Eastern Equine Encephalitis 2018

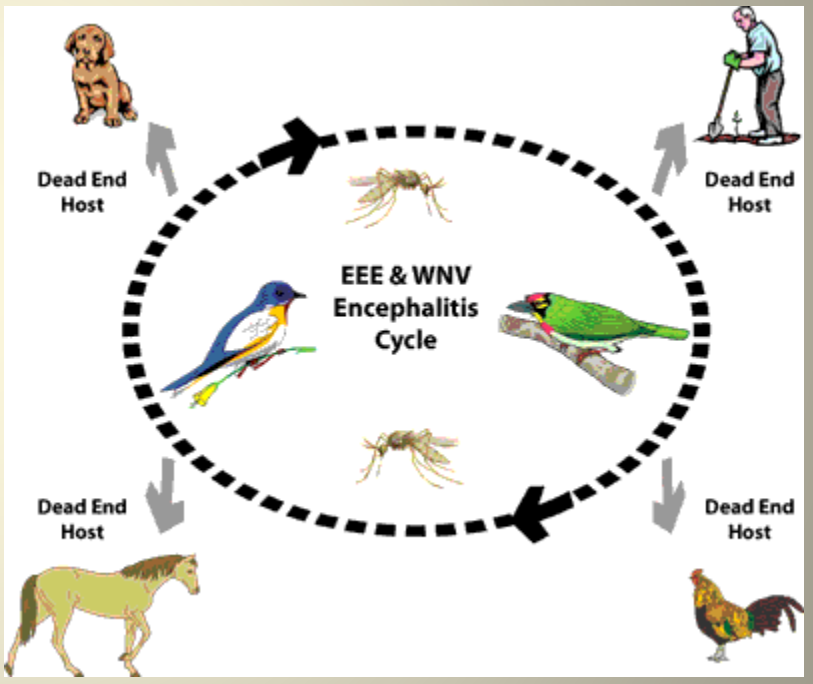
Dan Wolf, D.V.M.
Florida Department of Agriculture and Consumer Services

Eastern Equine Encephalitis (EEE)

- **Reportable Animal Disease (RAD)**
  - mosquito-borne pathogens that can cause nonspecific illnesses and encephalitis in equids (horses, mules, burros, donkeys and zebras)
  - Genus: Alphavirus; Family: Togaviridae

Eastern Equine Encephalitis (EEE)

- Life cycle
  - Passerines and mosquitos
  - Birds do not usually develop disease
  - Sufficient viremia to transmit to mosquitos
- Mammals
  - may also serve as reservoirs during year of high transmission
  - No viremia
    - “dead end hosts



Eastern Equine Encephalitis (EEE)

During epizootic, some species can develop disease

- Equids (horses, zebra)
- Cattle, swine
- Cats, dogs
- Alpacas, llamas
- Young animals more susceptible

Eastern Equine Encephalitis (EEE)

Clinical findings

Equids:

- Initially quiet, depressed
- 9-11 days- neurologic signs
- Altered mentation
- Ataxic gate
- Paralysis
- Seizures
- 2-3 days post signs - death

EEE in Equids 2018

- >40 confirmed cases reported to RAD
- More pending
- 1 recovered
- 90% either no vaccinated or unknown vaccine history
- 8% over 1 year past vaccinated
- Most cases in northern part of state

Eastern Equine Encephalitis (EEE)

Non native species are exception

- Emus
- American crows
- European starlings
- House sparrows
- Ducks
- Pheasant

EEE in Emus

Emus

- Perfectly normal one day, dead the next
- Off feed
- Unwilling to stand or walk
- “Screaming” Diarrhea
- Viremia
  - Blood
  - Feces

EEE in Emus

Five cases reported in Florida this year

- March 3, 2018 Levy Co. 28/28
- April Putnam Co. 2/3
- May Volusia Co. 2/3
- May Marion Co. 5/11
- June Okeechobee Co. 3/3
- July Nassau Co. 2/9

Preventable?

Almost completely

- 6 cases in FL this season
- All naïve or vaccine period lapsed
- Equine vaccine
- Series
- Given at 6-8 weeks
- 6 week intervals
- Biannually or annually

Difficulties

Owners uninformed

Not prepared

Eastern Equine Encephalitis (EEE)

<u>Isolation of EEE and WNV from Crows During Increased Arbovirus Surveillance in Connecticut, 2000</u>

- 1704 bird brains
- 1593 crows (American and Fish)
- 9 positive for EEE (all crows)
- Discrete locations
- No mosquito-borne EEE detected

Diagnosis

- Florida Department of Agriculture and Consumer Services, Bronson Animal Disease Diagnostic Lab unable to test

- Florida Department of Health Bureau of Public Health Lab in Tampa
  - Tracheal and cloacal swabs in BHI broth
  - Fecal sample

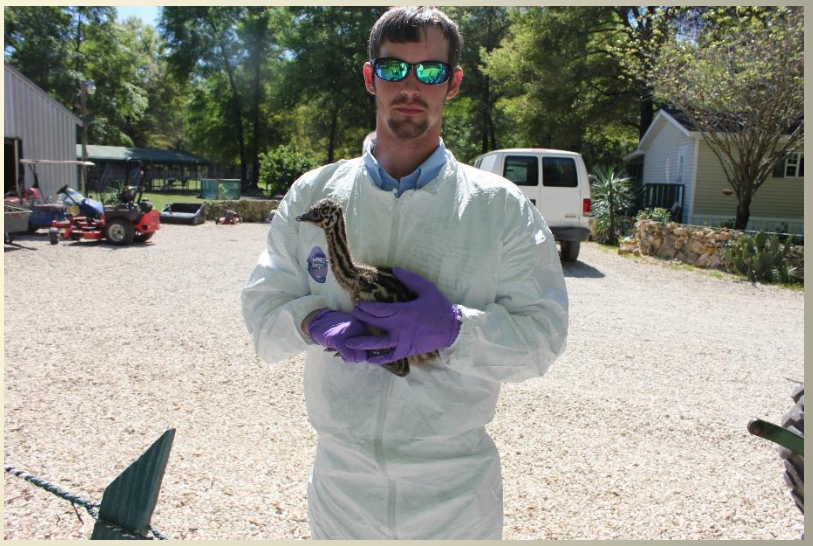
Eastern Equine Encephalitis (EEE)

Bureau of Public Health Laboratories
Tampa
William G. (Doc) Myers Building
3602 Spectrum Boulevard
Tampa, FL 33612

Telephone: (813) 974-8000
Fax: (813) 974-3425

Treatment and Prognosis

- Supportive care
- No specific antiviral therapy
- Prevent injuries (animal and human)
- Mortality >50%
- Most birds died within 2 days of signs
- Other animals appeared unaffected



Questions

EEE in Emus

Emus