

From: Daniel G Mead  
Sent: Tuesday, June 14, 2011 7:55 AM  
To: Georgia County "D"  
Cc: Rosmarie Kelly  
Subject:

Good morning Sunshine,  
The birds are singing, the sun is shining, it's going to be another  
blistering hot day, ..... I think you know where this is going.

You have viruses – so far only Flanders, but .....

dm

From: Daniel G Mead  
Sent: Monday, July 25, 2011 10:48 AM  
To: Georgia County "C"  
Cc: 'Rosmarie Kelly'; Jennifer Abi Younes  
**Subject: you'd better sit down!**

From: Director of Georgia County "C"  
Sent: Monday, July 25, 2011 11:58 AM  
To: Daniel G Mead  
Subject: RE: you'd better sit down!

I was sitting, but I still fell out of my chair!

From: Daniel G Mead  
Sent: Friday, August 05, 2011 10:28 AM  
To: Georgia County "C"  
Cc: 'Rosmarie Kelly'; Jennifer Abi Younes  
**Subject: better sit down -- and put some soft padding around your chair**

From: Daniel G Mead  
Sent: Friday, August 05, 2011 11:03 AM  
To: Georgia County "C" assnt director and staff  
Subject:

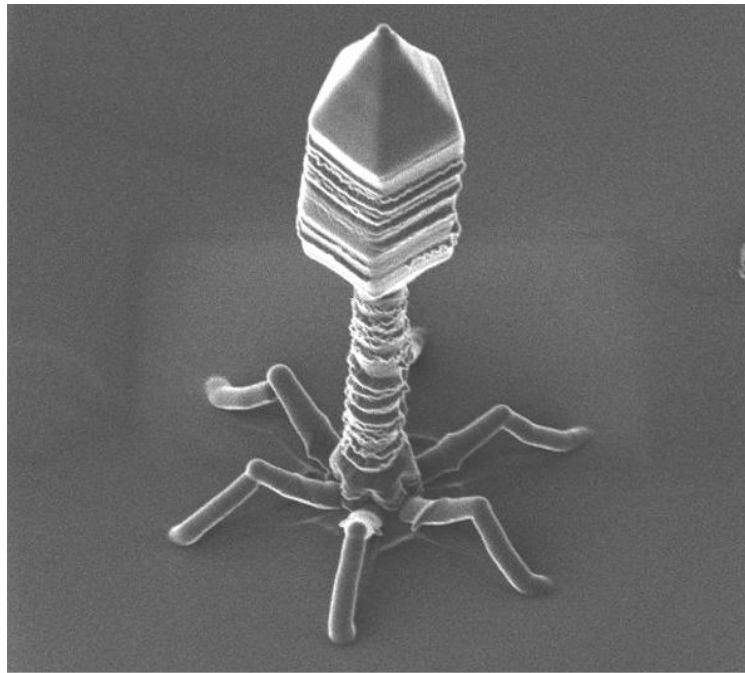
Did that last message kill ..... ? Typically he's pretty quick to respond to positives.

dm

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Fax: (706)542-5865

# What Lurks in Yonder Forest (or swamp)? Why do we care?



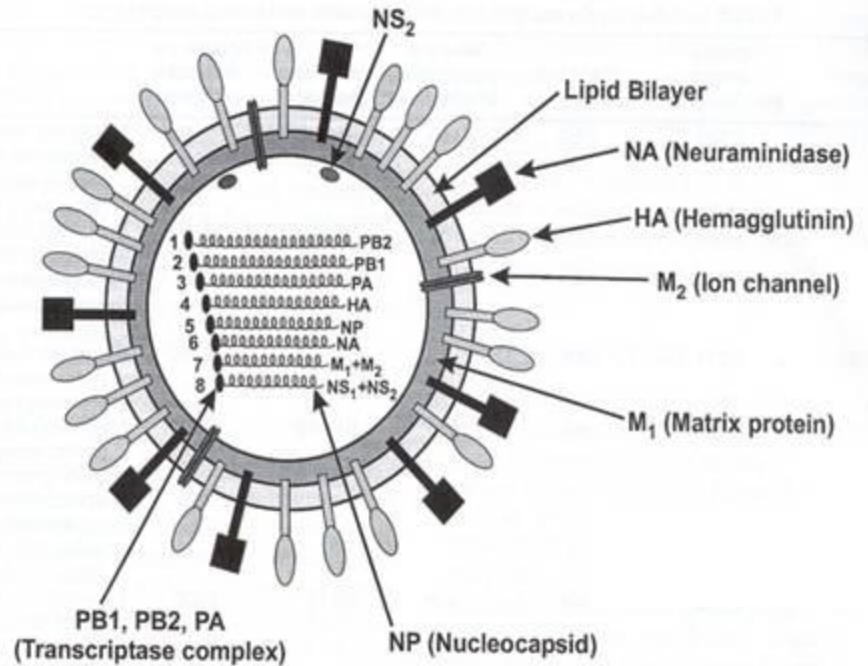
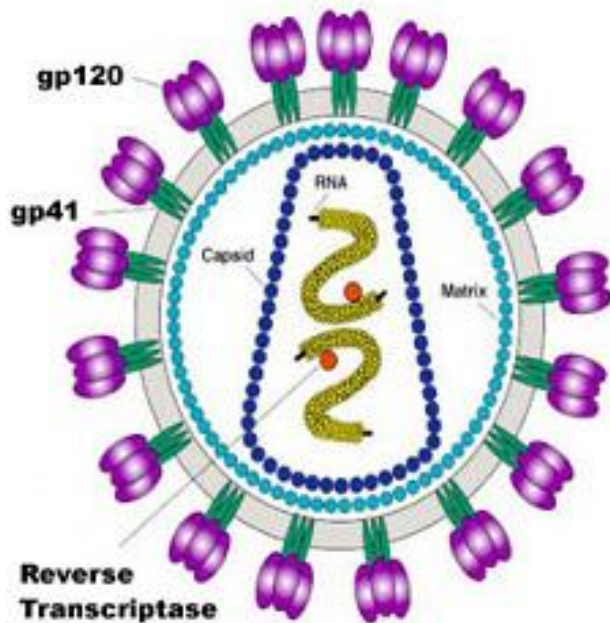
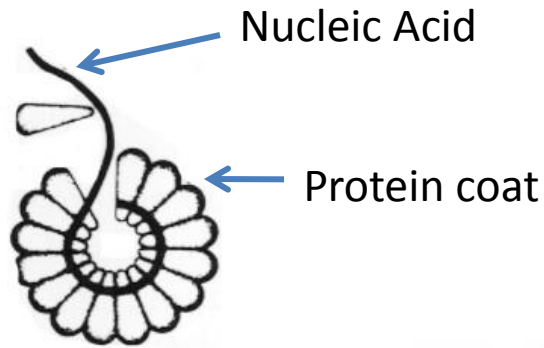
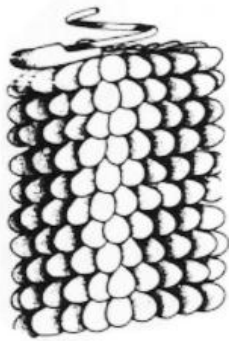
Daniel Mead

Southeastern Cooperative Wildlife Disease Study

- West Nile virus
- Flanders virus
- Tensaw virus
- South River virus
- LaCrosse virus
- EEE virus
- Highlands J virus



- Detect changes in the transmission patterns of our known viruses
- Detect new or introduced viruses that may be of importance to PH +/- Ag
  - Known viruses
    - Dengue - > 42 cases detected in Georgia
    - Chikungunya – 2 cases detected in Georgia
  - Undescribed viruses
    - WellFleet Bay virus
    - Durham virus
    - Culex specific Flavivirus
- Detect changes in the “virus populations”



Virus evolution – a change in the genetic composition of a virus population over time

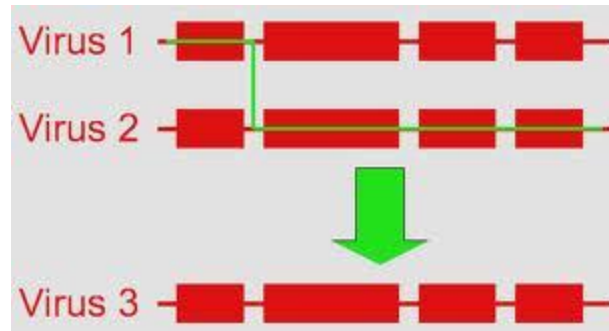
- Mutation
- Recombination
- Reassortment

# Mutation

- Involves a change in base composition of a single or multiple nucleotides
  - Most mutations are silent (do not result in a change in the amino acid)
- Chikungunya virus – *Aedes aegypti* primary vector
  - Single mutation in the genome that codes for the envelope protein resulted in an increased infectivity in *Aedes albopictus*

# Recombination

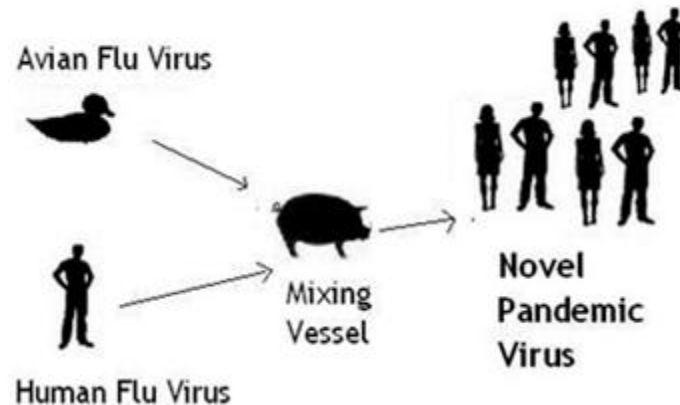
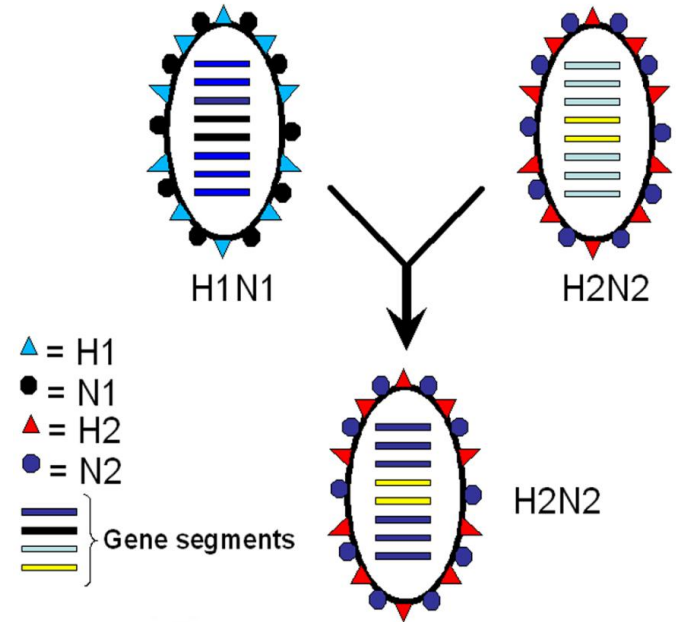
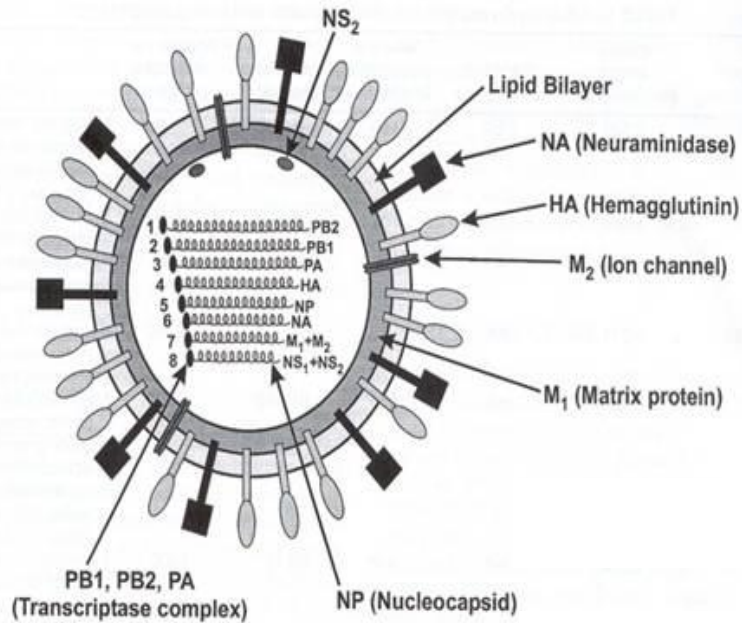
- Breakage-and-rejoining mechanism
- Copy-choice or template switching

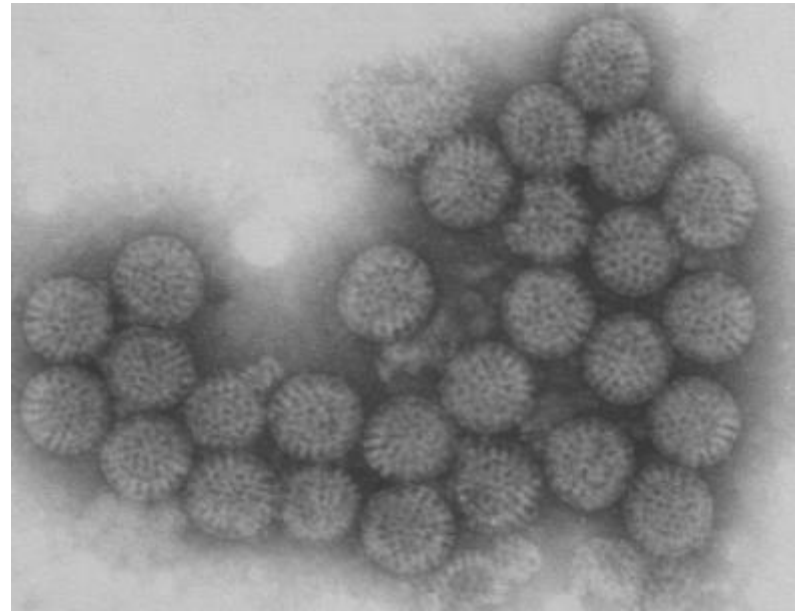
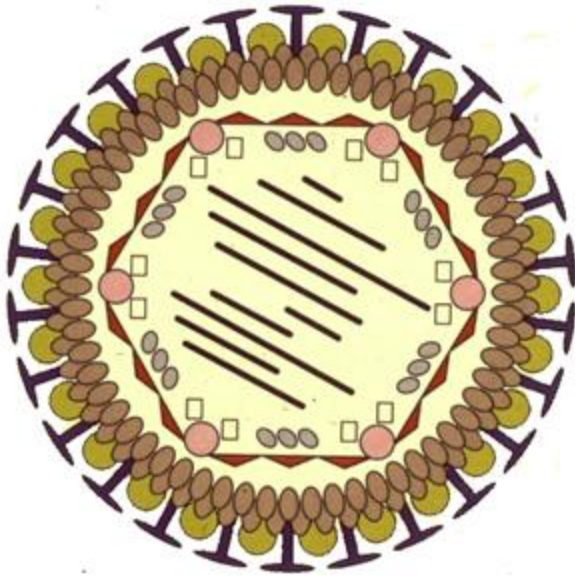


WEEv and HJv --- recombination between EEEv and a Sindbis like virus

# Reassortment

- Viruses with segmented genomes





- Epizootic hemorrhagic disease viruses
  - 10 recognized strains
    - EHDV 1 and EHDV 2 historically found in US
- 2006 – EHDV 6
  - Outer capsid proteins derived from exotic EHDV 6
  - Remaining proteins derived from indigenous EHDV 2

# Comments or Questions?

