

Summary of National West Nile Virus Surveillance Data, 2002

**4th National Conference on West Nile Virus
in the United States,
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Epidemic West Nile Meningoencephalitis, United States, 2002

- *Unofficial* U.S. human totals*:
 - **2,741 WNME cases**
 - 1,267 WNF cases or clinical category unknown
 - 263 deaths
 - 39 states & D.C.
- Largest **arboviral ME** epidemic ever documented in western hemisphere
- Largest **WNME** epidemic ever documented

* As of 2/5/2003

Epidemic WNME, North America, 2002: Comparison With Other Large WNME or St. Louis Encephalitis (SLE) Epidemics

Year	Location	Virus	# ME cases (approx.)	# deaths (approx.)	CFR (approx.)
2002*	N. America	WN	2,700	260	10%
2000	Israel	WN	240	33	14%
1999	Russia	WN	400	40	10%
1996	Romania	WN	350	17	5%
1975	N. America	SLE	2,000	170	8%
1933	U. S.	SLE	1,400	280	20%

* As of 2/5/2003

BIRDS

WNV Surveillance, United States, 2002*: *Summary of Dead Bird Data*

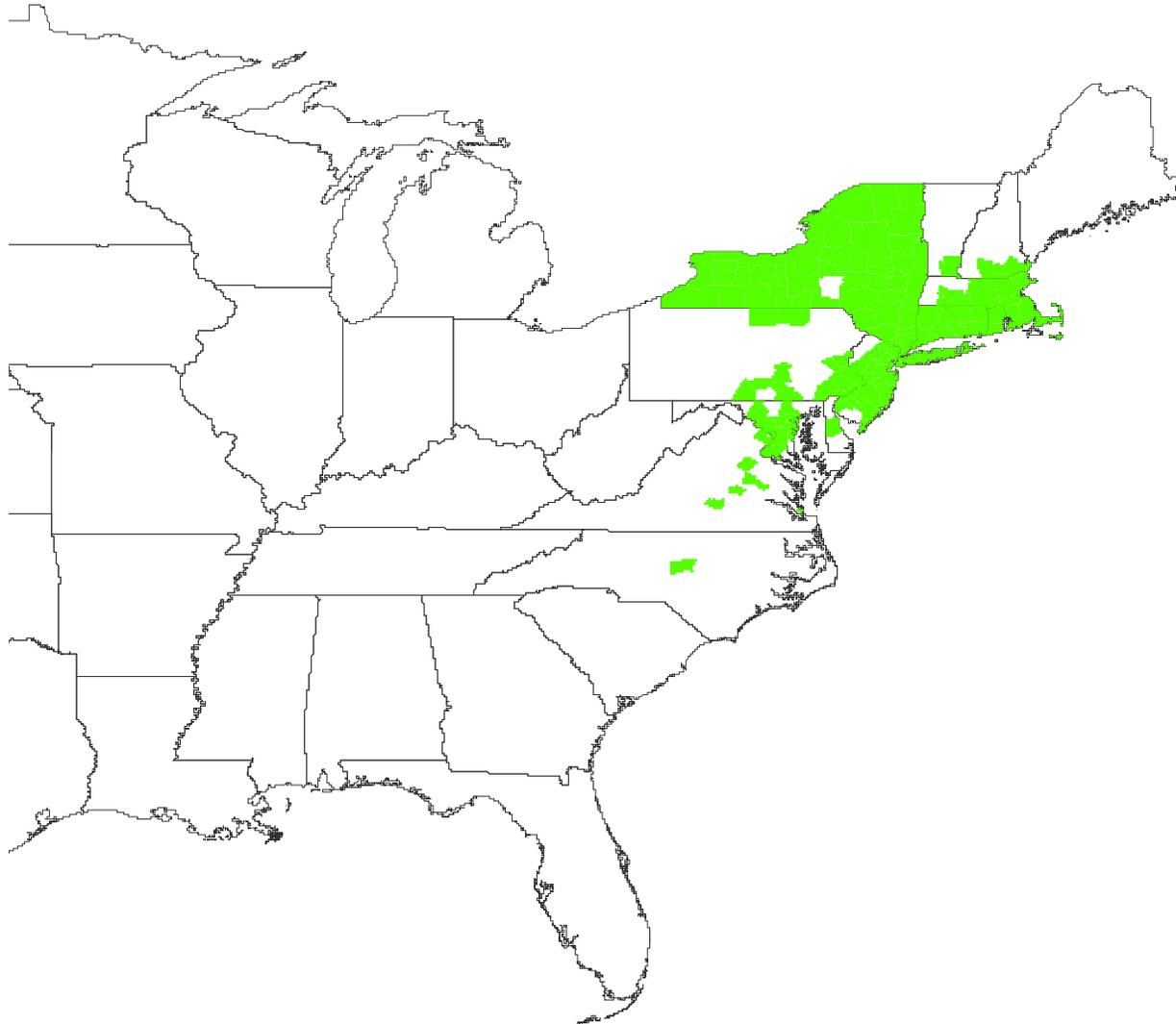
- 124,854 dead birds reported
- 31,514 tested (25%)
- 15,745 WNV-positive (50%)
 - 8,420 crows (53%)
 - 7,325 birds of other spp. (47%)
- 1999-2002: 157 spp. WNV-positive

* Reported as of 01/21/2003

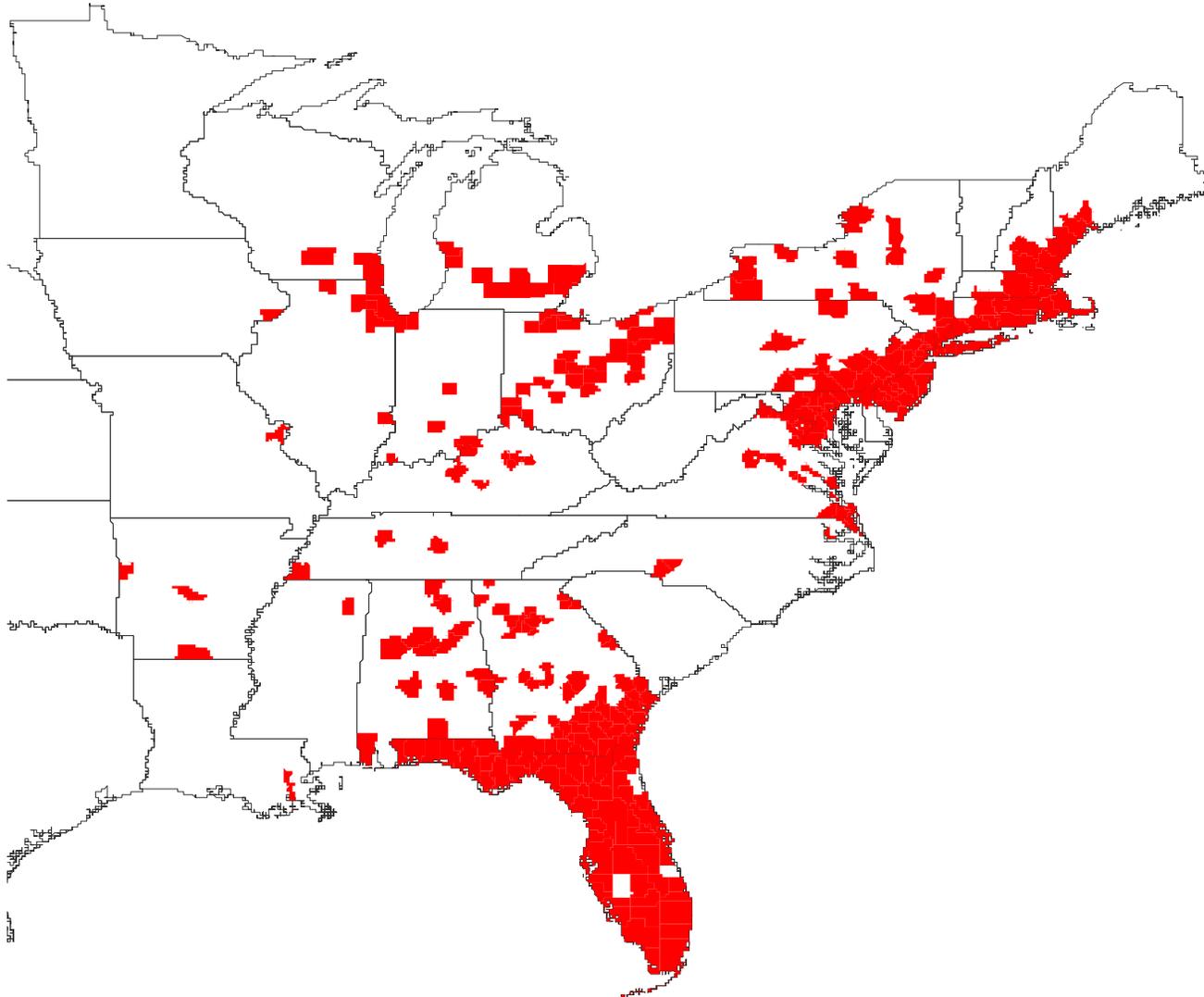
U.S. counties reporting any WNV-infected birds in 1999 (N = 28 counties)



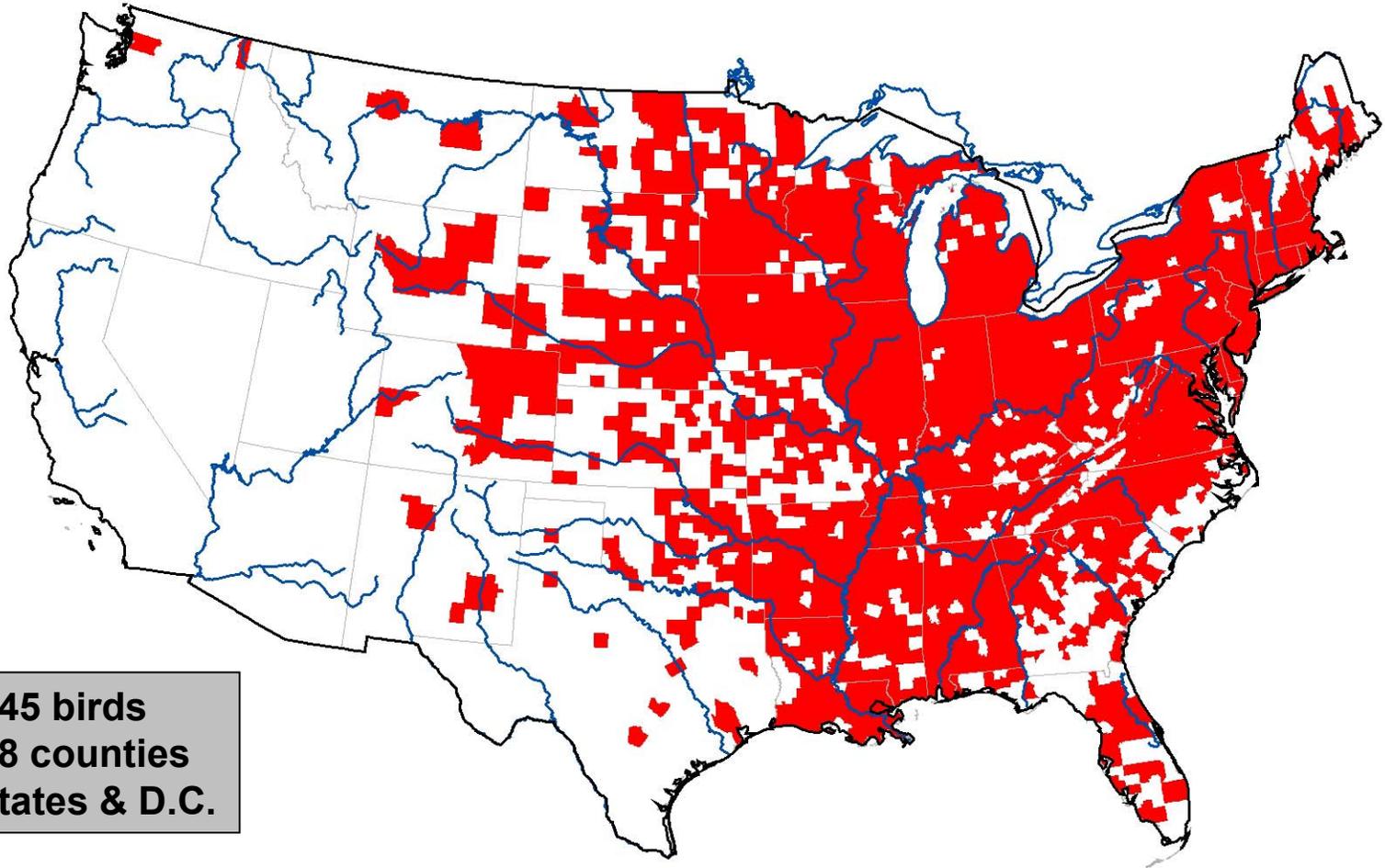
U.S. counties reporting any WNV-infected birds in 2000 (N = 136 counties)



U.S. counties reporting any WNV-infected birds in 2001 (N = 328 counties)



U.S. Counties Reporting WNV-Positive Dead Birds, 2002*

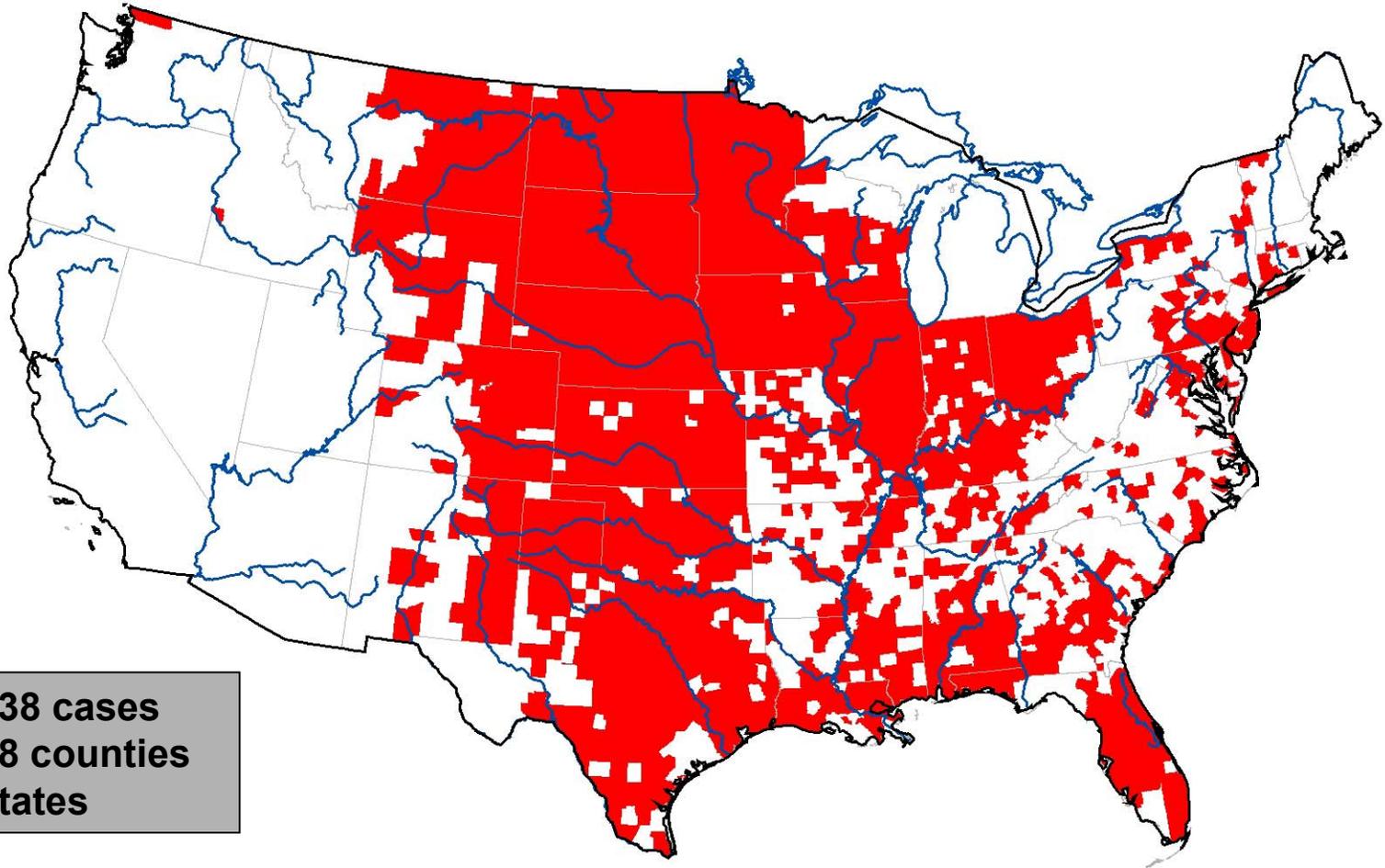


15,745 birds
1,888 counties
42 states & D.C.

Through MMWR week 53 (ending 12/31/2002) - 1888 counties
Reported and verified through ArboNET as of 1/21/2003

EQUINES

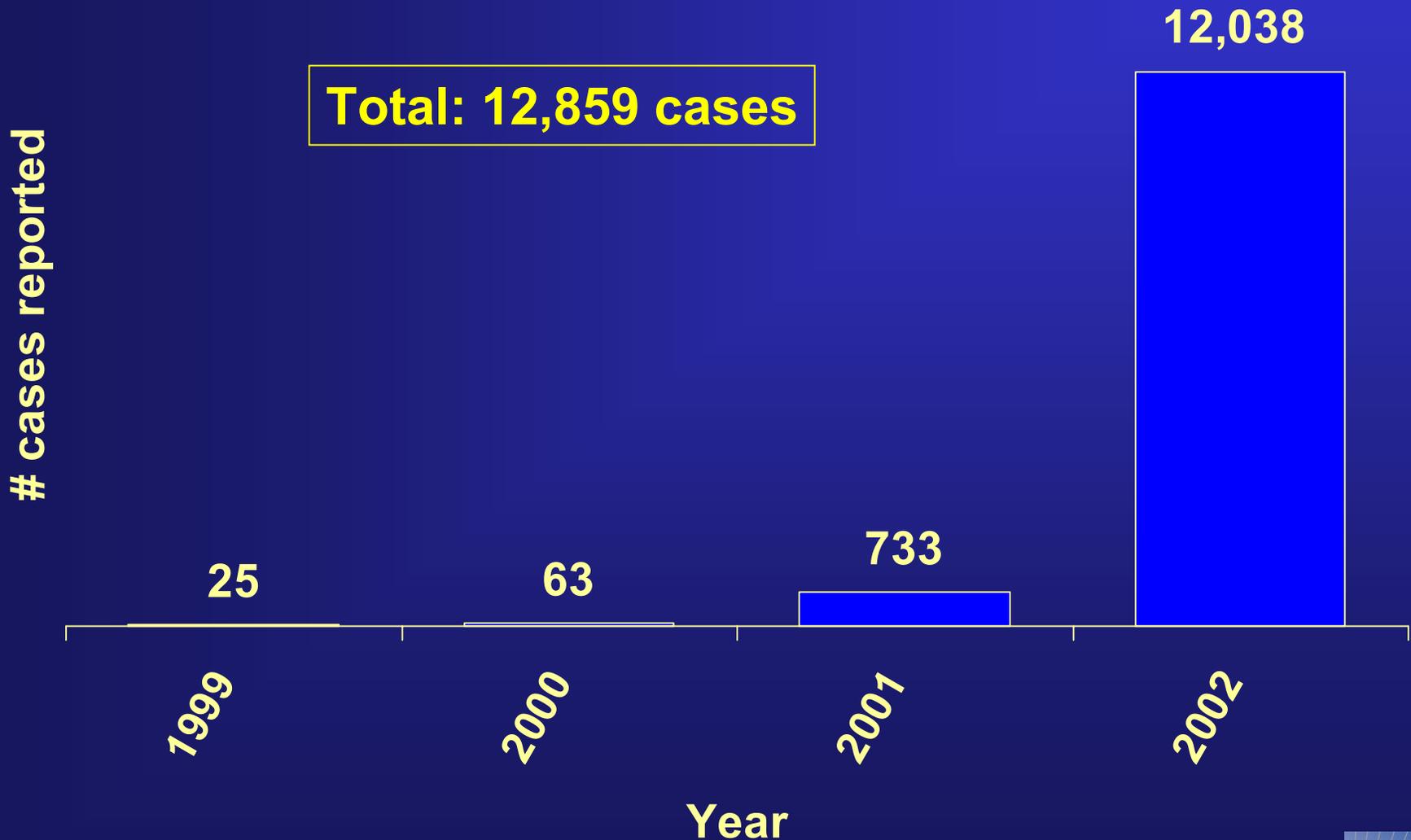
U.S. Counties Reporting Equine WNV Disease Cases, 2002*



12,038 cases
1,678 counties
39 states

Through MMWR week 53 (ending 12/31/2002) - 1678 counties
Reported and verified through ArboNET as of 1/21/2003

Equine WNV Disease Cases Reported, United States, 1999-2002*



* Reported as of 01/21/2003

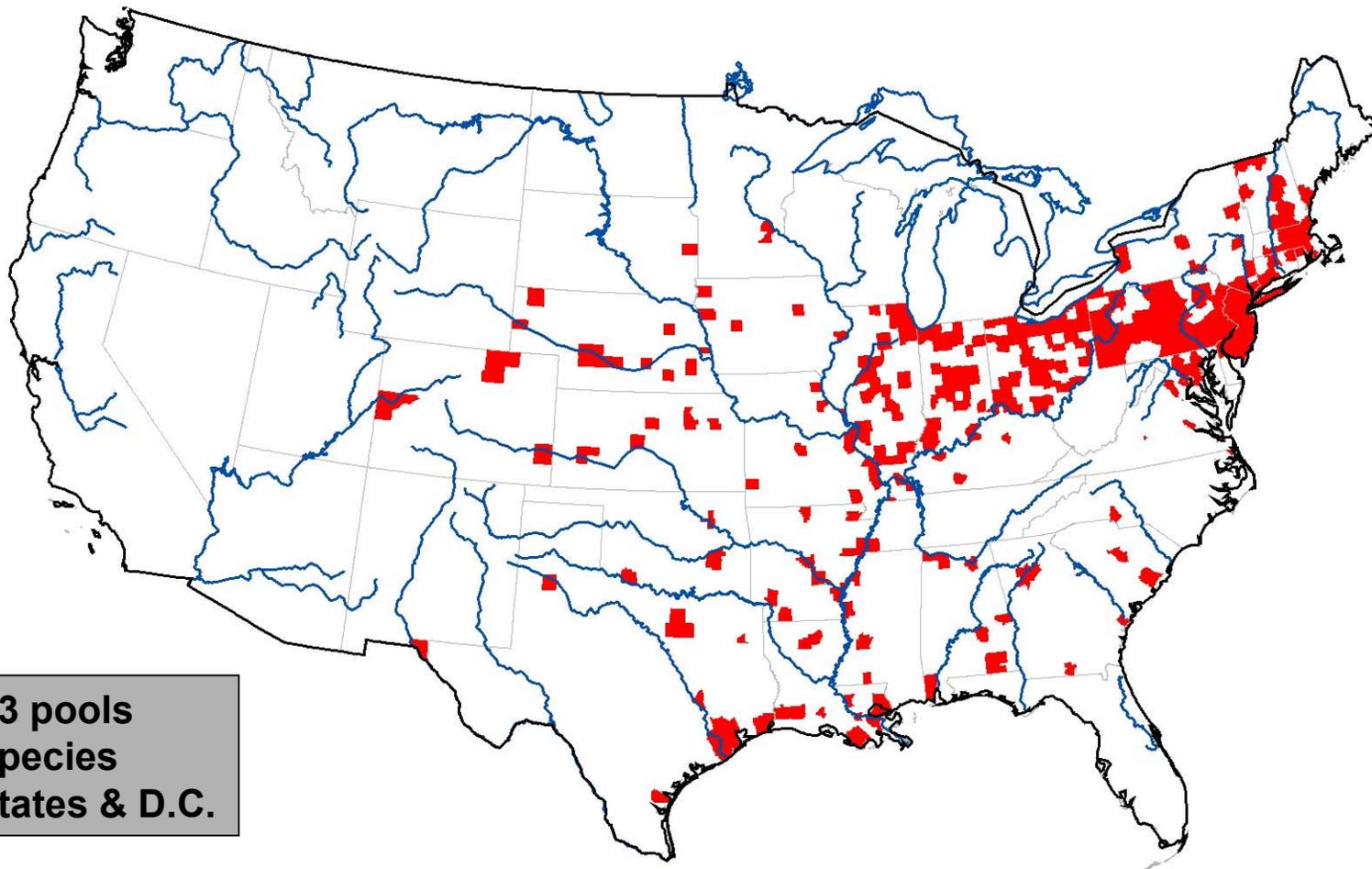
MOSQUITOES

WNV Surveillance, United States, 2002*: *Summary of Mosquito Data*

- 1.5 million individuals tested
- 6,033 WNV-positive mosquito pools
- 29 positive species
- Earliest: 22 MAY, *Cx. restuans*, Monmouth Co., NJ
- Latest: 12 NOV, *Cx. quinquefasciatus*, Catham Co., GA

* Reported as of 01/21/2003

U.S. Counties Reporting WNV-Positive Mosquitoes, 2002*



6,033 pools
29 species
33 states & D.C.

Through MMWR week 53 (ending 12/31/2002) - 353 counties
Reported and verified through ArboNET as of 1/21/2003

“Top 10” WNV-Positive Mosquito Species Reported, United States, 2002*

Species	# positive pools	% of total	# individuals tested **
<i>Cx. sp.</i>	2,381	39	72,986
<i>Cx. pipiens</i>	1,139	19	180,565
<i>Cx. pipiens / restuans</i>	857	14	170,232
<i>Cx. quinquefasciatus</i>	625	10	27,451
<i>Cx. restuans</i>	289	5	173,688
<i>Cx. tarsalis</i>	249	4	129,056
<i>Cx. salinarius</i>	102	2	188,814
<i>Oc. triseriatus</i>	63	1	55,942
<i>Ae. albopictus</i>	63	1	18,328
<i>Ae. vexans</i>	62	1	173,479

* Reported as of 01/21/2003

** Reported separately from positives



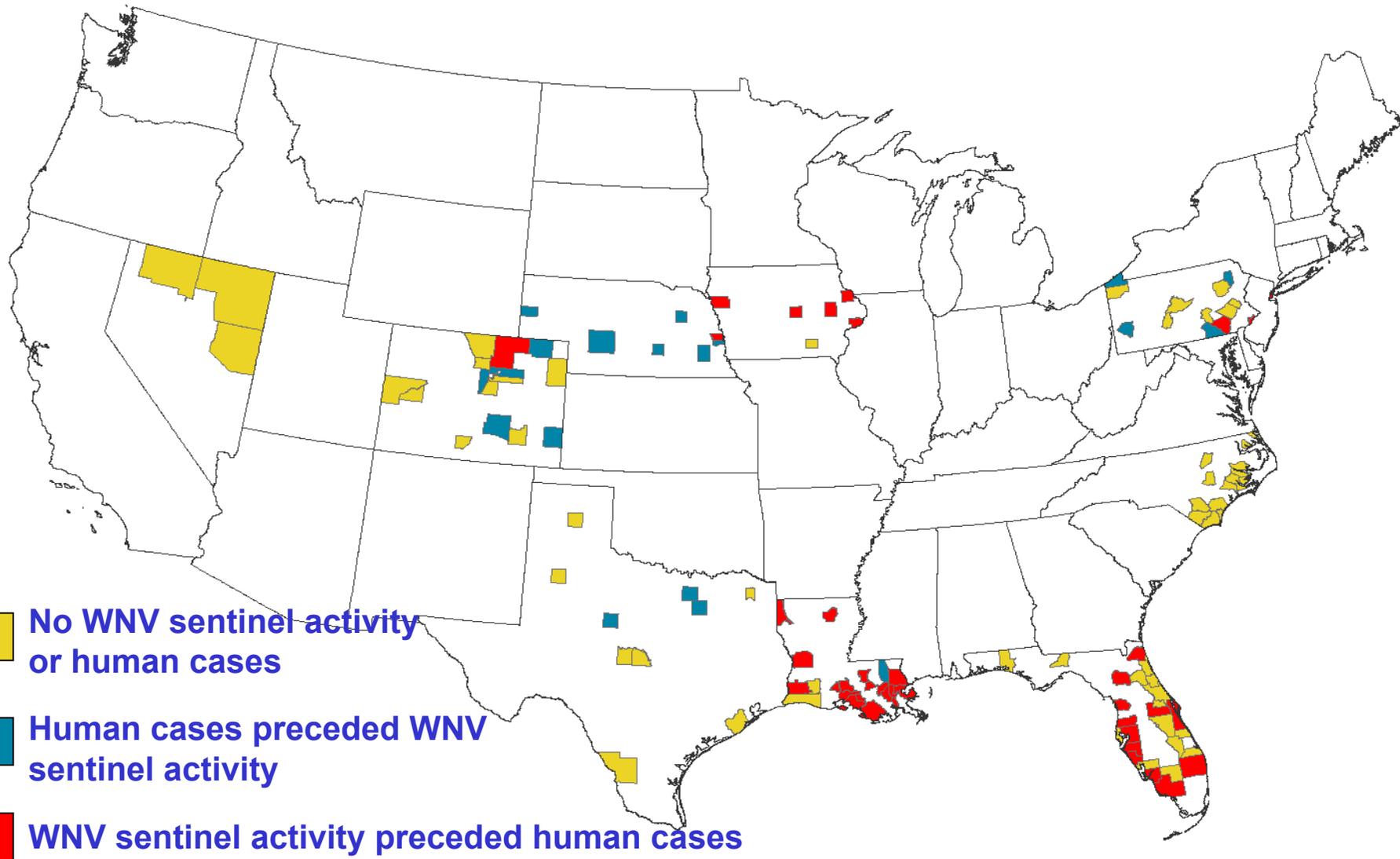
WNV-Positive Mosquito Species Reported, United States, 1999-2002*

<i>Culex</i>	<i>Aedes</i>	<i>Ochlerotatus</i>	<i>Anopheles</i>	Other
<i>pipiens</i>	<i>albopictus</i>	<i>atlanticus</i>	<i>atropos</i>	<i>Cs. melanura</i>
<i>quinq.</i>	<i>aegypti</i>	<i>atropalpus</i>	<i>barberi</i>	<i>Cs. inornata</i>
<i>tarsalis</i>	<i>cinereus</i>	<i>canadensis</i>	<i>crucians</i>	<i>Cq. perturbans</i>
<i>restuans</i>	<i>vexans</i>	<i>cantator</i>	<i>puncitpennis</i>	<i>Deinocerites cancer</i>
<i>salinarius</i>		<i>japonicus</i>	<i>quadrimac.</i>	<i>Ps. columbiae</i>
<i>nigripalpus</i>		<i>sollicitans</i>	<i>walkeri</i>	<i>Ps. ciliata</i>
<i>erraticus</i>		<i>taeniorhynchus</i>		<i>Ps. ferox</i>
<i>territans</i>		<i>triseriatus</i>		<i>Orthopodomyia signifera</i>
		<i>trivittatus</i>		<i>Uranotaenia sapphirina</i>

* Reported as of 01/21/2003 – 36 species

SENTINEL BIRDS

WNV Surveillance: Sentinel Birds, 2002*



-  No WNV sentinel activity or human cases
-  Human cases preceded WNV sentinel activity
-  WNV sentinel activity preceded human cases

*Reported as of 01/21/2003

HUMANS

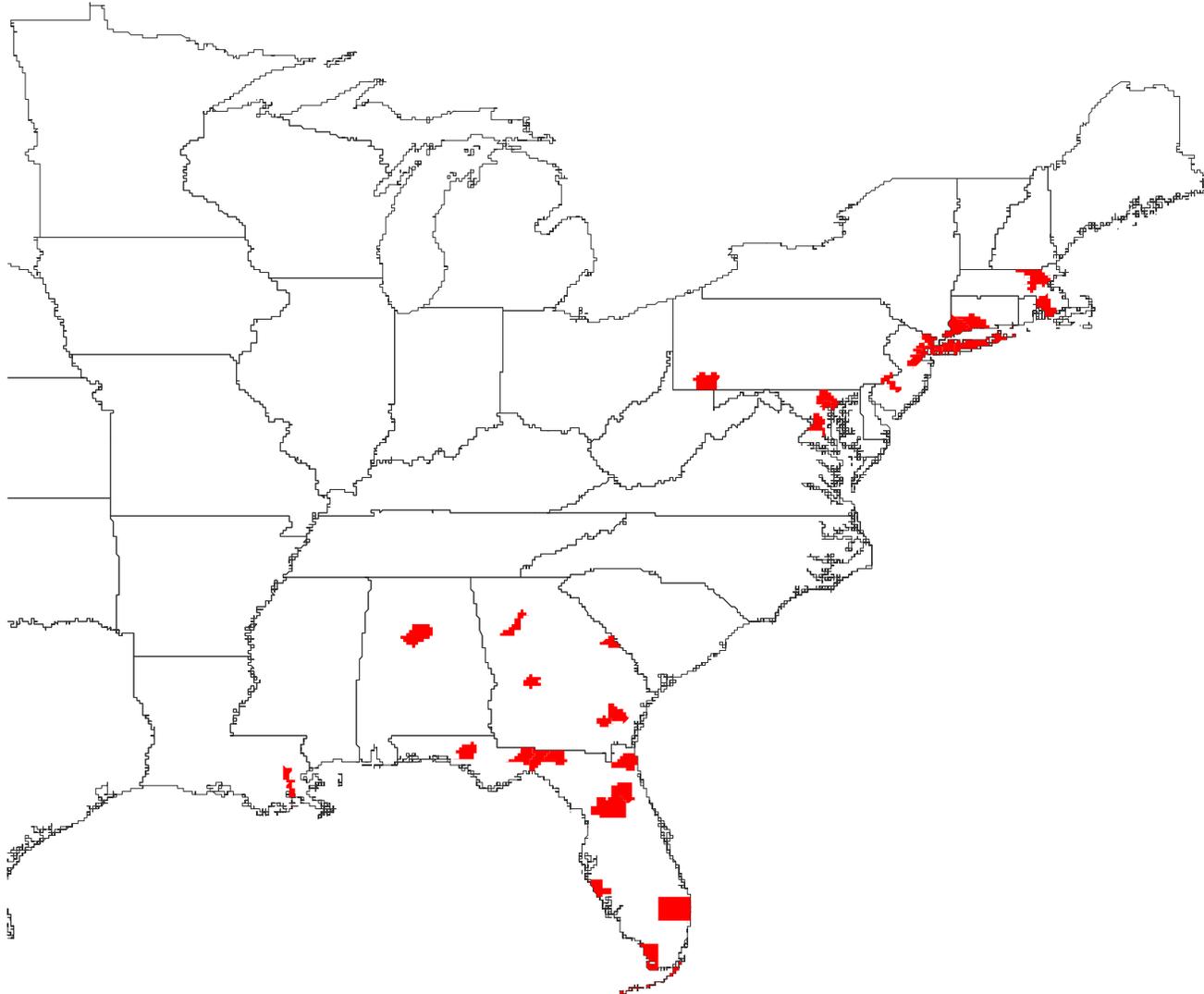
U.S. counties reporting **human** WNV disease cases, **1999** (N = 6 counties)



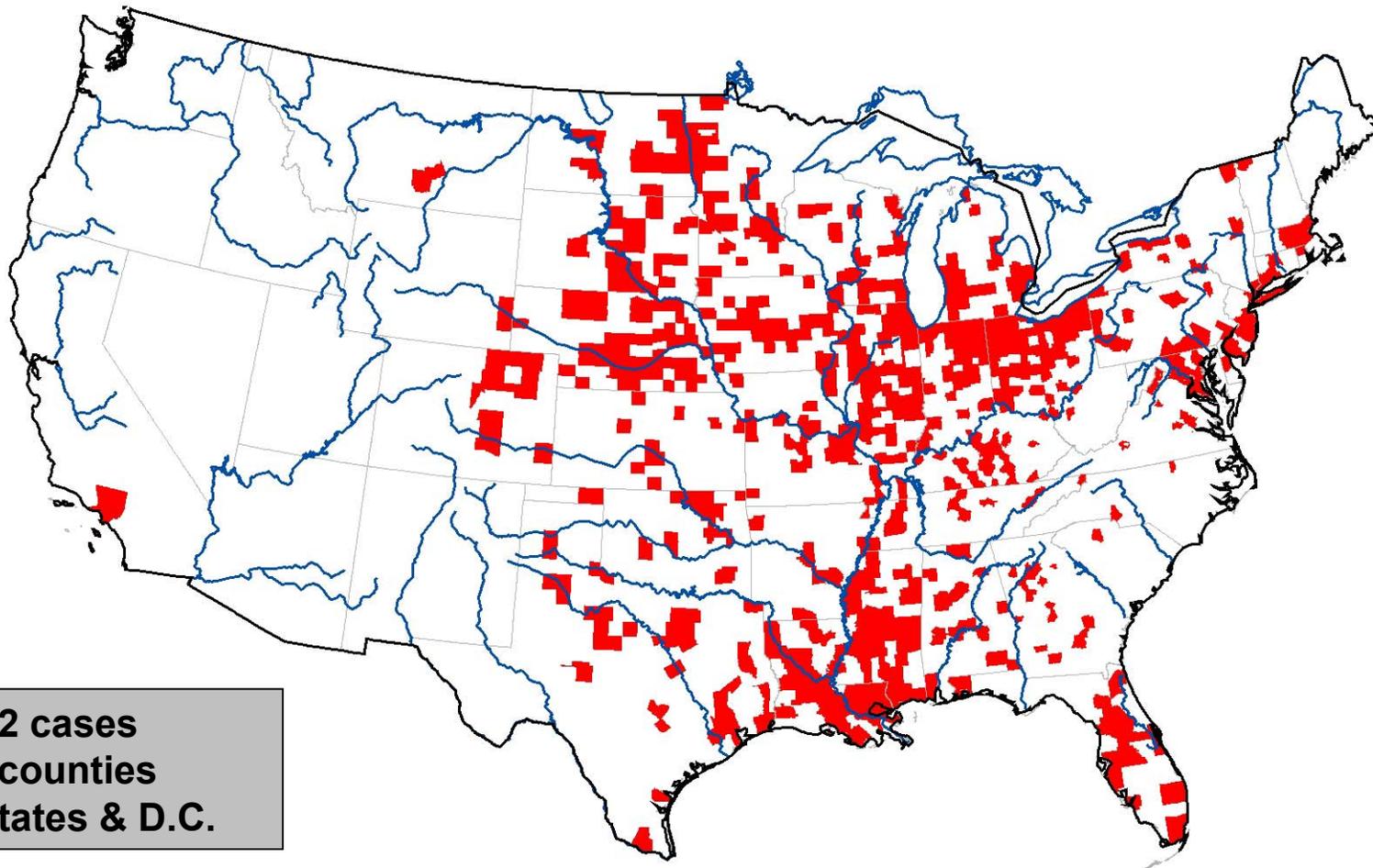
U.S. counties reporting **human** WNV disease cases, **2000** (N = 10 counties)



U.S. counties reporting **human** WNV disease cases, **2001** (N = 39 counties)



U.S. Counties Reporting Human WNV Disease Cases, 2002*



3,862 cases
708 counties
39 states & D.C.

Through MMWR week 53 (ending 12/31/2002) - 708 counties
Reported and verified through ArboNET as of 1/21/2003

Reported WNV Disease Cases in Humans, United States, 1999-2002*

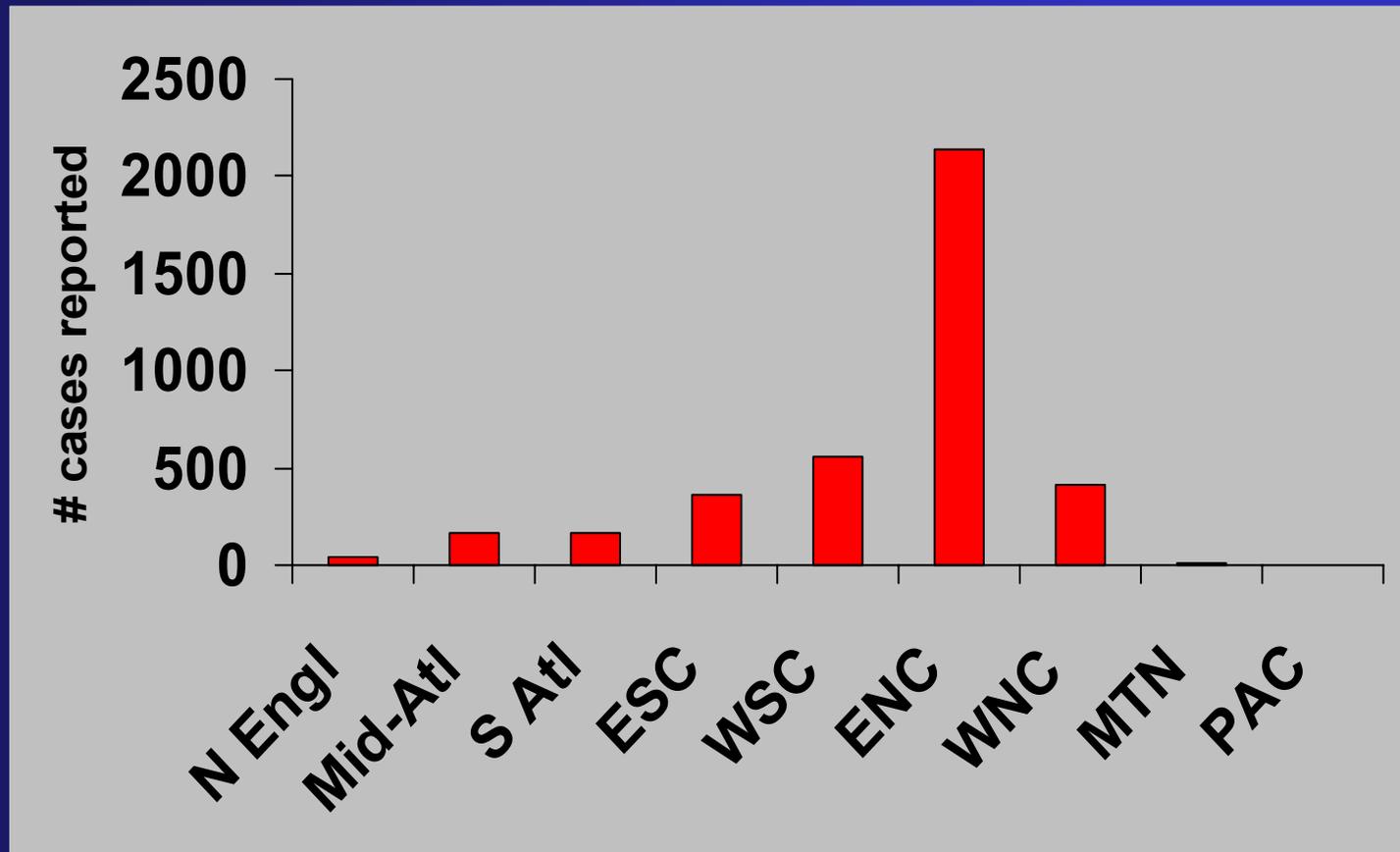
Year	# Cases	# States	# Counties	Onset Date Range
1999	62	1	6	2 AUG – 24 SEP
2000	21	3	10	20 JUL – 27 SEP
2001	66	10	39	13 JUL – 7 DEC
2002	3,862	39**	708	19 MAY – 14 DEC

* Reported as of 01/21/2003

** Plus D.C.

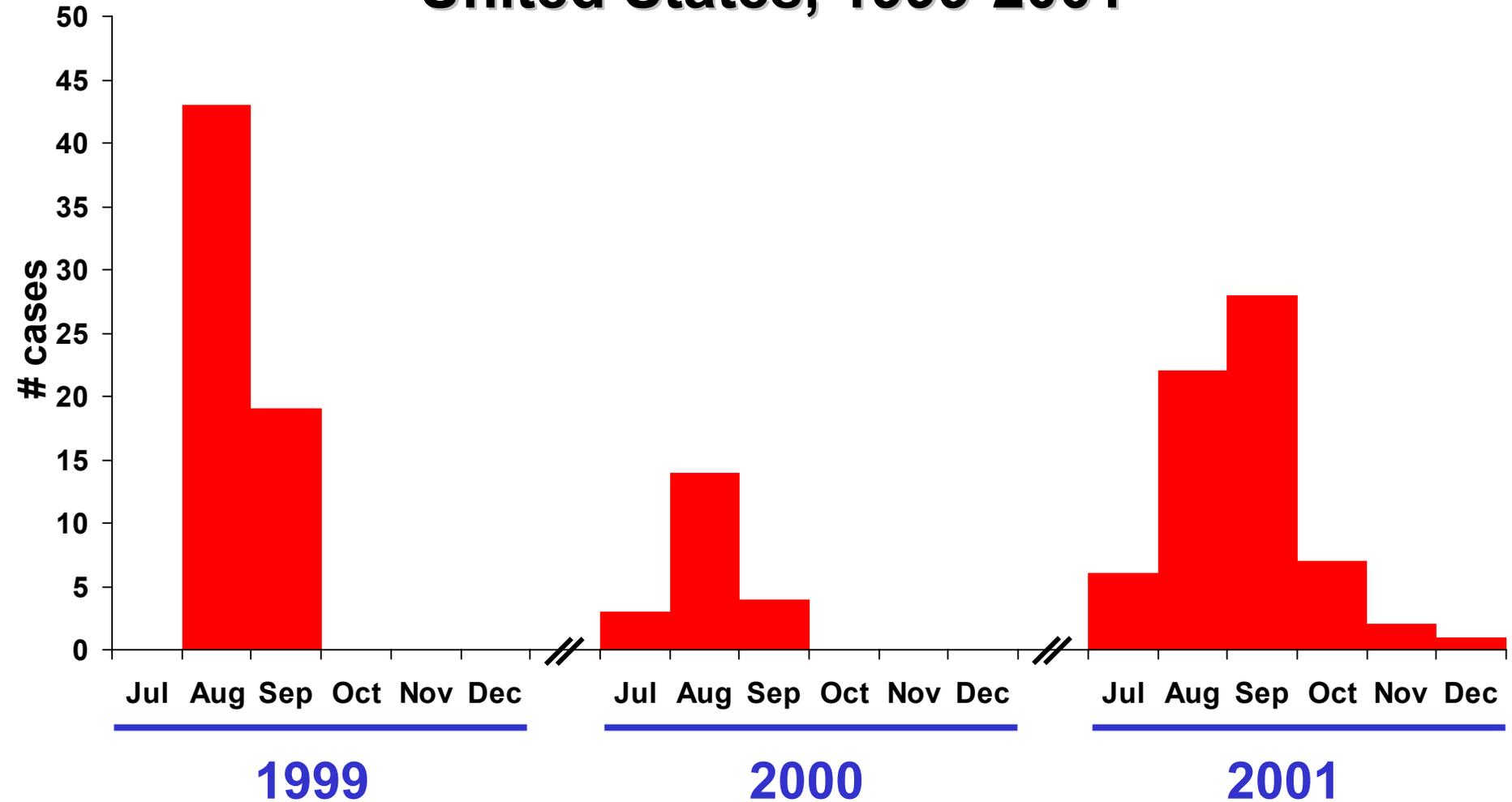


Human WNV Disease Cases, U.S., 2002*: *Regional Distribution*

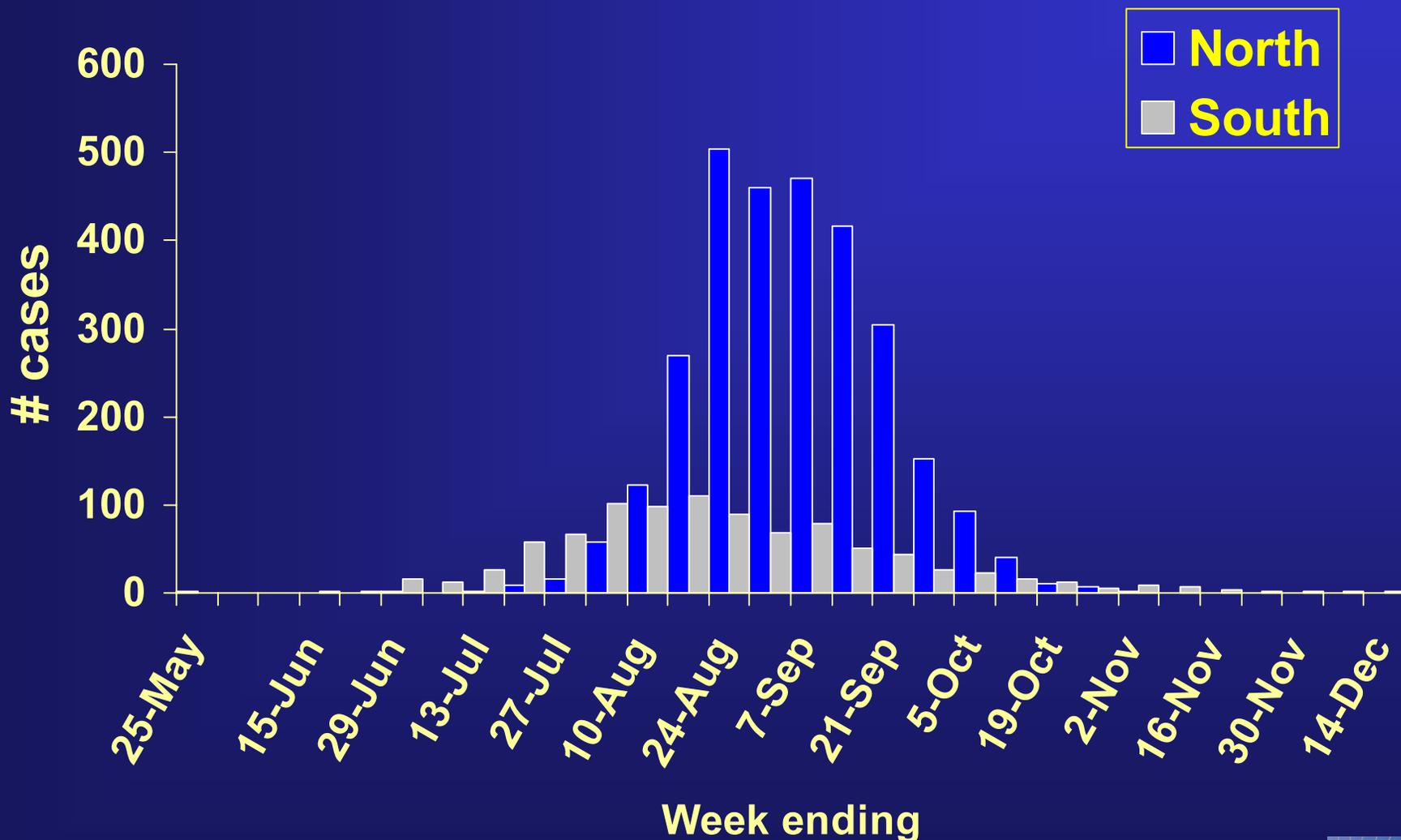


* Reported as of 01/21/2003

Human WNV Disease Cases, by Month of Onset, United States, 1999-2001



Human WNV Disease Cases, by Week of Onset, Northern vs. Southern United States, 2002*



* Reported as of 01/21/2003

WNV Human Disease Cases, Demographics & Mortality, United States, 1999-2002*

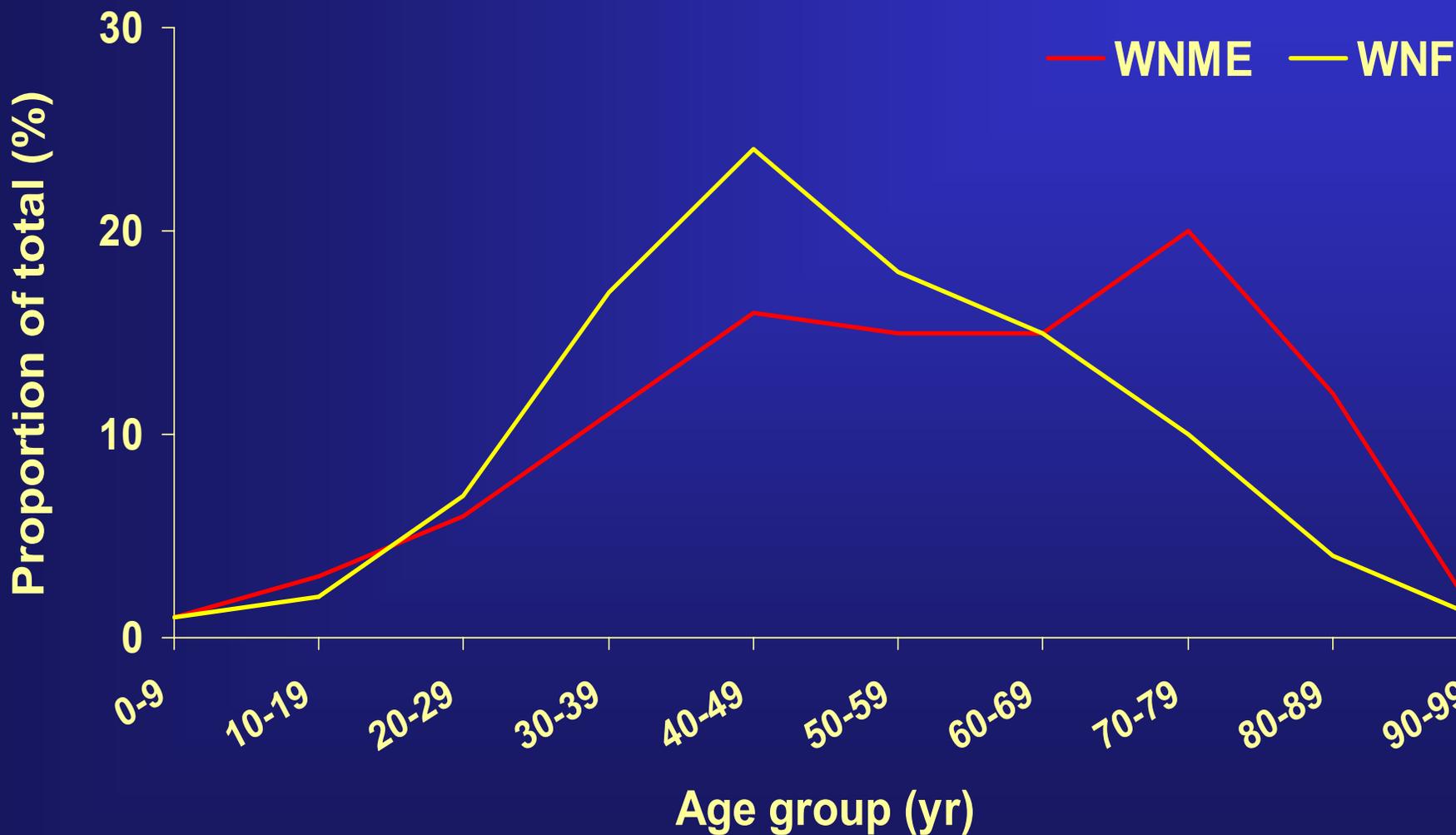
	1999-2001 (All)	1999-2001 (Fatal)	2002 (All)*	2002 (Fatal)*
n	149	18	3,862	248
Clinical category				
WN ME	95%	100%	70%	98%
WN Fever	5%		22%	2%
Unknown			8%	
Age (yr)				
median	66	75	55	78
range	5 – 90	44 – 90	0 – 99	24 – 99
Males	59%	44%	53%	64%
Mortality	12%		6%**	

* Reported as of 01/21/2003

** 9% of WN ME cases

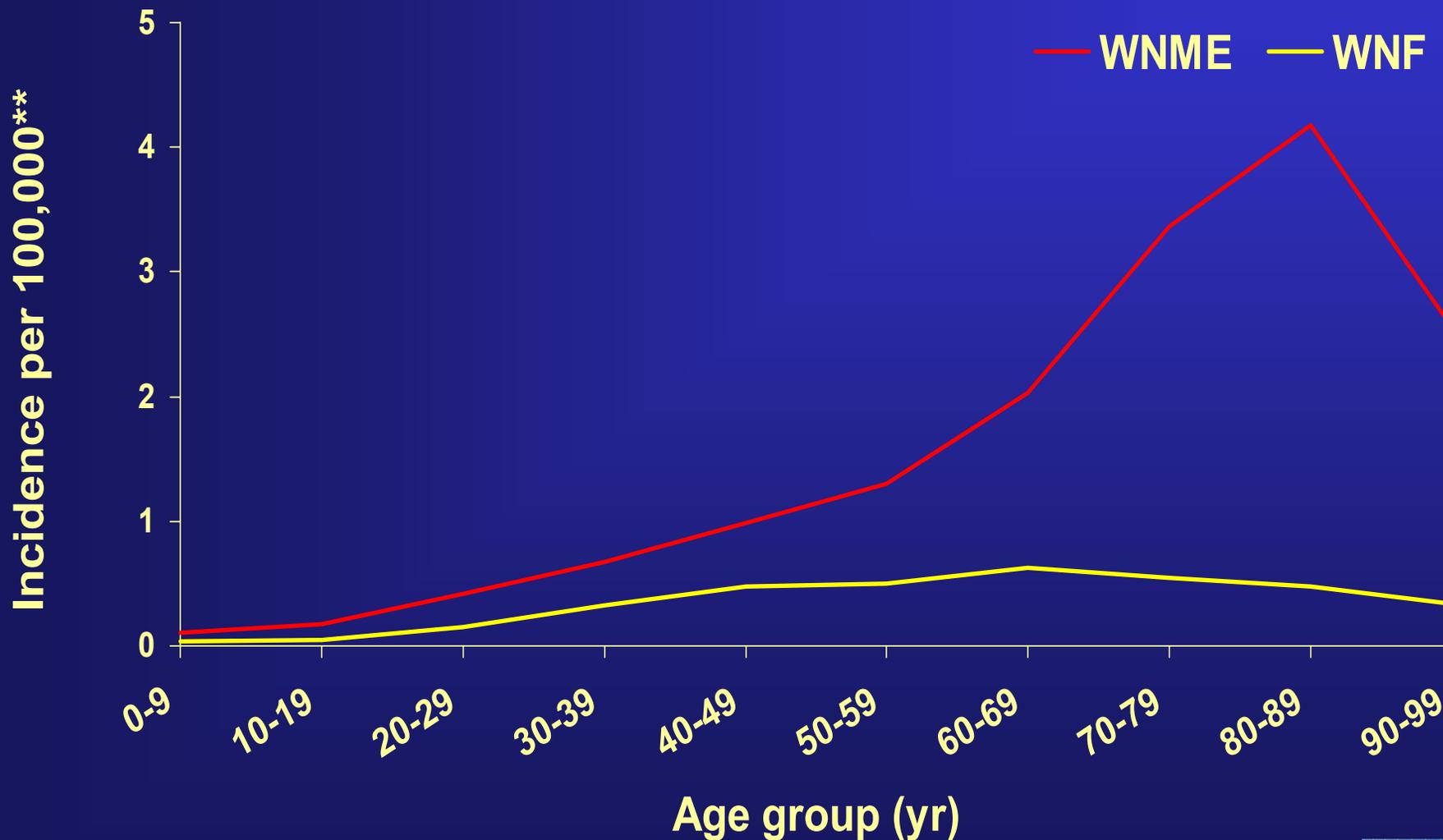


Human WNV Disease Frequency, by Age Group and Clinical Category, United States, 2002*



* Reported as of 01/21/2003

Human WNV Disease Incidence, by Age Group and Clinical Category, United States, 2002*

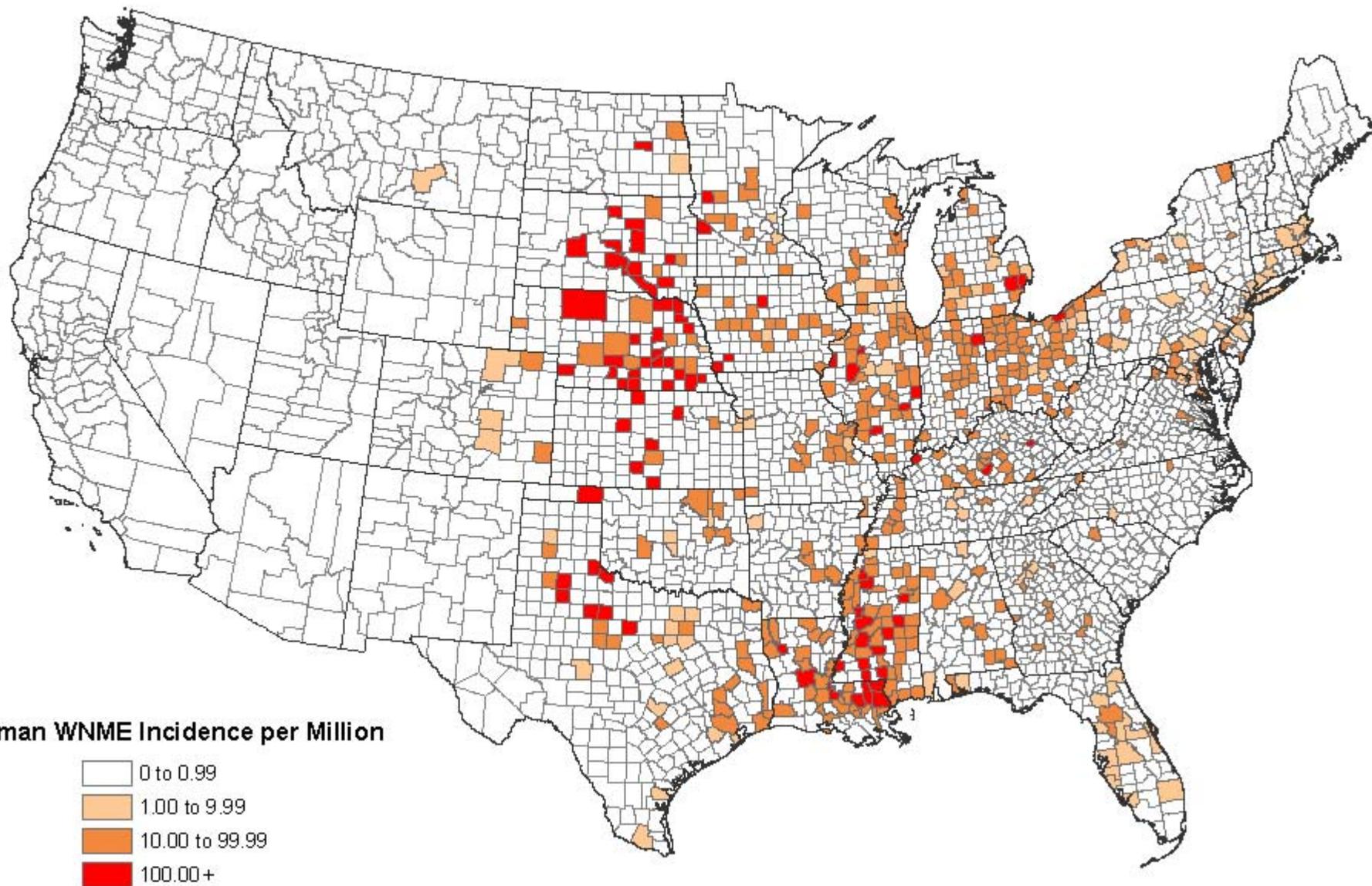


* Reported as of 01/21/2003

**Entire US population



Incidence of WNME in Humans, by County, United States, 2002*



*Reported as of 01/21/2003

***SUMMARY:
UNITED STATES***

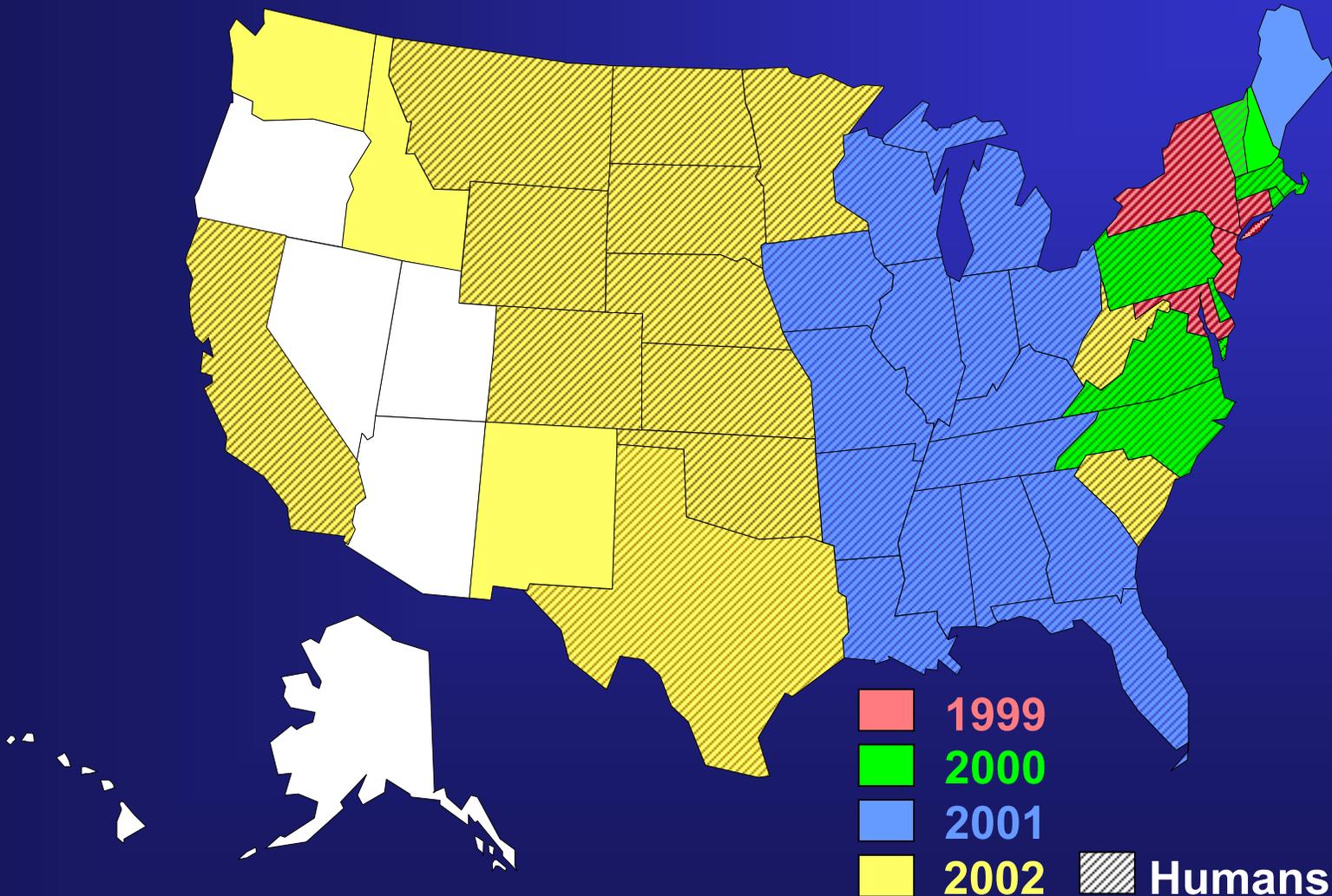
States and Counties Reporting WNV Activity, United States, 1999-2002*

Year	# States	# Counties	Date Range
1999	4	28	9 AUG – 15 NOV
2000	12**	145	6 FEB – 17 NOV
2001	27**	359	8 APR – 26 DEC
2002	44**	2,480	3 JAN – 14 DEC

* Reported to ArboNET as of 01/21/2003

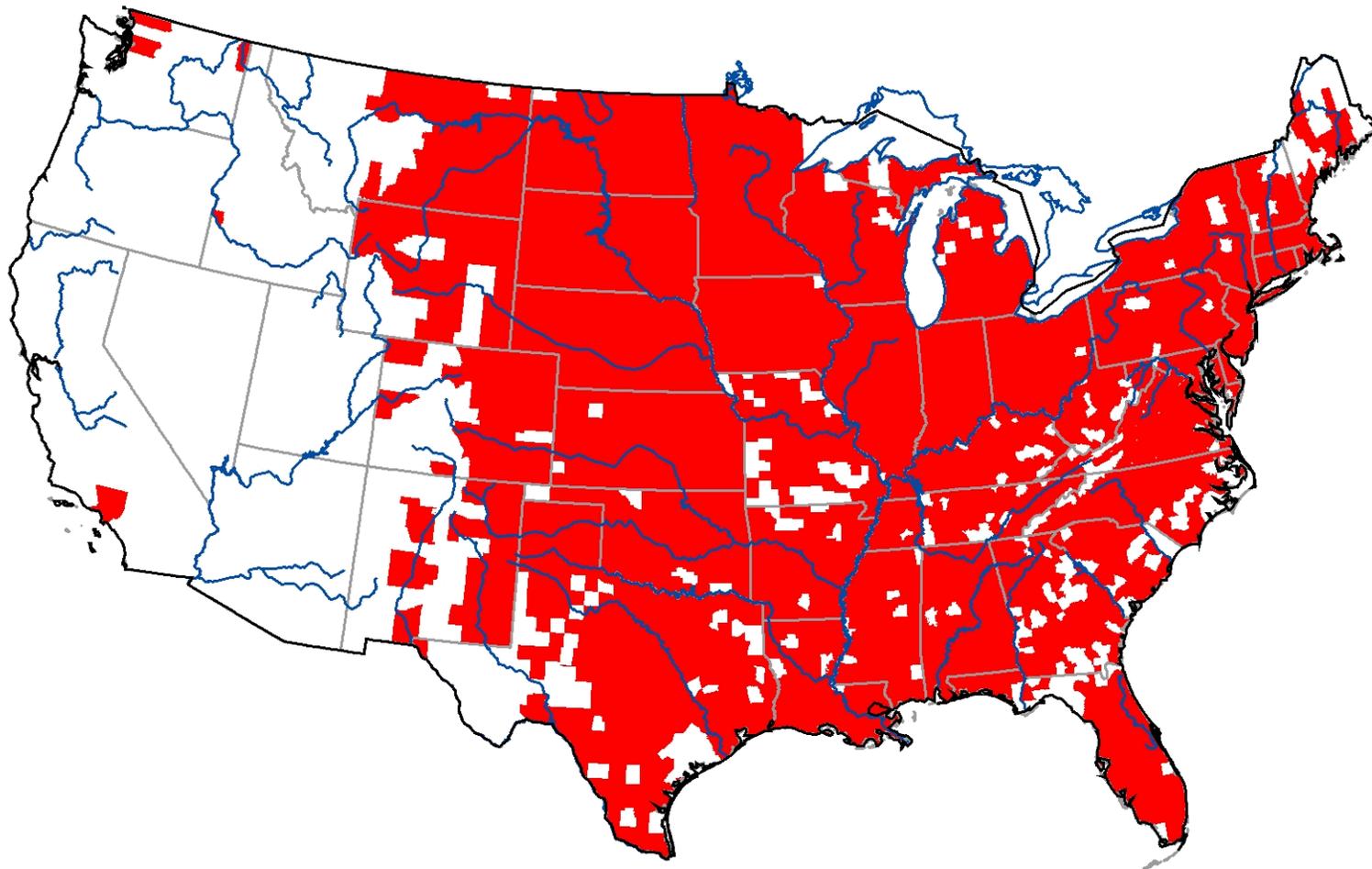
** Plus D.C.

States Reporting WNV Activity, 1999-2002*



* Reported as of 01/21/2003

U.S. Counties Reporting Any WNV Activity, 2002*



Through MMWR week 53 (ending 12/31/2002) - 2480 counties
Reported and verified through ArboNET as of 1/21/2003

NORTH OF THE BORDER

Reported WNV Disease Cases in Humans & Equines, Canada, 2002*

Province	# humans	# equines
Alberta	1	-
Manitoba	-	236
Ontario	189	87
Quebec	8	3
Saskatchewan	-	10
Total	198 **	336

* Reported as of 12/04/2002

** 2 fatal cases



Dead Birds Submitted for West Nile Virus Diagnosis by Health Region in Canada as of December 18, 2002

See the regional maps for more detailed information

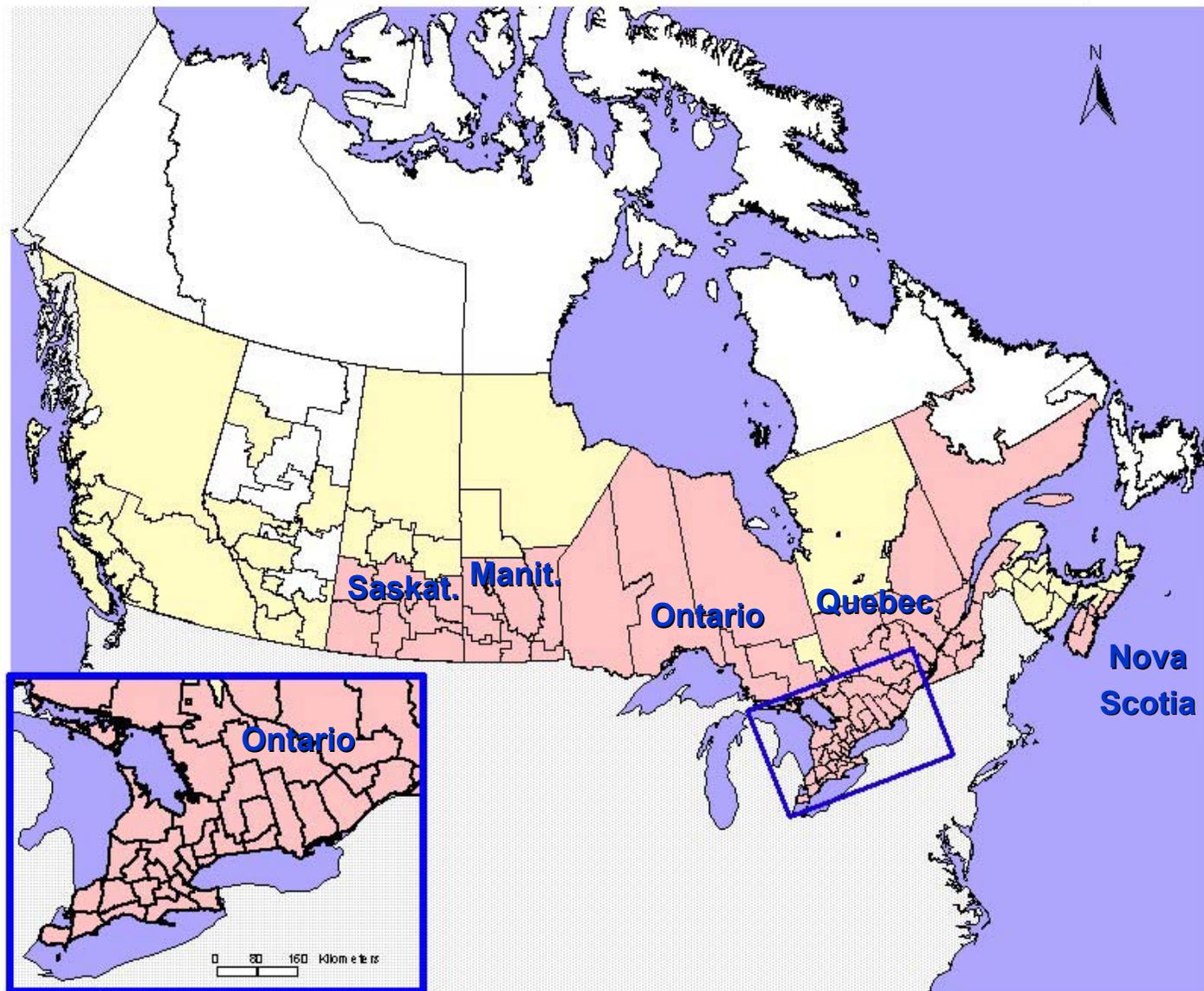
Legend

Birds Submitted for diagnosis (by Health Region)

- NO
- YES
- POSITIVE

Numerical Summary of Birds Submitted to Health Canada for Diagnosis

Birds	# Positive/ # Submitted
American Crow	488/2677
Blue Jay	26/433
Common Raven	5/200
Black-billed Magpie	20/154
Other Birds	24/194



SOUTH OF THE BORDER

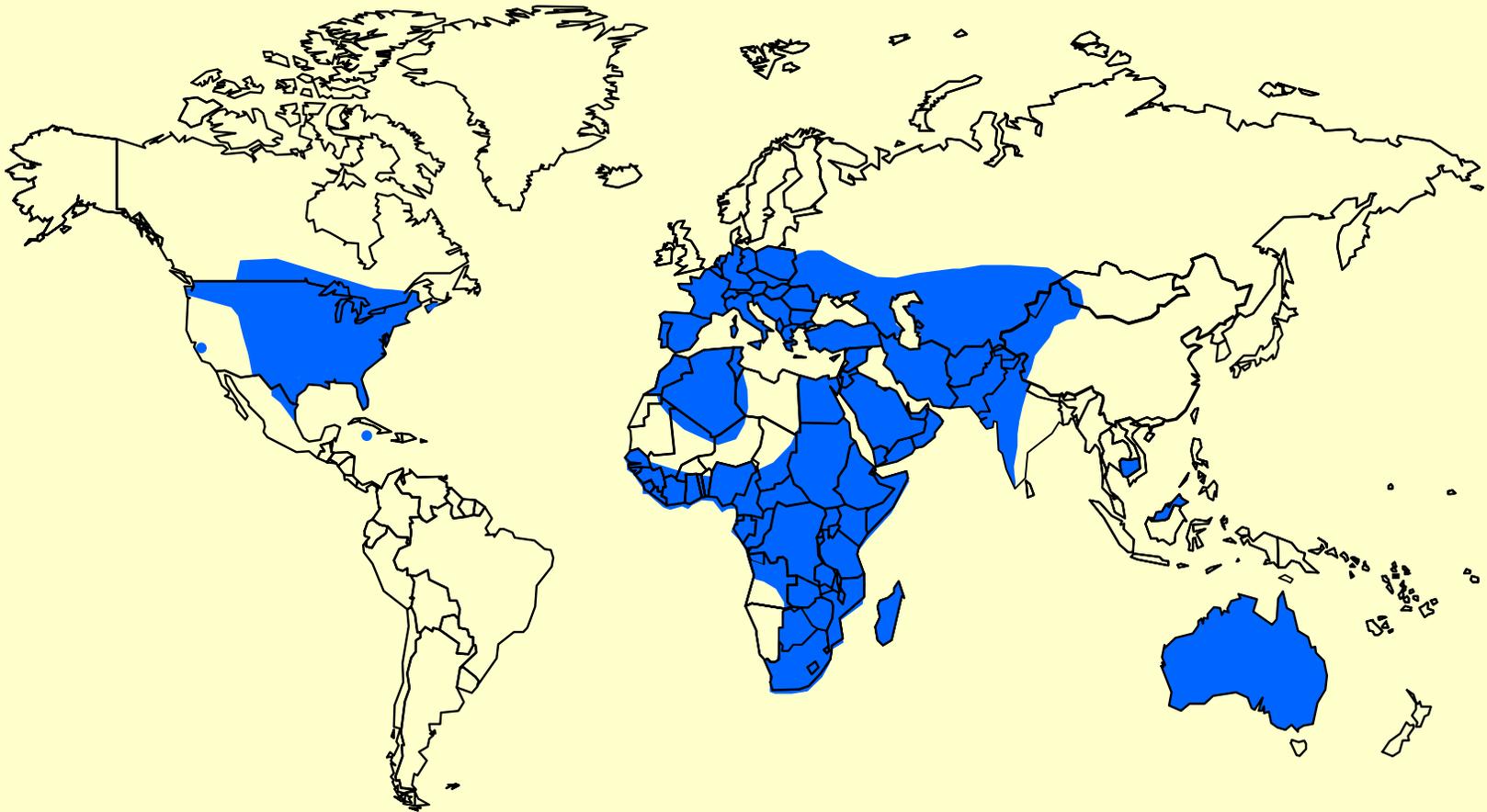
Evidence of WNV South of U.S. Border, 2001-2002



● Human WNV (1 case), 2001

● Equine WNV (<5 cases), 2002

West Nile Virus: Approximate Geographic Range



West Nile Virus, North America, 2002: Summary

- Continued explosive expansion into western region (*Cx. tarsalis*)
- Completion of transcontinental spread in 3 years
- Largest arboviral M/E epidemic documented in western hemisphere
- Large equine and avian epizootics
- Central U.S. most heavily affected region (urban *Culex*)
- Elderly persons affected disproportionately
- Newly recognized clinical syndromes
- Newly recognized modes of transmission
- WN fever: old disease, new surveillance phenomenon

* As of 2/5/2003



Jenn Lehman



John Jones



Aaron Kipp



Tony Marfin



Dan O'Leary



Peggy Collins



Mike Bunning



Sue Montgomery



Cathy Chow



Keith Olson



Veronica Elko

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Dan O'Leary

Keith Olson

Jennifer Lehman

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Peggy Collins

Duane Gubler

Nick Komar

John Roehrig

Roger Nasci

Brad Biggerstaff

John Montenieri