West Nile Virus Surveillance and Public Health Response

Florida 2001

FLORIDA DEPARTMENT OF HEALTH

The Plan

- Building on existing system for arboviral control

Florida Interagency Partnerships/Acknowledgements

- Department of Health
- Department of Agriculture and Consumer Services
- Florida Conservation and Wildlife Commission
- Department of Environmental Protection
- Florida Mosquito Control Association
- University of Florida Medical Entomology Laboratory
- Florida A&M Public Health Entomology Resource and Education Center
- Centers for Disease Control and Prevention

Florida Ecology Supports Arbovirus

- Warm Climate
- Regular Rainfall
- Vectors Identified
- Suitable Hosts for Amplification
- Historical Data

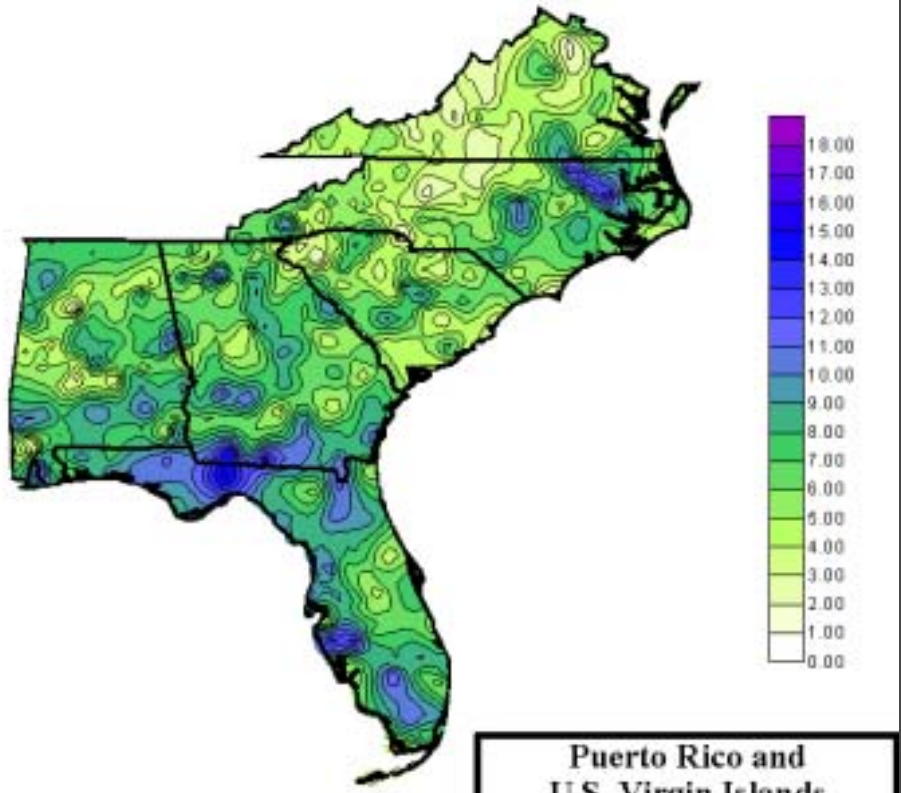
Surveillance for West Nile Virus

- Animal surveillance
  - Dead birds
  - Sentinel chickens
  - Horses
  - *Other vertebrates (minor)*
- *Mosquito surveillance*
- Human surveillance

Southeast

Precipitation

June 2001



Puerto Rico and
U.S. Virgin Islands

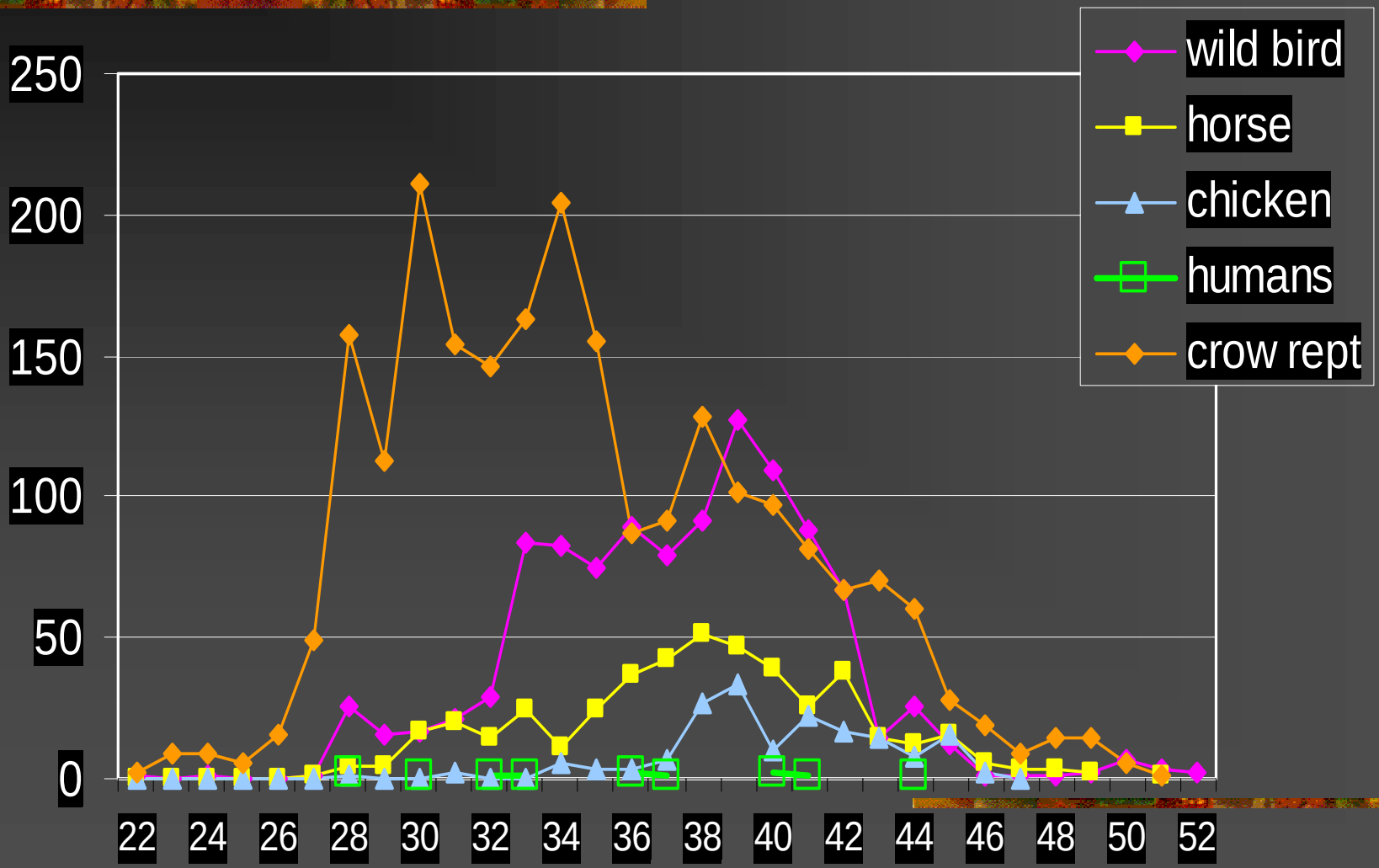
*Based on Final Data

Contour Interval - 1.00 Inches

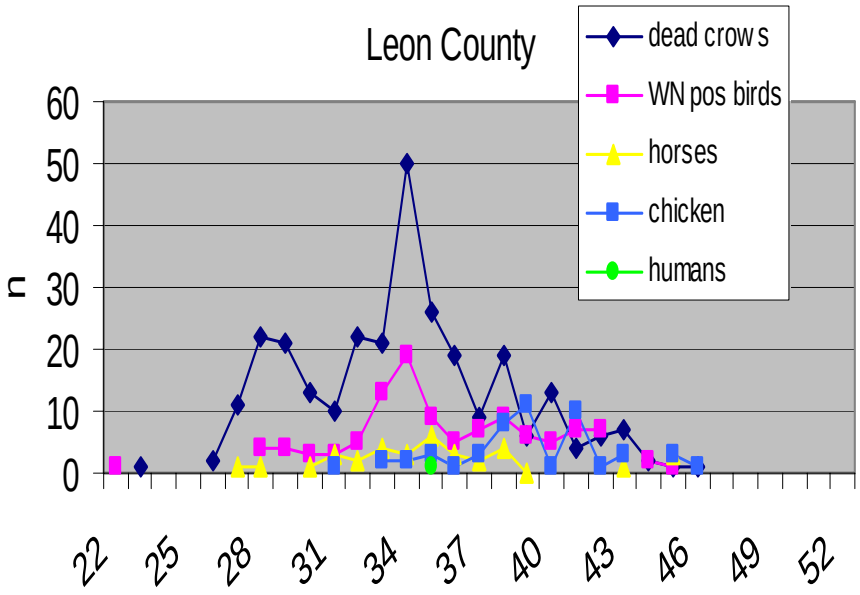
Data is from NWS First Order and Cooperative Stations.

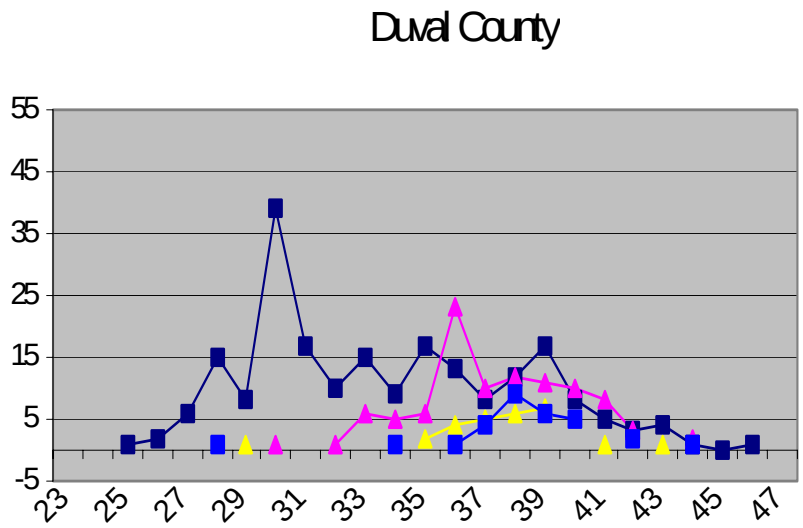
Map produced by the Southeast Regional Climate Center, January 10, 2002.

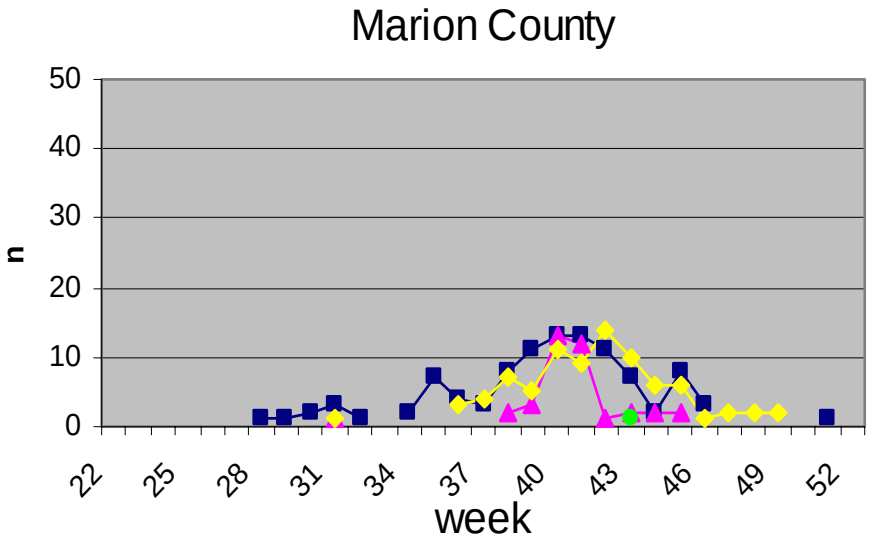
Dead Crow Reports and WN Positive Tests, by week, Florida, 2001

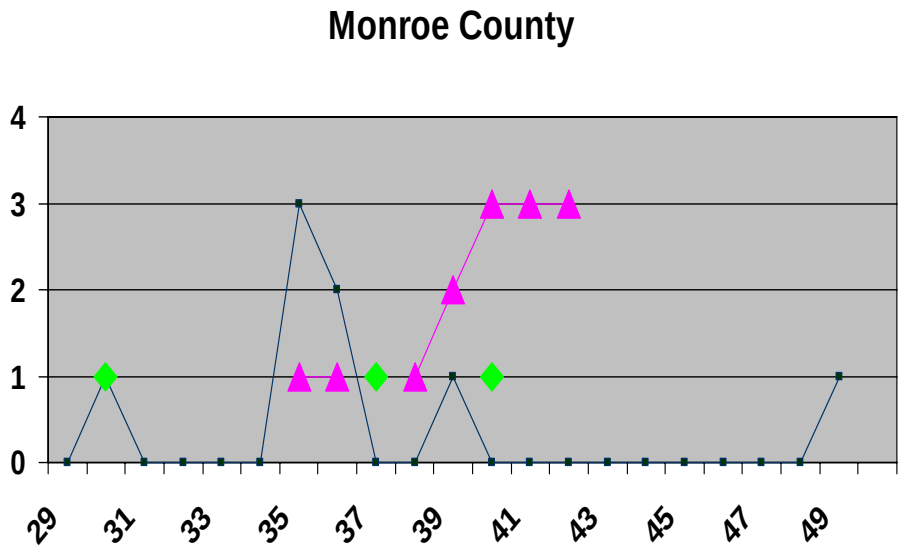


WN Virus Activity, Selected Florida Counties, 2001









Bird-based Surveillance

- Avian mortality surveillance
  1) dead bird sightings
  2) virus testing

  - Sensitive early detection system
  - Almost all of the positive birds were found singly

- WEBBOARD

Dead Bird Surveillance Results 2001

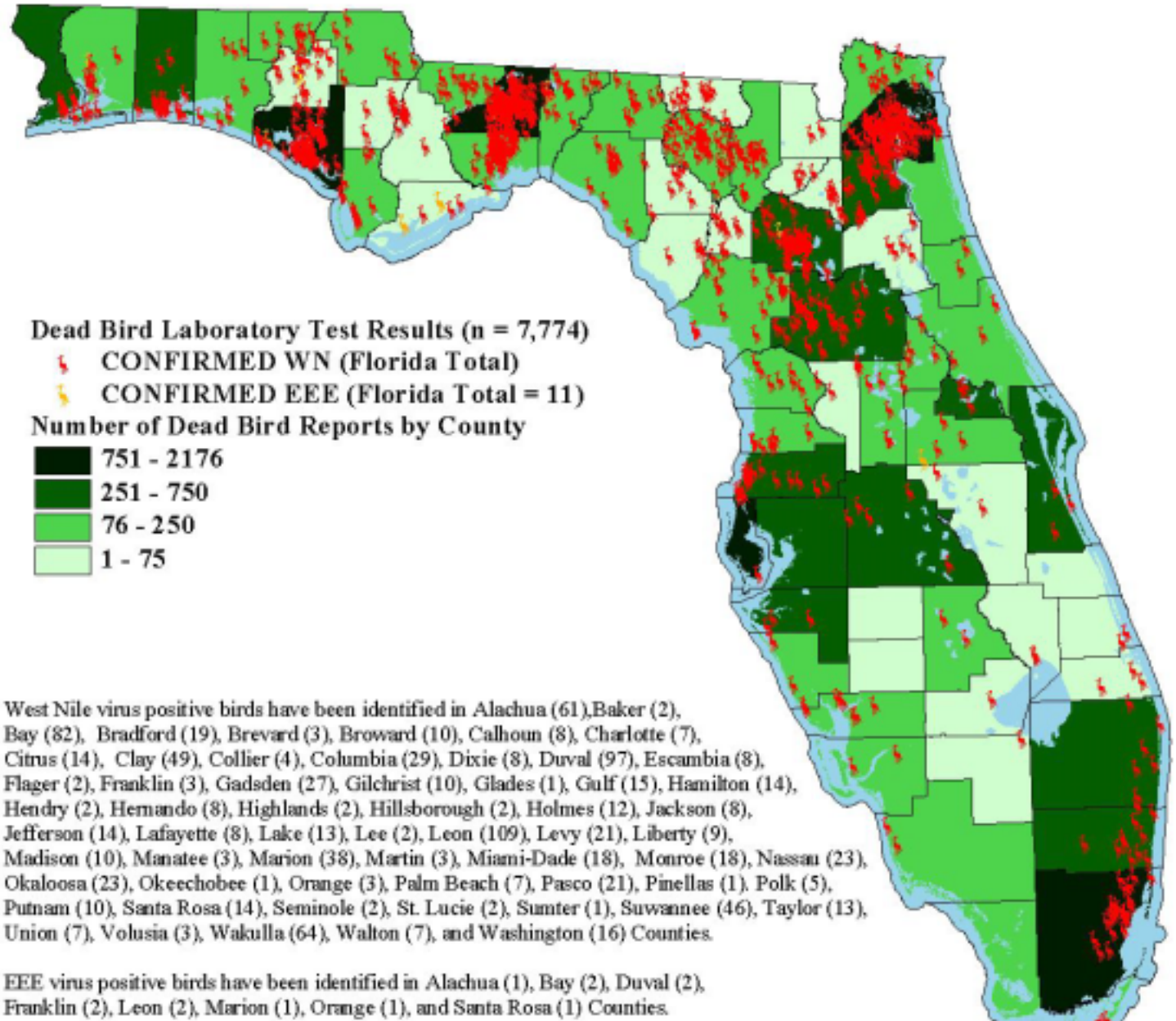
- 16,838 reports received
- All 67 counties
- 23,000+ individual birds
- >60 species
- 2,595 Crows
- 2,282 Jays

Avian Mortality Surveillance

- Positive birds provided the first confirmation of viral activity in 54 of 67 counties
- Dead bird reports correlated with human population
- Dead crow reports correlated better with WN
- Weekly dead crows/sq. mile predicted risk in NY; did not seem to in Florida.

2001 Florida Dead Bird Surveillance

(Dead Bird Laboratory Results for 2001)

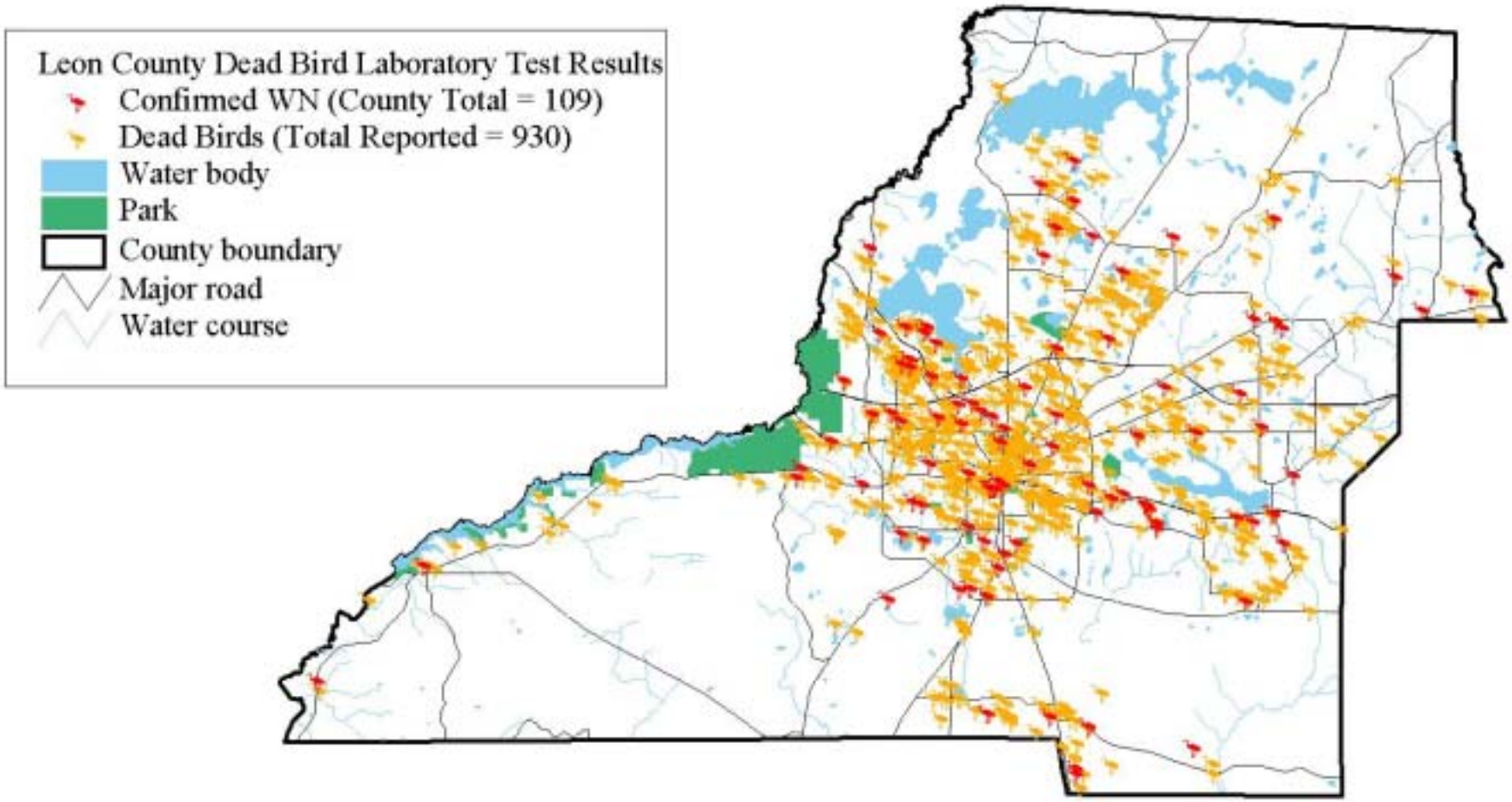


West Nile virus positive birds have been identified in Alachua (61),Baker (2), Bay (82), Bradford (19), Brevard (3), Broward (10), Calhoun (8), Charlotte (7), Citrus (14), Clay (49), Collier (4), Columbia (29), Dixie (8), Duval (97), Escambia (8), Flager (2), Franklin (3), Gadsden (27), Gilchrist (10), Glades (1), Gulf (15), Hamilton (14), Hendry (2), Hernando (8), Highlands (2), Hillsborough (2), Holmes (12), Jackson (8), Jefferson (14), Lafayette (8), Lake (13), Lee (2), Leon (109), Levy (21), Liberty (9), Madison (10), Manatee (3), Marion (38), Martin (3), Miami-Dade (18), Monroe (18), Nassau (23), Okaloosa (23), Okeechobee (1), Orange (3), Palm Beach (7), Pasco (21), Pinellas (1). Polk (5), Putnam (10), Santa Rosa (14), Seminole (2), St. Lucie (2), Sumter (1), Suwannee (46), Taylor (13), Union (7), Volusia (3), Wakulla (64), Walton (7), and Washington (16) Counties.

EEE virus positive birds have been identified in Alachua (1), Bay (2), Duval (2), Franklin (2), Leon (2), Marion (1), Orange (1), and Santa Rosa (1) Counties.

Leon County Dead Bird Surveillance

(Reported Dead Birds and Confirmed West Nile Virus Bird Locations for 2001)



N
W E
S

Florida Department of Health

Bureau of Epidemiology

0 2 4 6 Miles

1:353985

Disclaimer:
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WN virus positive birds by identified species

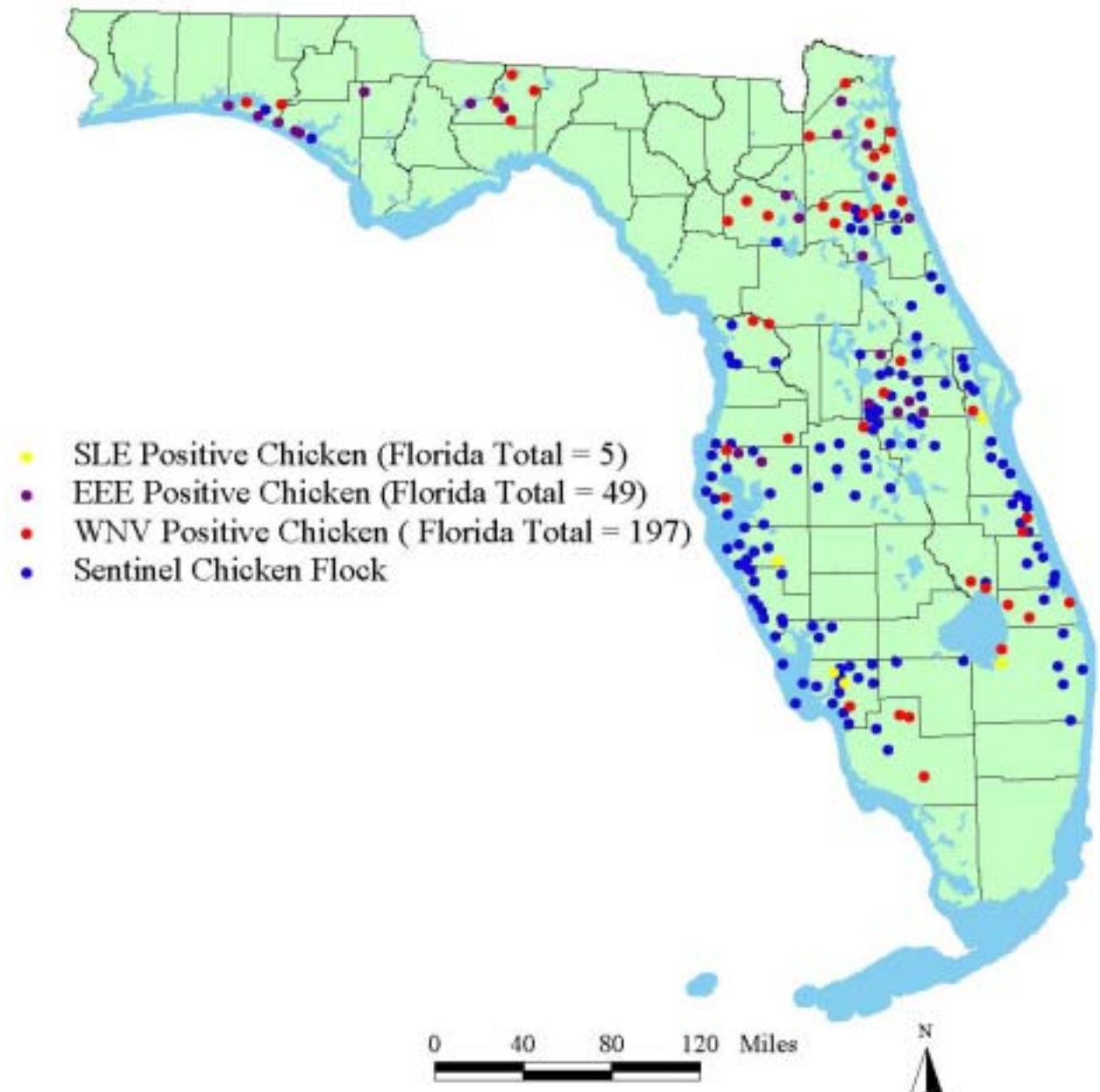
crow	408	812	50%
bluejay	218	751	29%
duck	8	54	15%
cardinal	16	164	10%
finch	18	199	9%
pigeon	19	216	9%
warbler	23	262	9%
grackle	11	135	8%
sparrow	17	215	8%
catbird	12	156	8%
dove	130	1793	7%
thrush	11	163	7%
mockingbird	17	262	6%
chicken	4	181	2%
	912	5363	

N tested =7,773
N pos. =1,127
Rate pos= 14%

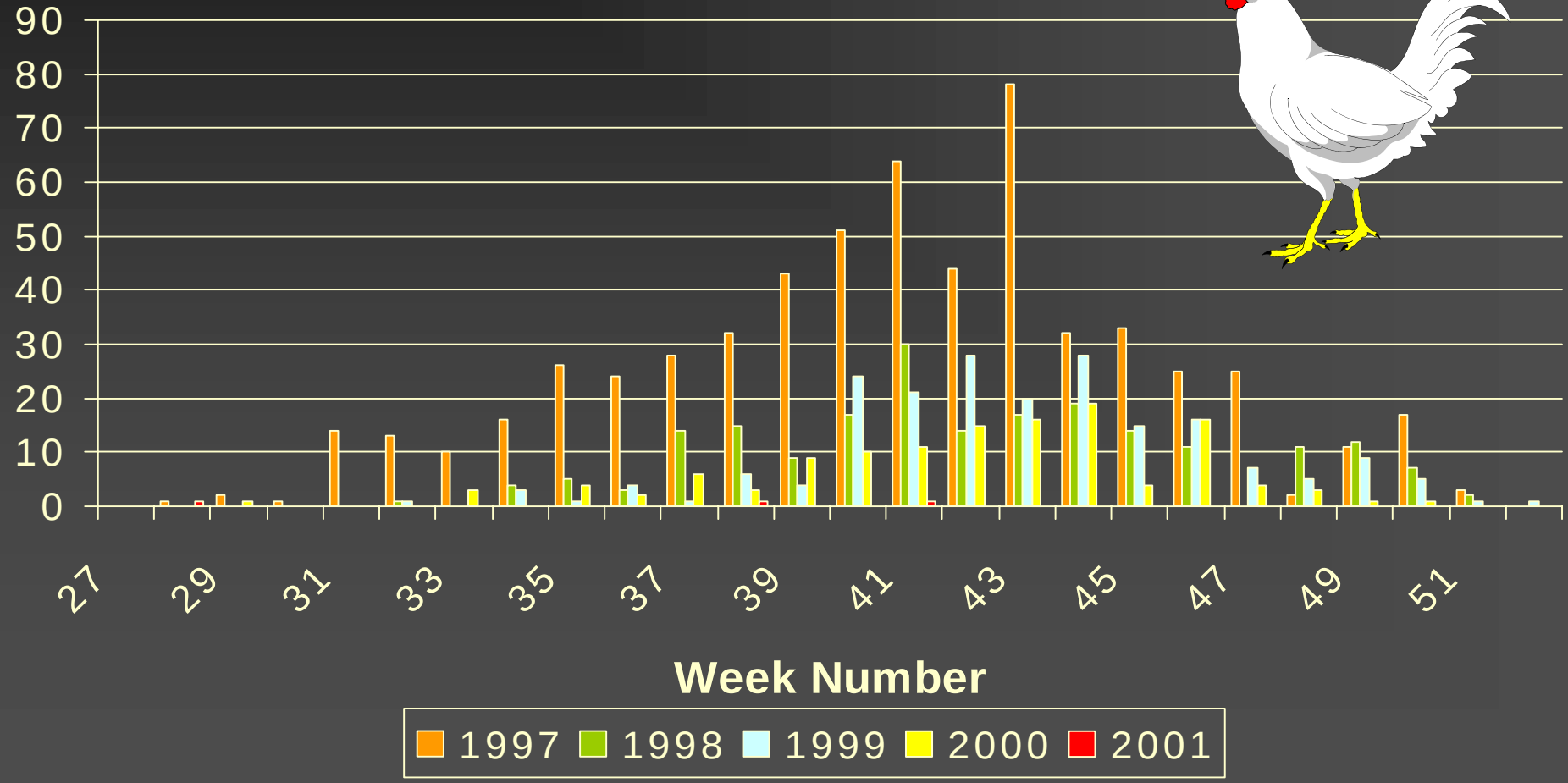
Bird-based Surveillance

- Live bird surveillance
  - Captive birds
    - Chickens preceded other cases in 3 counties
  - Free-ranging birds
    - Used in selected counties to help determine extent of virus transmission – *thank you CDC*

2001 Florida Sentinel Chicken Surveillance



Number of Sentinel Chicken Seroconversions to SLE virus, July-December, 1997-2001, Florida



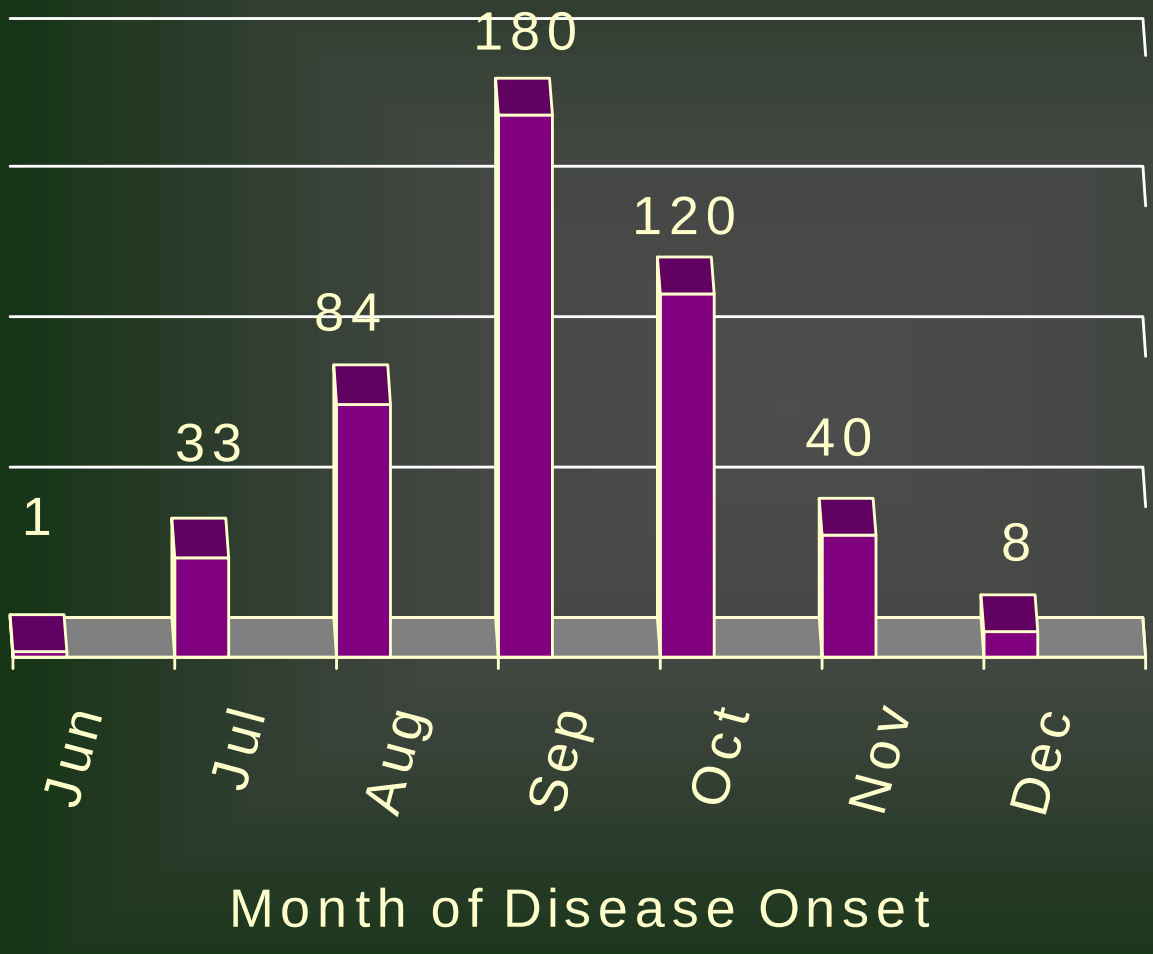
Mosquito Surveillance

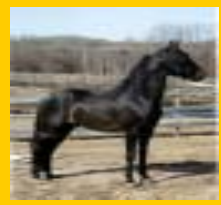
- **27 mosquito pools w/ WN virus**
- ***Culex***
  - ***quinquefasciatus***
  - ***nigripalpus***
  - ***salinarius***
- ***Culiseta***
  - ***melanura***
- ***Ochlerotatus***
  - ***taeniorhynchus***
  - ***atlanticus***
- ***Anopheles***
  - ***crucians***
  - ***atropos***
- ***Deinocerites***
  - ***cancer***

Equine Surveillance

- 469 cases
- 40 counties
- 56% of cases from Marion, Jefferson, Clay, Alachua, Leon and Duval Counties
- Sensitive surveillance method

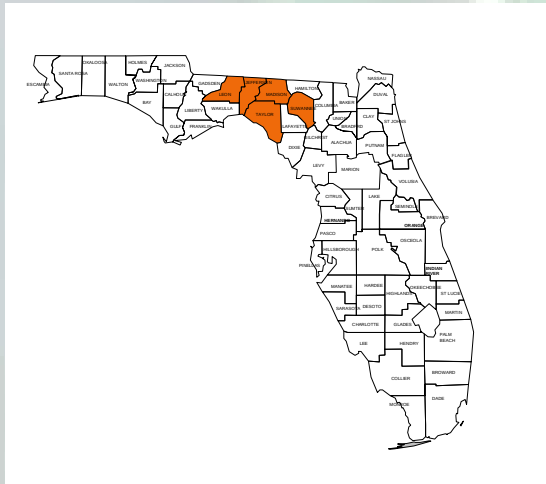
Confirmed West Nile Virus Equine Cases, Florida, 2001





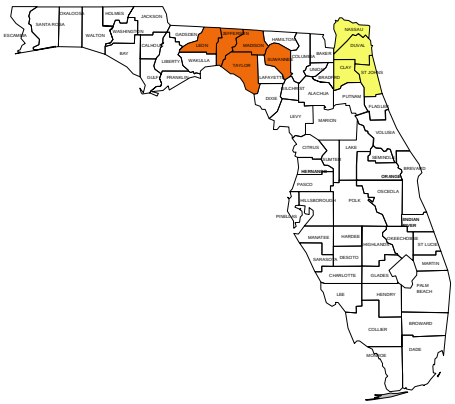
WEST NILE VIRUS

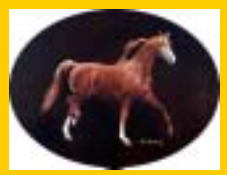
June	July	Aug	Sept	Oct	Nov	Dec
Jefferson Leon Madison Taylor Suwannee						
1	31	58	19	4	31	



WEST NILE VIRUS

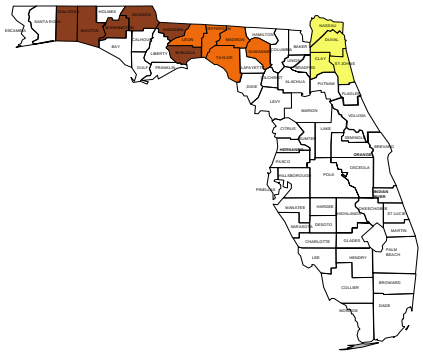
June	July	Aug	Sept	Oct	Nov	Dec
Jefferson Leon Madison Taylor Suwannee						
1	31	58	19	4	31	
	Duval Clay Nassau St. Johns					
	5	17	61	9	2	1

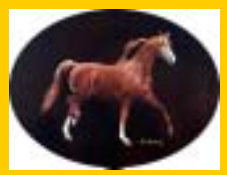




WEST NILE VIRUS

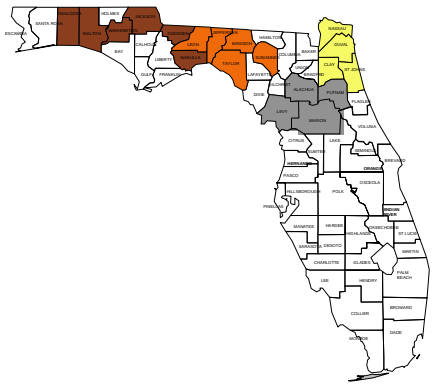
June	July	Aug	Sept	Oct	Nov	Dec
Jefferson Leon Madison Taylor Suwannee						
1	31	58	19	4	31	
	Duval Clay Nassau St. Johns					
	5	17	61	9	2	1
		Gadsden, Jackson, Walton, Washington, Okaloosa, Wakulla				





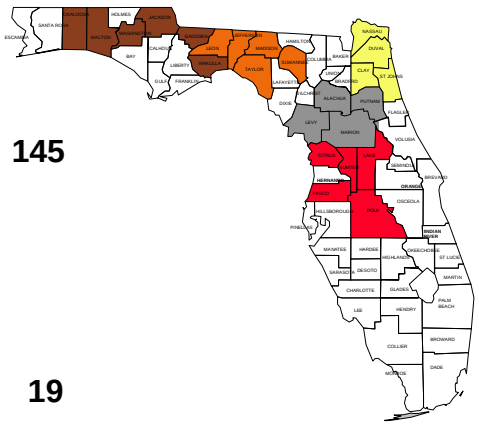
WEST NILE VIRUS

June	July	Aug	Sept	Oct	Nov	Dec
Jefferson Leon Madison Taylor Suwannee						
1	31	58	19	4	31	
	Duval Clay Nassau St. Johns					
	5	17	61	9	2	1
		Gadsden, Jackson, Walton, Washington, Okaloosa, Wakulla				
			43	69	25	4
		Alachua Levy Marion Putnam				
			18	7		2



WEST NILE VIRUS

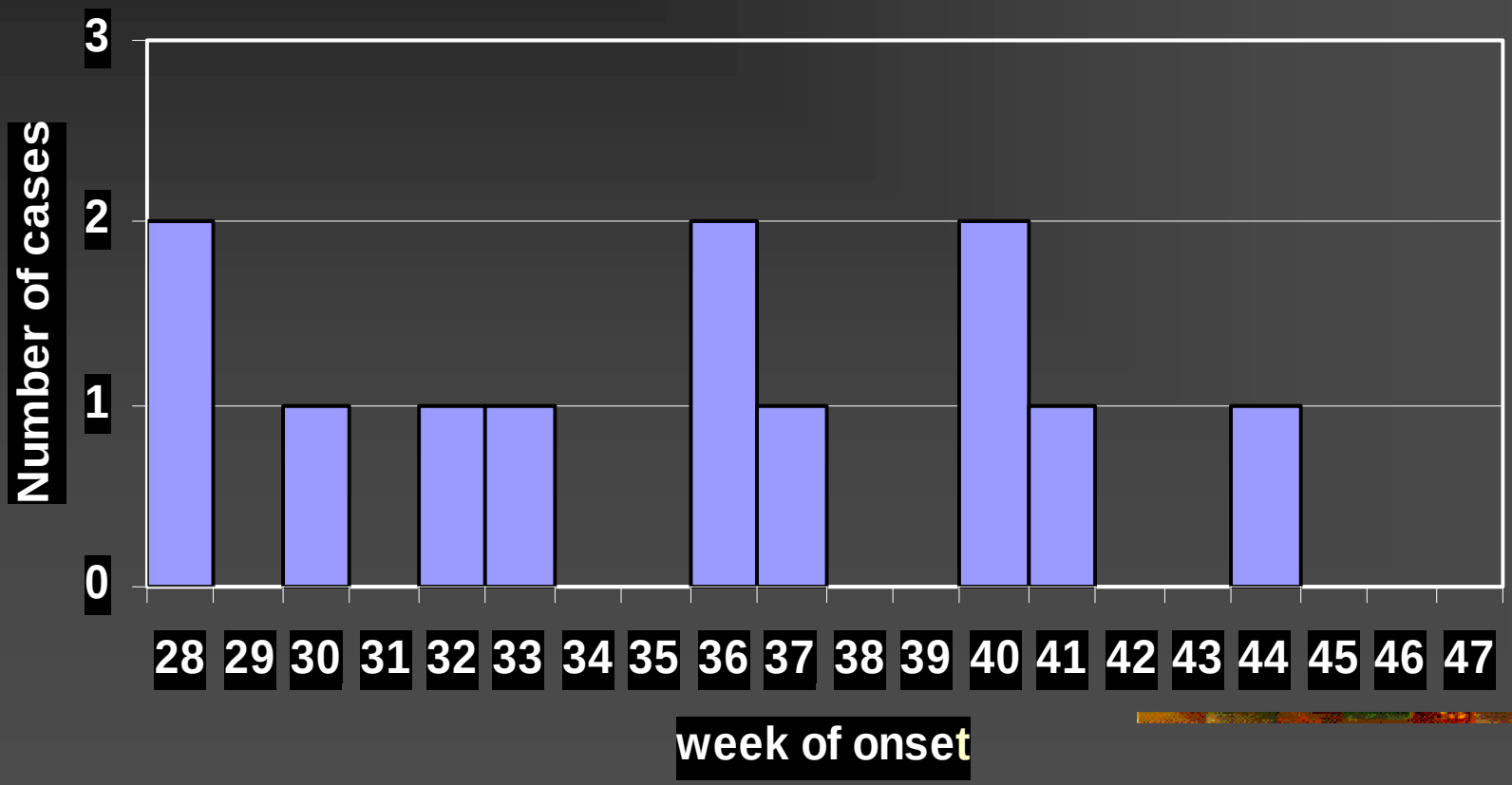
June	July	Aug	Sept	Oct	Nov	Dec	
Jefferson Leon Madison Taylor Suwannee	1	31	58	19	4	31	144
Duval Clay Nassau St. Johns	5	17	61	9	2	1	95
Gadsden, Jackson, Walton, Washington, Okaloosa, Wakulla			43	69	25	4	33
Alachua Levy Marion Putnam			18	7		2	145
Lake Sumter Citrus Pasco Polk							19



Human Surveillance

- Younger than expected (range 19-73, mean 53.5)
- Serosurveillance study in Madison County (population <20,000)
- Geographically northern and extreme southern part of the state

Human West Nile Encephalitis by week of onset, Florida, 2001

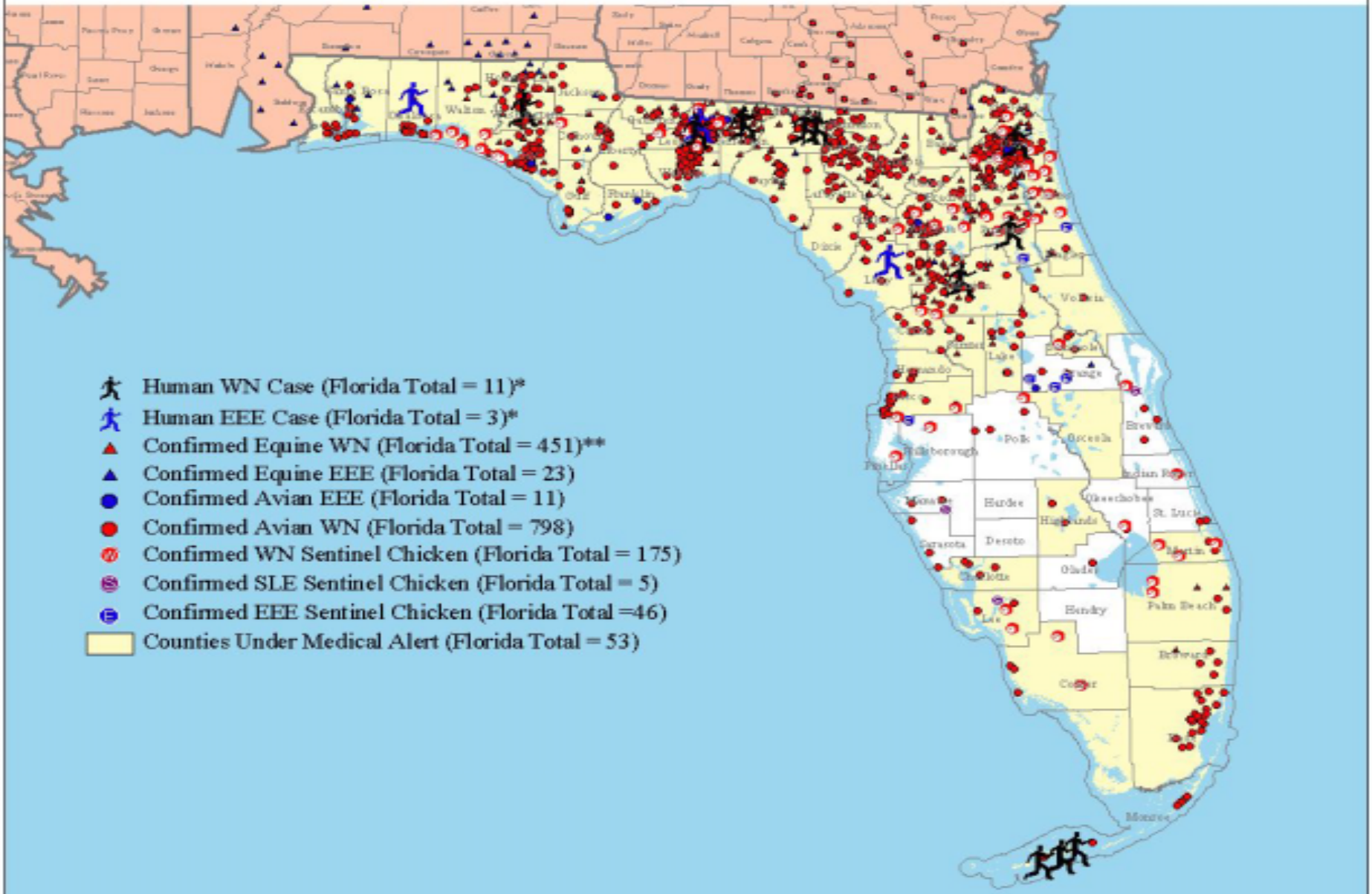


Did virus detection by sentinel surveillance precede human cases?

- Yes (Jefferson, Clay, Leon, Putnam, Washington, Marion and Palm Beach (7))
- No (Madison, Monroe (5))

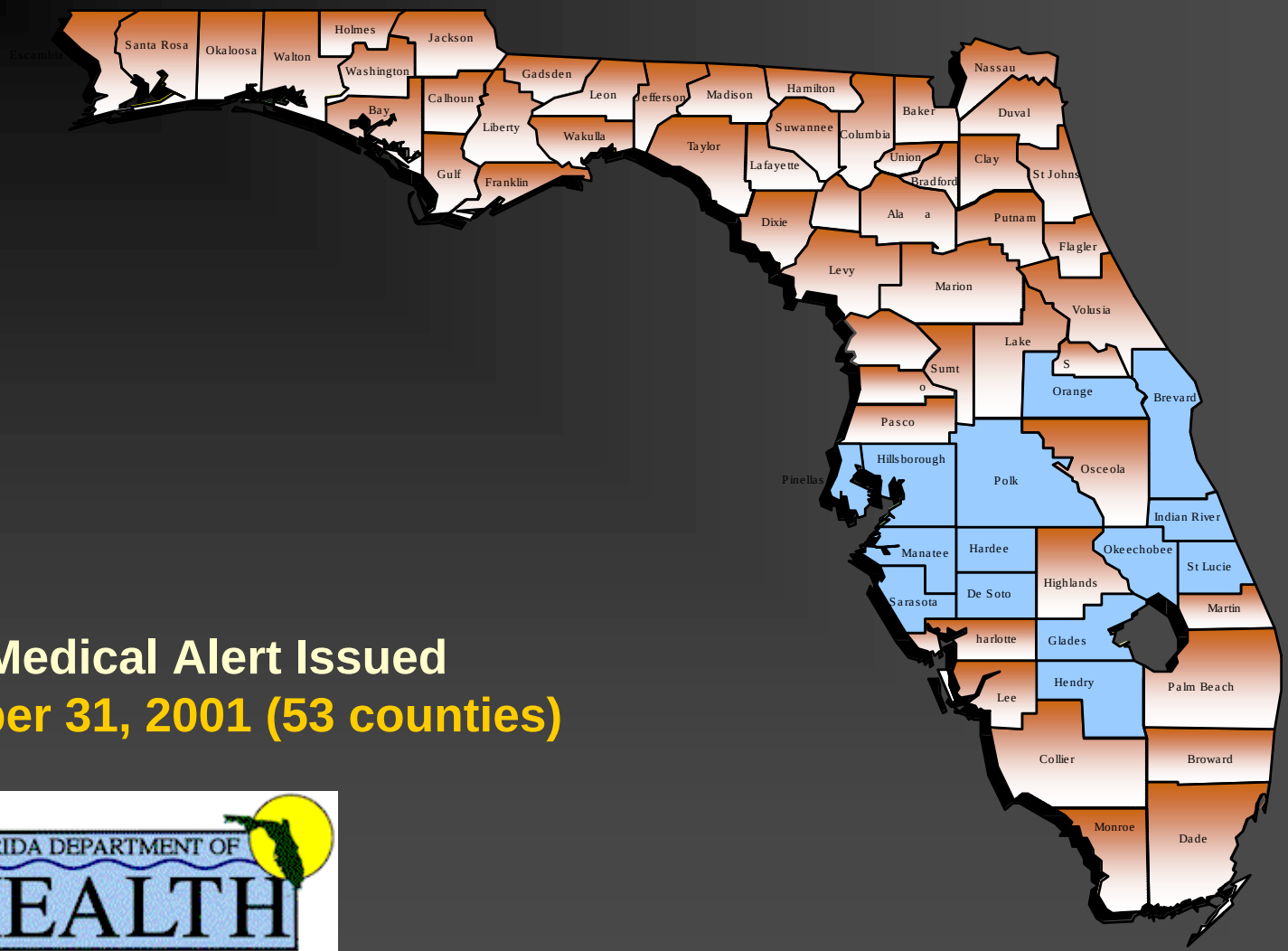
Florida Comprehensive Arbovirus Surveillance

(Data collected January 1 - December 13, 2001)



The Response

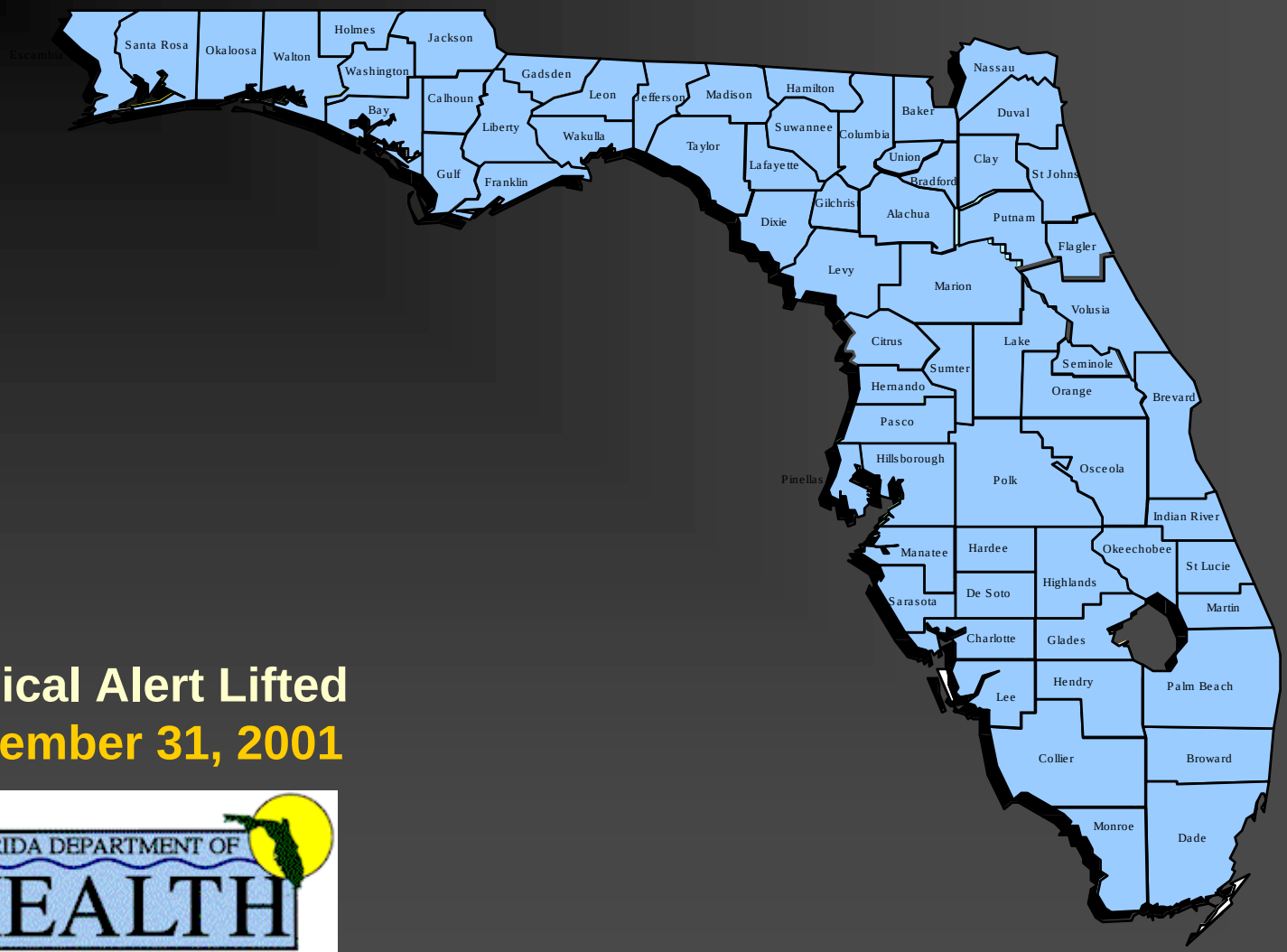
- Massive media campaign
  - Internal communication
    - Conference calls
    - Electronic mailings
  - External communication
    - Press releases
    - Hotline
    - Web information
- Enhanced mosquito control



Medical Alert Issued

October 31, 2001 (53 counties)

FLORIDA DEPARTMENT OF HEALTH



Medical Alert Lifted

December 31, 2001

FLORIDA DEPARTMENT OF HEALTH

2001
A hypothesis-generating season