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## Review of the West Indian species of *Efferia* Coquillett (Diptera: Asilidae): Part 1. Bahamas, Cayman Islands, Cuba, and Jamaica

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# INSECTA MUNDI

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Review of the West Indian species of *Efferia* Coquillett (Diptera:  
Asilidae): Part 1. Bahamas, Cayman Islands, Cuba, and Jamaica

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# Review of the West Indian species of *Efferia* Coquillett (Diptera: Asilidae): Part 1. Bahamas, Cayman Islands, Cuba, and Jamaica

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**Abstract.** The genus *Efferia* Coquillett from the Bahamas, Cayman Islands, Cuba, and Jamaica is reviewed. The fauna now totals 16 species with 6 new species described (*Ef. bellardii* n. sp., *Ef. bromleyi* n. sp., *Ef. hinei* n. sp., *Ef. insula* n. sp., *Ef. pina* n. sp., and *Ef. vinalensis* n. sp.). Cuba has the greatest diversity with 10 species, Jamaica 3, the Bahamas 2, and the Cayman Islands 1. *Efferia stylata* (Fabricius) is removed from the species list of these West Indian islands. The wings of *Ef. caymanensis* Scarbrough and *Ef. bromleyi*, spermathecae of *Ef. bromleyi*, *Ef. cubensis* (Bromley), *Ef. insula*, *Ef. nigratarsis* (Hine), and terminalia of all species are illustrated. Keys for the identification of the species are provided. Specimens of two additional species from Cuba are in too poor a condition to be described but their terminalia are illustrated and the species are included in the key to the males.

**Key words.** Asilidae, *Efferia*, aestuans-staminea groups, Bahamas, Cayman Islands, Cuba, Jamaica, new species, key

## Introduction

*Efferia* Coquillett (1893, 1910) is the largest genus of asilids in the New World with approximately 250 species (Wilcox 1966, Artigas and Papavero 1997, Fisher in press). Most of these species had been assigned to the Palearctic genus *Erax* Scopoli (1763) because of a misidentification of the genus by Macquart (Martin 1961, Hull 1962). At that time, the identification of the genus was unclear and its 14 species had been transferred to other Palearctic genera (Hine 1919). Macquart (1838) activated the genus by assigning 27 New World species to *Erax* when he erroneously assumed that the species from these 2 regions were congeneric. He should have erected a new genus to assign the New World species (Martin 1861). Although Macquart's error was clarified by the early 1900s (Coquillett 1910, Hobby 1936), authors continued to assign New World species to *Erax* sensu Macquart. Approximately 175 New World species were assigned to *Erax* sensu Macquart since his paper in 1838 (Martin 1961). Finally, Martin (1961) established *Efferia* (Coquillett 1893) as the first generic name available for New World species. Subsequently, the species assigned to *Erax* sensu Macquart were reassigned to *Efferia* in the Nearctic and Neotropical catalogues (Martin and Wilcox 1965, Martin and Papavero 1970). See Martin (1961) and Hull (1962) for a detailed review of the complex history of *Erax* Scopoli and related genera.

In a review of the Nearctic *Erax*, Hine (1919) listed 27 species, placing them in 7 species groups largely based on wing venation. Later, Artigas and Papavero (1997) proposed elevating these and other groups to genera based in large part on differences in wing venation and setation patterns. However, Fisher (in press) rejected these new genera, noting that these characters are significantly variable and that they were insufficient to justify generic status. He further noted the unique structures of the terminalia for assessing a monophyletic genus and indicated that genitalic morphology offers the most reliable means of separating species. We follow Fisher's assessment of the genus.

Fabricius (1775) described the first New World species, *Asilus stylatus* Fabricius, from the Virgin Islands, most likely St. Croix (Zimsen 1964, Thompson 1981). It was later listed from Cuba, Hispaniola, Puerto Rico, and the Virgin Islands (Martin and Papavero 1970). Eight additional species were added in the mid-1850s by Macquart (1847, 1848) and Walker (1849, 1851, 1855): *Erax* (abbreviated *Er.*) *haitensis*

Macquart, *Er. fulvibarbis* Macquart, *Er. rufitibia* Macquart and *Er. fortis* Walker from Hispaniola; *Asilus caudex* (Walker), *A. haloesus* (Walker), and *A. invarius* (Walker) from Jamaica; and *Er. nigrimystaceus* Macquart from Guadalupe.

Hines (1919), in his review of the West Indian species, described *Erax portoricensis* Hine from Puerto Rico and *Er. nigratarsis* Hine from Cuba, provided an outline of the intact male terminalia of the 8 species available to him, and a key to the species. He listed *Er. stylatus* (Fabricius) from southern Florida, Cuba, Hispaniola, and Puerto Rico, and *Er. rufitibia* from the Bahamas and Cuba. He also synonymized *Er. fortis* with *Er. rufitibia* and *Er. invarius*, *Er. caudex*, and *Er. haitensis* with *Er. stylatus*.

Bromley (1928, 1929) later described *Erax pachychaetus* Bromley from Haiti and reported 7 species from Cuba. These included 4 previously described species (*Er. nigratarsis*, *Er. portoricensis*, *Er. rufitibia*, and *Er. stylatus*) and 3 new species (*Er. brunnescens* Bromley, *Er. cubensis* Bromley and *Er. pilosulus* Bromley). He also provided simple illustrations of the intact male terminalia, a key to the species.

Curran (1928) reported *Erax haitensis* and described *Er. tortola* Curran from the Virgin Islands. Later, he (1931) described and illustrated the terminalia of *Er. forbesi* Curran, and provided a key to the 6 species from Puerto Rico and the Virgin Islands. In 1953, he described *Er. cazieri* Curran and *Er. vauriei* Curran from the Bahamas and designated the *Er. rufitibia* name to the Rio Negro, Brazil, syntype. Curran recognized that the type series of the latter species consisted of 2 species, one from Rio Negro, Brazil, and the other from Hispaniola. By doing this, the species from Hispaniola was without a name. Martin and Papavero (1970) subsequently synonymized the latter species with *Efferia fortis*.

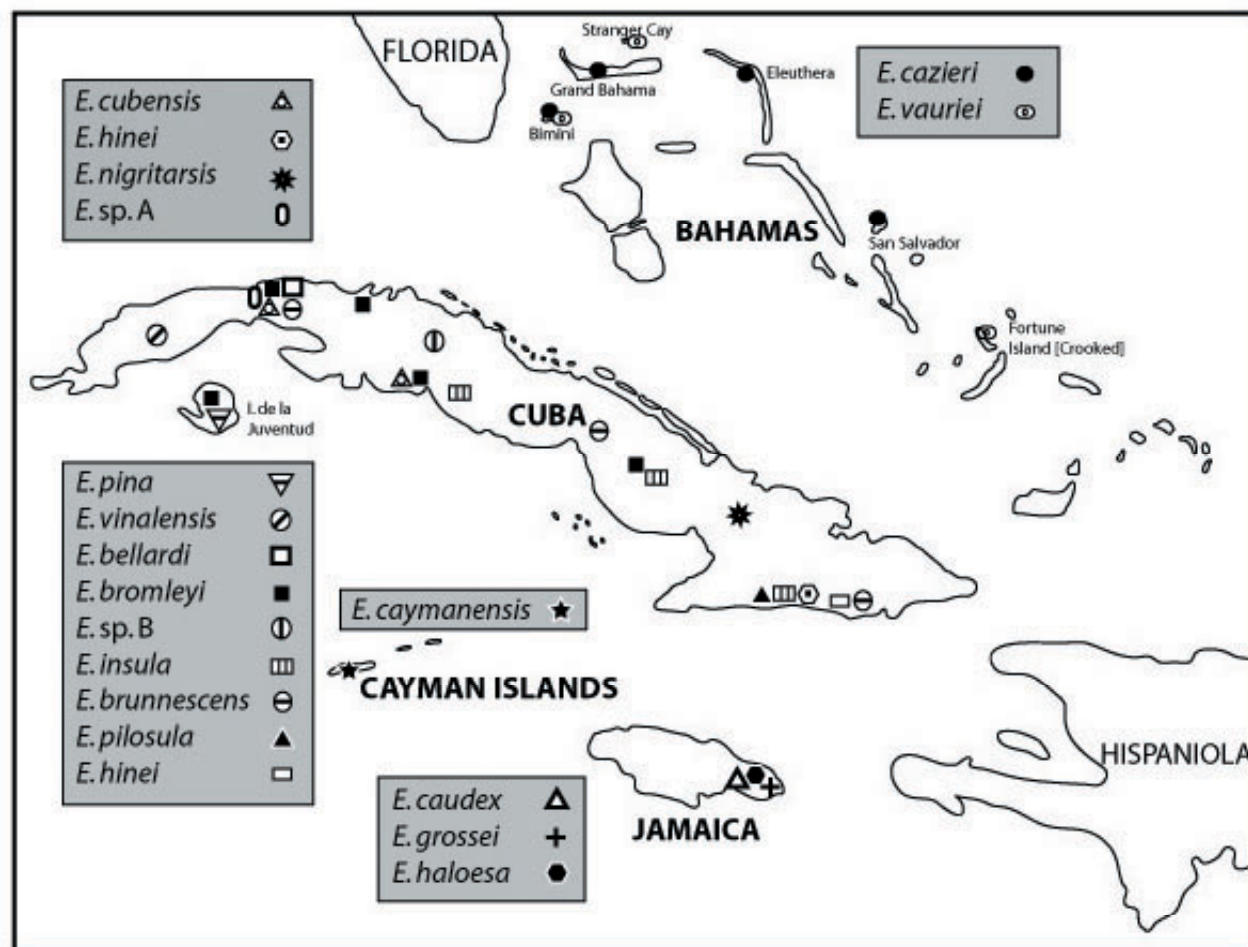
Farr (1965), in his review of the species from Jamaica, reinstated *Efferia* (abbreviated *Ef.*) *caudex* from synonymy with *Ef. stylata* and declared *Ef. invarius* a synonym of *Ef. caudex*. He also described *Ef. gossei* Farr, redescribed *Ef. haloesa* and *Ef. caudex*, illustrated the male terminalia of the males, and provided a key to the species. Later, Martin and Papavero (1970) included most of the New World species in *Efferia* in their catalogue. Lastly, Scarbrough (1988) described *Ef. caymanensis* Scarbrough from Grand Cayman Island, and Scarbrough and Knutson (1989) assigned *Eicherax nigrimystaceus* (Macquart) to *Efferia* and reported that its range included Guadeloupe, Dominica, and St. Lucia.

Now 17 species of *Efferia* are listed from the West Indies (Martin and Papavero 1970). Fourteen of these are listed only from the Bahamas and Greater Antilles whereas the remaining islands have only *Ef. tortola* and *Ef. nigrimystacea*. Currently, *Ef. stylata* is listed from Cuba eastward into the Virgin Islands. Because the larger islands have greater land mass and presumably a wider range of habitats than the smaller islands, they should support a greater diversity. At present only one species is known from islands south of St. Lucia but additional sampling in the West Indies should yield additional species, especially those with South American affinities.

The small number of West Indian specimens of *Efferia* in collections prohibited a significant review of the fauna. Historically, the group has been largely characterized by surface characters, especially tomentum and setation patterns. These characters can be highly variable, resulting in errors in identification. However, *Efferia* does possess diagnostic characters on the primary structures of the male terminalia. Extensive samples taken in recent years in the Dominican Republic, Puerto Rico, the Virgin Islands, and Dominica have revealed numerous undescribed species and provided an opportunity to clarify the complex history of previously described species. There are now sufficient diagnostic characters and material available to permit a revision of the West Indian fauna. This study summarizes the distribution, diversity, and taxonomy of the fauna of the Bahamas, Cayman Islands, Cuba, and Jamaica. Diagnoses, descriptions, illustrations of the terminalia, and identification keys are also provided. A second paper that includes the remaining West Indies fauna is in preparation.

## Methods

Descriptions are composites, based on all available specimens. Morphological terminology usually follows McAlpine (1981). The term 'bristle' is used here to denote contrastingly stout macrotrichia that are usually limited to the postocciput, thoracic dorsum, and legs/tarsi. The remaining macrotrichia are termed setae, and are usually easily distinguished by the thinner, weaker shaft. However, in some instances setae are somewhat bristly, thicker than usual, such as those at the apex of palpi and on the ocellar tubercle, but are distinctly longer than bristles. The term vestiture is used to denote a combination of bristles and setae. Terminalia were treated in warm KOH, rinsed in 70% ETOH with a drop of



**Figure 1.** Distribution of *Efferia* in the Bahamas, Cayman Islands, Cuba, and Jamaica.

acetic acid, transferred to glycerin, and subsequently illustrated. Terminalia were then placed in microvials with glycerin for permanent storage and attached to the specimen pin. Sketches of the terminalia and photographs of intact wings were scanned and subsequently digitally illustrated using Adobe Photoshop software. Figure 17 and 27-29 were re-illustrated from Scarbrough (1988) and Farr (1965).

Measurements were made using an ocular micrometer in the eyepiece of a Meiji dissecting microscope as follows: Body length = distance from the apical protrusion of the face to the base of the terminalia. Scutal setae length: the average length of the acrostichal setae along the anterior arch of the scutum. Scutellar setae length = setae at middle distance of scutellum; setae at the base is slightly shorter, and that along the apex is usually slightly longer. Wing length = distance from the articulated base to the wing apex. Epandrium length = measured laterally, from the extreme base to the apex, including apical process; epandrium width = measured laterally at the greatest distance from the anterior to posterior margin, approximately middle distance from base and apex.

Label data were recorded in a standard format with each line delineated by a forward slash [/]. A second label is indicated by a tilde symbol [~] preceded and followed by a blank space. When these symbols appear on the data label, they were recorded without blank spaces as described above. Dates were recorded sequentially with as day, month, and year. Countries and provinces are arranged alphabetically at the beginning of a series in bold capital letters. Brackets [ ] denote useful information not found on labels. The intact male terminalia and associated internal structures are arranged sequentially on plates in an upright position from the left lateral view. Abbreviations of structures are listed only in Figure where they first appear.

Specimens used in this study are housed in the following institutions are arranged alphabetically by codens (Arnett et al. 1993).

- AMNH – American Museum of Natural History, New York, USA.  
 BMNH – Natural History Museum, London, England.  
 CMNH – Carnegie Museum of Natural History, Pittsburgh, Pennsylvania, USA.  
 EJGC – Eugene J. Gerberg Collection, Gainesville, FL., USA.  
 FSCA – Florida State Collection of Arthropods, Gainesville, FL., USA.  
 IJSM – Institute of Jamaica, Natural History Museum, Kingstown, Jamaica.  
 MCZC – Museum of Comparative Zoology, Harvard University, Cambridge, Massachusetts, USA.  
 MHND – Museo Nacional de Historia Natural, Santo Domingo, Dominican Republic.  
 USNM – National Museum of Natural History, Smithsonian Institution, Washington, DC, USA.  
 OSUC – Ohio State Collection of Insects.  
 OXUM – Oxford Museum of Natural History, Oxford, England.  
 ZMUC – Zoological Museum, Copenhagen, Denmark.

### Taxonomy

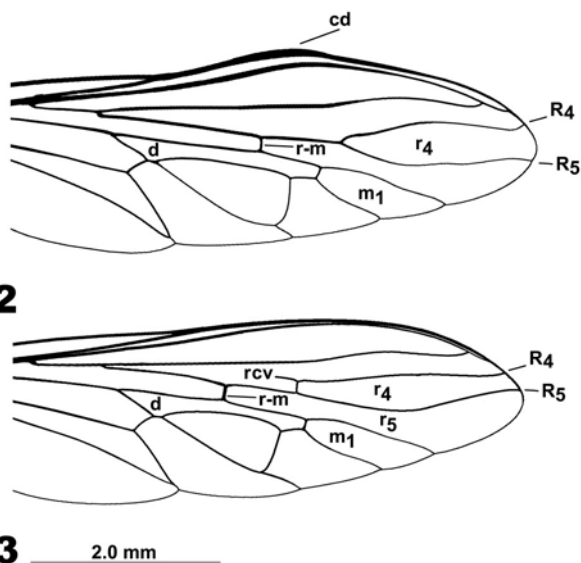
#### *EFFERIA* Coquillett 1893

*Efferia* Coquillett 1893: 175. Type species: *Ef. candida* Coquillett; Coquillett 1910: 536.

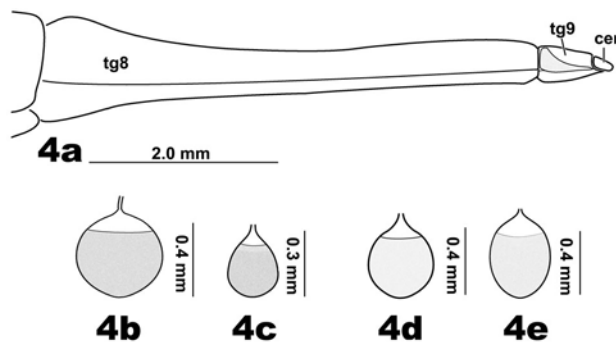
*Nerax* Hull 1962: 476. Type species: *Asilus aestuans* Linnaeus (orig. des.).

*Erax*, of authors, not Scopoli.

**Description.** Black. *Head*: Gibbosity prominent; antennae entirely or mostly black setose, at most pale setae sparse; scape and flagellum twice as long as pedicel, style longer than 3 antennal segments combined; diameter of face at antennae and frons at ocellar tubercle only slightly wider than vertex at narrowest point; long ocellar setae black, usually as long as scape, pedicel, and flagellum combined; dorsal postoccipital bristles usually stout, black; pronotal bristles usually present, black or pale; proboscis entirely and occiput mostly pale setose. *Thorax*: Scutum with wide longitudinal stripe and 2 lateral spots dark tomentose, stripe divided narrowly; posterior dorsocentrals thinner and shorter than lateral bristles. Halteres yellow or brownish-yellow, knob darker, sometimes reddish. *Wing*: Costal margin with or without dilation; surface hyaline, pale yellowish, or brownish, darkest anteriorly. Veins usually reddish-brown or dark brown, basal veins pale, usually yellowish or reddish-yellow; costal cell brown medially;  $R_4$  with or without a recurrent vein basally (Fig. 2-3). *Legs*:



**Figure 2-3.** Wings of *Efferia bromleyi* n. sp. and *E. caymanensis* Scarbrough, respectively. Abbreviations: recurrent vein=rcv; costal dilation=cd; discal cell=d; 1st medial cell= $m_1$ ; 4th radial cell= $r_4$ ; 4th radial vein= $R_4$ ; 5th radial vein= $R_5$ ; radial-medial crossvein=r-m.



**Figure 4a.** Ovipositor of *Efferia bromleyi* n. sp. 4b-4e. Spermatheca of *E. bromleyi* n. sp., *E. cubensis* (Bromley), *E. insula* n. sp., and *E. nigratarsis* (Hine). Abbreviations: tg8, tg9=tergites 8, 9; cer=cercus.

Coxae, trochanters, and femora usually black, setae mostly pale; bristles mostly or entirely black; tarsi reddish-black or black, bristles black. *Abdomen*: Male with wide sides of tergites 1-5 or 6 white tomentose, segments 6-7, sometimes 5-7, white tomentose; basal 3 segments with long erect pale setae laterally and ventrally.

*Male terminalia* (Fig. 5-38, 42-52): Epandrium 2-3 times longer than wide, black setose, sparse pale setae dorsally; phallus as long or slightly longer than gonostylus, flanges present anteriorly, often strongly reduced; aedeagus small, usually curved or angled 45-75 degrees, with 3 tubes of equal length. Gonostylus usually slender, hyaline apically, with narrow, thicker, somewhat sclerotized costa; abundant, sometimes dense, short, setulae present apically, often longer, thicker setulae along posteriorly margin; gonostylus with apex slightly expanded, usually asymmetrical, margin usually pointed, sometimes rounded or angular. Gonocoxite usually pointed apically, sometimes gradually tapered to apex or abruptly narrowed, contrastingly narrow beyond; setae usually long posteriorly, often dense, sometimes short and sparse. Female with wide sides of tergites 1-6, sometimes 7, white tomentose, brown with dark setae dorsally, usually abundant on tergites 5-7.

*Female terminalia* (Fig. 4a): Ovipositor black, flat, usually without significant vestiture; spermathecal ducts confluent basally, fused just before base to form short common oviduct; spermathecae spherical or oval, usually slightly longer than wide, surface mostly brownish (Fig. 4b-4e).

**Remarks.** The following key is based mostly upon the structures of the male terminalia. The shapes of the epandrium, gonostylus, gonocoxite, and aedeagus, are the most valuable characters for identifying species (Wilcox 1966, Bullington and Lavigne 1984, Fisher in press). We recommend that the male terminalia be cleared in warm KOH to expose its parts and then compared with the illustrations in this paper. Females may be identified with the following key but should also be paired with males collected from the same location and date.

Species of the aestuans and staminea groups are distinguished by wing venation (Hine 1919, Wilcox 1966). In the staminea group, the fork of veins  $R_4$  and  $R_5$  occurs before the apex of cell d, and vein  $R_5$  curves forward joining the costal above the wing apex. In the aestuans group, veins  $R_4$  and  $R_5$  fork beyond the apex of cell d, and vein  $R_5$  curves posteriorly joining the costal below the wing apex (Fig. 2-3). Thus far all species except *Ef. caymanensis* (Scarborough 1988) reported from the West Indies belong to the aestuans group.

#### Key to the species of *Efferia* from the Bahamas, Cayman Island, Cuba, and Jamaica

1. Base of cell  $r_4$  beyond apex of cell d;  $R_5$  curved posteriorly, joining costa at or beyond wing apex (Fig. 2); body and femora usually dark brown; aestuans group ..... 2
- Base of cell  $r_4$  before apex of cell d;  $R_5$  curved anteriorly, joining costa before wing apex (Fig. 3); body and femora at least partly reddish; staminea group; (Fig. 17); (Grand Cayman Island) ..  
..... *Ef. caymanensis* Scarborough
- 2(1). Males ..... 3
- Females ..... 18
- 3(2). Epandrium 2.7-3 times as long as wide ..... 4
- Epandrium less than 2.7 times as long as wide ..... 8
- 4(3). Costal margin of wing strongly dilated; palpi pale setose, with at most 3-5 black setae apically; epandrium with large, erect, dorsal process; gonocoxite membranous on apical 1/2-2/3 ..... 5
- Costal margin of wing not strongly dilated, margin straight or if dilated then only slightly; apical 1/3 or more of palpi black setose; epandrium without large erect dorsal process; gonocoxite uniformly thick and sclerotized ..... 6
- 5(4). Epandrium 3.0 times longer than wide, dorsal process large, ear-shaped, with small notch anteriorly; gonocoxite uniformly wide apically, apex usually slightly notched (Fig. 8-10) .....  
..... *Ef. bromleyi* n. sp.

- Epandrium 2.7 times longer than wide, dorsal process angular and without a small notch anteriorly; gonocoxite contrastingly narrow apically, abruptly wider below (Fig. 49-51) .... ***Ef. species A***
- 6(4). Facial and palpal vestiture white, sometimes sparse black bristles present; scutellum with 2 stout marginal bristles; abdominal segments 5-7 mostly or entirely white tomentose, basal 1/2 of tergite 5 sometimes with small brown triangle medially; terminalia as in Fig. 30-32 ..... ***Ef. hinei* n. sp.**
- Facial and palpal vestiture mostly black; marginal scutellar bristles not as above; abdomen segments 6-7 mostly whitish tomentose, tergite 5 brown tomentose dorsally; terminalia not as in Fig. 30-32 ..... **7**
- 7(6). Costal margin of wing straight, not dilated; anterior scutal setae longer than scape; terminalia as in Fig. 21-23; small species 10.6-11.9 mm long ..... ***Ef. cubensis* (Bromley)**
- Costal margin of wing slightly dilated; anterior scutal setae slightly shorter than scape; terminalia as in Fig. 24-26; 18.0-21.0 mm long ..... ***Ef. gossei* Farr**
- 8(3). Costal margin of wing strongly dilated; epandrium with large erect dorsal process, membranous posteriorly; gonocoxite thin, membranous apically (Fig. 52-54) ..... ***Ef. species B***
- Costal margin usually straight, if dilated then only slightly; terminalia not as above ..... **9**
- 9(8). Face usually mostly black medially, if pale then at least 8 black bristles present ..... **10**
- Face mostly pale, usually only 1-5 black bristles present medially ..... **14**
- 10(9). Femora black, at most only narrow apex yellowish-brown; palpus with apical 1/3 or more black setose; scutellum with mostly black setae and marginal bristles ..... **11**
- Femora with apex, sometimes base and venter narrowly yellowish-brown; palpus whitish setose, 1-4 black setae apically; scutellum with white setae and whitish marginal bristles ..... **13**
- 11(10). Anterior scutal setae as long or slightly longer than scape and pedicel combined; apical margin of epandrium with short, narrow process anteriorly, broadly triangular posteriorly; gonocoxite with acuminate apex, setae dense and long; phallus slender in lateral view, aedeagus with median prong slightly longer than ventral tubes (Fig. 5-7) ..... ***Ef. bellardii* n. sp.**
- Anterior scutal setae shorter than scape and pedicel combined; terminalia with differing combination of characters ..... **12**
- 12(11). Wing with costal margin slightly dilated; apical 1/3 of femora sometimes brownish-yellow or red; epandrium wide apically with narrow apical process delineating apical cleft, apical margin triangular posteriorly; gonocoxite somewhat arched posteriorly, anterior margin abruptly narrowed apically; gonostylus slender, apex pointed, spinules short; terminalia otherwise as in Fig. 18-20 ..... ***Ef. cazieri* (Curran)**
- Wing with costal margin straight, not dilated; femora entirely black; epandrium much narrower apically, with long slender process and deep anterior cleft; gonocoxite with posterior margin straighter, gradually narrowed apically along anterior margin; somewhat arched posteriorly, abruptly narrowed apically; gonostylus wider, apically spatulate, apex not strongly pointed, spinules dark, short and long; terminalia otherwise as in Fig. 43-45 .. ***Ef. vauriei* (Curran)**
- 13(10). Anterior scutal setae as long as or longer than scape; epandrium 2.1 times longer than wide, apical margin somewhat truncate with deep notch dorsoposteriorly; gonocoxite short and wide, apex about middle length of epandrium, apical margin rounded, about 1/2 as wide as base, setae short and sparse; phallus wide laterally, claw-like with opposing ventral process (Fig. 14-16) ..... ***Ef. caudex* (Walker)**
- Anterior scutal setae about 2/3 as long as scape; epandrium 2.5 times longer than wide, somewhat pointed apically, without deep notch dorsoposteriorly; gonocoxite longer, with narrow pointed apex at apical 1/3 of epandrium, setae much denser and longer; phallus more slender laterally,

- somewhat angular, not claw-like with opposing ventral process (Fig. 27-29) ..... *Ef. haloesa* (Walker)
- 14(9). Facial vestiture mostly white; sternite 8 produced below gonocoxite, with dense black setae apically; terminalia blackish; apical margin of epandrium membranous narrowly; apical 1/3 of gonocoxite narrow, apex pointed, setae long and dense; gonostylus shaft narrow, asymmetrically capitate apically with abundant long setulae posteriorly; flange moderately produced (Fig. 36-38) ..... *Ef. nigratarsis* (Hine)
- Facial vestiture mostly or entirely yellowish; sternite 8 normal, not produced below gonocoxite with dense black setae; terminalia reddish with a different combination of characters ..... 15
- 15(14). Anterior scutal setae as long as scape; 7-9 dorsocentral bristles, anterior 2-3 bristles thin, before transverse suture; 6-7 yellow scutellar bristles; epandrium with 2 long dorsal or dorsoposterior flanges; gonostylus narrow and pointed apically, abruptly wider basally; gonocoxite abruptly narrowed and unusually slender apically, setae long and dense (Fig. 46-48) ..... *Ef. vinalensis* n. sp.
- Anterior scutal setae shorter, 1/2-2/3 as long as scape; 4-5 dorsocentral bristles, usually thin and short, none before transverse suture; usually only 2-3 marginal scutellar bristles; terminalia with a different combination of characters ..... 16
- 16(15). Scutum pale brownish-gray or yellowish-gray tomentose laterally, anterior setae thin, not thick or bristly, 2/3 as long as scape; scutal bristles black; scutellar setae black, as long as pedicel and scape combined; costal margin slightly dilated, cell  $r_1$  with brownish ribs; mesothoracic and metathoracic femora with 3-4 black anteroventral bristles; terminalia as in Fig. 11-13 ... *Ef. brunnescens* (Bromley)
- Scutum yellow or yellowish-gray tomentose laterally, anterior setae bristly; 1-4 scutal bristles yellow; scutellar setae usually mostly or entirely yellowish, shorter than scape; costal margin straight, not dilated, cell  $r_1$  yellowish ribs; mesothoracic and metathoracic femora with mostly or entirely pale anteroventral bristles, usually only 1-2 black bristles present; prothoracic and mesothoracic tarsi with 1-4 yellow bristles laterally; terminalia with different combination of characters ..... 17
- 17(16). Prothoracic and mesothoracic tarsi with 4-5 yellow bristles laterally; epandrium narrowed apically, a large dorsal flange dorsally; gonostylus asymmetrically pointed apically; gonocoxite anteriorly gradually narrowed apically; phallus with gradual tapering flange and minute aedeagus (Fig. 33-35) ..... *Ef. insula* n. sp.
- Tarsal bristles black, at most 1 yellow bristle on prothoracic tarsi; epandrium wider with a prominent dorsoposterior notch; gonostylus with rounded apex; gonocoxite anteriorly abruptly narrowed apically; phallus with abruptly angled flange and more prominent aedeagus (Fig. 40-42) ..... *Ef. pina* n. sp.
- 18(2). Mystax mostly pale, at most with 7-8 black bristles dorsally; anterior scutal setae shorter than length of scape ..... 19
- Mystax darker, usually with 10 or more black bristles medially; anterior scutal setae usually longer, at least as long as scape ..... 23
- 19(18). Head with white vestiture; apical 1/4-1/3 of palpus with numerous black setae ..... *Ef. nigratarsis* (Hine)
- Head with yellowish vestiture; palpus mostly or entirely pale setose, at most 4-5 black setae apically ..... 20
- 20(19). Scutum with only dark brown or blackish bristles laterally; postocular bristles usually brown or blackish; tergite 7 with dense brownish-yellow or yellowish-gray tomentum laterally ..... 21

- Scutum with 2-4 yellowish bristles laterally; postocular bristles yellow; tergite 7 laterally with only thin brownish-yellow or grayish-yellow tomentum so with a slight gloss ..... 22
- 21(20). Prothoracic and mesothoracic tarsi with only dark bristles; metathoracic femora with 3-4 black anteroventral bristles; tergite 7 with dense pale brownish-yellow tomentum laterally ..... *Ef. brunnescens* (Bromley)
- Prothoracic and mesothoracic tarsi with 2-4 yellowish bristles; metathoracic femora with all or most anteroventral bristles yellow, at most 1-2 black bristles present; tergite 7 with yellowish-gray or yellow tomentum laterally ..... *Ef. insula* n. sp.
- 22(20). Anterior scutal setae short, about as long as pedicel; prothoracic and mesothoracic tarsi with only dark bristles; 2 yellow marginal scutellar bristles present ..... *Ef. pina* n. sp.
- Anterior scutal setae longer than pedicel, only slightly shorter than scape; prothoracic and mesothoracic tarsi with 2-3 yellow bristles; 6-7 yellow marginal scutellar bristles present ..... *Ef. vinalensis* n. sp.
- 23(18). Face and palpus with mostly or entirely black bristles and setae ..... 24
- Face with mixed black and pale bristles; palpus with mostly pale setae, usually sparse black setae apically ..... 25
- 24(23). Scutellum and prothoracic coxae with black setae; prothoracic femora ventrally with black setae and bristles; tergite 7 glossy black, tomentum sparse or absent dorsally; terminalia (Fig. 35) with tuft of black setae ventrobasally, 6 mm long, at middle 1/12 as wide as long; large species, 19.6 mm long ..... *Ef. pilosula* (Bromley)
- Scutellum and prothoracic coxae with only pale setae; prothoracic femora ventrally with only pale setae and bristles; tergite 7 dense tomentose, gray laterally; terminalia entirely bare basally, 4.1 mm long, at middle 1/10 as wide as long; smaller species, 10.3-11.5 mm long ..... *Ef. cubensis* (Bromley)
- 25(23). Palpus usually with numerous black setae on apical 1/3, mixed with white ..... 26
- Palpus usually with only sparse black setae at apex, rarely entirely pale or scattered black on apical 1/3 ..... 27
- 26(25). Scutum with grayish tomentum; face with 8-15 black bristles; scutellum usually white setose, sometimes with sparse or numerous black setae apically and 2-4 marginal bristles, usually white, sometimes 1-2 black; (Bimini population only) ..... *Ef. vauriei* (Curran)
- Scutum with brownish-yellow or golden brown tomentum; face with black bristles and pale setae mixed medially; scutellum usually with black setae apically and/or medially, rarely entirely black, and 4-6 black marginal bristles; (Bimini population only) ..... *Ef. cazieri* (Curran)
- 27(25). Femora entirely black; 4-5 black marginal scutellar bristles ..... 28
- Femora paler, at least partly brown or brownish-yellow apically; number and color of marginal scutellar bristles variable ..... 30
- 28(27). Anterior scutal setae about 1/2 as long as scape; scutellum with 2 stout yellow marginal bristles; femora ventrally with mostly stout yellow bristles, anteroventral bristles of metathoracic femora mostly black, those basally yellow; prothoracic femora with unusually stout yellow bristles ventrally; terminalia as in Fig. 4a-b ..... *Ef. bromleyi* n. sp.
- Anterior scutal setae longer; scutellum usually with 4-7 black marginal bristles; mesothoracic and metathorax with ventral bristles stout, mostly or entirely black; prothoracic femora with thin bristles ventrally ..... 29
- 29(28). Femora mostly brown, paler apically and basally, sometimes dorsum and venter narrowly; face with black bristles dorsally, white bristles ventrally; scutellum with 5-6 marginal bristles;

- body 22.0-24.0 mm long including terminalia ..... *Ef. caudex* (Walker)
- Femora blackish, yellowish-brown apically; face with black bristles distributed medially, white mixed ventrally and laterally; scutellum with 2-3 marginal bristles; smaller species 17.0-19.0 mm including terminalia ..... *Ef. haloesa* (Walker)
- 30(27). Tibiae mostly yellow; anterior scutal setae 2/3 as long as scape; tergite 7 glossy, atomentose laterally, sparsely brown dorsally; terminalia 1/2 as long as abdomen ..... *Ef. gossei* Farr
- Tibiae mostly reddish; anterior scutal setae as long as scape; tergite 7 densely tomentose, white laterally, brown dorsally; terminalia 1/3 as long as abdomen; (San Salvador Island population) ..... *Ef. cazieri* (Curran)

## Taxa

### *Efferia bellardii* n. sp.

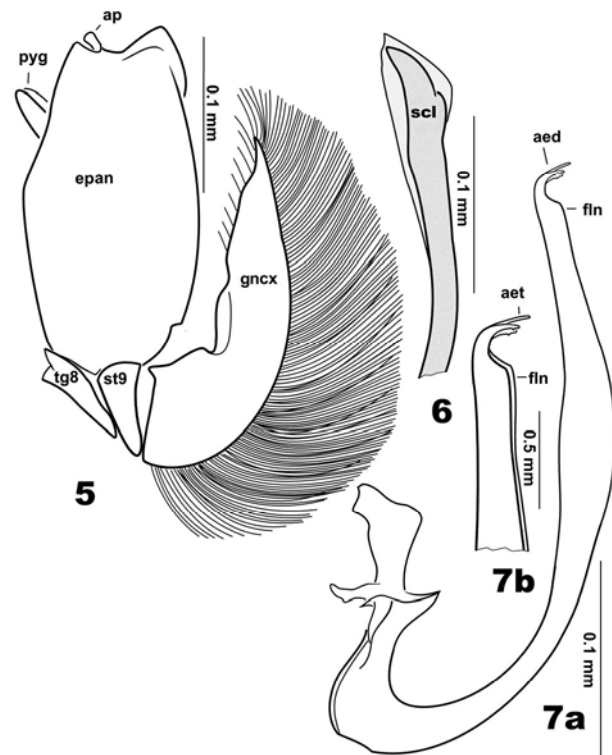
Fig. 1, 5-7, 50

**Description.** Male. Body blackish, 14.7-15.0 mm; wing 10.6-10.8 mm. *Head:* Yellowish or yellowish-gray tomentose. Mystax mostly black medially, mixed with yellow setae, sparse black bristles along oral margin laterally. Palpi black setose on apical 1/3-1/2, yellowish basally. Proboscis yellowish setose. Antenna, frons, ocellar tubercle black setose; scape twice as long as pedicel; flagellum and style absent; face at antenna and frons at ocellar tubercle about same width. Ocellar setae longer than 3 antennal segments combined. Occiput yellowish-gray tomentose, yellowish setose; 5 black postocular bristles and sparse black setae dorsally.

*Thorax:* Black, mostly yellow tomentose, vestiture mostly black. Pronotal bristles all black or mixed yellow and black, as long as postocular bristles. Scutum yellow tomentose, yellowish-gray posteriorly; anterior setae as long as or slightly longer than scape and pedicel combined; lateral bristles stout, dorsocentrals thinner and shorter, longest posteriorly, acrostichal setae abundant, about as long as dorsocentrals posteriorly. Scutellum yellowish-gray tomentose, mostly or entirely black setose, sparse yellow setae mixed, longer than scape and pedicel combined; 6 thin marginal bristles, 2-3 slightly stout. Pleura mostly brownish-yellow tomentose, paler posteriorly; vestiture mostly black, mixed yellow and black, or sparse posteriorly. Halter dull brownish-yellow, knob sometimes darker.

*Wing:* Costal margin only slightly dilated; cells on apical 1/2 brownish, costal cell brown.  $R_4$  slightly oblique, recurrent vein about as long as cell base. Crossvein r-m just before apical 1/4 of cell d.

*Legs:* Mostly yellow setose, dorsal 1/2-2/3 of femora black setose, metathoracic femora mostly black setose ventrally, posteroventral bristles absent; bristles black, 1-2 yellow. Tibiae yellow, narrow apex black, bristles black. Tarsi dark, reddish-black, bristles and dorsal setae black, dense ventral setae reddish-yellow or yellow.



**Figure 5-7.** Male terminalia of *E. bellardii* n. sp., lateral views; 5. intact terminalia; 6. gonostylus; 7a-b. phallus with aedeagus, aedeagal tubes, and phallic flanges. Abbreviations: Aedeagus= aed; apical process of epandrium=ap; aedeagal tubes=prn; epandrium=epan; gonocoxite=gncx; phallic flange=fln; pygidium=pyg; sternite 8=st8; tergite 9=st9; thick, sclerotized area of gonostylus=scl.

**Abdomen:** Wide sides of tergites 1-5, sternites 1-5, segments 6-7 white tomentose, tergites 1-5 brown dorsally; setae mostly yellowish, long on segments 1-3 and sternite 4; short, brown setae on tergites 4-5 dorsally, tergite 8; apical margins of sternites 7-8 white setose. Hypandrium dark brown.

**Terminalia** (Fig. 5-7): Black, mostly black setose. Epandrium twice as long as wide, wide apically with triangular posterodorsal flange. Gonostylus clavate apically, with pointed apex. Phallus narrow, flange small; aedeagus with dorsal prong longer than ventral tubes. Gonocoxite acuminate apically; setae long, dense.

Female. Unknown.

**Types.** CUBA: S Diego d l [over-written in blue ink with 'Ant'] / Banos [San Antonio de los Baños, **Havana province**] Cuba; [no date] (**holotype** m, USNM). **Paratypes:** Cuba: / vic. of / Havana / T. Barbour (1 m, 1 f, USNM); Cuba / Gundl [Gundlach] ~ 15/44 ~ [terminalia glued to card] ~ Loew / Coll. ~ *Erax rufitibia* Macq. ~ Det S.W. Bromley - 1927 (1 m, MCZC).

**Distribution.** Cuba, Havana province; no collecting dates.

**Etymology.** The species name, *bellardii*, genitive case, recognizes the Italian dipterist Luigi Bellardi for his contributions on the Neotropical asilid fauna.

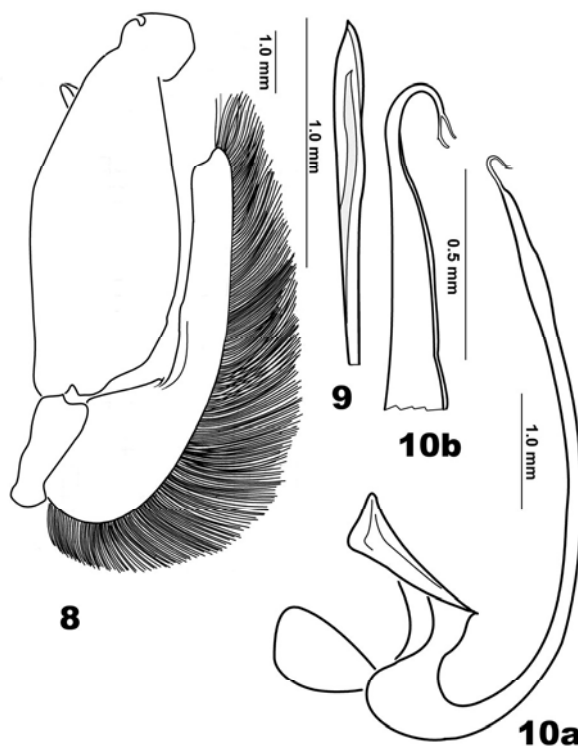
**Remark.** *Efferia bellardii* runs to *Ef. rufitibia* in Bromley's (1929) key. The mostly black vestiture of the mystax, palpi, antenna, frons, and ocellar tubercle, the black scutellar setae and 6 black marginal scutellar bristles, blackish tarsi, and characters of the male terminalia (Fig. 5-7) distinguish this species from congeners. The dilated costal margin, the long anterior scutal and scutellar setae, and the long, dense, black setae on the gonocoxite are diagnostic of the male.

***Efferia bromleyi* n. sp.**

Fig. 1, 2, 4b-c, 8-10

**Description.** Male. Body 18.0-19.8 mm; wing 14.3-15.8 mm. **Head:** Black with yellowish-gray tomentum, mostly yellowish or whitish setose. Face gray tomentose laterally; usually 9-30 black bristles medially mixed with pale setae, sparse black bristles often present along oral margin laterally. Palpi mostly yellowish setose, usually 1-4 black setae at apex. Antennae mostly black, usually pedicel and style sometimes blackish-red or reddish. Frons yellowish and black setose or entirely black. Ocellar tubercle black setose. Postocular bristles usually black and stout, setae often black dorsally.

**Thorax:** Prothorax yellowish-gray or gray tomentose, white setose, bristles black or yellowish. Scutum brownish-yellow or yellowish-gray tomentose laterally, always paler posteriorly; postpronotal spot brownish-yellow tomentose; setae mostly black and short, anterior and lateral margins narrowly with white setae; anterior setae about as long as scape, setae longer posteriorly; bristles black, lateral bristles stout, dorsocentrals much thinner, seta-like. Scutellum yellowish-gray tomentose with long yellowish setae, sometimes mixed with sparse black setae, rarely entirely black setose; setae longer than scape and pedicel combined, as long as 2-3 seta-like marginal bristles, latter only slightly thicker than setae, usually yellowish, 1-2 black bristles present. Pleura brownish or brownish-yellow tomentose anteriorly, yellowish-gray posteriorly; setae mostly yellow, often blackish anteriorly and dorsally.



**Figure 8-10.** Male terminalia of *Efferia bromleyi* n. sp., lateral views; 8. intact terminalia; 9. gonostylus; 10a-b. phallus with aedeagus, aedeagal tubes, and phallic flanges.

*Wing* (Fig. 2): Brownish, especially along veins; costal margin usually strongly dilated. Costal vein yellow setose basally; cell  $R_4$  narrow, oblique basally, well beyond cell d; recurrent vein absent, if present then minute. Crossvein r-m just before apical 1/5 of cell d, 1/3 longer than  $CuA_1 + M_3$ .

*Legs*: Femora ventrally with reddish spot apically, sometimes yellowish-brown basally with color extending posteriorly or dorsally; setae mostly yellowish except black on dorsal 2/3 of prothoracic femora and apical 1/4-1/3 of mesothoracic and metathoracic femora; bristles mostly black, 3-4 yellowish bristles anteriorly. Tibiae yellowish, apex reddish-brown; bristles and scattered black, dense or long ventral setae yellowish. Prothoracic and mesothoracic tarsi yellow or brownish-yellow, apical tarsomeres darker brownish; metathoracic tarsi darker yellowish-brown or reddish-brown; bristles and dorsal setae black, dense ventral setae yellowish.

*Abdomen*: Black, wide side of tergites 1-5, sternites 1-5, and segments 6-7, sometimes apical 1/3 of tergite 5, white tomentose, 4 specimens with segments 4-7 entirely white tomentose; setae mostly white or pale yellow, setae long on segments 1-3, and apical margin of sternites 6-7; tergites 1-5 mostly brown tomentose dorsally, setae short, brown on tergites 2 or 3-5, and 8. Apical margin of sternite 7 slightly produced.

*Terminalia* (Fig. 8-10): Black, mostly black setose. Epandrium 3.0 times longer than wide, gradually narrowed dorsally above cercus, with large ear-like dorsal process, dorsal margin with flat, spur-like apex before shallow notch, often touching (V-shaped) or crossing (X-shaped) adjacent epandrial spur; anterior margin somewhat produced before spur. Gonostylus very narrow, only slightly wider apically, apex pointed. Phallus very slender, flanges only weakly produced, aedeagus hooked about 140 degrees, tubes long, thin, somewhat angular. Gonocoxite thin, membranous on apical 1/2-2/3, wide apically, usually slightly notched along apical margin anteriorly, setae black and dense.

*Female*. Body 17.5-19.9 mm, wing 13.1-15.6 mm. *Head*: Mystax with short, scattered setae; frons usually black setose; dorsal postocular bristles black or yellowish. *Thorax*: Pronotal bristles black. Scutum anterior setae short, about 1/2-2/3 as long as scape, median longitudinal stripe divided entirely with yellowish tomentum; 4 black dorsocentrals. Scutellum with 2 stout marginal bristles, usually yellow; setae usually yellowish, occasionally sparse black setae apically; setae usually about 1/2 as long as scape, those basally slightly longer. *Wing*: Vein  $R_4$  not strongly oblique, recurrent vein as long as base of cell  $r_4$ . Crossvein r-m at apical 1/3 of cell d. *Legs*: Femora usually black with reddish apical spot ventrally, and narrow base sometimes reddish-yellow or brownish-yellow, pale color often extends to apical 1/3 dorsally on metathoracic femora. Femora with all ventral bristles stout, most yellow, anteroventral row of metathoracic femora with mostly blackish bristles, those basally yellow. Prothoracic femora with row of stout yellow bristles ventrally; base of mesothoracic femora with unusually stout, long, yellow bristles. Apices of tibiae and mesothoracic and metathoracic tarsi reddish-brown, prothoracic tarsi brownish-yellow, basal tarsomeres palest, sometimes appearing yellow, apical tarsomeres darkest. *Abdomen*: Mostly yellowish-gray or gray tomentose, gray or brownish-gray in apical corners of tergites 2-4 extending slightly dorsally along apical margin; tergite 7 glossy black laterally, brown tomentose dorsally, sometimes tomentum extends along apical margin narrowly; setae short, mostly pale yellow or whitish; tergites 1-6 dark brown tomentose dorsally, usually with mostly brown setae on tergites 5-7 or 6-7, basal tergites sometimes with sparse brown setae. *Terminalia*: As long as apical 3 1/2 segments, 6.0-6.3 mm at middle 1/10 as wide as long; cercus 1/4 as long as segment 9 (Fig. 4a); spermatheca oval, pale brownish apically, transparent basally (Fig. 4b).

**Types. CUBA**: Santiago (Las Vegas) [**Havana province**] / 10.iv.1926 Cuba ~ S.W. Bromley collection (**holotype** m, USNM). **Paratypes**, Camaguey, [**Camaguey province**] Cuba / Col. J. Acuna / 20.vii.1923 / Cubitas (1m, USNM); Central Jaronú / Cuba 20.v.1930 ~ TPRF / Ent. No. 3870 ~ taken on screen ~ L.C. Scaramuzza (1 f, MCZC); Jaronú Cuba / iii.13.31 ~ C.S.C. Ent. / no. 3990 ~ collected in soil [pupal case] ~ L.C. Scaramuzza (1 f, MCZC); Soledad [**Cienfuegos province**] Cuba / 8-vi-1925 / Geo. Salt ~ S.W. Bromley collection (1 f, USNM); Pasa Caballo, / L. V. Cuba / 22.vii.1956 / C. and P. Vaurie ~ *Efferia stylata* (Fab.) det. J. Wilcox '65 (3 f, AMNH); Pasa Caballo, / L. V. Cuba / 22.vii.1956 / C. and P. Vaurie ~ *Efferia stylatus* (Fab.) det. J. Wilcox '65 (? AMNH); Soledad Cuba / 8.vi.1925 / Geo. Salt ~ *Erax stylatus* Fabr. Det. S.W. Bromley (2 m, MCZC); same data except 20.vi.1925 *Erax stylatus* Fabr. Det. S.W. Bromley (1 m, MCZC); same data except 4.v.1925 Det. S.W. Bromley (1 m, MCZC); same data except 21.v.1925 (1 m, MCZC); **Cuba** [without specific location] [cicadellid prey], 2.v.1916 SCB ~ S.W. Bromley Collection ~ *Erax stylatus* Fabr. Det. S.W. Bromley - 1927 (1 m, USNM); 6.xii.1905 ~ Est. Cent. / Agr. de

Cuba / 7333 ~ *Erax* / *fulvibarbis* / Macq. (1 m, USNM); 1 ~ Cuba (1 m, MCZC); 44 ~ Cu ~ 103 ~ Loew Coll (1 m, MCZC); Cuba ~ Osten Sacken coll. ~ *Erax stylatus* Fabr. Det. S.W. Bromley (1 m, MCZC); Cu ~ 10 ~ Loew Coll. ~ *Erax stylatus* Fabr. Det. S.W. Bromley (1 m, MCZC); Cuba / Gundl [Gundlach] ~ 15/44 ~ *Erax stylata* Fabr. Det. S.W. Bromley (1 f, MCZC); Cuba / Bohrn. ~ Loew Coll. ~ *Erax stylatus* Fabr. Det. S.W. Bromley (1 m, MCZC); square tag, top metallic colored ~ Loew coll. ~ *Erax stylatus* Fabr. Det. S.W. Bromley (1 f, MCZC); square tag, top metallic colored ~ Loew Coll. ~ *stylatus* (1 m, MCZC). [antennae absent], Los Gloria [**Havana province**] / Cuba / Acc. 381 ~ Carnegie Museum / specimen number / CMNH-307, 310 ~ *Efferia stylata* (Fabr.) (1 m, CMNH); 21.vi.1905 / Vicinity of Havana, / Cuba / Mel. T. Cook ~ *Efferia stylatus* (Fabr.) det. G.S. Forbes '88 (1 m, AMNH); 1 m, 5.i.1905 Vicinity of Havana, / Cuba / Mel. T. Cook ~ n. sp. ~ *Efferia stylatus* (Fabr.) det. G.S. Forbes '88 (AMNH); [antennae missing], 16.v.1905 ~ Vicinity of Havana, / Cuba / Mel. T. Cook ~ *Efferia stylatus* (Fabr.) det. G. S. Forbes '88 (1 f, AMNH); 6.v.1905 / Vicinity of Havana, / Cuba / Mel. T. Cook (1 m, AMNH); Cuba / vic. of / Havana / T. Barbour ~ *Erax stylatus* Fabr. Det. S.W. Bromley (3 m, MCZC); Havana / Cuba vi ~ *Erax stylatus* Fabr. Det. S.W. Bromley (3 m, 1 f, MCZC); Columbia Is. / de Pinos [**Isla de la Juventud**], Cuba / 9.ix.1928 ~ S.C. Bruner, / L Bouclé ~ Preying / on Cicada ~ S.W. Bromley collection (1 f, USNM); Banõs, S.[Santa] Clara [**Villa Clara province**] / Cuba, v.1918 / F-4300 ~ *Erax stylatus* Fabr. Det. S.W. Bromley 1927 (1 m, MCZC); San Blas / Prov. Sta. Clara / Cuba 21.vii.1932 / Bates and Fairchild (1 f, MCZC); Soledad, Sta. Clara / Cuba 18.vi.1932 / Bates and Fairchild (1 f, MCZC); same data except 23.v.1932 (1 m, MCZC); same data except 2.vii.1932 (1 m, MCZC).

**Other specimens examined.** [abdomen glued to card, terminalia mostly absent], vicinity of **Havana**, / Cuba / Mel. T. Cook (1 f, AMNH); [left mesothoracic and right metathoracic leg, terminalia missing], 16.vi.1905 ~ Vicinity of Havana, / Cuba / Mel. T. Cook ~ *Efferia stylatus* (Fabr.) det. G.S. Forbes '88 (1 f, AMNH); [insect damage to thorax and abdomen, terminalia tip missing], 22.v.1905 ~ Vicinity of Havana, / Cuba / Mel. T. Cook ~ *Efferia stylata* (Fabr.) det. Gs Forbes '88 (1 f, AMNH); [mesothoracic tibia, mesothoracic tarsus, prothoracic and metathoracic legs missing], 16.vi.1905 ~ Vicinity of Havana, / Cuba / Mel. T. Cook ~ *Efferia stylata* (Fabr.) det. Gs Forbes '88 (1 f, AMNH); [antennae and terminalia tip missing], 25.v.1905 ~ Vicinity of Havana, / Cuba / Mel. T. Cook ~ *Efferia stylatus* (Fabr.) det. Gs Forbes '88 (1 f, AMNH); 1 f [abdomen absent, scarabaeid prey] 12.vi.1926 / SCB (1 f, USNM); [style, flagellum, tip of terminalia absent], Habana / 6.vi.? Cuba ~ Palmer / and Riley (1 f, USNM); [apical 1/2 of abdomen missing], Havana / Cuba June ~ S.W. Bromley collection (1 m, USNM); (head glued, most of terminalia absent), Est. Cent. / Agr. de Cuba / 7334 (1 f, USNM); [head missing] 15/44 f, ~ Loew coll. (1 f, MCZC); [terminalia apex absent] Cuba / vic. of / Havana / T. Barbour ~ *Erax stylatus* Fabr. Det. S.W. Bromley (3 f, MCZC); [apical segments+genitalia missing] Cuba ~ Osten Sacken coll. ~ *Erax stylatus* Fabr. Det. S.W. Bromley (1 m, MCZC); m, 15/44 ~ *Erax stylatus* Fabr. Det. S.W. Bromley (1 m, MCZC).

**Etymology.** The species name, *bromleyi*, genitive case, recognizes the American dipterist S.W. Bromley for his extensive contributions on the New World asilid fauna.

**Distribution.** Cuba, Camaguey, Cienfuegos, Havana, Villa Clara, and Isla de la Juventud provinces; February-July.

**Remark.** In addition to the characters in the key, the male of *Ef. bromleyi* is distinguished by the brown wing, costal margin strongly dilated, absence of a recurrent  $r_4$  vein, the thin seta-like dorsocentral bristles, the yellowish prothoracic tarsi, and the combined characters of the terminalia (Fig. 4a-4b, 8-10), especially the large dorsal process with an apical spur and small notch, and the membranous gonocoxite. In addition, the scutellar setae are longer than the scape and pedicel combined, and are as long as the 2-3 marginal bristles. The latter are only slightly thicker than the scutellar setae. The female is recognized by the stout yellow bristles below the femora and the 2 stout yellow marginal scutellar bristles. *Efferia bromleyi* will key to *Ef. stylata* in Bromley's key (1929).

### ***Efferia brunnescens* (Bromley)**

Fig. 1, 11-13

*Erax brunnescens* Bromley, 1929: 22.

*Nerax brunnescens* (Bromley), Hull 1962: 478. Combination.

*Efferia brunnescens* (Bromley), Martin and Papavero, 1970: 63. Combination, catalogue.

**Redescription.** Male. Body 15.5-16.1 mm, wing 12.5-12.9 mm. *Head:* Black. Tomentum dull yellowish-gray or brownish-yellow; bristles and setae mostly pale yellowish. Mystax pale yellowish with 3-9 black bristles dorsally; face at antennae and frons at ocellar tubercle only slightly wider than vertex. Palpi pale yellowish setose, 1-2 black setae sometimes present apically. Antennae mostly or entirely black setose, sometimes scape with sparse pale yellowish setae. Frons entirely pale setose or mixed pale yellowish and black setose. Ocellar tubercle setae and 4 postocular bristles black; 2 ocellar setae about as long as scape, pedicel, and flagellum combined. Sparse black postocular bristles dorsally.

*Thorax:* Mostly pale yellowish or brownish-yellow tomentose. Pronotum with mostly pale yellowish vestiture, sometimes 1 bristle black. Scutum with mostly black vestiture, sparse pale setae laterally, anterior setae thin, about 2/3 as long as scape; lateral bristles long, stout; dorsocentrals thinner and shorter than lateral bristles, seta-like, 1-2 slightly bristly. Scutellum mostly or entirely black setose, pale setae sometimes laterally; setae about as long as scape and pedicel combined and 3/4 as long as marginal bristles; 2-5 black marginal bristles present, usually 1-2 lateral bristles thinner than median bristles. Pleura mostly black setose anteriorly, pale posteriorly. Halter knob dull brownish-yellow, stalk pale yellow.

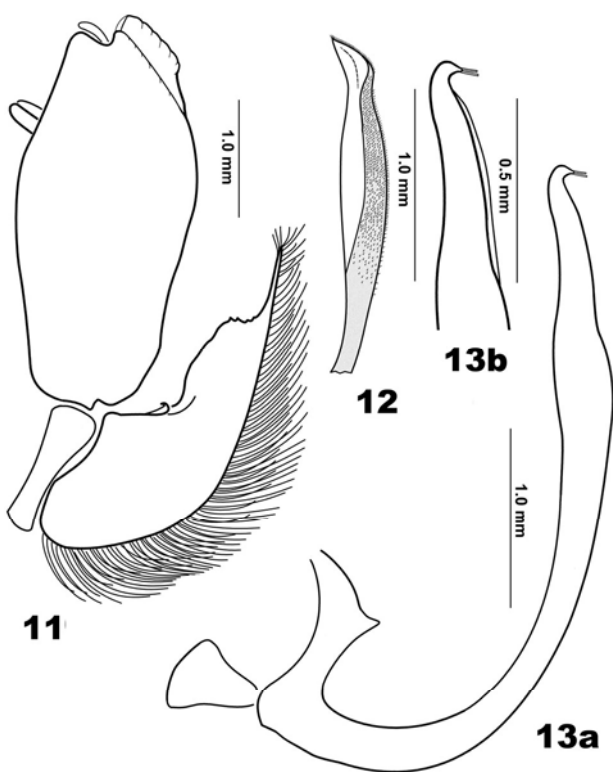
*Wing:* Costal margin only slightly dilated, sometimes only costal vein thick; cells pale yellowish, costal cell brown,  $r_1$  and  $r_{2+3}$  cells usually brown ribbed. Cell  $r_4$  unusually narrow basally,  $R_4$  recurrent vein as long as diameter of cell  $r_4$  basally. Crossvein r-m at or beyond apical 2/5 of d; slightly longer than  $CuA_1$ .

*Legs:* Coxae grayish tomentose, vestiture pale. Femora with reddish spot ventroapical, setae mostly pale except sparse black setae on femora apically; bristles mostly black, 1-2 pale bristles on basal 1/3 of middle and metathoracic femora. Tibiae brownish-yellow or reddish, narrow apex black, setae mostly yellow or whitish, bristles black. Tarsi reddish, becoming reddish-black or black apically; bristles black, dense ventral setae pale yellowish or orange.

*Abdomen:* Reddish-brown, black basally; wide sides of tergites 1-5 and sternites 1-5 pale brownish-gray or yellowish-gray tomentose, pale tomentum extends dorsally along apical margin on tergites 1-4 or 2-4; tergites 2 pale brownish-gray or yellowish-brown tomentose dorsally, becoming darker on 3-5, each darker medially, sometimes tomentum narrowly dark brown medially; segments 6-7 white tomentose, 8 reddish-brown; setae dull whitish and long on segments 1-3, short and brown on tergites 2-5 and 8 dorsally; apical margins of sternites 7-8 with long yellowish setae.

*Terminalia* (Fig. 11-13): Blackish or blackish-red, mostly black setose. Epandrium 2-2.5 times as long as wide, with minute anteroapical notch and posterior flange. Gonostylus narrow, asymmetrically pointed apically, with minute setulae. Phallus apically with slightly produced flange, aedeagal tubes angled 85-90 degrees. Gonocoxite abruptly narrowed apically, unusually narrow anteriorly, setal fringe black and thin, longer basally than apically, sometimes with sparse white setae laterally.

*Female.* Body 16.5 mm; wing 11.3 mm. *Head:* Mystax with 6 black bristles dorsally; palpi entirely pale setose; frons black and whitish setose; ocellar tubercle setae about 2/3 as long as scape; 2 postocular bristles black. *Thorax:* Anterior setae bristly, short, about 1/2 as long as scape. Scutellum and pleura yellow setose, scutellar setae as long as scape. *Legs:* Metathoracic femora with mostly yellow bristles



**Figure 11-13.** Male terminalia of *Efferia brunnescens* (Bromley), lateral views; 11. intact terminalia; 12. gonostylus; 13a-b. phallus with aedeagus, aedeagal tubes, and phallic flanges.

ventrally, apical 2-4 anteroventral bristles black. **Abdomen:** Pale yellowish-gray tomentose, narrow brown streak medially on tergites 2-7, pale on tergite 2, color becoming darker on succeeding tergites, brown tomentum widens to small median spot on 6 and larger diagonal spot on dorsal 1/2 of 7; tergites 2 medially, 3-7 mostly brown setose dorsally; whitish setae on most tergites laterally and sternites entirely, longest on basal 3 segments. **Terminalia:** Mostly blackish, as long as apical 4 segments, 4.0 mm, middle width 1/8-1/10 as long terminalia; cercus 1/2 as long as tergite 9.

**Types examined. CUBA: Guantánamo**, at light / Cuba 10.v.1917 / C.T. Ramsden (**holotype** m, USNM). **Paratypes:** [style and flagella absent, left middle and metathoracic legs, terminalia glued to card], Guantánamo Cuba / 3.vi.1917 / C.T. Ramsden (allotype f, USNM); [head glued to thorax, left prothoracic leg absent], Guantánamo Cuba / 3.vi.1917 / C.T. Ramsden (1 m, USNM).

**Other material examined.** C. Baraguá [Ciego de Ávila province] Cuba / L.C. Scaramuzza / vi-21-39 (1 f, USNM); **Havana** / Cuba / 1935 ~ *Efferia* / sp. det. GS Forbes (1 m, 2 f, AMNH).

**Distribution.** Cuba, Guantánamo, Ciego de Ávila, Havana provinces; May-June.

**Remark.** The pale brownish-gray or yellowish-gray tomentose body, pale straw-colored setae, black postocular, scutellar, and metathoracic femoral bristles, narrow median black tomentose line on the abdominal tergites [females, sometimes males], and combined characters of the terminalia (Fig. 11-13) distinguish *Ef. brunnescens* from similar congeners. *Efferia brunnescens* is separated from *Ef. insula* and *Ef. pina* by the slightly dilated costal margin of the wing, mostly black ventral bristles on the metathoracic femora, and combined characters of the male terminalia, especially the apex of the epandrium, the narrow apical 1/3 and thin setae of the gonostylus, and shapes of the phallus and aedeagus. Lastly, the gonostylus of *Ef. brunnescens* is narrow whereas that of *Ef. pina* is abruptly wider basally.

### *Efferia caudex* (Walker)

Fig. 1, 14-16

*Asilus caudex* Walker 1849: 404.

*Erax caudex* (Walker), Aldrich 1905: 276. Combination; Kertész 1909: 234. Catalogue.

*Nerax stylatus* (Fabricius), Hull 1962: 478. Combination. Listed *Er. caudex* a synonym of *Er. stylatus*.

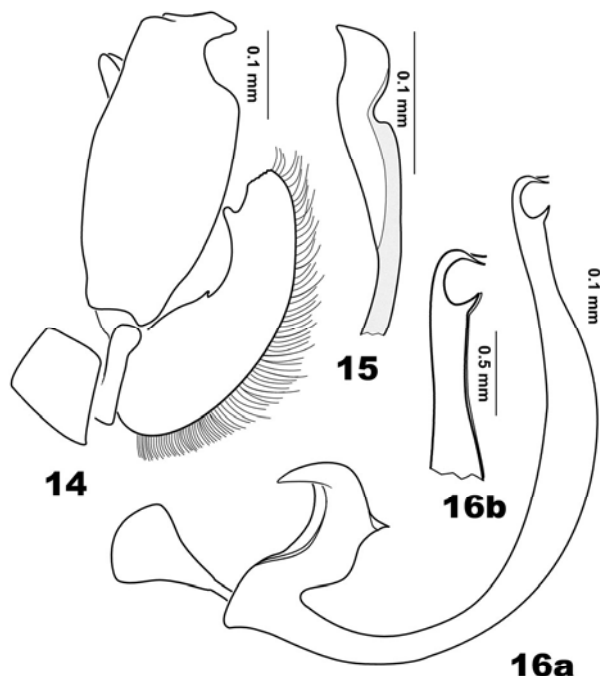
*Efferia caudex* (Walker), Farr 1965: 30. Combination, male terminalia illustrated; Martin and Papavero 1970: 64. Catalogue.

*Efferia invarius* (Walker), Farr 1965: 31. Syn.

**Specimen examined. Jamaica W.I.** / St. Morant Bay Rd. / 14 ½ mi. E. of / Kingston / 13.v.1961 / T.H. Farr ~ *Efferia* / *caudex* (Walker) / Det. 1965 / T.H. Farr (1 m, USNM; 1 m, 1 f, IJSM).

**Distribution.** Jamaica; May.

**Remark.** *Efferia caudex* is distinguished from congeners by the characters in the key and combined characters of the terminalia (Fig. 14-16). It is distinguished from the Jamaican *Ef. gossei* and *Ef. haloesa* by its large body (16.0-20.0 mm), dilated costal margin, the shape of the gonostylus, and short, thin gonocoxal setae (Fig. 14-16).



**Figure 14-16.** Male terminalia of *Efferia caudex* (Walker), lateral views; 14. intact terminalia; 15. gonostylus; 16a-b. phallus with aedeagus, aedeagal tubes, and phallic flanges.

***Efferia caymanensis* Scarbrough**

Fig. 1, 2, 17

*Efferia caymanensis* Scarbrough 1988: 150.

**Types examined.** CAYMAN ISLANDS: Grand Cayman BWI / E. Foldmans Bay / 27.ii.1970 / E.J. Gerberg (**holotype m**, USNM). **Paratypes:** Grand Cayman BWI / Boatswain Point / Lime Tree Estate / 16.ii.1985, E.J. Gerberg (allotype f, USNM); same data as allotype except 27.ii.1987; Grand Cayman BWI / Vicksville / NW Pt. 17.viii.1975 / E.J. Gerberg (2 f, USNM, EJGC).

**Distribution.** Grand Cayman Island; February and August.

**Remark.** *Efferia caymanensis* is readily distinguished by the red color of the body, wing venation, dense parted setae on tergites 2-4, and male terminalia, especially the small truncate apical process on the epandrium and the narrow style-like gonocoxite (Fig. 17, re-illustrated from Scarbrough 1988). This is the only species of *Efferia* in West Indies that belongs to the staminea group (see Fig. 3).

***Efferia cazieri* (Curran)**

Fig. 1, 18-20

*Erax cazieri* Curran, 1953: 5-6.*Nerax cazieri* (Curran), Hull 1962: 478. Combination.*Efferia cazieri* (Curran), Martin and Papavero 1970: 64. Combination, catalogue.

**Types examined.** BAHAMAS: **South Bimini Isl.** (**holotype m**, AMNH). **Paratypes:** same locality and collectors as holotype (allotype f, 3 m, 2 f, AMNH); **South Bimini Isl.** / Bahamas B.W.I. / 2-9.viii.1951 / C. and P. Vaurie ~ Paratype / *Erax / cazieri* / Curran ~ *Efferia / cazieri* / (Curran) / Det. C.H. Martin ~ Charles H. Martin / donation to / FSCA (1 m, FSCA); **South Bimini Isl.** / Bahamas B.W.I. / vi.1951 / C. and P. Vaurie ~ Paratype / *Erax / cazieri* / Curran ~ *Efferia / cazieri* / (Curran) / Det. C.H. Martin ~ Charles H. Martin / donation to / FSCA (1 f, FSCA); same data **South Bimini Isl.** / Bahamas B.W.I. / vi.1951 / C. and P. Vaurie ~ Paratype / *Erax / cazieri* / Curran ~ *Efferia / cazieri* / (Curran) / Det. C.H. Martin ~ Charles H. Martin / donation to / FSCA (2 f, FSCA); same data as holotype except 10.vi.1950 / Cazier and Rindge (1 f, FSCA).

**Other specimens examined.** **Grand Bahama Isl.** / West End / 12.v.1953 ~ Van Voast - A.M.N.H. / Bahama Isls. Exped. / Coll. L. Govannoli ~ *cazieri* ~ donation to / FSCA (1 f, FSCA); Governors Harbor / **Eleuthera I.** / 4.viii.1972 T.E. Rogers ~ *Efferia / cazieri* Curran / det. J.Wilcox (1m, FSCA); **San Salvador Island**, 9.vi.1978, coll. N. Elliott (1 m, USNM); same location except, CCFL Base, 16.vi.1978, coll. N. Elliott (1 f, USNM); same location except, Jake Jones Rd., 9.vi.1978, coll. N. Elliott (1 f, USNM); same location except, Dump, 9.vi.1978, coll. N. Elliott (1 m, USNM); same location except, 28.iii.1978, coll. N. Elliott (1 m, USNM); same location except, Dump, 4.iv.1982, coll. N. Elliott (1 f, USNM); same location except, Jake Jones Rd., 6.vii.1982, coll. N. Elliott; (2 f, USNM); same location except, CCFL Base, 7.vi.1978, coll. P. Salbert (1 f, USNM); same location except, Dump, 8.vi.1978, coll. P. Salbert (1 f, USNM); same location except, Rd. East Beach 13.vi.1981, coll. H. Oestreicher (1 f, USNM); same location except, Rd. S. CCFL, 16.vi.1981, coll. D. Davidson (1 f, USNM); same location except, scrub



**Figure 17.** Male terminalia of *Efferia caymanensis* Scarbrough, lateral view; 17. intact terminalia.

growth, CCFL, 16.vi.1981, coll. R. Rutkauskas (1 m, USNM); same location except, CCFL, 9.vi.1978, coll. A.G. Scarbrough (1 f, USNM); same location except, Sandy Point, 15.vi.1978, coll. A.G. Scarbrough (1 f, USNM); same location except, CCFL, 30.v.-6.vi.1979, coll. A.G. Scarbrough (2 m, 3 f, USNM); same location except, Fields S. CCFL, 28.v.-4.vi.1980, coll. A.G. Scarbrough (3 m, 6 f, USNM); same location except, Rd. S. CCFL, 6.vi.1980, coll. A.G. Scarbrough (1 m, USNM); same location except, 4-8.vi.1981, coll. A.G. Scarbrough (1 m, 2 f, USNM); same location except, Rd. N CCFL, 13.v.1981, coll. A.G. Scarbrough (2 m, USNM); same location except, Dump Beach dirt road, 11.vi.1981, coll. A.G. Scarbrough (1 m, USNM); same location except, Pigeon Creek, 14.vi.1981, coll. A.G. Scarbrough (1 m, USNM).

**Distribution.** BAHAMAS, Eleuthera, Grand Bahama, San Salvador, and South Bimini islands; May-August.

**Remark.** *Efferia cazieri* is distinguished from congeners by the characters in the key and the combined characters of the terminalia (Fig. 18-20). It is similar to *E. vauriei* but is distinguish from the latter by the slightly dilated wing, thin black scutellar bristles, and combined characters of the terminalia. Also, the anterior scutal setae are about as long as the scape, and the pale apices of the femora are sometimes helpful in diagnosing the species. The female is further distinguished by the black setose and mostly glossy tergite 7 (sparse brown tomentum dorsally) and the narrow terminalia, at middle about 1/9 as wide as long, about 1/3 as long as the abdomen. See comments below.

Island variations are apparently common in the species. For example, the palpi of Bimini types of *Ef. cazieri* are white setose with only a few black setae at the apex; the scutellum in both sexes range from a few to numerous black setae. The femora are entirely black. In the San Salvador Island series, the apical 1/3-1/2 of the palpi are black setose. The apical 1/3 of the femora, sometimes dorsum and narrow base of the hind femora are reddish or yellowish-brown. In females, tergite 7 is mostly dense tomentose, brown dorsally and grayish laterally. Only minute differences in the male terminalia were found between the Bimini and San Salvador series. Thus island populations are most readily separated on the bases of the male terminalia.

### *Efferia cubensis* (Bromley)

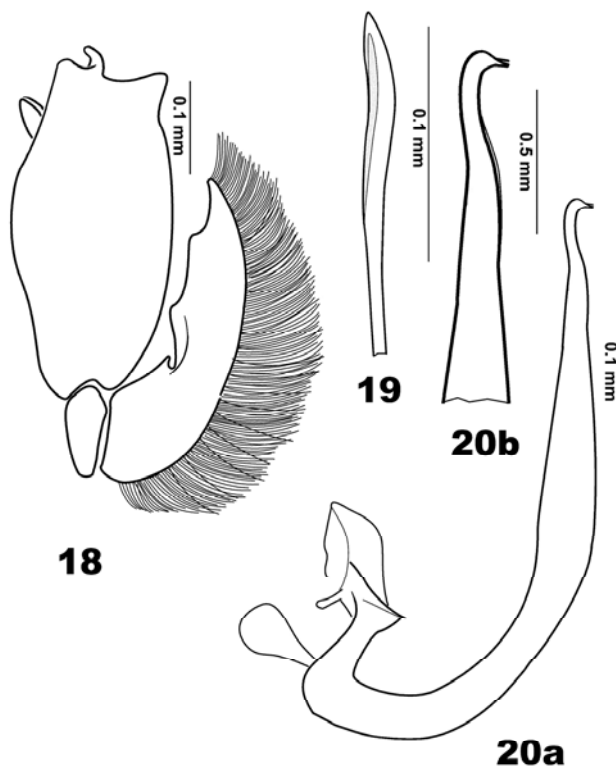
Fig. 1, 4c, 21-23

*Erax cubensis* Bromley, 1929: 292.

*Nerax cubensis* (Bromley), Hull 1962: 478. Combination.

*Efferia cubensis* (Bromley), Martin and Papavero, 1970: 64. Combination, catalogue.

**Redescription.** Male. Black, gray tomentose with black vestiture. Body 10.6-11.9 mm, wing 8.8-9.4 mm. **Head:** Mystax black, sparse white setae dorsally and along oral margin ventrally. Palpi entirely or mostly black setose, base ventrally sometimes whitish setose. Proboscis white setose. Antennae and frons mostly black setose, latter sometimes mostly white setose. Face at antennae 1/2 as wide as compound eye.



**Figure 18-20.** Male terminalia of *Efferia cazieri* (Curran), lateral views; 18. intact terminalia; 19. gonostylus; 20a-b. phallus with aedeagus, aedeagal tubes, and phallic flanges.

Ocellar setae longer than basal 3 antennal segments combined. Occiput gray tomentose, white setose, 4-5 thin, black, postocular bristles dorsally.

**Thorax:** Black, mostly black vestiture. Pronotum mostly and scutum anteriorly yellowish or golden-yellow tomentose; pronotum pale whitish setose. Scutum yellowish-gray tomentose posteriorly; anterior scutal setae as long as pedicel and scape combined; bristles black, dorsocentrals posteriorly thinner and shorter than lateral bristles. Scutellum yellowish-gray tomentose, setae white, as long as pedicel and scape; 4 black marginal bristles. Pleura brownish tomentose anteriorly, more yellowish posteriorly; setae mostly black. Halter knob brownish, stalk pale yellow.

**Wing:** Hyaline, slightly yellowish; veins pale, mostly yellowish-brown. Costal dilation absent.  $R_4$  recurrent vein shorter than cell base. Base of cell  $r_{4+5}$  just beyond cell d.

**Legs:** Coxae and trochanters black, vestiture pale. Femora black, anterior bristles pale yellowish, ventral bristles mostly black; metathoracic femora with 3-5 posteroventral black bristles. Tibiae yellow or yellowish-brown, apex brown; bristles black, dense setae orangish-yellow. Tarsi yellowish-brown, bristles and setae black dorsally; dense setae orangish-yellow ventrally.

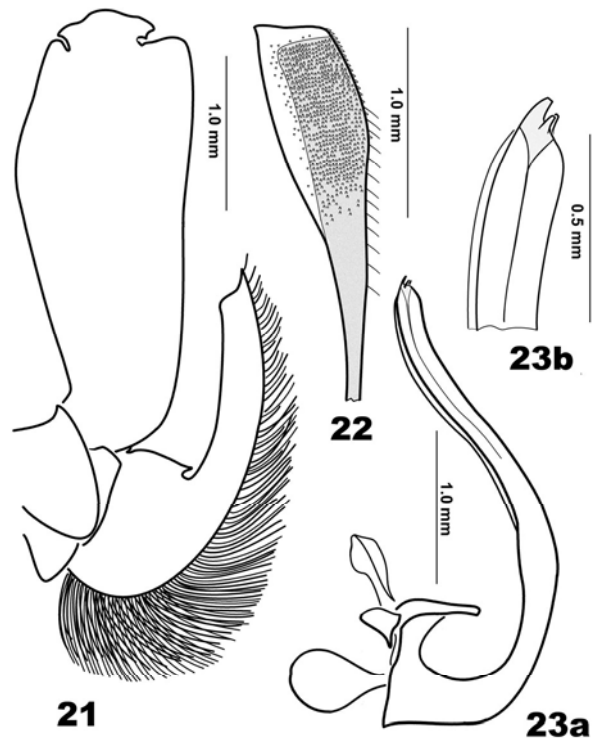
**Abdomen:** Black; wide sides of tergites 1-4, segments 5-7 entirely, white tomentose with white setae; long, erect setae on basal 3 segments; tergites 2-4 mostly blackish tomentose dorsally, black setose medially on tergite 2, mostly blackish setose on 3-4; segment 8 blackish, row of sparse blackish or whitish setae apically.

**Terminalia** (Fig. 21-23): Pale reddish, mostly black setose. Epandrium narrow basally, wider apically, about 3 times as long as wide. Gonostylus spatulate, wide apically, dorsal margin oblique with apex anterior; surface with abundant stout setulae. Phallus erect and thick, without usual constriction before aedeagus and distinct aedeagal flanges; aedeagus in vertical position, not angled perpendicular to vertical axis. Gonocoxite short with apex at or just before middle of epandrium; abruptly narrowed just before apex, apex short and pointed; setae blackish, long and dense basally, becoming increasingly shorter and less abundant posteriorly; sparse whitish setae bordering black basally.

**Female.** Body 10.3-11.5 mm; wing 8.3-8.9 mm. **Head:** Frons black setose. Face with mostly black vestiture, white on ventral 1/4 medially. Palpi mostly black setose, basal 1/3-1/2 mixed or entirely white setose. **Thorax:** Scutellum with 3-5 stout black bristles, 2-3 additional weaker, usually pale, bristles laterally. Pleura sometimes mostly yellow setose. **Legs:** Metathoracic femora with 3-5 black anteroventral bristles. Tibiae and tarsomeres mostly yellow, apices narrowly brown or brownish-yellow. **Abdomen:** Wide lateral margins of tergites and sternites 1-7 entirely pale tomentose, with whitish setae; tergites brown tomentose dorsally; tergites 5-7 brown setose dorsally. **Terminalia:** Wide basally, gradually narrowed from base apex, 3.6-4.1 mm, as long as or subequal in length to tergites 4-7; at middle 1/8.5-1/10.8 as wide as long. Cercus 1/3 as long as tergite 9. Spermathecae elongate, oval, 1/3 longer than wide, base narrow, sides gradually widening apically with greatest diameter at apical 2/3 (Fig. 4c).

**Types examined.** CUBA: Soledad [Cienfuegos province] Cuba / 21.vi.1925 / J.C. Myers (holotype m, MCZC); Soledad Cuba / 6.iv.1926 / Dr. J. Bequaert (allotype f, MCZC).

**Others specimens examined.** CUBA: 22.iv.1931 / Soledad / Cienfuegos [province] / d. Acuña ~ S.W.Bromley Collection (1 m, USNM); [no data, abdomen absent] S.W.Bromley Collection (1 f, USNM);



**Figure 21-23.** Male terminalia of *Efferia cubensis* (Bromley), lateral views; 21. intact terminalia; 22. gonostylus; 23a-b. phallus with aedeagus, aedeagal tubes, and phallic flanges.

251 F ~ Loew Coll ~ S.W. Bromley Collection ~ Det. *Erax cubensis* Brom. (1 f, USNM); Cayamas [Cayería, Las Cayamas Keys; **Havana province**] / 2.3 Cuba ~ A.E. Schwarz Collection (1 f, USNM).

**Distribution.** Cuba, Cienfuegos and Havana provinces; April-June.

**Remark.** *Efferia cubensis* is distinguished from congeners by the small body (10-12 mm), the abundant black vestiture of the face, palpi, and bristles of the femora, the long anterior scutal setae, and the combined characters of the terminalia (Fig. 4c, 21-23). The male is further distinguished by the 3 entirely white tomentose abdominal segments, the undilated costal margin of the wing, and reddish terminalia. The female is distinguished by the entirely tomentose segment 7 and the elongated oval spermathecae.

### *Efferia gossei* Farr

Fig. 1, 24-26

*Efferia gossei* Farr, 1965: 31. Martin and Papavero 1970: 65. Catalogue.

**Type examined.** JAMAICA W.I. / St. Thomas / Morant Point / Rd. 8.v.1964 / T.H. Farr (**holotype** m, **allotype** f, BMNH). **Paratypes**, same data as holotype except 20.iv.1958 (1 m abdomen absent; 1 f abdomen absent, USNM); same data as holotype except 30.iii.1956 (1 m, USNM); same data as holotype except 14.v.1960 / TH Farr (1 f, USNM); Jamaica W.I. / St. Thomas / Morant Bay / Rd. 15.v.1960 / T.H. Farr ~ PARATYPE *Efferia* / *gossei* / Farr (2m, USNM).

**Distribution.** Jamaica; March-August.

**Remark.** *Efferia gossei* is distinguished by the characters in the key and the combined characters of the terminalia (Fig. 24-26). Additionally, the apical margin of the wing in males is evenly contoured, not dilated, the apical margin of sternite 8 is produced, the anterior margin of gonocoxite is thumb-like apically, and the gonocoxal setae are short, slightly denser ventrally than dorsally. The dark brown or black femora will further separate both sexes from those of *Ef. caudex* and *Ef. haloesa*. The female is distinguished by the anterior scutal setae being less than the length of scape, black setae and 4-5 black marginal bristles of the scutellum, black femora, glossy black tergite 7, and the long terminalia, 6.3 mm.

### *Efferia haloesa* (Walker)

Fig. 1, 27-29

*Asilus haloesus* Walker, 1849: 405.

*Erax haloesus*, Johnson 1894: 279; 1919: 274; Aldrich 1905: 276; Kertész 1909: 237; Hine 1919:130.

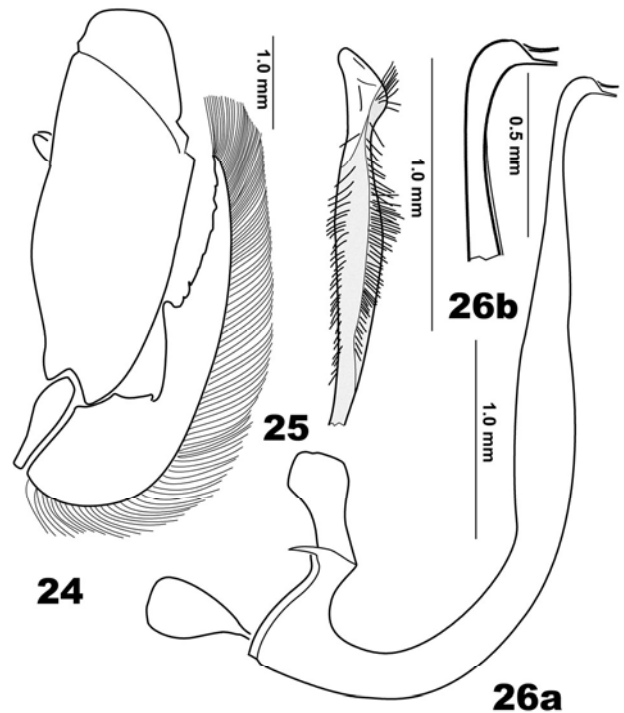
*Erax halaeosus*, Gowdey 1926: 77. Spelling error.

*Nerax haloesus*, Hull 1962: 478. Combination.

*Efferia haloesus*, Farr 1965: 478. Combination, male terminalia illustrated; Martin and Papavero 1970: 65. Catalogue.

**Specimens examined.** JAMAICA: (**holotype** m, BMNH); W.I. / St. Thomas / Morant Bay Rd / 14 ½ mi E. of Kingston 22.v.1960 / T.H. Farr ~ *Efferia* / *haloesus* (Walker) / det. 1965 T.H. Farr (1 m, terminalia absent USNM; 2 m, 2 f, IJSM).

**Distribution.** Jamaica; May.



**Figure 24-26.** Male terminalia of *Efferia gossei* Farr, lateral views; 24. intact terminalia; 25. gonostylus; 26a-b. phallus with aedeagus, aedeagal tubes, and phallic flanges.

**Remark.** *Efferia haloesa* is distinguished by the characters in the key and the combined characters of the terminalia (Fig. 27-29, reillustrated from Farr 1965), especially the somewhat pointed apex of the epandrium, long relatively dense setae of the gonocoxite, and wide abruptly angular aedeagus.

***Efferia hinei* n. sp.**

Fig. 1, 30-32

**Description.** Male. Black, mostly white tomentose, white setose. Body, 13.1 mm; wing 11.8 mm. **Head:** Mystax white, 1 black bristle dorsally; frons at ocellar tubercle only slightly wider than vertex. Face at antennae 4/5 as wide as one eye. Palpi white setose, only 1-2 black setae apically. Antennae and frons mostly black setose, scape and frons with sparse white setae. Ocellar setae longer than 3 antennal segments combined; 4-5 black postocular bristles dorsally.

**Thorax:** Mostly golden yellow tomentose dorsally, prescutellum yellowish-gray. Pronotal vestiture whitish. Scutal setae and bristles black, anterior setae about as long as scape; dorsocentrals mostly thin, slightly shorter than lateral bristles. Scutellum gray tomentose, setae whitish, as long as scape and pedicel combined, 2 stout marginal bristles, 1 white, 1 black. Pleura yellowish-gray anteriorly, more grayish posteriorly, white setose.

**Wing:** Slightly yellowish, costal cell brown medially; costal margin almost straight, swollen or very weakly dilated. Crossvein r-m beyond apical 1/3 of cell d. Vein  $R_4$  angular, well beyond apex of cell d; recurrent vein shorter than cell  $r_4$  base.

**Legs:** Vestiture mostly whitish, narrow apex of femora black setose, bristles black; metathoracic femora with 7 black anteroventral bristles. Tibiae brownish-yellow, bristles black, dense setae reddish. Tarsi blackish-red with black setae and bristles.

**Abdomen:** mostly gray tomentose, whitish or pale yellowish setose, long on basal 3 segments, erect on 1-3; tergites 2-4 mostly brown tomentose dorsally, blackish setose medially on 2 and most of 3-4; segment 5 mostly and segments 6-7 entirely white tomentose, tergite 5 dorsally with small brown triangular spot basally; segment 8 black, brown setae, setae especially long along apical margin of sternite 8.

**Terminalia** (Fig. 30-32): Black, mostly black setose. Epandrium narrow, tapered apically, apex about 1/3 its middle width, dorsal process somewhat squared posteriorly with minute projections more anteriorly; 3 times longer than wide. Gonostylus slightly angular apically, with minute setulae. Phallus stout, flanges only slightly produced, aedeagal tubes oblique, about 60 degrees. Gonocoxite abruptly narrowed at basal 1/3, blade-like with width on apical 3/4 more or less uniform, apex round; setae long, moderately dense.

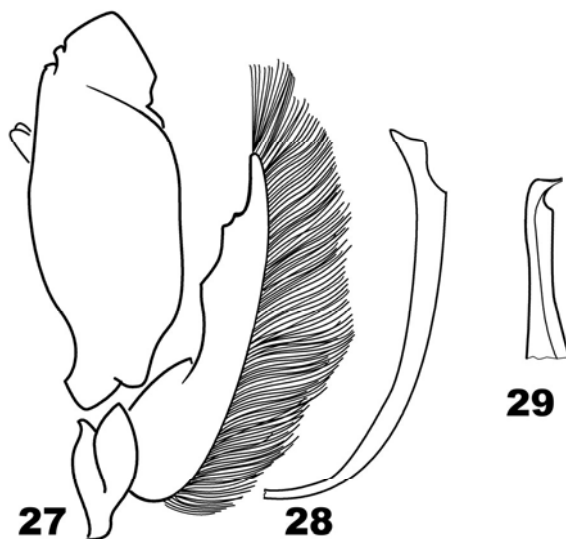
Female. Unknown.

**Type.** CUBA: Rio Seco / San Carlos Est. ~ **Guantánamo [province]** Cuba / 4.vii.1915, CT Ramsden ~ id.error, *Erax portoricensis* Hine ~ SW Bromley Coll. (**holotype** m, USNM).

**Etymology.** The species name, *hinei*, genitive case, is in recognition of the significant contributions of the American dipterist J. H. Hine.

**Distribution** (Fig. 1). Cuba, Guantánamo province; July.

**Remark.** Bromley (1929) mistakenly reported *Ef. hinei* as *Erax* [= *Efferia*] *portoricensis* Hine, a Puerto Rican species. It is distinguished from *Ef. portoricensis* and Cuban congeners by the mostly white face and palpi, the 2 stout marginal scutellar bristles, the 3 white tomentose abdominal segments, and the combined characters of the male terminalia (Fig. 30-32).



**Figure 27-29.** Male terminalia of *Efferia haloesa* (Walker), lateral views; 27. intact terminalia; 28. gonostylus; 29. phallus with aedeagus, aedeagal tubes, and phallic flange.

***Efferia insula* n. sp.**

Fig. 1, 4d, 33-35

**Description.** Male. Body black, 16.3-17.6 mm, wing 11.0-11.1 mm. **Head:** Yellowish-gray tomentose, mostly yellowish vestiture. Mystax with 3-6 stout black bristles just below antennae. Palpi and proboscis entirely yellowish setose. Flagellum and pedicel narrowly brownish-yellow basally; scape sparsely yellow setose ventrally. Frons mixed black and yellowish setose. Ocellar tubercle black setose, 2 setae as long as scape. Occiput with stout postocular bristles dorsally, 3-5 black.

**Thorax:** Yellow or yellowish-gray tomentose. Pronotal vestiture yellowish, bristles stout. Scutum blackish, postalar and immediate area reddish; yellow tomentose anteriorly, yellowish-gray laterally, grayish posteriorly; vestiture black, setae bristly, anterior scutal setae about 1/2 as long as scape; lateral bristles stout, long; 2-3 posterior dorsocentrals about as stout as lateral bristles. Scutellum yellowish-gray tomentose, mostly yellow mixed with black or mostly black setose, setae as long as scape; 2-3 stout marginal bristles, usually black, one reddish. Pleura yellowish-gray tomentose, vestiture mostly yellowish, anepisternum usually brownish posteriorly. Halter knob reddish, shaft dull yellow.

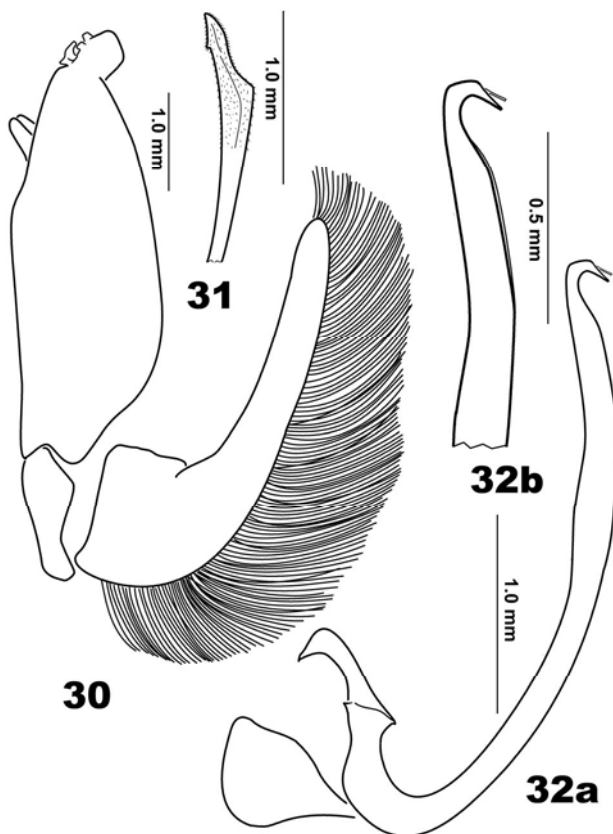
**Wing:** Costal dilation absent; cells yellowish, costal cell brownish-yellow; costa yellowish setose basally; veins reddish or brownish-red. Cell  $r_4$  oblique, just beyond cell d; recurrent vein absent or at most 1/2 diameter of cell basally. Crossvein r-m near apical 1/3 of cell d, slightly longer than  $Cu+A_1$ .

**Legs:** Mostly pale yellowish setae and bristles; femora with sparse black setae apically; metathoracic femora with usually 1-2 black bristles ventrally and dorsoapically. Tibiae yellow, narrow apices blackish, 1 basal and usually 2-3 black bristles apically. Tarsi reddish or blackish-red, tarsomeres progressively dark with apical tarsomere darkest; prothoracic tarsi palest; setae and bristles black except 4 yellow bristles on prothoracic and mesothoracic tarsi, metathoracic tarsi sometimes with 1-2 yellow bristles.

**Abdomen:** Black basally, reddish apically. Tergites 2-5 mostly brownish or blackish tomentose dorsally, apical 1/4 yellowish. Tergite 1 and wide sides and apical corners of 2-5 yellowish-gray tomentose, long, yellowish setae on tergites 1-3 laterally. Tergites 2-3 with sparse brown setae medially, 4-5 and 8 brown setose dorsally. Sternites 1-7 white tomentose, white setose; setae long and erect on sternites 1-3; setae much shorter beyond except moderately long along apical margin of sternites 7-8.

**Terminalia** (Fig. 33-35): Reddish or blackish-red, black setose, slightly swollen apically, about 1/3 wider than middle. Epandrium twice as long as wide, notched dorsally, large flange dorsoposteriorly. Gonostylus pointed apically, slightly wider preapically; setulae simple, short, only slightly longer posteriorly. Phallus slender laterally, flange narrow, not strongly produced; aedeagus minute, angled about 90 degrees. Gonocoxite short, apex just before apical 1/3, gradually tapered on apical 1/2 to pointed apex anteriorly; setae moderately dense, long posteriorly, shorter ventrally.

**Female.** Body 14.1-17.9 mm; wing 10.6-10.8 mm. **Head:** Scape entirely, frons mostly black setose; 4 black postocular bristles dorsally. **Thorax:** Anterior scutal setae about 1/2 as long as scape. Scutellum mostly yellow setose, sparse black setae, setae about as long as scape; 2 stout, black marginal bristles; anepisternum and katapisternum golden-yellow tomentose; pleura with setae yellow. **Wing:** Vein  $R_4$  recurrent vein longer than cell basally. **Legs:** Femoral bristles yellow, 1 black bristle on metathoracic



**Figure 30-32.** Male terminalia of *Efferia hinei* n. sp., lateral views; 30. intact terminalia; 31. gonostylus; 32a-b. phallus with aedeagus, aedeagal tubes, and phallic flanges.

femora ventrally. Prothoracic and mesothoracic tarsi with 4 yellow bristles. *Abdomen*: Tergites 1-7 mostly brown tomentose dorsally, wide sides and apical margins yellowish-gray or yellow tomentose, setae mostly yellow, sparse black medially on tergites 2-4, mostly black setae beyond. Sternites 1-7 yellowish-gray or whitish tomentose, whitish or yellowish setose, setae long, erect on 1-3. *Terminalia*: Black, base slightly reddish dorsally, 4.0 mm, about as long as segments 5-7, at middle 1/8 as wide as long; cercus slightly less than 1/2 as long as tergite 9. Spermatheca oval, only slightly longer than wide (Fig. 4d).

**Types.** CUBA: Cuba: W.I. / Camaguey [province] / Oct'42 / D. G. Hall (**holotype** m, USNM). **Paratypes**: 29.x.1929 / P. D. Saunders ~ S.W. Bromley collection (1 m, USNM); 28.x.1929 / P.D. Saunders ~ S.W. Bromley collection (1 m, USNM); 29.x.1929 / P.D. Saunders ~ Soledad [Cienfuegos province] Cuba ~ S.W. Bromley collection (1 f, USNM); Ocuja coast / South of Turquino Pk. [Santiago de Cuba province] Cuba ~ 10-29.vi.1936 / J. Acuña (1 m, 1 f, USNM); Vilches Potrero / Soledad Cienfuegos / Cuba 9.ix.1930 / Richard Dow ~ *Erax rufitibia* Macq. Det. S.W. Bromley 1932 (1 m, MCZC).

**Distribution.** Cuba, Camaguey, Cienfuegos, Santiago de Cuba provinces; October-November.

**Etymology.** Latin *insula*, genitive, 'an island', referring to the type locality, Cuba.

**Remark.** *Efferia insula* is distinguished by the characters in the key and combined characters of the terminalia (Fig. 33-35). Additionally, it is further distinguished from *Ef. brunnescens* in the entirely pale setae of the palpi, shorter ocellar and scutellar setae, latter being about as long as scape, entirely or mostly pale bristles below the femora, and 1-4 yellow bristles on the tarsi. Thus far females are indistinguishable from those of *Ef. brunnescens* and *Ef. pina*.

### *Efferia nigratarsis* (Hine)

Fig. 1, 4e, 36-38

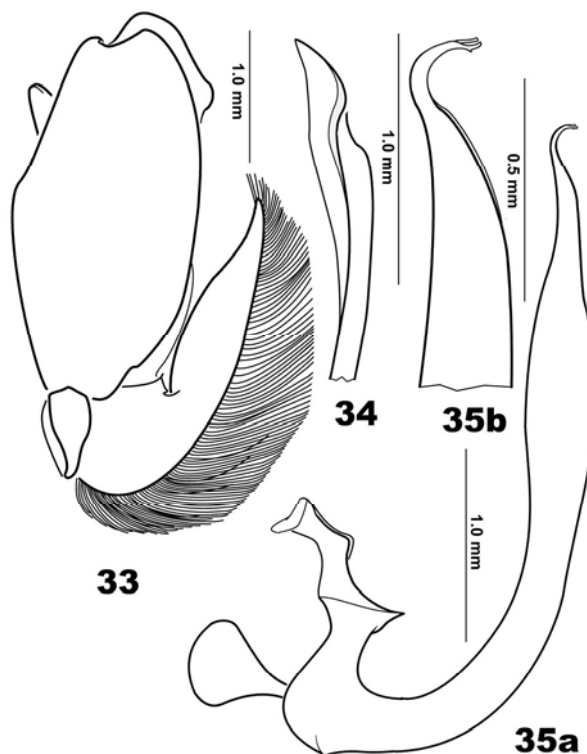
*Erax nigratarsis* Hine 1919: 128.

*Nerax nigratarsis* (Hine), Hull 1962: 478. Combination.

*Efferia nigratarsis* (Hine), Martin and Papavero 1970: 66. Combination.

**Redescription.** Male. Body 15.8 mm, wing 11.9 mm. *Head*: Face, frons, vertex yellowish-gray or gray tomentose; vestiture whitish, at most a slight tint of yellow; mystax with 1-6 black bristles medially. Face at antennae 2/3 as wide as eye. Palpi mostly white setose, usually black setae on apical 1/4. Proboscis white setose. Antennae black, black setose, sparse whitish setae below pedicel. Frons whitish setose. Ocellar tubercle with 2 black setae as long as 3 antennal segments combined. Occiput grayish tomentose, whitish setose, dorsal postocular bristles pale yellowish.

*Thorax*: Scutum brown median stripe and 2 spots laterally, yellow tomentose, prescutellum yellowish-gray; vestiture black, sparse yellow setae laterally, setae abundant, anterior scutal setae subequal in length to scape; dorsocentrals thin posteriorly, 5-6 per row; lateral bristles thick. Scutellum pale yellowish or whitish setose dorsally, as long as scape; 5-6 pale yellowish, marginal bristles, one of these thin.



**Figure 33-35.** Male terminalia of *Efferia insula* n. sp., lateral views; 33. intact terminalia; 34. gonostylus; 35a-b. phallus with aedeagus, aedeagal tubes, and phallic flanges.

Pleura yellowish tomentose anteriorly, yellowish-gray posteriorly, setae yellowish. Halter stalk yellow, knob reddish.

**Wing:** Hyaline, costal cell brownish. Costal margin slightly dilated, sometimes costa vein straight, only thick; Crossvein r-m longer than  $CuA_1+M_3$ , just before or at apical 1/4 of cell d. Cell  $r_{1+2}$  beyond apex of cell d, base narrow;  $R_4$  recurrent vein short or absent, about 1/5 or less than diameter of cell  $r_4$  basally.

**Legs:** Coxae, trochanter, and femora black, coxae whitish tomentose with whitish vestiture. Femora mostly pale yellow or whitish setose, black dorsoapically, setae long, abundant below prothoracic and mesothoracic femora; 4-5 bristles on mesothoracic femora and 2-3 anteroventral bristles on metathoracic femora black, anterior bristles mostly creamy white. Tibiae mostly yellow, apices black; bristles black. Tarsi reddish-black, tarsomeres pale basally, metathoracic tarsus entirely blackish; bristles and setae black.

**Abdomen:** Segments 6-7 white tomentose, tergites brownish dorsally, wide sides brownish-gray; setae mostly whitish or yellowish on basal 3 tergites; sternites 1-7 gray tomentose, setae white, erect, long on basal 3 sternites, much shorter posteriorly; sternite 8 produced apically with unusually dense black setae.

**Terminalia** (Fig. 36-38): Black, black setose. Epandrium twice as long as wide, apex wide, somewhat truncate in dry specimens, apical margin narrowly membranous. Gonostylus narrow, apex capitate. Phallus with moderate flanges, margins gradually sloped; aedeagus abruptly angled 90 degrees. Gonocoxite abruptly narrowed apically, apex acuminate; setae dense, longer posteriorly than ventrally.

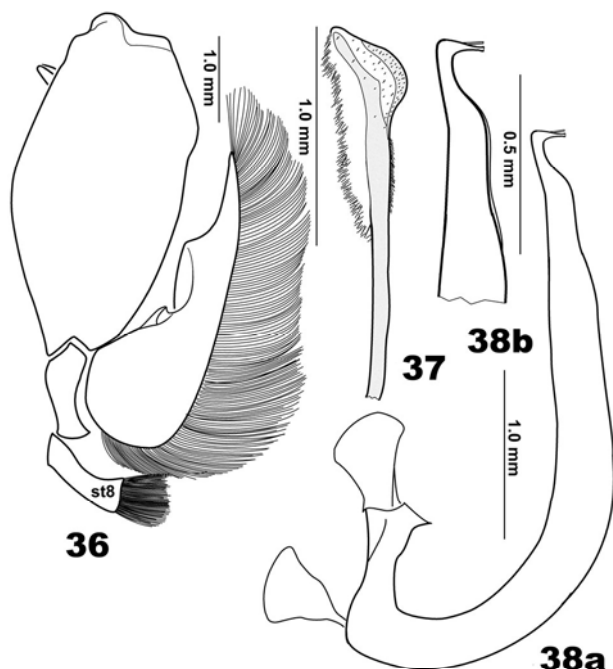
**Female.** Body 12.9 mm; wing 9.6 mm. **Head:** Mystax with 2-11 black bristles dorsally; face 1/2 as wide as eye. Apical 1/3 of palpi black setose; frons mostly pale, 2-3 setae and postocular bristles black. **Thorax:** Scutellum with 5 marginal bristles, 1 black; setae slightly shorter than scape. **Wing:** Recurrent vein about as long as diameter of cell  $r_4$  base. Halter yellow. **Abdomen:** Sternites 1-6 and wide sides of tergites 1-6 gray tomentose, pale setose; tergites brown tomentose dorsally, tergite 7 glossy, tomentum sparse; tergites 3-7 and apical 1/2 of sternite 7 blackish setose. **Terminalia:** At middle 1/9.5 as wide as long; cercus 1/2 as long as tergite 9. Spermatheca slightly longer than wide (Fig. 4e).

**Types examined.** CUBA: Holguín [Holguín province] / 19.xii.1904 (**holotype** m, OSUC 0186802). **Paratype:** Holguín / 19.xii.1904 ~ Allotype [red label] (f, OSUC 0186799).

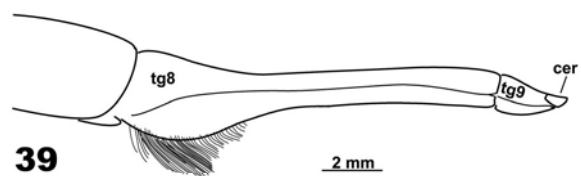
**Other material examined.** Holguín / ?v. 1905 (m, OSUC 0186801).

**Distribution.** Cuba, Holguín province; April, December.

**Remark.** In addition to the characters in the key, *Ef. nigratarsis* is distinguished from congeners by the pale scutellar setae and bristles, somewhat truncate membranous apical margin of the epandrium, strongly capitate gonostylus, abruptly apically narrowed gonocoxite, and produced sternite 8 (Fig. 36-38).



**Figure 36-38.** Male terminalia of *Efferia nigratarsis* (Hine), lateral views; 36. intact terminalia; 37. gonostylus; 38a-b. phallus with aedeagus, aedeagal tubes, and phallic flanges.



**Figure 39.** Female terminalia of *Efferia pilosula* (Bromley), lateral view.

***Efferia pilosula* (Bromley)**

Fig. 1, 39

*Erax pilosulus* Bromley, 1929: 292.*Nerax pilosulus* (Bromley), Hull 1962: 478. Combination*Efferia pilosula* (Bromley), Martin and Papavero, 1970: 67. Combination, catalogue.

**Redescription.** Female. Black; body 19.4 mm, wing 14.1 mm. *Head:* Mystax black; face yellow tomentose dorsally, yellowish-gray ventrally. Palpi, antennae, frons, and ocellar tubercle black setose. Proboscis white setose. Antennae with scape or flagellum twice as long as pedicel; 3 antennal segments as long as style. Frons brownish-yellow; vertex above ocellar tubercle only slightly narrower than face at antennae or frons at ocellar tubercle. Ocellar setae as long as 3 antennal segments combined. Occiput yellowish-gray dorsally, gray ventrally; setae mostly white, black dorsally, black postocular setae extend to mid-lateral margin of head; 4-5 thin, black postocular bristles dorsally.

*Thorax:* Pronotum yellow or brownish-yellow tomentose, setae mostly black, bristles absent. Scutum brownish-yellow anteriorly, yellowish-gray posteriorly; vestiture black, anterior setae as long as scape and pedicel combined; dorsocentrals seta-like, long posteriorly; lateral bristles thicker and longer. Scutellum yellowish-gray tomentose, black setose, as long as or slightly longer than scape; 10-12 long, thin, black marginal bristles. Pleura brownish-yellow or yellow tomentose; vestiture mostly black. Halter knob reddish, stalk pale yellow.

*Wing:* Brownish, especially dark bordering veins; costal cell darker brown.

*Legs:* Coxae mixed black and white setose. Femora mostly black setose, setae yellow posteriorly and ventrally; bristles black. Tibiae mostly pale reddish-yellow, black apically; bristles and long setae black; dense, short, reddish-yellow setae on tibiae and tarsi ventrally. Tarsi black or reddish-black, bristles and setae black dorsally.

*Abdomen:* Tergites 1-7 brown tomentose with brown setae dorsally, wide sides white tomentose with short white setae, setae longer and yellowish on basal 3 tergites; sternites 1-7 mostly white tomentose with short, white, erect setae, those on basal 3-4 sternites longer; sternite 7 mostly black setose, long setae apically.

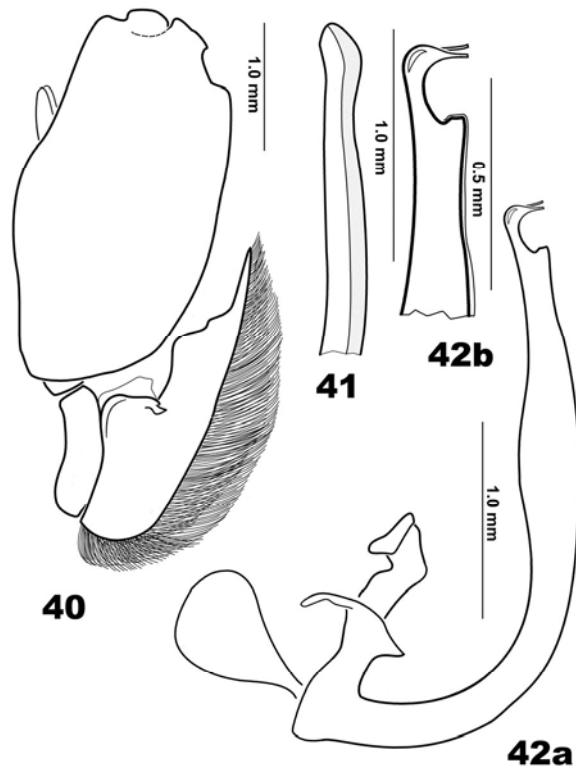
*Terminalia* (Fig. 39): Black, 6.3 mm; at middle 1/12 as wide as long, longer than segments 5-7; base with dense black setae ventrally; cercus about 1/3 as long as segment 9.

Male. Unknown.

**Type examined.** CUBA: Sierra Maestra [**Santiago de Cuba province**] Cuba /10.vii.1922 / C.H. Ballou y / SC Bruner / 107C-13FOM / Palma Mocha (**holotype** f, USNM).

**Distribution.** Cuba, Santiago de Cuba province; July.

**Remark.** The large body [19 mm]; mostly or entirely black vestiture of the head and thorax; long ocellar, anterior scutal and scutellar setae; 10-12 thin black marginal bristles; prothoracic and mesothoracic coxae mixed black and white setose, and terminalia longer than segments 5-7 and wide base ventrally with dense tuft of black setae (Fig. 39) distinguish *E. pilosula* from congeners.



**Figure 40-42.** Male terminalia of *Efferia pina* n. sp. lateral views; 40. intact terminalia; 41. gonostylus; 42a-b. phallus with aedeagus, aedeagal tubes, and phallic flanges.

***Efferia pina* n. sp.**

Fig. 1, 40-42

**Description.** Male. Body 14.6 mm, wing 9.0 mm. *Head*: Yellowish or yellowish-gray tomentose, vestiture yellow. Mystax, palpi, and proboscis vestiture entirely yellowish; frons and postocular bristles mostly yellow, 1-2 bristles or setae black. Antennae black, black setose except sparse yellow setae below scape. Ocellar setae as long as scape and pedicel combined. Occiput yellowish-gray tomentose, white setose ventrally.

*Thorax*: Yellowish or brownish-gray tomentose. Pronotum with yellowish vestiture. Scutum grayish tomentose posteriorly; mostly black vestiture, sparse yellow setae posteriorly; 1 lateral and 2 dorsocentral bristles sometimes yellow; lateral bristles long, stout; 7-9 dorsocentrals thinner, shorter than lateral bristles. Scutellum yellowish-gray or gray tomentose; setae yellow, usually shorter than scape; marginal bristles yellow, 2 thick. Pleura yellowish-gray or gray tomentose, vestiture yellow. Halter knob dull brownish, stalk brownish-yellow.

*Wing*: Costal margin straight, without dilation, surface slightly brownish; costal vein yellow setose basally.  $R_4$  recurrent vein about as long as cell base. Crossvein r-m at apical 1/4 of cell d.

*Legs*: Bristles and setae yellow except sparse black setae on femora apically; metathoracic femora with 2-3 yellow posteroventral bristles basally. Tibiae brownish-yellow, narrow apex black, vestiture mostly yellow, apical bristles black. Tarsi reddish basally, becoming reddish-black or black apically; bristles mostly black, 1 yellow bristle on prothoracic tarsi; dense yellowish setae ventrally.

*Abdomen*: Reddish-brown, wide sides of tergites 1-6, tergite 7 and sternites 1-7, white tomentose entirely, white extends dorsally along apical margin on tergites 1-5; tergites 1-6 brown tomentose dorsally. Setae mostly yellowish, long on sides of tergites 1-3 and sternites 1-3; sparse, short, brown setae on tergites 2-6 and 8 dorsally; tergite 8 whitish setose laterally and sternites 6-7 apically.

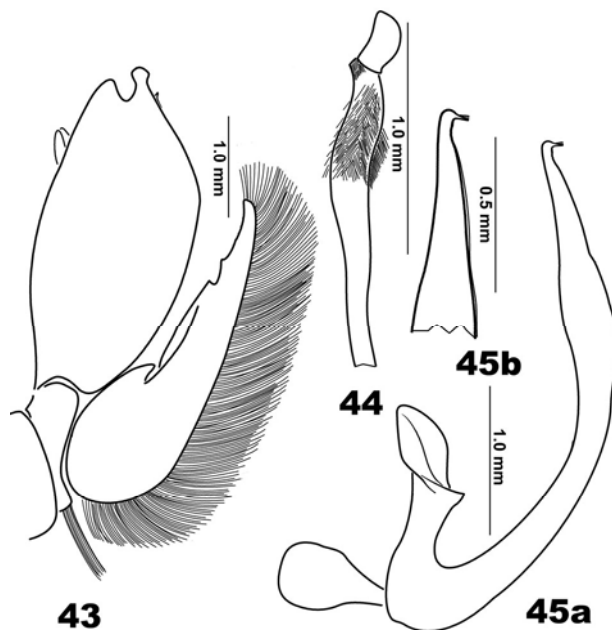
*Terminalia* (Fig. 40-42): Reddish, mostly black setose. Epandrium twice as long as wide, squared apically, with thin flanges dorsally and notch dorsoposteriorly. Gonostylus narrow, apex broadly rounded. Phallic flanges produced, angular dorsally; aedeagus angled at 90 degrees. Gonocoxite anteriorly narrowed on apical 1/3, apex pointed, setae long, moderately dense.

*Female*. Body 14.0-14.1 mm; wing 9.5-10.8 mm. *Head*: Mystax mostly yellow, 5-6 black bristles dorsally; frons mostly black setose; postocular bristles yellow. *Thorax*: Anterior scutal setae about as long as pedicel; 2 lateral and 2 dorsocentral bristles yellow. *Wing*: Crossvein r-m just beyond middle of cell d. *Legs*: Tarsi with only black bristles. *Abdomen*: Tergites 1-7 mostly brown tomentose dorsally, wide sides and apical margin of 3-6 yellowish tomentose, mostly yellow setose, tergites 2-3 or 4 brown setose medially, mostly brown on 5-7 dorsally; sternites 1-7 yellowish, setae whitish or yellowish, long on sternites 1-3, shorter beyond. *Terminalia*: Black, slightly shorter than apical 3 segments, 3.2 mm, at middle 1/6.5 as wide as long.

**Types.** CUBA: Sta. [Santa] Fé, Is. de / Pinos [Isla de la Juventud], Cuba / 6.ix.1928 ~ C.S. Bruner, Y.L. Brouclé ~ S.W. Bromley collection (**holotype** m, USNM). **Paratypes**: Columbia, Is. / de Pinos [Isla de la Juventud], Cuba / 7.ix.1928 ~ CS Bruner, Y.L. Brouclé (1 f, USNM); Zaza d. Media / Cuba (2 f, AMNH).

**Etymology.** Latin *pina*, genitive, refers to the former name of the type locality, Isla de Pinos.

**Distribution.** Cuba, Isla de la Juventud; September.



**Figure 43-45.** Male terminalia of *Efferia vauriei* (Curran), lateral views; 43. intact terminalia; 44. gonostylus; 45a-b. phallus with aedeagus, aedeagal tubes, and phallic flanges.

**Remark.** *Efferia pina* is distinguished from congeners by the characters in the key and the combined characters of the male terminalia (Fig. 40-42).

***Efferia vauriei* (Curran)**

Fig. 1, 43-45

*Erax vauriei* Curran, 1953: 5.

*Nerax vauriei* (Curran), Hull 1962: 478. Combination.

*Efferia vauriei* (Curran), Martin and Papavero 1970: 66. Combination, catalogue.

**Types examined.** BAHAMAS, South Bimini Isl. / v.1951 C. and P. Vaurie (**holotype** m, AMNH). **Paratypes:** same data as holotype except vi-viii.1951 (allotype f, 10 m, 12 f, AMNH); same data as holotype (1 m, FSCA); same data as holotype except vii.1951 (1 m, FSCA); South Bimini Isl. / Bahamas B.W.I. / 10.vi.1950 / Cazier & Rindge (1 f, FSCA); same data except vi.1951 ~ P.&C. Vaurie / collectors (1 f, FSCA).

**Other specimens examined.** BAHAMAS: **Stranger Cay**, 14.vii.? ~ *Erax rufitibia* Macq. misidentified' ~ *Erax fortis* Wk. 'misidentified ~ *Efferia vauriei* (Curran) / dt. A. Scarbrough 07' (1 m, 0186797, OSUC); *Erax rufitibia* / Macq. / Stranger Cay / vii.1914 (1 m, MCZC); **Fortune Island** / (or Long Cay) / nr. Albert Town / 7.iii.1953 ~ Van Vost A.M.N.H. / Bahama Isls. Exped. / coll. L. Giovannoli ~ *vauriei* (1 m, FSCA).

**Distribution.** BAHAMAS, South and East Bimini Islands, Stranger Cay, Fortune Island; June-August.

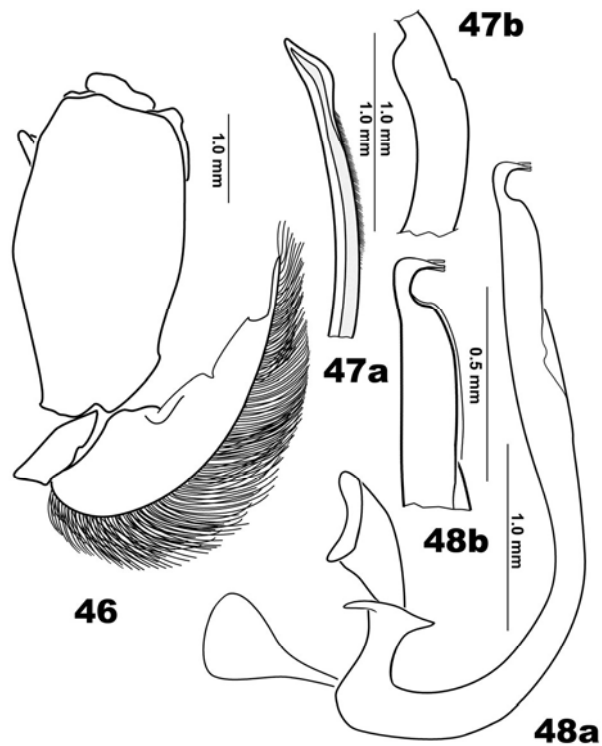
**Remark.** *Efferia vauriei* is distinguished by the characters in the key and the combined characters of the terminalia (Fig. 43-45). It is further distinguished by the several long setae along the apical margin of sternite 8, the tooth-like process along the posterior margin of the epandrium [concealed in lateral view], and the dense orange-yellow setae on the inner surface of the gonocoxite. The seventh segment of the female is black with thin brown tomentum dorsally and black setae; at middle, the terminalia is about 1/9 as wide as long.

***Efferia vinalensis* n. sp.**

Fig. 1, 46-48

**Description.** Male. Body 14.9 mm, wing 10.3 mm. *Head:* Yellowish or yellowish-gray tomentose with yellow vestiture. Antennae brown to black, black setose except sparse yellow setae below scape. Ocellar setae black, 2 slightly longer than scape and pedicel combined. Occiput yellowish-gray tomentose with yellow setae; postocular bristles yellow.

*Thorax:* Yellowish-gray tomentose. Pronotum vestiture yellowish. Scutal vestiture mostly black, sparse yellow setae laterally, anterior setae as long as scape; lateral bristles mostly black, 2-3 yellow; 8-9 black dorsocentrals bristles with first 2 before transverse suture, bristles shorter and thinner than lateral bristles, longest-thicker bristles posteriorly. Scutellum yellowish-gray tomentose; setae yellow, about 1/2-2/3 as long as scape; 6-7 yellow marginal bristles, 4 thick with lateral bristles thinner and shorter. Pleura yellowish-gray or gray tomentose, vestiture yellow. Halter knob dull brown, stalk yellow.



**Figure 46-48.** Male terminalia of *Efferia vinalensis* n. sp., lateral views; 46. intact terminalia; 47a-b. gonostylus apically and basally; 48a-b. phallus with aedeagus, aedeagal tubes, and phallic flanges.

**Wing:** Yellow, costal cell brownish medially; costal margin straight, not dilated; costal vein yellow setae basally. Cell  $r_4$  just beyond cell d, base narrow with  $R_4$  recurrent vein about as long as diameter of cell basally. Crossvein r-m at apical 1/4 of d, slightly shorter than  $CuA_1$ .

**Legs:** Bristles and setae yellow except sparsely black on femora apically; coxae yellowish-gray tomentose. Tibiae yellow, narrow apex black, vestiture mostly yellow, apical bristles black. Tarsi red to blackish-red, paler basally, becoming darker apically; bristles mostly black, prothoracic and mesothoracic tarsi with 6-7 and metathoracic tarsi with 1-2 yellow bristles laterally; setae yellowish.

**Abdomen:** Mostly yellowish-gray tomentose and yellowish setae; tergites 1-5 and 7 and basal 1/2 of 6 brown tomentose. Segments 1-3 with long setae, much shorter elsewhere; brown setae on tergites 2-5 and 8 dorsally; tergite 8 laterally and sternites 6-7 apically whitish setose.

**Terminalia** (Fig. 46-48): Reddish, mostly black setose. Epandrium twice as long as wide, squared apically, with thin flanges dorsally. Gonostylus narrow, asymmetrically pointed apically, base abruptly wider; shaft posteriorly with long spinules. Phallus abruptly narrow apically with produced evenly contoured flanges produced, aedeagus angled at 90 degrees. Gonocoxite unusually narrow apically, setae long and dense.

**Female.** Body 16.5 mm; wing 11.3 mm. **Head:** Mystax and frons with 1-2 black bristles or setae. **Thorax:** Scutum with anterior setae less than length of scape; 3-4 lateral bristles yellow. **Abdomen:** Tergites 1-6 brown tomentose dorsally, wide sides and sternites 1-6 grayish tomentose; setae whitish or yellowish, long on sternites 1-3, brown medially on tergite 6, dorsally on 7, narrow sides of latter brown tomentose, yellow setose. **Terminalia:** Black, narrow beyond base, as long as apical 3 1/2 segments, 4.8 mm, at middle 1/9 as wide as long.

**Types.** CUBA: Cuba 24 K[m]. S. of Vinales [Sierra de los Organos mountains, **Pinar del Rio province**] / 16-22.ix.1913 ~ *Erax nigratarsis* / Hine (1 m, AMNH). Cuba 12 1/2 K[m] / S. of Pinar Rio [**Pinar del Rio province**] / 12-23.ix.1913 (1 f, AMNH).

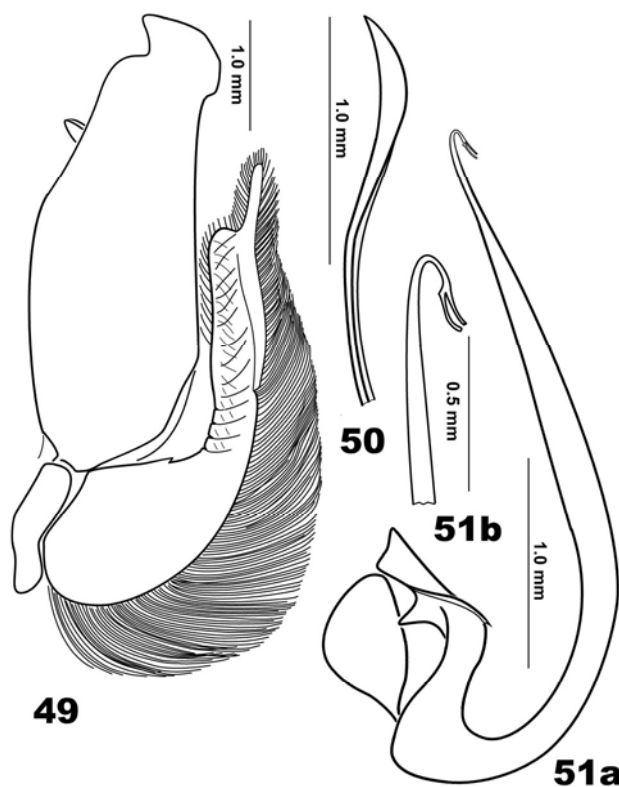
**Etymology.** The species name, *vinalensis*, refers to Viñales Valley, the type locality.

**Distribution.** Cuba, Pinar del Rio province; September.

**Remark.** *Efferia vinalensis* keys to the couplet containing *Ef. nigratarsis* (Hine) in Bromley's key (1929) but is distinguished from that species by the yellow vestiture of the face, the 2-3 yellow lateral bristles on the scutum, and the combined characters of the terminalia (Fig. 46-48).

## Unresolved Taxa

The following 2 species are from Cuba but the condition of the specimens was too damaged for description. Insofar as could be determined, the external characters of the species were essentially identical to *Ef. bromleyi*. The terminalia are quite distinct, differing significantly from the latter species. The terminalia are illustrated in hopes that the species will be found in the future. The species are also included in the key to males.



**Figure 49-51.** Male terminalia of *Efferia* sp. A, lateral views; 49. intact terminalia; 50. gonostylus; 51a-b. phallus with aedeagus, aedeagal tubes, and phallic flanges.

***Efferia* species A**

Fig. 1, 49-51

**Material examined.** Cuba: Santiago de Las Vegas [Havana province] / Cuba / 14.v.1920 / S.C. Bruner (1 m, USNM).

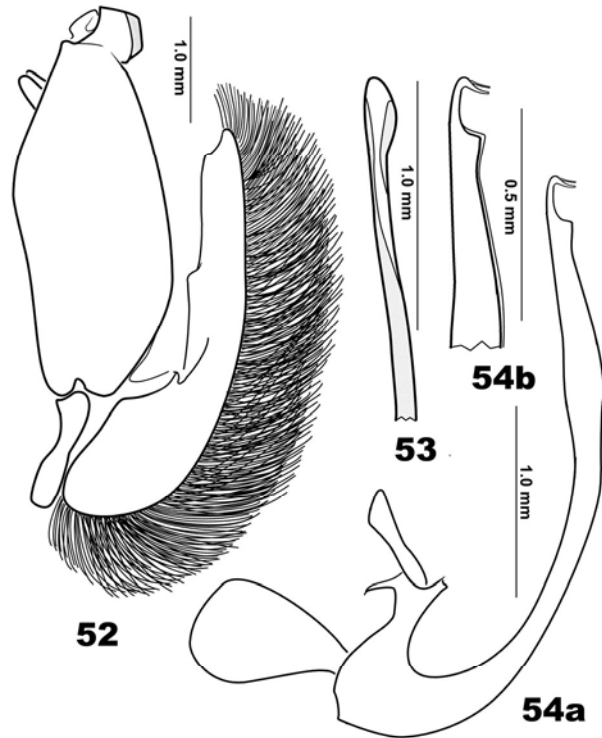
**Remark.** *Efferia* species A is essentially identical to *Ef. bromleyi* and *Ef. species B* in general body characters but is distinguished from them by the combined characters of the male terminalia (Fig. 49-51), especially the apical shapes of the epandrium and gonocoxite, and the long ventral gonocoxal setae which become decreasingly shorter apically.

***Efferia* species B**

Fig. 1, 52-54

**Material examined.** CUBA: Cuba (2 m, USNM).

**Remark.** *Efferia* species B is similar to *Ef. species A* and *Ef. bromleyi*, but is distinguished from them by the combined characters of the terminalia (Fig. 52-54). The shorter epandrium, 2.4-2.6 times longer than wide, further distinguishes it from *Ef. bromleyi*. The epandrium of *Ef. bromleyi* is longer and narrower, about 3.0 times longer than wide. The more angular dorsal process of the epandrium and the membranous posterior margin, capitate gonostylus, and angular phallic flange further separate it from both species.



**Figure 52-54.** Male terminalia of *Efferia* sp. B, lateral views; 52. intact terminalia; 53. gonostylus; 54a-b. phallus with aedeagus, aedeagal tubes, and phallic flanges.

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