

West Nile virus cases increase in 2007

## Ominous Start for West Nile Season

West Nile Virus 2007: Fastest Start Yet for Mosquito-Borne Illness

Protection urged against West Nile Virus

# Georgia WNV Summary, 2007

(Is this the worst year yet?)

Hot Dry Weather And Home Foreclosures Blamed For Rise In West Nile Virus

West Nile virus: More mosquitoes bring more cases

May Marks the Beginning of West Nile Virus Season

**“So far this year, there have been nearly 4 times as many cases reported as there were at the same time last year [2006]”.**

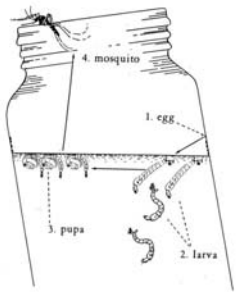
Rosmarie Kelly  
GDPH



# WEATHER CONDITIONS



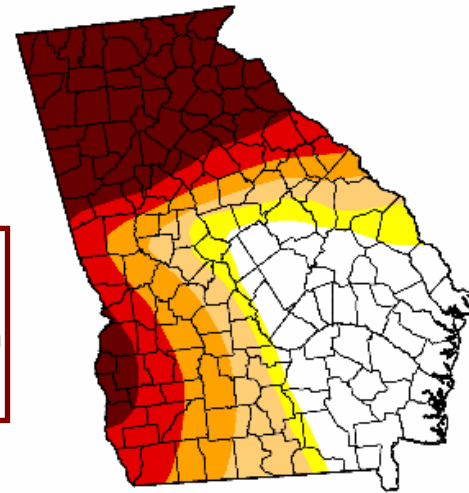
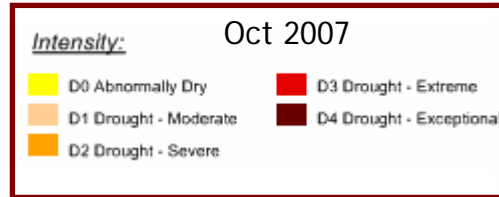
- Warm, Dry Winter
- Early Spring
- Drought
- Hot, Humid Summer
- Warm Autumn
- Warm, Dry Winter Predicted



Sven-Erik Svanberg, PA DEP



# DROUGHT



*Culex quinquefasciatus* do well in drought conditions:



- \* container breeders
- \* lay eggs in stagnant, organically-polluted water
- \* no heavy rain means no flushing of containers

*Culex quinquefasciatus* are not a “nuisance” species

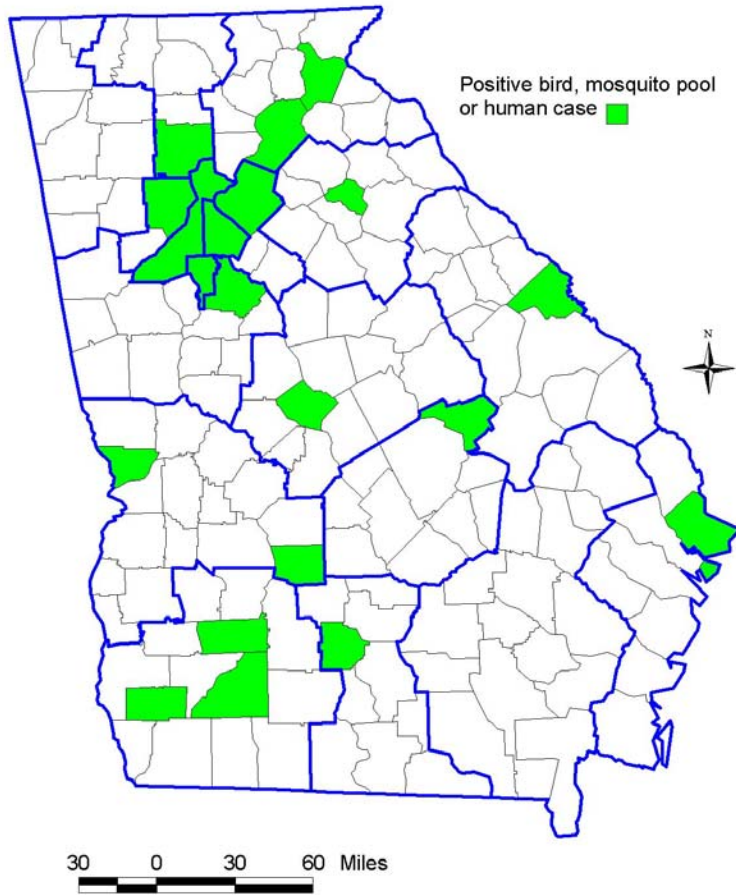
Many “nuisance” species are floodwater species

Fewer “nuisance” species means people are less likely to wear repellent

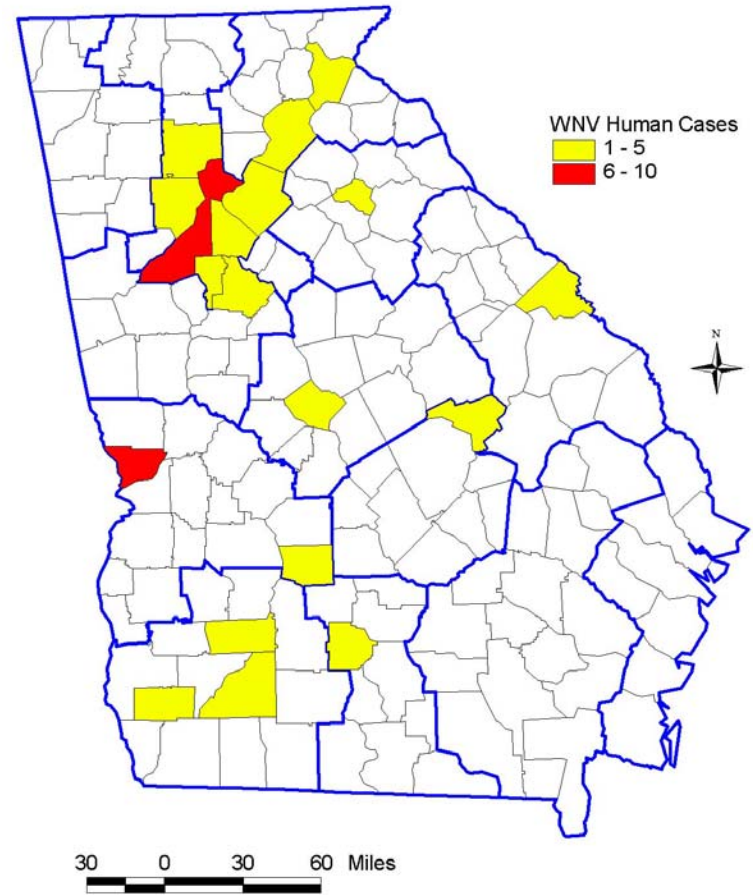
All these factors lead to an increased risk for WNV if virus is present

# Was virus present in 2007?

## WNV Surveillance, 2007



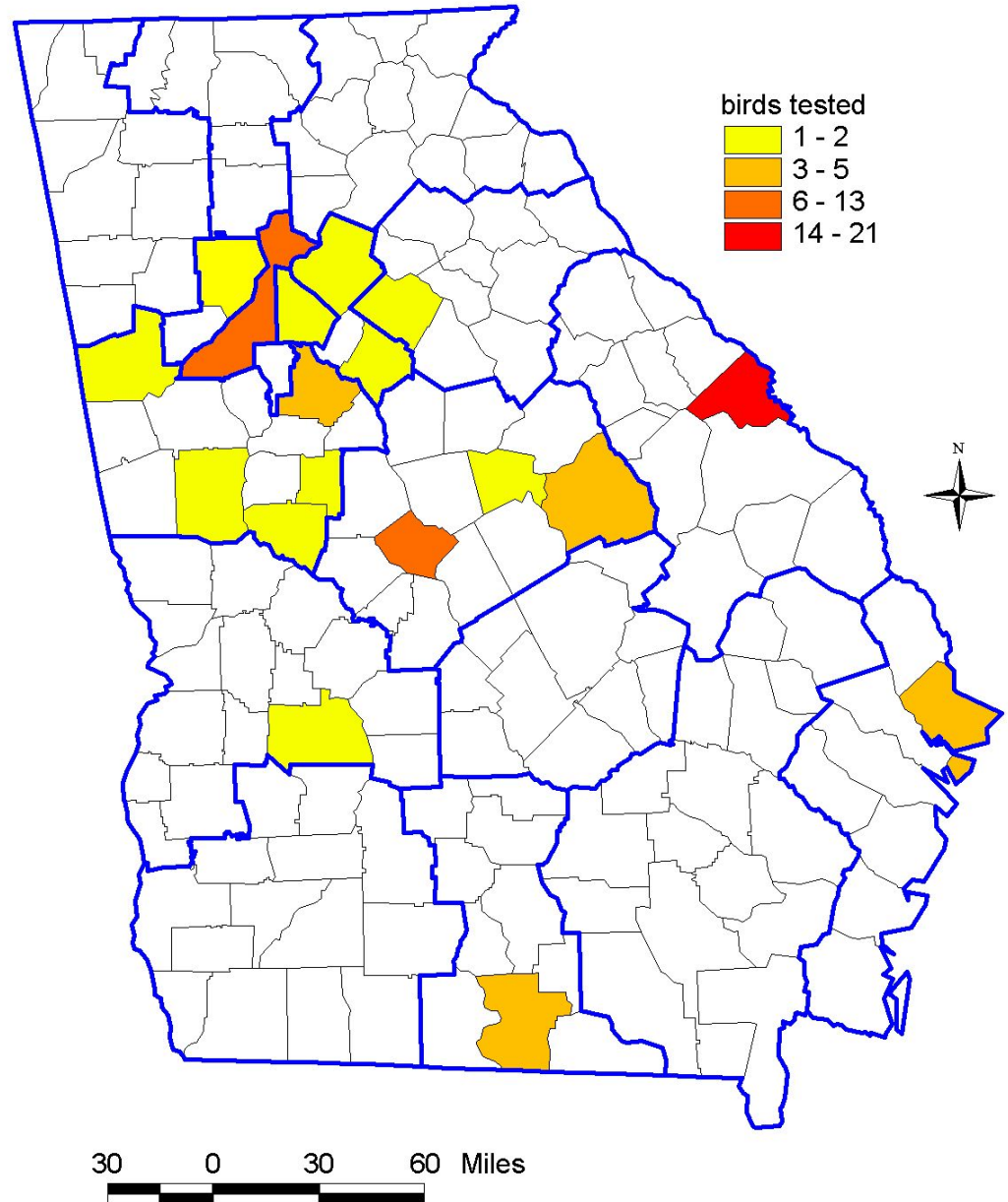
## WNV Surveillance, 2007



# Dead Bird Surveillance

# WNV Surveillance, 2007

County	# Birds Submitted	# WNV+
Baldwin	1	
Bibb	13	
Carroll	2	
Chatham	5	1
Cobb	21	6
DeKalb	1	
Fulton	9	2
Gwinnett	2	2
Henry	3	1
Lamar	1	
Lowndes	3	
Meriwether	1	
Newton	2	
Richmond	18	
Sumter	2	
Upson	1	
Walton	1	
Washington	3	



# Dead Bird Surveillance



% WNV+							
Month	2001	2002	2003	2004	2005	2006	2007
Jan			1%	3%			
Feb							
March							
April			1%				
May		2%	3%				
June		1%	3%	2%			25%
July	9%	8%	22%	23%		6%	
Aug	31%	57%	30%	49%	15%	52%	57%
Sept	40%	52%	57%	38%	21%		25%
Oct	22%	48%	50%	11%	24%	4%	
Nov	1%	34%	34%	17%		7%	
Dec		12%					

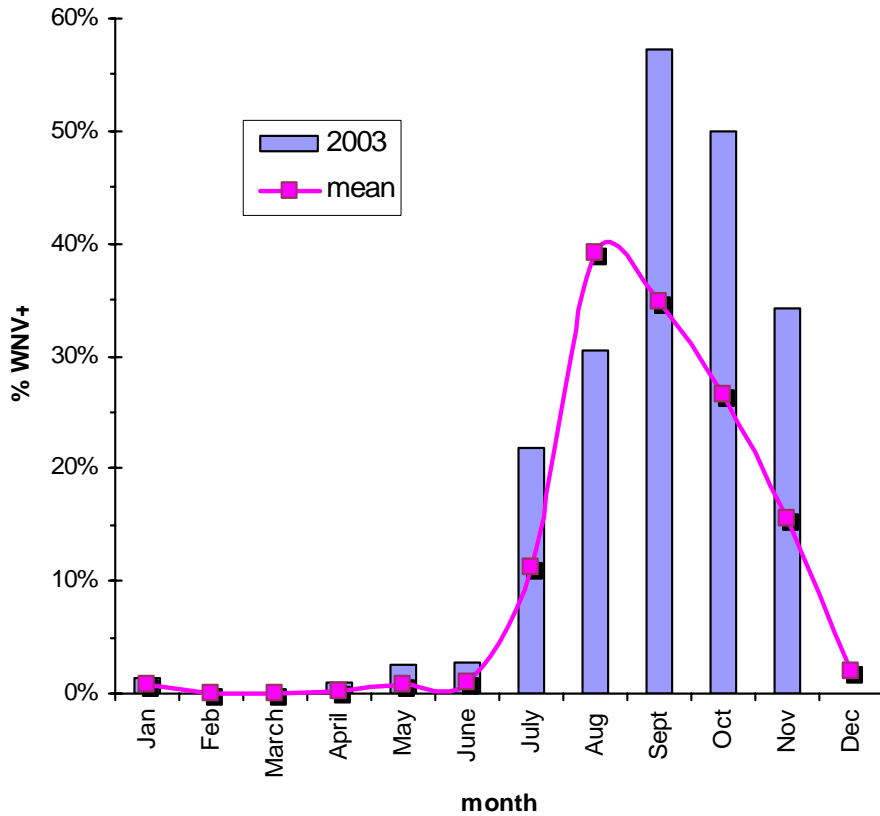
# MEAN (2001-2006)

vs

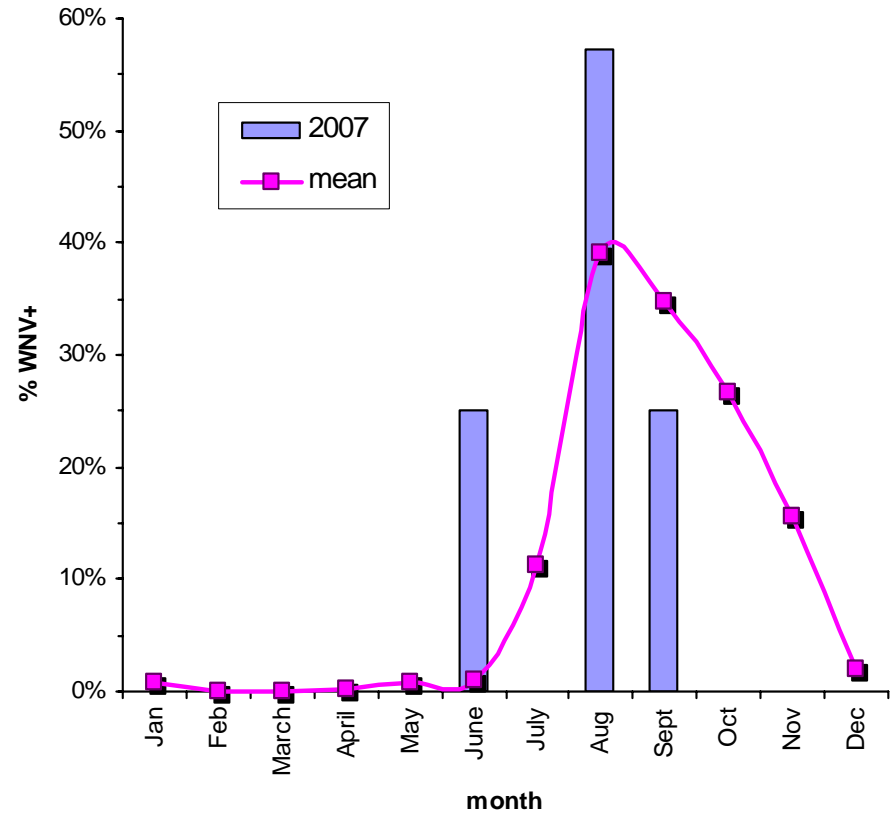
2003  $n=2131$

2007  $n=89$  and counting

### WNV+ birds

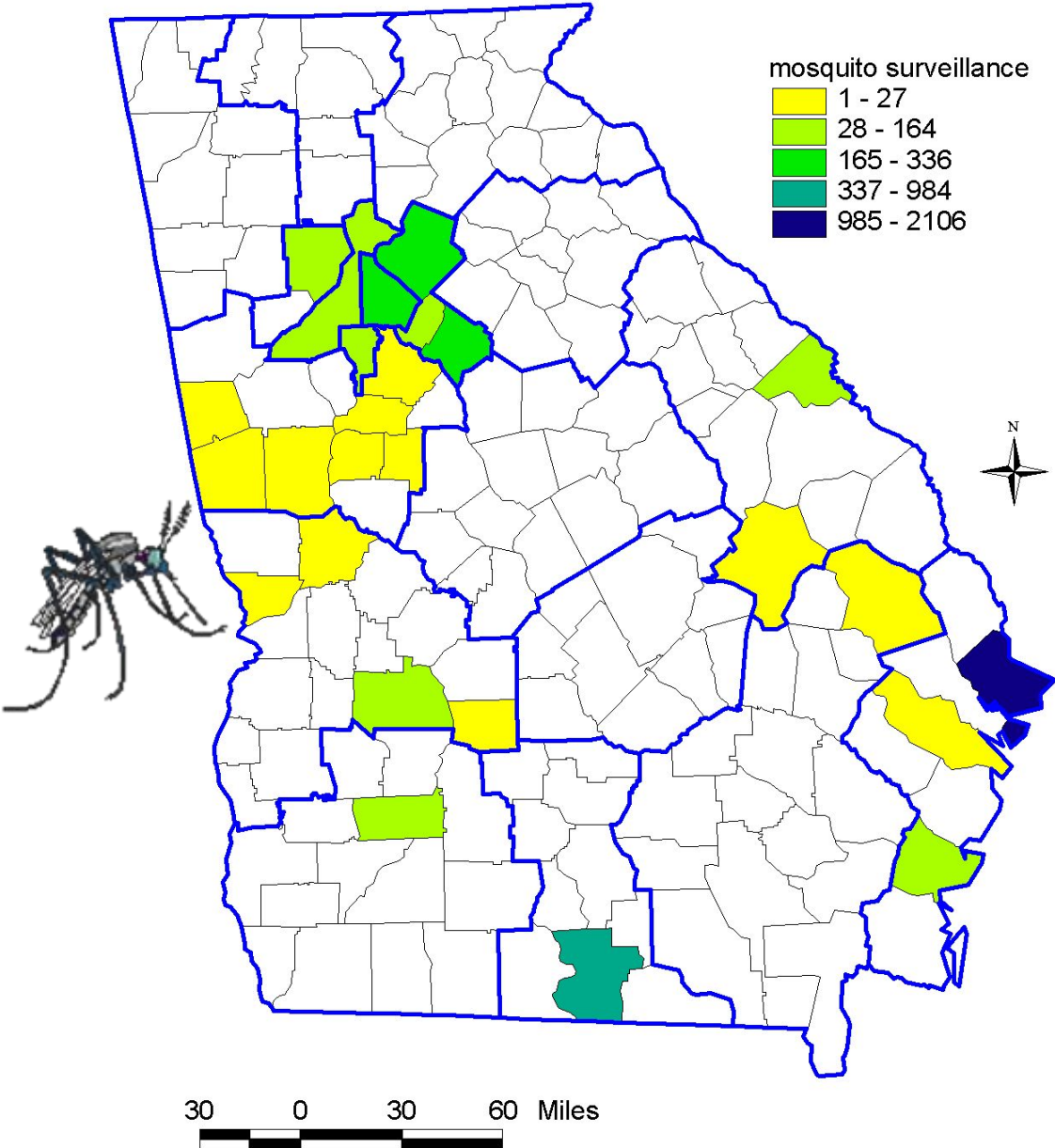


### WNV+ birds



County	# mosquitoes	# pools
Bulloch	247	27
Chatham	40836	2106
Clayton	1119	103
Cobb	306	69
Crisp	3	1
DeKalb	2534	237
Dougherty	1332	99
Emanuel	104	12
Fulton	1538	148
Glynn	1343	135
Gwinnett	4854	336
Heard	26	2
Henry	80	10
Lamar	7	5
Liberty	66	5
Lowndes	15219	984
Meriwether	40	3
Muscogee	107	25
Newton	3120	189
Pike	38	3
Richmond	1402	164
Rockdale	1314	129
Spalding	7	2
Sumter	509	80
Talbot	3	1
Troup	27	5

# WNV Surveillance, 2007





# Mosquito Surveillance



MIR							
Month	2001	2002	2003	2004	2005	2006	2007
Jan							
Feb							
March							
April							
May					0.1		
June				0.4			
July		2.3	6.2	3.2	0.5	0.5	1.2
Aug		7.6	7.8	10.7	1.9	4.1	2.6
Sept	218.5	4.5	4.3	2.3	1.6	1.7	1.3
Oct	10.4	1.5	0.6	0.6	1.1	0.3	
Nov		0.5			0.7		
Dec							

MIR = minimum infection rate

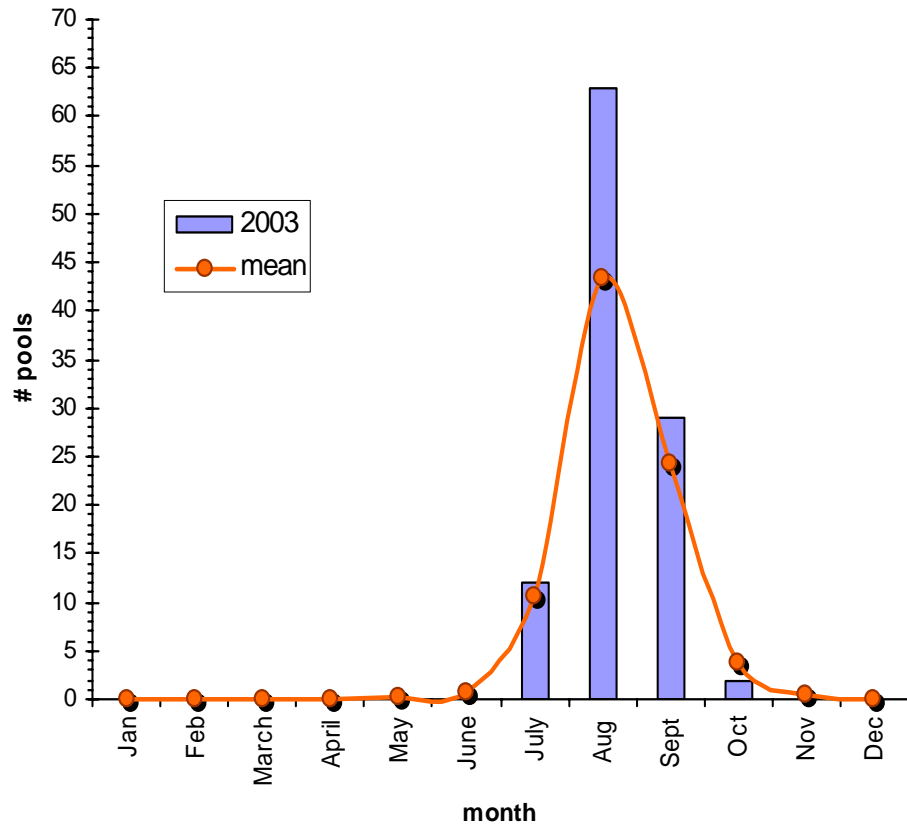
# MEAN (2001-2006)

vs

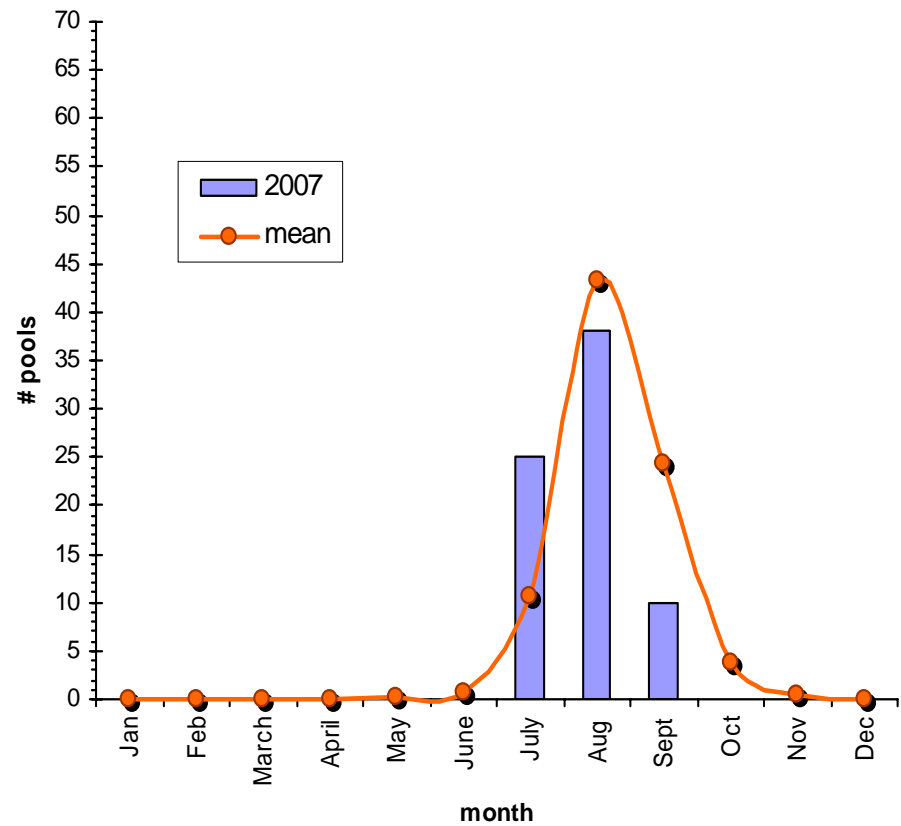
2003 n=106 pools

2007 n=73 pools and counting

## WNV+ Mosquitoes



## WNV+ Mosquitoes

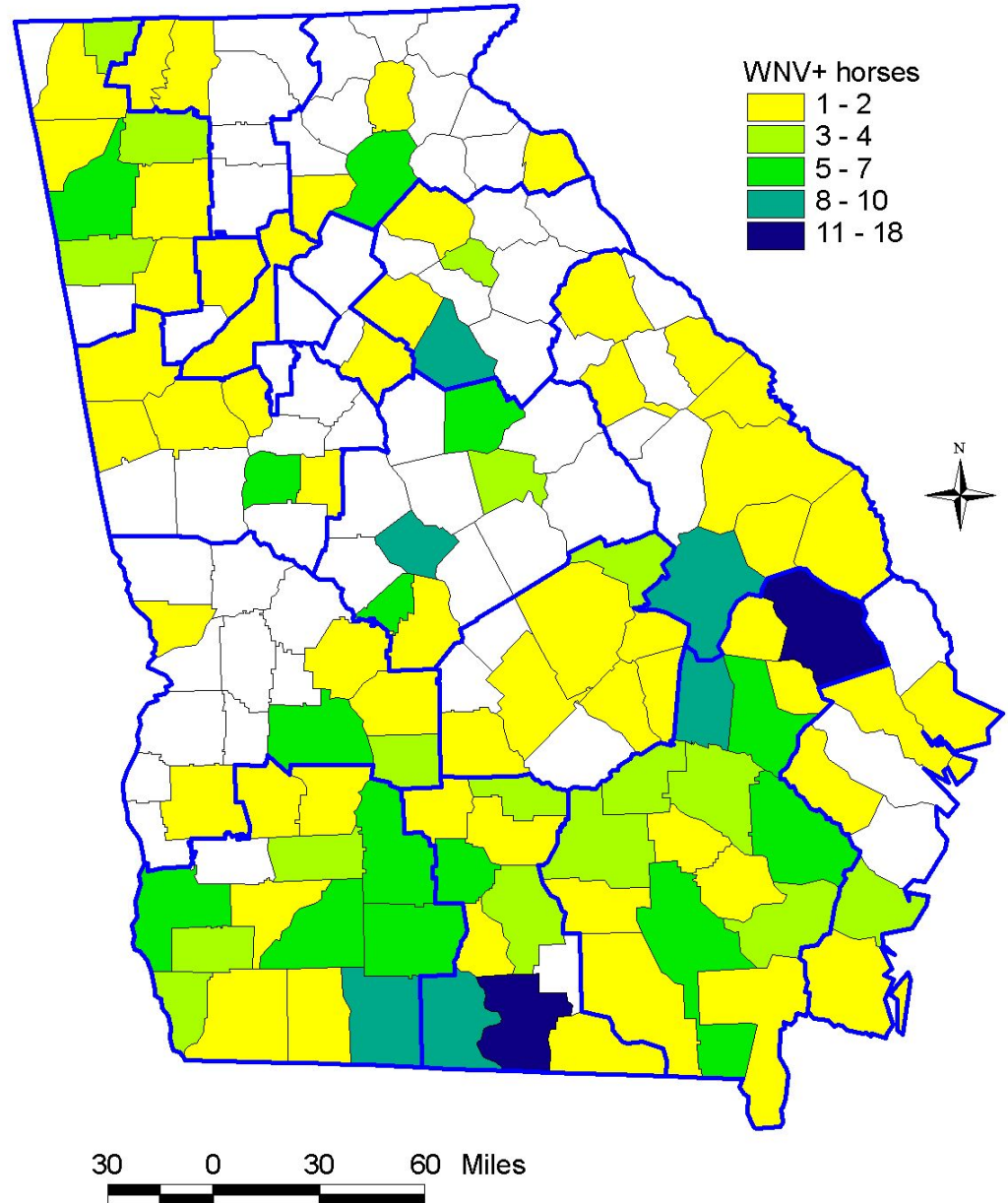
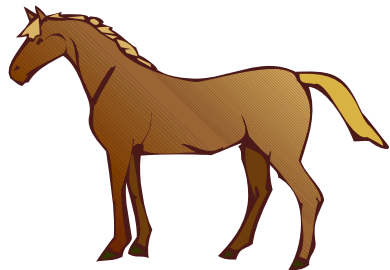


# WNV Surveillance, 2001-2007

## Horse Surveillance

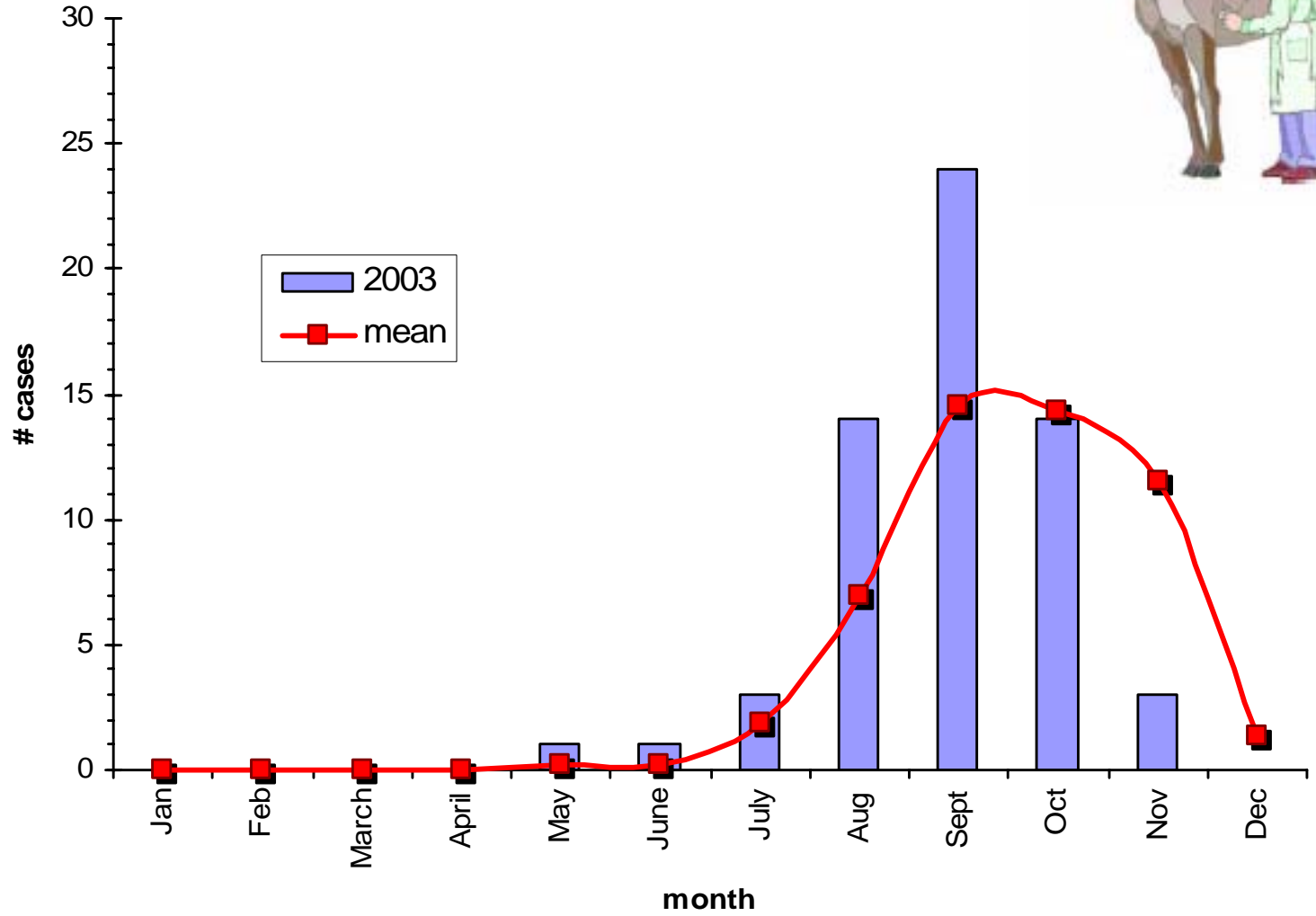
2003 - 60 cases

2007 - no cases



# WNV+ horses							
Month	2001	2002	2003	2004	2005	2006	2007
Jan							
Feb							
March							
April							
May			1				
June			1				
July	4	4	3				
Aug	15	11	14	1	1		
Sept	34	28	24	1			
Oct	13	57	14	1	1		
Nov		66	3				
Dec		8					
TOTAL	66	174	60	3	2		

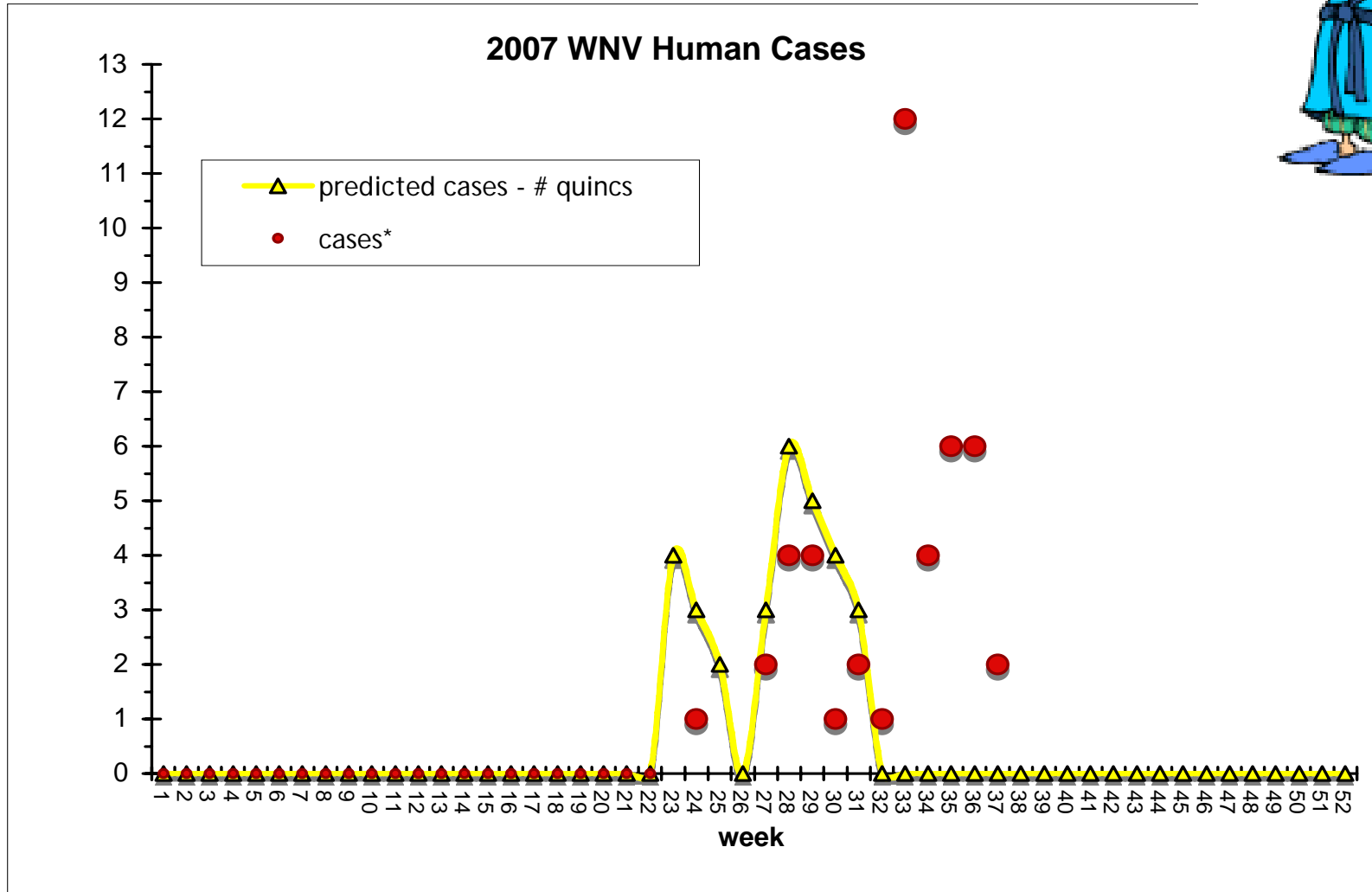
# WNV+ Horses



mean (2001-2006)

# Predicting Human Cases

$$\text{cases} = \text{intercept} + \text{slope} * \# \text{ quincs}$$



\* cases are advanced by 2 weeks to show probable date of infection

# WNV Human Cases

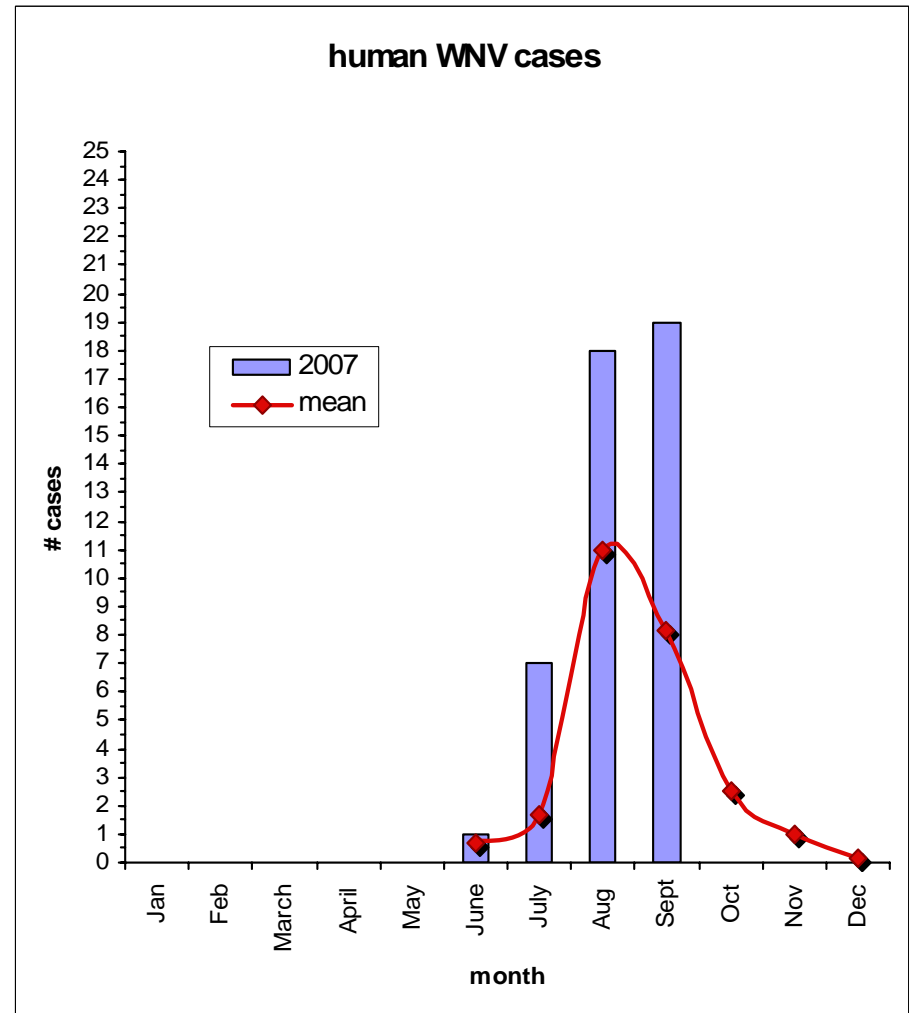
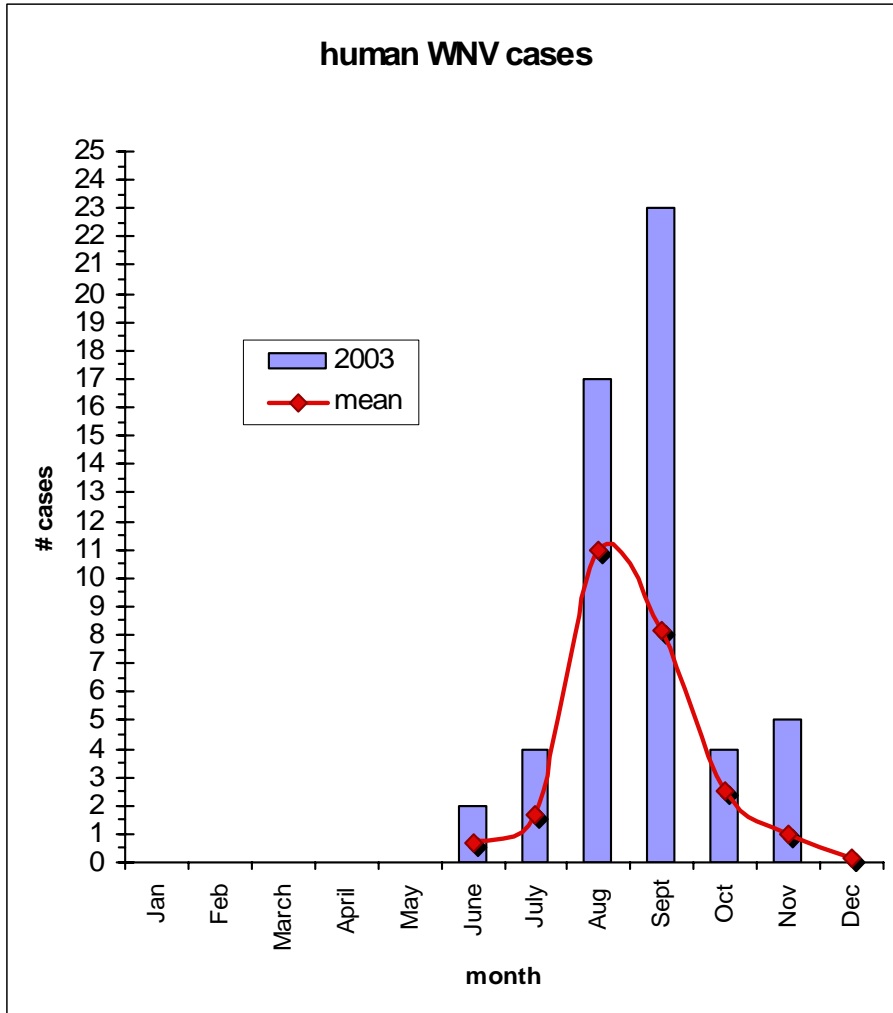
month	2001	2002	2003	2004	2005	2006	2007
Jan							
Feb							
March							
April							
May							
June			2		2		1
July	1	1	4	2		2	7
Aug	2	23	17	13	6	5	18
Sept	1	8	23	5	11	1	19
Oct	1	4	4	2	4		
Nov			5		1		
Dec	1						
total	6	36	55	22	24	8	45

# MEAN (2001-2006)

vs

2003  $n=55$

2007  $n=45$  and counting





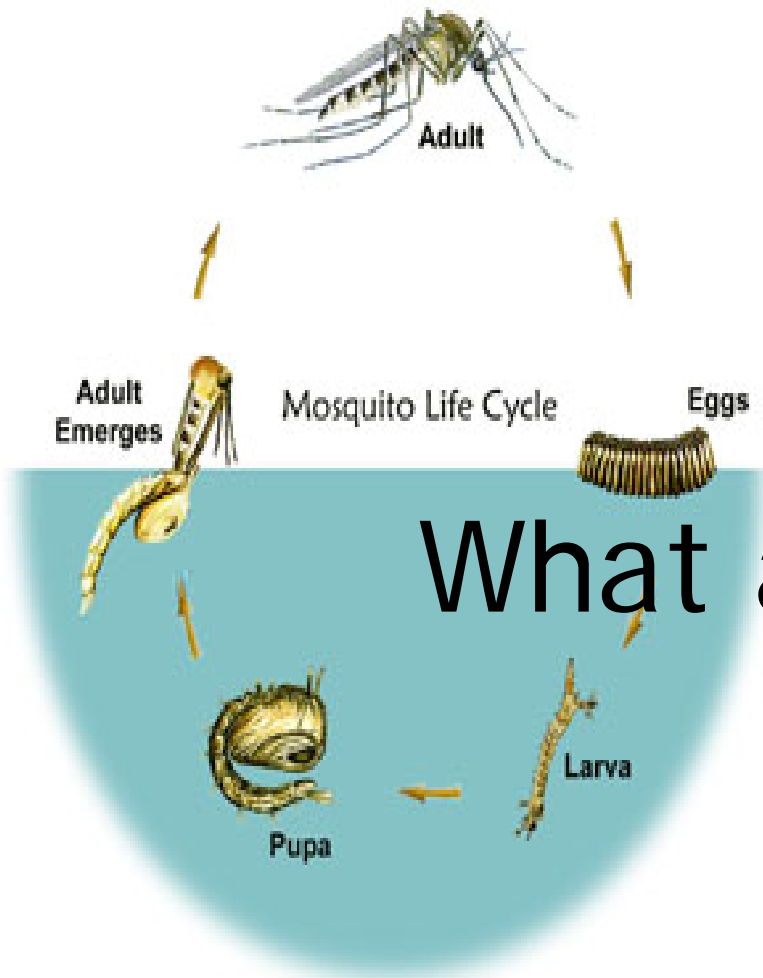
## Summary

Are we having the worst year yet? NO

Are we seeing more cases than usual? YES, mean=25

### Why?

- Similar to trends seen in other states
- Weather conditions
- Increases in susceptible bird populations
- Lack of “nuisance” mosquitoes
- ???



# What about 2008?

