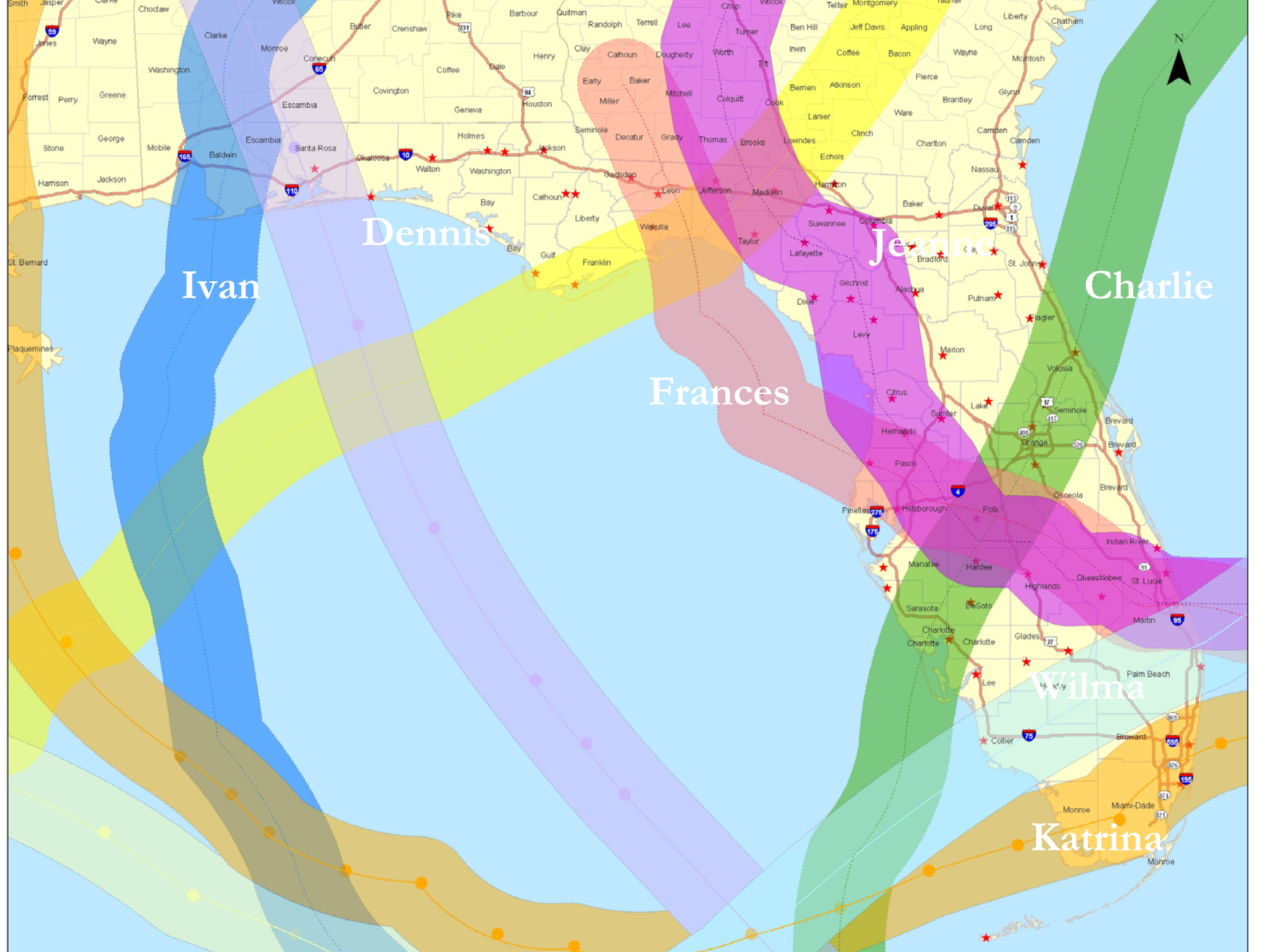


Arboviral disease after disasters

Carina Blackmore, DVM, PhD
State Public Health Veterinarian
State Environmental Epidemiologist
Florida Department of Health



Dennis

Jeanne

Frances

Charlie

Wilma

Katrina

Ivan

WN/ SLE virus Transmission Phases According To Day

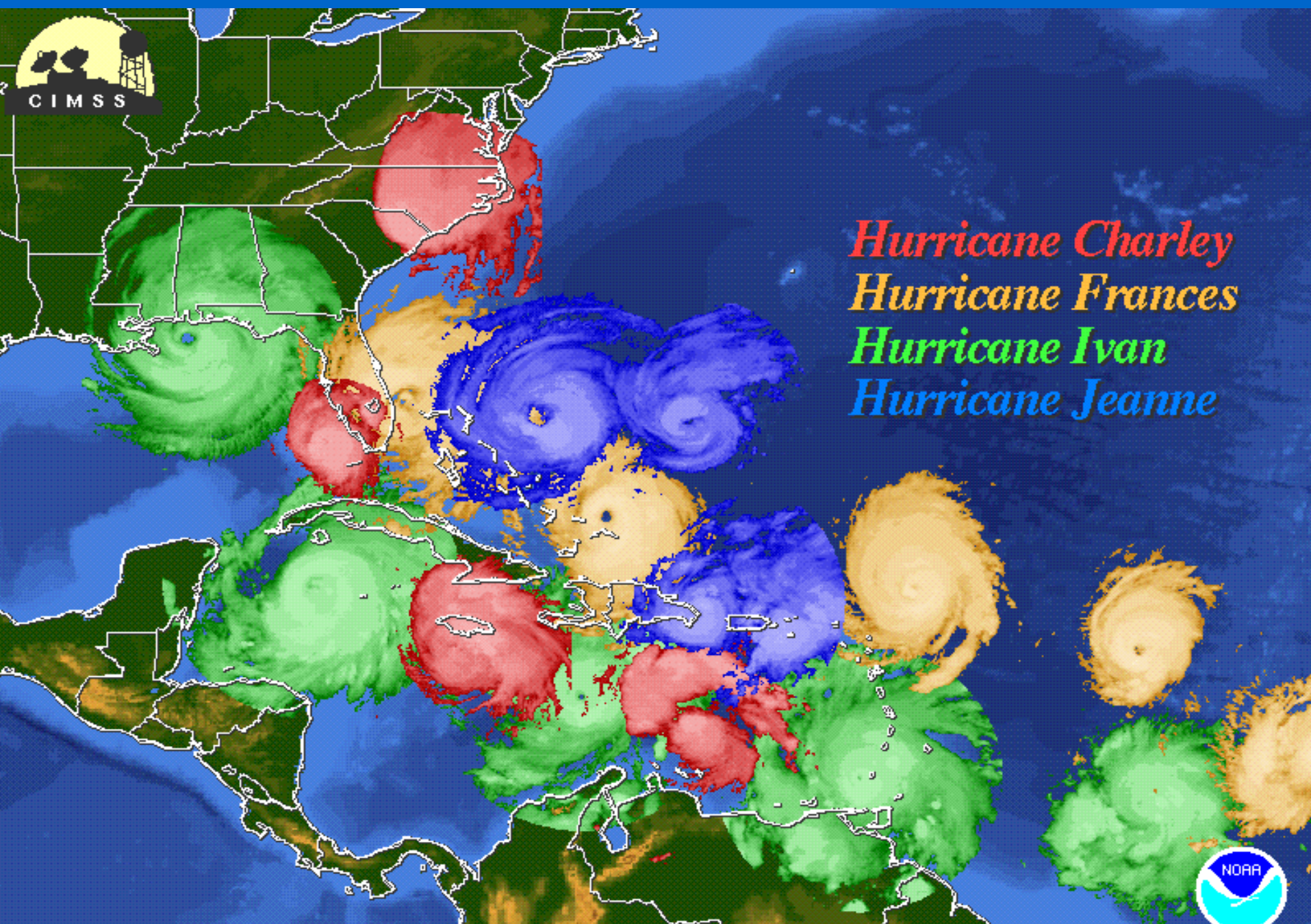
- Maintenance Phase - Jan-Mar
- Amplification Phase - Apr-June
 - Drought brings mosquitoes and birds together
- Early Transmission Phase - July-Sept
 - Rains disperse infected mosquitoes
- Late Transmission Phase – Oct-Dec

Why the concern?

- Large amounts of rain + wind
- ➔ *Culex* habitats ↑
- +
- Bird population replaced with juveniles without virus immunity
- Adult mosquito mortality
- Bird mortality/ displacement
-
- High ground water levels disperse bird populations during amplification phase

Historically...

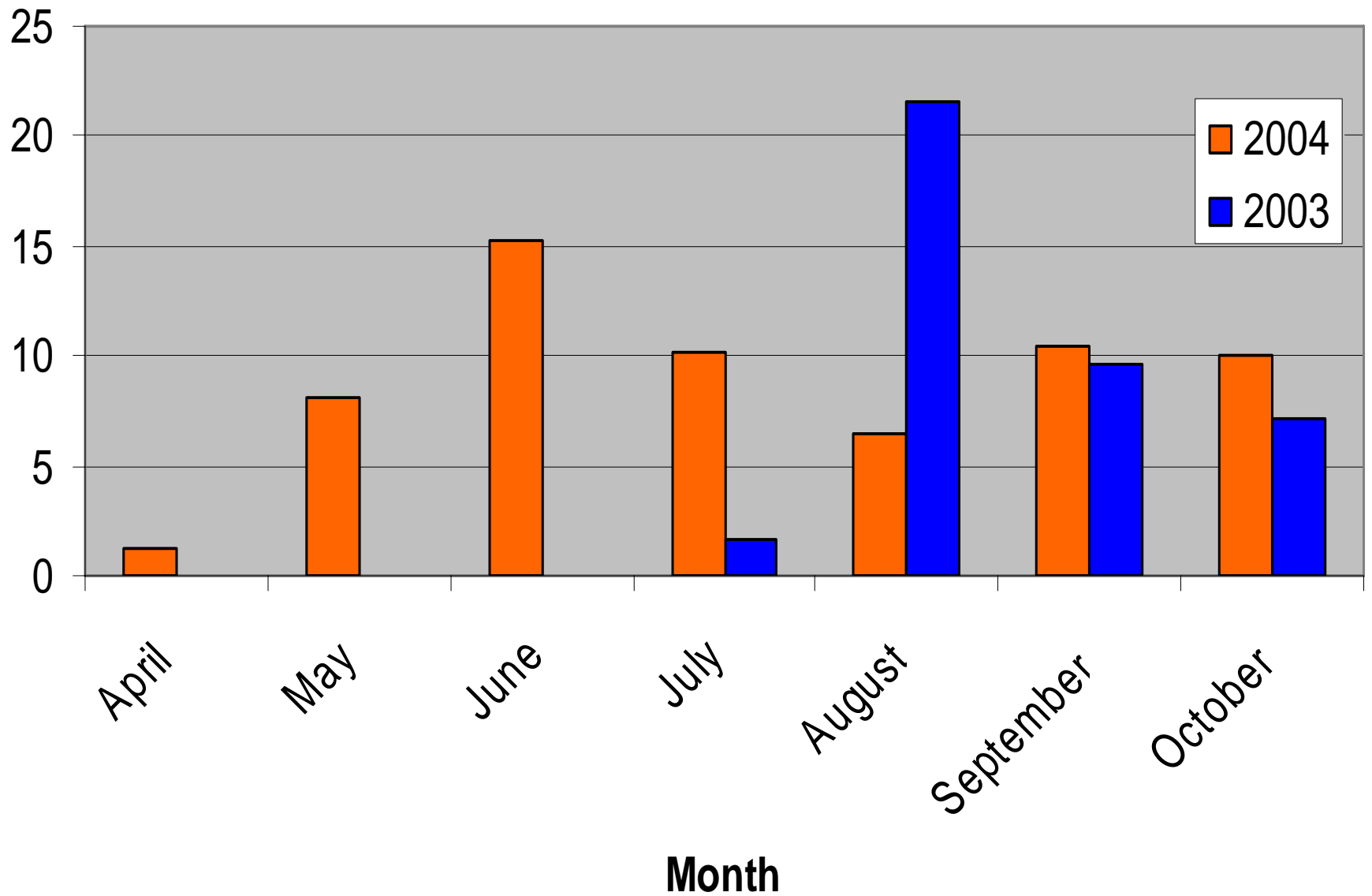
- Little experience
 - Tampa Bay 1961, 1962 (Donna, 1960)
 - Miami, (Andrew, 1990) not SLEV territory



Hurricane Charley
Hurricane Frances
Hurricane Ivan
Hurricane Jeanne



Seroconversion Rates, Hillsborough Co., 2003-2004



Miami-Dade Dead Bird Surveillance

Reported Dead Birds April, 2004 - July 10, 2004

-  Confirmed West Nile Virus
-  July=111 Dead Birds
-  June=190 Dead Birds
-  May=25 Dead Birds
-  April=12 Dead Birds

Sources of data: Florida Department of Health, Florida Fish and Wildlife Conservation Commission, County Health Departments, Tampa Branch Laboratory and the U.S. Census Bureau.

Reported Bird Mortality April 1, 2004 - July 10, 2004

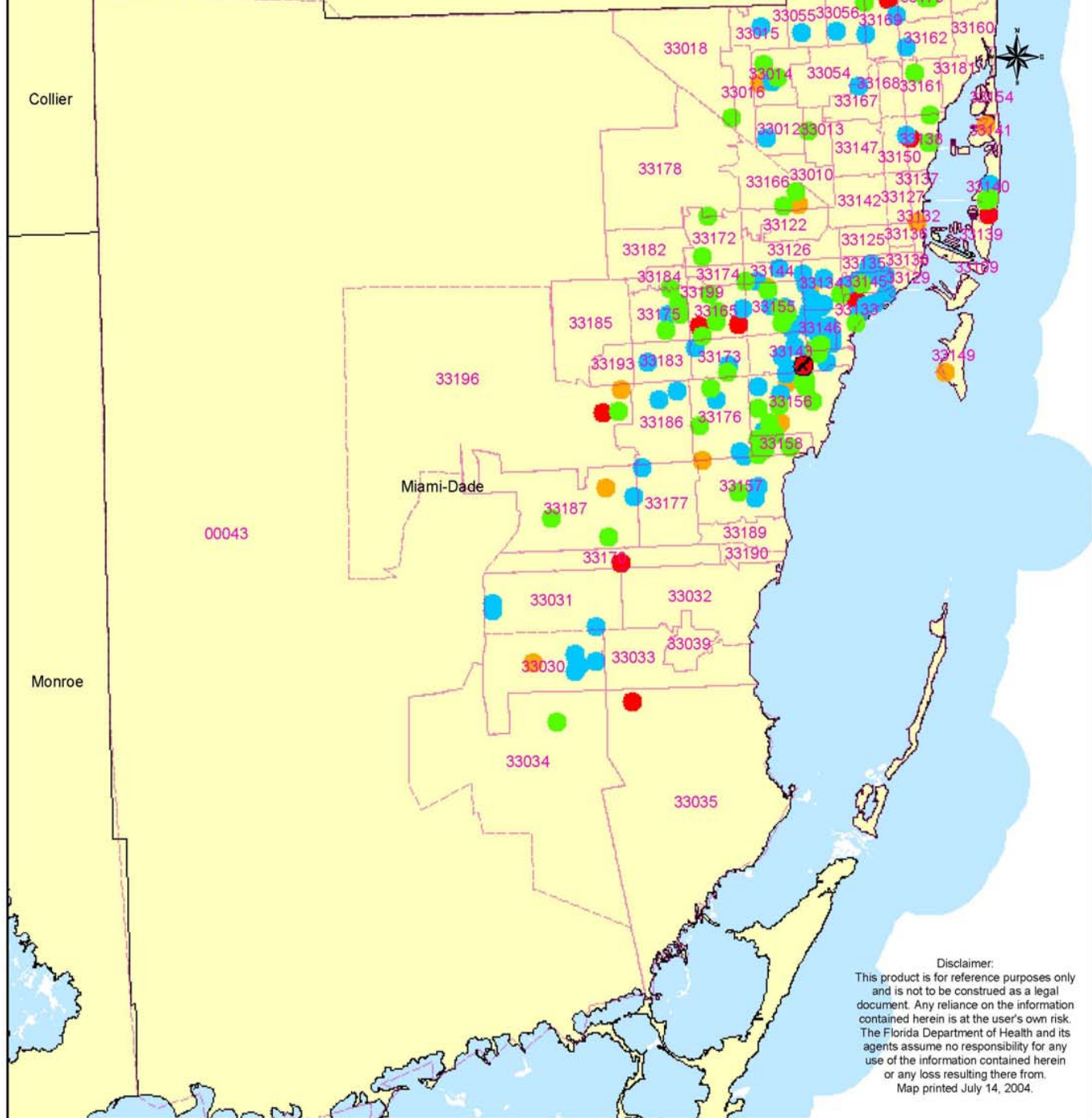
Total Dead Bird Reports Received = 239

* These reports represent a total of 360 individual birds.

** Only birds with valid geographic coordinates are shown on the map.

Florida Department of Health

Division of Environmental Health
Bureau of Community Environmental Health



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Map printed July 14, 2004.



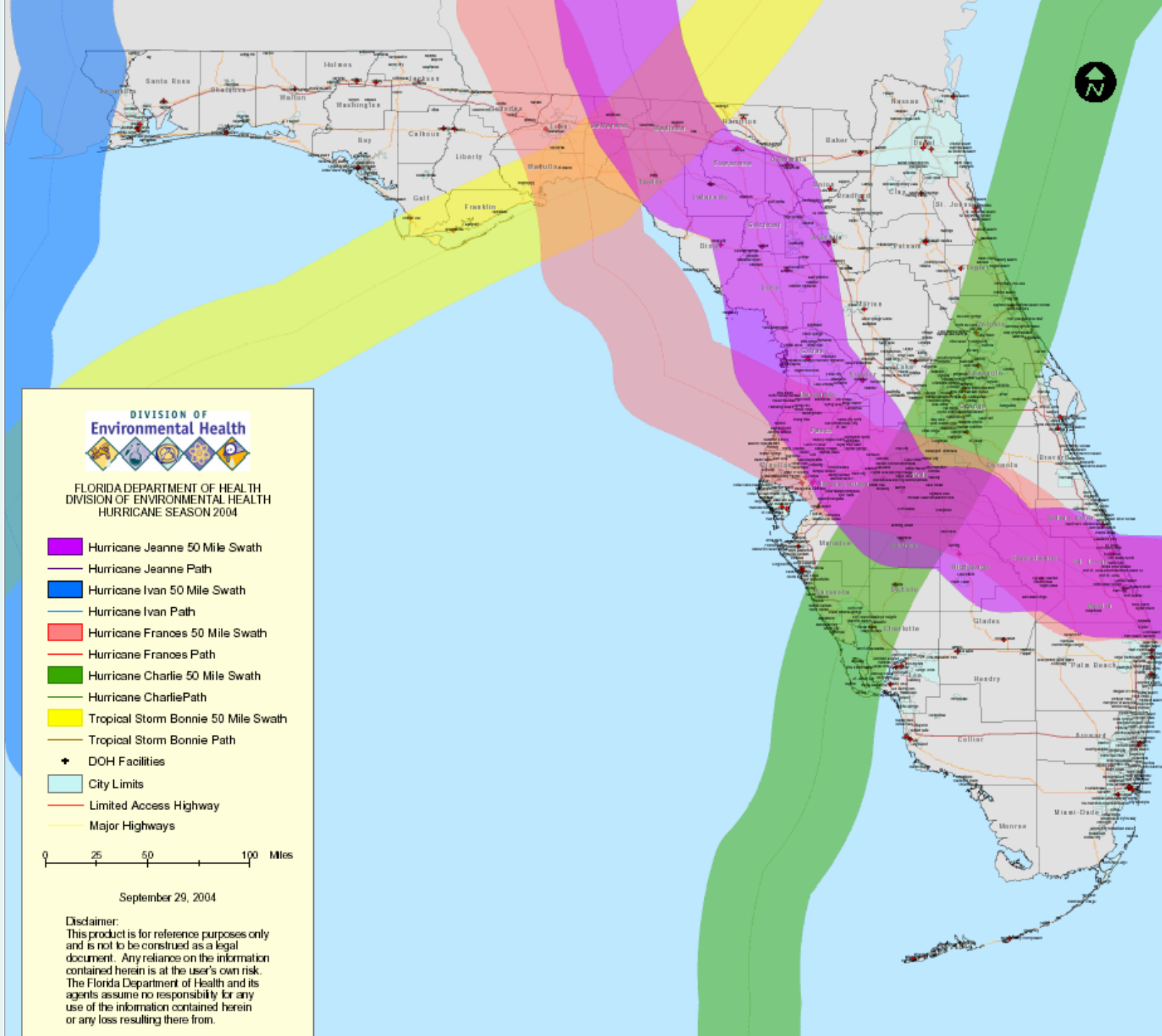
**FLORIDA DEPARTMENT OF HEALTH
DIVISION OF ENVIRONMENTAL HEALTH
HURRICANE SEASON 2004**

- Hurricane Jeanne 50 Mile Swath
- Hurricane Jeanne Path
- Hurricane Ivan 50 Mile Swath
- Hurricane Ivan Path
- Hurricane Frances 50 Mile Swath
- Hurricane Frances Path
- Hurricane Charlie 50 Mile Swath
- Hurricane Charlie Path
- Tropical Storm Bonnie 50 Mile Swath
- Tropical Storm Bonnie Path
- DOH Facilities
- City Limits
- Limited Access Highway
- Major Highways

0 25 50 100 Miles

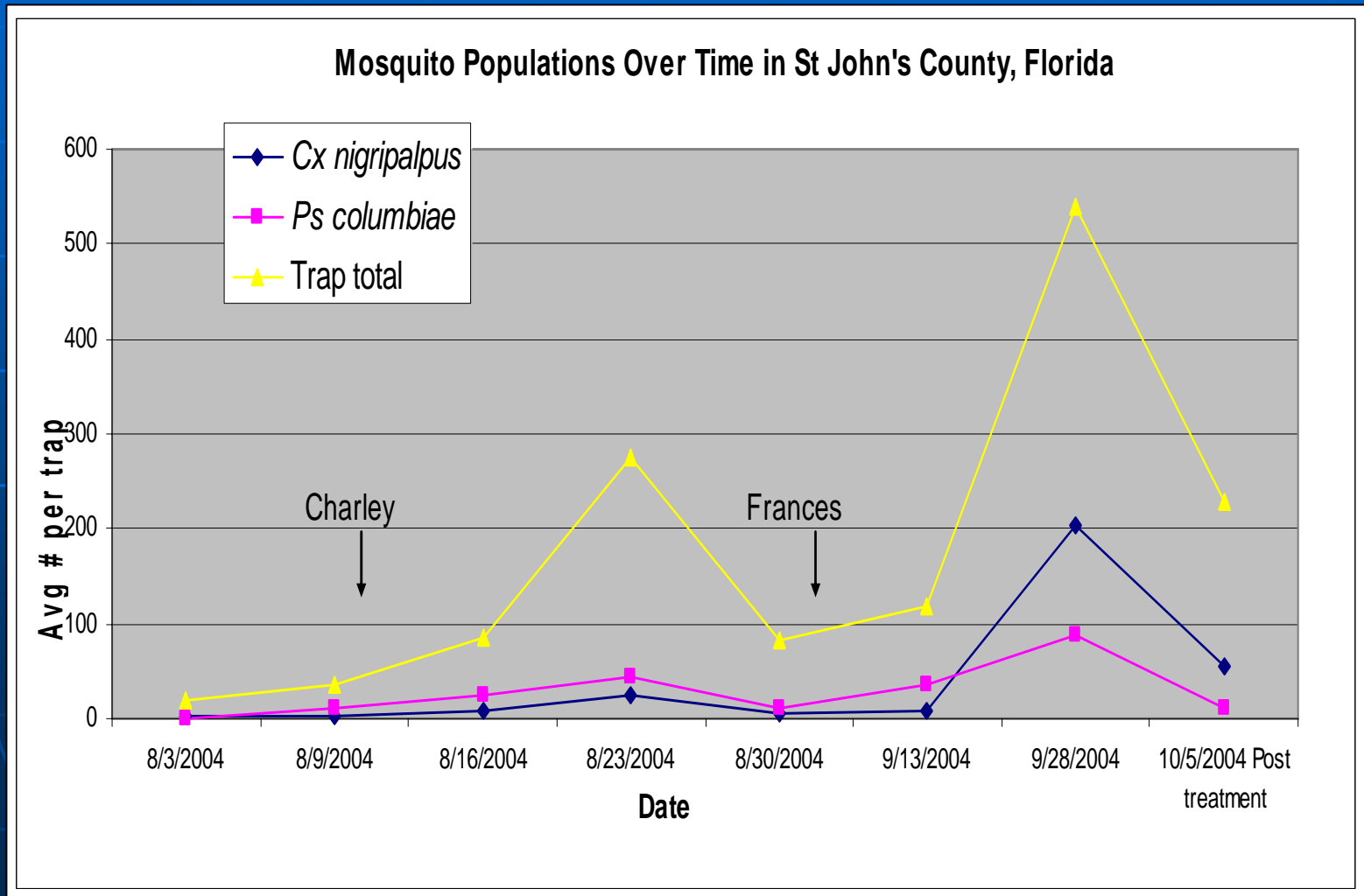
September 29, 2004

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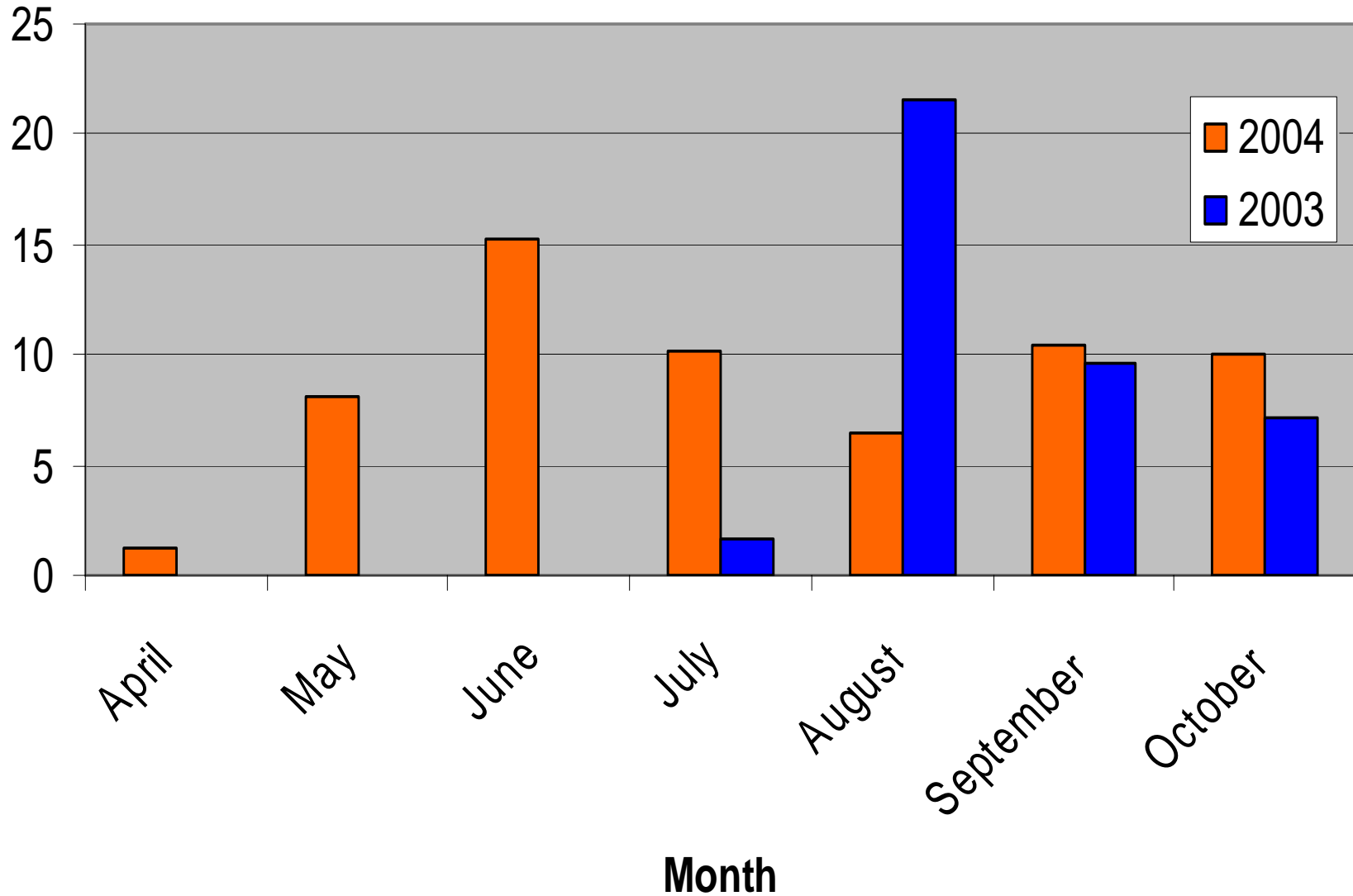
Mosquito Average per Trap by Date



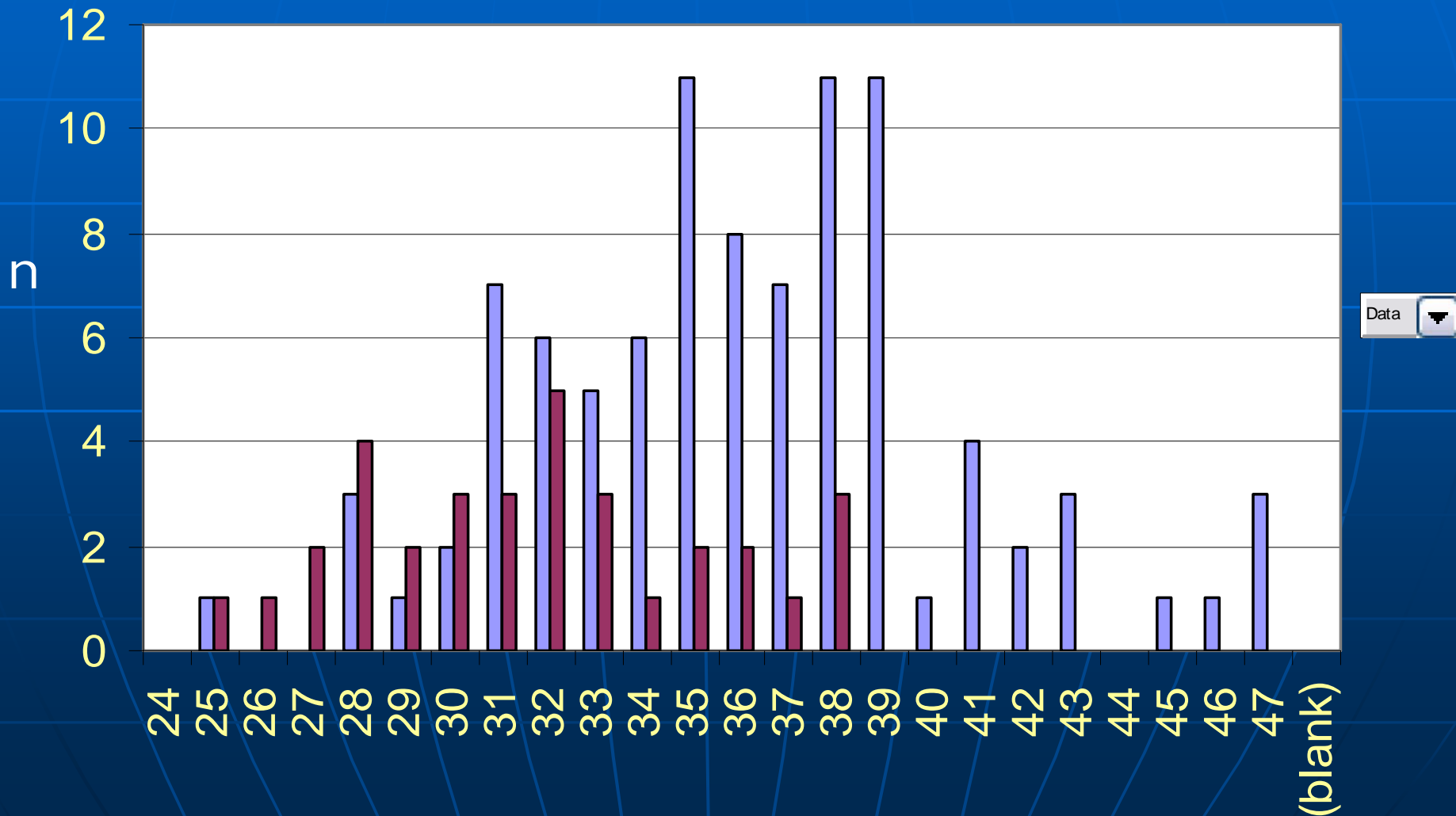
Vector-Borne Disease-Related Hurricane Response

- Disease surveillance
 - Reportable disease surveillance
 - Syndromic surveillance
- Public information
- DEET distribution
- Larvicide distribution
- Pesticide exposure study
- Adulticiding

Seroconversion Rates, Hillsborough Co., 2003-2004



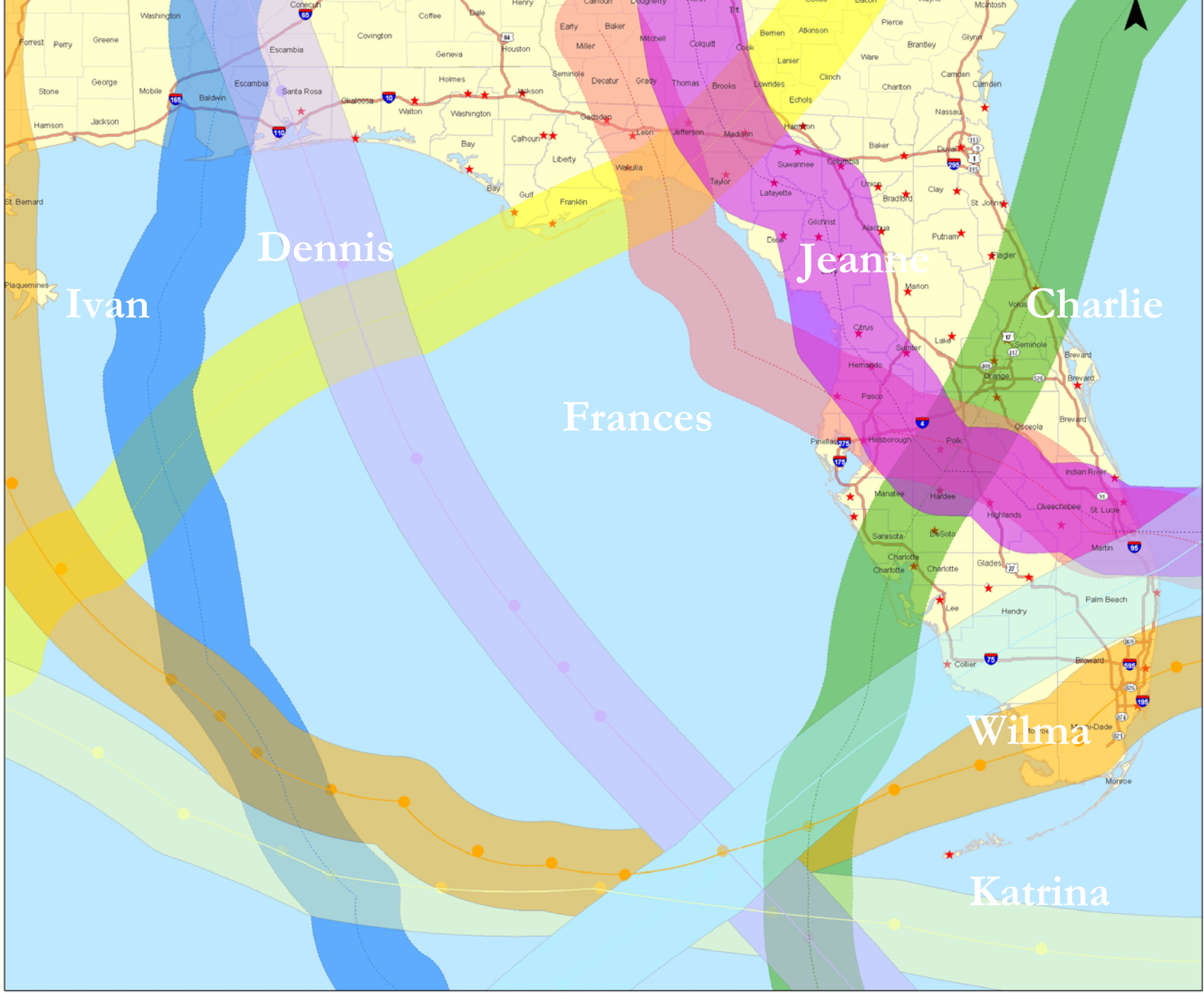
Human Epi Curve 2003 vs. 2004



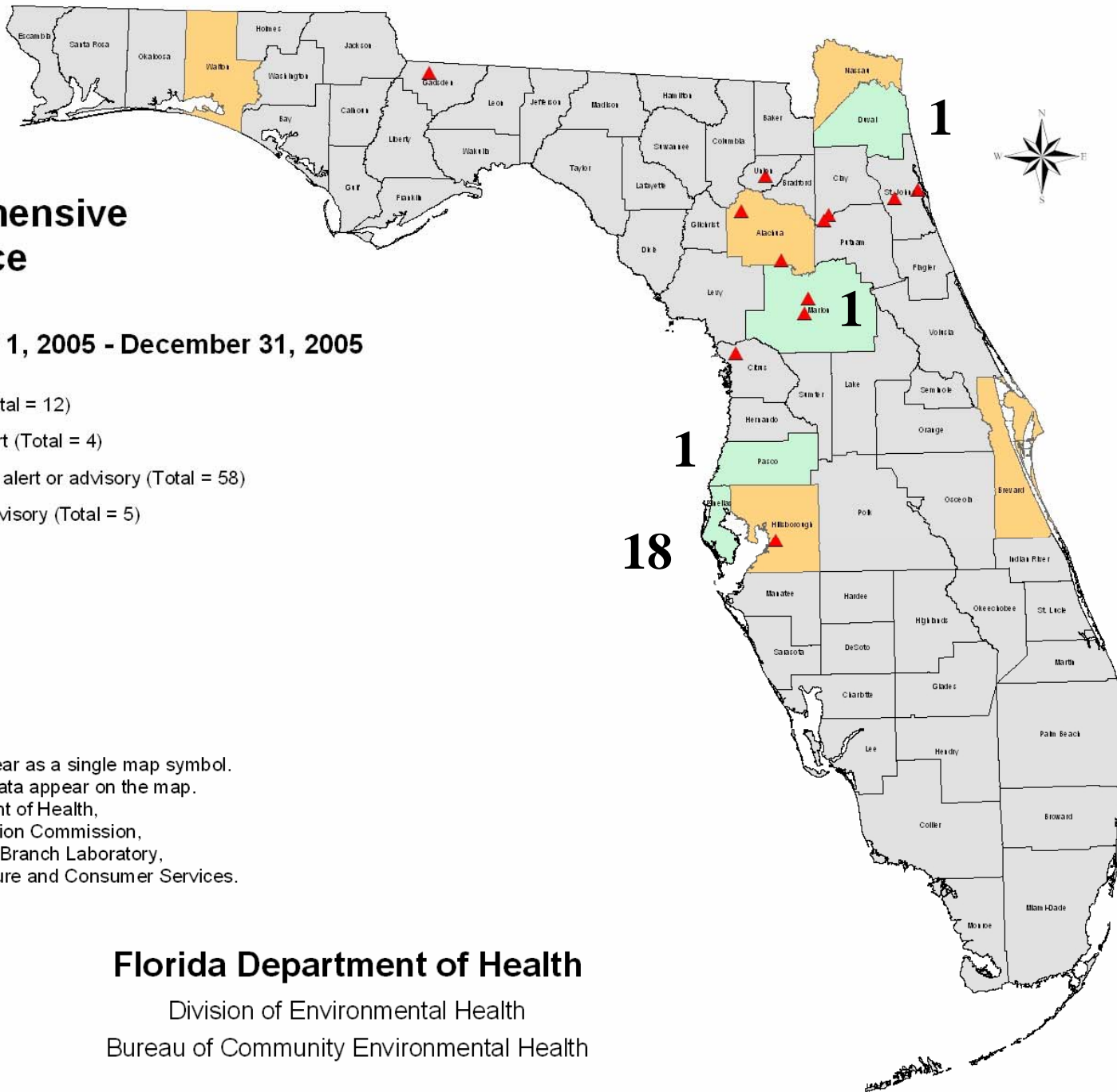


Department of Health 2004 & 2005

- Department
- 50 Mile Swath
- 100 Mile Swath
- 150 Mile Swath
- 200 Mile Swath
- 250 Mile Swath
- 300 Mile Swath
- 350 Mile Swath
- 400 Mile Swath
- 450 Mile Swath
- 500 Mile Swath



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 and is not liable for any
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 consequential, arising from
 the use of this information,
 2006.



Florida Comprehensive WNV Surveillance

Data Collected January 1, 2005 - December 31, 2005

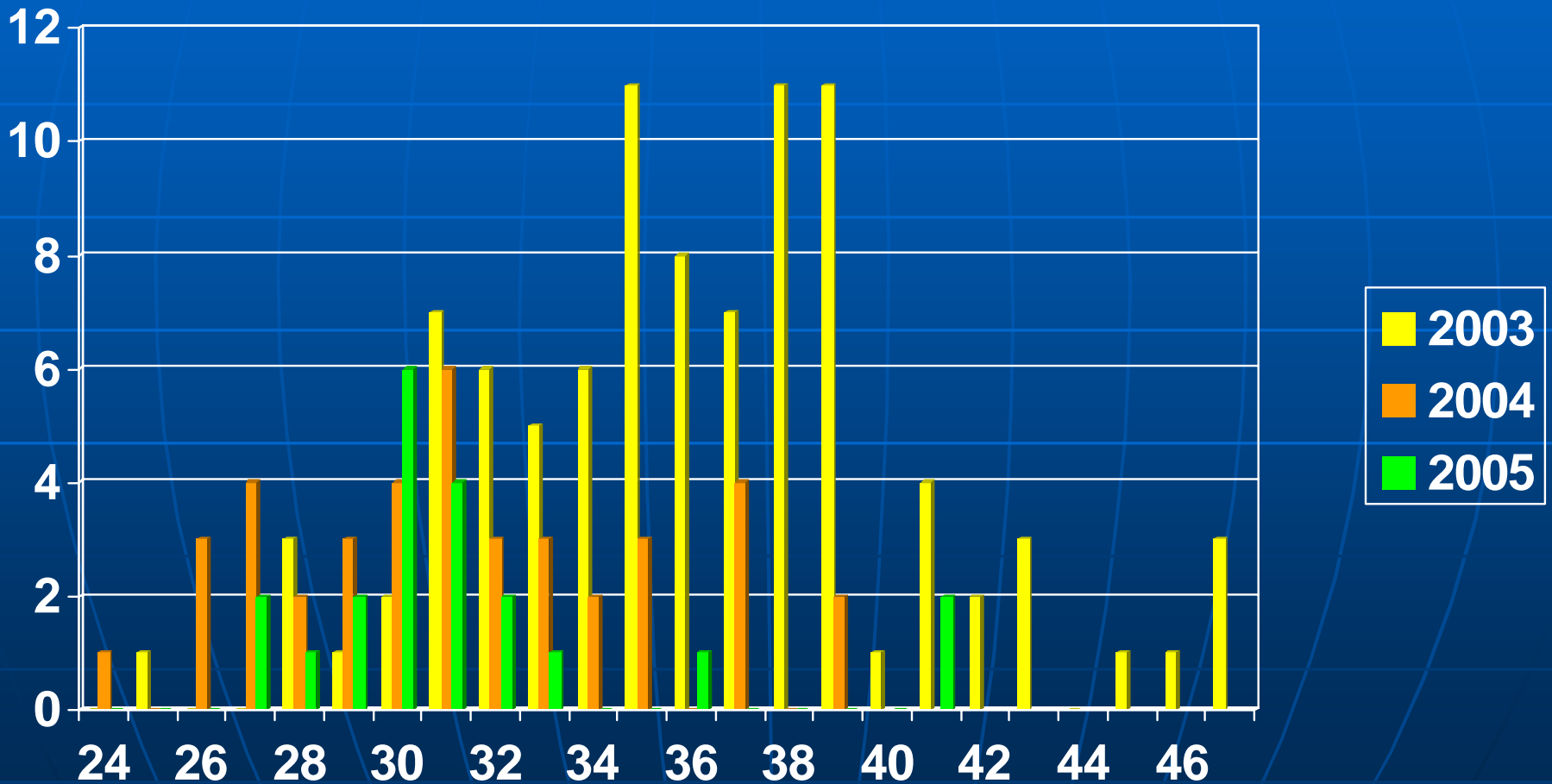
- ▲ Confirmed Equine WNV (Total = 12)
- Counties under medical alert (Total = 4)
- Counties not under medical alert or advisory (Total = 58)
- Counties under medical advisory (Total = 5)

Geographic clusters may only appear as a single map symbol.
 Only cases with valid geographic data appear on the map.
 Sources of data: Florida Department of Health,
 Florida Fish and Wildlife Conservation Commission,
 County Health Department, Tampa Branch Laboratory,
 and Florida Department of Agriculture and Consumer Services.
 WNV = West Nile Virus
 WNE = West Nile Encephalitis

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 Map printed January 20, 2006.

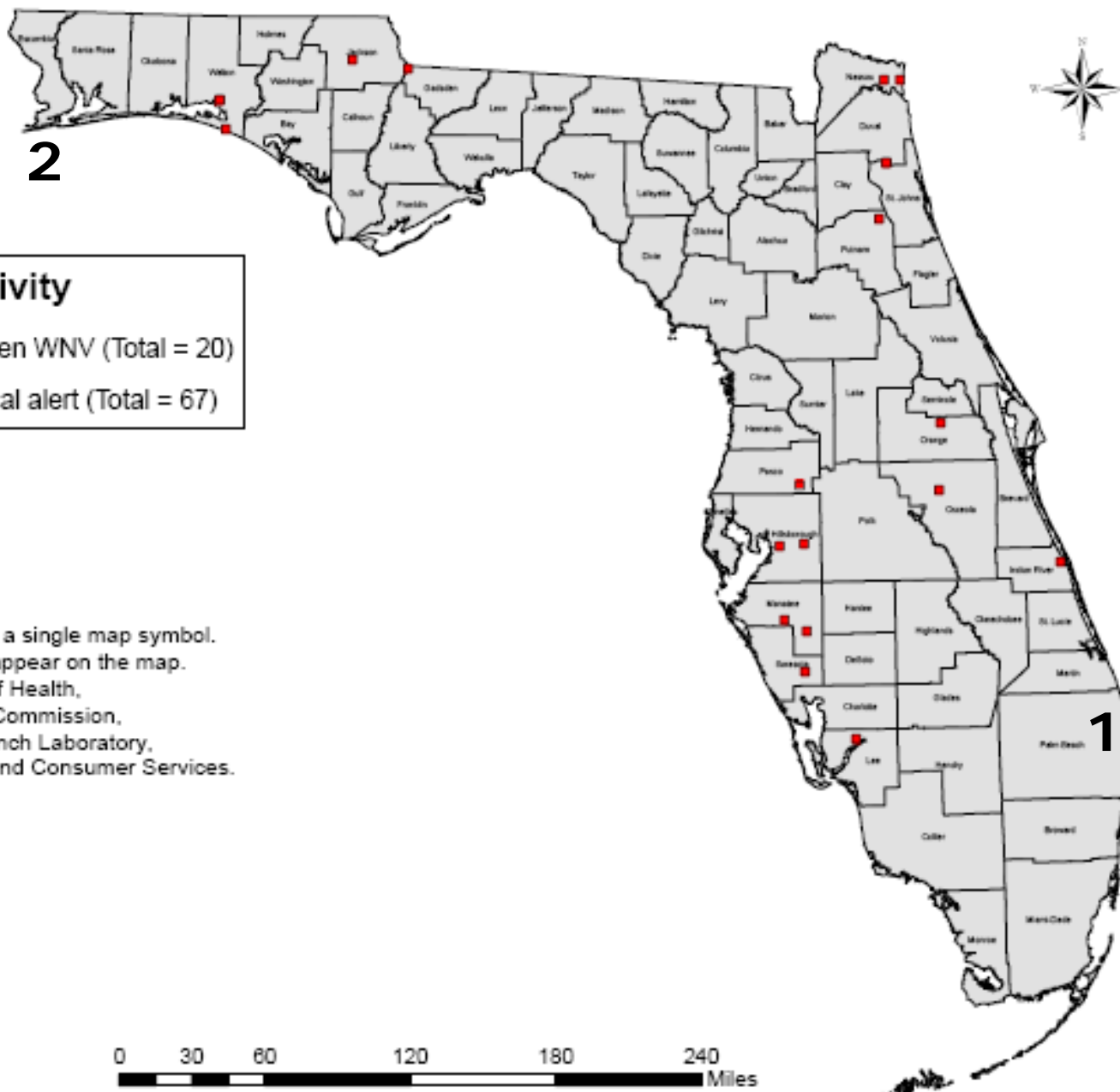
Florida Department of Health
 Division of Environmental Health
 Bureau of Community Environmental Health

West Nile Cases 2003-2005



2003 - 2006 Case Stats

	2003	2004	2005
■ Median age	51	60	56
■ % males	65	60	70
■ % WNNI	63	75	48



WNV Surveillance Activity

■ Confirmed Sentinel Chicken WNV (Total = 20)

□ Counties not under medical alert (Total = 67)

Geographic clusters may only appear as a single map symbol.
Only cases with valid geographic data appear on the map.
Sources of Data : Florida Department of Health,
Florida Fish and Wildlife Conservation Commission,
County Health Department, Tampa Branch Laboratory,
and Florida Department of Agriculture and Consumer Services.
WNV = West Nile Virus
WNE= West Nile Encephalitis

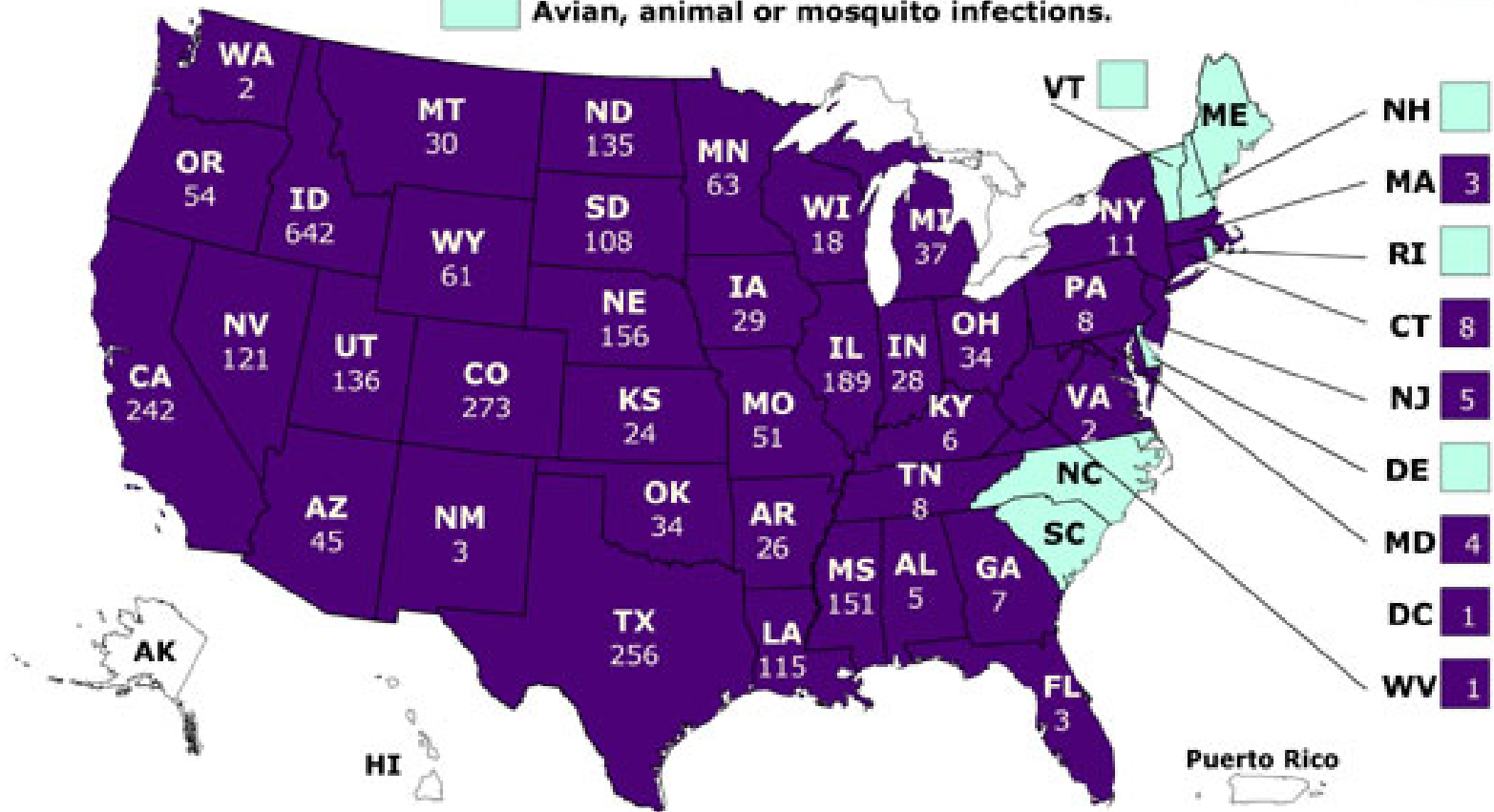
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Map printed October 9, 2006

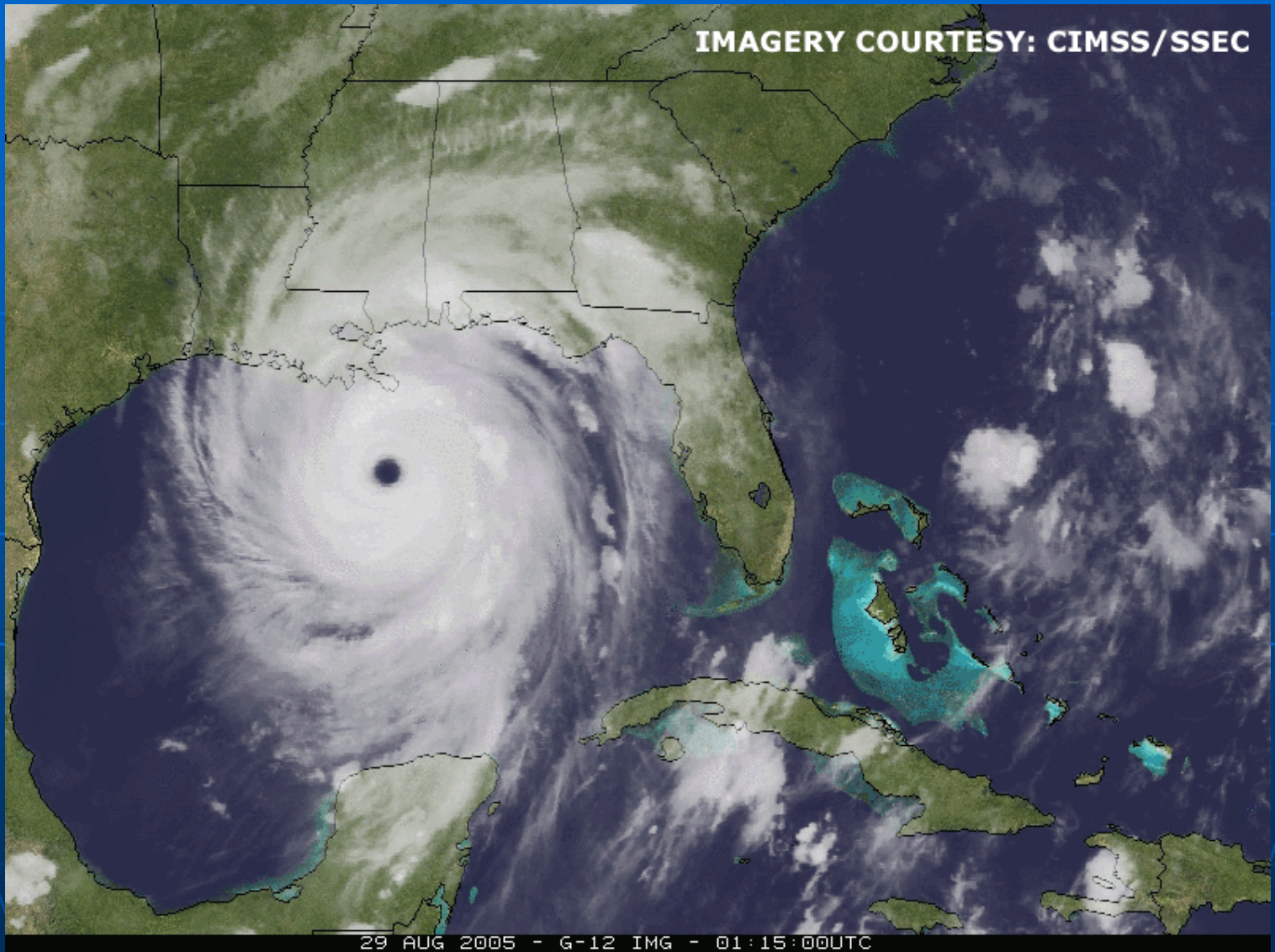
What about other states?



Indicates human disease case(s).
Avian, animal or mosquito infections.



IMAGERY COURTESY: CIMSS/SSEC



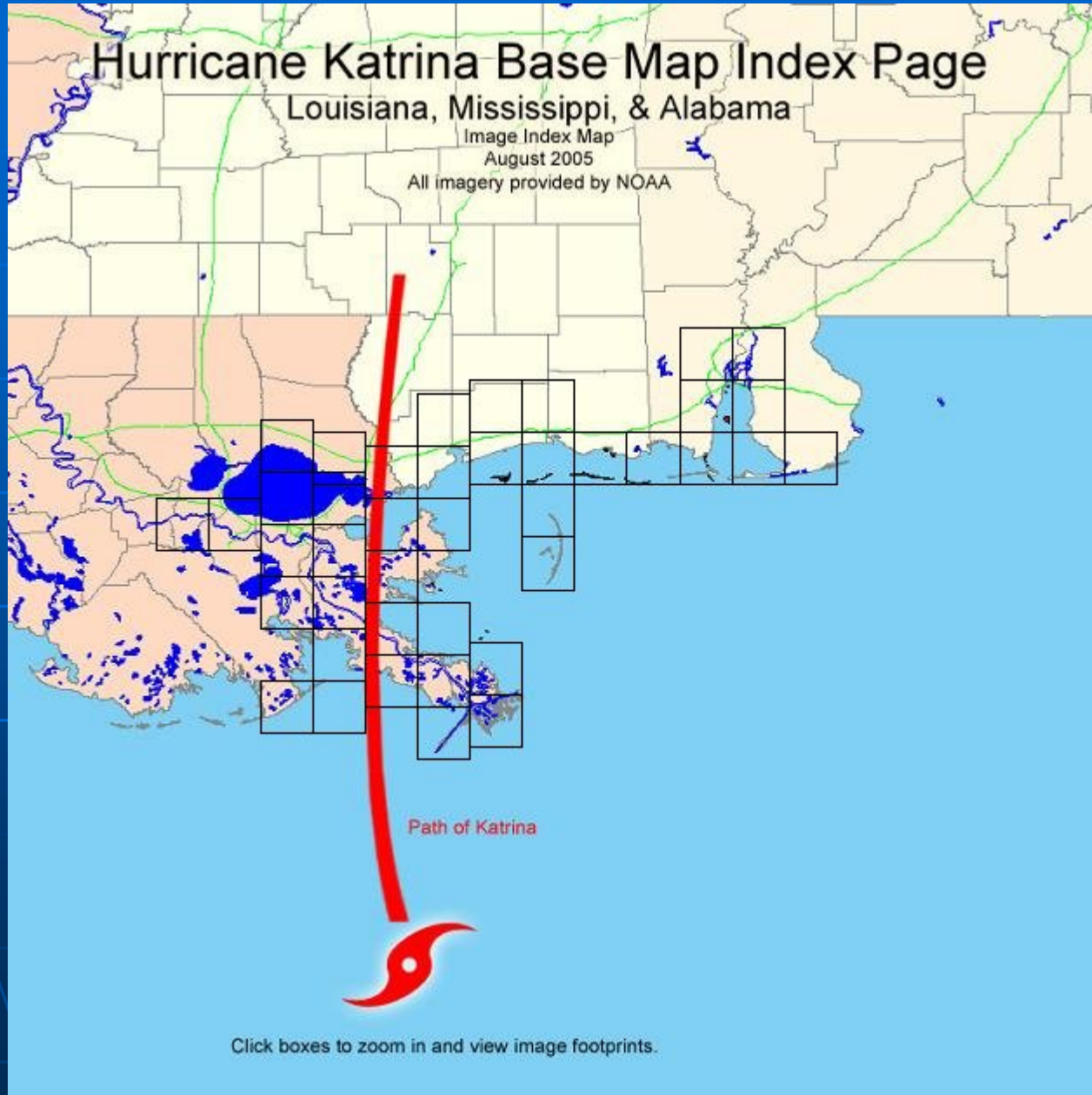
29 AUG 2005 - 6-12 IMG - 01:15:00UTC

Hurricane Katrina Base Map Index Page

Louisiana, Mississippi, & Alabama

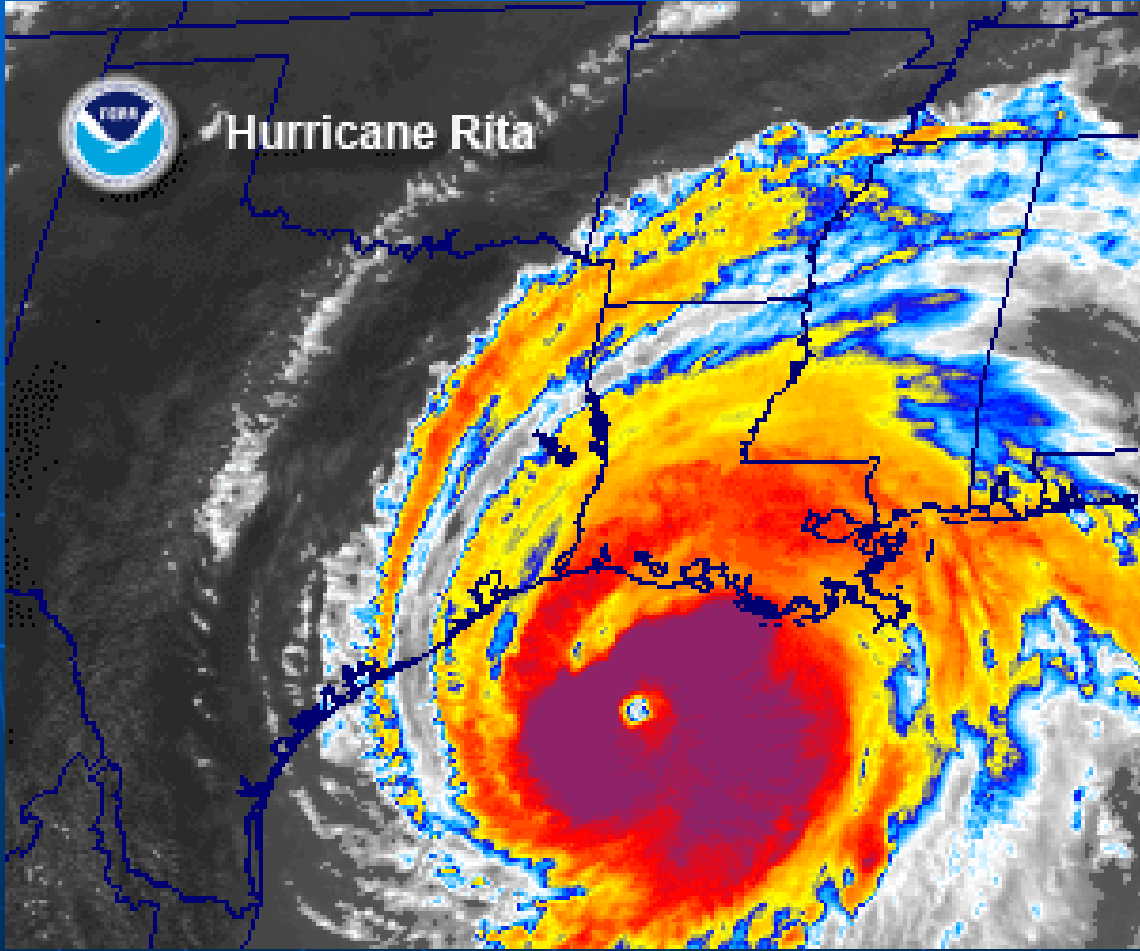
Image Index Map
August 2005

All imagery provided by NOAA

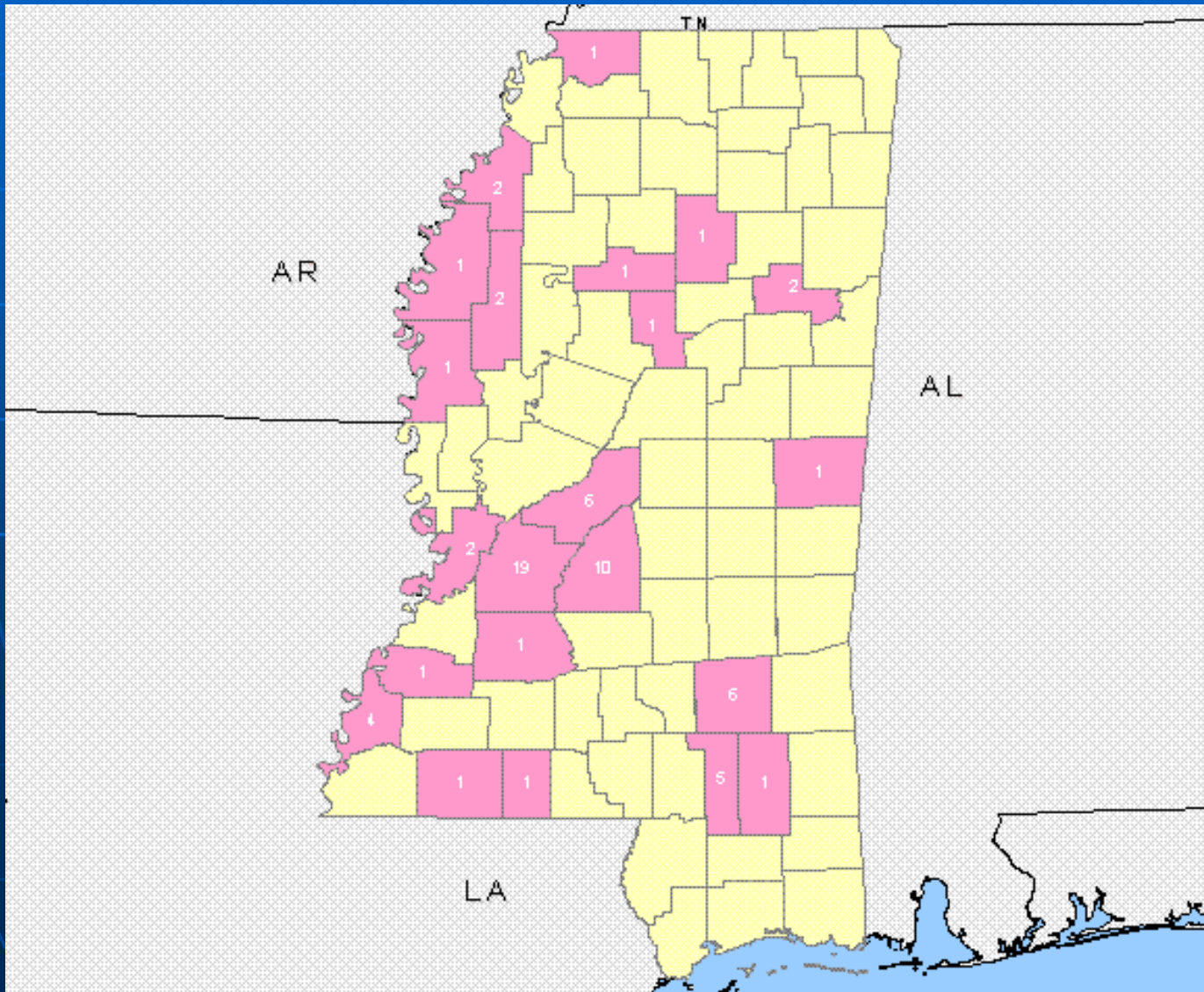


Path of Katrina

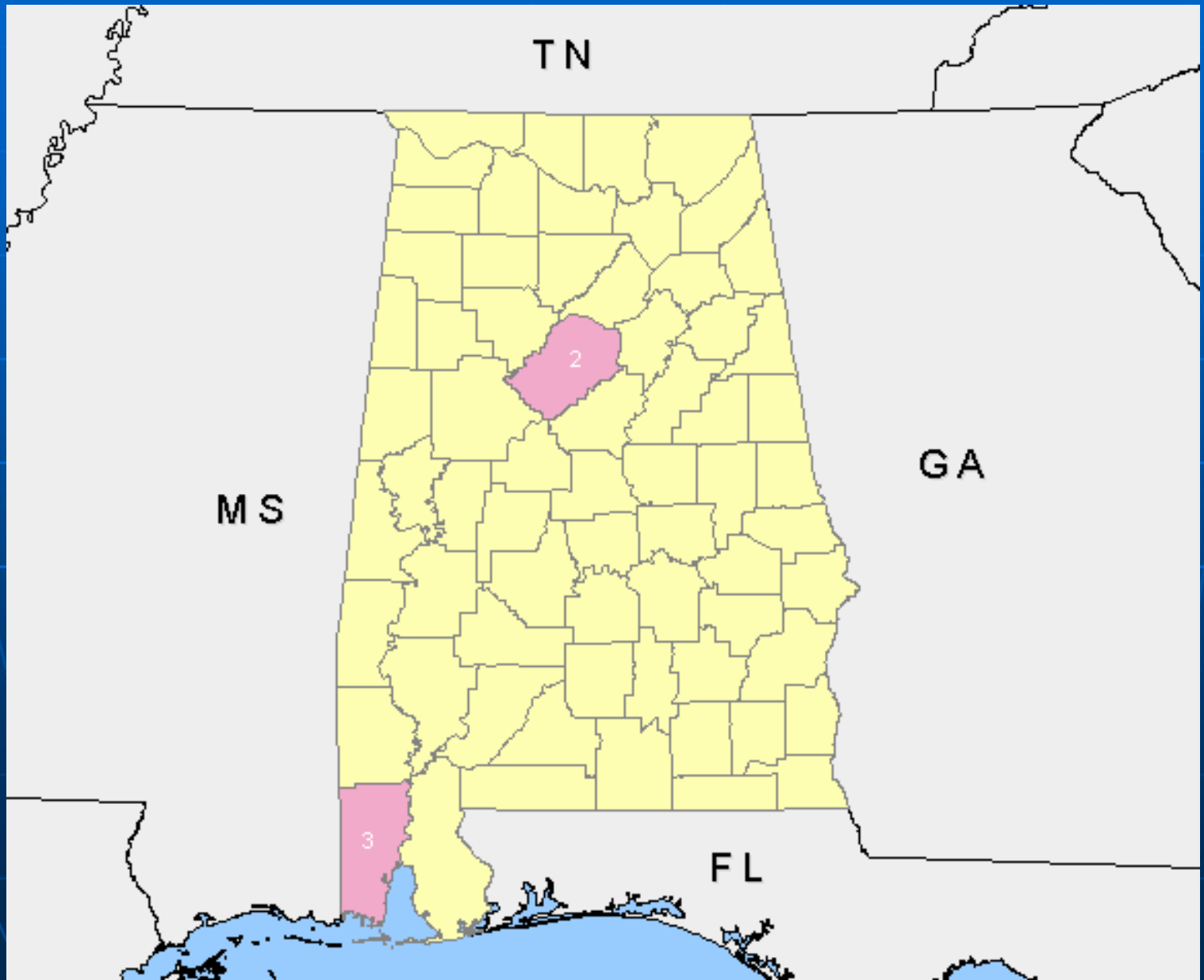
Click boxes to zoom in and view image footprints.



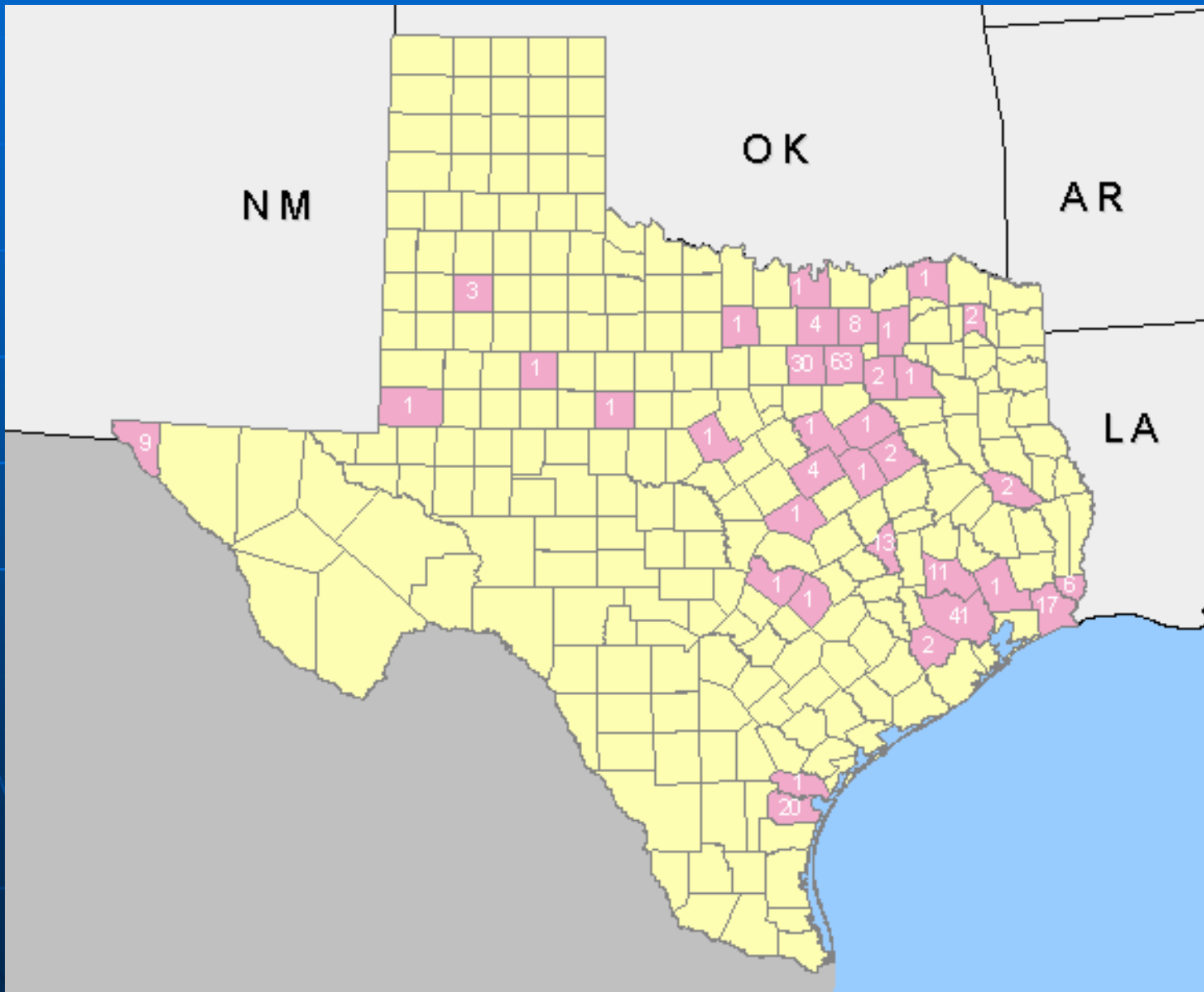
WNV cases, Mississippi, 2005



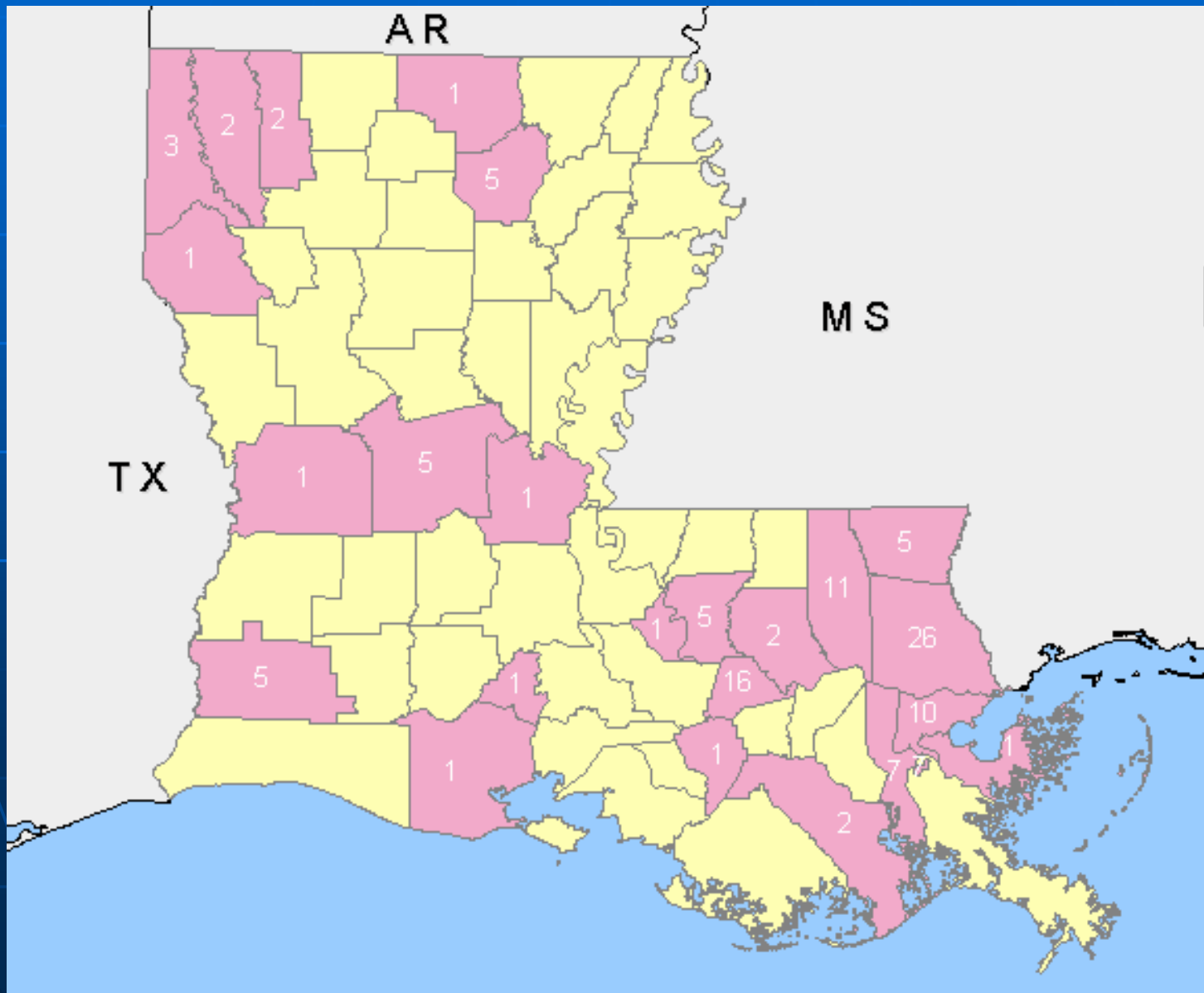
WNV infections AL, 2006



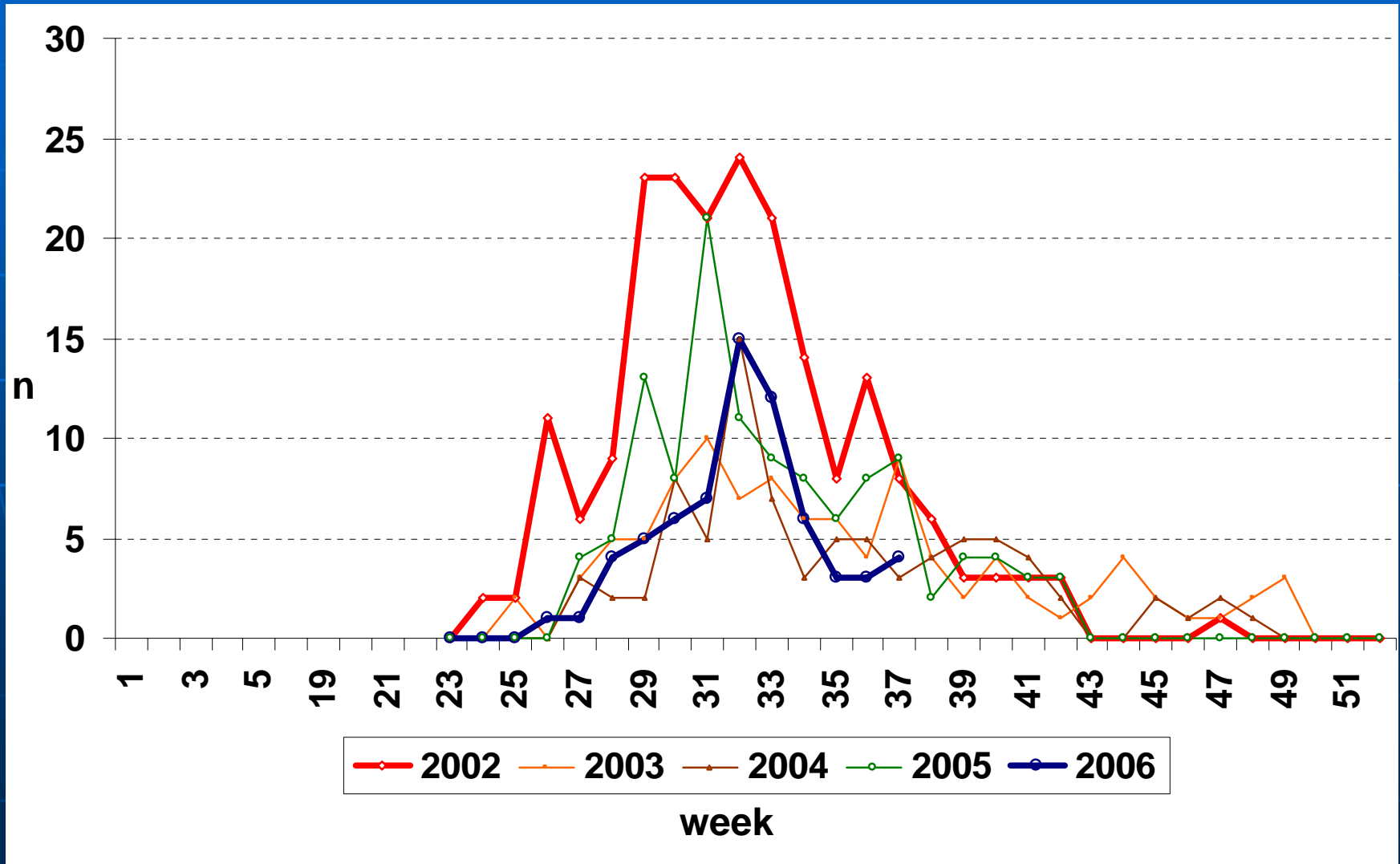
WNV infections, TX 2006



WNV infections, LA 2006



WN neuroinvasive disease, LA 2002-2006



Conclusions

- Short term no effect (decline)
- Long term follow up needed
- SURVEILLANCE

Questions?

Get Out of the Zap Zone

