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Source: Florida Entomologist, 98(1) : 298-304

Published By: Florida Entomological Society

URL: https://doi.org/10.1653/024.098.0148

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Thrips (Insecta: Thysanoptera) of Guadeloupe and Martinique: Updated check-list with new information on their ecology and natural enemies

Jean Etienne[1], Philippe Ryckewaert[2,] and Bruno Michel[3]*

Abstract

A list of 91 species of thrips from Guadeloupe and Martinique, including 28 new records, is provided. New data on the ecology of some species and additional records of parasitoids and predators of thrips are given. A list of plants is provided on which populations of thrips have been observed, in some cases, with the presence of immature stages and/or thrips feeding damage.

Key Words: biodiversity; West Indies; crop pest; natural enemies

Resumen

Una lista de 91 especies de thrips colectadas en Guadalupe y Martínica, incluyendo 28 especies mencionadas por primera vez de las Antillas francesa, es proporcionada. Nuevos datos son presentados sobre la ecología de ciertas especies y nuevos parasitóides y predadores de trips son señalados de Guadalupe y Martínica. Una lista de las plantes sobre las cuales se han observado poblaciones de trips con, a veces, presencia de estadios inmaduros y/o daños es figurada.

Palabras Clave: biodiversidad; Guadalupe; Martínica; plagas; enemigos naturales

So far, the thrips (Thysanoptera) fauna of Guadeloupe and Martinique is known to comprise 64 species in 45 genera (Bournier 1993, 1995; Mound & Marullo 1996; Michel et al. 2008; Michel & Ryckewaert 2014). Most of these species are found on spontaneous vegetation and are not of economic importance. But a limited number of thysanopteran species have been or still are crop pests. On banana *Frankliniella parvula* Hood causes occasionally damage of economic importance. *Hercinothrips femoralis* (Reuter) was an important pest but since the late 1990s its populations decreased and its importance has been substantially reduced. On the contrary, *Elixothrips brevisetis* (Bagnall), recorded for the first time in 1996, is now found regularly in the banana plantations and is considered to be a major pest. In recent years, the economic incidence of *Chaetanaphothrips orchidii* (Moulton) decreased considerably. This species is always present on the plants but very rarely observed. The importance of 2 other species of the same genus, *C. leeuweni* (Karny) and *C. signipennis* (Bagnall), cited as banana pests in the literature (Bournier 1984; Delattre & Torregrossa 1978; Simon 1990) is now negligible. With respect to vegetable and floral crops, *Thrips palmi* Karny, introduced to Guadeloupe and Martinique in 1985, was a very important pest of several crops (melon, cucumber, chili pepper and eggplant) (Denoyes et al. 1986; Etienne & Waetermeulen 1989; Etienne et al. 1990; Guyot 1988), but its populations decreased considerably during the past 15 years and its economic importance is now limited. *Thrips tabaci* Lindeman regularly causes damage to cultivated Alliaceae (onion, garlic and leek) particularly during periods without rain. *Frankliniella occidentalis* (Pergande) damaged *Chrysanthemum* and rose production in greenhouses over the years. It presence was linked to the importations of *Chrysanthemum* plants from Europe. Production of this floral crop has ceased and *F. occidentalis,* which did not acclimatize has virtually disappeared from the French West Indies. Since 2007 *Holopothrips tabebuia* Cabrera & Segarra has been a serious pest of ornamental trees of the genus *Tabebuia*, particularly *T. heterophylla* (Michel et al. 2008).

Regarding the parasitoids and predators of thrips, 2 species of Hymenoptera Trichogrammatidae (Delvare 1993), 6 species of Acari Phytoseiidae (Kreiter & Moraes 1997) and 1 species of Hemiptera Anthocoridae (Pluot-Sigwalt et al. 2009) were known from Guadeloupe.

This publication deals with the species of thrips, their ecology and their natural enemies in Guadeloupe and Martinique.

Materials and Methods

The list of thrips presented below includes all the species already mentioned from Guadeloupe and Martinique by several authors (Bournier 1993, 1995; Mound & Marullo 1996; Michel et al. 2008; Michel & Ryckewaert 2014) and the new records resulting from a survey carried out during more than 20 years. Thrips collecting was performed by visual observation or using a mouth-pooter (aspirator), sweep net or beating sheet. A Berlese funnel was used to collect thrips living in mosses. The parasitoids were obtained from rearing the host species.

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Predatory behavior was observed in natura. The natural enemies were identified by specialists cited in the text. The nomenclature adopted is available on the website ThripsWiki (2014).

During this survey, thrips were collected on numerous plant species. But, considering the definition of host plants given by Mound (2013) as well as the available information, we mention here only the plants on which thrips populations have been noticed — in some cases — with the presence of immature stages or thrips damage. The threshold we set to consider the thrips population as significant was 5 individuals collected on the same date on the same plant species in the same locality. The plants were identified using the Flora of Guadeloupe and Martinique (Fournet 2002).

Each specimen was mounted between a slide and cover slip, and all are kept in the CIRAD-CBGP collection, Montferrier-sur-Lez, France.

Results

CHECK-LIST OF THRIPS OF GUADELOUPE AND MARTINIQUE

New records for Guadeloupe and Martinique or new ecological information are indicated by an asterisk.

Aeolothripidae

-*Franklinothrips vespiformis* (Crawford). Guadeloupe, Martinique.
-*Stomatothrips septenarius* Hood. Martinique.

Heterothripidae

-*Heterothrips decacornis* Crawford. Guadeloupe.
-**Heterothrips sericatus* Hood. Martinique.

Thripidae - Panchaetothripinae

-*Anisopilothrips venustulus* (Priesner). Guadeloupe, first record from Martinique.
-**Arachisothrips millsi* Stannard. Guadeloupe, obtained from mosses.
-*Caliothrips insularis* (Hood). Martinique.
-**Copidothrips octarticulatus* (Schmutz). Martinique.
-*Dinurothrips hookeri* Hood. Guadeloupe, first record from Martinique.
-*Dinurothrips vezenyii* Bagnall. Guadeloupe.
-*Elixothrips brevisetis* (Bagnall). Guadeloupe, Martinique.
-*Heliothrips haemorrhoidalis* (Bouché). Guadeloupe, Martinique.
-*Hercinothrips femoralis* (Reuter). Guadeloupe, Martinique.
-*Parthenothrips dracaenae* (Heeger). Guadeloupe, Martinique.
-**Retithrips syriacus* (Mayet). Guadeloupe.
-*Selenothrips rubrocinctus* (Giard). Guadeloupe, Martinique.

Thripidae – Thripinae

-*Arorathrips mexicanus* (Crawford). Martinique
-**Arorathrips spiniceps* (Hood). Guadeloupe.
-**Aurantothrips orchidaceus* (Bagnall). Guadeloupe.
-**Ceratothripoides brunneus* Bagnall. Guadeloupe.
-*Chaetanaphothrips leeuweni* (Karny). Guadeloupe, Martinique
-*Chaetanaphothrips orchidii* (Moulton). Guadeloupe, Martinique.
-*Chaetanaphothrips signipennis* (Bagnall). Guadeloupe, Martinique.
-*Coremothrips pallidus* Hood. Guadeloupe.
-*Corynothrips stenopterus* Williams. Guadeloupe
-**Cricothrips trinidadensis* (Hood). Guadeloupe, from mosses.
-*Danothrips trifasciatus* Sakimura. Martinique.
-*Dendrothripoides innoxius* (Karny). Guadeloupe.
-**Echinothrips americanus* Morgan. Guadeloupe.
-*Echinothrips caribeanus* Hood. Guadeloupe, first record from Martinique.
-**Frankliniella borinquen* Hood. Guadeloupe.
-**Frankliniella breviseta* Moulton. Guadeloupe.
-*Frankliniella brunnea* (Priesner). Martinique.
-*Frankliniella bruneri* Watson. Guadeloupe.
-*Frankliniella cephalica* (Crawford). Guadeloupe.
-*Frankliniella difficilis* Hood. Martinique.
-*Frankliniella fusca* (Hinds). Martinique.
-*Frankliniella insularis* (Franklin). Guadeloupe, Martinique.
-**Frankliniella kelliae* Sakimura. Guadeloupe.
-*Frankliniella occidentalis* (Pergande). Guadeloupe, Martinique.
-*Frankliniella parvula* Hood. Guadeloupe.
-*Frankliniella rostrata* Priesner. Guadeloupe.
-*Frankliniella williamsi* Hood. Guadeloupe.
-*Fulmekiola serrata* (Kobus). Guadeloupe.
-*Microcephalothrips abdominalis* (Crawford). Martinique.
-**Pseudothrips inequalis* (Beach). Guadeloupe.
-**Rhamphothrips pandens* Sakimura. Guadeloupe
-**Scirtothrips dorsalis* Hood. Guadeloupe.
-*Trichromothrips xanthius* (Williams). Guadeloupe.
-*Thrips palmi* Karny. Guadeloupe, Martinique.
-*Thrips simplex* (Morison). Guadeloupe, Martinique.
-*Thrips tabaci* Lindeman. Guadeloupe, Martinique.

Thripidae – Dendrothripinae

-*Asprothrips bimaculatus* Michel & Ryckewaert. Martinique.
-*Leucothrips furcatus* Hood. Guadeloupe.

Thripidae - Sericothripinae

-**Hydatothrips sternalis* (Hood). Martinique.
-*Hydatothrips tricinctus* (Hood). Guadeloupe.
-*Neohydatothrips portoricensis* (Morgan). Guadeloupe.
-**Neohydatothrips signifer* (Priesner). Guadeloupe.

Phlaeothripidae - Idolothripinae

-**Bactrothrips* sp. *nec hesperus* (Moulton). Guadeloupe.
-*Diceratothrips bicornis* Bagnall. Guadeloupe.
-*Elaphrothrips jacotguillarmodi* Johansen. Guadeloupe.
-*Ethirothrips* sp. Guadeloupe.
-*Gastrothrips abditus* Hood. Guadeloupe.
-*Gastrothrips anolis* Morgan. Guadeloupe.
-**Nesothrips lativentris* (Karny). Guadeloupe.
-**Nesothrips minor* (Bagnall). Guadeloupe. Associated to *Palmaspis palmae* (Hemiptera, Asterolecanidae) on *Eleis guineensis*.
-*Ophthalmothrips longisetis* Bournier. Guadeloupe.

Phlaeothripidae – Phlaeothripinae

-*Adraneothrips alternatus* Hood. Guadeloupe.
-*Aleurodothrips fasciapennis* (Franklin). Guadeloupe. *Recorded with *Cardiococcus umbonatus* Cockerell (Coccidae) on *Mammea americana* (Clusiaceae), with *Chrysomphalus aonidum* (Linnaeus) (Diaspididae) on *Cycas revoluta* (Cycadaceae), with *Ichnaspis longirostris* (Signoret) (Diaspididae) and *Palmaspis palmae* (Cockerell) (Asterolecaniidae) on *Elaeis guineensis* (Arecaceae) and with *Unaspis citri* (Diaspididae) on *Citrus aurantiifolia* (Rutaceae). This species is a predator of immature stages of scale-insects and whitefly (Palmer & Mound 1991). It was already cited by Bournier (1993) from Guadeloupe but with no information on the Hemiptera prey.

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-*Bamboosiella cingulata* (Hood). Guadeloupe.
-*Docessissophothrips bonfilsi* Bournier. Guadeloupe.
-**Dolichothrips indicus* (Hood). Guadeloupe.
-*Gynaikothrips ficorum* (Marchal). Guadeloupe, Martinique.
-**Gynaikothrips uzeli* (Zimmermann). Guadeloupe.
-*Haplothrips gowdeyi* (Franklin). Guadeloupe.
-**Holopothrips ananasi* Costa Lima. Guadeloupe.
-*Holopothrips inquilinus* (Bournier). Guadeloupe.
-*Holopothrips* sp. Guadeloupe. *Associated with psyllids in rolled leaves of *Gesneria ventricosa* (Gesneriaceae).
-**Holopothrips tabebuia* Cabrera & Segarra. Guadeloupe, Martinique.
-*Holopothrips tenuis* Hood. Guadeloupe. *Associated to *Apodiplosis* sp. (Diptera, Cecidomiidae) in galls on *Psychotria mapourioides* (Rubiaceae).
-*Hoplothrips polypori* Bournier. Guadeloupe.
-*Karnyothrips flavipes* (Jones). Guadeloupe. *Associated to *Ceroplastes* sp. (Hemiptera, Coccidae) on *Podranea ricasoliana* (Bignioniaceae).
-**Karnyothrips merrilli* (Watson). Guadeloupe. Known as a scale-insects predator (Palmer & Mound 1991).
-*Karnyothrips rhopalocerus* (Hood). Guadeloupe.
-**Leptothrips* sp. *aff. obesus* Johansen. Guadeloupe. Species of *Leptothrips* are known to be predacious on mites (Mound & Marullo 1996). But, according to Wiesenborn (2012) *L. fasciculatus*'s anthophilous behavior contradicts the predation generalized for the genus.
-*Liothrips brasiliensis* Moulton. Martinique.
-*Liothrips brevicornis* Hood. Guadeloupe.
-*Menothrips ebriosus* Hood. Martinique.
-*Strepterothrips rostratus* Bournier. Guadeloupe.
-**Symphyothrips punctatus* Hood & Williams. Guadeloupe.
-**Williamsiella* sp. (apterous form). Guadeloupe. From mosses on trunk of *Calophyllum calaba*.

NEW RECORDS OF NATURAL ENEMIES OF THRIPS IN GUADELOUPE AND MARTINIQUE

Parasitoids

Hymenoptera - Eulophidae (G. Delvare det.)

- *Ceranisus* sp. Guadeloupe. Parasite of *Retithrips syriacus* on *Lagerstroemia speciosa* (Lythraceae)
- *Goetheana parvipennis* (Gahan). Guadeloupe. Obtained from *Selenothrips rubrocinctus* (Giard).
- *Thripastichus gentilei* (Del Guercio). Guadeloupe. Obtained from *Gynaikothrips uzeli.*
- *Thripoctenus javae* Girault (= *Thripobius semiluteus* Boucèk). Guadeloupe. Obtained from *Retithrips syriacus.* This parasitoid can provide a very efficient control of *R. syriacus* in particular on *Bucida buceras* and *Lagestroemia speciosa*.

Predators

Hemiptera - Anthocoridae (J. Carayon det.)

- *Orius insidiosus* (Say). Guadeloupe, Martinique. Larvae and adults are very efficient in the control of *Thrips palmi* on eggplant and cucurbits.
- *Lasiochilus pallidulus* Reuter. Guadeloupe. Preys on different species of thrips including *T. palmi*.

Thysanoptera - Aeolothripidae

- *Franklinothrips vespiformis* (Crawford). Guadeloupe, Martinique. Adults and larvae are commonly collected in *T. palmi* outbreaks on eggplant and cucurbits. Bournier (1993) mentions the presence of *F. vespiformis* on *Ipomea batatas* damaged by *Dendrothripoides innoxius* (Karny). *Also found on banana plants preying on *Elixothrips brevisetis*.

Diptera - Dolichopodidae (C.E. Dyte det.)

- *Trypticus violaceus* Van Duzee. Guadeloupe.
- *Chrysotus* sp. (only ♀♀ collected). Guadeloupe.

Adults of both species were observed capturing larvae of *T. palmi* on the leaves of eggplants.

Coleoptera - Coccinellidae (C. Duverger det.)

- *Cycloneda sanguinea* (Linnaeus). Guadeloupe, Martinique. Adults and larvae are predators of all the developmental stages of *T. palmi*.

Araneae - Theridiidae (M. Emerit det.)

- *Theridula gonygaster* (Simon). Guadeloupe. Observed preying an undetermined thrips species.

Acari - Blattisociidae (G.J. de Moraes det.)

- *Aceodromus convolvuli* (Muma). Guadeloupe. Predator of *T. palmi*.

Acari – Cunaxidae (S. Kreiter det.)

- *Cunaxa* sp. Predator of *T. palmi*. Guadeloupe.

Acari - Phytoseiidae (G.J. De Moraes det.)

- *Amblyseius herbicolus* (Chant). Guadeloupe. Predator of *T. palmi*.

PLANTS FROM WHICH THRIPS HAVE BEEN COLECTED IN GUADELOUPE AND MARTINIQUE

We did not include all plant species in Table 1 from which thrips were collected. However we did include some plant species for which the data are insufficient to establish that these species support the reproduction and successful development of a species of thrips; hence, they may not be reproductive hosts of thrips. We considered that when several thrips individuals of the same species are found on the same plant on the same date, then there can be a consequence of this relationship between the thrips species and the plant species. Even if this plant species cannot be strictly considered to be a host plant because the thrips species is not known to reproduce and develop on it, the thrips species benefits by feeding on the plant. This information can be of interest, for instance, to implement alternative cropping systems or ecological studies.

Discussion

Most thysanopteran species reported from Guadeloupe and Martinique were already known from the Neotropical region and/or the U.S.A. However, 3 species have a different origin. *Ceratothripoides brunneus* was known from West Africa. *Nesothrips minor* is widely recorded from Mauritius and Reunion to India, Peninsular Malaysia, Thailand, Fiji and Hawaii (ThripsWiki 2014). *Asprothrips bimaculatus* most probably has been introduced from Asia but its origin remains unknown; Mirab-Balou collected it in China (pers. comm.).

Including the 28 species of Thysanoptera mentioned for the first time from Guadeloupe and Martinique, the thrips fauna of these French Over-

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Table 1. Plants from which thrips have been collected (* = predators; D = feeding damage; L = larva; Pp = propupa; P = pupa; ♂/♂♂, ♀♀ = low/high (at least 5 individuals) population of males and females.

Plant Families	Plant Names	Thrips species
Amaranthaceae	*Alternanthera sessilis*	*Thrips palmi* ♀♀, L, D
	Amaranthus sp.	*Thrips palmi* ♂ ♂, ♀♀, L2
Anacardiaceae	*Anacardium occidentale*	*Dolichothrips indicus* ♀♀, L2
	Mangifera indica	*Frankliniella borinquen* ♀♀
		Frankliniella kelliae ♀♀
		Frankliniella williamsi ♂, ♀♀
		Dolichothrips indicus ♂, ♀♀
		Selenothrips rubrocinctus ♀♀, L, D
Araceae	*Anthurium andraeanum*	*Chaetanaphothrips orchidii* ♀♀, L2, D
		Heliothrips haemorrhoidalis ♀♀
	Dieffenbachia seguine	*Asprothrips bimaculatus* ♀♀
	Spathiphyllum sp.	*Frankliniella williamsi* ♂ ♂, ♀♀
Arecaceae	*Cocos nucifera*	*Aleurodothrips fasciapennis** ♀
	Elaeis guineensis	
Asteraceae	*Chrysanthemum* sp.	*Frankliniella brunnea* ♂ ♂, ♀♀, L1, L2, flowers
		Frankliniella insularis ♂ ♂, ♀♀
		Frankliniella occidentalis ♂, ♀♀, L2
		Microcephalothrips abdominalis ♀♀
		Thrips tabaci ♂, ♀♀, P
	Clibadium erosum	*Frankliniella borinquen* ♀♀
		Frankliniella breviseta ♀♀
		Ophthalmothrips longisetis ♂, ♀♀
	Dendranthema sp.	*Frankliniella brunnea* ♀♀
		Frankliniella occidentalis ♀♀
	Eleutheranthera ruderalis	*Thrips palmi* ♂ ♂, ♀♀, L, D
	Eupatorium integrifolium	*Frankliniella borinquen* ♀♀
	Eupatorium odoratum	*Neohydatothrips signifier* ♂ ♂, ♀♀
	Lactuca sativa	*Frankliniella insularis* ♂, L2, D
		Frankliniella occidentalis ♀♀
		Thrips tabaci ♀♀
	Lactuca sp.	*Frankliniella brunnea* ♀♀
		Thrips palmi ♀♀, L, D
	Mikania micrantha	*Dinurothrips hookeri* ♀♀, D
		*Karnyothrips merrelli**
	Synedrella nodiflora	*Frankliniella insularis* ♀♀, D
		Frankliniella fusca ♀♀, D
		Thrips palmi ♀♀, D
	Tagetes sp.	*Microcephalothrips abdominalis* ♀♀
Bignoniaceae	*Podranea ricasoliana*	*Karnyothrips flavipes* + *Ceroplastes*
	Tabebuia heterophylla	*Frankliniella insularis* ♀♀
		Holopothrips tabebuia ♂, ♀♀, D
		Leptothrips sp. aff. *obesus* ♂, ♀♀
	Tabebuia pallida	*Frankliniella insularis* ♂, ♀♀, flowers
Bromeliaceae	*Ananas comosus*	*Frankliniella cephalica* ♀♀
		Holopothrips ananasi ♂, ♀♀
Caesalpiniaceae	*Cassia occidentalis*	*Ethirothrips* sp. ♂ ♂, ♀♀
	Haematoxylon campechianum	*Frankliniella insularis* ♀♀
		Frankliniella kelliae ♀♀
Capparaceae	*Cleome* sp.	*Thrips palmi* ♂ ♂, ♀♀, D
	Cleome spinosa	*Frankliniella insularis* ♀♀
Chenopodiaceae	*Spinacia oleracea*	*Thrips palmi* ♂ ♂, ♀♀, L, D
Clusiaceae	*Mammea americana*	*Aleurodothrips fasciapennis** ♀
Combretaceae	*Terminalia catappa*	*Bactrothrips* sp. ♀♀
		Coremothrips pallidus ♀♀
		Retithrips syriacus ♀♀, L2, P
		Selenothrips rubrocinctus ♂ ♂, ♀♀
Convolvulaceae	*Ipomoea batatas*	*Dendrothripoides innoxius* ♀♀
		*Franklinothrips vespiformis**
		Neohydatothrips portoricensis ♀♀
	Ipomoea congesta	*Thrips palmi* ♀♀, *D*
	Ipomoea tiliacea	*Dendrothripoides innoxius* ♀♀
		Frankliniella breviseta ♀♀

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Table 1. (Continued) Plants from which thrips have been collected (* = predators; D = feeding damage; L = larva; Pp = propupa; P = pupa; ♂/♂♂, ♀♀ = low/high (at least 5 individuals) population of males and females.

Plant Families	Plant Names	Thrips species
Cucurbitaceae	*Cucumis melo*	*Franklinothrips vespiformis**
		Thrips palmi ♂ ♂, ♀♀, L, D
	Cucumis sativus	*Dinurothrips hookeri* ♀♀
		Echinothrips caribeanus ♂ ♂, ♀♀
		*Franklinothrips vespiformis** ♀
		Holopothrips tenuis ♂ ♂, ♀♀, gall
		Thrips palmi ♂ ♂, ♀♀, L1, L2, D, Pp
	Cucurbita pepo	*Thrips palmi,* ♂ ♂, ♀♀, L1, L2, leaves, flowers
	Momordica charantia	*Thrips palmi* ♂ ♂, ♀♀, D
Cycadaceae	*Cycas revoluta*	*Aleurodothrips fasciapennis** ♂ ♂, ♀♀
Cyperaceae	*Cyperus rotondus*	*Thrips palmi* ♂ ♂, ♀♀, D
Euphorbiaceae	*Acalypha hispida*	*Elixothrips brevisetis* ♀♀
		Heliothrips haemorrhoidalis ♀♀
		Selenothrips rubrocinctus ♀♀
	Codiaeum variegatum	*Anisopilothrips venustulus* ♀♀
		Heliothrips haemorrhoidalis ♀♀, leaves
	Euphorbia heterophylla	*Thrips palmi* ♂ ♂, ♀♀, D
	Manihot esculenta	*Corynothrips stenopterus* ♀♀
		Frankliniella cephalica ♀♀
		Nesothrips lativentris ♂ ♂, ♀♀
	Ricinus communis	*Neohydatothrips portoricensis* ♂ ♂, ♀♀
Fabaceae	*Calopogonium mucunoides*	*Frankliniella insularis* ♀♀, flowers
	Centrosema pubescens	*Frankliniella insularis* ♀♀, flowers
	Erythrina variegata var. fastigiata	*Symphyothrips punctatus* ♂ ♂, ♀♀
	Erythrina sp.	*Frankliniella insularis* ♀♀
	Gliricidia sepium	
	Glycine max	*Echinothrips caribeanus* ♂, ♀♀
	Lablab purpureus	*Frankliniella insularis* ♀♀, pods
		Leucothrips furcatus ♀♀
	Phaseolus lunatus	*Frankliniella insularis* - ♂ ♂, ♀♀, L
		Thrips palmi ♂ ♂, ♀♀, L1, L2
Gesneriaceae	*Gesneria ventricosa*	*Holopothrips* sp. + psyllids
Iridaceae	*Gladiolus communis*	*Thrips simplex* ♂ ♂, ♀♀, L1, L2, Pp, P
Lauraceae	*Persea americana*	*Selenothrips rubrocinctus* ♀♀, L2, P
Liliaceae	*Allium cepa*	*Thrips tabaci* ♂, ♀♀, L1, L2, D
	Allium porrum	
Lythraceae	*Lagerstroemia speciosa*	*Retithrips syriacus* v
Malpighiaceae	*Malpighia* sp.	*Heterothrips decacornis* ♂ ♂, ♀♀
Malvaceae	*Sida acuta*	*Thrips palmi* ♂ ♂, ♀♀, D
	Gossypium sp.	*Echinothrips americanus* ?, ♀♀
		Thrips palmi ♂ ♂, ♀♀, L1, L2
	Hibiscus esculentus	*Frankliniella insularis* ♀♀
		Thrips palmi ♂ ♂, ♀♀, L1, L2
	Hibiscus rosa-sinensis	*Frankliniella insularis* ♂ ♂, ♀♀, L1, L2, flowers
		Frankliniella williamsi ♂ ♂, ♀♀, buds
		Karnyothrips flavipes ♂, ♀♀
		Liothrips brasiliensis ♂ ♂, ♀♀, L1, L2, D, stem branches
	Urena lobata	*Thrips palmi* ♂ ♂, ♀♀, L, D
Mimosaceae	*Inga ingoides*	*Selenothrips rubrocinctus* ♀♀, flowers
	Mimosa pigra	*Thrips palmi* ♀♀, L, D
Moraceae	*Ficus benjamina*	*Gynaikothrips uzeli* ♀♀
	Ficus nitida	*Gynaikothrips ficorum* ♂ ♂, ♀♀, L2, P
Musaceae	*Musa* sp.	*Chaetanaphothrips leeuweni* ♀♀, D
		Chaetanaphothrips signipennis ♀♀, D
		Chaetanaphothrips orchidii ♀♀, D
		Danothrips trifasciatus ♂ ♂, ♀♀
		Dinurothrips hookeri ♀♀
		Echinothrips caribeanus ♀♀, fruits
		Elixothrips brevisetis ♀♀, L2, D, fruits, leaves
		Frankliniella parvula ♂ ♂, ♀♀,L1, L2, D, buds, fruits
		*Franklinothrips vespiformis** ♀♀, L
		Hercinothrips femoralis ♀♀

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Table 1. (Continued) Plants from which thrips have been collected (* = predators; D = feeding damage; L = larva; Pp = propupa; P = pupa; ♂/♂♂, ♀♀ = low/high (at least 5 individuals) population of males and females.

Plant Families	Plant Names	Thrips species
Myrtaceae	*Psidium guajava*	*Heterothrips sericatus* ♂ ♂, ♀♀ *Selenothrips rubrocinctus* ♂, ♀♀
Orchidaceae	*Epidendrum patens*	*Frankliniella insularis* ♂ ♂, ♀♀, flowers *Pseudothrips inequalis* ♂, ♀♀, flowers
	Vanilla fragrans	*Elixothrips brevisetis* ♀♀
Passifloraceae	*Passiflora edulis*	*Frankliniella insularis* ♂, ♀♀ *Frankliniella parvula* ♀♀ *Frankliniella williamsi* ♂ ♂, ♀♀
Pinaceae	*Pinus caribea*	*Frankliniella* sp. aff. *breviseta* ♂ ♂, ♀♀
Piperaceae	*Piper nigrum*	*Thrips palmi* ♂ ♂, ♀♀, L1, L2
Phyllanthaceae	*Phyllanthus niruri*	*Thrips palmi* ♂ ♂, ♀♀, D
Poaceae	*Brachiaria purpurascens*	*Thrips palmi* ♀♀, D
	Echinochloa colona	*Arorathrips spiniceps* ♂ ♂, ♀♀, flowers *Thrips palmi* ♂ ♂, ♀♀, D
	Eleusine indica	*Thrips palmi* ♂ ♂, ♀♀, D
	Rottboellia cochenchinensis	*Thrips palmi* ♂ ♂, ♀♀, D
	Sorghum arundinaceum	*Haplothrips gowdeyi* ♀♀
	Sorghum bicolor	
	Zea mais	*Caliothrips insularis* ♀♀ *Frankliniella williamsi* ♀♀, L1, L2, D *Haplothrips gowdeyi* ♀♀ *Stomatothrips septenarius* ♀♀
Rosaceae	*Fragaria vesca*	*Frankliniella occidentalis* ♂ ♂, ♀♀ *Heliothrips haemorrhoidalis* ♀♀
	Rosa sp.	*Frankliniella breviseta* ♀♀ *Frankliniella cephalica* ♀♀, flowers *Frankliniella insularis* ♂ ♂, ♀♀, flowers *Frankliniella occidentalis* ♀♀, greenhouse *Frankliniella williamsi* ♂, ♀♀, flowers *Heliothrips haemorrhoidalis* ♀♀ *Selenothrips rubrocinctus* ♂, ♀♀, P
Rubiaceae	*Psychotria mapourioides*	*Holopothrips tenuis* (+ Cecidomiidae)
	Guettarda scabra	*Coremothrips pallidus* ♀♀, L2
Rutaceae	*Citrus aurantiifolia*	*Elixothrips brevisetis* ♀♀ *Frankliniella insularis* ♂ ♂, ♀♀, flowers *Frankliniella williamsi* ♂ ♂, ♀♀, flowers *Heliothrips haemorrhoidalis* ♀♀
	Citrus sp.	*Chaetanaphothrips leeuweni* ♀♀ *Heliothrips haemorrhoidalis* ♀♀
Scrophulariaceae	*Antirrhinum* sp.	*Frankliniella insularis* ♂, ♀♀, flowers
Solanaceae	*Capsicum annuum*	*Dinurothrips hookeri* ♀♀ *Hercinothrips femoralis* ♀♀ *Thrips palmi* ♂ ♂, ♀♀, D
	Capsicum frutescens	*Elixothrips brevisetis* ♀♀, L2
	Lycopersicum esculentum	*Ceratothrips brunneus* ♀♀ *Thrips palmi* ♂ ♂, ♀♀
	Physalis angulata	*Thrips palmi* ♂ ♂, ♀♀, L, D
	Solanum melongena	*Dinurothrips hookeri* ♀♀ *Echinothrips caribeanus* ♂ ♂, ♀♀ *Frankliniella insularis* ♂ ♂, ♀♀ *Franklinothrips vespiformis** pred mites, thrips *Neohydatothrips portoricensis* ♀♀ *Thrips palmi* ♂ ♂, ♀♀, L1,L2, D
	Solanum torvum	*Dinurothrips hookeri* ♀♀
Verbenaceae	*Citharexylum spinosum*	*Elixothrips brevisetis* ♀♀, L2
Vitaceae	*Vitis vinifera*	*Scirtothrips dorsalis* ♂, ♀♀,L1, L2, Pp *Selenothrips rubrocinctus* ♂ ♂, ♀♀, L2

seas Departments now comprises 91 species in 59 genera. Among these species 57 are recorded only from Guadeloupe, 15 are recorded only from Martinique and 19 are recorded from both islands. Such a difference between the faunal compositions is probably a direct result of the more intensive surveys performed during a longer period in Guadeloupe than in Martinique.

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Until now only 9 species of natural enemies of thrips were known from Guadeloupe and no species was known from Martinique (Delvare 1993; Kreiter & Moraes 1997; Pluot-Sigwalt et al. 2009). The inventory presented above comprises 6 species of parasitoids and 17 species of predators of thrips including insects, mites and spiders, recorded for the first time from Guadeloupe and Martinique. Most of the observations related to thrips predation in Guadeloupe and Martinique concern *Thrips palmi* whose populations are often efficiently controlled by the joint actions of several beneficial species. Likewise the outbreaks of *Gynaikothrips uzeli* are also frequently limited by *Thripastichus gentilei* together with *Montandoniola confusa*.

The plants listed in Table 1 are plants from which thrips have been collected. They are not necessarily host-plants as defined by Mound (2013) because in most cases it is not known if thrips species reproduce on them. However, this list includes plant species on which thrips populations have been noticed with—in some cases—the presence of both sexes and/or immature stages and observation of feeding damage. Most of the plants in Table 1 are of economic importance, cover plants or weeds and the presence of thrips populations can be of significant interest, for instance in the framework of integrated pest management programs.

Generally speaking, the economic importance of thrips has changed considerably since the early 2000's. Some species previously considered as major pests are now of low economic importance. This change in status is probably a consequence, at least partly, of significant reduction of the use of pesticides, which has favored beneficials and field biodiversity in general. Competition or displacement between species is also another possibility, as *H. femoralis* and *E. brevisetis* for example. But, at the same time, the incidence of other species that damage crops and ornamental plants has persisted or increased. It follows from this that improving the knowledge of the thrips species associated with natural or anthropized ecosystems is of significant interest in implementing alternative cropping systems.

Acknowledgments

We wish to acknowledge our late colleagues J. P. Bournier (CIRAD, Montpellier), J. Carayon (MNHN, Paris), C. Duverger and C. E. Dyte (British Museum of Natural History, London) for their kind collaboration in insect identification. We are grateful to G. Delvare (CIRAD, Montpellier), G. J. De Moraes (University of Sao Paulo, Piracicaba), M. Emerit (UM2, Montpellier), J. Gutièrrez (IRD, Montpellier), and S. Kreiter (SupAgro, Montpellier) for the identifications of thrips species and for providing relevant information. We thank D. Marival (INRA, Antilles-Guyane) for his contribution to plant identifications and Mirab-Balou, (Ilam University, Illam, Iran) for the information on *Asprothrips bimaculatus*.

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