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TERRESTRIAL ARTHROPODS OF  
NORTHWEST FLORIDA SALT MARSHES:  
HEMIPTERA AND HOMOPTERA (INSECTA)

JORGE R. REY

Florida Medical Entomology Laboratory  
Institute of Food and Agricultural Sciences, University of Florida  
P. O. Box 520, Vero Beach, FL 32961, USA  
and

EARL D. MCCOY

University of South Florida, Department of Biology  
Tampa, FL 33620, USA

ABSTRACT

A list of 69 species of Hemiptera and Homoptera collected in northwest Florida salt marshes during a 15-month period is presented. Data on location of capture, as well as qualitative abundances are given for each species. The total number of species collected is comparable with those reported from similar habitats in other North American marshes. *Megamelanus bicolor* Ball (Homoptera: Delphacidae) is reported east of the Mississippi River for the first time.

RESUMEN

Se presenta una lista de 69 especies de Hemiptera y Homoptera procedentes de las marismas del noroeste de la Florida (E.U.A.), obtenidas durante un programa de muestreo de 15 meses de duración. Por cada especie se presentan datos sobre la localidad donde fue capturada, así como sobre sus abundancias cualitativas. El total de las especies fue semejante como el de habitats similares en marismas norteamericanas. *Melamelanus bicolor* (Ball) (Homoptera: Delphacidae) es reportado por primera vez al este del Rio Mississippi.

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In a previous contribution (McCoy and Rey 1981b), we described the beetle fauna of salt marshes in the St. Marks area of northwest Florida. Here, we list the species of Hemiptera and Homoptera collected from these marshes during the same period. Various aspects of these arthropod communities have been under study during the last 6 years; the data reported below resulted from a 15-month sampling program designed to investigate the diversity and abundance patterns of arthropods within the various zones of these marshes.

General descriptions of the study area can be found in Kurz and Wagner (1954), McCoy (1977) and Rey (1978); and previous publications on the ecology and biogeography of resident arthropods are listed in McCoy and Rey (1981b), and Rey (1981).

#### METHODS

Full descriptions of the collection methods, sampling program, and study sites are given in McCoy and Rey (1981a, b). The study area is located in Wakulla County within the St. Marks National Wildlife Refuge, near Wakulla Beach in northwest Florida (30.09° N, 29.12° W). The salt marshes along this area of the Gulf of Mexico are dominated by the black rush, *Juncus roemerianus* Scheele. This is in contrast to most Atlantic coast marshes in which smooth cordgrass, *Spartina alterniflora* Loisl. predominates. At St. Marks, the latter species occurs only in narrow fringes along the coast and along the banks of tidal creeks, and on the emergent tops of oyster bars or sand bars in the bay. Between the *Spartina* fringes and the extensive *Juncus* stands, one often finds a halophytic shrub community on narrow sand levees deposited by winds and tides; *Baccharis halimifolia* L. (marsh elder), *Lycium carolinianum* Walt. (christmas berry) and *Myrica cerifera* L. (wax myrtle) are the species found most commonly on these levees. Landward from the *Juncus* there are often small patches of a mixed-species community which we term *Distichlis* meadows. *Distichlis spicata* (L.) Greene (salt grass) is the predominant species, but *Spartina patens* (Ait.) Muhl. (slender cordgrass, salt hay), *Borrchia frutescens* (L.) DC. (sea oxeye), *Limonium carolinianum* (Walt.) Britt. (sea lavender), *Salicornia virginica* L. (perennial glasswort), and other species are also present in varying proportions.

Samples were taken monthly or quarterly from June, 1975 to August, 1976 at each of 20 stations located throughout the 4 main habitat types. Each sample consisted of 120 sweeps using standard removal-sweeping methods (Southwood 1966). Collections were placed in individual plastic bags, sorted in the laboratory, and separated into species. A reference collection containing several specimens of each species was deposited at the Division of Plant Industry (Florida Dept. of Agriculture & Consumer Services, Gainesville) for identification.

#### RESULTS

The 69 species of adult and immature Hemiptera and Homoptera identified from our collections are listed in Table 1. These include 23 species of Hemiptera and 46 species of Homoptera. Note that exclusively ground-dwelling species, and some strong-flying species are not likely to be collected by sweeping. Also, species restricted to only a few sites will not be recorded during some months if these sites were sampled only quarterly. Eight species that were lost during processing are not included in the list.

#### DISCUSSION

Approximately 57% of the Homoptera and 50% of the Hemiptera that were identified to species have also been reported from other North American

TABLE 1. LIST OF THE SPECIES OF HEMIPTERA AND HOMOPTERA IDENTIFIED FROM OUR COLLECTIONS. LETTERS REFER TO THE 4 HABITAT TYPES: S = *Spartina alterniflora* FRINGE, J = *Juncus roemerianus* MARSH, D = *Distichlis spicata* MEADOW, B = HALOPHYTIC SHRUB ZONE. ONE ASTERISK FOLLOWING THESE LETTERS DESIGNATES THE SPECIES AS "COMMON" (4-10 INDIVIDUALS), 2 ASTERISKS AS "VERY COMMON" (10+ INDIVIDUALS), AND NO ASTERISK AS "UNCOMMON" (1-3 INDIVIDUALS). NAMES PRECEDED BY 2 PLUS SIGNS INDICATES THAT THE SPECIES HAS BEEN COLLECTED IN OTHER NORTH AMERICAN MARSHES (REFERENCES IN TEXT); ONE PLUS SIGN INDICATES THAT CONGENERS OF THE SPECIES ARE KNOWN FROM OTHER NORTH AMERICAN MARSHES.

Family	Species	Hemiptera												
		J	F	M	A	M	J	J	A	S	O	N	D	
Anthocoridae	++ <i>Orius insidiosus</i> (Say)								SB			B		
	Gen. et sp. indet.								B			S		
Miridae	+ <i>Taylorigygus pallidulus</i> (Blanchard)	B				B*	B*		D*	D*J	D*	B*	B*	B*
	+ <i>Trigonotylus doddi</i> (Dist.)				S									
Reduviidae	++ <i>Trigonotylus uhleri</i> (Reuter)				D*	S*D*	S*D*	J S**	S*D			S**DJ		
	++ <i>Zelus cervicalis</i> Stål						D	D	D*	D		D	D	D
	++ <i>Doldina interjungens</i> Bergroth													
Nabidae	++ <i>Nabis capsiformis</i> (Germar)								S			SD	J	S
Lygaeidae	+ <i>Cymoninus notabilis</i> (Dist.)											J		
	+ <i>Cymus virescens</i> (F.)						J	S						
	++ <i>Ischnodemus badius</i> Van Duzee	S			D*	S*	D**B*	S**	D*S**	D*	D*	DS*	S	
	+ <i>Nysius raphanus</i> Howard							D						
	++ <i>Pachybrachius vincta</i> (Say)				J	D	S	J	J S*	J	S	J D	B	S
	+ <i>Ptochiomera nodosa</i> Say				D		D	S	D*	D*	D*	S*	S	
	Gen. et sp. indet. 1								B			D		

TABLE 1. CONTINUED

Family	Species	Hemiptera												
		J	F	M	A	M	J	J	A	S	O	N	D	
Coreidae	Gen. et sp. indet. 2													B
	Gen. et sp. indet. 3								JS					B
	Gen. et sp. indet. 4													J
	+ <i>Leptoglossus ashmeadi</i> Heideman					B	B	B						B
Pentatomidae	+ + <i>Leptoglossus phyllopus</i> (Linnaeus)													B
	+ + <i>Rhytidolomia saucia</i> (Say)						D	D						
	<i>Thyantha custator</i> (F.) <i>Thyantha casta</i> Stål						J		D					B
Membracidae														
	+ + <i>Micrutalis calva</i> (Say)					B*			B	D	D			
	+ <i>Idioderma virescens</i> Van Duzee					J			J*SB	S*	S*			B
	+ + <i>Spissistilus festinus</i> (Say)					B*	B*	B	B	B	S*B*	B*		B
Cicadellidae	+ <i>Balclutha</i> sp. 1													B
	+ <i>Balclutha</i> sp. 2													D
	+ + <i>Carneocephala floridana</i> (Ball)					D*								D*
	+ + <i>Draeculacephala portola</i> (Ball)								S	S*	S*D*	J*SD*		JD
+ <i>Empoasca</i> sp.								B		S*D			S*D	

TABLE 1. CONTINUED

Family	Species	Homoptera											
		J	F	M	A	M	J	J	A	S	O	N	D
	<i>Erythroneura</i> sp.	JD			J*S*	S*D*	J**D*	J*S*	J	J*S*	S	S**	
	++ <i>Graminella nigrifrons</i> (Forbes)					B					S		
	+ <i>Graminella villica</i> (Crumb)							J*					
	<i>Oncometopia orbona</i> (F)					D							
	<i>Pendarius fumidus</i> (Osborn)				D								
	+ <i>Sanctanus</i> sp.							D*				DB	D*B
	+ <i>Spangbergiella</i> sp.							B				D	SD
	+ <i>Stirellus bicolor</i> (Van Duzee)							B*	B*	B*	B*	B	
	+ <i>Stragania robusta</i> (Uhler)	B				B	B	B	B*	B*	B*	B	
	++ <i>Tinobregmus vittatus</i> (Van Duzee)	B				B	B	B*	B*	B*	B*	B*	
	nr. <i>Deltoccephalus</i>	B				B							B
	Gen. et sp. indet.	D											
Cercopidae	+ <i>Clastoptera</i> sp.					B*							D
	++ <i>Prosapia bicincta</i> (Say)	S							S				
Delphacidae	+ <i>Chloriona slossonae</i> (Ball)												
	+ <i>Delphacodes</i> spp. <sup>1</sup>	SD*J			SD*	S			BJ	JD*	S*D*	JDB	JD
	++ <i>Keyflana hasta</i> Beamer	J*S*			J*S*	J*	S*		J*	J*	S*	J*S*	J*S*
		D*			D*	S*			S*	S*	D*	D**	D*
	+ <i>Liburniella ornata</i> (Stål)								J*D				DJ
	<i>Megamelanus bicolor</i> Ball	J*			J*	J*	J*		J*S*	J*	J*	J*S*	J**D
	+ <i>Megamelanus trifidus</i> Beamer												
	+ <i>Neomegamelanus dorsalis</i> (Metcalf)												

<sup>1</sup>+*D. propinqua* (Fieber), ++*D. detecta* (Van Duzee), and ++*D. puella* (Van Duzee).



marshes (Bickley and Seek 1975; Cameron 1972, unpubl.; Davis 1978; Davis and Gray 1966; Kale 1964; Lane 1969; Marples 1964; Wall 1973). In total, about 83% of the Homoptera and 72% of the Hemiptera have at least congeneric species recorded from other North American marshes.

The delphacid *Megamelanus bicolor* Ball, collected at a *Distichlis* meadow site, represents the first known record of this species east of the Mississippi River (F. W. Mead, pers. comm.). Both adults and immatures were collected, indicating that breeding by the species occurred in Florida. A single adult was collected on *Juncus* and probably represented a dispersing individual. These collections also resulted in the first series of specimens of the genus *Paratrioza* (Homoptera: Psyllidae) from Florida. The only known previous record of the genus in Florida was of a single female from Miami (L. M. Russell, pers. comm.).

The numbers of species of Hemiptera and Homoptera collected at St. Marks are comparable to those on other U.S. marshes when similar habitats are considered. Davis (1978) reported 54 species of Hemiptera and 48 species of Homoptera from Carolina marshes. Of the Hemiptera, 7 species were collected only on *Spartina patens* (Ait.) Muhl., an uncommon plant species at St. Marks. Approximately 20 other species were collected from plant species not present in our study area (i.e., *Panicum virgatum* L.) or from habitats not sampled in our study (i.e., brackish water pools). The corresponding numbers for the Homoptera are: 7 (from *S. patens* only), 5 (from plant species absent from St. Marks), and 2 (from other habitats). Discounting these species leaves approximately 25-30 species of Hemiptera and 30-35 species of Homoptera in the Carolinas, compared with 23 and 46, respectively, in our collections. Bickley and Seek (1975) report larger numbers of species of Hemiptera and Homoptera from Maryland marshes than we do from Florida, but they include species from *Phragmites*, *Typha*, and *Pontederia* marshes which are not comparable to ours.

#### ACKNOWLEDGEMENTS

We thank F. W. Mead (DPI, Gainesville, Florida), A. G. Wheeler (Penn. Dept. of Agriculture), Duane Flynn (Ft. Myers, Florida), and Louise H. Russell (U.S.D.A. Syst. Ent. Lab, Maryland) for identifying our specimens. We also wish to thank L. V. Davis (Winthrop College, South Carolina) for providing us with pre-publication copies of his South Carolina species lists. We also wish to thank "Red" Gidden and Joe White of the St. Marks National Wildlife Refuge for their cooperation during this study. Order of authorship determined by coin toss. This is University of Florida, IFAS Experimental Stations Journal Series No. 3093.

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## NEW SPECIES OF NEOTROPICAL *CULICOIDES* (DIPTERA: CERATOPOGONIDAE)

WILLIS W. WIRTH

Systematic Entomology Laboratory, IIBIII, Agric. Res. Serv., USDA,  
c/o U.S. National Museum, Washington, D.C. 20560 USA  
(Research Associate, Florida State Collection of Arthropods,  
Division of Plant Industry, Florida Department of Agriculture  
and Consumer Services, Gainesville, Florida)

### ABSTRACT

The following new species of neotropical *Culicoides* are described: *C. atelis* from Panama, collected into a trap baited with a spider monkey; *C. cuiabai* from Brazil, collected from the Rio Paraguay drainage of the state of Mato Grosso; and *C. flinti* from Argentina, collected in Entre Rios Province. The last species occurs near the southern limit of *Culicoides* distribution in temperate South America.

### RESUMEN

Se describen las especies nuevas de *Culicoides* neotropicales siguientes: *C. atelis* de Panama, colectada en una trampa con un ateles; *C. cuiabai* de Brasil, colectada de la cuenca del Río Paraguay, Mato Grosso; y *C. flinti* de