Geographic variation in vector prevalence and West Nile virus detection within Lowndes County

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“Geographic”? 

Lowndes County Mosquito Trap Sites

Dixie Plantation

Legend

- Bathrooms
- Gathering Site
- Camping area
- Cottage 1
- Cottage 2
- Driveway
- Plantation Roads
- Dixie Boundary

County Road 146

Dixie Facilities
Lowndes County, Georgia
Weekly Data Collection

- 12 – 14 locations
- Two trap types
- Identification

- Virus isolation (SCWDS)
  - Plaque assay
  - Virus-specific RT-PCR
Surveillance Expanded
Mosquito Fauna of Lowndes County*

*Ae. vexans  
*Ae. atlanticus  
*Ae. canadensis  
*Ae. fulvus pallens  
*Ae. infirmatus  
*Ae. mitchellae  
*Ae. sollicitans  
*Ae. sticticus  
*Ae. taeniorhynchus  
*Ae. thibaulti  
*Ae. triseriatus  
*Ae. albopictus

An. crucians s.l.  
An. punctipennis  
An. quadrivaculatus  
Cq. perturbans  
Cx. coronator  
Cx. nigripalpus  
Cx. quinquefasciatus  
Cx. restuans  
Cx. salinarius  
Cx. erraticus  
Cx. territans

Cs. inornata  
Cs. melanura  
Ma. titillans  
Or. signifera  
Ps. ciliata  
Ps. columbiana  
Ps. ferox  
Ps. howardii  
Ps. cyanescens

* Ur. sapphirina  
  Ur. lowii  
  Tx. rutilus

* Includes all species collected 2001-2019
Virus Epidemiology

Arboviruses found in Lowndes Co.
- EEEv
- West Nile virus
- Flanders virus*
- Highlands J
- La Crosse virus
- Keystone virus
MIR varies among trap sites
Characterization of Sites

- % Canopy
- % Wetlands
- National Wetlands Inventory Classes
Habitat Features & Indicator Species

- **Culex quinquefasciatus** & unidentified *Culex*
- **Aedes atlanticus**, **Ae. canadensis**, **Ae. infirmatus**, & **Culex erraticus**
- **Culex coronator**
- Repeated arbovirus isolations from sites in **all 3 habitat groups**
% Wetlands by Trap Location
Classification of Sites

*Low Virus:* 0 WNV+ Pools in 10 yr

*Moderate Virus:* 2-7 WNV+ Pools Total; WNV+ in 1-2 yr

*High Virus:* 10-18 WNV+ Pools Total; WNV+ in 3-6 yr
H’ = - \sum p_i \log (p_i)
2019
Other Work in Progress

• WNV exposure serosurvey

• Human behavior

• Avian population assessments
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Phenology of *Culex restuans*

![Graph showing the phenology of Culex restuans for years 2005 to 2008. The graph displays the percentage of annual total mosquito counts per week.](image-url)
Drought in Georgia from 2000 – 2019
Trends from Light Trap Data

- Temporal variation associated with different species associations
- Possible relationship with virus epizootics?
Next Steps

• Complete ordination analysis of gravid trap data (2004-2019)
• Refine and extend habitat analysis
• Compare to other locations
  – Comparative studies
  – Predictive