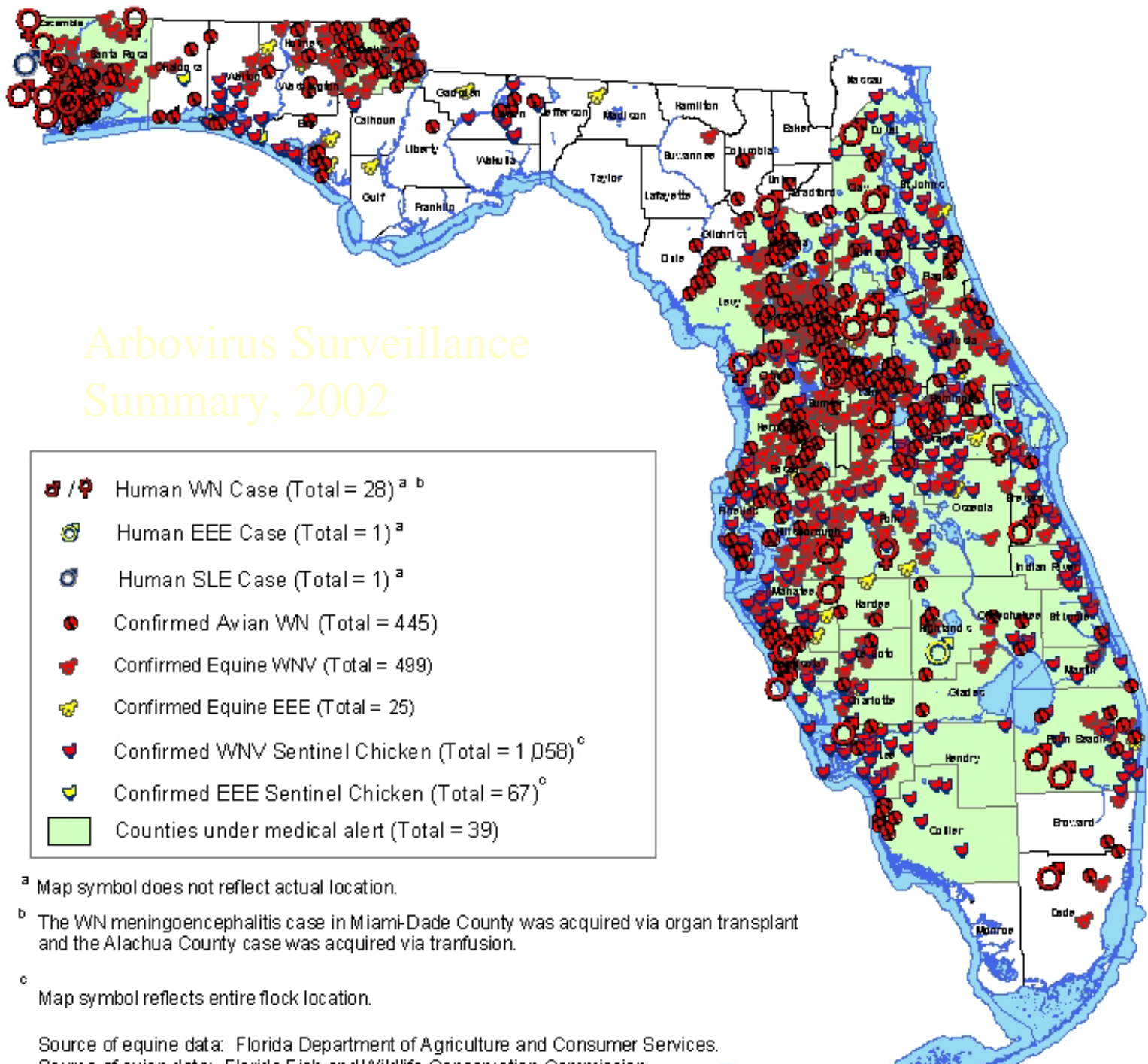














Mosquito-borne disease highlights, Florida, 2003

Carina Blackmore, DVM, Ph.D
Acting State Public Health
Veterinarian



Arbovirus Surveillance Summary, 2002

-  /  Human WN Case (Total = 28)^{a, b}
-  Human EEE Case (Total = 1)^a
-  Human SLE Case (Total = 1)^a
-  Confirmed Avian WN (Total = 445)
-  Confirmed Equine WNV (Total = 499)
-  Confirmed Equine EEE (Total = 25)
-  Confirmed WNV Sentinel Chicken (Total = 1,058)^c
-  Confirmed EEE Sentinel Chicken (Total = 67)^c
-  Counties under medical alert (Total = 39)

^a Map symbol does not reflect actual location.

^b The WN meningoencephalitis case in Miami-Dade County was acquired via organ transplant and the Alachua County case was acquired via transfusion.

^c Map symbol reflects entire flock location.

Source of equine data: Florida Department of Agriculture and Consumer Services.

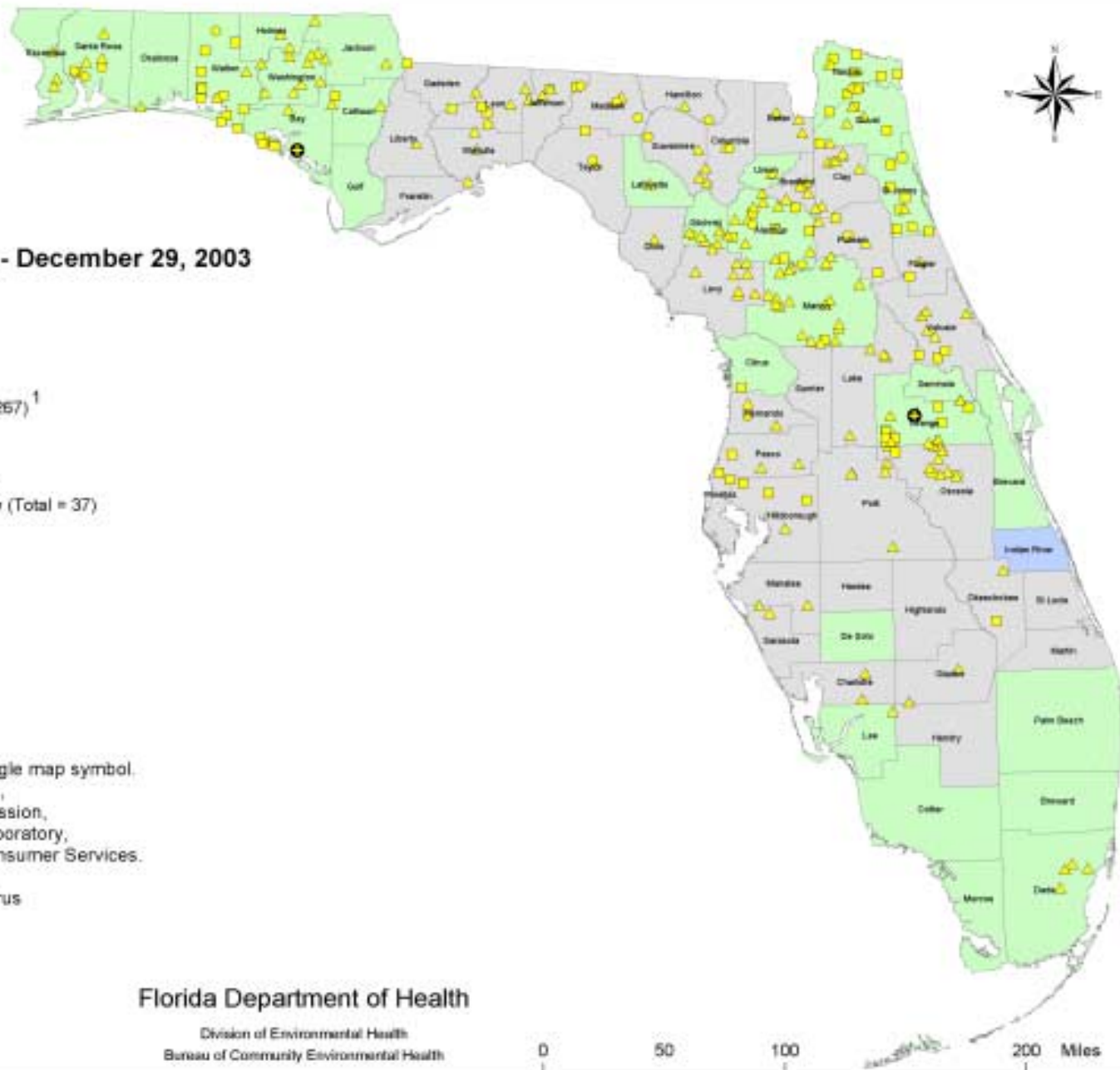
Source of avian data: Florida Fish and Wildlife Conservation Commission.



Florida Comprehensive EEEV Surveillance

Data Collected January 1, 2003 - December 29, 2003

- Confirmed Human EEE (Total = 2)
- Confirmed Avian EEE (Total = 20)¹
- Confirmed Equine EEE (Total = 207)¹
- Confirmed Sentinel Chicken EEEV (Total = 257)¹
- Counties under medical alert (Total = 29)
- Counties under medical advisory (Total = 1)
- Counties not under medical alert or advisory (Total = 37)



¹ Geographic clusters may only appear as a single map symbol.
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.

EEEV = Eastern Equine Encephalomyelitis Virus

Disclaimer:
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Map printed January 7, 2003.

Florida Department of Health

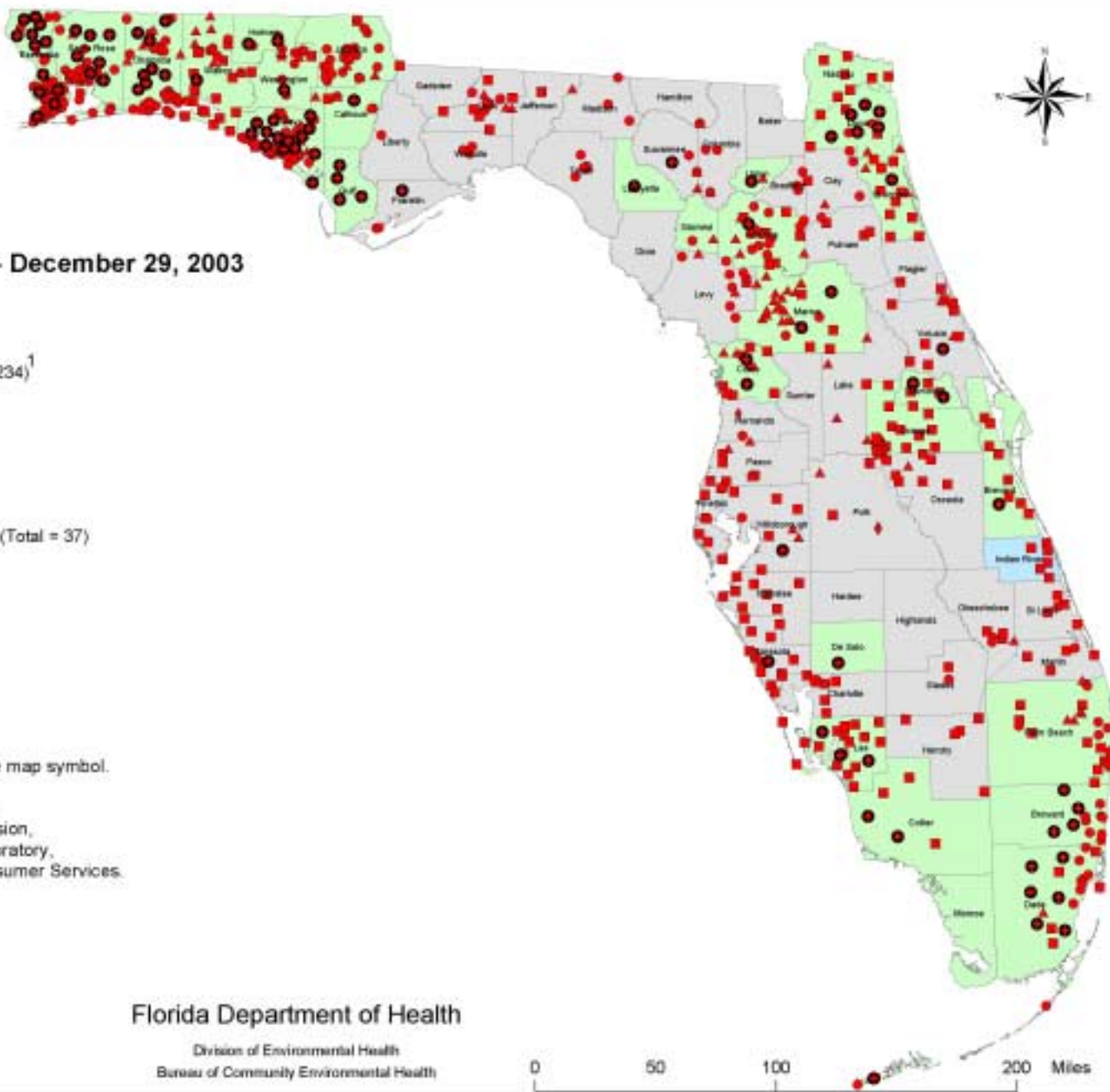
Division of Environmental Health
Bureau of Community Environmental Health

0 50 100 200 Miles

Florida Comprehensive WNV Surveillance

Data Collected January 1, 2003 - December 29, 2003

- Confirmed Human WNV (Total = 89)²
 - Confirmed Avian WNE (Total = 487)¹
 - Confirmed Sentinel Chicken WNV (Total = 1234)¹
 - ▲ Confirmed Equine WNE (Total = 117)¹
 - ◆ Confirmed Other WNE (Total = 3)¹
- Counties under medical alert (Total = 29)
 Counties under medical advisory (Total = 1)
 Counties not under medical alert or advisory (Total = 37)



¹ Geographic cluster may only appear as a single map symbol.
² Does not represent actual location.
 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 8, 2003.

Florida Department of Health

Division of Environmental Health
 Bureau of Community Environmental Health

0 50 100 200 Miles



Florida Comprehensive Human Arbovirus Surveillance

Data Collected January 1, 2003 - December 29, 2003

- Confirmed Human WNV (Total = 93)
- Confirmed Human EEE (Total = 2)
- Counties under medical alert (Total = 29)
- Counties under medical advisory (Total = 1)
- Counties not under medical alert or advisory (Total = 37)

Geographic cluster may only appear as a single map symbol.
Does not represent actual location.
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.

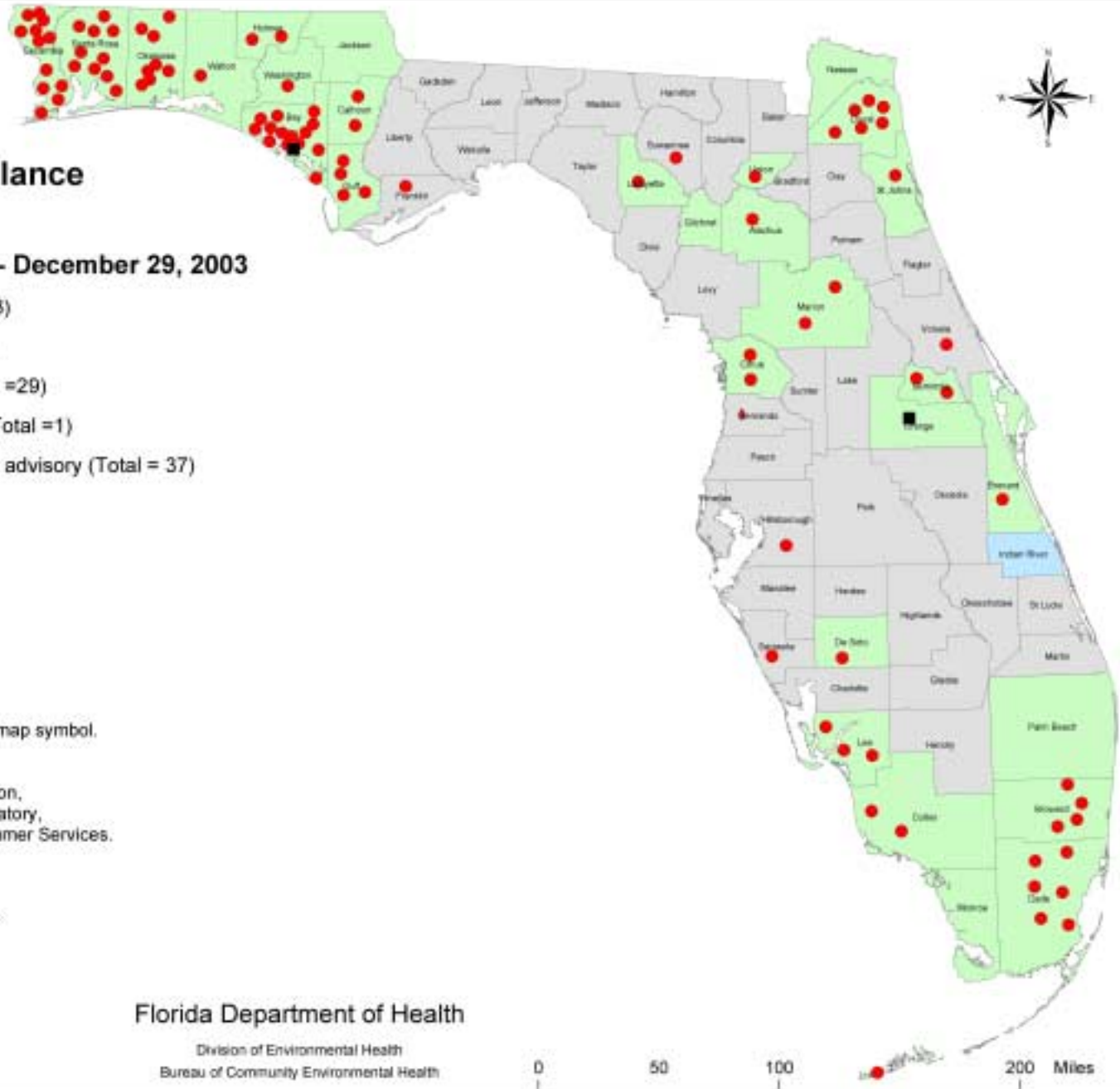
WNV = West Nile Virus
WNE = West Nile Encephalitis
EEEV = Eastern Equine Encephalomyelitis Virus

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Map printed January 15, 2003

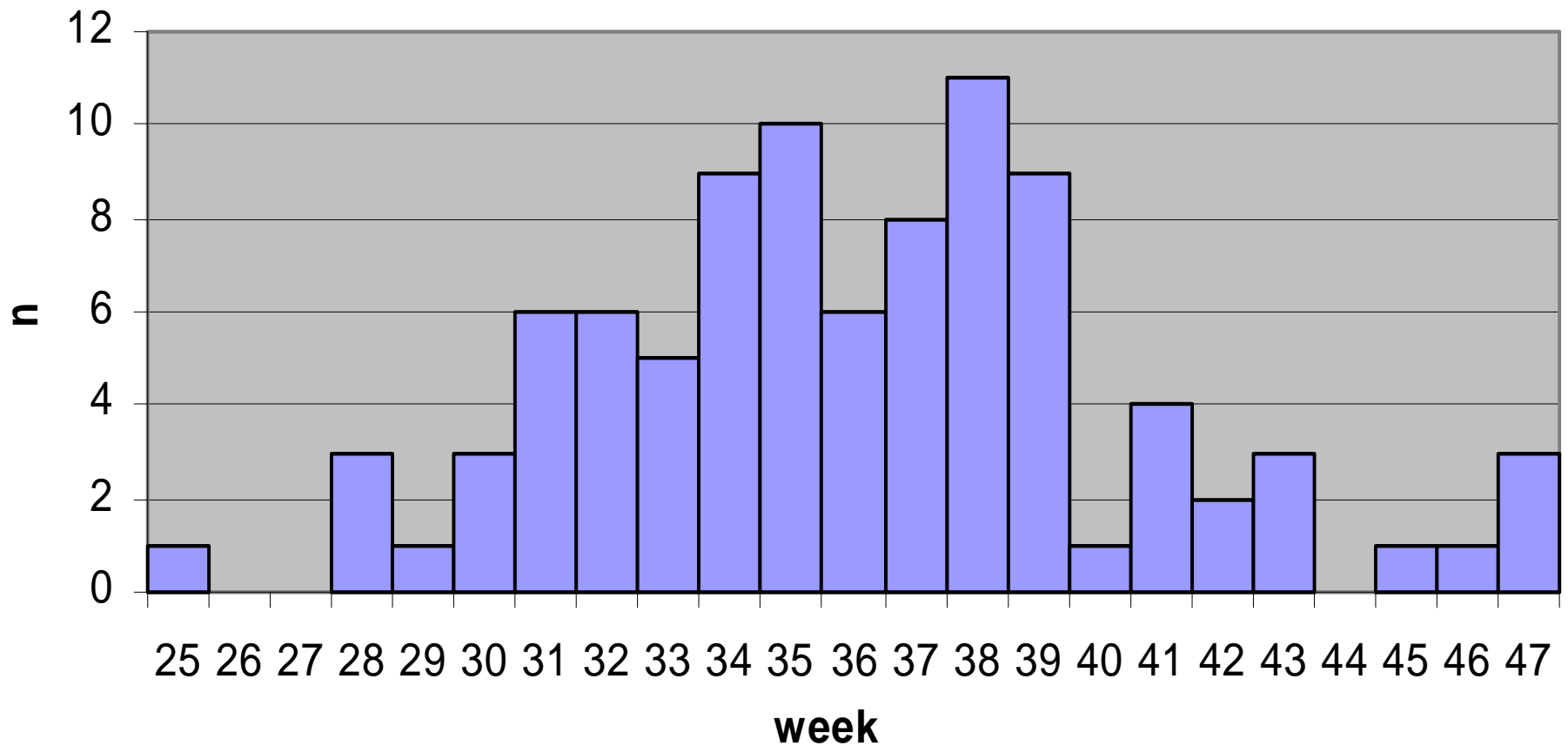
Florida Department of Health

Division of Environmental Health
Bureau of Community Environmental Health

0 50 100 200 Miles



Human West Nile, FL, 2003

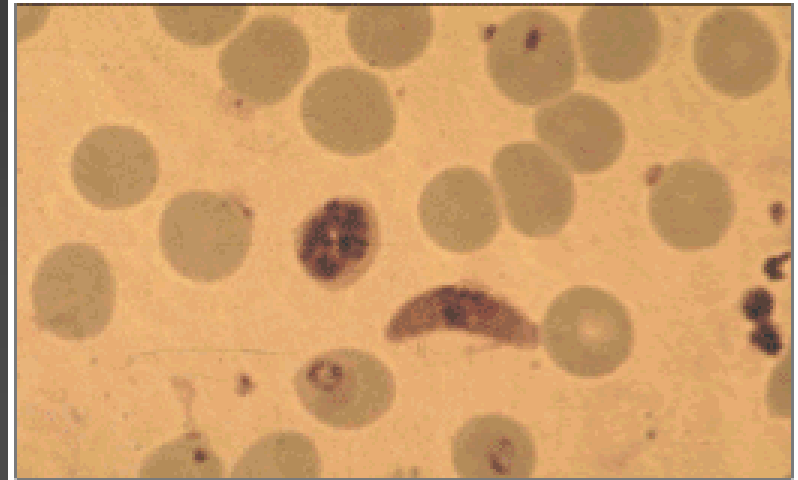


Malaria

- 8 cases P. vivax PB
- Human blood parasite
- *Anopheles* mosquitoes
- 4 species
 - Plasmodium falciparum
 - Plasmodium vivax



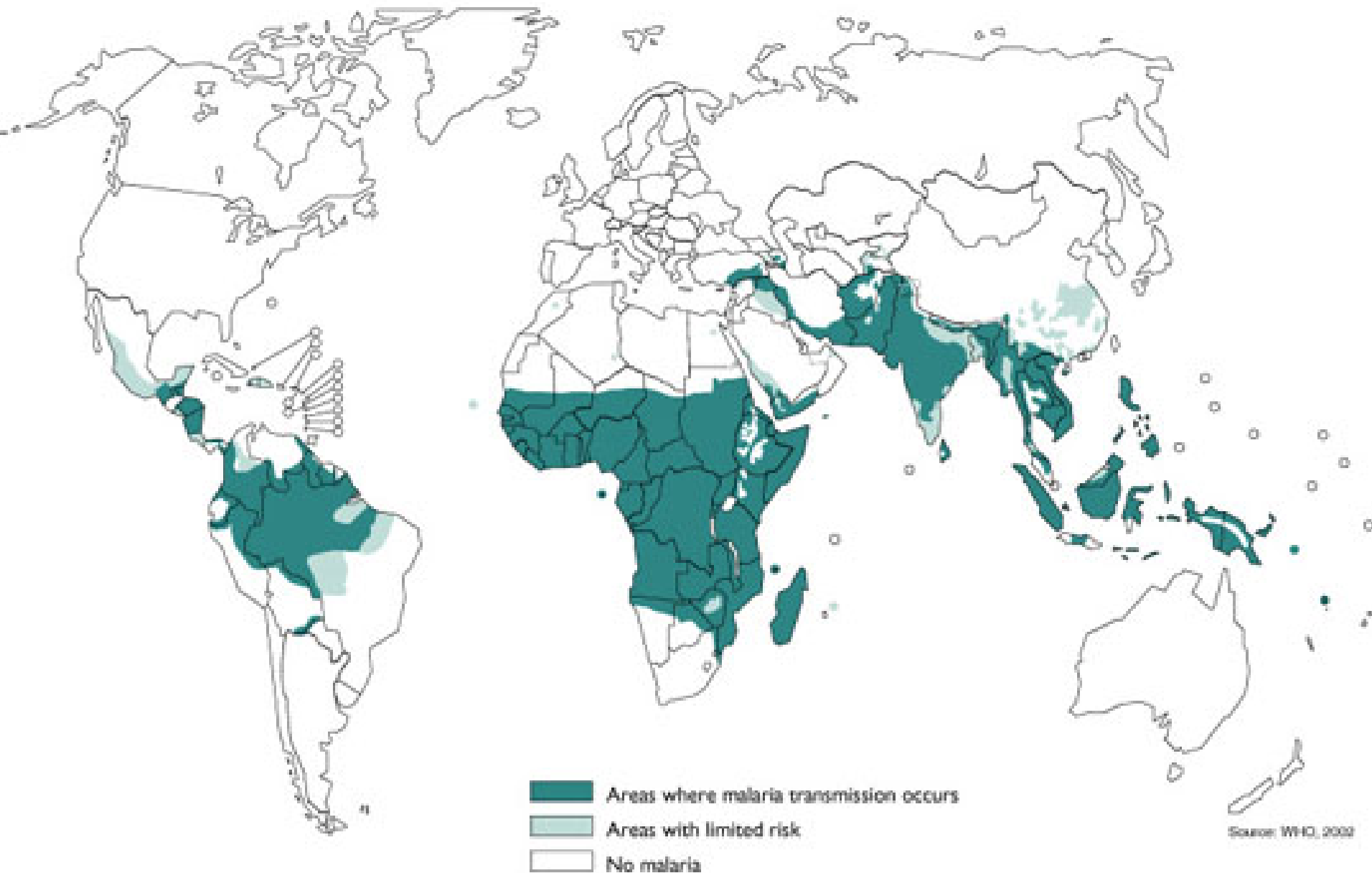
Above: *Anopheles* mosquito in characteristic biting and resting position. Below: Microscopist's view of *Plasmodium Falciparum*.



Malaria symptoms

- Flu-like symptoms:
 - Fever
 - Headache
 - Chills
 - Vomiting
 - Anemia
 - Cerebral malaria
 - 300-400 million cases; 1 million deaths (children)
-

Malaria, 2002



Source: WHO, 2003

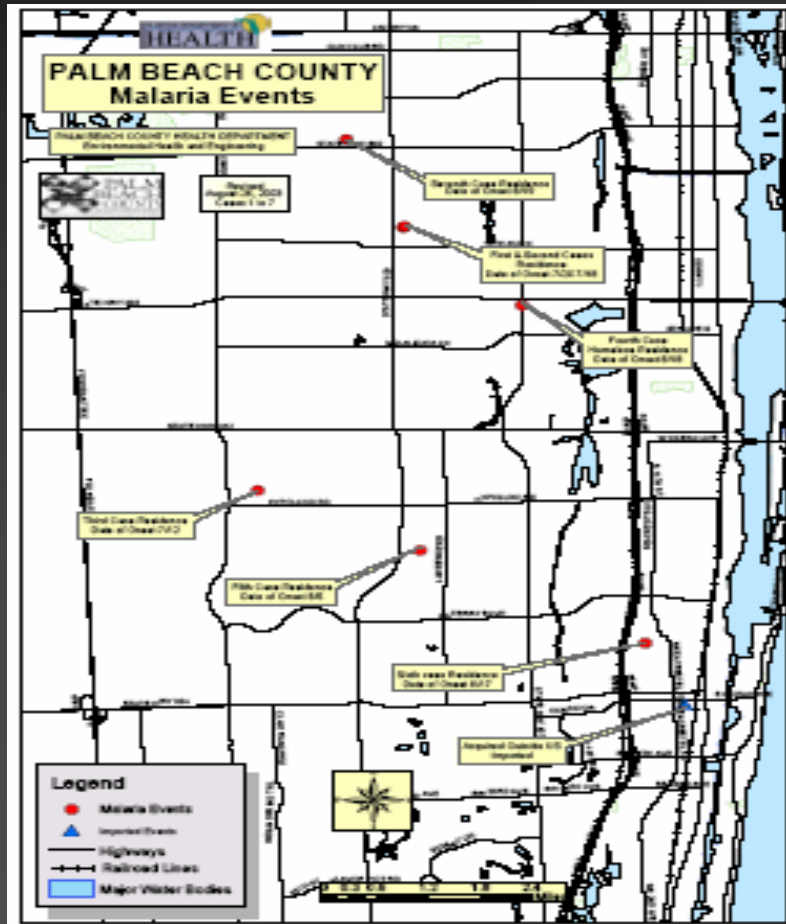
Malaria in Floridians (n=85/ yr)

■ Haiti	20%
■ Honduras	11%
■ Nigeria	9%
■ India	8%
■ Nicaragua	5%
■ Mexico	4%

Local Perspective

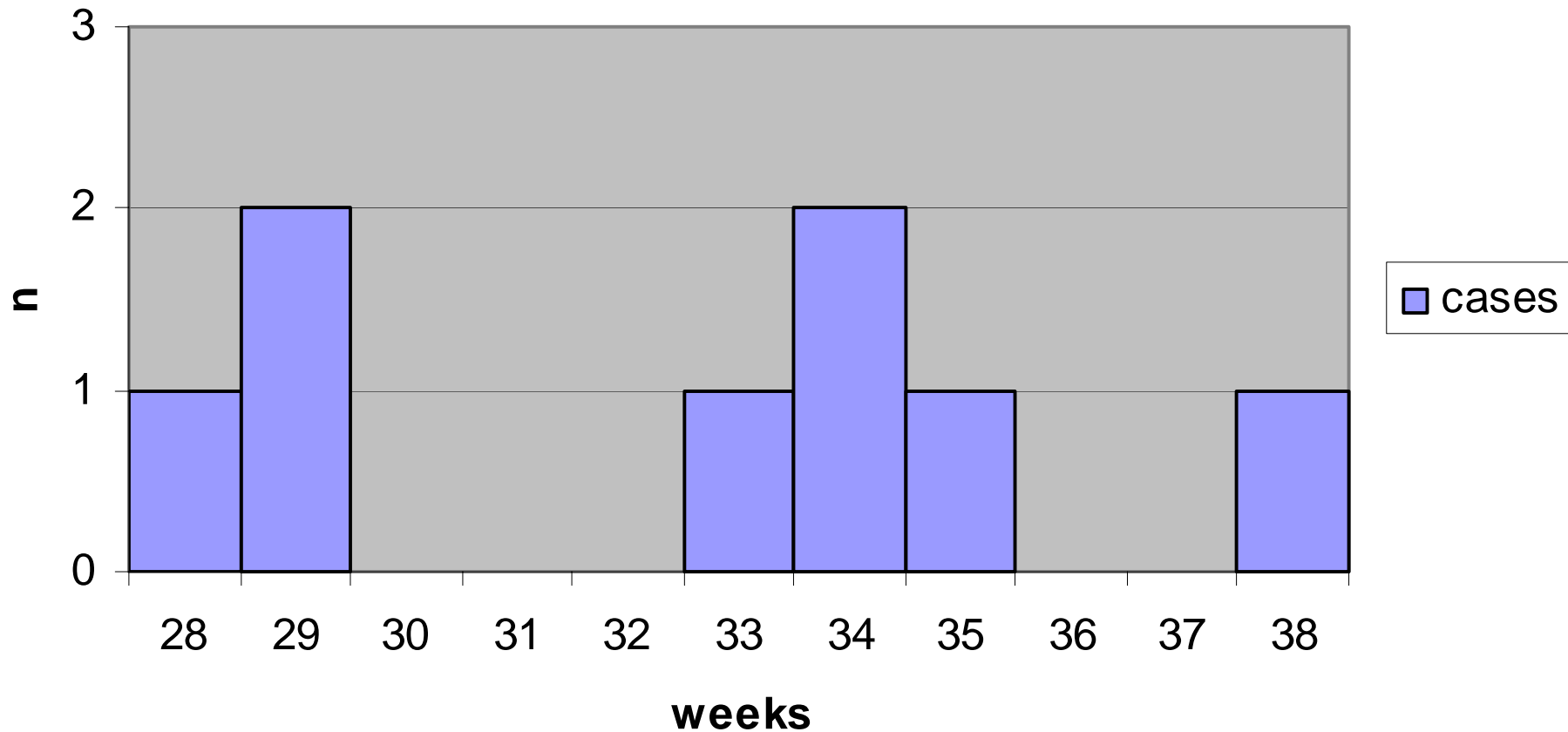
- Likelihood of transmission is great
 - Malaria vectors + subtropical climate
 - Visitors and immigrants from malaria-endemic countries
 - Last case cluster (2 cases) in PBC was in 1996
-

2003 Outbreak



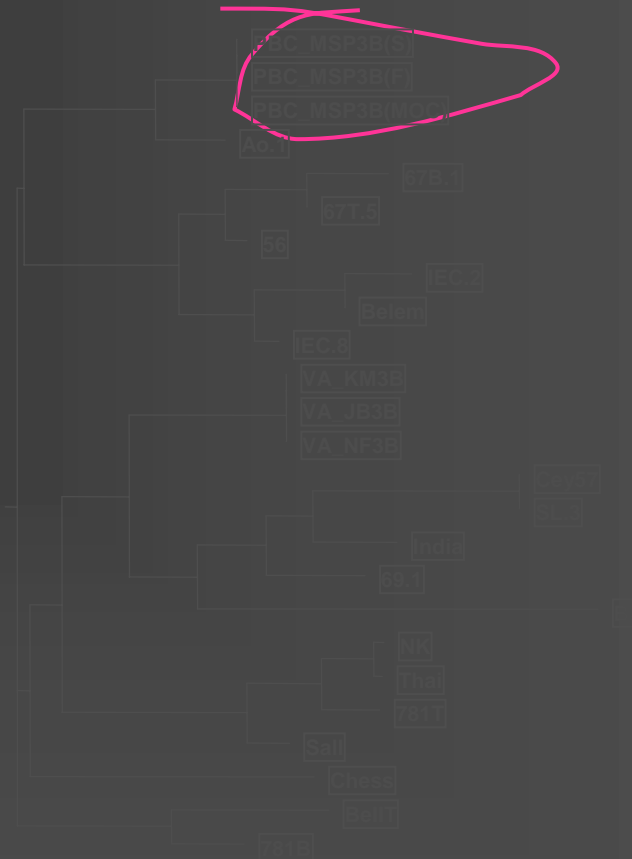
- *Plasmodium vivax*
- 8 cases
- Onset dates of 7/12 thru 9/14
- All cases male
- Age range = 17-48 years (median age = 37 years)
- Cases genetically linked

Epi curve Malaria outbreak, 2003



Multi-locus Genetic Analysis of PBC *P. vivax*

- The MSP-3 α and MSP-3 β genes were 100% identical by sequence or RFLP.
- The CSP gene in all eight isolates contained type I (VK210) repeats and were identical.
- Conclusion: All eight *P. vivax* infections most likely originated from a single source of infection.

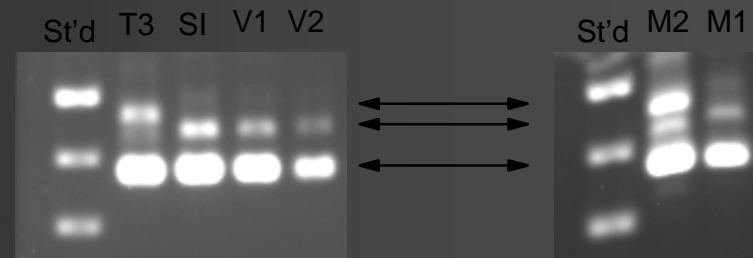


MSP-3 β Phenogram

Origin of the PB County *P. vivax* Infections

- *P. vivax* S-type rRNA genes of New World type isolates have a deletion mutation.
- *P. vivax* ORF 470 gene has a nonsynonymous mutation that changes an isoleucine residue to a valine in New World isolates.

A- & S-type rRNA genes

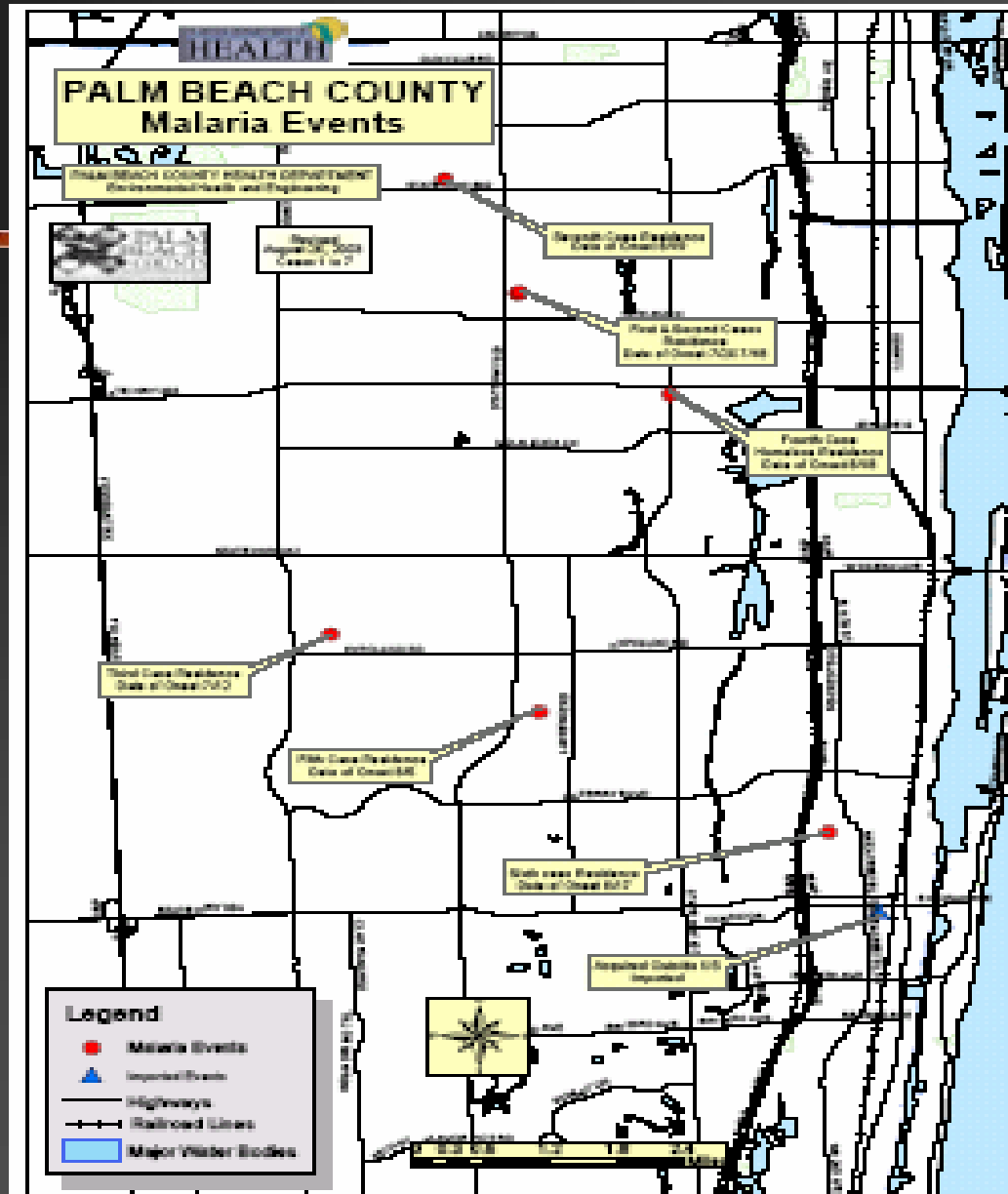


ORF 470

Virginia_B ORF470	Q F E R T L L I V N E H S Y V V Y L E G C T
Virginia_K ORF470	Q F E R T L L I V N E H S Y V V Y L E G C T
Miami I ORF470	Q F E R T L L I V N E H S Y V V Y L E G C T
Miami II ORF470	Q F E R T L L I V N E H S Y I V Y L E G C T
New World ORF470	Q F E R T L L I V N E H S Y V V Y L E G C T
Old World ORF470	Q F E R T L L I V N E H S Y I V Y L E G C T

*Li J, Collins WE, Wirtz RA, Rathore D, Lal A, McCutchan TF. Geographic subdivision of the range of the malaria parasite *Plasmodium vivax*. Emerg Infect Dis. 2001 7:35-42.

Intense vector control efforts







A
PRESENTATION
FROM THE
SECTION
OF BUGS AND
DRUGS

THANK
YOU!

