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Florida Keys Mosquito Control District mosquito trapping data between Vaca Key and Lower Matecumbe Key, 2018-2021

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Abstract

Background

The Florida Keys Mosquito Control District (FKMCD) is an independent taxing district in Monroe County, Florida. The mission of FKMCD is to protect the community and visitors of the Florida Keys from mosquito-borne disease and prevent nuisance mosquitoes from impacting the quality of life of its citizens and the local economy. The State of Florida requires mosquito control programs to provide recorded evidence of mosquito activity prior to pesticide application. Surveillance is an appropriate method to record the abundance and mosquito species present in an area to determine if adulticide applications are necessary. Mosquito surveillance traps have been set by FKMCD since 1998. Trapping is conducted throughout the District to document species composition and abundance. Mosquito surveillance is used for operational decisions for both nuisance mosquitoes and disease vectors.

New information

This data set includes previously unreported mosquito trapping results in Monroe County, Florida. This data set includes trap results collected from CDC light traps and BG Sentinel traps set weekly on Vaca Key, Flamingo Island, Key Colony Beach, Fat Deer Key, Crawl Key, Long Point Key, Grassy Key, Long Key, and Lower Matecumbe Key from January 1, 2018 through December 31, 2021.

Keywords

Diptera, Culicidae, mosquito surveillance, Florida Keys

Introduction

Chapter 388 of the Florida Statutes requires mosquito control agencies to follow specific criteria before applying pesticides (Florida Legislature 2022). Prior to pesticide application, mosquito control agencies must demonstrate a potential for a mosquito-borne disease outbreak or a quantifiable increase in the abundance of nuisance mosquitoes. To demonstrate the need for pesticide application, the agency must document elevated landing rate counts, receive service requests from the public that are confirmed by landing rate counts, trap counts, or visual confirmation from a licensed inspector, or trap numbers need to exceed 25 mosquitoes per trap night (Florida Department of State 2022, Rule Chapter 5E-13). The Florida Keys Mosquito Control District (FKMCD) has conducted adult mosquito surveillance using light traps since 1998 in an effort to document mosquito abundance and species present in areas throughout the Keys (Hribar 2020, Hribar et al. 2018). This data set covers mosquito trapping activity conducted by FKMCD between the islands of Vaca Key and Lower Matecumbe Key in Monroe County, Florida from January 1, 2018 through December 31, 2021. A small portion of this data set has been previously published on the species *Deinocerites cancer* Theobold (Diptera: Culicidae) on Grassy Key and Long Key, Florida (Hribar 2019).

General description

Purpose: These data were collected to document the species composition and abundance of mosquitoes for weekly control decisions made by FKMCD between Vaca Key and Lower Matecumbe Key, Florida.

Sampling methods

Description: This data set provides weekly trapping results from January 1, 2018 through December 31, 2021 for the islands of Vaca Key, Flamingo Island, Key Colony Beach, Fat Deer Key, Crawl Key, Long Point Key, Grassy Key, Long Key, and Lower Matecumbe Key in Monroe County, Florida.

Sampling description: Traps were set in the afternoon and retrieved the following morning for approximately 18-20 hours of running time. Traps were set weekly with few exceptions due to weather or illness. The mosquito traps used during this time period were CDC miniature light traps model 512 (John W. Hock Company, Gainesville, FL) and BG Sentinel 2 traps (Biogents, Regensburg, Germany). Both the CDC light traps and BG Sentinel traps were baited with approximately 1.36kg of dry ice in a 2L insulated cooler. The BG traps were also deployed with BG-Lure (Biogents, Regensburg, Germany) as an additional attractant specifically for *Aedes aegypti* Linnaeus (Diptera: Culicidae) mosquitoes. Light traps were powered with 6 volt, 12 amp sealed lead acid rechargeable batteries and the BG Sentinel traps were powered with 12 volt, 7 amp sealed lead acid rechargeable

batteries. Mosquito collections were returned to the FKMCD laboratory in Marathon, Florida, and killed by freezing. Mosquito collections were identified to species and sexed by a certified mosquito identification specialist. Identification was completed using identification guides (Darsie and Morris 2000, Darsie and Ward 2016).

Geographic coverage

Description: Traps were set between Vaca Key (24.67401, -80.96224) and Lower Matecumbe Key (24.86528, -80.71451), Monroe County, FL.

Coordinates: 24.72977222; 81.03954722 and .

Taxonomic coverage

Description: A total of 30 mosquito species were identified to species level from trap collections.

Taxa included:

Rank	Scientific Name	Common Name
species	<i>Aedes aegypti</i>	Yellow fever mosquito
species	<i>Aedes albopictus</i>	Asian tiger mosquito
species	<i>Aedes atlanticus</i>	
species	<i>Aedes condolezens</i>	
species	<i>Aedes infirmatus</i>	
species	<i>Aedes sollicitans</i>	Saltmarsh mosquito
genus	<i>Aedes</i> species	
species	<i>Aedes taeniorhynchus</i>	Black saltmarsh mosquito
species	<i>Aedes tortilis</i>	
species	<i>Aedes triseriatus</i>	Eastern treehole mosquito
species	<i>Anopheles albimanus</i>	
species	<i>Anopheles atropos</i>	
species	<i>Anopheles crucians</i>	
species	<i>Anopheles quadrimaculatus</i>	Common malaria mosquito
genus	<i>Anopheles</i> species	
species	<i>Culiseta inornata</i>	
species	<i>Culiseta melanura</i>	

genus	Culiseta species	
subgenus	Culex (Melanoconion)	
species	Culex atratus	
species	Culex bahamensis	
species	Culex declarator	
species	Culex erraticus	
species	Culex iolambdis	
species	Culex peccator	
species	Culex pilosus	
species	Culex nigripalpus	
species	Culex quinquefasciatus	Southern house mosquito
genus	Culex species	
species	Deinocerites cancer	Crab hole mosquito
genus	Deinocerites species	
species	Psorophora columbiae	Dark rice-field mosquito
species	Psorophora johnstonii	
species	Psorophora pygmaea	
genus	Psorophora species	
species	Uranotaenia lowii	
genus	Uranotaenia species	
genus	Wyeomyia species	
species	Wyeomyia vanduzeei	

Temporal coverage

Notes: Data collected for this data set ranges from January 1, 2018 to December 31, 2021.

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Data resources

Data package title: Excel

Number of data sets: 1**Data set name:** Marathon Area Trap Data 2018-2021**Data format:** xlsx

Column label	Column description
Location ID	Trap location name
Island	Island that trap was set on
Collection site type	Description of trap site location land use type
Latitude	North coordinates of trap location in decimal degrees
Longitude	West coordinates of trap location in decimal degrees
Trap type	Type of trap set
Attractant	Attractant/lure set with trap
Start Date	Date trap was set, format type MM/DD/YY
End Date	Date trap was retrieved, format type MM/DD/YY
NOTES	Details explaining that trap collection did not go as expected; data is invalid
M	male specimen count
F	female specimen count
Total	sum of both male and female specimens counted

Additional information

The size of the dataset is 1.67 MB. The file format is xlsx. Data are available under Suppl. material 1.

Acknowledgements

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Supplementary material

Suppl. material 1: Marathon Area Trap Data 2018-2021

Authors: Heidi L. Murray

Data type: count data in an Excel spreadsheet

Brief description: Florida Keys Mosquito Control District surveillance data from adult trap collections between Vaca Key and Lower Matecumbe Key, Monroe County, FL from January 1, 2018 through December 31, 2021.

[Download file](#) (1.67 MB)