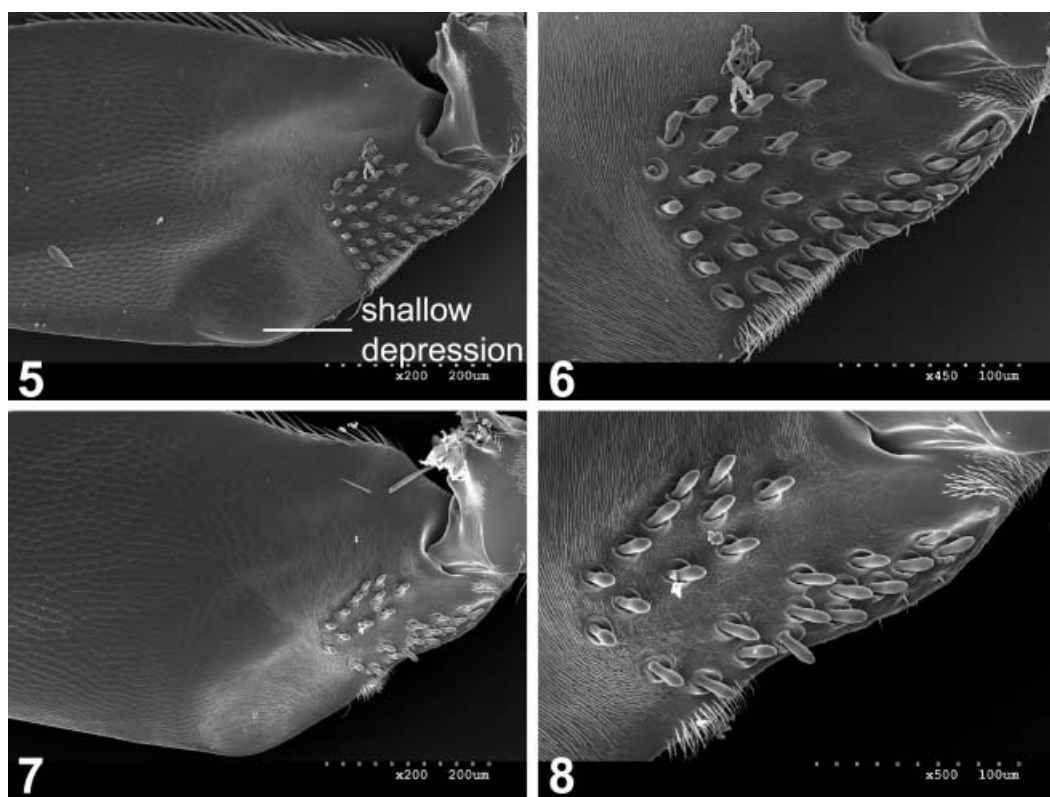
*Dohrniphora venusta*: Brues 1915, p 95.

*Dohrniphora cornuta*: Schmitz 1929, p 22, 25, 32.

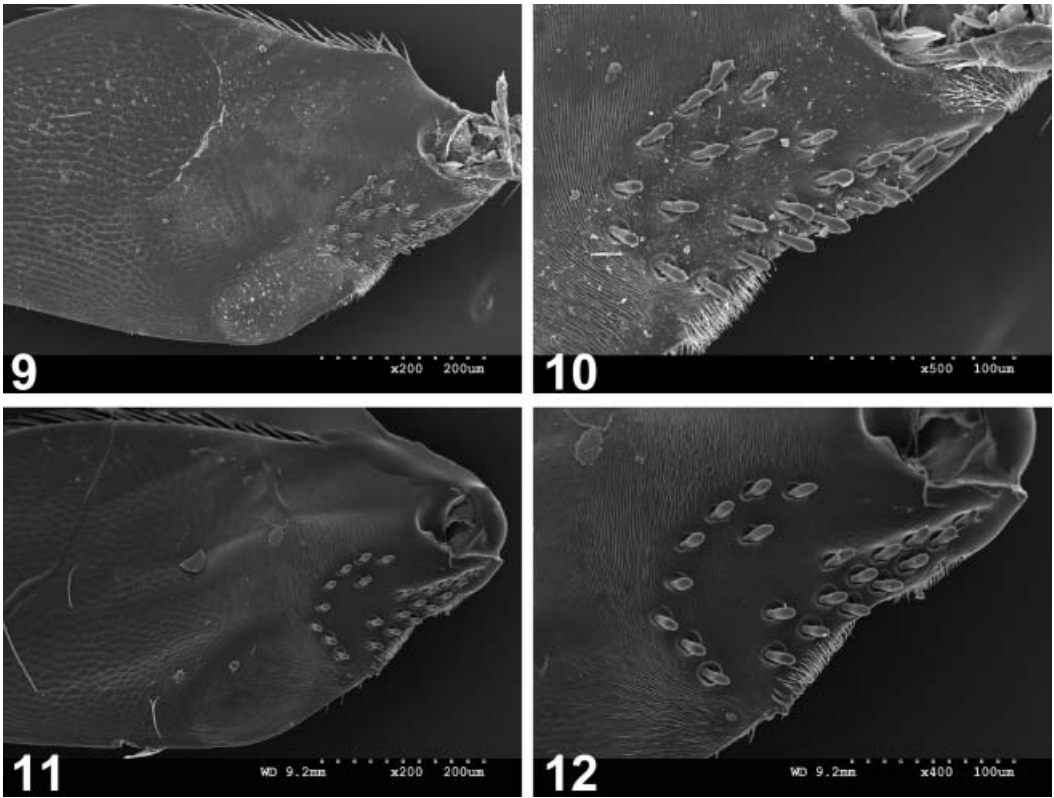
*Dohrniphora diffusa* Borgmeier 1960, p 281, Figure 35.

*Dohrniphora cavifemur* Borgmeier 1969, p 1–2, Figures 1, 2 (in part, female only), new synonymy.

Holotype: ♂. Saint Vincent: no other data (USNM no. 7765; LACM ENT 219927) (examined).



Figures 5–8. Posterior face of hind femur, variation in *Dohrniphora divaricata*. (5, 6) Paratype, Saint Vincent [LACM ENT 210546]. (7, 8) Dominica [LACM ENT 210539].



Figures 9–12. Posterior face of hind femur, variation in *Dohnniphora divaricata*. (9, 10) Saint Kitts [LACM ENT 210487]. (11, 12) Puerto Rico [LACM ENT 210822].

### Diagnosis

Among Caribbean species, *Dohnniphora divaricata* is differentiated by its four scutellar setae, and the presence of a shallow depression apical to approximately 22–34 scattered peg-like setae on the posterior face of the hind femur. The number and pattern of peg-like setae vary, although there are usually two rows along the ventral margin, in addition to a larger group of setae dorsal to the row (sometimes in a curved or triangular pattern) (Figures 5–12).

We examined the holotype female of *Dohnniphora cavifemur* Borgmeier and found it to be a probable female of *D. divaricata*. Although taxonomy of *Dohnniphora* is based on males, the number of tergal plates and colour of the mid coxa allowed us to match it with other Caribbean specimens of *D. divaricata*. The distortion of the hind femur, given by Borgmeier as the main character of this species, is an artifact of preparation (see Diagnosis section of *D. cornuta*).

### Description

*Male*. Mean body length 2.09 mm; range 1.66–2.50 mm. Mean frontal ratio 0.51; range 0.47–0.54. Frons brown to dark brown. Ventral fronto-orbital setae at approximately same level as ventral interfrontal setae. Flagellomere 1 brown. Palpus orange, with five apical



setae. Scutum and dorsal half of pleuron light brown to brown. Ventral half of pleuron white. Scutellum dark brown. Two pairs of scutellar setae present; posterior pair twice length and thickness of anterior pair. Mean wing length 1.92 mm; range 1.50–2.25 mm. Mean costal length 0.51 wing length; range 0.48–0.54. Mean costal sector ratio 9.50:2.24:1.00; range 7.00–11.33:1.67–2.40:1.00. Halter white. Legs mostly light brown; fore and hind coxae white, mid coxa dark brown. Postcoxal lobes well developed, yellow. Posterior face of hind femur (Figures 5–12) with large triangular group of basal peg-like setae; number of setae varies, but usually with two rows along ventral margin of femur and several more dorsal peg-like setae (see further discussion in Variation, below); also with shallow round depression posterior to setae. Hind tibia without isolated setae. Abdominal tergites dark brown, yellow medially. Venter of abdomen white. Mean cercus length 0.26 mm; range 0.20–0.30 mm (Figures 27, 28).

### *Variation*

The variation in the setae of the posterior face of the hind femur is extensive. Specimens from the type locality in Saint Vincent have the largest number of setae (Figures 5, 6), and are similar to mainland specimens we have seen (for example from Costa Rica). Sampling is insufficient to determine if this variation has a strong geographical component, and whether certain patterns are restricted to individual islands. Some of the variants are shown here (Figures 5–12).

### *Distribution*

Argentina, Brazil, Costa Rica, Trinidad, West Indies.

### *Material examined*

**Dominica:** Cabrit Swamp, 1♂, 23 February 1965, W. W. Wirth, light trap, Bredin-Archbold Smithsonian Biodiversity Survey (=BASBS) (USNM); Clarke Hall, 1♂, 4 February 1964, D. F. Bray (USNM); 1♂, June 1964, O. L. Flint, light trap (holotype of *D. cavifemur*), 2♂, 21–31 January 1965, 1♂, 21–31 March 1965, W. W. Wirth, Malaise trap, BASBS (USNM); 1♂, 21–28 February 1965, 1♂, 1–10 March 1965, 1♂, 21–31 March 1965, W. W. Wirth, light trap; BASBS (USNM); 1♂, 1–10 February 1965, W. W. Wirth, BASBS (USNM); 1♂, 30 March 1966, 1♂, 3 April 1966, R. J. Gagne, at light, BASBS (USNM); 2♂, 4 June 1966, 1♂, 7 June 1966, G. Steyskal, BASBS (USNM); Layou, 1♂, 29 May 1966, G. Steyskal, BASBS (USNM); path to Cabrits, 1♂, 2 April 1966, R. J. Gagne, BASBS (USNM); Saint Paul, Springfield Estate, 2.5 km ENE Canefield, 15.35°N, 61.37°W, 2♂, 11–18 June 1991, J. E. Rawlins, S. A. Thompson, 450 m (CMNH). **Dominican Republic:** Hato Mayor, Parque Los Haitises, 3 km W Cueva de Arena, 19.67°N, 69.48°W, 14♂, 7–9 July 1992, R. Davidson, J. Rawlins, S. Thompson, C. Young, mesic lowland forest, 20 m (CMNH, LACM), Hato Mayor, Parque Los Haitises, near Cueva de Arena, 19.67°N, 69.47°W, 6♂, 7–9 July 1992, C. Young, R. Davidson, S. Thompson, J. Rawlins, coastal vegetation on limestone, 10 m (CMNH); La Estrelleta, Rio Limpio. 1♂, 15 August 1980, A. Norrbom, 650 m (CMNH); Pedernales, 23.5 km N Cabo Rojo, 18.10°N, 71.63°W, 4♂, 13–19 July 1990, 2♂, 13–25 July 1990, 4♂, 19–21 July 1990, 1♂, 19–25 July 1990, L. Masner, J. Rawlins, C. Young, intercept trap, deciduous forest, 540 m, 26 km N Cabo Rojo, 18.10°N, 71.63°W, 1♂, 13–20 July 1990, intercept trap, wet

deciduous forest, 730 m (CMNH, LACM). **Grenada:** 1♂, no other data (MCZC). **Jamaica:** Hardwar Gap, 1♂, 10 March 1970, Wirth and Farr (USNM); Annotto Bay, 1♂, 25 February 1969, W. W. Wirth, marsh (USNM); Runaway Bay, 1♂, 16–28 February 1969, W. W. Wirth (USNM); Runaway Bay, 11♂, February 1969, W. W. Wirth (LACM, USNM), stream bed; Runaway Bay, 3♂, 1–8 March 1970, W. W. Wirth, Malaise trap (USNM). **Nevis:** Newcastle, 2♂, 9 July to 3 August 1994, B. Buckland, pan trap (LACM). **Puerto Rico:** El Yunque, 2♂, 15–24 February 1969, T. and B. Hlavac, L. Herman Jr., 640–670 m (MCZC); Maricao, 1♂, July 1960, J. Maldonado C., LT (USNM); Rio Grande, El Verde Station, 3.1 km WNW Pico El Yunque, Sierra de Luquillo, 10.32°N, 65.82°W, 5♂, 3–6 June 1996, C. Young, R. Davidson, M. Klinger, W. Zanol, J. Rawlins, S. Thompson, 355 m (CMNH, LACM). **Saint Kitts:** Greenhill, 14♂, 12–31 July 1985, 88♂, 1–27 August 1985, L. D. Coote, Malaise trap, rainforest, 300 m; Phillips Level, 17.35°N, 62.77°W, 4♂, 1985, L. D. Coote, Malaise trap; Wingfield Mtn., 2♂, 1–30 November 1985, L. D. Coote, Malaise trap, old field/forest, 400 m (LACM). **Saint Lucia:** Anse La Raye, Anse Galet, 1 km SSW Anse La Raye, 13.93°N, 61.05°W, 2♂, 21–30 June 1991, J. E. Rawlins, S. A. Thompson, 50 m (CMNH). **Saint Vincent:** 3♂, no other data (paratypes) (LACM, USNM).

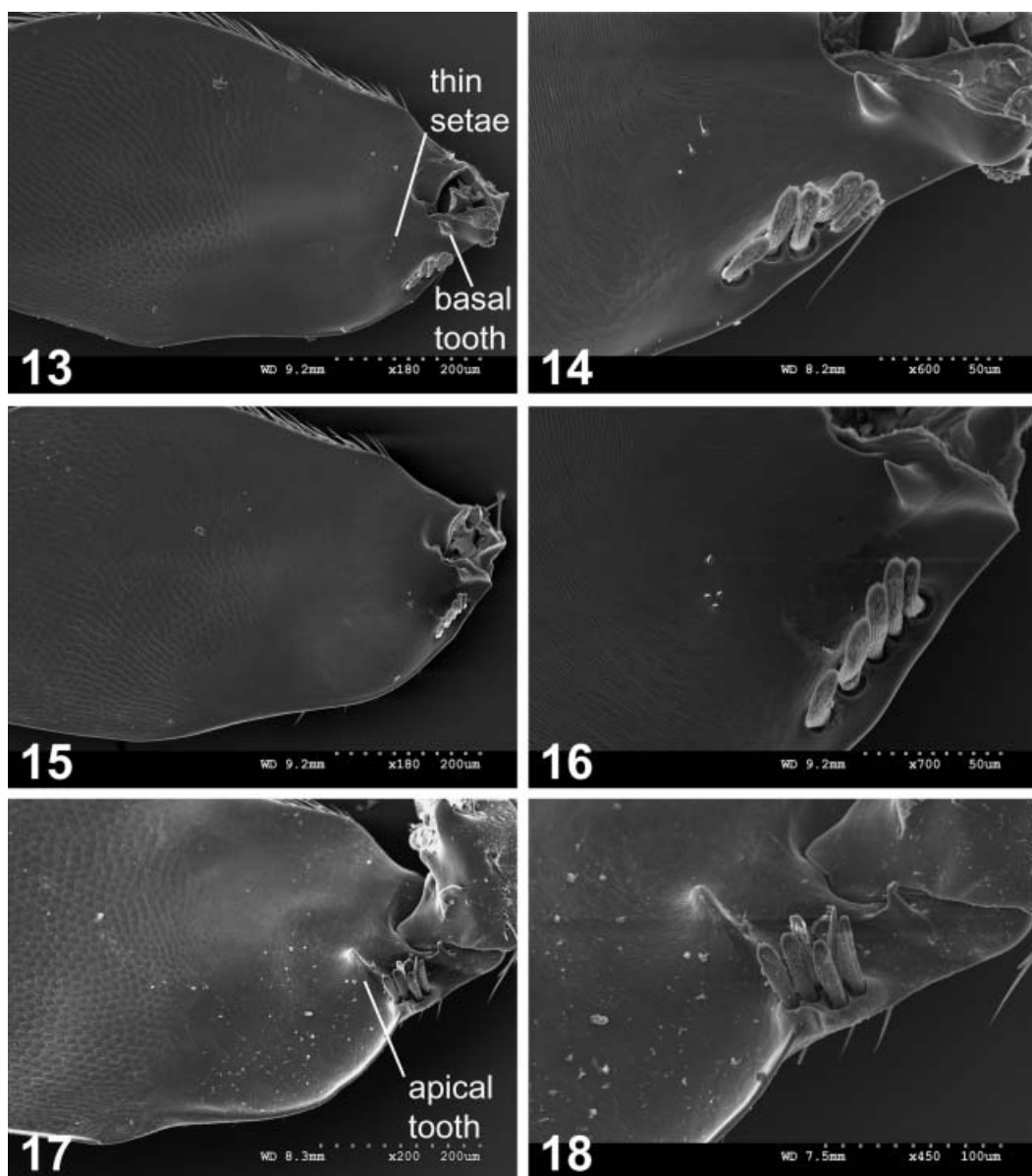
***Dohrniphora seriata* new species**  
(Figures 13–16, 29, 30)

*Diagnosis*

*Dohrniphora seriata*, *D. sexspinosus* new species, and *D. scutellaris* Borgmeier are the only known New World *Dohrniphora* species with six scutellar setae. All three species key to *D. scutellaris* in Borgmeier's 1960 key. We did not examine any specimens of *D. scutellaris*, but based on the information in the description (including figures), it differs from the Caribbean species in having approximately 14 scattered ventrobasal peg-like setae. There are only four or five ventrobasal peg-like setae on *D. seriata* (Figures 13–16), arranged in a relatively straight row, and the six ventrobasal peg-like setae in *D. sexspinosus* are closely grouped (Figures 17, 18), not in a row (as in *D. seriata*) nor scattered (as in *D. scutellaris*).

*Description*

**Male.** Mean body length 1.95 mm; range 1.41–2.50 mm. Mean frontal ratio 0.52; range 0.50–0.54. Frons brown. Ventral fronto-orbital setae at approximately same level as ventral interfrontal setae. Flagellomere 1 orange to brown. Palpus yellow, with five apical setae. Thorax yellow. Scutellum with three pairs of setae; middle pair approximately 3.5 times length and thickness of anterior and posterior pairs; anterior and posterior pairs subequal. Mean wing length 1.83 mm; range 1.44–2.09 mm. Mean costal length 0.51 wing length; range 0.49–0.54. Mean costal sector ratio 7.50:2.18:1.00; range 6.50–9.50:1.83–3.25:1.00. Halter white. Legs yellow. Apex of hind femur dark, although in some specimens only faintly. Postcoxal lobes not developed. Posterior face of hind femur with relatively straight ventrobasal row of four or five peg-like setae (Figures 15, 16); some specimens with one or two setae ventral or dorsal to rest of setae in the row, not in a straight line (Figures 13, 14). Posterior face of hind femur also with basal tooth near trochanter and three or four small, thin setae dorsal to and slightly apical of ventral row of setae. Hind tibia without isolated setae. Abdominal tergites mostly dark brown, yellow medially. Venter of abdomen yellow. Mean cercus length 0.26 mm; range 0.19–0.30 mm (Figures 29, 30).



Figures 13–18. Posterior face of hind femur. (13, 14) *Dohrniphora seriata* [LACM ENT 184595]. (15, 16) *D. seriata* [LACM ENT 210889]. (17, 18) *D. sexspinosa* [LACM ENT 179771].

### *Distribution*

British Virgin Islands, Puerto Rico, US Virgin Islands.

### *Etymology*

From the Latin word *series*, meaning row, referring to the ventrobasal row of setae on the posterior face of the hind femur.

Holotype: ♂. **US Virgin Islands:** Saint Thomas: Estate Botany Bay, 18.35°N, 64.92°W, July–15 September 1994, M. Ivie et al. FIT (LACM) [barcode: LACM ENT 027609]. Paratypes: **British Virgin Islands:** Guana Island: 1♂, 1–14 July 1984, S. E. and P. M. Miller, North Bay, 1♂, 15–23 July 1985, S. E. and P. M. Miller, Malaise trap, *Coccoloba* forest, sea level, 0–80 m (USNM), Plantation Cistern, 18.49°N, 64.58°W, 1♂, 15–18 April 1993, R. R. Snelling, Malaise trap, White Beach, 18.47°N, 64.67°W, 1♂, 2–10 October 2002, W. P. Liao, Malaise trap (LACM). **Puerto Rico:** Rio Grande, El Verde Station, 3.1 km WNW Pico El Yunque, Sierra de Luquillo, 18.32°N, 65.82°W, 1♂, 3–6 June 1996, C. Young, R. Davidson, M. Klingler, W. Zanol, J. Rawlins, S. Thompson, 355 m (CMNH). **US Virgin Islands:** Saint Thomas: Estate Botany Bay, 18.35°N, 64.92°W, 2♂, July to 15 September 1994, M. Ivie et al. FIT (LACM).

***Dohnniphora sexspinosus* new species**

(Figures 17, 18, 31, 32)

*Diagnosis*

*Dohnniphora sexspinosus* is easily distinguished from other *Dohnniphora* species by its six scutellar setae, and close group of six ventrobasal peg-like setae. *D. sexspinosus* keys to *D. scutellaris* in Borgmeier's 1960 key because of the presence of six scutellar setae, but the arrangement and number of the ventrobasal peg-like setae on the hind femur differs. (See Diagnosis section of *D. seriata*.)

*Description*

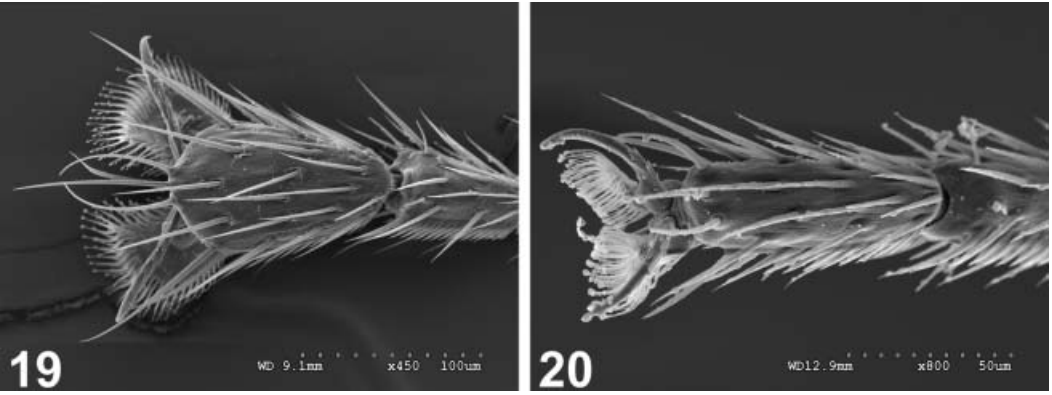
*Male.* Mean body length 2.44 mm; range 2.12–2.72 mm. Mean frontal ratio 0.50; range 0.48–0.51. Frons and flagellomere 1 orange to brown. Ventral fronto-orbital setae at approximately same level as ventral interfrontal setae. Palpus yellow, with four or five apical setae. Scutum and scutellum light brown. Scutellum with three pairs of scutellar setae. Middle pair approximately 2.5 times length and thickness of other pairs. Anterior and posterior pairs about equal in size. Pleuron yellow. Mean wing length 2.22 mm; range 2.00–2.41 mm. Mean costal length 0.52 wing length; range 0.49–0.53. Mean costal sector ratio 8.54:3.11:1.00; range 7.67–10.75:2.67–3.75:1.00. Halter white. Legs mostly yellow, except apex of hind femur dark brown, almost black, on anterior and posterior faces. Postcoxal lobes present; yellow, rounded. Posterior face of hind femur (Figures 17, 18) with a group of six peg-like setae at base of ventral margin, basal tooth, and apical tooth, dorsoapical to the group of setae (teeth difficult to see under light microscopy). Hind tibia without isolated setae. Abdominal tergites dark brown, with or without thin yellow line medially. Venter of abdomen yellow. Mean cercus length 0.29 mm; range 0.23–33 mm (Figures 31, 32).

*Distribution*

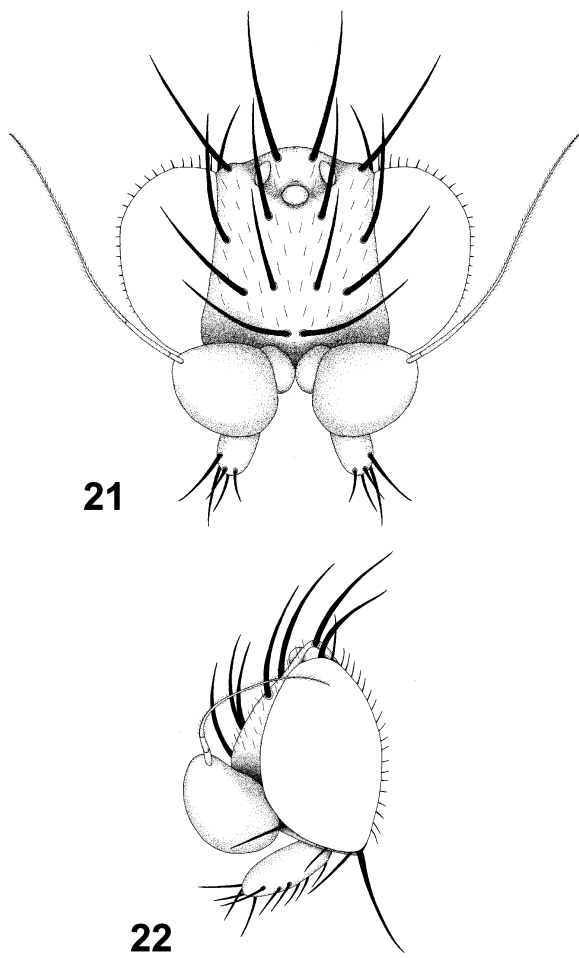
Dominican Republic.

*Etymology*

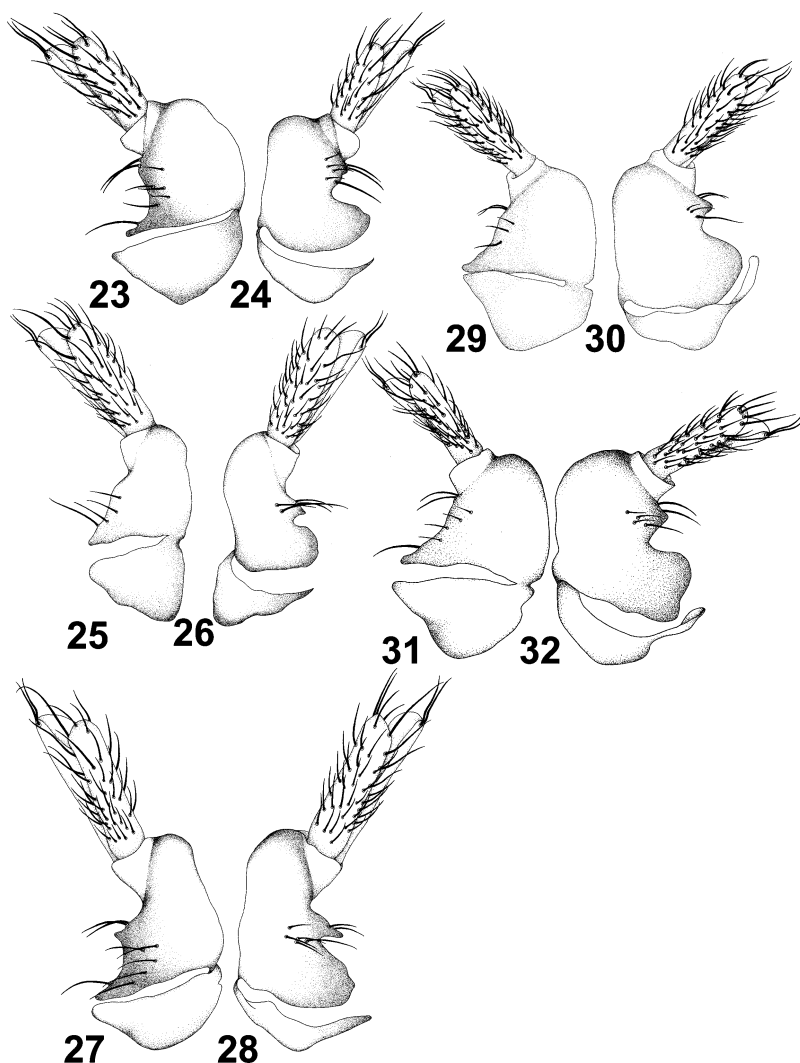
Combination of the Latin words *sex* and *spinosus*, referring to the six setae on the posterior face of the hind femur.



Figures 19, 20. Fore tarsomere 5. (19) *Dohnniphora dispar* [LACM ENT 219743]. (20) *D. divaricata* [CMNH 381,632].



Figures 21, 22. *Dohnniphora dispar*, head. (21) Front view. (22) Lateral view.



Figures 23–32. Male genitalia, right and left lateral views. (23, 24) *Dohrniphora cornuta*. (25, 26) *D. dispar*. (27, 28) *D. divaricata*. (29, 30) *D. seriata*. (31, 32) *D. sexspinosa*.

Holotype: ♂. **Dominican Republic**: Pedernales, 23.5 km N Cabo Rojo, 18.10°N, 71.63°W, 19–21 July 1990, L. Masner, J. Rawlins, C. Young, intercept trap, deciduous forest, 540 m (CMNH) [barcode: LACM ENT 219718]. Paratypes: **Dominican Republic**: Pedernales, 23.5 km N Cabo Rojo, 18.10°N, 71.63°W, 2♂, 13–19 July 1990, 1♂, 13–25 July 1990, 6♂, 19–21 July 1990, 4♂, 19–25 July 1990, L. Masner, J. Rawlins, C. Young, intercept trap, deciduous forest, 540 m (CMNH, LACM).

Key to males of Caribbean *Dohrniphora*

1. Scutellum with four setae . . . . . 2
- Scutellum with six setae . . . . . 4

2. Posterior face of hind femur with sparse dorsal setae; ventrobasal region with only four or five short, thick peg-like setae (Figures 1, 2) . . . . . *D. cornuta* (Bigot)
- Posterior face of hind femur without dorsal setae; ventrobasal region with many (more than 20) long, thick peg-like setae . . . . . 3
3. Flagellomere 1 orange, enlarged (Figures 21, 22); fore tarsomere 5 dark, broad (Figure 19); posterior face of hind femur with dark, circular ventral carina apical to ventral setae (Figures 3, 4) . . . . . *D. dispar* (Enderlein)
- Flagellomere 1 brown, not enlarged; fore tarsomere 5 same colour as rest of leg, not broad (Figure 20); posterior face of hind femur without carina, but with shallow ventral depression apical to ventral setae (Figures 5–12) . . . . .  
. . . . . *D. divaricata* (Aldrich)
4. Posterior face of hind femur with relatively straight ventrobasal row of four or five setae (Figures 13–16); postcoxal lobes not developed. . . . . *D. seriata* new species
- Posterior face of hind femur with six setae grouped together, not in a row (Figures 17, 18); postcoxal lobes present . . . . . *D. sexspinosus* new species

### Acknowledgements

We thank B. Koehler for skillfully preparing the line drawings and V. Berezovskiy for technical assistance. We are grateful to several individuals for loan or donation of material studied herein, especially C. Young of the Carnegie Museum for much of the recent material from the Dominican Republic (supported by National Science Foundation (NSF) grant DEB-0206520), and L. Coote for his large donation of specimens from Saint Kitts and Nevis. Our work on *Dohrniphora* is supported by NSF grant DEB 0516420 to B. Brown and P. Smith. Purchase of a SEM at the LACM was funded by NSF grant DBI-0216506.

### References

- Aldrich JM. 1896. Dolichopodidae; Phoridae. In: Williston SW, editor. On the Diptera of St. Vincent (West Indies). Transactions of the Entomological Society of London 1896:309–345 (Plate 12, Figures 108–119), 435–438.
- Becker T. 1901. Die Phoriden. Abhandlungen der Zoologisch-Botanischen Gesellschaft in Wien 1:1–100.
- Bigot J. 1857. Dipteros. In: Sagra R de la, editor. Historia fisica, politica y natural de la Isla de Cuba. Volume 7. Paris: A. Bertrand, p 328–349.
- Bigot J. 1890. [*Phora cleghorni* n. sp.]. Indian Museum Notes 1:191. (Not seen).
- Borgmeier T. 1925. Novos subsidios para o conhecimento da familia Phoridae. Archivos do Museu Nacional 25:85–281.
- Borgmeier T. 1935. Die typen der von Prof. G. Enderlein im Jahre 1912 beschriebenen südamerikanischen Phoriden (Dipt. Phoridae). Revista de Entomologia 5:427–470.
- Borgmeier T. 1960. Geflügelte und ungeflügelte Phoriden aus der neotropischen Region, nebst Beschreibung von sieben neuen Gattungen (Diptera, Phoridae). Studia Entomologica 3:257–374.
- Borgmeier T. 1961. Weitere Beiträge zur Kenntnis der neotropischen Phoriden, nebst Beschreibung einiger *Dohrniphora*-Arten aus der indo-australischen Region (Diptera, Phoridae). Studia Entomologica 4:1–112.
- Borgmeier T. 1969. Bredin-Archbold-Smithsonian Biological Survey of Dominica: the Phoridae of Dominica (Diptera). Smithsonian Contributions to Zoology 23:1–69.
- Brues CT. 1911. The Phoridae of Formosa collected by Mr. H. Sauter. Annales Musei Nationalis Hungarici 9:530–559.
- Brues CT. 1915. A synonymic catalogue of the dipterous family Phoridae. Bulletin of the Wisconsin Natural History Society 12:85–152.
- Disney RHL. 1994. Scuttle flies—the Phoridae. London: Chapman & Hall.

- Disney RHL. 1995. Cave Phoridae (Diptera) of Trinidad. *Giornale Italiano di Entomologia* 6(1993):417–436.
- Enderlein G. 1912. Die Phoridenfauna süd-Brasiliens. *Stettiner Entomologische Zeitung* 73:16–45.
- Frauenfeld G von. 1867. Zoologische Miscellen. XI. Verhandlungen der Zoologisch-Botanischen Gesellschaft in Wien 17:425–502.
- Kung G, Brown BV. 2005. New species of *Dohnniphora* related to *D. longirostrata*. *Annals of the Entomological Society of America* 98:55–62.
- Malloch JR. 1912. The insects of the dipterous family Phoridae in the United States National Museum. *Proceedings of the National Museum* 43:411–529.
- Santos Abreu E. 1921. Monografía de los Phoridos de las Islas Canarias. *Memorias de la Real Academia de Ciencias y Artes de Barcelona* 17:1–90.
- Schmitz H. 1914. Die myrmecophilen Phoriden der Wasmann'schen Sammlung. *Zoologische Jahrbücher Systematik* 37:509–566.
- Schmitz H. 1923. Typenstudien an Phoriden. *Jaarboek van het Natuurhistorisch Genootschap in Limburg* 1920–23:49–59.
- Schmitz H. 1926. Untersuchungen an Phoridentypen. *Natuurhistorisch Maandblad* 15:19–24, 35–36, 43–48, 55–57.
- Schmitz H. 1929. Revision der Phoriden. Berlin: F. Dümmler. 211 p.
- Silva Figueroa C. 1916. Contribución al conocimiento de la familia Phoridae en Chile. *Boletín del Museo Nacional Santiago* 9:5–17.
- Van Duzee MC. 1933. The Templeton Crocker Expedition of the California Academy of Sciences, 1932, No. 7, Dolichopodidae and Phoridae. *Proceedings of the California Academy of Sciences* 21:65–74.