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Review of *Zethus* Fabricius from the West Indies (Hymenoptera: Vespidae)

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Abstract. Eleven species of *Zethus* are reported for the West Indies including two new species. A re-evaluation of *Z. albopictus* Smith is accomplished based on new material from Hispaniola leading to the creation of a new species group. A new species from St. Vincent is described which is the first known representative of the *Z. sichelianus* group from the West Indies. Also, a new species of the *Z. cubensis* group is described from San Salvador. New records are provided for many species except *Z. dentostipes* Bohart and Stange, *Z. islandicus* Bohart and Stange and *Z. arietis* (Fabricius) which are still known only from the holotypes. A key to species is provided.

Introduction

Bohart and Stange (1965) recorded nine species of *Zethus* from the West Indies (excluding Trinidad). Specimens studied from St. Vincent and San Salvador islands represent two additional species. All of the species are endemic to one island or island group with the possible exception of *Z. arietis* for which there are no accurate records. Two subgenera are represented in The Caribbean. The subgenus *Zethusculus* Sausure is represented by five species and *Zethus* with four described species and two undescribed species. This latter subgenus is represented by three species groups, the *Z. cubensis* Group (4 species), *Z. albopictus* Group (1 species) and the *Z. sichelianus* Group (1 species). Further description of *Z. albopictus* Smith is made based on new material collected in the Dominican Republic. This species was previously known only from the headless holotype female. This has led to placing *Z. albopictus* in its own group because the stipes lack the prominent sharp tooth characteristic of members of the *Z. cubensis* Group. Some islands (i.e. Bahamas; Cuba; Hispaniola) have at least one species in each subgenus. Additional collecting in the Caribbean Islands will probably reveal additional species since limited *Zethus* collecting has been done to date on most of the islands. The West Indian species of *Zethus* can be separated by the following key.

Key to West Indian *Zethus*

- | | |
|--|---|
| <p>1. Mid tibia with two spurs 2</p> <p>1'. Mid tibia with one spur 7</p> <p>2. Stipes with rounded swelling at most 3</p> <p>2'. Stipes with prominent sharp tooth near base (<i>Z. cubensis</i> Group) 4</p> | <p>3. Abdominal petiole and gaster reddish yellow, densely micropunctate, with few macropunctures; sternite I constricted to median carina before expanded posterior section; St. Vincent (<i>Z. sichelianus</i> Group) <i>Zethus woodruffi</i> n.sp.</p> <p>3'. Abdominal petiole and gaster dark brown to black, macropunctate but not micropunctate; sternite I nearly completely united with tergite I with weak suture at posterior half; Hispaniola (<i>Z. albopictus</i> Group) <i>Zethus albopictus</i> Smith</p> <p>4. Scutum extensively polished between scattered micropunctures, especially on posterior half; tergite II with a broad subapical pale band; Jamaica <i>Zethus dentostipes</i> Bohart and Stange</p> <p>4'. Scutum fairly closely striatopunctate; tergite II all black or reddish 5</p> <p>5. Metasoma topped by a rounded, macropunctate ridge; tergite II all black and petiole mostly black; Long Island, Bahamas <i>Zethus islandicus</i> Bohart and Stange</p> <p>5'. Metasoma low, rounded, sparsely punctate; tergite II reddish or petiole all yellow 6</p> <p>6. Petiole yellow; tergite II mostly black; petiole without ventrolateral ridge from posterior margin to spiracle; male clypeus strongly overhanging subapically, apex strongly excised with prominent teeth; female clypeus all black; San Salvador Island, Bahamas <i>Zethus elliotti</i> n.sp.</p> <p>6'. Petiole mostly black with yellow apically; tergite II reddish; petiole with ventrolateral ridge from posterior margin to spiracle; male clypeus weakly overhanging subapically, apex narrowly excised; female clypeus with large yellow spot apically and laterally; Cuba <i>Zethus cubensis</i> Zavattari</p> |
|--|---|

7. Propodeum with median carina most of length; stem of tergite I (measured from subbasal carina to swelling) much longer than greatest width; scutum separated from mesoscutellum by groove, cross carina at middle; male antenna hooked rather than rolled toward apex; Hispaniola *Zethus albopictus* Smith
- 7'. Propodeum with groove medially; stem of tergite I wider than long; scutum nearly contiguous with mesoscutellum at middle; male antenna rolled rather than hooked toward apex (*Zethusculus*) 8
8. Abdomen mostly dark except for subapical pale bands; Hispaniola *Zethus jurinei* Saussure
- 8'. Abdomen with considerable red on I, II or following segments 9
9. Antennal scape and stem of tergite II black 10
9. Antennal scape and stem of tergite II red 11
10. Thorax practically without yellow markings; male clypeus all dark brown or with a reddish subapical spot (?West Indies or ? Brasil) *Zethus arietis* (Fabricius)
- 10'. Thorax with abundant yellow markings; male clypeus more than half yellow; Puerto Rico; Mona Island; St. Thomas *Zethus rufinodus* (Latreille)
10. Tergite II black except for stem; Bahamas *Zethus bahamensis* Bequaert and Salt
- 10'. Tergite II nearly all red 11
11. Lower mesopleuron with large yellow spot; gena mostly yellow; Cuba *Zethus poeyi* Saussure
- 11'. Lower mesopleuron dark brown; gena with at most a dull orange-yellow spot; southern Florida *Zethus slossonae* Fox

Subgenus *Zethus* Fabricius

This is the largest subgenus of the genus with over 130 species in 19 species groups. In the West Indies, there are three species groups which are closely related ("*Z. heydeni*" cluster).

Z. albopictus Group

This is a newly established species group. *Z. albopictus* was tentatively placed in the *Z. cubensis* Group by Bohart and Stange (1965) but the head of the holotype was missing which prevented seeing the key character of the *Z. cubensis* Group. Further specimens are now available, which indicate that the species does not belong to the *Z. cubensis* Group since the sharp tooth on the stipes is missing. Males have

one tibial spur and females have two spurs. Also, the mesoscutum has only weak notaulices posteriorly.

Zethus (Zethus) albopictus Smith 1857: 15

(Figures 3)

Holotype female, Santo Domingo, Dominican Republic (Natural History Museum, London). Further description: Bohart and Stange 1965:102.

Diagnosis: The male and female agree in size (about 12 mm) and coloration except that the mandibles and clypeus of the male are mostly yellow. Male antenna with tyloides on flagellomeres VIII and IX, distal hook about as long as flagellomere X, mostly quadrate but with long pointed apex. Mid tibia with one spur.

New records: 6 males, 1 female, Cueva de Berna, Boca de Yuna, **Provincia La Altagracia**, Dominican Republic, 6.VI.1986, R. Miller and L. Stange (FSCA); 2 males, south end Laguna de Oviedo, **Provincia Pedernales**, Dominican Republic, 26.V.1986, R. Miller and L. Stange (FSCA).

Z. cubensis Group

This group is restricted to the West Indies and is characterized by having a sharp process near the base of the stipes. The group is closely related to the *Z. montezuma* and *Z. heydeni* Groups found on the mainland. Another difference from these two groups is the sparse macropunctuation and lack of micropunctuation on tergite II. There are four known species in the group. Little collecting has been done since there are only 20 specimens known to me in collections. Two species, *Z. dentostipes* Bohart and Stange and *Z. islandicus* Bohart and Stange, are known only from the holotypes.

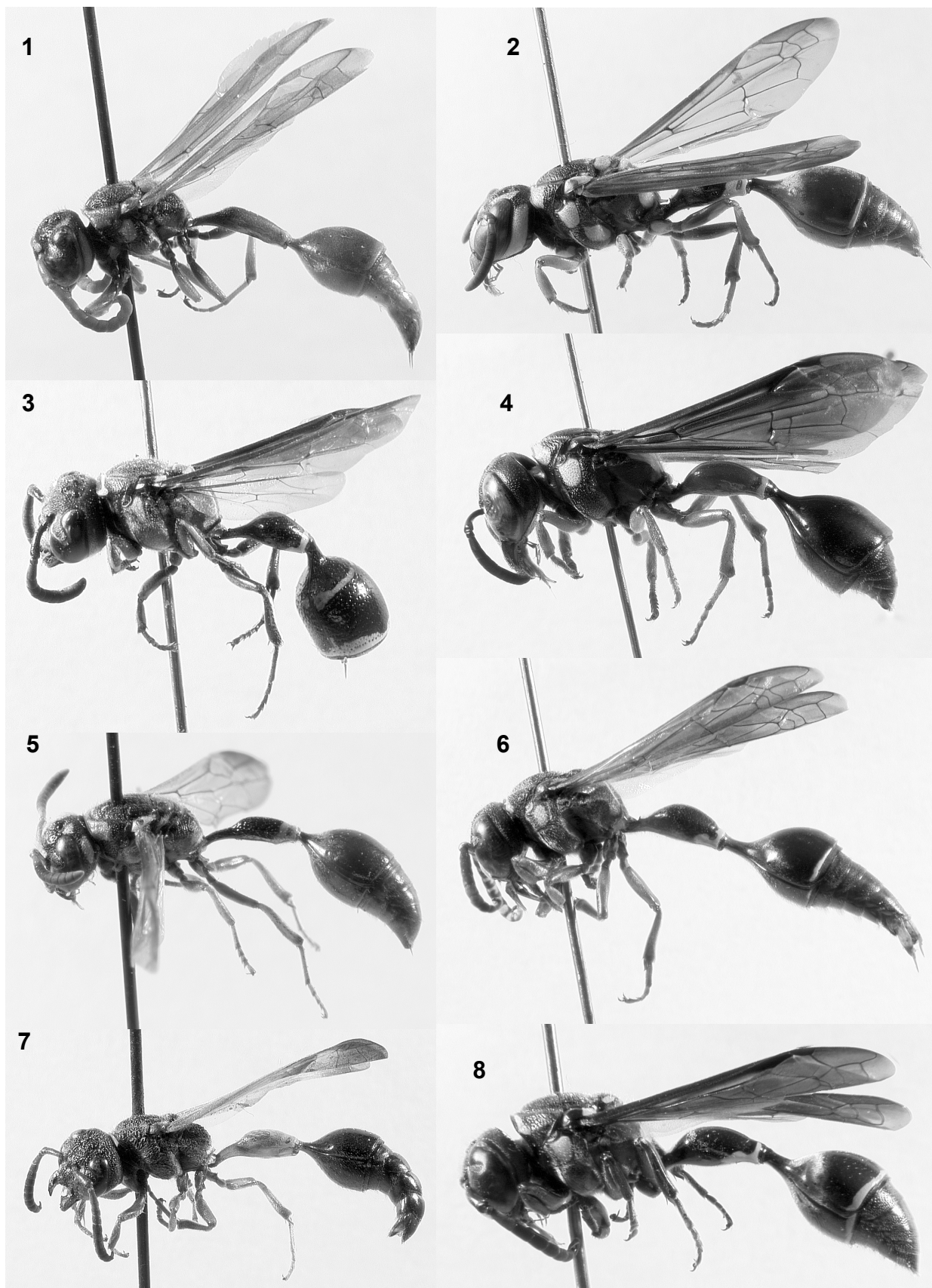
Zethus (Zethus) cubensis Zavattari 1912:55

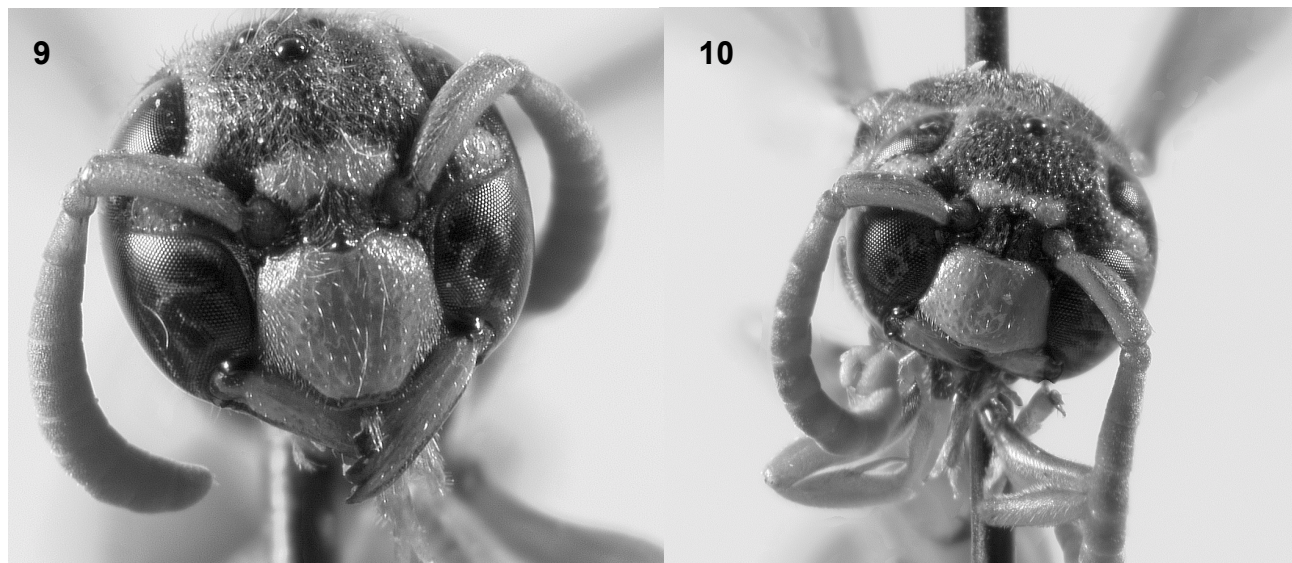
(Figure 5)

Holotype female, Cuba (Berlin). Further description: Bohart and Stange 1965:103

Diagnosis: Length to apex of tergite II about 10 mm. General coloration black with yellow markings on clypeus, mandible, scape, confluent scrobal spot, large postocular spot, large spot at posterolateral angle of eye, broad, transverse pronotal band, large upper mesopleural spot, tegula, parategula, scutellum,

Figures 1-8. Side view of 1) *Z. woodruffi*; 2) *Z. poeyi*; 3) *Z. albopictus*; 4) *Z. rufinodus*; 5) *Z. cubensis*; 6) *Z. bahamensis* salti; 7) *Z. elliotti*; 8) *Z. jurinei*.





Figures 9-10. 9) Face of female *Z. woodruffi*; 10) Face of male *Z. woodruffi*.

metasoma, submedian propodeal stripe and apical band on petiole; female clypeus with large yellow spot apically and laterally; petiole mostly black with apical yellow markings; tergite II reddish; male clypeus weakly overhanging subapically, apex narrowly excised; metasoma low, rounded, sparsely punctate; petiole with ventrolateral ridge from posterior margin to spiracle; scutum fairly closely striatopunctate.

Discussion: This species is distinctive in the group by having abdominal tergite II all reddish.

New record: Valle San Juan, Pinar del Rio, Cuba, XI.1981, J. Genaro (FSCA).

***Zethus (Zethus) dentostipes* Bohart and Stange 1965: 103**

Holotype female, Jamaica (Oxford)

Diagnosis: Length to apex of tergite II about 10 mm. General coloration black with lemon yellow markings as follows: most of clypeal margin; confluent scrobal spot and small postocular spot; most of pronotum, tegula, parategula, scutellum, metanotum; large upper mesopleural spot; most of posterior face of propodeum; legs mainly; apical band on petiole; broad subapical band on tergite II and sternite II expanded; tergite II mostly black; clypeus of female with apical margin truncate, weakly beveled; metasoma low, rounded; lateral propodeal carina low but nearly complete to base, submedian propodeal carina strong for short distance below metasoma; scutum exten-

sively polished between scattered micropunctures, especially on posterior one-half; female fore basitarsus with several reddish, peglike spines on outer face.

Discussion. This species is known only from the holotype female.

***Zethus (Zethus) elliotti* Stange, new species**
(Figures 7, 11)

Holotype male, Salvador Island, Bahamas, 17. VI.1978, P. Salbert (USNM)

Diagnosis: The all yellowish petiole is distinctive in the group. Most similar to *Z. cubensis* except for the nearly all black clypeus, mesosoma, head and tergite II. The male clypeus, which strongly overhangs subapically with the apex strongly excised with prominent teeth, is also distinctive.

Description (terminology after Bohart and Stange 1965): Length to apex of tergite II about 14 mm. Black with yellow on mandible, parategula, lateral spot on metasoma and petiole; orange scape, pedicel, basal and apical flagellomeres, pronotum at humerus, tegula, propodeum laterally below, stem of tergite II, legs; wings except apex brownish. Pubescence mostly pale, particularly abundant laterad of scutellum, above apical lamella and base of petiole. Clypeus, frons, vertex, pronotum and mesopleuron coarsely and closely punctate, scutum rather closely striatopunctate; scutellum with scattered macropunctures, metasoma nearly impunctate; posterior face of



Figure 12. Face of male *Z. elliotti*

propodeum striate medially, rest punctate except small area above apical lamella; petiole and tergite II mostly smooth with scattered small punctures. Mandible with four teeth; flagellomere I about 1.5 times longer than wide, distal flagellomere narrowing distally, about as long as flagellomere X; flagellomere IX with small, dark callus ventrally; male clypeus strongly overhanging subapically, apex strongly excised with prominent submedial teeth; metasoma low, rounded; propodeum with lateral carina strong but fading in lower three-fourths; petiole without ventrolateral ridge from posterior margin to spiracle

Female: Similar to the male except for antenna and male terminalia. The mandible and clypeus all black and the antenna with flagellomeres I-III reddish.

Types: Paratype female, San Salvador Island, 1.XII.1976, N. Elliott (FSCA).

Discussion: This is the second species of *Zethus* found on San Salvador Island if the identification of *Z. bahamensis* by Elliott et al. (1979) is correct. The coloration of *Z. elliotti* is striking since the body is mostly black except for the yellow petiole and the reddish yellow wings.

***Zethus (Zethus) islandicus* Bohart and Stange
1965: 104**

Holotype male, Simms, Long Island, Bahamas 19 VII (MCZ).

Diagnosis: Length to apex of tergite II about 11 mm. General coloration black with yellow on mandible, apex of clypeus, pronotum at humerus, and at middle along lamella; ivory scrobal spot, parategula, lateral metasomal dot, small spot on propodeum above upper lamella, and broad apical band; reddish scape and most of antenna, tegula, wings which are dark stained and legs; petiole mostly black, tergite II all black; mandible with four teeth, apical tooth strongest; antenna with flagellomere I about 1.5 times as long as broad; metasoma topped by rounded, macropunctate ridge; scutum fairly closely striatopunctate.

Discussion: This species is only known from the holotype male. The coloration and ridged metasoma will distinguish *islandicus* from the Bahamian *Z. elliotti*.

***Z. sichelianus* Group**

This group was previously unreported for the West Indies. There are about 11 species in North and South America which are quite diverse but are grouped together by having sternite I constricted to a median carina before the expanded posterior section. The



Figure 11. Dorsal view of vertex and thorax of *Z. elliotti*

development of this carina ranges from strongly developed to weakly developed so that further studies may lead to a regrouping of species.

***Zethus (Zethus) woodruffi* Stange, new species**

(Figures 1, 9, 10)

Holotype male, Hermitage Forestry Cottage, St. Patrick Parrish, St. Vincent, 11-13.X.1991, R. E. Woodruff, hand catch (FSCA).

Diagnosis: This new species of the *Z. sichelianus* group from St. Vincent island differs from other species of the group by lacking the submedial propodeal carina. Also, the color is unique in the group in having the pronotum, wings, and gaster mostly orange colored. The coarse reddish appressed setae on the vertex and mesoscutum are also distinctive. The dorsal surface of tergite I is nearly completely micropunctate (similar to *Z. attenuatus*) but there are several macropunctures at the dorsal middle but not as many as in other similar species. The male antenna is unique in the group by having flagellomere IX asymmetrical.

Description (terminology after Bohart and Stange 1965): Length to apex of tergite II about 8 mm. Black with yellow as follows: mandible, clypeus, connected brow spots, ocular spot which extends dorsally to summit of vertex, scape beneath, most of postocular area; upper mesopleural spot, parategula, scutellum, metasoma and large spot on propodeum above apical lamella; tibia, tarsi, femur mostly except hind femur; tergite I and II, sternite II with subapical band; tergite III with incomplete yellow band. Orange antennae, pronotum, tegulae, wings, petiole (except basally) and nearly all of gaster. Frons, vertex, and mesoscutum with considerable coarse, reddish appressed setae; upper mesopleuron with scattered erect pale hair-like setae, lower mesopleuron with considerable appressed pale setae; petiole with dense pale, appressed setae dorsally. Clypeus with scattered, shallow punctures; interantennal carina faint; subhumeral area, mesopleuron, scutellum and metanotum with moderately spaced (more than puncture diameter apart) macropunctures, micropunctate on interspaces; propodeum with submedian carina absent, lateral carina weakly developed; posterior and lateral face with striae, areolate toward wing base; metasomal tergite I densely micropunctate dorsally, with few scattered macropunctures; tergite II without coarse punctures before distal lamella. Head broader

than long in front view; postoccipital carina evenly raised throughout course; male mandible with four evenly spaced teeth, apical one strongest, others shallow; clypeus only slightly emarginate at apex; antenna with flagellomere I about 1.5 times as long as broad, distal flagellomeres coiled, distal one obovate and reaching a little beyond apex of VIII; flagellomeres VII-IX with elongate callus on external side, IX asymmetrical, X with hood about twice as long as XI; pronotum with interhumeral distance about 1.5 times as long as distance from humerus to tegula, critical breadth of subhumeral area about 3.0 midocellar diameters; scutum a little longer than greatest breadth, notaulices present only on posterior one-third; tergite I with expanded area about 3.0 times longer than greatest width, only slightly more narrow subapically than anteriorly.

Female: Agreeing with male (except antenna and terminalia) except clypeus nearly truncate apically; mid tibia and meta tibia and all basitarsi with reddish peg-like setae on exterior face (about 9 in a row on tibia, 4-5 on basitarsus).

Types: Holotype male, 3 paratype males, 7 paratype females from Hermitage Forestry Cottage, St. Patrick Parrish, St. Vincent, 11-13.X-1991, R. E. Woodruff, hand catch (FSCA; Davis).

Discussion: *Z. woodruffi* appears closest to *Z. sichelianus* and *Z. cylindricus* in many characters such as the modification of the male flagellomere X (hooded), punctuation of tergite I, incomplete notaulices, and broad pronotum without lateral carina. Differences between *Z. woodruffi* and the aforementioned species include the lack of the submedial propodeal carina in *woodruffi*, the shape of tergite I, modification of the male antenna and coloration. The rich orange and yellow coloration of *Z. woodruffi* is unique in the species group. Also, the asymmetrical male flagellomere IX and the coarse, appressed reddish setae on the vertex and mesoscutum are found nowhere else in the *Z. sichelianus* group. This species is dedicated to the collector, Robert E. Woodruff.

Subgenus *Zethusculus* Saussure 1855: 118

Type species: *Zethus jurinei* Saussure, designated by Ashmead, 1902

This subgenus contains species with only one mid tibial spur, male antenna rolled toward apex and the female clypeus is microstriate. Also, the male genitalia-

lia appear to be distinctive on the basis of the reduced cuspal lobe and enlarged digitus with its extraordinary tuft of terminal bristles. There are three species groups but most species, including all of the West Indian species, belong to the *Z. arietis* group. The species of this group are structurally close and separated by the punctuation, shape of the male antenna, male genitalia and the shape of the tegula. All of the West Indian species have the tegula strongly angled out at the posterior two-fifths of the outer margin. Coloration provides the easiest means of identification but some variation can occur especially between different islands in the Caribbean. *Zethus slossonae*, a common species in southern Florida, is included in the key to species since it is closely related to *Z. poeyi* and occurs on Key West which is less than one hundred miles from Cuba.

***Zethus (Zethusculus) bahamensis bahamensis*
Bequaert and Salt 1931: 765**

Holotype female, Nassau, New Province, Bahamas (MCZ). Elliott et al. 1979:355 (1 male recorded from Sandy Hook, San Salvador Island). Further description: Bohart and Stange 1965:139, figs. 97 (apex male antenna), 311, 314 (male genitalia).

Diagnosis: Length to apex of tergite II from 12 to 13 mm. General coloration black with some red and yellow; red first two and base of third antennal segments mostly as well as flagellomeres X-XI, hind margin of pronotum narrowly, pronotal lobe, tegula, legs mostly, stems of gastral segment I and II; light yellow scrobal spot, stripe on mid tibia and hind tarsus of male, ventral spots on male flagellomeres II-VII, subapical band on tergite I expanded lateral; clypeus of male mostly light orange on lower half; male clypeus with moderate sized, well spaced macropunctures, with faint median tubercle in apical emargination.

Discussion: The color pattern of this species with the scape and the stem of the otherwise black tergite II red is distinctive except for the following subspecies which has more yellow especially on tergite II.

New record: 1 female, Blue Hills, Nassau, Bahamas, 11.I.1909 (FSCA).

***Zethus (Zethusculus) bahamensis salti*
Bohart and Stange 1965: 140
(Figure 6)**

Holotype male, Cat Island, Bahamas, 8.III.1954 (MCZ).

Diagnosis: Length to apex of tergite II about 12 mm. Differing in markings from typical *bahamensis* as follows: distal flagellomere mostly red within; mandible mostly red; yellow markings much more extensive as follows: clypeus mostly; large scrobal spots; inner and outer orbital dots; broad band across front of pronotum; mesepimera and lower mesopleural spots; two spots on tegula; paired spots on scutellum and metanotum; four irregular spots on posterior face of propodeum; dots on fore femur and tibia; stripes on mid and hind tibiae and tarsi; large V-shaped subapical band occupying about one-fourth of tergite I; broad subapical band on tergite II, interrupted one on sternite II.

Discussion: This long series of *Z. bahamensis* from Eleuthera Island agree well with the subspecies *Z. bahamensis salti*. There is some variation in color markings. The yellow spots on the tegula, scutellum, metasoma, upper propodeal spot and the lines of the legs can be missing. On a few specimens the yellow apical band on tergite II is incomplete. The mandible is nearly black in a few specimens. However, the major differences between the two subspecies, the presence of a yellow apical band on tergite II, clypeus mostly yellow in male, with lateral yellow spot in female and presence of mesopleural spot appear to support the hypothesis that there are two geographical color races on the different islands.

New Records: 18 males, 34 females. Rainbow Bay, Eleuthera Island, Bahamas, VII, 1990, X, 1985, XI, 1993, J.R. and S.C. Wiley (FSCA).

***Zethus (Zethusculus) jurinei* Saussure 1852:22
(Figure 8)**

Lectotype male, "Carac" (? not San Domingo, Hispaniola) (Geneva). Further description: Bohart and Stange 1965:142, figure 103 (apex male antenna).

Diagnosis: Length to apex of tergite II from 12 to 14 mm. General coloration black with ivory yellow as follows: male clypeus except marginally, inner markings on male flagellomeres except last one; scrobal spots; medially interrupted humeral band; large mesepimeral spot; posterior tegular spot; lateral dot on scutellum; large pair of propodeal spots; streak on male mid tibia usually; paired, L-shaped subapical marks on petiole; thin subapical band on tergite II and

sternite II; wings dark stained; male clypeal apex shallowly incised, that of female weakly trilobed; male fore femur is abruptly broadened near the base with a dense whitish hair pile ventrally; pronotum a little ridged behind humerus.

Discussion: This species is the only member of *Zethusculus* occurring in the West Indies that is essentially all black with no red on the abdomen. Also, the male fore femur is abruptly broadened near the base with a dense whitish hair pile ventrally. Unfortunately there still exists some uncertainty about the correct name of this Hispaniolan species since the lectotype locality would seem to be Caracas, Venezuela rather than Hispaniola but examination of the material in Geneva by Bohart would indicate mislabeling of lectotype male.

New Records: All Dominican Republic (FSCA). **Prov. Azua:** 1 male, 1 female, Playa Tortuguero, 23.V.1986, R. Miller and L. Stange; **Prov. Barahona:** 1 female, 6 km. N.E. Paraiso (San Rafael), 24.V.1986, R. Miller and L. Stange. **Prov. Dajabon:** 1 male, Villa Anacaona 3.VI.1886, R. Miller and L. Stange. **Prov. Independencia:** 1 male, 1 female, Los Rios, Lago Enriquillo, 23.V.1986, R. Miller and L. Stange. **Prov. La Altagracia:** 2 females, La Cueva de Berna, Boca de Yuma, 6.VI.1986, R. Miller and L. Stange; Rta. Chacon, near El Naranjo, 6.VI.1986, R. Miller and L. Stange; 1 female, 10 km. E Nisibon, 13.VI.1986, L. Stange and R. Woodruff. **Prov. Monte Cristi:** 9 km. N. Monte Cristi, 17.VII.1986, L. Stange and R. Woodruff; 9 km. N. Villa Elisa, 4.VI.1986, R. Miller and L. Stange. **Prov. Peravia:** 2 males, 1 km. S.E. Galeón, 19.VI.1976, E. Grissell and E. Marcano, on *Casearia ilicifolia*; 1 female, Las Salinas, 19.V.1985, L. Stange and R. Woodruff. **Prov. Pedernales:** 1 female, S. end Lago de Oviedo, 26.V.1986, R. Miller and L. Stange.

***Zethus (Zethusculus) poeyi* Saussure 1857:279**
(Figure 2)

Lectotype male, "L'île de Cuba" (Geneva). Further description: Bohart and Stange 1965:145, figure 102 (apex male antenna).

Diagnosis: Length to apex of tergite II 12 to 15 mm. Black with yellow as follows: many large spots on head and thorax, legs extensively; male clypeus entirely; female clypeus on lateral one-third; tegula mostly; large lower mesopoleural spot as well as a mesepimeral one; large pair of propodeal spots; more extensive

subapical petiolar band (from *slossonae*); wings paler, yellowish; posterior face of propodeum microstriate only; clypeus weakly tridentate in both sexes; pronotum faintly ridged behind rounded humerus; notaulices moderately developed in posterior one-fifth of scutum.

Discussion: This species is closely related to *Z. slossonae* Fox but differs by having more yellow coloration (especially on the lower mesopleuron) and finer punctation.

New Records: Cuba: **Prov. Habana:** 2 females, Playa Caimito, XII.1991, J. A. Genaro (FSCA); 1 male, Little Cayman Island, 23.V.1981, J.F.G. Clarke (FSCA).

***Zethus (Zethusculus) rufinodus* (Latreille)**
1809:14
(Figure 4)

Lectotype male, "Antilles" (Paris). Further description: Wolcott 1950:860; Bohart and Stange 1965:146, figures 98, 99 (apex of male antenna).

Diagnosis: Length to apex of tergite II from 12 to 17 mm. Black and red with yellow markings as follows: male clypeus except marginally; scrobal spots sometimes; humeral margin; large mesepimeral spot; tegular dots dully; spots or transverse band on scutellum; dots or interrupted pale band on metanotum usually; large pair of posterior propodeal spots; stripe on male mid tibia and meta tarsus; sometimes interrupted band subapically on tergite I; deep red are tinges around yellow markings, legs almost entirely, petiole extensively male antenna often with inner surface pale spotted on flagellomeres II-VII; male mandible tridentate, tiny notch at base of apical tooth; male clypeus moderately incised at apex, humeral angle rounded, pronotum faintly "bent" behind humerus.

Discussion: Bohart and Stange (1965) divided this species into three subspecies. The typical subspecies occurs on Puerto Rico and has a deep red coloration with mostly yellow markings, *Z. rufinodus monensis* Bohart and Stange on Mona Island has clearer reddish coloration and the markings are ivory colored, and *Zethus rufinodus virginicus* Bohart and Stange on St. Thomas Island, Virgin Islands also has clearer reddish coloration and the pale markings are creamy-yellow. Mona Island is about 80 miles east of Puerto Rico whereas St. Thomas Island is about 80 miles

west of Puerto Rico. Wolcott (1950) stated that this wasp is very common in Puerto Rico and Mona Island, especially at coastal localities. It has been found visiting the flowers of *Spermacore verticillata*, *Lantana camara*, *Mango*, and on the tender leaves of *Coccoloba larifolia*. Extensive nesting and tunneling was observed on posts of *Bursera simaruba* to such an extent that some posts were destroyed. No mud was used in the nest construction.

New Records: all **Puerto Rico** (FSCA). 2 females, El Verde, Ruta 17.5, Ruta 186, 14-24.VII.1983, C. Porter; 2 males, 2 females, Isabella, 14.VI.1979, R. Sailer; 1 female, Loiza Aldea, 8.II.1967, H. Evans; 2 males, 3 females, Luquillo Beach, 30.XII.1971, G. F. and S. Hevel (FSCA).

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