

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

Heidi L. Murray ‡

‡ Florida Keys Mosquito Control District, Marathon, Florida, United States of America

Corresponding author: Heidi L. Murray (heidimur@gmail.com)

Academic editor: Editorial Secretary

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 programmes 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 dataset includes previously unreported mosquito trapping results in Monroe County, Florida. This dataset 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 1 January 2018 through to 31 December 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 et al. 2018, Hribar 2020). This dataset covers mosquito trapping activity conducted by FKMCD between the islands of Vaca Key and Lower Matecumbe Key in Monroe County, Florida from 1 January 2018 through to 31 December 2021. A small portion of this dataset has been previously published on the species *Deinocerites cancer* Theobald (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 dataset provides weekly trapping results from 1 January 2018 through to 31 December 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 a 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 1.36 kg of dry ice in a 2 litre 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 Ward 2016, Darsie and Morris 2000).

Geographic coverage

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

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 (Stegomyia) aegypti</i> (Linnaeus, 1762)	Yellow fever mosquito
species	<i>Aedes (Stegomyia) albopictus</i> (Skuse, 1895)	Asian tiger mosquito
species	<i>Aedes (Ochlerotatus) atlanticus</i> Dyar & Knab, 1906	
species	<i>Aedes (Ochlerotatus) condolecens</i> Dyar & Knab, 1907	
species	<i>Aedes (Ochlerotatus) infirmatus</i> Dyar & Knab, 1906	
species	<i>Aedes (Ochlerotatus) sollicitans</i> (Walker, 1856)	Saltmarsh mosquito
genus	<i>Aedes</i> Meigen, 1818	
species	<i>Aedes (Ochlerotatus) taeniorhynchus</i> (Wiedemann, 1821)	Black saltmarsh mosquito
species	<i>Aedes (Ochlerotatus) tortilis</i> (Theobald, 1903)	
species	<i>Aedes (Protomacleaya) triseriatus</i> (Say, 1823)	Eastern treehole mosquito
species	<i>Anopheles (Nyssorhynchus) albimanus</i> Wiedemann, 1821	
species	<i>Anopheles (Anopheles) atropos</i> Dyar & Knab, 1906	
species	<i>Anopheles (Anopheles) crucians</i> Wiedemann, 1828	
species	<i>Anopheles (Anopheles) quadrimaculatus</i> Say, 1824	Common malaria mosquito
genus	<i>Anopheles</i> Meigen, 1818	
species	<i>Culiseta (Culiseta) inornata</i> (Williston, 1893)	
species	<i>Culiseta (Climacura) melanura</i> (Coquillett, 1902)	
genus	<i>Culiseta</i> Felt, 1904	

subgenus	<i>Culex</i> (Melanoconion) Theobald	
species	<i>Culex</i> (Melanoconion) <i>atratus</i> Theobald, 1901	
species	<i>Culex</i> (Culex) <i>bahamensis</i> Dyar & Knab, 1906	
species	<i>Culex</i> (Culex) <i>declarator</i> Dyar & Knab, 1906	
species	<i>Culex</i> (Melanoconion) <i>erraticus</i> (Dyar & Knab, 1906)	
species	<i>Culex</i> (Melanoconion) <i>iolambdis</i> Dyar, 1918	
species	<i>Culex</i> (Melanoconion) <i>peccator</i> Dyar & Knab, 1909	
species	<i>Culex</i> (Melanoconion) <i>pilosus</i> (Dyar & Knab, 1906)	
species	<i>Culex</i> (Culex) <i>nigripalpus</i> Theobald, 1901	
species	<i>Culex</i> (Culex) <i>quinquefasciatus</i> Say, 1823	Southern house mosquito
genus	<i>Culex</i> Linnaeus, 1758	
species	<i>Deinocerites cancer</i> Theobald, 1901	Crabhole mosquito
genus	<i>Deinocerites</i> Theobald, 1901	
species	<i>Psorophora</i> (Grabhamia) <i>columbiae</i> (Dyar & Knab, 1906)	Dark rice-field mosquito
species	<i>Psorophora</i> (Janthinosoma) <i>johnstonii</i> (Grabham, 1905)	
species	<i>Psorophora</i> (Grabhamia) <i>pygmaea</i> (Theobald, 1903)	
genus	<i>Psorophora</i> Robineau-Desoidy, 1827	
species	<i>Uranotaenia lowii</i> Theobald, 1901	
genus	<i>Uranotaenia</i> Lynch Arribalzaga, 1891	
genus	<i>Wyeomyia</i> Theobald, 1901	
species	<i>Wyeomyia vanduzeei</i> Dyar & Knab, 1906	

Temporal coverage

Notes: Data collected for this dataset range from 1 January 2018 to 31 December 2021.

Usage licence

Usage licence: Creative Commons Public Domain Waiver (CC-Zero)

Data resources

Data package title: Microsoft Excel Comma Separated Values File

Number of data sets: 1

Data set name: Marathon Area Trap Data 2018-2021

Data format: CSV

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 DD/MM/YYYY.
End Date	Date trap was retrieved, format type DD/MM/YYYY.
NOTES	Details explaining that trap collection did not go as expected; data are 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 898.96 Kb. The file format is CSV. Data are available under Suppl. material 1.

Acknowledgements

I want to thank all surveillance technicians and field inspectors at FKMCD who assisted with data collection. I thank Lawrence J. Hribar and Catherine A. Pruszynski for assistance with mosquito sorting and identification of trap collections in this dataset from 2018-2021.

References

- Darsie RF, Morris CD (2000) Keys to the adult females and fourth instar larvae of the mosquitoes of Florida (Technical bulletin of the Florida Mosquito Control Association). Volume 1. Florida Mosquito Control Association, Inc., Fort Myers, FL.
- Darsie RF, Ward RA (2016) Identification and geographical distribution of the mosquitoes of North America, north of Mexico. University Press of Florida, 398 pp.

- Florida Department of State (2022) Florida Administrative Code. <https://www.flrules.org/default.asp>. Accessed on: 2022-10-05.
- Florida Legislature (2022) Florida Statutes Online. <http://www.leg.state.fl.us/STATUTES/>. Accessed on: 2022-10-05.
- Hribar LJ, DeMay DJ, Murray HL (2018) Life and death of a trap site. *Wing Beats* 29 (1): 33-38.
- Hribar LJ (2019) *Deinocerites cancer Theobald* (Diptera: Culicidae) on Grassy Key and Long Key in the Florida Keys, USA. *Research Ideas and Outcomes* 5: 36159. <https://doi.org/10.3897/rio.5.e36159>
- Hribar LJ (2020) Dataset for mosquitoes (Diptera: Culicidae) from Vaca Key, Monroe County, Florida USA. *Biodiversity Data Journal* 8: 55059. <https://doi.org/10.3897/BDJ.8.e55059>

Supplementary material

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

Authors: Heidi L. Murray

Data type: count data in a Microsoft Excel Comma Separated Values File

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

[Download file](#) (898.96 kb)