

Illinois Vector Surveillance Report

2006 - 2007

2006-2007 / SPHVCC '08

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Acknowledgements

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Human Case Data

2005:	252 cases <i>from</i> 	22 Counties
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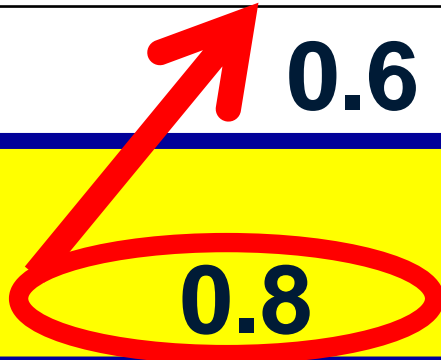
2006:	215 cases	39 Counties
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2007:	101 cases	29 Counties
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“ WNV Attack Rates ”

Illinois vs. Texas and Louisiana



	WNV CASES	Population	ATTACK RATE PER 100,000 POP'N
Louisiana 2007	29	4,287,000	0.7
Texas '07	140	23,507,000	0.6
Illinois 2007	101	12,400,000	0.8
Illinois 2002	884	12,400,000	7.1
Cook Co 2002	635	5,376,000	11.8




Temperature and WNV



Temperature Deviations from average: Degrees F, April through September

	2005	2006	2007
April	0	5	- 1 
May	- 2	1	5.1
June	6	0	3.1
July	3	3	0.4 
August	2	3	3.1
Sept	5	- 1	<i>Above Normal</i>
	Hot & dry !	Hot !	April Hard Freeze, <u>Dry</u> <u>early</u> , then Hot

Are July Temperatures Critical for WNV Amplification and Risk ?



	2002	2003	2004
July Temps	4 ↑	- 1	- 2
Cases	884	54	60
	2005	2006	2007
July Temps	3 ↑	3 ↑	0.4
Cases	252	215	~ 100

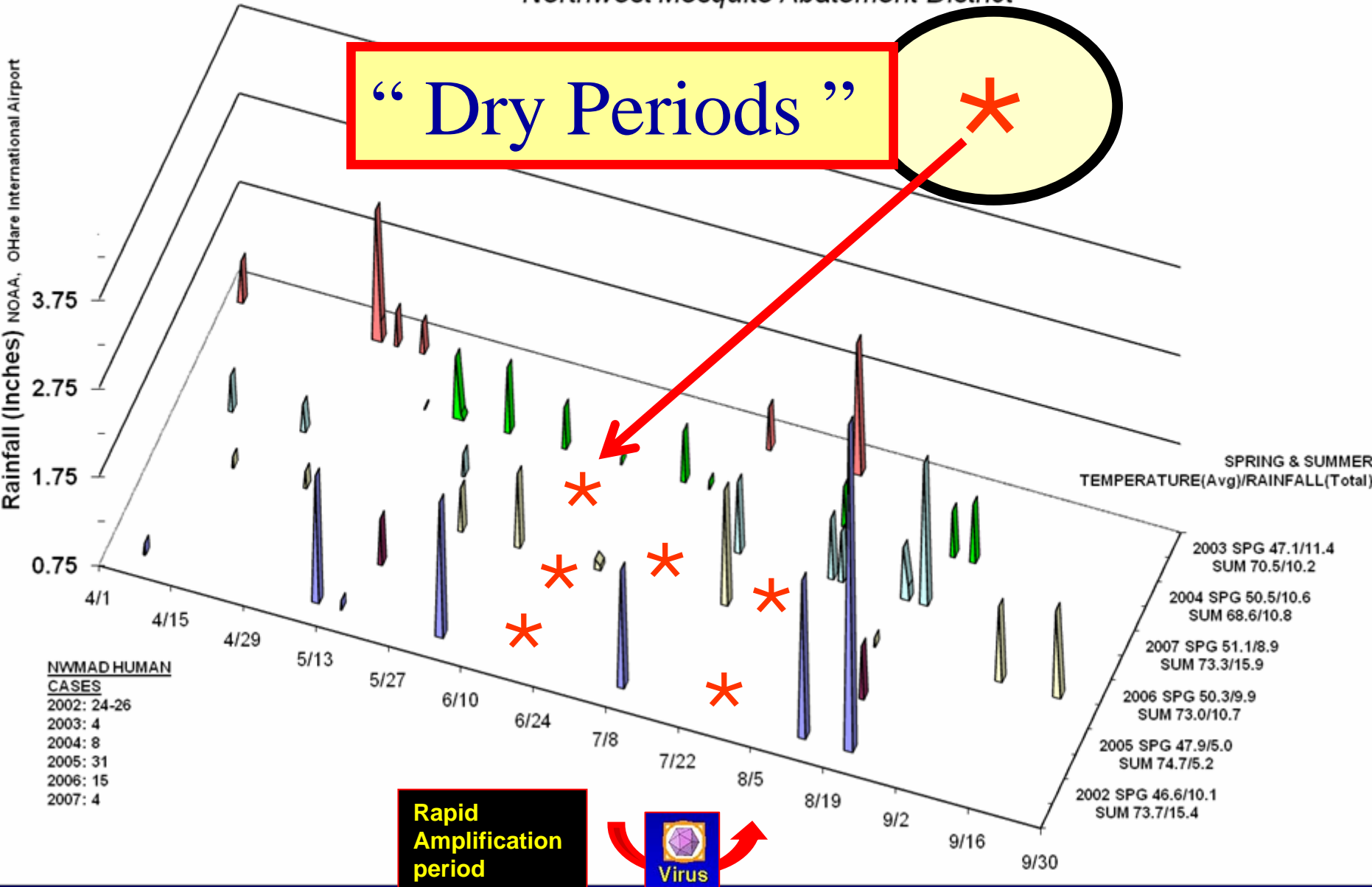
Temperatures are in degrees Fahrenheit Deviations from average – NOAA, O'Hare

Does WHEN rainfall events occur
impact WNV amplification ???



West Nile Virus Dynamics & Wash-Out Events

Northwest Mosquito Abatement District



Environmental Surveillance for WNV



Testing of Dead Birds & Adult Mosquitoes

Many agencies are participating: IDPH, INHS, MADs, municipalities, DNR, IDA, U of I Vet School

“ Predicting the Future ”

*For 2007, the Environmental Surveillance system (Mosquitoes and Birds) **predicted** Lower WNV activity in IL compared to 2005 and 2006*

But, there was a general **DELAY** in WNV amplification during 2007



Bird Surveillance



Dead Bird surveillance



**“Rumors of my demise are
greatly exaggerated”**

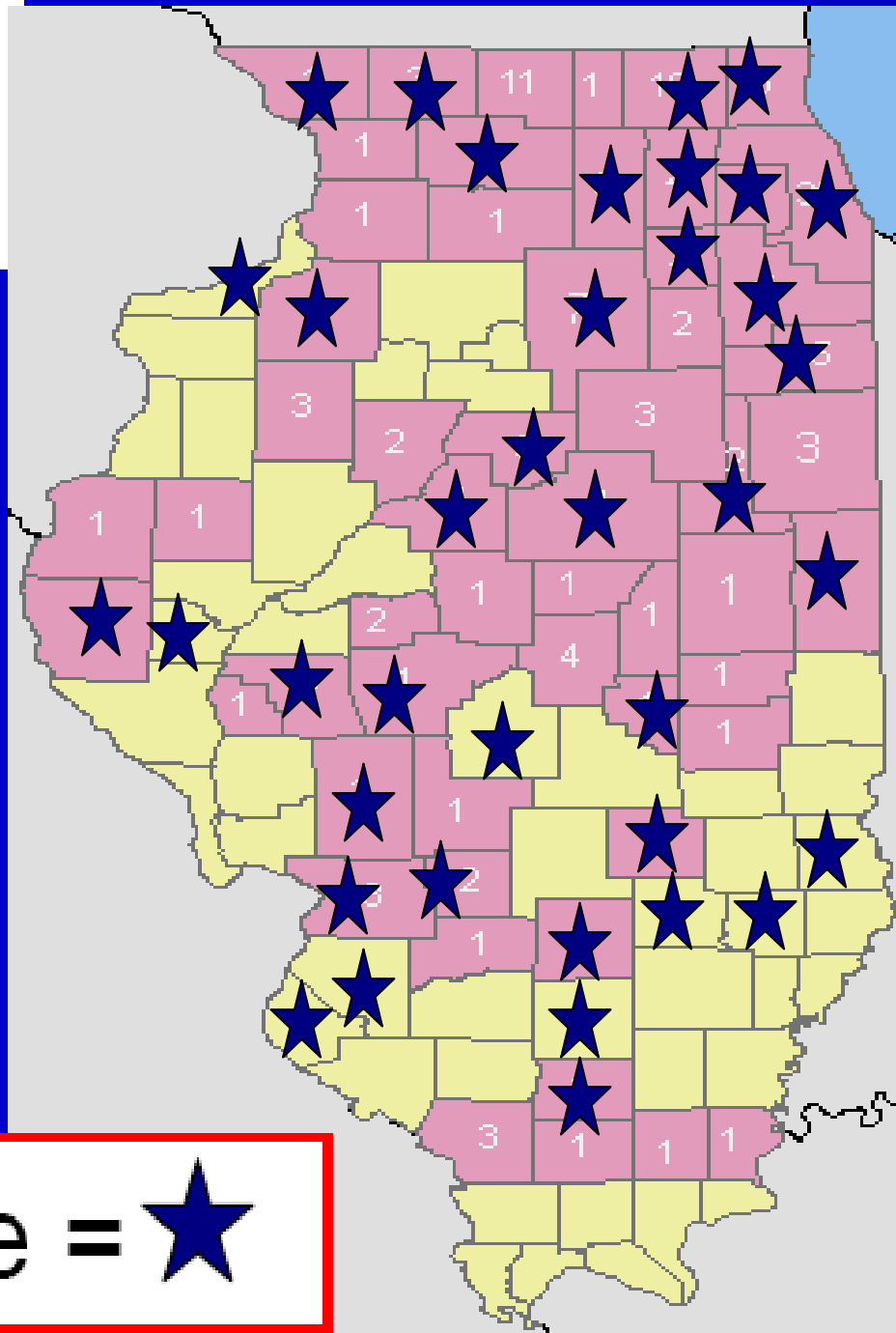
-- Mark Twain

Added “Perching Birds”

*Bird Surveillance acts as **an**
independent check on
mosquito surveillance
sampling errors*

Particularly in “down state” counties...

2006 Bird



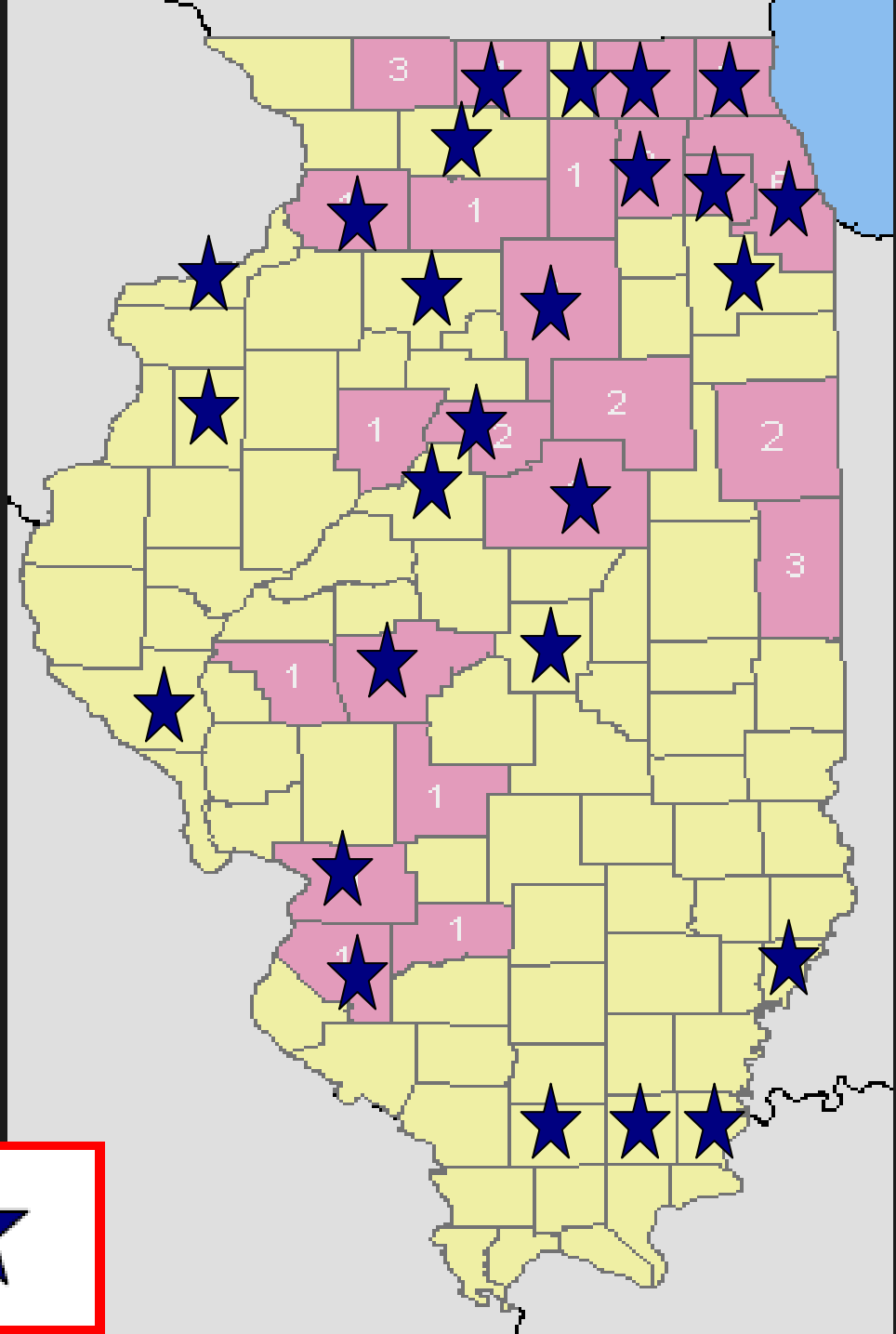
Human Case = ★

2007 Bird

As of Oct 31



Note: Some problems with lab support during '07

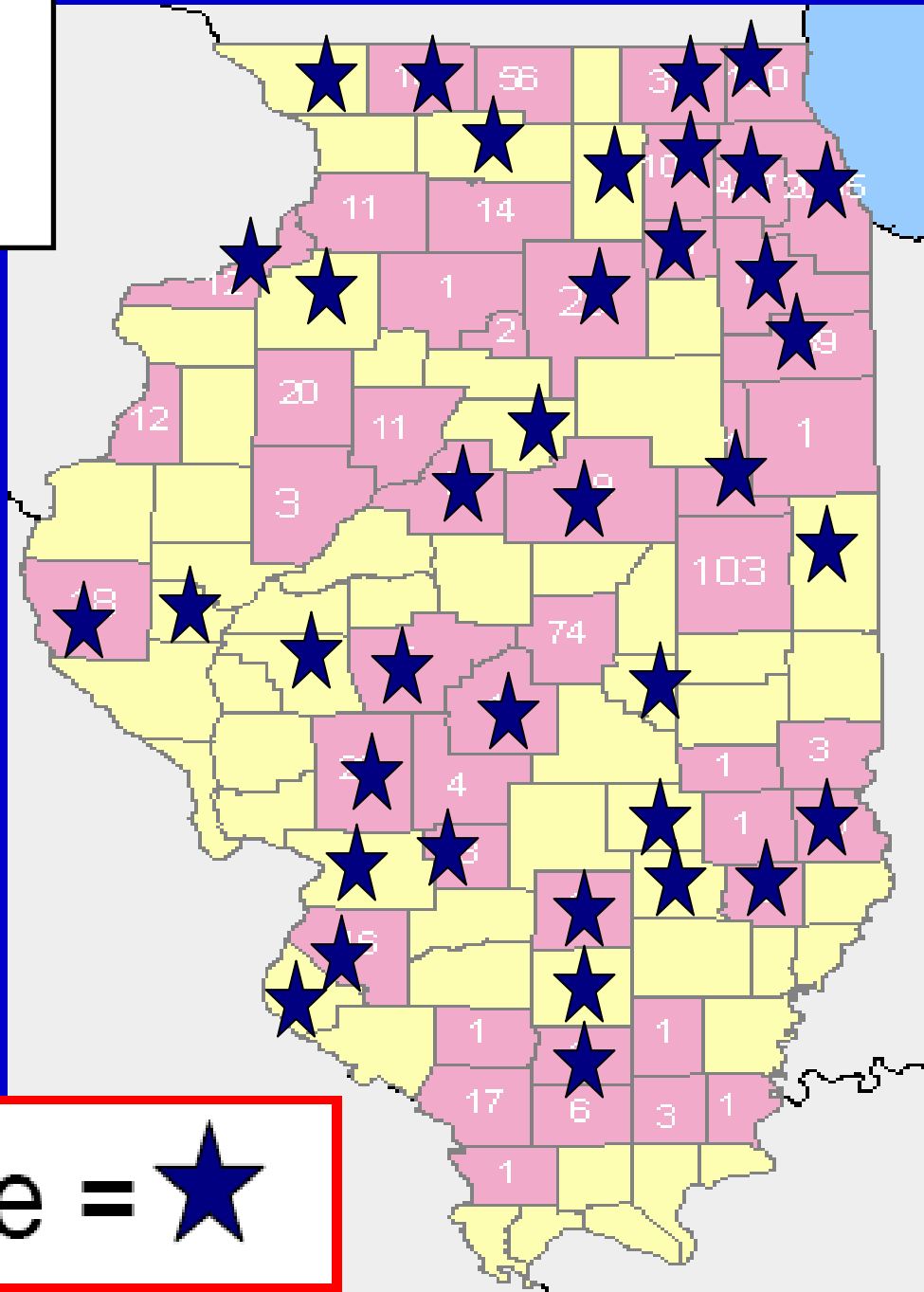


Human Case = ★

Culex Mosquito Surveillance

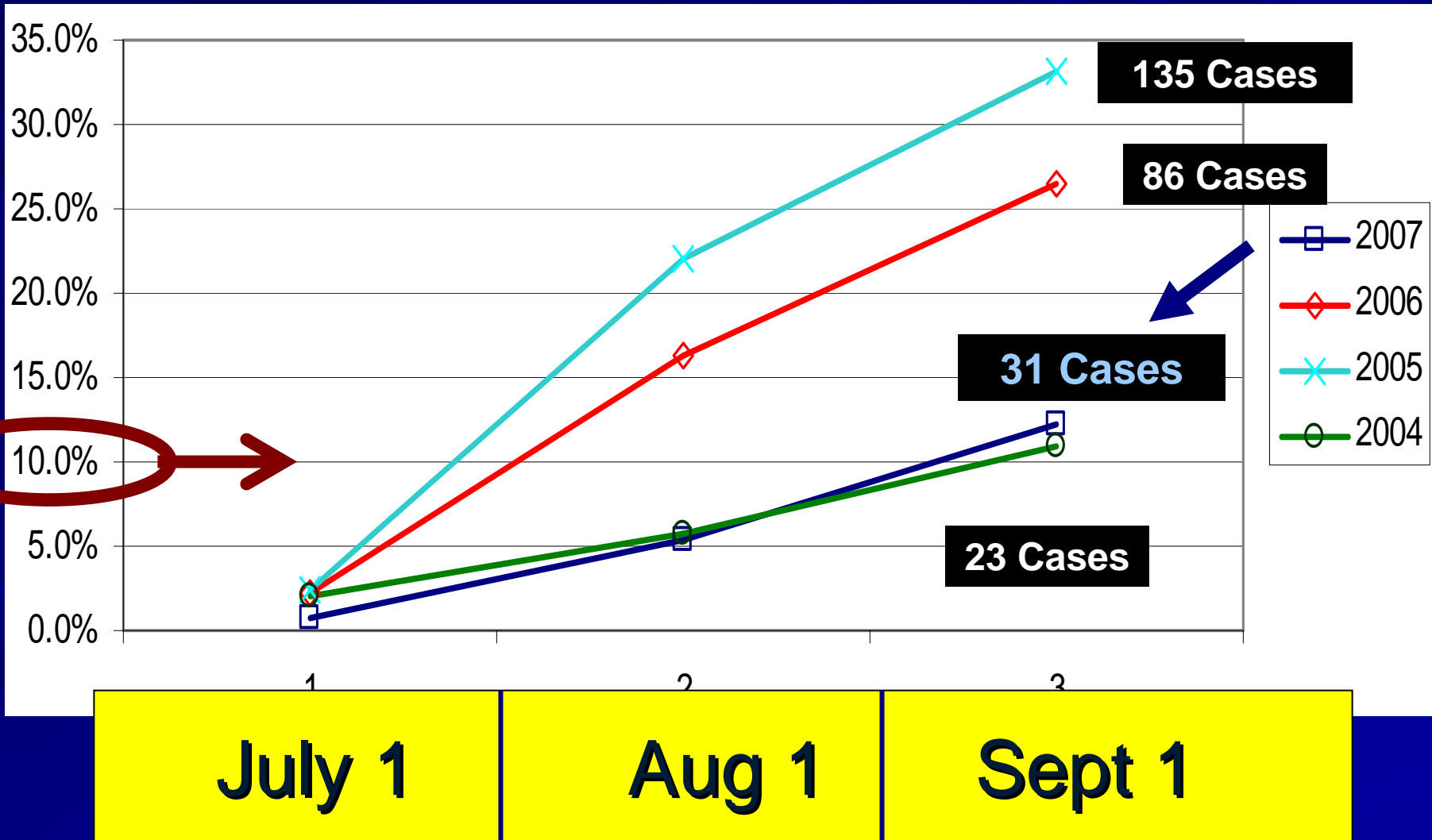


2006 Mosquito



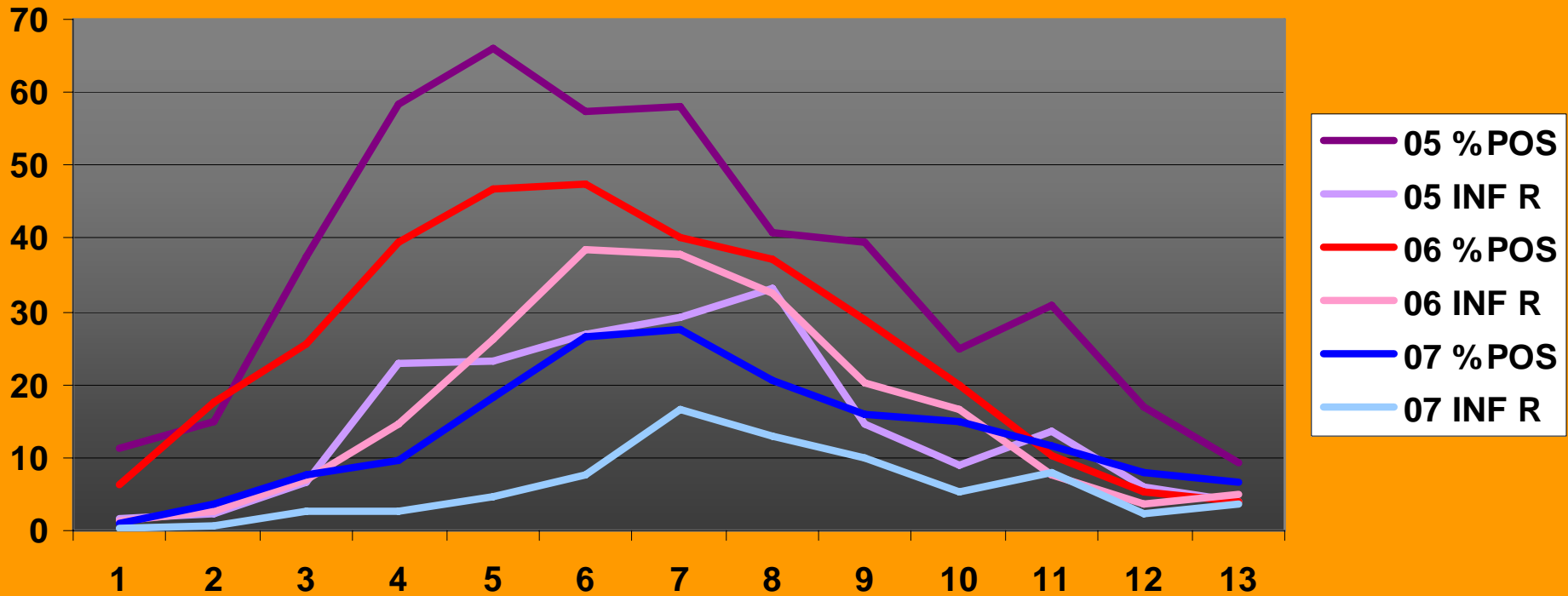
Human Case = ★

Cook Co: Mosquito Surveillance 2004 - 2007



% WNV Positive *Culex* Mosquito Samples and Infection Rate (per 1000 mosquitoes), Cook Co., 2005-07

WNV MOSQUITO SURVEILLANCE, Cook County, IL, 2005-7



Week 27: Begin July

Week 31: Begin August

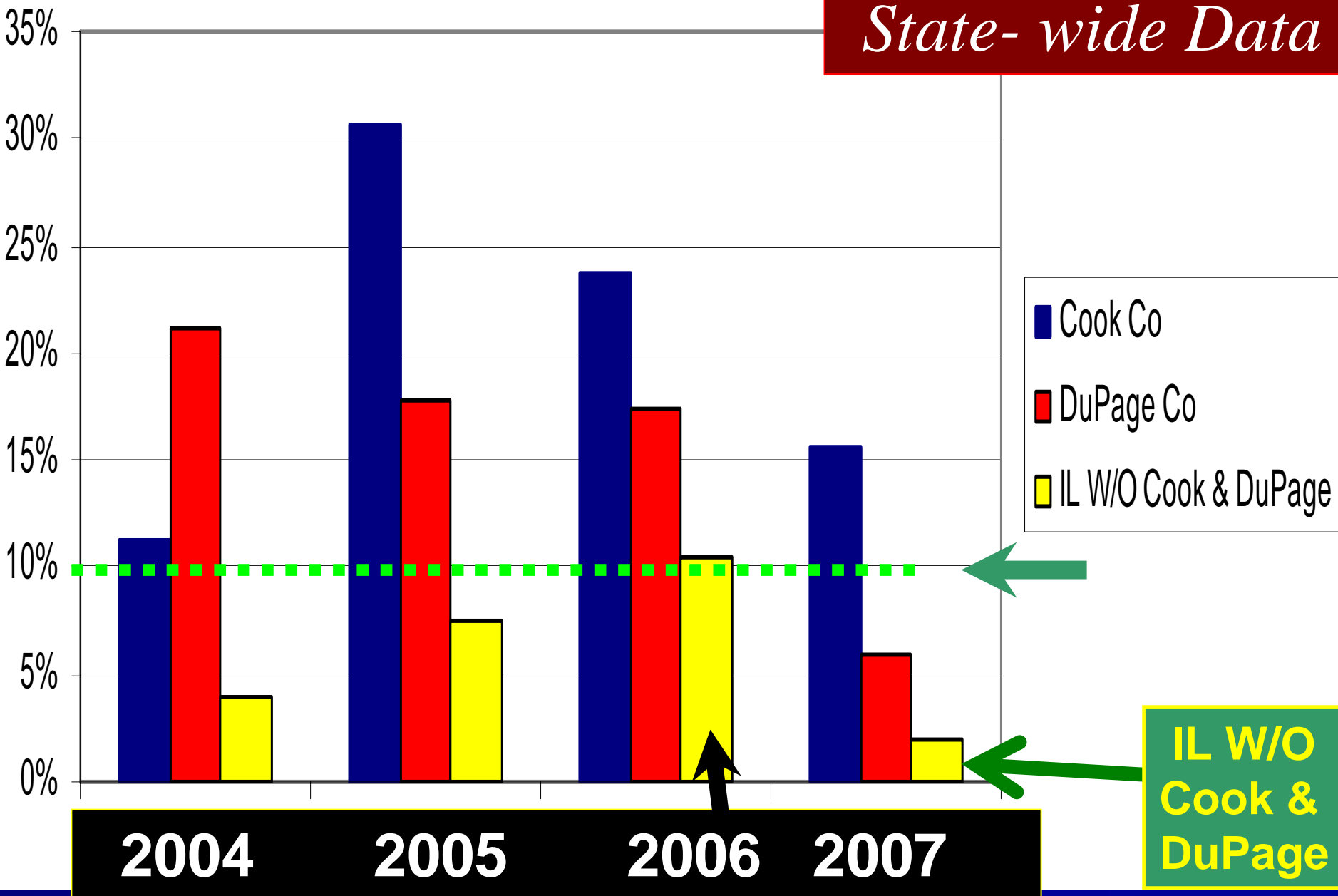
Week 35: Begin September

*“Downstate”
Mosquito
Surveillance*



% WNV Positive Mosquito Samples

State-wide Data



- Cook Co
- DuPage Co
- IL W/O Cook & DuPage

**IL W/O
Cook &
DuPage**

“Snack Food”

(Miscellaneous Issues)



WNV "Prevention Grants" to Local HDs

About \$2.5 million in
state funds for 82 grants

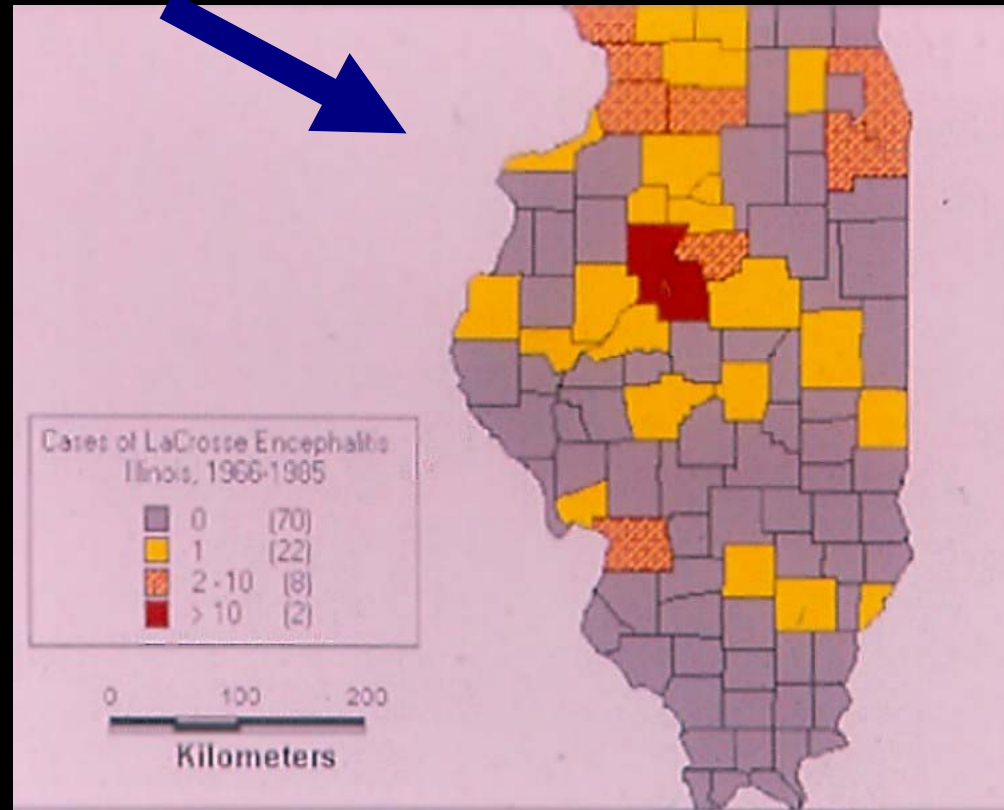
Review of WNV Surveillance Program, Chicago, April 2007

**Sponsored by the Chicago Departments
of Health and Environment**



The major issue
was adult mosquito
control

La Crosse Encephalitis (?)



Prevention:
Remove
containers
around homes &
other Personal
Protection
measures

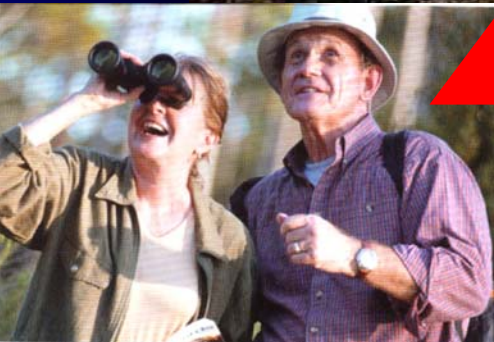


Status ?

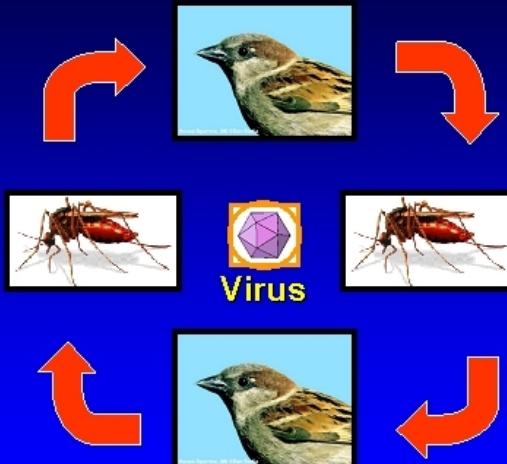
The “Wave” Analogy for WNV...

May – July Bird & Mosquito “Amplification” is like the wind driving a wave

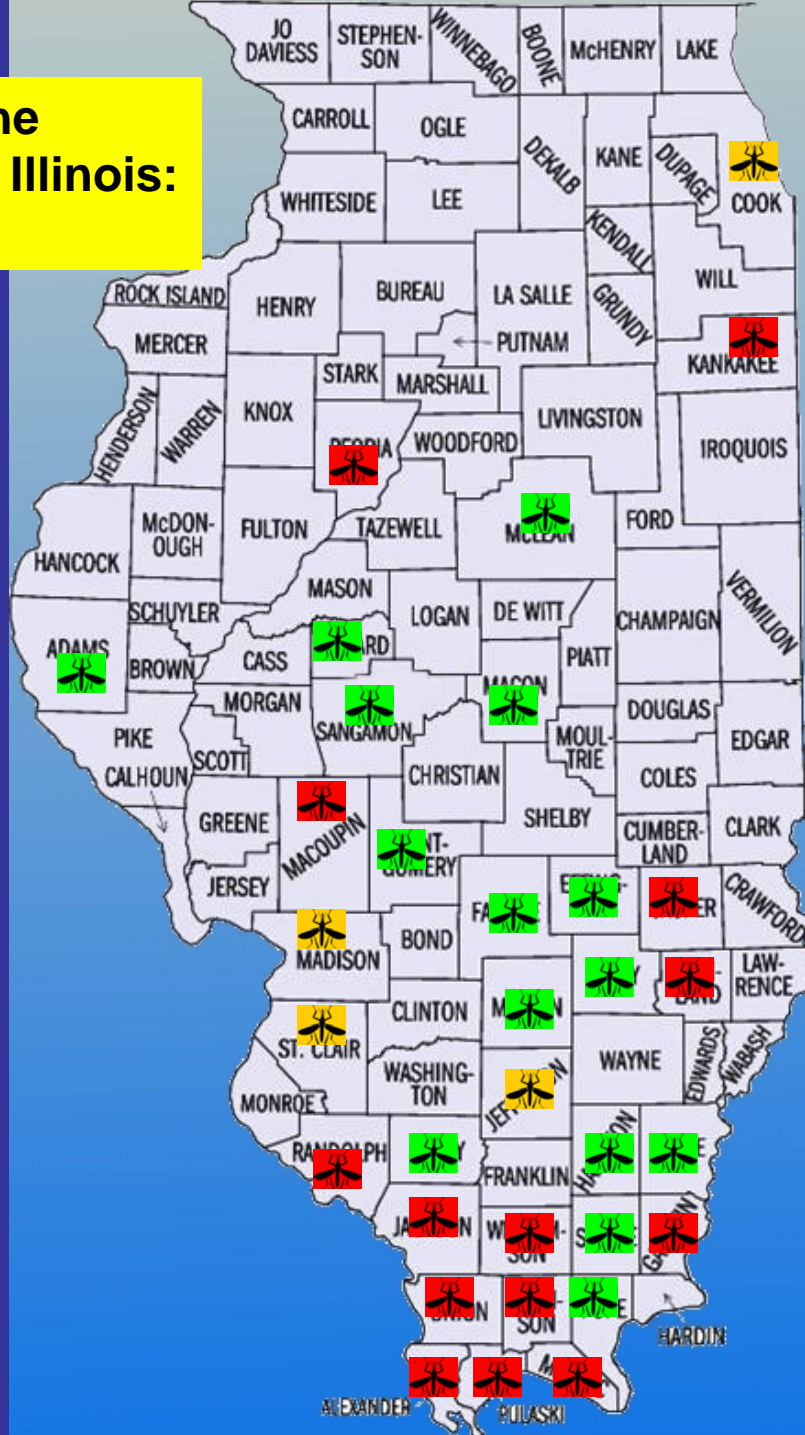
August
Human
Cases



“ The Wind ”



Known Distribution of the Asian Tiger Mosquito in Illinois: 1986 - 2007



2000's



1990's



1980's



Photo by Susan Ellis

Aedes japonicus, an “Invasive” Introduced Mosquito in Illinois

Agency	Location / Date
Champaign, LaSalle	INHS / 2006
Cook	South Cook Co MAD / 2006
Effingham	ISU / 2006
Menard	IDPH & IEPA /2007

Container breeder: Another good reason to do source reduction projects



Increase of Lyme Disease Risk in Urban Areas, Chicago Region

Jobe DA, Nelson JA, Adam MD, Martin SA. Lyme disease in urban areas, Chicago [letter]. Emerg Infect Dis. 2007 Nov;



Lyme spirochetes were recovered from 21 of 65 ticks (32 %) and 40 of 107 ticks (37 %) collected from sites in Cook and Lake counties

Bed Bugs ! They're back...slow but steady increase...

Infestations at university dormitories, multiunit dwellings, etc



Itch Mite Outbreak associated with **17 year Cicada Populations**, NE Illinois

Photo of physogastric female attached to an insect pupa as a lab host, photo by Ed Zaborski, PhD



Bites on shoulders, chest, arms and back

There were hundreds of inquiries to state and local health agencies during August – October 2007

Worked with the U of Nebraska Extension and IL Natural History Survey

Cicada “Egg
Nests”



Female mites were parasites on the thousands of cicada “egg
nests” found on trees

People Don't Like Spiders !!!


BOO !!!!



 University of Nebraska
Department of Entomology

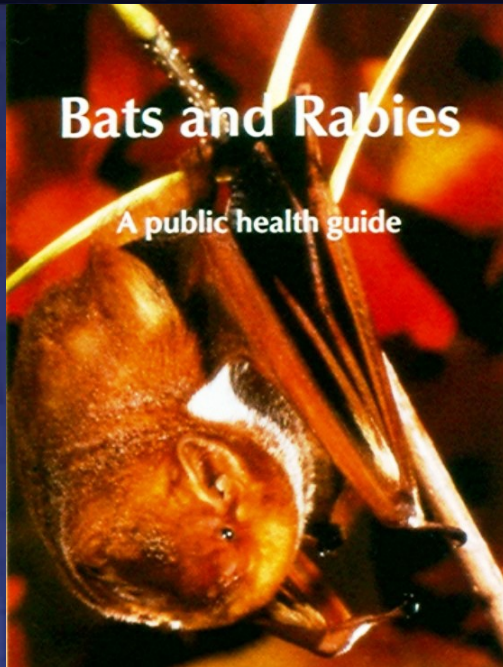
Brown
Recluse 



 University of Nebraska
Department of Entomology

“BRS” is *rare* in N IL 

Bats: Do not handle !!



- An unusual number of rabies positive bats found in or near structures during 2007 – exposures occur each year
- *Why so many contacts ?*

Association of Increased Ring-billed Gull Populations and Beach Swim Bans ?

Source: USDA Wildlife Services, 2008



The End

Thanks to all the
Agencies that
participated in the
WNV surveillance
effort this year