Thrips in and around the coconut plantations in Jamaica, with a few taxonomical notes (Thysanoptera)

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Abstract

In and around the coconut plantations in Jamaica, 107 species of thrips were collected or caught by sticky traps. Prior to this collection, thrips recorded from the island were highly limited. Species repeatedly collected from coconuts were Frankliniella brunei Watson, F. kelliae Sakimura, and F. insularis (Franklin) (flower feeders); Anisopilothrips venustulus (Priesner) and Heliothrips haemorrhoidalis (Bouché) (fruit feeders); Hoplandrothrips flavipes Bagnall (fungal growth feeder); and Karnyothrips merrilli (Watson) (predator). Of every species enumerated, their extra distributions within the Caribbean areas were searched through the published data as well as accumulated holdings in museum collections. Twenty-two species of Frankliniella were collected, and a key to them is provided. Two new synonymies are designated, and a species is partly redescribed.

Resumen

Dentro y alrededor de plantaciones de cocos en Jamaica, 107 especies de "thrips" fueron colectadas o atrapadas en trampas pegajosas. Anteriormente a esta colección, el registro de "thrips" de la isla era muy limitado. Especies repetidamente colectadas en cocos eran Frankliniella brunei Watson, F. kelliae Sakimura, y F. insularis (comedores de flores); Anisopilothrips venustulus (Priesner) y Heliothrips haemorrhoidalis (Bouche) (comedores de frutas); Hoplandrothrips flavipes Bagnall (comedores de hongos); y Karnyothrips merrilli (Watson) (depredador). De cada especie enumerada, su distribución extra dentro del área del Caribe fue indagada a través de datos publicados,
A thrips survey in and around the coconut plantations in Jamaica was conducted in the whole month of November 1964, upon request of a FAO project on searches among thrips for possible vector species of the lethal yellowing disease of coconut. About 15 years subsequent to that date, the disease was conclusively demonstrated to be transmitted by *Myndus crudus* Van Duzee (Homoptera: Cixiidae) (Howard et al. 1983). Thrips specimens were collected from weedy undergrowth, coconuts, and other trees and shrubs intermixed within the coconut plantations as well as in the surrounding areas. Thrips specimens caught by sticky traps, hung among coconut foliage in every plantation visited were examined also. The plantations visited were aligned along the north shore of the island from Buff Bay to Negril (Table 1). Supplemental but extensive general collections were made also in the vicinity of Kingston on the south shore (Table 1). The few specimens previously collected by T. H. Farr, Institute of Jamaica were examined also. Total numbers of specimen lots were 430 (Acc. No. 4208-48, 4301-4579 and other long non-numbered series), and the number of species recognized was 107. Names of host plants were provided by the Botany Department, University of the West Indies.

The Caribbean fauna of Thysanoptera has long been poorly known, and the only faunistic work published is the one of Puerto Rico (Medina Gaud 1961) enumerating 78 species. However, over the years since about 1910 many new species have been described from the Caribbean areas, and numerous specimens from various islands and shore countries have been accumulated in some museum collections, particularly at the United States National Museum of Natural History (USNMNH).

This survey fairly well covers the lowland species but is deficient for the highland indigenous species, since the few cursory collections made at Hardwar Gap (4000′) were all that had been done over the extensive forested highland. The number of species previously recorded from Jamaica was 16 prior to this survey made in 1964, but it increased to 28 by the time of this writing in 1985. Among those previously recorded, the following 6 species, 3 of them being highland species, were not collected during this survey: *Arachisothrips millisi* Stannard, *Kurtomathrips morrelli* Moulton, *Eurythrips*

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**Table 1. Localities Where Collections Were Made, with Rainfall Data.**

<table>
<thead>
<tr>
<th>Coconut Plantation Areas (on north shore):</th>
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<tbody>
<tr>
<td>Buff Bay Area (annual rainfalls: about 100&quot;, 22&quot; during Oct.-Nov. 1964 at Buff Bay):</td>
</tr>
<tr>
<td>Woodstock, Kildare, White River, Buff Bay River Estate, Orange Vale, Buff Bay, Silverstock, Benzen, Dover, and Gray's Inn.</td>
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<tr>
<td>Montego Bay Area (annual rainfalls: about 50&quot;, 9&quot; during Oct.-Nov. 1964 at Montego Bay):</td>
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<tr>
<td>Bengal, Bryan Castle, Hague, Braco, and Falmouth (east of Montego Bay).</td>
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<tr>
<td>Barnett, Montego Bay, and Irwin (vicinity of Montego Bay).</td>
</tr>
<tr>
<td>Round Hill, Hill Top, and Negril (west of Montego Bay).</td>
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</tbody>
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<tr>
<th>Non-coconut Plantation Areas (On south shore):</th>
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</thead>
<tbody>
<tr>
<td>Kingston and Vicinity (annual rainfalls: about 50&quot;, higher on highland and lower on coastal strip; 7&quot; during Oct.-Nov. 1964 at Kingston):</td>
</tr>
<tr>
<td>Kingston, Hope Garden, Palisadoes, Hardwar Gap, Bodles, and Barnard Lodge.</td>
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</tbody>
</table>
batesi (Watson), Orthothele bineateus Stannard, Plectothele paliipes Hood, and Triselerothrips hurricanus Stannard. In the following enumeration of the species, 20 species are incomplete in determination to the species level. Many of them are believed to be undescribed species. All such material will be available for any specialist who may be interested in it. A set of all the species will be deposited in the USNMNH collection and others.

For every species to be enumerated later, 1) brief taxonomical remarks, if any; 2) abbreviated remarks on host range and population status; and 3) extra distribution data within the Caribbean area that are all based on the published data and accumulated holdings in museum collections are given. The details on locality, date, host, numerical data on collected specimens, accession number, and the collector’s name are all omitted, except in a few cases where such complete data are considered significant for future references. Most of the collections were made by the author, except all the sticky trap material that was collected by the late Walter Carter or Randall Latta of the FAO project. Numbers in parentheses in the enumeration of species are the author’s accession numbers.

NOMENCLATURAL CHANGES PROPOSED IN THIS PAPER


ENUMERATION OF THE SPECIES

SUBORDER TEREBRANTIA

Family Acalothripidae

*Franklinothrips vesiformis* (Crawford, 1909): Frequent on various plants everywhere, particularly in the wet Buff Bay area; predacious on other thrips. Known from Brazil (Para), Surinam, Trinidad, Grenada, Barbados, St. Vincent, Martinique, Dominica, Guadeloupe, Antigua, St. Thomas, Puerto Rico, Dominican Republic, Cuba, Jamaica, Florida, Texas, Mexico, Guatemala, Honduras, Nicaragua, Panama, Colombia, and Venezuela. *F. tenuicornis* Hood was not collected during this survey.

Family Heterothripidae


Family Thripidae

*Anisoploleurothrips venustus* (Priesner, 1923): Frequent on *Cyathula prostrata* and young coconut fruits (found breeding there) in the wet Buff Bay area. Known from Surinam, Trinidad, Grenada, Guadeloupe, Puerto Rico, Dominican Republic, Bermuda, Jamaica, and Florida.

Aptinolthripine sp. (C): Differs from Baileyothrips by head and pronotum striate and tergal seta pair far apart from each other. 7 ♀, 8 ♀ 8 ♂, Barnett, *Desmodium* sp. (4439a).

Aptinolthripine sp. (D): Differs from Chaetanaphothrips by antennal I-III uniquely modified, mouth cone pointed, and tergite VIII without stippled areas. 1 ♀, Round Hill (Hill Top), *Mimoso pudica* (4484c).

*Baileyothrips limbatis* (Hood, 1935): 1 ♀, Woodstock, *Desmodium* sp. (4335b). Known from Panama. *B. arizonensis* is not synonymous.
Sakimura: Jamaican Thrips

Bregmatothrips gracitus Hood and Williams, 1915: 1♀, Woodstock, Commelina diffusa (4306b). Known from Trinidad, Patos Isle, Cuba, Jamaica, Florida, Georgia, and Louisiana.

Caliothrips insularis (Hood, 1927): Abundant and frequent on Setaria palmifolia. Known from Trinidad, Tobago, Grenada, Martinique, St. Croix, Puerto Rico, Cuba, Jamaica, Mexico, Panama, and Venezuela.

Caliothrips phaseolii (Hood, 1912): Abundant or frequent on Colocasia esculenta and Ricinus communis, and occasionally on some leguminous plants; caught by sticky traps. Known from Brazil (Para), Tobago, Dominica, Puerto Rico, Cuba, Florida, Texas, Mexico, Panama, and Colombia.

Ceratothripoides funestus (Hood, 1915) (= Taeniothrips martorellorum Medina, 1961, New Synonymy): The type was examined. Abundant on Spigelia anthelmia, and occasionally on some other plants in the wet Buff Bay area; caught by sticky traps. Known from Trinidad, Puerto Rico, Texas, and Mexico (Tobasco).

Chaetanaphothrips orchidii (Moulton, 1907): Frequent on Cyathula prostrata; once from young coconut fruit. Known from Trinidad, Guadeloupe, Puerto Rico, Florida, Louisiana, Mexico, Honduras, Costa Rica, and Panama.

Chaetosothrips striatus caribeanus Sakimura, 1969: 2♀ 1♂, Montego Bay and Negril; Porana paniculata, sticky trap (4498a, 4500b). Known from Puerto Rico, Cuba, Mexico, and Honduras.

Chirothrips mexicanus Crawford, 1909: From Eleusine indica; caught by sticky traps. Known from Martinique, Antigua, St. Thomas, Puerto Rico, Dominican Republic, Cuba, Grand Cayman, Florida, Mississippi, Texas, Mexico, Costa Rica, Panama, and Colombia.

Chirothrips texanus Andre, 1939: From several grasses, fairly frequent in the drier areas; caught by sticky traps. Known from Georgia, Louisiana, Texas, and Mexico. Apparently the first collection from any of the Caribbean islands.

Corynophthrips stenopterus Williams, 1913: 1♀, Woodstock, sticky trap (4573a). Known from Brazil (Para), Surinam, Guyana, Trinidad, Tobago, Grenada, St. Vincent, Barbados, Puerto Rico, Costa Rica, and Panama.

Dendrothripoides inoxius (Karny, 1914) (= D. ipomeae Bagnall): From Ipomoea fistulosa and a few other plants. Known from Trinidad, Grenada, Barbados, Guadeloupe, St. Croix, Dominican Republic, and Panama.

Dinurothrips hookeri Hood, 1913: Abundant on Leonotis nepetifolia, and also from Cyathula prostrata in the wet Buff Bay area. Known from Trinidad, Grenada, St. Lucia, Guadeloupe, Puerto Rico, Cuba, Jamaica, Florida, and Panama.

Echinothrips caribeanus Hood, 1955: Abundant or frequent on Poephilocarpus palustris and Cyathula prostrata in the wet Buff Bay area. Known from Trinidad, St. Vincent, Martinique, Guadeloupe, Puerto Rico, and Panama.

Frankliniella spp.: Speciation of the flower-feeding genus Frankliniella apparently is centered in the Caribbean and Central American region from where more than 65 species have been described, and many more may be discovered in the future. In Jamaica, 22 species were collected during this survey, and they are the most abundant thrips there. Many species of this genus are poorly characterized and difficult to identify. The following key may serve for recognizing the Jamaican species. This key includes the 3 species that are to be described in another paper now under preparation, but not the 4 others that belong to the different subdivisions of the genus.

Abbreviations for the names of setae used in the following key: an: Anteroangular pronotal seta. am: Anteromarginal pronotal seta. io: Intercellar seta. IXi,ii, iii and Xi, ii: Major setae on abdominal IX and X, numbered outwardly from the meson. IXd:
Discal seta on abdominal IX. pai, ii: Posteroangular pronotal setae, numbered outwardly from the meson. pmii: Postermarginal pronotal seta, second from the meson. po: Principal postocular seta, largest and usually 4th in the series from the meson, directed posterolaterally. In comparing lengths of 2 setae, the minimal visually recognizable differential usually is about 15% of the longer seta. In determining the slenderness of antennal style, numerical Index used is a value of the combined length of VII and VIII including interpace that is divided by the basal width of VII. For details and explanatory illustrations, see Sakimura and O'Neill (1979).

KEY TO THE JAMAICAN SPECIES OF FRANKLINIELLA

1. Both io and po minute or nearly so and also both am and aa minute to subminute or rarely somewhat larger (Minuta group). Antenna 7-segmented, abdominal IX with all major setae shorter than X ............ jamaicensis
   Sakimura & O'Neill
   Those setae all developed or only po rarely subminute to small ............... (2)

2. Antennal III with pedicel simple and not dilated (Fig. 1) (Intensa group) .. (3)
   Antennal III with pedicel variously dilated (Fig. 2-6) (Tritici group) ........ (11)

3. Brown to dark brown body ........................................ (4)
   Pale to yellow body ................................................ (6)

4. Mid and hind tibiae dark brown; am decidedly smaller than aa. Abdominal VIII with comb incomplete and short, X shorter than IX (0.8 times of IX). Male colored same as female ........................................ insularis (Franklini)
   Mid and hind tibiae totally or partly yellow; am subequal to aa in length .... (5)

5. Mid and hind tibiae totally yellow; abdominal VIII with comb nearly complete and very short, X as long as IX. Male yellow with brown head...
   .............................................................. citripes Hood
   Hind tibia with distal half dark grayish brown; abdominal VIII with comb complete and moderately long, X longer than IX (1.2 times of IX). Male uniformly yellow ........................................ varipes Moulton

6. Yellow abdomen with grayish brown shadings and blotches along antecosta; io between posterior ocelli; antennal VI with linear attachment bases of both major sense cones. Pronotal am decidedly smaller than aa; abdominal VIII with comb incomplete and short ........ schultzei (Trybom) (pale form)
   Yellow abdomen without grayish brown shadings and blotches; io before posterior ocelli; antennal VI with circular attachment bases of sense cones. ................................................. (7)

7. Cephalic po nearly subminute (less than 20 µm long). Antennal III with a pair of ordinary dorsal setae; mouth cone long and slender; am smaller than aa ........................................ exigua Hood
   Cephalic po well developed (more than 30 µm) ................................ (8)

8. Antennal III with a pair of ordinary dorsal setae (about 0.6 of the segment length) and ordinary sense cone. Antennal style stout (VII + VIII/ VIIIw: 2.6-2.9); head transverse (1.4 times as wide as long); abdominal VIII with comb complete but short ................................ bruneri Watson
   Antennal III with a pair of fully developed long dorsal setae (0.75-0.90 of the segment length) and unusually long sense cone ...................... (9)

9. Antennal style fairly stout (VII + VIII/VIIw: 3.3-3.6); head subtransverse (1.3 times as wide as long). Mouth cone very bulky ................. Sp. F
   Antennal style very slender (VII + VIII/VIIw: 4.4 - 4.5); head subquadrate (1.2 times as wide as long) .................................................. (10)
Fig. 1-6. Pedicels of antennal III of various *Frankliniella* spp.: 1, Simple undilated form (Minuta and Intonsa groups); 2-6, Dilated forms (Tritici group): 2, Mushroom form (Tritici subgroup); 3, Angulate ring form (Cubensis subgroup); 4, Cup and saucer form (Cephalica subgroup); 5-6, Miscellaneous forms (Miscellaneous subgroup): 5, *F. brevicaulis*; 6, *F. parvula*.

10. Mouth cone moderately long, subvertically directed, strongly recurved, bulky (often strongly twisted to a side in mounted specimens); abdominal VIII with comb very long (up to 15 μm) .................................................. Sp. P
Mouth cone very long, subvertically directed, straight and tapered; abdominal VIII with comb short (6-8 μm) .................................................. Sp. C

11. Antennal III with pedicel in mushroom form (*Tritici* subgroup)(Fig. 2) ...... (12)
Pedicel in angular ring form (*Cubensis* subgroup)(Fig. 3) ......................... (15)
Pedicel in cup and saucer form (*Cephalica* subgroup)(Fig. 4) .................... (16)
Pedicel in specific unique forms (Miscellaneous subgroup)(Fig. 5-6) .......... (17)

12. Pronotal am decidedly smaller than aa. Abdominal VIII with comb incomplete and very short .................................................................................. (13)
Pronotal am subequal to aa. Yellow body without any brownish shadings, head transverse (1.4 times as wide as long), abdominal VIII with comb complete but very short .................................................. (14)

13. Grayish brown body with subtransverse head (1.3 times as wide as long); antennal III 2.4 times as wide as long ...................... *salviae* Moulton
Yellowish body with transverse head (1.4 times as wide as long); antennal III 2.8-2.9 times as long as wide (Not yet collected in Jamaica) ........
.................................................. *tritici* (Fitch)(palae form)

14. Ocellar crescent brownish. Male: abdominal IXd long thick seta, VIII with no comb .................................................. *keliiae* Sakimura
Ocellar crescent bright red. Male: abdominal IXd short thorn, VIII with comb complete but short (Not yet collected in Jamaica) ............ *difficilis* Hood

15. Pronotal am decidedly smaller than aa, po small (about 18 μm); abdominal VIII with comb nearly absent; yellow body with very weak grayish brown shading throughout; antennal II dark to grayish brown ........ *brevisetata* Moulton
Pronotal am subequal to aa; po well developed (about 31 μm); abdominal VIII with comb complete and long; yellow body without any grayish brown shading; antennal II pale to brownish yellow .................. *cubensis* Hood

16. Antennal II dorsoapically elevated strongly, and produced variably from slight to as much as about a half of the ventral segment length, always with a pair of strongly thickened blackish thorn-like setae at its apex. Yellow body usually with grayish brown median blotches on abdomen .
.................................................. *cephalica* (Crawford)
Antennal II dorsoapically elevated weakly but not produced at all, always with a pair of ordinary thin setae at its apex (in male apical setae slightly
thicker than that of female, but far thinner than that of *cephalica*). Abdomen without any grayish brown blotches ....................... *boringuen* Hood 
17. Antennal III with pedicel as illustrated (Fig. 5), III about 2.7 times as long as wide; io outside of ocellar triangle. Brown body with dark brown abdomen and all tibiae yellow ........................... *brevicautis* Hood

Antennal III with pedicel as illustrated (Fig. 6). III about 3.5 times as long as wide; io outside of ocellar triangle. Body color as in *brevicautis*; male yellow with broad median grayish brown blotches on abdomen....

............................................. *parvula* Hood

*Frankliniella boringuen* Hood, 1942: Abundant or frequent on *Allamanda cathartica*, *Hibiscus tiliaceus*, and *Poinciana pulcherrima*; also on many other plants in the drier surroundings, particularly in Kingston area; also rarely caught by sticky traps. Known from Puerto Rico and Mexico.

*Frankliniella brevicautis* Hood, 1937: 2 ♀, 1 ♂, Hope Garden, *Bauhinia purpurea* (4410b). Known from Trinidad, Cuba, Panama, and Venezuela.

*Frankliniella breviseta* Moulton, 1948. From *Viola* sp. at Hardwar Gap (4000'); occasionally caught by sticky traps in the wet Buff Bay area. Known from Trinidad, Martinique, Cuba, and Florida.

*Frankliniella brunneri* Watson, 1926: The most common and abundant *Frankliniella* sp. throughout Jamaica when this survey was conducted, particularly in the wetter surroundings. Frequently and abundantly caught by sticky traps, and frequent on coconut inflorescence; abundant or frequent on *Gliricidia sepium*, *Malvaviscus arboreus*, *Taraxacum officinale*, and *Terminalis catappa*; also on many other plants. Known from Cuba, southern Texas, and throughout Mexico along the Gulf coast.

*Frankliniella cephalica* (Crawford, 1910): *F. melanommata* Williams is not synonymous. One of the common *Frankliniella* spp. in Jamaica. Abundant or frequent on *Agave sieyalana*, *Bidone pilosa*, and *Tribulus cistoides*, and also on many other plants; often caught by sticky traps; more abundant in the wet Buff Bay area. Known from Trinidad, St. Vincent, Barbados, St. Lucia, Dominica, St. Croix, St. Thomas, Puerto Rico, Cuba, Florida, Alabama, Mississippi, Texas, Mexico, Panama and Colombia.

*Frankliniella citripes* Hood, 1916: 1♀, Bryan Castle, *Eupatorium odoratum* (4449b); also caught by sticky traps in the wet Buff Bay area. Known from Puerto Rico and Cuba.

*Frankliniella cubensis* Hood, 1925: Abundant on *Guania lupuloides*, and also some other plants in Kingston area; often caught by sticky traps in Buff Bay area. Known from St. Croix, Puerto Rico, Haiti, Cuba, Florida, Mexico, Guatemala, and Panama.

*Frankliniella* sp. (C): To be described in another paper now under preparation. From *Desmodium* sp. and a few others in both Buff Bay and Montego Bay areas (4398Ad, 4348, 4388, 4433c, 4492).

*Frankliniella exigua* Hood, 1925: From *Eupatorium odoratum* and others all in the dry Montego Bay area (4449d, 4454c, 4463b, 4487c). Known from Georgia, Florida, Mississippi, Texas, and northeastern Mexico. First collection from any of the Caribbean islands.

*Frankliniella* sp. (EEE): Differs in male form from *F. citripes* by body uniformly grayish brown, mid and hind femora grayish brown, scale brown in basal portion, and tergite IX with discal seta fully developed. Apparently similar males from Brazil (Para) and Mexico remain unnamed in the USNM collection. 1♂, Hope Garden, *Rosa* sp. (4417b). Excluded in the key.

*Frankliniella* sp. (F): To be described in another paper now under preparation.* Acalypha hispida*, Hope Garden (4413).
Frankliniella sp. (G): Differs from *F. terminalis* and *bicolor* by stouter antenna, pronotal chaetotaxy, and incomplete comb of tergite VIII. 1♀, Hope Garden, *Lantana camara* (4414e). Excluded in the key.

*Frankliniella insularis* (Franklin, 1908) (= *F. fortissima* Priesner, 1925): Extremely variable in its body size, and also variable in color and size of antennal IV-V. One of the common *Frankliniella* spp. in Jamaica. Abundant or frequent on *Cajanua cajan*, *Cannabis maritima*, *Gliricidia sepium*, *Hibiscus rosa-sinensis*, and *Malvaviscus arboreus*; and also on many others everywhere; often and on occasions abundantly caught by sticky traps, but only occasionally collected from coconut inflorescence in Buff Bay area. Known throughout the Caribbean areas.

*Frankliniella jamaicensis* Sakimura and O'Neill, 1979: From *Eupatorium villorum*, Round Hill (Hill Top) (4487d); once caught by sticky trap at Woodstock. Known also from Cuba.

*Frankliniella kelii* Sakimura, 1981: Had long been confused in Jamaica with *F. dichtus* which was not collected during the present survey. One of the common *Frankliniella* spp. there. Abundant or frequent on *Bauhinia purpurea*, *Caesalpinia coriaria*, *Calophyllum inophyllum*, *Cassia siamea*, and *Tithonia diversifolia*; and also many others; often and on occasions abundantly caught by sticky traps, and also often collected among coconut inflorescence; more abundant in the dry Montego Bay and Kingston areas. Known from Puerto Rico, Dominican Republic, Bahamas, Cuba, Jamaica, and Florida.

*Frankliniella sp. (O):* Differs from *F. deserticola* by color of antennal II-V, extremely slender antennal III, and tergite X 0.65 times as long as IX. 1♀, Hardwar Gap, 4000', *Viola* sp. (4519a). This specimen is incomplete. Before being named, complete specimens are needed. Excluded in the key.

*Frankliniella parvula* Hood, 1925: Apparently monophagous and abundant on *Musa* spp. in dry as well as wet areas; also caught by sticky traps. Known from Trinidad, Grenada, St. Lucia, Puerto Rico, Dominican Republic, Jamaica, Mexico, Guatemala, Honduras, Costa Rica, Panama, and Colombia.

*Frankliniella sp. (P):* To be described in another paper now under preparation. 2♀♂, Orange Vale, *Cassia occidentalis* (4324a); also often caught by sticky traps in the wet Buff Bay area.


*Frankliniella schultzii* (Trybom, 1910) (pale form): From *Cajanua cajan*, *Ipomoea pes-caprae*, *Kallstroemia maxima*, and *Plumbago capensis* in the dry Kingston area only. This pantropic species was observed elsewhere also preferring dry surroundings. Known from St. Thomas, Puerto Rico, Dominican Republic, Jamaica, Florida, and Colombia. Only the Colombian specimens are dark form.

*Frankliniella variipes* Moulton, 1933: Abundant on *Lantana camara* (4374a, 4480a); often caught by sticky traps in the wet Buff Bay area. Known from southern Brazil and Peru. The first collection from the Caribbean area.

*Frankliniella sp. (X):* Differs from *F. kelii* by anteromarginal pronotal seta larger than anteroangular seta, and unusually large interocellar seta and posteromarginal pronotal seta II. 1♀, Hope Garden, *Bauhinia purpurea* (4410f). Excluded in the key.

*Heliothrips haemorrhoidalis* (Bouché, 1883): Frequent or on occasions abundant on coconut fruits (often found breeding) and occasionally caught by sticky traps in Buff Bay and Montego Bay areas; also from some other plants. Known from Brazil (Para), Surinam, Guyana, Trinidad, Grenada, Barbados, St. Lucia, Martinique, Dominica, Guadeloupe, Puerto Rico, Cuba, Jamaica, Florida, Alabama, Mexico, Honduras, Panama, and Colombia.
Hercinothrips femoralis (Reuter, 1891): From coconut fruit and Emilia javanica. Known from Martinique, Bermuda, Puerto Rico, Cuba, Florida, Georgia, Texas, and Mexico.

Leucothrips theobromae (Priesner, 1923): From Clerodendrum speciosissimum, Phaseolus lunatus, and Stachydrarpheta jamaicensis in the wet Buff Bay area. Known from Surinam, Panama, and Colombia.

Microcephalothrips abdominalis (Crawford, 1910): From some composite plants in both wet Buff Bay and dry Montego Bay areas; occasionally caught by sticky traps. Known from Trinidad, Martinique, Bermuda, Puerto Rico, Cuba, Jamaica, Florida, Louisiana, Texas, Mexico, Guatemala, Costa Rica, and Panama.

Plesiiothrips perplexus (Beach, 1896): From grass sweepings and others. Known from Guyana, Trinidad, Tobago, Antigua, Puerto Rico, Dominican Republic, Cuba, Florida, Texas, Panama, and Venezuela.

Psicrothrips interruptus (Hood, 1957) (= Pseudothrips): The present of a median split on tergite X was considered as a minor local peculiarity. 4♀, 6♂, Woodstock, sticky traps (4553f, 4556b, 4557, 4559d, 4564e). Known from Panama. An unnamed allied species from Barro Colorado Island, Panama (Zetek 5178) in the USNM collection was found not conspecific with this Jamaican species.


Salpingothrips minimus Hood, 1935: 1♀, Round Hill, Desmodium sp. (4475Ab). Known from Panama.

Scirotorhips sp.: Differs from S. manihoti and mutistriatus by wider frontal costa, hind vein of fore wing with 3 to 4 setae, and male with a prominent pair of drepana.

6♀, 1♂, Woodstock, Cocosoloba uvifera (4365c).

Selenothrips rubrocinatus (Giard, 1901): Abundant on several trees including Anacardium occidentale, Malpighia punicea, Mangifera indica, and Pimenta dioica. Differs by sticky traps. Known throughout the Caribbean areas (collected in Jamaica as early as 1921 at Hill Garden).

Sericothrips burungae Hood, 1935: 4♀, Round Hill, Eupatorium odoratum (4479a). Known from Panama.

Sericothrips flavicollis Hood, 1954: 1♀, Kildare, Sida sp. (4326a). Known from southern Brazil; apparently the first collection from the Caribbean area.

Sericothrips geminus Hood, 1925: 9♀♀, 6♂♂, Hope Garden, Cajanus cajan (4407). Known from Puerto Rico and Panama.

Sericothrips gracilipes Hood, 1924: Differs from S. campestris from Florida. Abundant or frequent on Macroptilium lathyroides, Malvastrum sp. and Sida spp. everywhere in Jamaica. Known from Jamaica (previously collected in 1970), Texas and Mexico.

Sericothrips inverexis Hood, 1928: Frequent on Desmodium sp. and also from Digitaria sp. Known from Trinidad, Dominica, and Panama.

Sericothrips portoricensis Morgan, 1925: From Psophocarpus palustris, and 2 other plants. Known from Brazil (Para), Trinidad, St. Lucia, Guadeloupe, Puerto Rico, Cuba, and Panama.

Sericothrips trinictus Hood, 1928: 2♀♀, Woodstock, Psophocarpus palustris (4313b). Known from Trinidad, Martinique, Dominica, and Guadeloupe.

Thrips hawaiiensis (Morgan, 1913): The first collection of this African-Oriental-Pacific species from the Caribbean region. 1♀, Woodstock, sticky trap (4564f). Known from Florida, Georgia, and South Carolina (all collected after 1967).
Suborder Tubulifera

Family Phlaeothripidae—Subfamily Phlaeothripinae

*Adranothrips decorus* Hood, 1938: Abundant on *Sporobolus indicus*; also from coconut inflorescence; occasionally caught by sticky traps in the wet Buff Bay area. Known from Cuba, Florida, Georgia, Texas, and Mexico.

*Adranothrips* sp.: Differs from *A. imbecillus* from Peru by eye ventrally elongate, tube shorter, fore wing with double fringes, and tergite IX with setae i-ii not dilated. 1 ♀, Orange Vale, sticky trap (451b).

*Aeurotothrips fuscipennis* (Franklin, 1908): Predator upon scales. From various plants including coconut fronds. Known from Brazil (Para), Grenada, Barbados, St. Vincent, St. Lucia, Dominica, Guadeloupe, St. Croix, Bermuda, Puerto Rico, Haiti, Cuba, Jamaica, Florida, Georgia, Louisiana, Texas, Mexico, Panama, and Venezuela.

*Antilothrips cingulatus* (Hood, 1919) (= *A. graminatus* Stannard, 1957): From *Malvastrium* sp. and *Sida* sp. in the dry Montego Bay area. Known from Trinidad, Puerto Rico, Jamaica, Florida, and Panama.

*Carathrips mediameicanus* (Hood, 1933): 2 ♀ ♀, Negril, sticky traps (4501c). Known from Panama.


*Eurythrips modestus* (Bagnall, 1917): 1 ♀, Woodstock, sticky trap (4553c). Known from Brazil (Para), Trinidad, St. Vincent, Cuba, and Panama.

*Eurythrips tarsalis* Hood, 1925: 2 ♀ ♀, 1 ♂, Round Hill (Hill Top), *Sporobolus indicus* (4486b). Known from Brazil (Para), Florida, Georgia, and Texas.

*Eurythrips* sp.: Differs from *E. longibabris* from Florida and Texas by dark antennal I-II and strongly slenderized V-VIII with lanceolate VIII, dark legs, and tube dimension. Also differs from *E. batesi* previously reported from Jamaica by all the major setae acuminate at apex. 1 ♀, Woodstock, sticky trap (4561a).

*Haplothrips gowdeyi* (Franklin, 1908): From great many weeds, grasses, and ornamentals, often abundantly or frequently on many of them; neither seen among coconut inflorescence nor caught by sticky traps. A general flower feeder. The most abundant tubuliferan thrips throughout Jamaica, except in the forested high land. Known throughout the Caribbean areas including Jamaica.

*Haplothrips graminis* Hood, 1912: From grasses; Woodstock, Negrell (4343b, 4460). Known from Bahama, Cuba, Florida, Alabama, Texas, and Mexico.

*Haplothrips* sp.: Differs from *H. humilis* from Panama by head nearly as long as wide and postocular seta small and dilated. An unnamed species from Cuba (Pinar City, grass, 12.VII.1940, J. C. Bradley) in the USNMNH collection is, however, not conspecific because its preapex, probasisternum, and pelta are more degenerated than the Jamaican species. 32 ♀ ♀, 9 ♂ ♂, Woodstock, Kildare, Negrell; *Rhynchcoxopora nervosa, Cyperus diffusus* (4340c, 4347, 4400b, 4464b). A common sedge feeder.

*Haplothrips (Anchothrips)* sp.: Differs from *H. (A.) pryeri* from Texas and Florida by pale body, head 1.4 times as long as wide, and all the major setae dilated. Determined with advice from Kellie O’Neill. 4 ♀ ♀, 4 ♂ ♂, Round Hill (Hill Top), *Sporobolus indicus* (4486c).

*Holopothrips* sp.: Differs from *H. fulves* Morgan, 1929:6 (= *H. anacardii* Hood, 1942: 581, New Synonymy; both types were compared) from Brazil (Bahia) by abdominal VIII-X dark grayish brown, longer head (1.3 times as long as wide) with well developed mid-dorsal seta, tergite IX with all major setae pointed, and male sternite VIII with divided subbasal and undivided subapical transverse glandular strips. 6 ♀ ♀, 7 ♂ ♂, Woodstock, *Cocclobola uvifera* (4365a).
Holothrips lucyae (Medina 1961:117) (= Polyphemothrips); The type was examined: its color description is supplemented as follows: A beautiful golden yellow large species with extensive grayish brown blotches and shadings; apical extremes of mid-hind femora and entire mid-hind tibiae and tarsi hyaline; abdominal pelta hyaline but from there on grading to deep yellow on tube; subeutaneous pigments reddish brown. Grayish brown blotches and shadings: head with small light spots at both sides of anterior ocellus and along postero-lateral corner of eye; pronotum lightly shaded; pterothorax deeply shaded except distal ¼ of mesial area; fore femur with small spot subapically along inner margin, mid-hind femora with 2 ill-defined and broad bands at base and also next to apical hyaline band leaving the middle yellow, fore tibia and fore-mid coxae lightly shaded; abdominal II-VIII with broad cross band along fore margin with a small break at middle and distally distending along lateral margins, more extensively on VII-VIII, IX with one light spot each on both sides along hind margin, tube with clearly-defined and broad apical band. Antennal I-II pale brownish yellow, III yellowish brown with distal ½ grayish brown, IV-VIII dark grayish brown; wing pale grayish brown with darker broad band at middle and narrow band at base; ocellar crescent brownish red; major setae yellow to light brown. Both sexes concolorous, body length (mm) 2.6-2.7 (♂), 3.4-3.5 (♀), tube about 2.3 (♂), 2.6 (♀) times as long as wide at base. A species with a manuscript name by Hood (♀, 1♂, Brazil, Para, 1951, J. D. Hood) in the USNMNH collection was found conspecific with H. lucyae. 3♀, Barnett, Hope Garden, Round Hill; Lantana camara, Malvaviscus arboreus, Sporobolus indicus (455b, 4438, 4486d).

Known from Brazil (Para) and Puerto Rico.

Holothrips phaseara (Hood, 1941) (= Polyphemothrips); 1♂, Irwin, dead branches (4474a). Known from Florida. Determined with advice from Kellie O'Neill.

Hoplandrothrips erythrinae Prioner, 1925: 2♀, Bengal, young coconut fruits fallen on ground, R. Latia (4427a). Known from Brazil (Para), Suriname, Cuba, Mexico, Panama, and Colombia.

Hoplandrothrips flavipes Bagnall, 1923: Frequent among the calyces of coconut fruits on tree or fallen on ground and coconut inflorescence; often caught by sticky traps in both the wet Buff Bay and the dry Montego Bay areas. No collection was made from any other plant. Known from Brazil (Para), Venezuela, and Colombia.

Hoplandrothrips regnai Prioner, 1923: 1♀, 1♂, Irwin, Buff Bay; dead branches, sticky trap (4472a, 4570b). Known from Brazil (Para), Trinidad, Puerto Rico, Cuba, and Panama.

Hoplandrothrips sp.: Differ from H. pallens Hood from Cuba by subbasal seta iii of fore wing and lateral seta of tergite VII both dilated, and seta ii of tergite IX pointed. 1♀, 2♂, Round Hill, Woodstock, Buff Bay; all from sticky traps (4502e, 4564g, 4565b).

Hoplophrips angusticeps (Hood, 1908): 1♀, Kildare, caught in flight in a coconut grove (4602). Known from Georgia, Florida, and Costa Rica. A common bracket fungus feeder in the eastern U.S.; probably the first collection recorded from any Caribbean island (no specimen was found in the USNMNH collection).

Hoplophrips fungosus Moulton, 1928: 2♀, Woodstock, sticky traps (4554p, 4559a). Known from Brazil (Para) and Puerto Rico. A common bracket fungus feeder among various Pacific islands.

Hoplophrips moultoni (Hood, 1934): 1♀, Gray's Inn, sticky trap (4566c). Known from Panama.

Hoplophrips spp. (B, D): Both are presently unplaceable. B: 3♀, Woodstock, White River, sticky traps (4554a, 4567b). D: 2♀, Buff Bay, sticky traps (4570a).

Karnyothrips flavipes (Jones, 1912): 2♀, Round Hill, Woodstock-Kildare; both by sticky traps (4502a, 4555); not common. Scale feeder. Known from Trinidad, St. Vincent, Barbados, Bahamas, Bermuda, Puerto Rico, Dominican Republic, Florida, Georgia, Louisiana, Texas, Mexico, and Venezuela.
Karnyothrips melaleuca (Bagnall, 1911): From Panicum maximum, Sporobolus indicus, and coconut fronds; rarely caught by sticky traps. Scale feeder. Known from Brazil (Para), Guyana, Trinidad, Patos Isle, Tobago, Barbados, St. Vincent, St. Lucia, Dominica, St. Croix, Puerto Rico, Bahamas, Haiti, Cuba, Jamaica, Florida, Georgia, Louisiana, Texas, Mexico, and Panama.

Karnyothrips merrilli (Watson, 1920): Frequent on coconut inflorescence and fruit feeding on scales, and also occasionally caught by sticky traps; also from many weeds, grasses, ornamentals, and crop plants. The most common and abundant Karnyothrips everywhere in Jamaica; scale feeder. Known from Guyana, Trinidad, Tobago, Grenada, St. Vincent, St. Lucia, Guadeloupe, Puerto Rico, Cuba, Jamaica, Florida, Georgia, Texas, Mexico, Honduras, Panama, and Colombia.

Karnyothrips ochropeus Hood, 1934: 1♀, Round Hill, Chloris sp. (4437a). Probably scale feeder. Known from Panama.

Leptothrips vittipennis Hood, 1938: From Calliandra sp., Lantana camara, Malvaviscus arboreus, and coconut inflorescence; also occasionally caught by sticky traps in Buff Bay and Kingston areas. Probably mite feeder. Known from Panama.

Liothrips urichi Karny, 1923: 1♀, Round Hill (Hill Top), Borreria laevis, by R. Latta (4438). Known from Trinidad.

Liothrips sp.: Differs from L. leucopus Titschack from the western Mediterranean area, the only other congener with a combination of dark brown body and totally yellow legs but not closely related, by longer head (1.3 times as long as wide), uniformly dark grayish brown and more slender tube (3.2 times as long as wide), and pale major setae. 1♂, Hardwicke Gap, 4000', beatings in forest (4511a).

Macroptothrips heinzii Mound, 1972: 2♀♂, Woodstock, Gray's Inn; Sticky traps (4554i, 4566b). The type series was collected subsequently in 1970 6 miles east of Woodstock.

Macroptothrips helena Hood, 1934: 4♀♂, Negril, sticky traps; Woodstock, Saccharum officinarum; Hope Garden, a legume in greenhouse by W. Carter (4501a, 4550e, 4573). Known from Cuba, Florida, Texas, Mexico, and Panama.

Orthothrips sp.: Differs from O. caudatus Priesner from Surinam by longer head (1.3 times as long as wide), antennal II totally dark grayish brown, stouter tube (2.6 times as long as wide), and tergite IX with seta i dilated. Also differs from O. bilineatus Stannard, described from Jamaica but not collected during the present survey, by dark tube, lanceolate-pedicellate antennal VIII, and fully developed epharic and pronotal setae. 2♀♂, Kildare, sticky traps (4562c, 4572).

Phrasterothrips sp.: Differs from P. conducans Priesner from Paraguay and Brazil by antennal III with a single sense cone, inner epimeral seta ½ as long as outer seta, and tube in different profile. 1♀, Woodstock, sticky trap among wild sugar cane (4550d).

Pygmaeothrips columniceps Karny, 1920: Abundant on bracket fungus, occasionally also under bark or on dead branches in Montego Bay area. Apparently the first collection of this Oriental and Pacific species in the Caribbean area (no specimen was found in the USNMNH collection).

Sophiothrips squamosus Hood, 1933: 1♀, Buff Bay, sticky trap (4570c). Known from Trinidad, Cuba, and Panama.

Stephanothrips occidentalis Hood and Williams, 1925: 1♀, Hope Garden, Panicum maximum (4350a). Known from Brazil (Para), Trinidad, Bermuda, St. Croix, Puerto Rico, Cuba, Jamaica, Caymans, Florida, Mexico, and Panama.

Streptothrips floridanus (Hood, 1938): 3♀♂, Woodstock, Dover; sticky traps (4554k, 4569b). Known from Guyana, Trinidad, Caymans, Cuba, Florida, Texas, and Mexico.
Tylothrips osborni (Hinds, 1902): 2♀♀, Woodstock, Negril; sticky trap, Sida or Malvastrum spp. (4488e, 4588). Known from Trinidad, Florida, and Panama.

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Compsothrips graminis (Hood, 1936) (= Oedaleothrips): 3♀♀, 4♂♂, Palisadoes sweeping, 8.XII.1957, by T. H. Farr (4575). Known from Venezuela (Patos Isle), Trinidad, St. Croix, Tortola, Bahamas, Mexico.

Diceratothrips bicornis Dagnall, 1906 (= D. armatus Dagnall): 1♀, Buff Bay, coconut inflorescence (4529a). Known from Brazil (Para), Surinam, Guyana, Trinidad, Mexico, Panama, and Venezuela.

Diceratothrips picticornis Hood, 1914 (= D. wolcotti Morgan; both type series were examined): 10♀♀, 6♂♂, Irwin, dead branches piled on the ground (4472e); 1♂, Benzen, general sweepings (4395). Known from Puerto Rico, Cuba, Bahamas, and Panama.

Elaphrothrips laevicollis (Bagnall, 1910): 9♂♂, Bath Mountain, Rock Hall, Christiana, and east of Montego Bay (all high mountainous localities), all by sweepings except one from Moghania strobilifera, 1955-1959, by T. H. Farr (4574, 76, 77, 79). Known from Brazil (Para), Surinam, Guyana, Trinidad, Mexico, Honduras, Costa Rica, Panama, and Venezuela.

Ethiothrips brevis (Bagnall, 1921) (= Dichaeothrips claripennis (Moulton): 2♂♂, Woodstock, Bengal; sticky trap, on coconut fruit (4450, 4568e). Known from Trinidad, Haiti, Bahamas, Jamaica, Florida, and Mexico.

Gastrothrips anolis Morgan, 1925: 1♂, Round Hill (Hill Top), Solanum corvum (4485e). Known from Puerto Rico, Cuba, Caymans, and Panama.

Neosmerinlothrips sp.: Differs from N. collaris Bagnall known from St. Vincent, Dominica, and Puerto Rico, by shorter head (1.1 times as long as wide) with slenderer tube (2.4 times as long as wide), fore wing clear at base, anteromarginal prontal seta well developed, and tergite 1X with seta i subequal to seta ii and longer than tube. An unnamed species in the USNMNH collection (1♀, Haiti, Port-Au-Prince, dead branches with leaves, 29.VIII.1851, Hood coll. (2728)) is conspecific with this Jamaican sp. 1♂ and larvae, Bengal, coconut fruit, among calyx (4450). Known from Haiti.

Nesotheo-thrips lativentris (Karny, 1913) (= Rhaeothrips): Abundant or frequent on many different plants, particularly various grasses in the wet Buff Bay area as well as the dry Montego Bay and Kingston areas; never caught by sticky traps and only once collected on coconut fruit. A fungus spore feeder. Known from Trinidad, Virgin Islands, Puerto Rico, Dominican Republic, Bahamas, Cuba, Jamaica, Caymans, Florida, and Panama.

Species Associated with Coconut

Throughout the world, no thrips species has been known as a pest of the coconut crops, and practically nothing is known of the thrips fauna on coconut. Extensive sticky trappings among coconut fronds and inflorescences and repeated manual collections on different parts of coconut trees, as well as among the weedy undergrowth in and around the coconut plantations finally yielded some data (Table 2) on the thrips fauna on coconuts in Jamaica, and its sources of migrations onto coconuts. The inflorescences are interspersed among fronds and bloom periodically in short intervals throughout the year, and most thrips trapped were flower feeding species. Sometimes more than 300 thrips were trapped per week.

Of 56 species enumerated in Table 2, 48 were trapped, and 10 of them were collected also from coconuts, but the remaining 38 were not; another 8 were collected from coconuts but not trapped; all together 18 were collected from coconuts. Nineteen are flower feeders; 8, leaf-fruit feeders; 20, fungal hyphae and fungal decaying breakdown.
TABLE 2. Species either directly collected from inflorescence or fruits of, or caught by sticky traps hanging among the fronds of coconut. 1: Collected; 2: Trapped; 1-2: Collected and also trapped; a: Found also among the undergrowth of coconut trees; b: Not found among the undergrowth of coconut trees.

**FLOWER FEEDERS:**
- Chaetosothrips striatus caribeanus Sakimura 2a
- Chirothrips mexicanus Crawford 2a
- Chirothrips texanus Andre 2a
- Frankliniella borinquen Hood 2a
- Frankliniella breviseta Moulton 2a
- Frankliniella bruneri Watson 1-2a (inflorescence, frequent)
- Frankliniella caphalica (Crawford) 2a
- Frankliniella citripes Hood 2a
- Frankliniella cubensis Hood 2a
- Frankliniella insularis (Franklin) 1-2a (inflorescence)
- Frankliniella jamaicensis Sakimura & O'Neill 2a
- Frankliniella kelliae Sakimura 1-2a (inflorescence, frequent)
- Frankliniella parvula Hood 2a
- Frankliniella sp. (P) 2a
- Frankliniella varipes Moulton 2a
- Microcephalothrips abdominalis (Crawford) 2a
- Psectrothrips interruptus (Hood) 2b
- Rhampothrips pandens Sakimura 2a
- Thrips hawaiiensis (Morgan) 2b

**LEAF-FRUIT FEEDERS:**
- Anisoploiothrips venustulus (Priesner) 1a (young fruit, frequent)
- Caliothrips phaseoli (Hood) 2a
- Ceratothripoides funestus (Hood) 2a
- Chaetanaphothrips orchidii (Moulton) 1a (young fruit, once)
- Corynothrips stenopterus Williams 2b
- Heliothrips haemorrhoidalis (Boeche) 1-2a (young fruit, frequent)
- Hercinothrips femoralis (Reuter) 1a (fruit)
- Selenothrips rubrocinctus (Giard) 2a

**FUNGAL HYphaE AND FUNGAL DEcaying BREAKdown PRODUcTS FEEDERS:**
- Adranechthrips decorus Hood 1-2a (inflorescence)
- Adranechthrips sp. 2b
- Carathrips mediamericanus Hood 2b
- Eurythrips modestus (Bagnall) 2b
- Eurythrips sp. 2b
- Hoplandrothrips erythrinae Priesner 1b (fallen fruit)
- Hoplandrothrips flavipes Bagnall 1-2b (inflorescence, fruit)
- Hoplandrothrips regni Priesner 2a
- Hoplandrothrips sp. 2b
- Hoplothrips angusticeps (Hood) 2b
- Hoplothrips fungosus Moulton 2b
- Hoplothrips moultoni Hood 2b
- Hoplothrips sp. (B) 2b
- Hoplothrips sp. (D) 2b
- Macrophthalmothrips heinzei Mound 2b
- Macrophthalmothrips heleneae Hood 2a
- Orthothrips sp. 2b
- Sophothrips squamosus Hood 2b
- Streptothrips floridanus (Hood) 2b
- Tylothrips osborni (Hinds) 2a
Fungal Spore Feeders:

**Diceratothrips bicornis** Bagnall 1b (inflorescence, once)

**Ethisirothrips brevis** (Bagnall) 1-2b (fruit)

**Neosmerinthothrips** sp. 1b (fruit)

**Neothrips lativentris** (Karny) 1a (fruit, once)

Predators:

**Aleurodorhops fasciapennis** Franklin 1a (frond, once)

**Karnyothrips flavipes** (Jones) 2b

**Karnyothrips melaleuca** (Bagnall) 1-2a (frond)

**Karnyothrips merrilli** (Watson) 1-2a (young fruit and inflorescence, frequent)

**Leptothrips vittipennis** Hood 1-2a (inflorescence)

products feeders; 4, fungal spore feeders; and 5, predators. All the flower and leaf-fruit feeders are Terebrantians, and most of them were trapped frequently and abundantly, and also were found abundantly living among the undergrowth of coconuts. All the fungal growth feeders and predators are Tubuliferans, all of them were only sporadically and sparsely trapped and were mostly not or sparsely present among the undergrowth in the immediate vicinity.

The flower feeder group was predominated by 12 species of *Frankliniella*, and the remainder were incidental transients. *F. bruneri, kelliae, and insularis* were trapped abundantly. Frequently, all 3 species were collected from inflorescence, the first species abundantly. All are polyphagous species and are the most common and abundant species of the genus in Jamaica. *F. breviseta, cephatica, cubensis, and varipes* were trapped occasionally in fair numbers, but they were not collected from inflorescence. *Anisopilothrips venustralis* and *Heliothrips haemorrhoidalis* of the leaf-fruit feeder group were frequently or abundantly trapped as well as often collected from young fruits where both were found breeding. No infestation of thrips was observed on the mature fronds, but observations were not made on the developing tender hearts.

Most of the fungal hyphae and fungal decaying breakdown products feeders were sporadic transients. An exception was *Hoplantothrips flavipes* which was trapped often as well as collected in good numbers from young fruits. Coconut fruits appeared to be its preferred feeding niches. All the fungal spore feeders were collected rarely from fruits but only once from inflorescence, and only one was trapped. Among the predator group, *Karnyothrips merrilli*, a scale feeder, was trapped occasionally, but it was often collected from young fruits and among inflorescence. This species also was found abundantly among the undergrowth of coconuts. The rest of the group are incidental transients.

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A PRELIMINARY CHECKLIST OF THE STAPHYLINIDAE (COLEOPTERA) OF FLORIDA

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ABSTRACT

A preliminary checklist of the Staphylinidae of Florida (USA) is presented. It includes 324 species in 122 genera and gives bibliographical information on their original descriptions, their synonyms, and the publications in which they were recorded as occurring in Florida. The total size of the staphylinid fauna of Florida is estimated conservatively as 450 species. The species/area relationship suggests that this fauna is depauperate relative to the staphylinid fauna of western Europe.

RESUMEN

Se presenta una lista preliminar de las especies de Staphylinidae que se encuentran en Florida (E.U.A.). La lista incluye 324 especies en 122 géneros, y ofrece información bibliográfica sobre las descripciones originales, los sinonimos, y las publicaciones en las cuales se registraron las especies como ocurriendo en Florida. El tamaño total de la fauna estaflínida de Florida se estima conservativamente en 450 especies. La relación especies/área indica que esta fauna es depauperada respecto de la fauna estaflínida de Europa Occidental.

In numbers of described species, Coleoptera represent the largest order of the largest class of the largest phylum of the animal kingdom. At least in western Europe and in America north of Mexico, in numbers of described species Staphylinidae repre-