

**DATA-BASIS FOR A CHECK-LIST OF ALL KNOWN DIPTERA-
SPECIES FROM THE AZORES ARCHIPELAGO
(INSECTA: DIPTERA)**

By CHRISTIAN KEHLMAIER¹

With 1 table

ABSTRACT. This paper is meant to be a grounding for all scientists who are interested in the dipterical fauna of the Azores. It does not put claim on either completeness or actuality, but is a mere compilation of data available from various literature published during this century. It is the wish of the author, that this list should subsequently develop with work that scientists will hopefully undertake in the future in this area. Hopefully, step by step all taxonomical mistakes and uncertainties will eventually be erased and the list therefore kept up to date.

RESUMO. Com este trabalho, o autor pretende estabelecer as bases para o apoio a todos os interessados no estudo dos Dípteros dos Açores. É fornecida informação compilada em literatura diversa publicada ao longo deste século sobre os Dípteros dos Açores.

¹ Author's adress: Burgweg 17, 87527 Sonthofen, Germany

INTRODUCTION

The list contains information about the occurrence and distribution of the different species of Diptera mentioned in the literature. The different islands are referred to by the following abbreviations:

Cor: Corvo	Ter: Terceira	SMA: Santa Maria
Flo: Flores	SJo: São Jorge	SMi: São Miguel
		Gra: Graciosa
		Pic: Pico
		Fai: Faial

If there is no distribution given, the mere occurrence of a species is indicated by a „x“. Endemic taxa are referred to by a „•“ in front of their name.

Of fundamental importance in the list, are the works of SÈGUY (1936) and FREY (1945). FREY states that SÈGUY was able to derive 149 species of Diptera out of approximately 2.500 individual flies collected by CHOPARD and MEQIGNON in 1930. Between May and July 1938, RICHARD FREY himself undertook an expedition to all islands, except Santa Maria, together with RAGNAR STORÅ and CARL CEDERCREUTZ. During their journey, they caught 24.656 insects. The animals were determined with the help of other specialists. In his work about the results of his journey concerning the Diptera, FREY writes:

„Durch die von uns unternommenen zahlreichen Exkursionen auf die Meeresstrände wie auch in die höher gelegenen und weniger kultivierten Gebiete auf so gut wie allen azorischen Inseln ist zum mindesten hinsichtlich der Dipteren eine zwar nicht artenreiche, aber doch in mancher Beziehung eigentümliche Fauna entdeckt worden...“ (FREY 1945: 5)

[Through our excursions to the coastal areas as well as to the higher and less cultivated regions of almost all islands, a not (less) diverse but in some aspects obscure dipterical fauna could be discovered...]

Apart from his own results, FREY incorporated into his work all known information up to that time. Unfortunately, FREY does not state his total species number. SOUSA (1985) gives a number of approximately 1.400 species of insects for the Azores, out of which approximately 415 belong to the order Diptera. He then presumes that some other 350 species of insects, out of less thoroughly worked on orders, could add up to it in the future. The percentage of endemic taxa of insects he figures at 9 %, out of which 33 % belong to the order Diptera.

„A ordem que apresenta maior percentagem de espécies endémicas é a Diptera com 33 %...“ (SOUSA 1985: 5)

An excellent survey over the entomological literature about the Azores is given by the works of VIERA & BORGES (1993) and BORGES & VIEIRA (1994) respectively. In their second part of "The Entomological Bibliography of the Azores", they list 57 literature titles concerning Diptera with a mostly taxonomical background. Out of this list, 36 papers were taken into consideration for this work. Three works which are not included in BORGES & VIEIRA (1994), but deal with Azorean Diptera, were incorporated as well. All used literature is listed at the end of this paper.

Flies which only were determined up to the genus level, were not found to be of any consideration when putting together this list. For example in FREY (1945): *Tipula sp. 1*; *Tipula sp. 2* or in the family *Itonididae*, where nine species out of seven genera had to be left aside.

RESULTS

In the evaluation presented here, some 421 species and sub-species out of 227 genera and 51 families are listed. The total figure of endemic species and sub-species adds up to 51, that is 12,1 %. In addition to this, there are five species where the status of endemism is not clearly defined in the literature.

Table 1 shows the distribution of the species and sub-species within the three sub-orders of the Diptera.

TABLE 1 - Number of Diptera species/sub-species of the Azores Archipelago.

Suborder	Family	Genus	Species/Sub-Species	Distribution
Nematocera				
	Phryneidae			
	(Rhyphidae,	Rhyphus		
	Anisopodidae)		fenestralis	x (SMi)
			cinetus	x (SMi, Ter, Flo)
	Scatopsidae			
		Scatopse		
			fuscipes	x (SMi, Pic, Fai, Flo)
	Sciophilidae			
		Leia		
			faseiata	x (SMi, SJo, Flo)
			arsona	x (SMi, SJo, Fai, Flo)
	Fungivoridae			
	(Mycetophilidae)	Exechia		
			• atlantis	x (SMi)
			• brinckiana	x (SMi)
		Rhymosia		

Suborder	Family	Genus	Species/Sub-Species	Distribution
			• azorensis	x (SMi)
		Allodia	variabilis	x (SMi, Ter, Fai)
		Brevicornu	griseicolle	x (SMi, Ter)
		Trichonta	• floresiana	x (Flo)
		Phronia	tarsata	x (SMi, Ter)
		Mycetophila	interrupta	x (SMi, Ter, SJo)
			lineola	x (SMi, SJo, Ter, Pic, Flo)
			continens	x (SMi, Ter)
			• atlantica	x (SMi, Ter, SJo)
			spectabilis	x (SMi)
			• storai	x (SMi, Ter)
			britannica	x (SMi, Ter, SJo, Pic)
	Zelmiridae			
	(Platyridae,	Cerotelion		
	Ceroplastidae)		lineatus	x (SMi, SJo)
		Orfelia	(= Platyura) nigricornis	x (Ter, SJo, Pic, Fai)
	Macroceridae			
		Macrocera	• azorica	x (SMi, SJo, Pic, Fai)
			var. immaculipennis	x (Fai)
	Lycoriidae			
	(Sciariidae)	Bradysia	brunnipes (= Neosciara rufipodex)	x (SMi, Ter, SJo, Flo)
			(= N. rufip. var. elysiaca)	
			(= Lycoriella) nanella	x (SMi, SJo, Pic, Fai, Flo, Cor)
			(= Lycoriella) neglecta	x (Ter, Flo)
			(= Neosciara) truncorum	x (Flo)
			(= Lycoriella) vagans	x (SMi, SJo, Pic)
		Corynoptera	• (= Lycoriella) campanulata	x (SMi, Ter, Flo)
			(= Lycoriella) globiformis	x (SMi, Ter, SJo, Fai)
		Cratyna	• (= Scythopochroa) viridiventris	x (SMi, SJo, Pic)
		Scatopsciara	vivida	x
		Sciarobezzia	(= Neosciara) vittata	x (Flo)
	Ittonididae			
	(Cecidomyiidae)	Lestremia	cinerea	x (SMi, Ter, Flo)
		Micromyia	lucorum	x (SMi, SJo, Fai, Flo)
		Campylomyza	flavipes	x (SMi)
			pallipes	x (SMi)
		Dasyneura	pyri	x

Suborder	Family	Genus	Species/Sub-Species	Distribution
	Petauristidae			
	(Trichoceridae)	Trichocera	maculipennis	x (SMi)
	Psychodidae	Psychoda	phalaenoides	x (SMi)
			cinerea	x (SMi, SMa, Fai, Flo)
			severini	x (SMi, Fai, Ter)
			alternata	x (SMi, Fai)
			albipennis	x (SMi, Fai, Pic)
			humeralis	x (SMi)
		Telmatoscopus	meridionalis	x (SMi)
			ustulatus	x (SMi)
	Culicidae	Anopheles	maculipennis	x (SMi)
			superpictus	x (SMi)
		Culiseta		
		(Theobaldia)	longiareolata	x (SMi, Ter, Fai, Flo)
			alascaensis	x (SMi)
			annulata	x (SMi, Ter, SJo, Fai)
			subochrea	x (SMi)
			• atlantica	x (SMi, Pic)
		Aedes	fasciatus	x (SMi)
			caspius	x (SMi)
			detritus	x (SMi)
		Culex	pipiens (= azoriensis)	x (SMi, Ter, SJo, Fai, Flo)
			molestus	x (SMi)
	Dixidae	Dixa	laeta	x (Ter, Flo)
	Heleidae			
	(Ceratoponidae)	Culicoides	obsoletus	x (SMi, Ter, SJo, Pic, Fai)
		Forcipomyia	indecora	x (SMi, Fai)
			bipunctata	x (SMi, Ter, SJo, Pic, Fai)
			brevicubitus	x (SJo)
		Atrichopogon	minutus	x (SMi, Pic, Flo)
		Dasyhelea	dufourii	x (SMi, Ter, SJo, Pic, Fai, Flo)
			flavoscutellata	x (Flo)
			versicolor	x (Flo)
		Isohelea	• griseipennis	x (SMi, Ter, SJo, Pic)
	Chironomidae			
	(Tendipedidae)	Pentaneura	nubila	x
			cingulata	x (SMi)

Suborder	Family	Genus	Species/Sub-Species	Distribution
		Diamesa	alata	x (SMi, Ter, Fai)
		Metriocnemus	fuscipes	x (SMi, SJo, Pic, Fai, Flo)
			stylatus	x (SMi, Ter, Fai, Flo)
			gracei	x (SJo)
		Cricotopus	sylvestris	x (SMi)
			vitripennis	x (SMi, SJo, Pic, Fai, Flo)
			halophilus	x (SJo, Fai, Flo)
		Trichocladus	• iridipennis	x (SMi, Ter, SJo, Fai, Flo)
		Cardiocladius	freyi	x (SMi, Ter, SJo, Flo)
		Chaetocladius	melaleucus	x (SMi)
		Psectrocladius	• sordidellus var. insularis	x (SMi, Ter, SJo, Fai, Flo, Cor)
			stratiotis	x (SMi, Ter, Flo)
		Orthocladus	• rivularis	x (SMi, Flo)
			melaleucus	x (SMi, Ter, Flo, Cor)
		Nanocladius	atlanticus	x (SMi, Pic)
		Limnophyes	minimus	x (SMi, Ter, Pic, Fai, Flo)
		Smittia	aterrima	x (SMi)
			brevifurcata	x (SJo, Pic)
			stercoraria	x (SMi, Ter, SJo, Pic, Fai, Flo)
			• azorica	x (SMi, Ter, Gra, Pic, SJo, Fai, Flo, Cor)
		Thienemanniella	clavicornis	x (SMi)
		Thalassomyia	frauenfeldi	x (SMi, Ter, SJo, Pic, Fai, Flo, Cor)
		Chironomus	dorsalis	x (SMi, Ter, SJo, Fai, Flo)
			cingulatus var. venustus	x (SMi, Ter, Gra, SJo)
			thummi	x (SMi, Fai, Pic)
		Polypedilum	nubeculosum	x (SMi, Pic)
		Micropsectra	subviridis	x (SMi, Ter, SJo, Pic, Fai, Flo, Cor)
			freyi	x (SJo)
		Macropelopia	nebulosa	x (SMi, Ter, SJo, Fai, Flo)
		Ablabesmyia	nubila	x (SMi, SJo, Pic, Fai, Flo)
			nemorum	x (SMi, Ter, SJo, Flo)
		Eukiefferiella	atlantica	x (SMi, Ter, Pic, Fai, Flo, Cor)
	Melusinidae			
	(Simuliidae)	Simulium		

Suborder	Family	Genus	Species/Sub-Species	Distribution
			• azorense	x (SMi, SMa, Ter, SJo, Fai, Flo)
	Tipulidae			
		Tipula		
			oleracea	x
			• macaronesica (= stenoptera)	x (SJo, Pic)
		Limonia		
			vicina	x (SMi, Ter, SJo, Pic, Fai, Flo)
			michaeli	x (SMi, Ter, Gra, SJo, Pic, Fai, Flo)
			hamata	x (SMi)
			• azorica	x (SMi, Fai)
			atlantica	x (SMi, SJo, Pic)
			unicolor	x (SMi, Pic, Fai, Flo)
			• freyana	x (SMi, Fai, Flo)
		Erioptera		
			pilipes	x (SMi, Ter, Gra, Flo)
			hybrida	x (SMi, Ter, Flo)
	Limoniidae (Limnobiidae)	Rhipidia		
			maculata	x (SMi)
		Limnobia		
			trivittata	x (SMi)
		Discobola		
			annulata	x (SMi)
Brachycera (Orthorhapha)				
	Omphralidae (Scenopinidae)	Scenopius		
			scutellatus	x (SMi)
			var. nigrosutellatus	x (SMi, SJo)
			fenestralis	x (SMi)
	Tabanidae			
		Chrysops		
			coecutiens	x (Ter)
			italica	x (SMi)
	Asilidae			
		Machimus		
			caliginosus	x (SMi)
			pyragra	x (SMi, Ter)
		Pycnopogon		
			fasciculatus	x (SMi)
	Bombyliidae			
		Anastoechus		
			hyrcanus	x (SMi)
		Thyridanthrax		
			perspicillaris	x (SMi)
		Exoprosopa		
			rivularis	x (SMi)
	Empididae			
		Empis		
			aestiva	x (SMi)
			vitripennis	x (SMi)
		Rhamphomyia		
			gibba	x (SMi)

Suborder	Family	Genus	Species/Sub-Species	Distribution
		Parathalassius		
			blasigi	x (Ter)
		Clinocera		
			• (= Atalanta) sexmaculata	x (Ter, SJo)
			• (= Atalanta) storai	x (Flo)
			• azorica	x (Ter, SJo, Fai, Flo, Cor)
			(= Atalanta) stagnalis	x (SMi, Fai, Flo)
			•? (= Atalanta) dahli	x (Fai)
			•? rabacali	x
		Tachydromia		
			minuta (= obscuripes?)	x (SMi, Ter)
		Drapetis		
			aenescens	x (SMi, Ter, Fai, Gra, Cor)
			assimilis	x (SMi)
			disparilis	x (Ter)
		Stilpon		
			nubila	x (SMi, Pic, Flo)
		Chersodromia		
			gratiosa	x (SMi)
	Dolichopodidae			
		Psilopus		
			glaucescens	x (SMi, Fai, Pic)
		Campicnemus		
			curvipes	x (SMi, Ter, SJo, Pic, Flo, Cor)
			• mirabilis	x (SMi, Ter)
		Chrysotus		
			• azoricus	x (SMi, Ter, SJo, Pic, Fai, Flo, Cor)
			• var. subciliatus	x (Flo)
			• vulcanicola	x (SMi, Ter, SJo, Pic, Fai, Flo)
			• polychaetus	x (SJo, Flo)
			• var. minor	x (Flo)
			• var. intermedius	x (Ter, Pic)
			xanthoprasius	x (SMi, Ter, SJo, Pic, Fai, Flo)
		Syntormon		
			pallipes	x (Ter, SJo)
		Medetera		
			truncorum	x (SMi, Ter, Flo)
		Aphrosylus		
			• argyreatus	x (SMi, Ter, Fai, Flo, Cor)
			• calcarator	x (SMi, Ter, Gra, SJo, Pic, Fai, Flo, Cor)
		Hydrophorus		
			praecox	x (SMi, Ter, Flo)
		Dolichopus		
			signifer	x (Ter, Flo, Cor)
			• anacrostichus	x (SMi, Ter, SJo)
Brachycera (Cyclorrhapha)				
	Lonchopidae (=Musidoridae)	Lonchoptera		
			furcata var. rivalis	x (SMi, Ter, Gra, SJo, Pic, Fai, Flo)
			var. lacustris	x (SMi, Ter, Flo)
	Phoridae			
		Megaselia		

Suborder	Family	Genus	Species/Sub-Species	Distribution
			pleuralis	x (SMi, Pic, Fai)
			rufipes	x (SMi, Ter, SJo, Pic, Fai, Flo)
			marina	x (Flo)
			ardua	x (SMi, Ter, SJo, Pic, Fai, Flo, Cor)
			basispinata	x (SMi, Ter, Pic, Fai, Flo)
			meconicera	x (Pic)
			albidohalteris	x (SMi, Ter, SJo, Pic, Fai, Flo)
			halterata	x (Ter)
			brevior	x (SMi, Pic, Fai)
		Diploneura		
			funebriis	x (Flo)
			cornuta	x (SMi, Fai, Flo)
		Conicera		
			atra	x (Ter, SJo, Fai)
			sobria	x (SMi, SJo, Pic, Flo)
		Metopina		
			hesselhausi	x (Fai, Flo)
	Syrphidae	Chrysotoxum		
			intermedium	x (SMi)
		Xylota		
			segnis	x (SMi, Ter, Fai)
		Syritta		
			pipiens	x (SMi, Ter, SJo, Pic, Fai, Flo)
		Eumerus		
			amoenus	x (SMi)
			strigatus	x (Cor)
		Myathropa		
			florea s. lat.	x (SMi)
			florea var. flavofemorata	x (SMi)
			• var. nigrolanata	x (Flo)
			var. nigrofasciata	x (SMi, Ter, SJo)
		Eristalinus		
			aeneus	x (SMi, Flo)
		Eristalis		
			tenax s. lat.	x (SMi, Ter)
			var. hortorum	x (SMi, Ter, SJo, Fai, Flo)
			tenax s. str.	x (SMi, Ter, Pic, Flo)
		Eoseristalis		
			arbustorum	x (SMi, Ter, Flo)
		Pyrophaena		
			rosarum	x (Ter)
		Platycheirus		
			albimanus	x (SMi)
		Melanostoma		
			mellinum	x (SMi)
		Xanthandrus		
			• azorensis	x (SMi, SJo, Pic, Fai)
		Meliscaeva		
			auricollis	x (SMi, Ter, SJo, Pic, Flo)
		Eupeodes		
			(= Metasyrphus) corollae	
		Episyrphus		

Suborder	Family	Genus	Species/Sub-Species	Distribution
			(= <i>Syrphus</i>) <i>balteatus</i>	x (SMi, Ter, SJo, Pic, Fai, Flo)
		<i>Sphaerophoria</i>		
			<i>scripta</i> s. lat.	x (SMi, Ter, Gra, SJo, Pic, Fai, Flo, Cor)
			var. <i>nigricoxa</i>	x (SMi)
			<i>scripta</i> s. str.	x (SMi)
			• <i>nigra</i>	x (SMi, Ter, SJo, Pic, Fai, Flo)
			<i>philanthus</i>	x (SMi)
		<i>Baccha</i>		
			<i>elongata</i>	x (SMi)
	Trypetidae			
		<i>Ceratitis</i>		
			<i>capitata</i>	x (SMi, Flo)
		<i>Paroxyna</i>		
			<i>tessellata</i>	x (Gra, Pic, Fai)
		<i>Dioxya</i>		
			<i>sororcula</i>	x (SJo, Pic)
		<i>Sphenella</i>		
			<i>marginata</i>	x (SMi)
		<i>Ensina</i>		
			• <i>azorica</i>	x (SMi, Ter, Gra, SJo, Pic, Flo, Cor)
		<i>Camaromyia</i>		
			<i>bullans</i>	x (Fai)
		<i>Trupanae</i>		
			<i>stellata</i>	x (SMi)
	Psilidae			
		<i>Tetrapsila</i>		
			• ? <i>longipennis</i>	x (SMi)
	Sepsidae			
		<i>Sepsis</i>		
			<i>lateralis</i> var. <i>impunctata</i>	x (SMi, Ter, SJo, Pic, Fai, Flo)
			var. <i>fragilis</i>	x (SMi, Ter, SJo, Pic, Fai, Flo)
			• ? <i>mequignoni</i>	x (SMi)
			<i>tridens</i>	x (SMi, Ter, SJo, Pic, Fai, Flo)
			<i>thoracica</i>	x (SMi, Ter, Gra, SJo, Pic, Fai, Flo, Cor)
			• ? <i>nephodes</i>	x (Ter)
			<i>biflexuosa</i>	x (SMi, Fai)
			<i>neocynipsea</i>	x (SMi, Ter, SJo, Pic, Fai)
	Piophilidae			
		<i>Piophila</i>		
			<i>casei</i>	x (SMi, SJo, Pic)
			<i>nigrimana</i>	x (SMi, Ter, SJo, Fai, Flo)
		<i>Protopiophila</i>		
			<i>contecta</i>	x (SMi)
	Coelopidae			
		<i>Malacomyia</i>		
			<i>sciomyzina</i>	x (SMi, Ter, SJo, Fai, Flo)
	Lauxaniidae			
	(Sapromyzidae)	<i>Minettia</i>		
			<i>fasciata</i>	x (SMi)
	Helomyzidae			
		<i>Suillia</i>		
			<i>variegata</i>	x (SMi, SJo, Flo)
	Lonchaeidae			

Suborder	Family	Genus	Species/Sub-Species	Distribution
		Lonchaea		
			lucidiventris	x (SMi)
		Spermatolonchaea		
			flavidipennis	x (SMi, SJo)
	Chamaemyiidae			
	(Ochthiphilidae)	Chamaemyia		
			polystigma	x (SMi, Ter, SJo, Pic, Fai, Flo, Cor)
			geniculata	x (Ter, Pic, Flo)
	Chloropidae			
		Hippelates		
			flavipes	x (SMi)
		Elachiptera		
			megaspis	x (SMi, Ter, SJo, Flo)
			bimaculata	x (SMi, Ter, SJo, Pic, Fai, Flo)
			pubescens	x (SMi, Ter, SJo, Fai)
		Tricimba		
			humeralis	x (SMi, Ter)
		Calamoncosis		
			minima	x (Ter, SJo, Fai)
		Oscinella		
			frit	x (Flo, Cor)
		Macrothorax		
			ruficornis	x (Ter)
		Haplegis		
			• truncaticornis	x (SJo)
		Eutropha		
			fulvifrons	x (SMi, Ter, Fai)
		Thaumatomyia		
			notata	x (SMi, Ter, SJo, Pic, Fai, Flo, Cor)
	Milichidae			
		Madiza		
			glabra	x (SMi, Ter, Gra, Pic, Fai)
		Desmometopa		
			nigrum	x (SMi, SJo, Pic, Fai, Flo)
		Leptometopa		
			latepis	x (Ter, Pic, Flo)
		Meoneura		
			obscorella	x (Flo)
	Agromyzidae			
		Cerodonta		
			• bistrigata	x (Ter, SJo, Pic, Fai, Cor)
			denticornis	x (SMi, Ter, Gra, SJo, Pic, Fai, Flo)
		Liriomyza		
			nigrifrons	x (SMi, Ter)
			umbilici (= subartemisicola)	x (SMi, Ter, SJo, Pic, Fai, Flo)
			• triron	x (SMi)
			solani	x (SJo)
		Phytoliriomyza		
			arctica	x (SMi)
			perpusilla	x (SMi, Ter, SJo, Fai, Flo)
		Phytomyza		
			atricornis	x (SMi, Ter, SJo, Pic, Fai, Flo, Cor)
			plantaginis	x (SMi, Ter, Gra, SJo, Pic, Fai, Flo, Cor)

Suborder	Family	Genus	Species/Sub-Species	Distribution
			tetrasticha	x (SMi)
			ranunculi var. flava	x (SJo)
			tenella	x (Pic)
			obscura	x (SMi, Ter, SJo, Fai, Flo)
		Dizygomyza		
			morosa	x (SMi, Ter, SJo, Pic, Flo)
		Agromyza		
			salicifolii	x (SMi, Ter, SJo, Pic)
		Melanagromyza		
			lappae	x (SMi, Ter, Pic)
		Pseudonapomyza		
			atra	x (SMi)
		Napomyza		
			lateralis	x (SJo, Flo)
	Drosophilidae	Phortica		
			variegata	x (SMi)
		Drosophila		
			immigrans	x (SMi, Ter, Pic)
			forcipata (= fenestrarum)	x (SMi, Ter, SJo, Fai, Flo)
			melanogaster	x (SMi, Ter, SJo, Fai, Flo)
			phalerata	x (SMi)
			busckii	x (SMi, Ter, Flo)
			repleta	x (Ter, SJo, Pic, Fai, Flo)
			funebri	x (SMi, Ter, SJo, Flo)
			simulans	x (SMi, Ter)
			subobscura (= obscura)	x (SMi, Ter, Pic, Flo)
			littoralis	x (SMi)
			hydei	
		Scaptomyzella		
			incana	x (SMi)
		Scaptomyza		
			gracilis	x (Ter)
			pallida (= graminum)	x (SMi, Ter, SJo, Pic, Fai, Flo)
			(= Scaptomyzella) flaveola (= flava)	x (SMi, SJo, Flo)
			• (= Scaptomyzella) impunctata	x (SMi, Ter, SJo, Fai, Pic, Flo)
			(= adusta var. impunctata)	
		Borborus		
			ater	x (SMi, Ter, Gra, SJo, Pic, Fai, Flo, Cor)
		Borborillus		
			marmoratus	x (SMi, Ter, Gra, Pic, Fai, Flo)
			niveipennis	x (SMi, Ter, Fai)
		Compromyza		
			equina	x (SMi, Ter, Pic, Fai, Flo)
		Leptocera		
			varicornis	x (SMi, Ter, Gra, SJo)
			fuscipennis	x (Ter)
			• atrolimosa	x (SMi, Ter, SJo, Flo)
			• var. abnormalis	x (SJo)
			octisetosa	x (SMi)
			(= Paracollinella) curvinervis	x (SMi, Ter, Gra, SJo, Pic, Fai, Flo, Cor)
		Paracollinella		
			coenosa	x (SMi, Flo)

Suborder	Family	Genus	Species/Sub-Species	Distribution
		Spinotarsella		
			humida	x (SMi, Ter, Gra, SJo)
		Opacifrons		
			costatus (= coxata)	x (SMi, Ter, SJo, Pic, Fai, Flo, Cor)
		Thoracochaeta		
			brachystoma	x (SMi, Ter, SJo, Pic, Fai, Flo)
		Limosina		
			plumosula	x (SMi, Ter, SJo, Fai, Flo)
			ciliata	x (SJo)
			fungicola (= exigua)	x (SMi, Ter, SJo, Pic, Fai, Flo, Cor)
			mirabilis	x (SMi, Fai, Flo)
			bifrons	x (SMi, Fai, Flo)
			crassimana (= clunipes)	x (SMi, Ter, SJo, Pic, Fai, Flo, Cor)
			penetralis	x (SJo)
			brevicostata	x (SMi, Ter, SJo, Pic, Flo, Cor)
			heteroneura	x (SMi, Ter, SJo, Pic, Fai, Flo, Cor)
			moesta	x (SMi, Cor)
			pectinifera	x (SMi)
		Trachypella		
			leucoptera	x (SMi, Fai, Flo)
			atoma	x (SJo, Fai)
		Elachisoma		
			aterrima	x (SMi, SJo, Fai, Flo, Cor)
		Coproica		
			ferruginata	x (SMi, Ter, SJo, Pic, Fai, Flo)
			hirtula	x (SMi, Ter)
	Sphaeroceridae	Sphaerocera		
			curvipes	x (SMi)
	Ephydriidae	Notiphila		
			cinerea	x (SMi)
		Hecamede		
			albicans	x (SMi, Ter, Gra, SJo, Pic, Fai, Flo, Cor)
		Mosillus		
			albipennis	x (SMi)
			subsultans	x (SMi)
		Atissa		
			pygmaea	x (SMi, Ter, Pic, Fai, Flo)
		Ilythea		
			nebulosa	x (SJo)
		Discocerina		
			obscura	x (SMi, Ter, SJo, Fai, Flo, Cor)
		Diclasioipa		
			omonvillea	x (SMi, Gra, SJo, Pic)
		Ochtera		
			setigera	x (SMi)
			mantis	x (SMi)
		Philygria		
			• cedercreutzii	x (Ter, Flo)
		Nostima		
			picta	x (SMi, Ter, Gra, Pic, Fai)
		Hydrina		
			guttata	x (SMi, Ter, SJo, Pic, Fai, Flo)

Suborder	Family	Genus	Species/Sub-Species	Distribution
			• agostinhoi	x (SMi, Pic, Fai, Flo)
			• var. pseudopelina	x (Flo)
		Hydrellia		
			griseola	x (SMi, Ter, Gra, SJo, Pic, Fai, Flo, Cor)
			modesta	x (SJo, Fai, Flo)
			incana	x (SJo, Pic, Fai, Flo)
			• amauropoda	x (SJo, Fai)
		Ephydra		
			macellaria	x (SMi)
			riparia	x (Ter)
		Caenia		
			palustris	x (SMi)
		Scatella		
			quadrata	x (SMi)
			paludum	x (SMi, Ter)
			stagnalis	x (Flo)
			tenuicosta	x (SMi, Ter, Gra, SJo, Pic, Fai, Flo, Cor)
		Scatophila		
			despecta	x (SMi, Gra)
		Brachydeutera		
			argentata	x (SMi)
		Napaea		
			fossarum	x (SMi, Ter)
			coarctata	x (SMi, Ter, Gra, SJo, Fai, Flo, Cor)
			littoralis	x (SMi, Ter, Fai)
	Canaceidae			
		Canace		
			nasica	x (SMi, Ter, Gra, SJo, Pic, Fai, Flo, Cor)
	Cordyluridae			
	(Scatophagidae)	Scatophaga		
			stercoraria	x (SMi, Ter, Gra, SJo, Pic, Fai, Flo)
			litorea	x (SMi)
	Muscidae			
	incl. Anthomyiid	Schoenomyza		
			• litorella var. major	x (Pic)
		Coenosia		
			humilis	x (SMi)
			tricolor	x (Ter, Pic, Fai)
			• freyi	x (Pic)
			• var. semicandida	x (SMi)
		Orchisia		
			costata	x (SMi, Fai)
				x (SMi, Ter, SJo, Pic, Flo, Cor)
		Atherigona		
			quadripunctata	x (SMi, Ter, SJo, Pic)
		Fucellia		
			intermedia	x (SMi, Ter, Gra, SJo, Pic, Fai, Flo)
		Anthomyia		
			pluvialis	x (SMi)
		Hylemyia		
			platura	x (SMi, Ter, Gra, SJo, Pic, Fai, Flo, Cor)
			radicum	x (SMi, SJo, Fai)
			brassicae	x (SMi)
			cinerella	x (SMi, Ter, SJo, Pic, Fai, Flo, Cor)

Suborder	Family	Genus	Species/Sub-Species	Distribution
		Lispa		
			nana	x (SMi, Ter, Fai, Flo)
		Helina		
			uliginosa	x (SMi, SJo, Pic)
		Hebecnema		
			fumosa	x (SMi, Ter, SJo, Pic, Fai, Flo)
			umbratica	x (SMi)
		Fannia		
			canicularis	x (SMi, Ter, SJo, Pic, Fai, Flo)
			scalaris	x (SMi, SJo, Pic)
			incisurata	x (Flo)
			sociella	x (SMi)
		Euryomma		
			peregrinum	x (SMi, Ter, SJo, Fai, Flo)
		Ophyra		
			leucostoma	x (SMi, Flo)
		Hydrotaea		
			dentipes	x (SMi, Ter, SJo, Fai, Flo)
			occulta	x (SMi, Pic)
		Phaonia		
			testacea	x (SMi, Ter, SJo, Pic, Fai, Flo)
			trimaculata	x (SMi)
			pallida	x (SMi)
		Pseudophaonia		
			albolineata	x (SMi)
		Muscina		
			stabulans	x (SMi, Ter, SJo, Fai, Flo, Cor)
			assimilis	x (SMi)
			pabulorum	x (SMi, SJo)
		Dasyphora		
			cyanella	x (SMi, Ter, Gra, SJo, Pic, Fai, Flo)
		Musca		
			domestica	x (SMi, Ter, Gra, SJo, Pic, Fai, Flo, Cor)
			humilis	x (SMi, Ter)
			vitripennis	x (SMi, Ter, Gra, SJo, Pic, Fai)
		Stomoxys		
			calcitrans	x (SMi, Ter, Gra, SJo, Pic, Fai, Flo, Cor)
		Haematobia		
			irritans	x
	Hippoboscidae			
		Hippobosca		
			equina	x (SMi, Ter, SJo, Pic, Fai, Flo)
	Calliphoridae			
		Lucilia		
			richardsi	x
	Tachinidae			
	(=Larvaevoridae)	Calliphora		
			erythrocephala	x (SMi, Ter, SJo, Pic, Flo)
			vomitaria	x (SMi, SJo, Pic, Flo)
		Chrysomia		
			albiceps	x (SMi)
		Lucilia		
			sericata	x (SMi, Ter, Gra, SJo, Pic, Fai, Flo)
		Pollenia		

Suborder	Family	Genus	Species/Sub-Species	Distribution
			rudis	x (SMi, Ter, Gra, SJo, Pic, Fai, Flo)
			intermedia	x (SMi)
		Stomatorrhina		
			lunata	x (SMi, Ter, Gra, SJo, Pic, Fai)
		Rhynchomyia		
			impavida	x (SMi)
		Rhinia		
			apicalis	x (Ter)
		Parallophora		
			pusilla	x (SMi, Gra, Flo)
		Melanophora		
			roralis	x (SMi, Ter, Fai)
		Leucostoma		
			simplex	x (SMi, Fai)
		Ravinia		
			striata	x (SMi)
		Sarcophaga		
			haemorrhoidalis	x (SMi, Ter, SJo, Pic, Fai, Flo, Cor)
			barbata	x (SJo)
			tuberosa	x (SMi, Ter, Fai)
			surcoufi	x (Gra)
			uncicurva	x (Gra)
			maculata	x (SMi, Ter, Fai)
		Gonia		
			bimaculata	x (SMi)
		Cyphocera		
			argyrocephala	x (SMi)
		Echinomyia		
			fera	x (SMi)
	Otitidae			
		Euxesta		
			nitidiventris	x (SMi, SJo, Flo)
	Trixoscelidae			
		Trixoscelis		
			• proximus	x (SMi)
			puncticornis	x (SMi)
	Chyromyidae			
		Aphaniosoma		
			approximatum	x (SJo, Cor)
			• var. obscuratum	x (Ter)
			semiconsors	x (SMi, Ter, SJo, Fai, Flo)
		Chyromyia		
			flaava	x (SMi, Flo)
			oppidana	x (Fai)
	Tethinidae			
		Tethina		
			albosetulosa	x (Ter, Fai)
		Rhiconessa		
			grisea	x (Ter, Fai)
			longirostris	x (SMi)
			strobliana	x (SMi)
			pallipes	x (Pic, Fai, Flo, Cor)

LITERATURE

ANDERSSON, H.:

1960. Chloropidae (Diptera, Cyclorrhapha) from the Azores.- From: Boletim do Museu Municipal do Funchal No. XIII (36): 97, Funchal.

BAEZ, M.:

1982. Estudio biogeográfico de la superfamilia Muscoidea en la Macaronesia, con especial referencia a las islas Canarias (Insecta, Diptera).- From: Boletim da Sociedade Portuguesa de Entomologia No. 1 (7) (Supl. A): 257 - 273, Oeiras.

BEYER, E.:

1960. Phoridae (Diptera, Cyclorrhapha) from the Azores and Madeira. From: Boletim do Museu Municipal do Funchal No. XIII: 95, Funchal.

BORGES, P. A. V. & VIEIRA, V.:

1994. The Entomological Bibliography of the Azores. II. The Taxa.- From: Boletim Museu Municipal do Funchal No. 46: 5 - 75, Funchal.

CAPELA, R. A.:

- 1979a. Présence des caractères autogène et sténogame chez *Culiseta (Allotheobaldia) longiareolata* (MACQUART, 1838) (Diptera: Culicidae).- From: Arquivos do Museu Bocage No. 7 (41), 6 pp.
- 1979b. Contribution à l'étude des moustiques (Diptera: Culicidae) de S. Miguel - Açores et Madeira sur la présence de *Culex (Culex) molestus*, FORSKAL, 1775.- From: Arquivos do Museu Bocage No. 7 (42), 5pp.

CARLSSON, G.:

1963. Black Flies, Simuliidae (Diptera, Nematocera) from Madeira and the Azores.-From: Boletim do Museu Municipal do Funchal No. XVII: 85-94. Funchal.

CARNEIRO, M. C.:

1982. Pragas das culturas na ilha de S. Miguel.- From: Boletim da Sociedade Portuguesa da Entomologia No. 1 (7) (Supl. A): 7 - 33, Oeiras.

CARVALHO, G. F. & GUEDES, J.:

1977. Ecologia e Métodos de Combate à „horn-fly“, *Haematobia (Lyperosia) irritans* L. (Diptera, Muscidae).- From: Relatórios e Comunicações do Laboratório de Ecologia Aplicada do Instituto Universitário dos Açores, 3: 1 - 20.

CHANDLER, P. & RIBEIRO, E.:

1995. The Sciaroidae (Diptera) (Excluding Sciaridae) of the Atlantic Islands (Canary Islands, Madeira and the Azores).- Boletim do Museu Municipal do Funchal, Supl. No. 3, 170

pp, Funchal.

CLASTRIER, J.:

1967. Cératopogonidés des îles Açores (Diptera, Nematocera).- From: Boletim do Museu Municipal do Funchal No. XXI: 5-7. Funchal.

CROSSKEY, R. W.:

1987. The blackflies of the Azores Arquipélago (Diptera: Simuliidae).- From: Entomologist's Gazette Vol. 37 (2): 101 - 115.

DAHL, C.:

- 1960a. Musidoridae (Lonchopteridae) (Diptera, Cyclorrhapha) from the Azores.- From: Boletim do Museu Municipal do Funchal No. XIII: 96, Funchal.

DAHL, C.:

- 1960b. Dolichopodidae (Diptera, Brachycera) from the Azores and Madeira.- From: Boletim do Museu Municipal do Funchal No. XIII: 108 - 117, Funchal.

FREEMAN, P.:

1959. Chironomidae (Diptera, Nematocera) from the Azores and Madeira.- From: Boletim do Museu Municipal do Funchal No. XII: 5-15. Funchal.

FREY, R.:

1945. Tiergeographische Studien über die Dipterenfauna der Azoren.- Commentat. biol. 8 (10), 114 pp, Helsingfors.

GOMES, A.:

1982. Notícia sobre a Sirfido-fauna do Arquipélago dos Açores (Diptera, Syrphidae).- From: Boletim da Sociedade Portuguesa de Entomologia No. 1 (7) (Supl. A): 293 - 299, Oeira.

GUIMARÃES, J. A. M.:

1982. Da fauna acarológica e entomológica associada a produtos armazenados nos Açores.- From: Boletim da Sociedade Portuguesa de Entomologia No. 1 (7) (Supl. A): 53 - 70, Oeira.

HACKMAN, W.:

1960. Coelopidae, Drosophilidae, Sphaeroceridae and Scatophagidae (Diptera, Cyclorrhapha) from the Azores and Madeira.- From: Boletim do Museu Municipal do Funchal No. XIII: 101 - 107, Funchal.

MANNHEIMS, B.:

1962. *Tipula stenoptera* n. spec. von den Azoren.- From: Notulae Entomologicae No. 42: 128 - 129.

NIELSEN, B. O.:

1964. Psychodidae (Diptera) from the Azores and Madeira.- From: Boletim do Museu Municipal do Funchal No. XVIII: 103-111, Funchal.

NIELSEN, P.:

1961. Tipulidae from the Azores and Madeira.- From: Societas Scientarum Fennica. Commentationes Biologicae No. 24 (2): 3 - 7.
1963. Nematocera Polyneura (Diptera) from the Azores and Madeira.- From: Boletim do Museu Municipal do Funchal No. XVII: 79-84, Funchal.

NIELSEN, P.:

1966. Mycetophalidae from Madeira and the Azores with descriptions of three species new to science.- From: Boletim do Museu Municipal do Funchal No. XX: 6 - 13, Funchal.

NULL, R.:

1985. Taxonomie und Ökologie der Tipuliden, Cyliptromiden, Limoniiden und Trichoceriden unter besonderer Berücksichtigung der Fauna Ostwestfalens (Insecta: Diptera).- From: Decheniana No. 28: 1 - 265.

RIBEIRO, H., H. C. RAMOS, R. A. CAPELA & C. A. PIRES:

1984. Contribuição para o estudo da diversidade faunística da Macaronésia.- From: Boletim da Sociedade Portuguesa de Entomologia No. 2 (13): 137 - 144.

RINGDAHL, C.:

1960. Muscidae and Tachinidae (Diptera, Cyclorrhapha) from the Azores and Madeira.- From: Buletim do Museu Municipal do Funchal No. XIII: 98 - 100, Funchal.

SOOS & PAPP:

1988. Catalogue of Palaearctic Diptera.- Budapest.

SOUSA, A. B.:

1985. Alguns dados sobre a fauna entomologica das Açores e a origem da sua fauna endémica.- From: Boletim da Sociedade Portuguesa de Entomologia No. 3 (4): 1 - 9.

SPENCER, K. A.:

1965. Agromyzidae (Diptera) from the Azores and Madeira.- From: Boletim do Museu Municipal do Funchal No. XIX: 104-110, Funchal.

THEOWALD, B. R.:

1977. Die Tipuliden von Makaronesien (Insecta, Diptera, Tipulidae). Ein systematischer und zoogeographischer Beitrag zur Kenntnis von Inselfaunen.- From: Beaufortia No. 26 (335): 153 - 205.

VAILLANT, F.:

1964. On some Empidid Flies from the Azores and Madeira.- From: Boletim do Museu Municipal do Funchal No. XVIII: 61 - 67, Funchal.

VIEIRA, V.:

1989. Contribuição para o estudo da entomofauna da ilha Graciosa (Açores).- From: Relatórios e Comunicações do Departamento de Biologia da Universidade dos Açores No. 17: 49 - 56.

VIEIRA, V. & BORGES, P. A. V.:

1993. The Entomological Bibliography of the Azores. I. Thematic: General (mainly Biogeography), Applied Entomology, Ecology and Biospeleology.- From: Boletim do Museu Municipal do Funchal No. 45: 5 - 28, Funchal.

VIEIRA, V., J. TRAVARES, L. ANUNCIADA & J. MCNEIL:

1990. Alguns dados sobre a fauna entomológica da ilha das Flores - Açores.- From: Relatórios e Comunicações do Laboratório de Ecologia Aplicada do Instituto Universitário dos Açores No. 18: 63 - 67.

WAGNER, R. & STAUDER, A.:

1991. The Clinocerinae (Diptera, Empididae) from Madeira, the Canary Islands and the Azores.- From: Bocagiana No.150, Madeira.

Included in the work of FREY (1945) are the following papers:

SCHMITZ, H.:

1941. Phoriden von Madeira und den Azoren (Diptera).- From: Brotéria No. 10 (37): 4.

SÉGUY, E.:

1936. Voyage de Mm. L. Chopard et A. Méquignon aux Açores (Août-Septembre 1930). X: Diptères.- From: Annales de la Société Entomologique de France No. 105: 11 - 26.

STORA, R.:

1945. Chironomidae.- Commentat. biol. No. 8 (10): 22 - 32.

TIENSUU, L.:

1945. Muscidae.- Commentat. biol. No. 8 (10): 98 - 108.