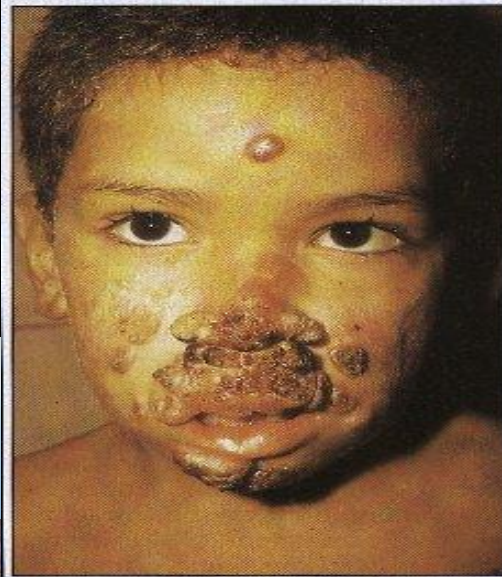
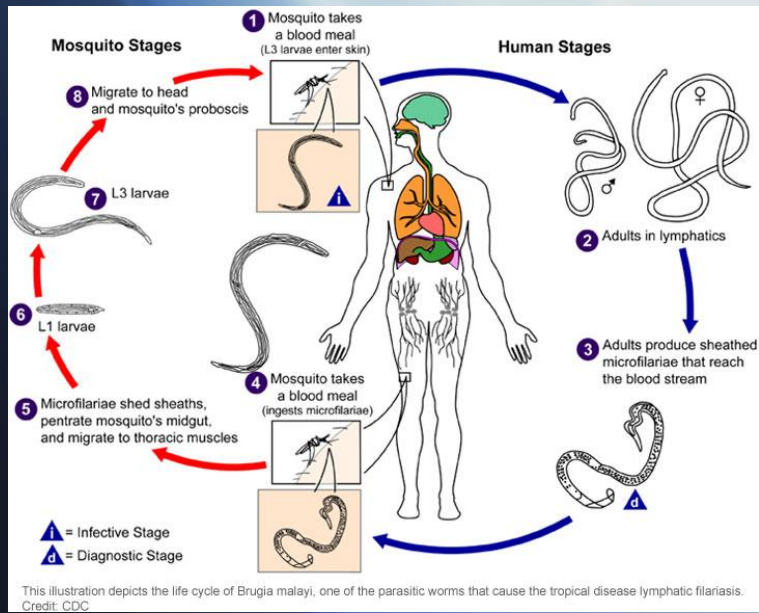
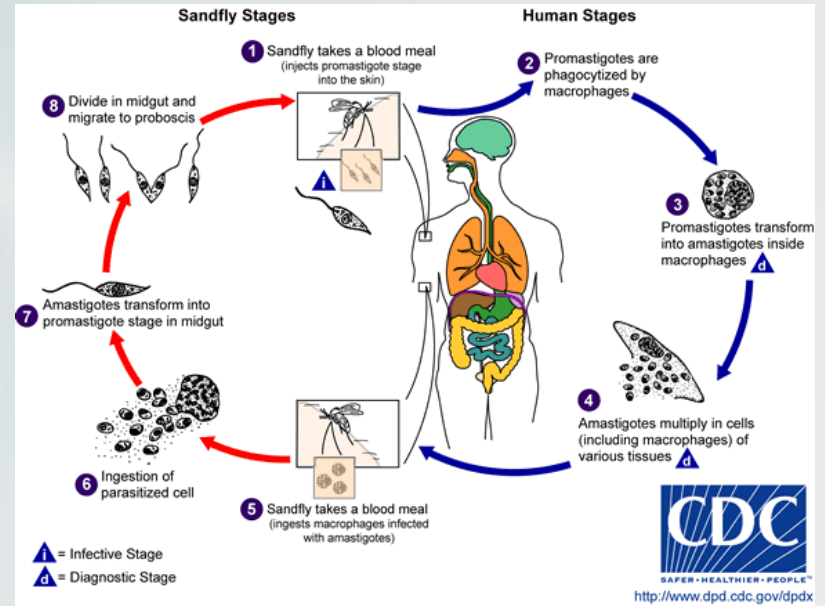
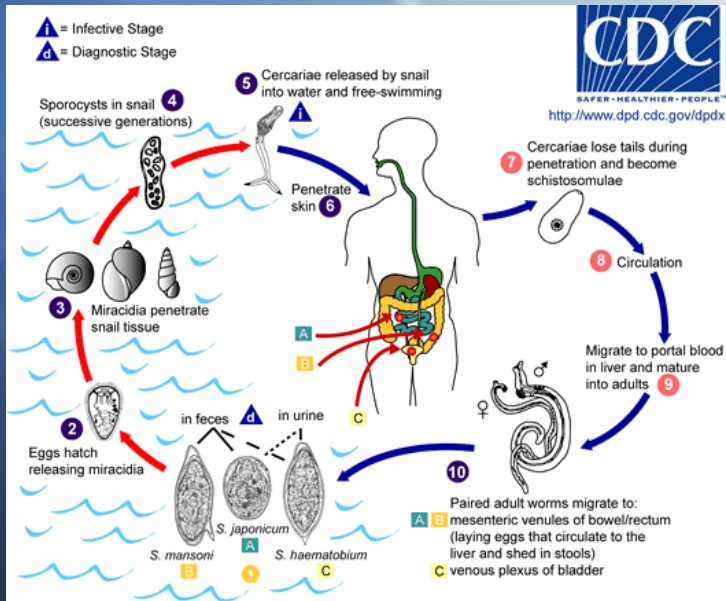
The background of the slide features abstract, flowing shapes in shades of blue and white, creating a sense of movement and depth. The text is centered in a black serif font.

# Flanders Virus as a Sentinel for West Nile Virus

# Acknowledgments

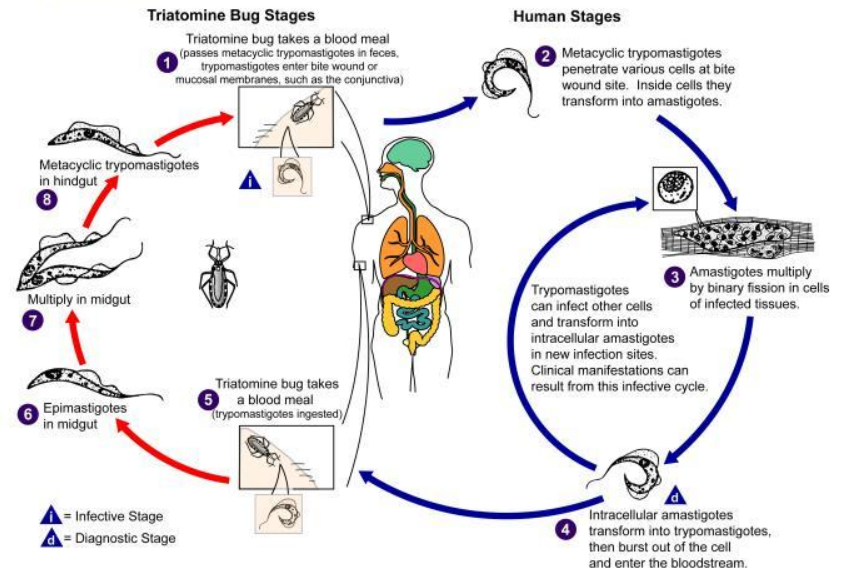
- Georgia
  - Dr. Daniel Mead
  - Dr. Ros Kelly
- Tennessee
  - Dr. Timothy Jones
  - Melissa Kranz
  - Junjun Huang
- Mosquito Control Districts & Health Depts in GA and TN
- Southeastern Center for Emerging Biologic Threats





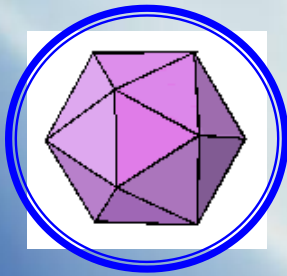
### Trypanosomiasis, American (Chagas disease)

(*Trypanosoma cruzi*)



# West Nile Virus: Basic Transmission Cycle

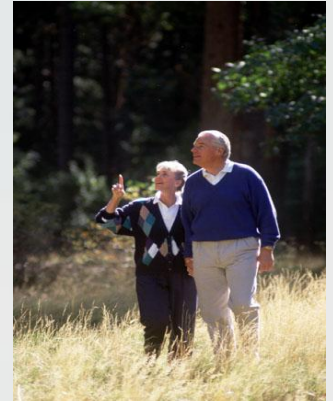
Enzootic (Maintenance/Amplification)



Amplifying hosts

Epidemic 

Epizootic 





# Use of similar cycle

- Highlands J and EEE virus
- Tensaw and LAC virus
- Flanders and SLE virus

# Flanders

- Rhabdoviridae
- Long Island 1960 (Town of Flanders)
- Canada, U.S., Mexico
- *Culex* mosquitoes
- Red-winged blackbirds, house sparrows, and starlings
- Non-pathogenic



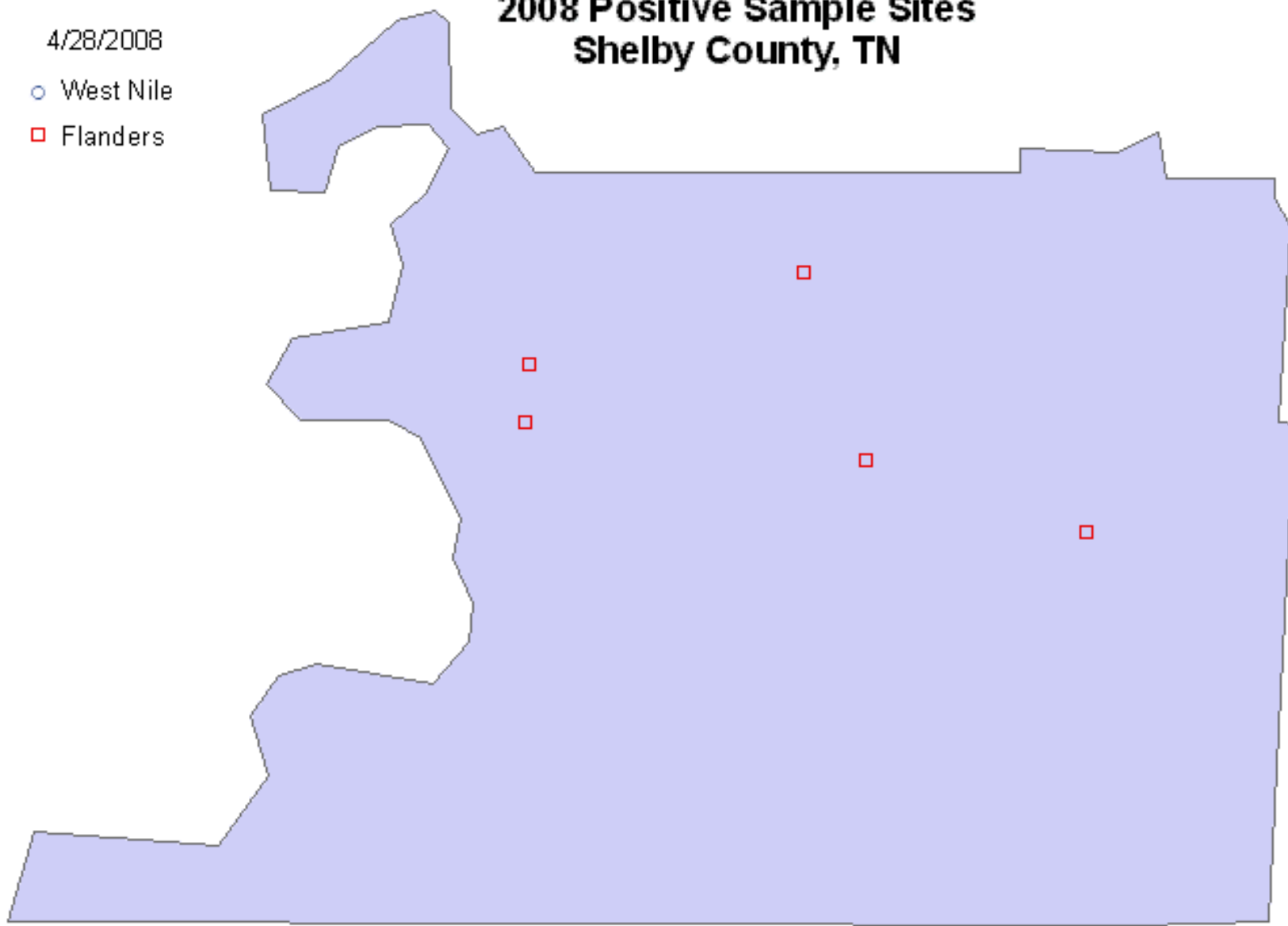
# Surveillance

- Tennessee
  - 2006-2009
  - 6 Counties
  - 18,689 pools (651,985 individuals)
- Georgia
  - 2001-2009
  - 107 Counties
  - 58,408 pools (710,977 individuals)

## 2008 Positive Sample Sites Shelby County, TN

4/28/2008

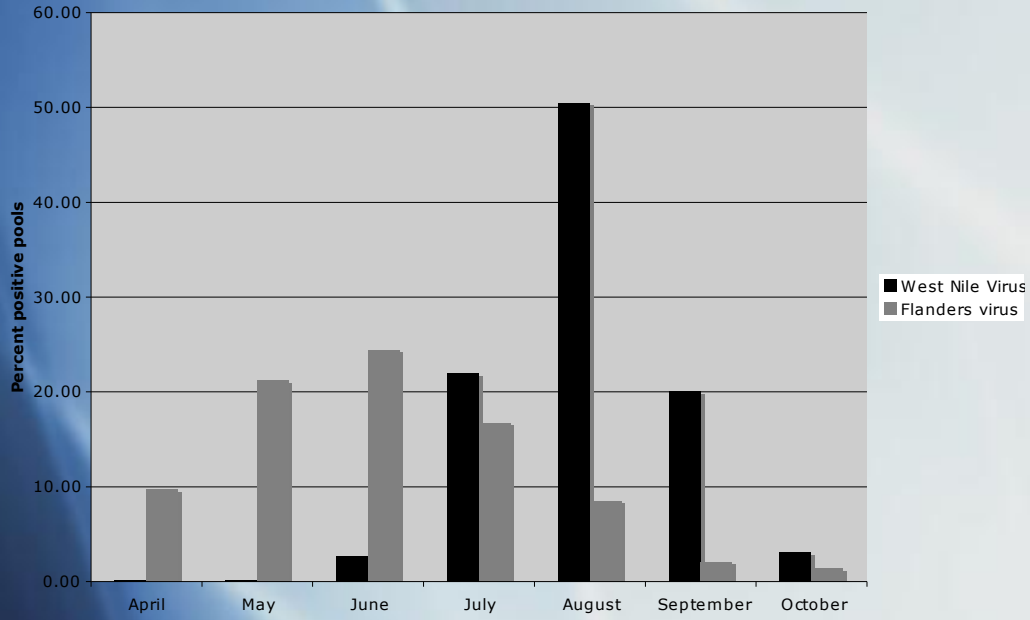
- West Nile
- Flanders



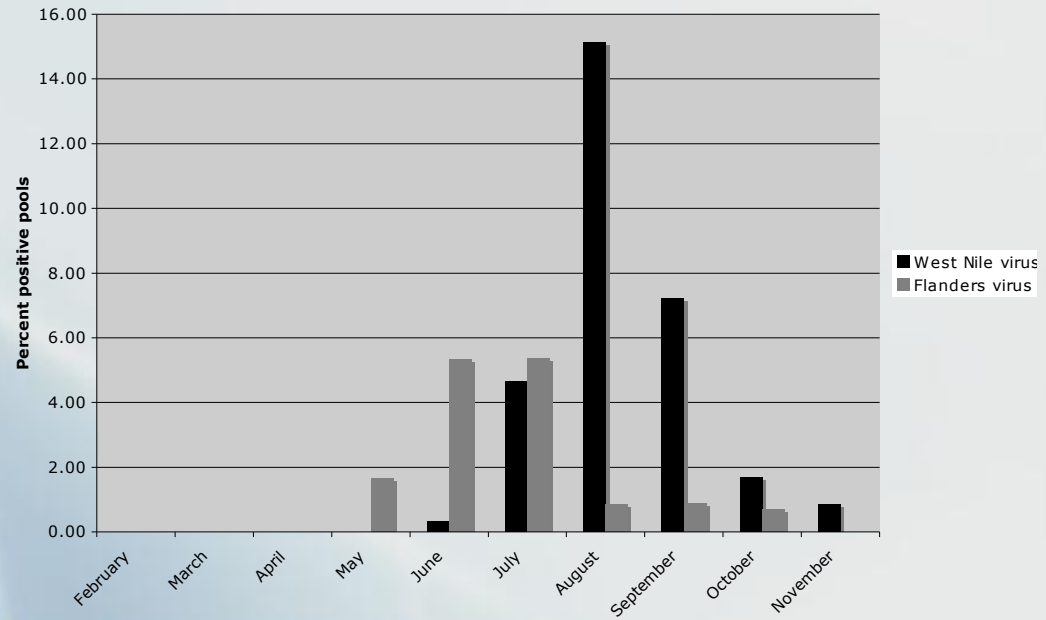
The background features a gradient of blue on the left side, transitioning into a light blue and white area on the right. Several bright, diagonal lines of light cross the scene, creating a sense of movement and depth.

# Temporal relationship

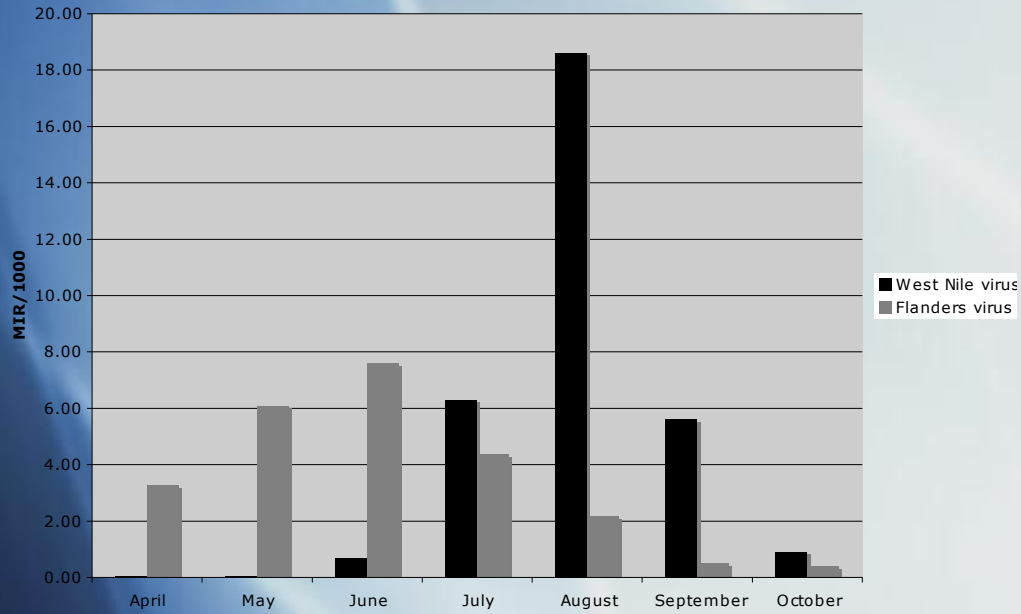
### Shelby



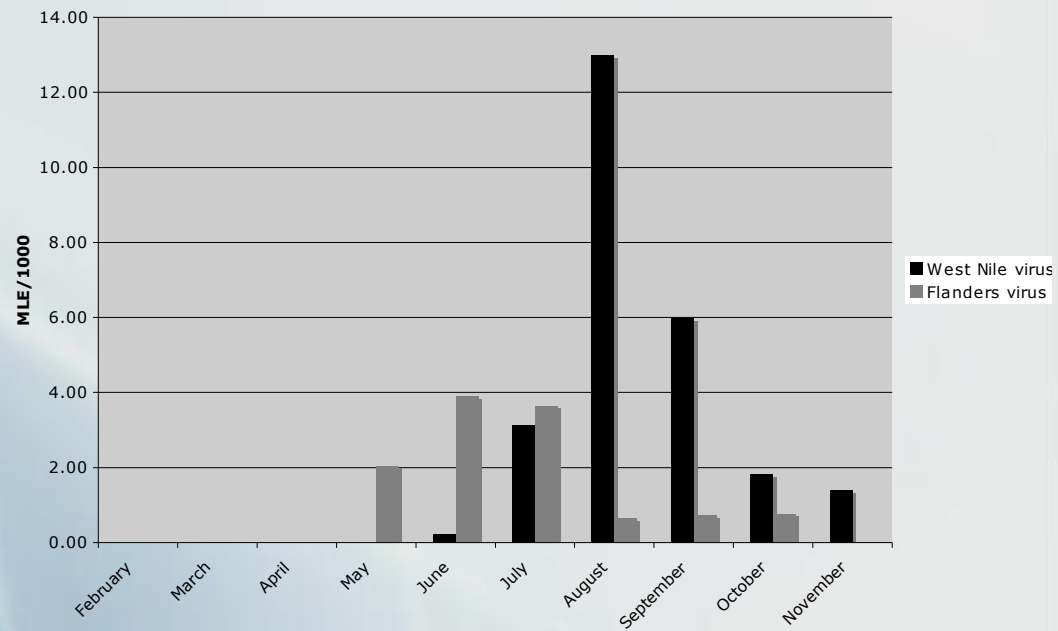
### Atlanta



### Shelby



### Atlanta



# Mean time of appearance (days) of WNV after FLAV

	Memphis (2006-2009)	Atlanta (2003-2009)
1-km	52.42	28.29
zip code	54.76	31.73

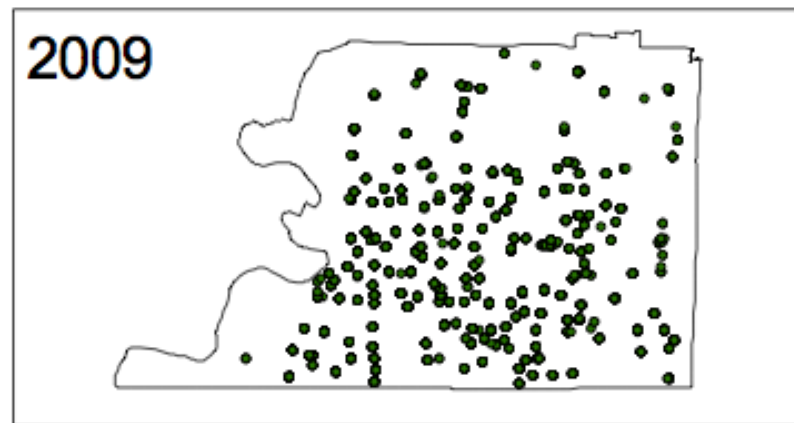
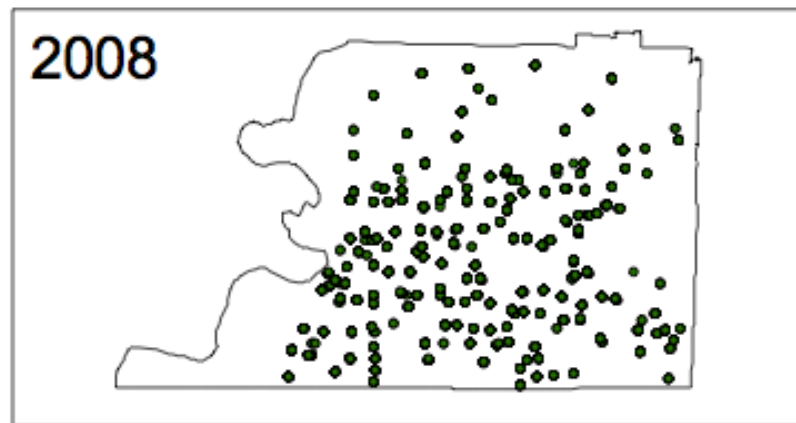
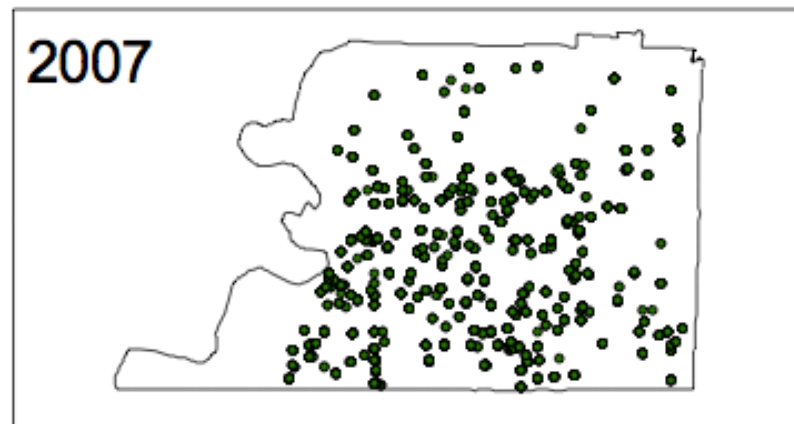
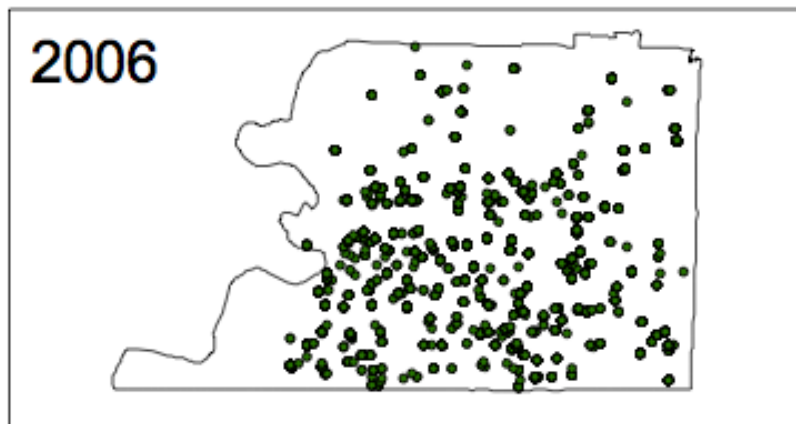
# Spatial relationship

# Average distance (miles) between nearest FLAV and WNV

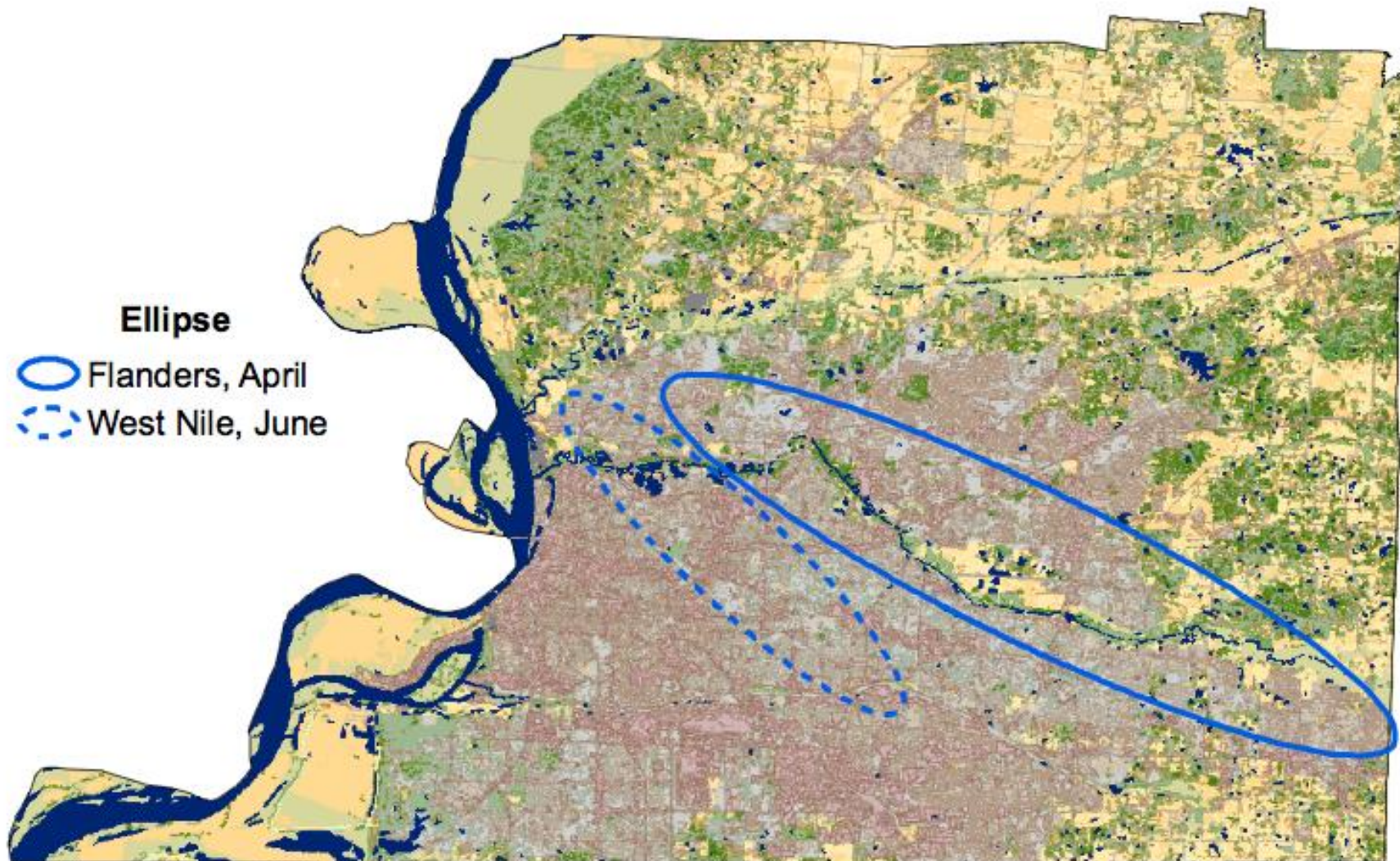
Memphis (2006-2009)	Atlanta (2003-2009)
0.14	2.28



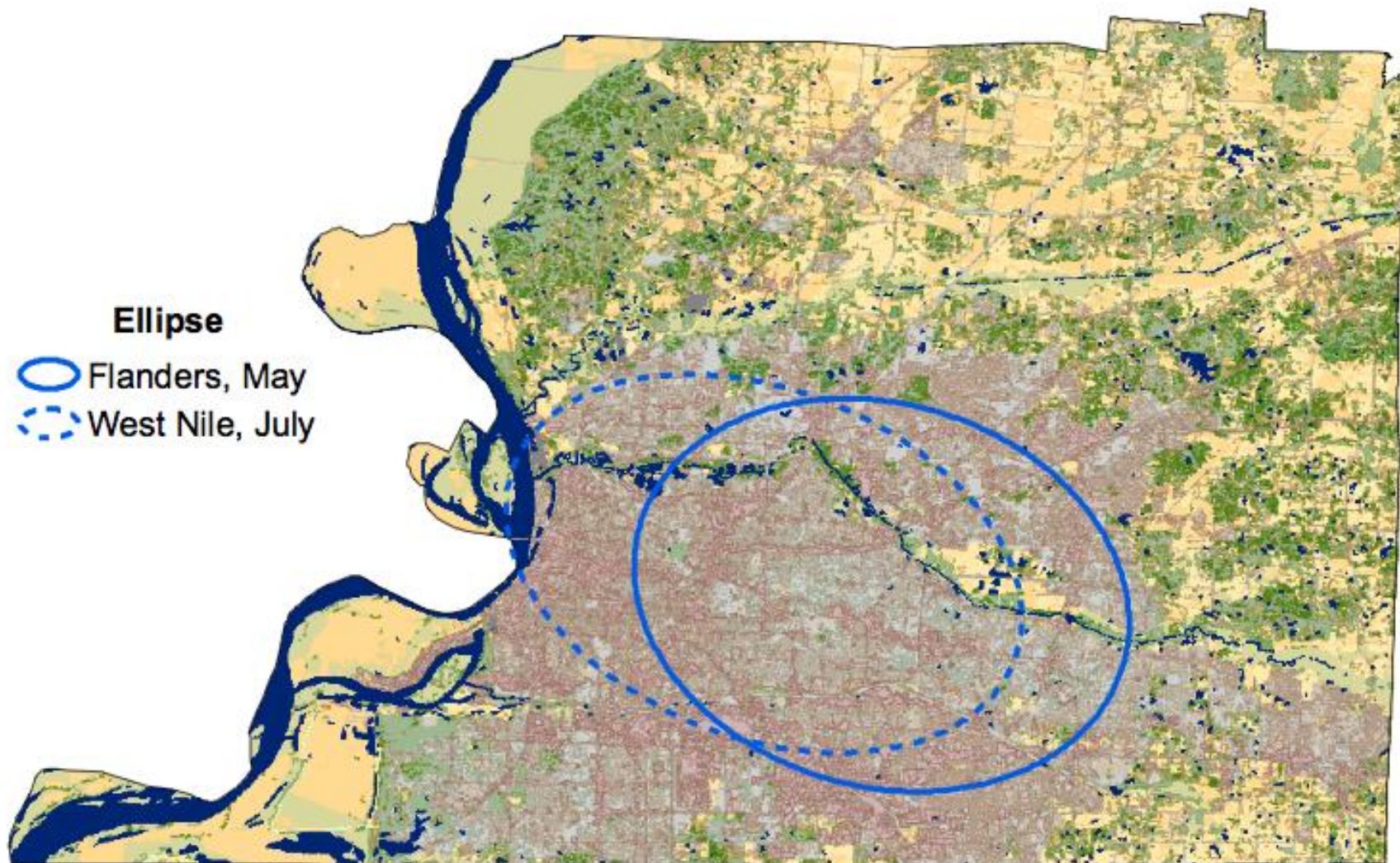
## Distribution of Sample Sites, Shelby County



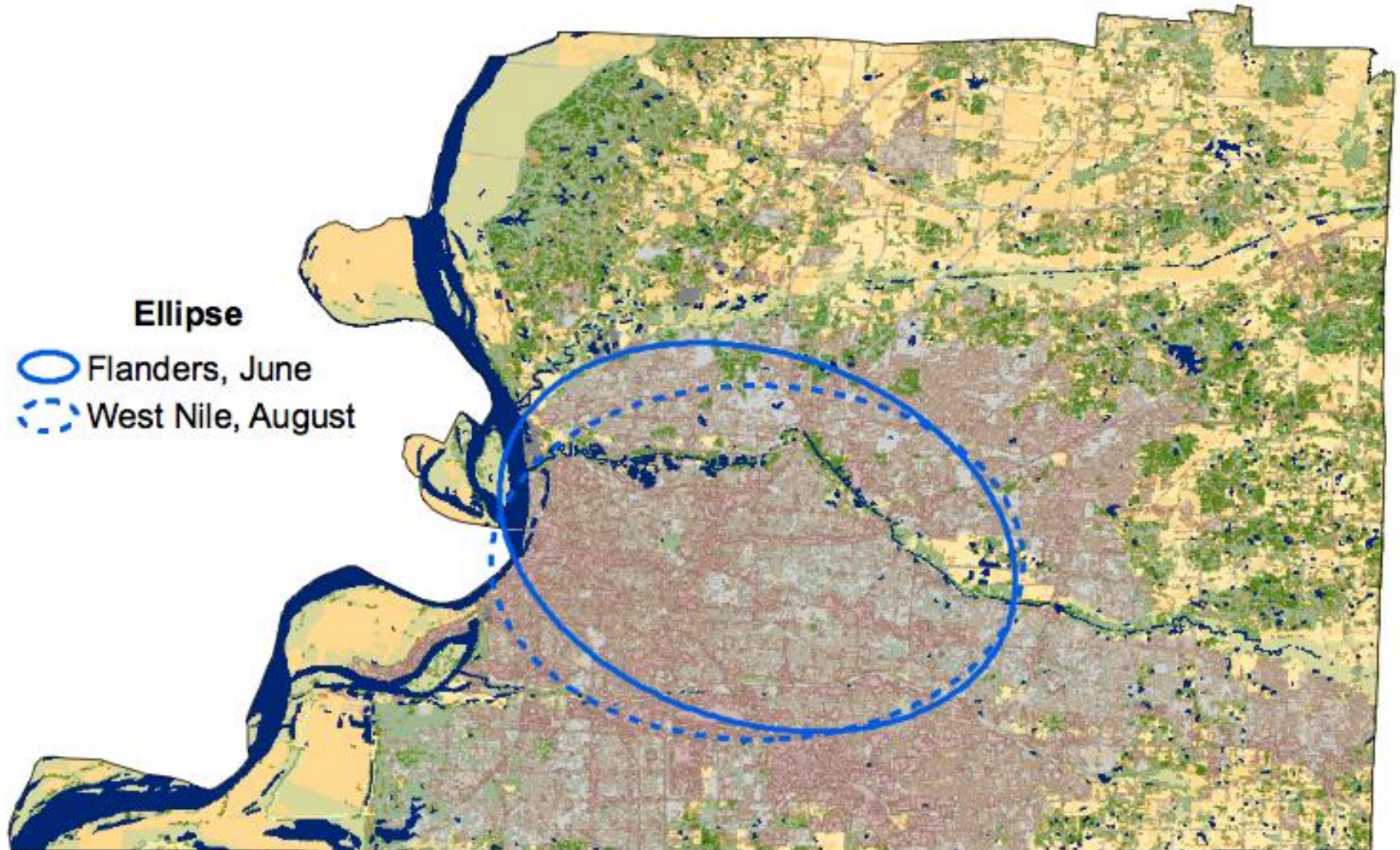
# Directional Distribution of Positive Sample Sites Weighted by Intensity, Shelby County, 2006 - 2009



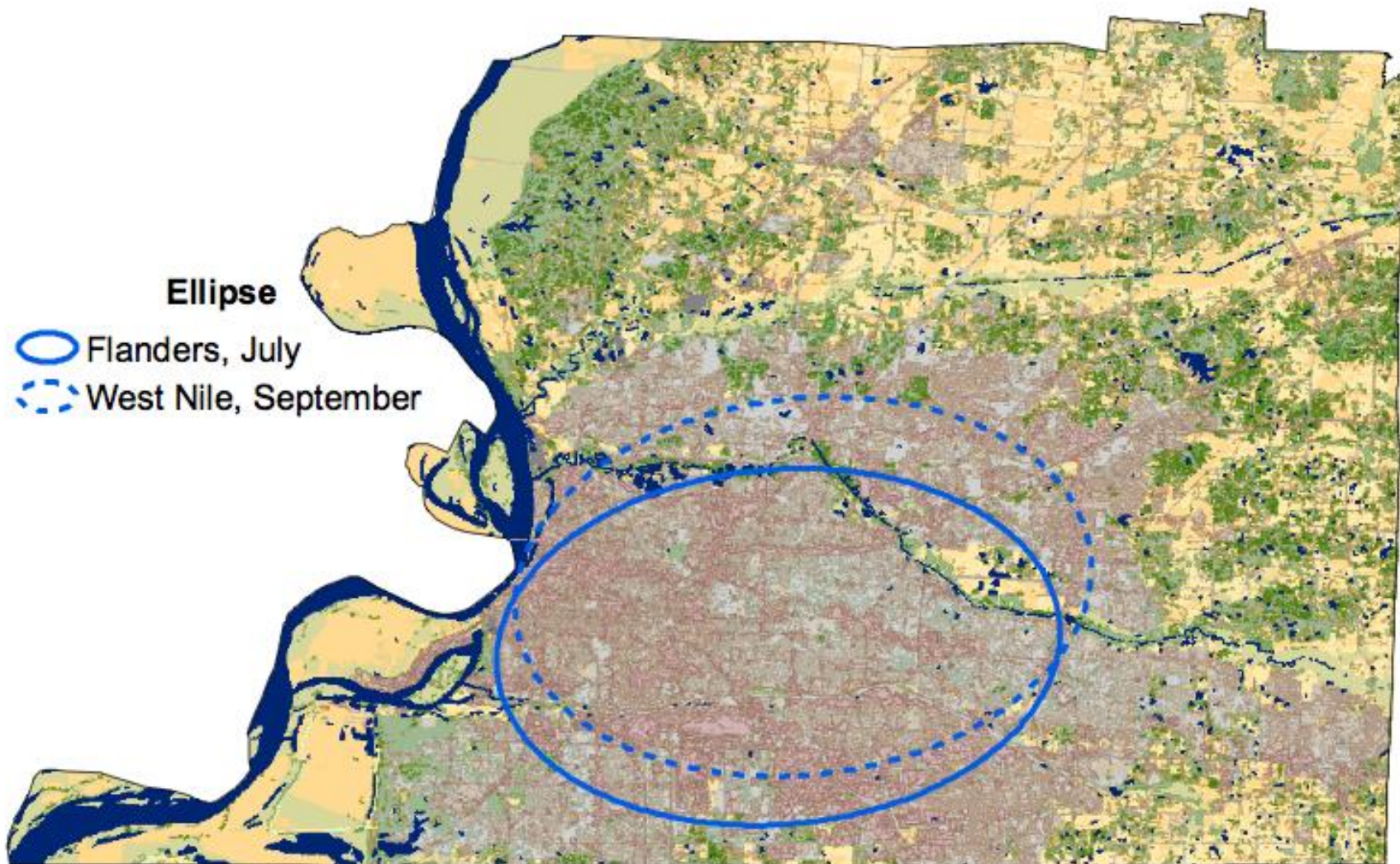
# Directional Distribution of Positive Sample Sites Weighted by Intensity, Shelby County, 2006 - 2009



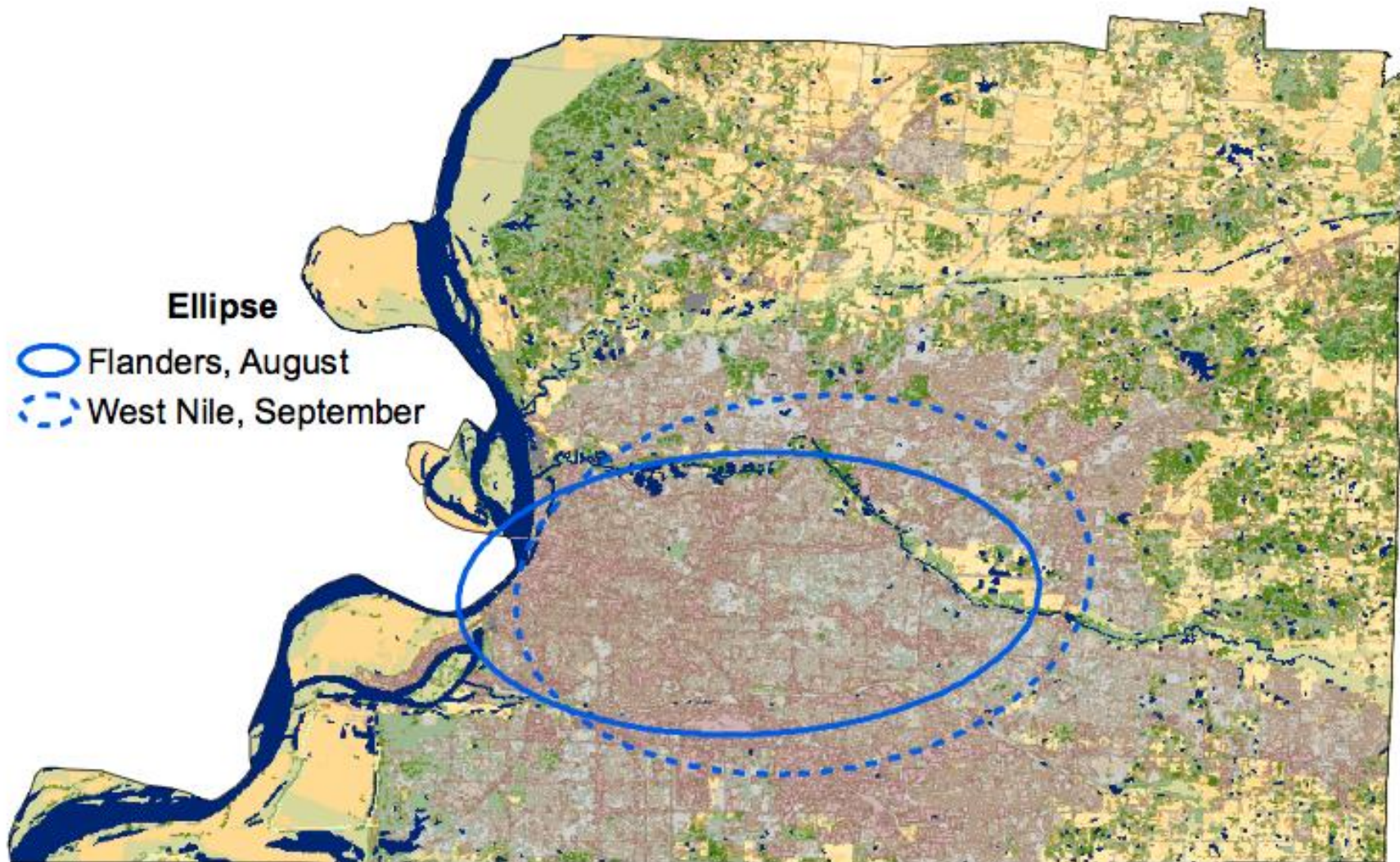
# Directional Distribution of Positive Sample Sites Weighted by Intensity, Shelby County, 2006 - 2009



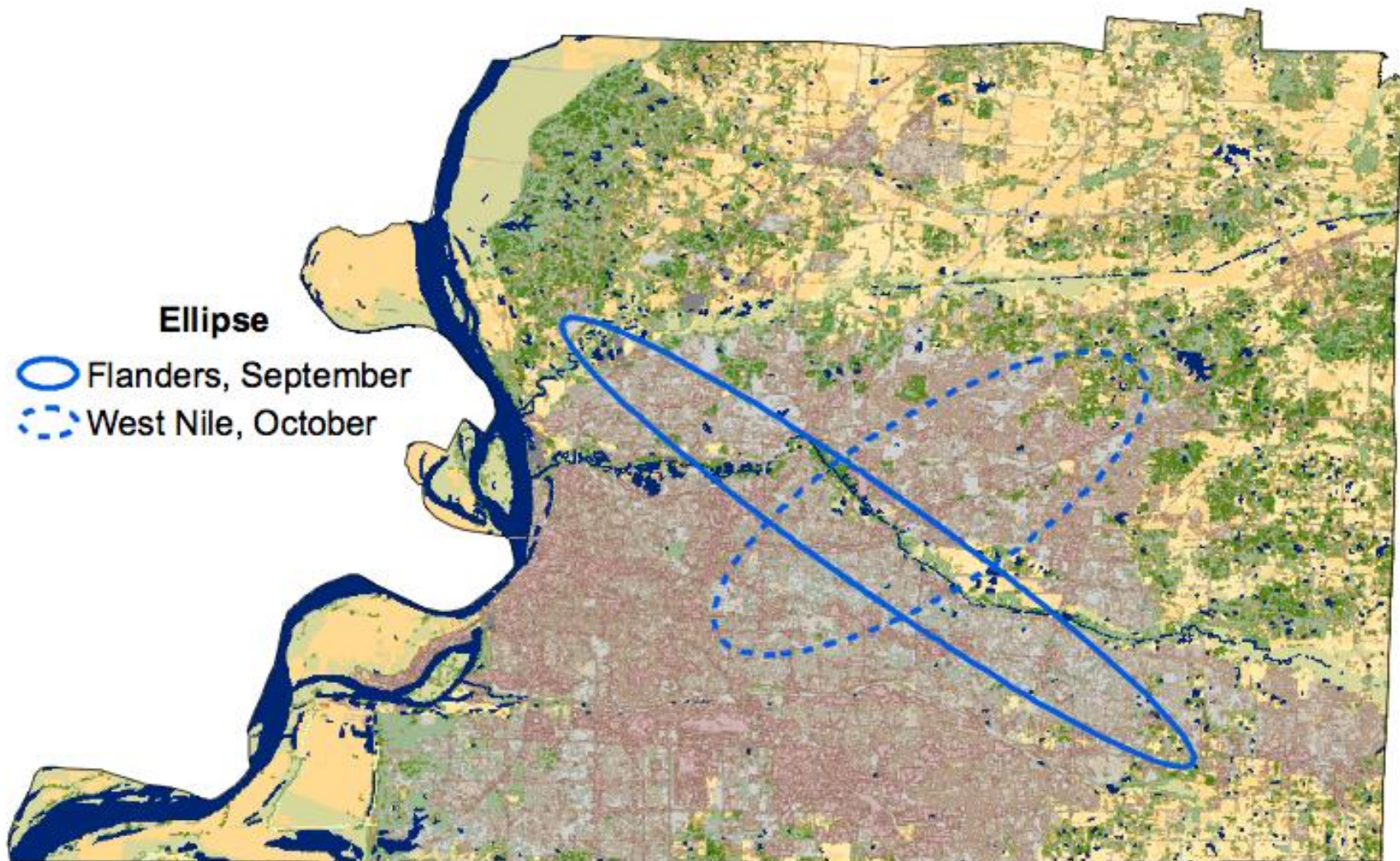
# Directional Distribution of Positive Sample Sites Weighted by Intensity, Shelby County, 2006 - 2009



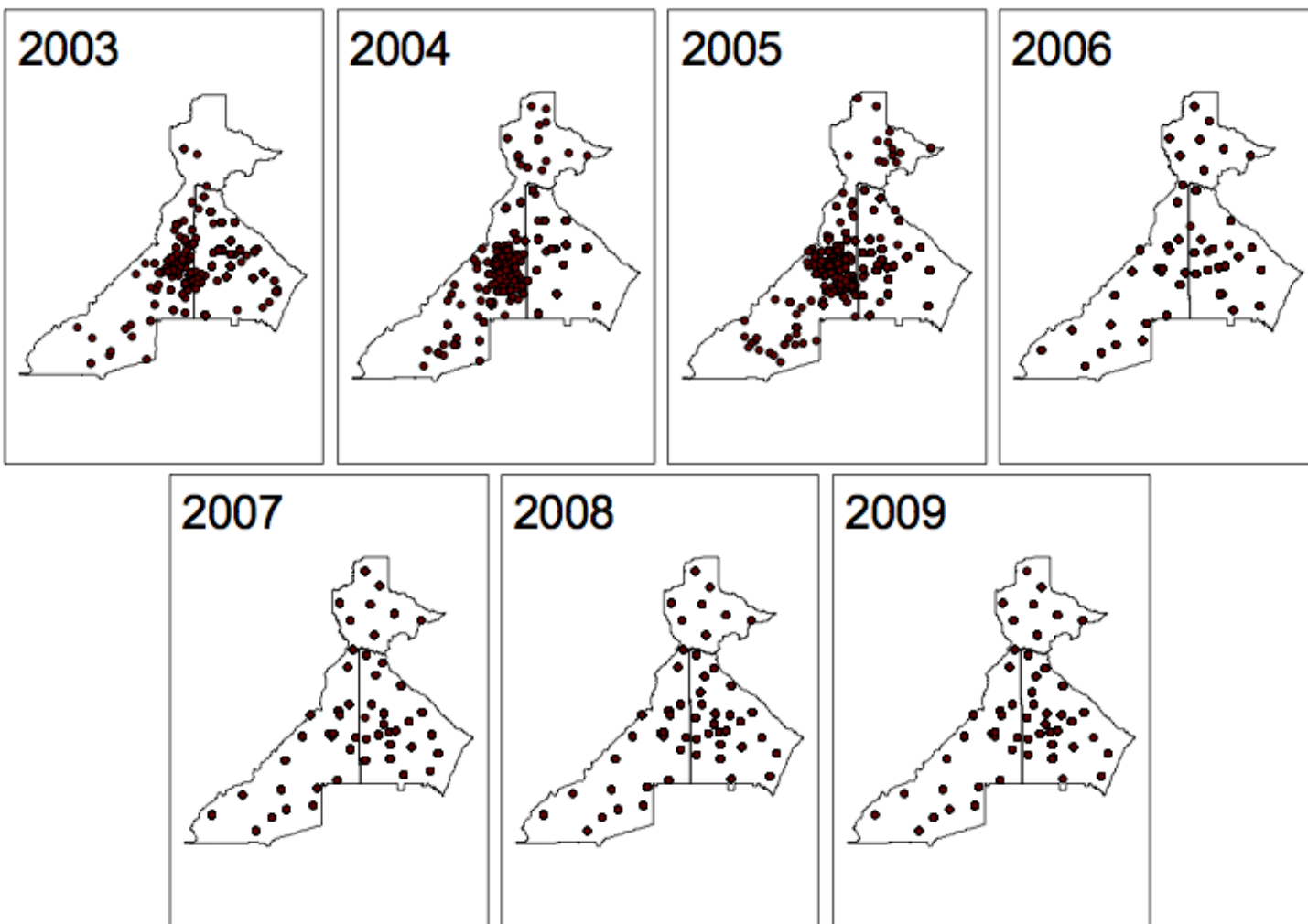
# Directional Distribution of Positive Sample Sites Weighted by Intensity, Shelby County, 2006 - 2009



# Directional Distribution of Positive Sample Sites Weighted by Intensity, Shelby County, 2006 - 2009

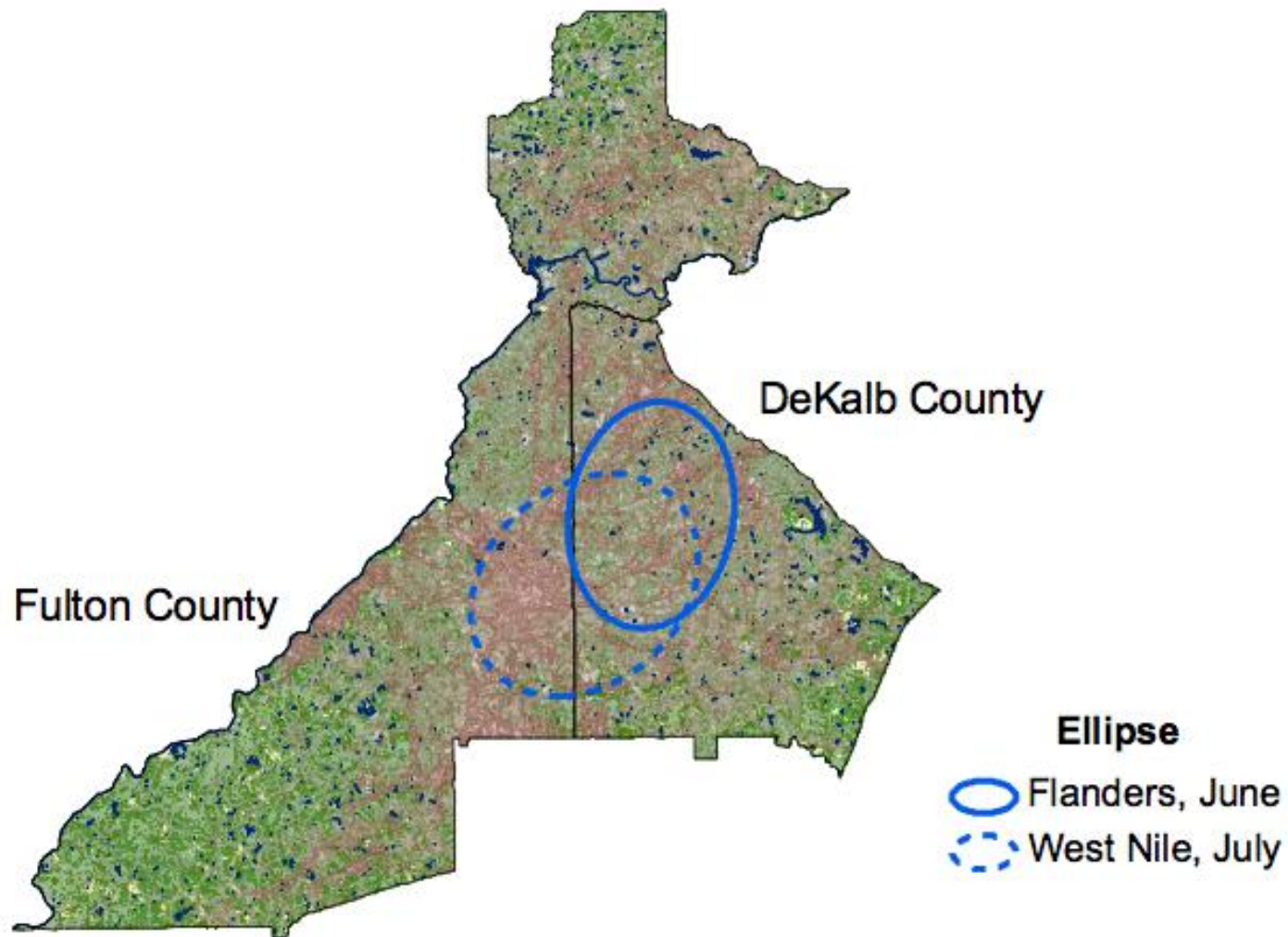


## Distribution of Sample Sites, Fulton and DeKalb Counties

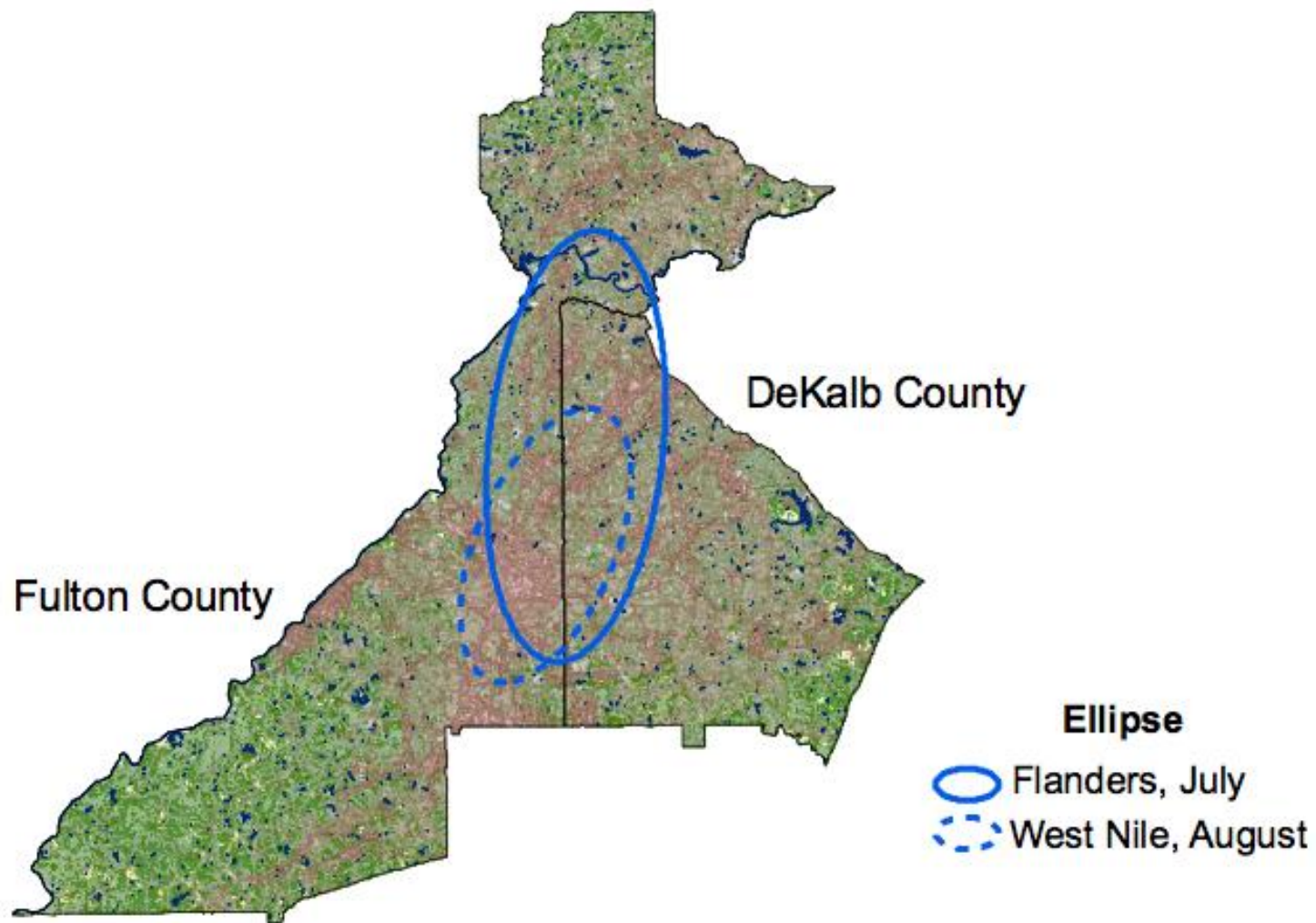




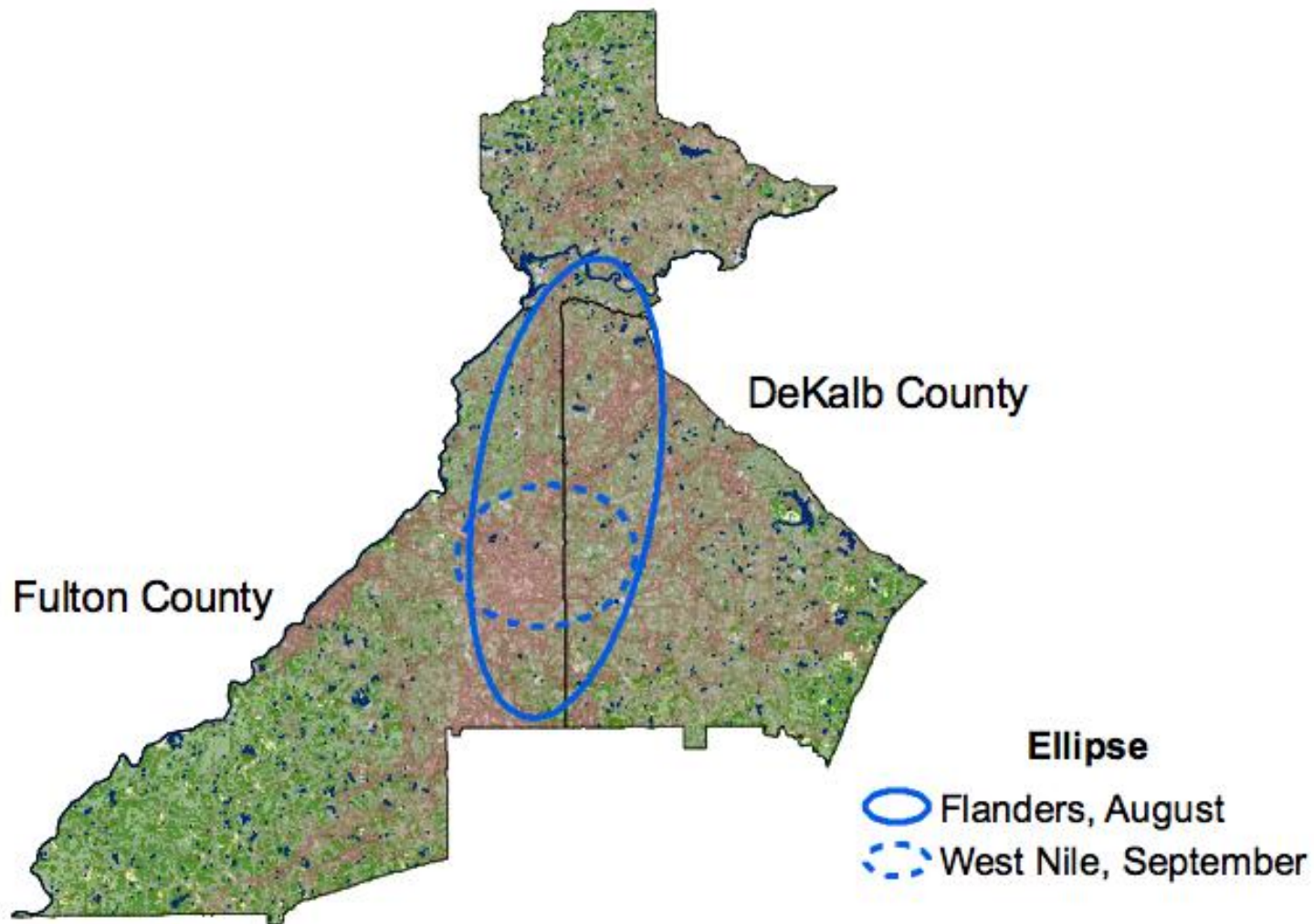
# Directional Distribution of Positive Sample Sites Weighted by Intensity, Fulton and DeKalb Counties, 2001 - 2009



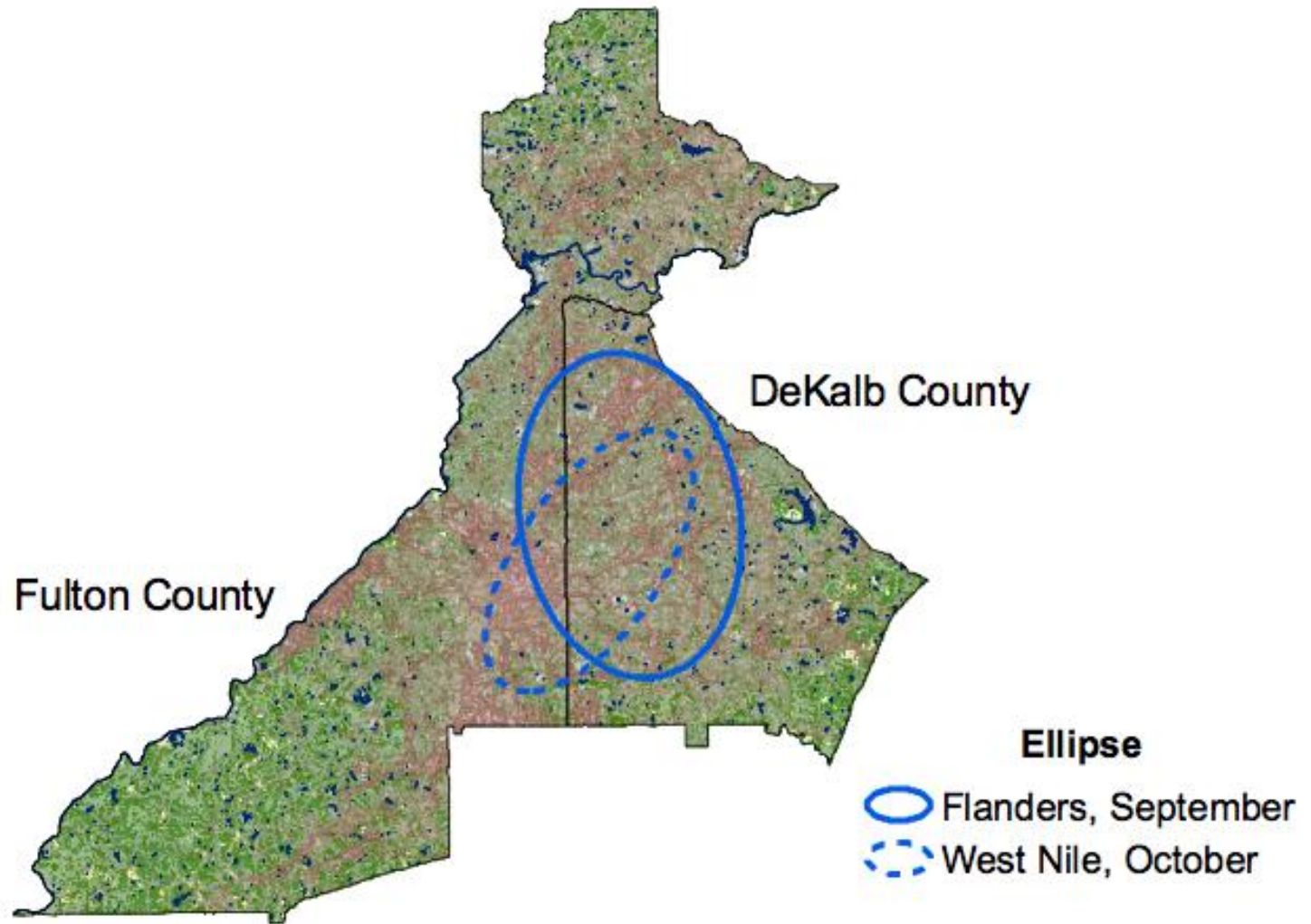
# Directional Distribution of Positive Sample Sites Weighted by Intensity, Fulton and DeKalb Counties, 2001 - 2009



# Directional Distribution of Positive Sample Sites Weighted by Intensity, Fulton and DeKalb Counties, 2001 - 2009



# Directional Distribution of Positive Sample Sites Weighted by Intensity, Fulton and DeKalb Counties, 2001 - 2009



Specificity

PPV

Memphis

1-km

97.87

91.49

Zip code

100

100

Atlanta

1-km

98.17

50.00

Zip code

98.40

60.29

# Use as a Sentinal Virus in SE U.S.

- FLAV appears prior to WNV
- FLAV appears near or at WNV sites
- Positive predictive value high

# Surveillance significance

- Spatially targeted control many weeks or months ahead of WNV emergence
- Feasible due to multiplex testing

# A New Paradigm

Use of non-pathogenic organisms as sentinels  
for pathogenic organisms