



CERVIDAE HEALTH RESEARCH INITIATIVE

Samantha M. Wisely
Dept. of Wildlife Ecology and Conservation, University of Florida

Mission Statement: This initiative seeks to promote interdisciplinary science, education and outreach that increase the health and production of captive cervids in a sustainable manner and promotes the health of native wildlife and the ecosystems in which they live.

Goals:

- Effective IPM for *Culicoides*
- Efficacious vaccine for EHD, BTV
- BMP for deer husbandry



Who we are:



Director

- Samantha Wisely, *Wildlife Ecology and Conservation*

CHeRI Affiliate Scientists

- Jason Blackburn, *Geography*
- Nathan Burkett-Cadena, *Florida Medical Entomology Lab*
- John Lednicky, *Environmental and Global Health*
- Katherine Saylor, *Wildlife Ecology and Conservation*
- Tom Waltzek, *Pathobiology*
- Jim Wellehan, *Zoo Medicine Program*
- Emma Weeks, *Entomology*
- Jeff Abbott, *Pathobiology*
- Heather Walden, *Parasitology*

Today's talk:



- ***Causes of morbidity and mortality in fawns and adults***
- ***Culicoides ecology***
- ***Next steps***

Creating a Deer Farm Network in Florida

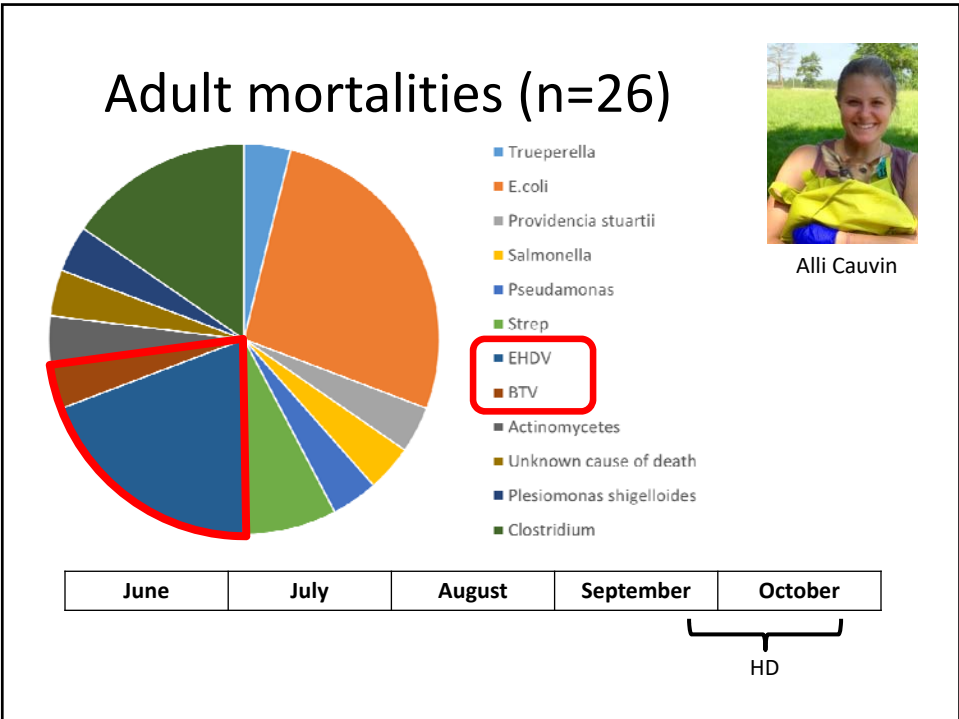
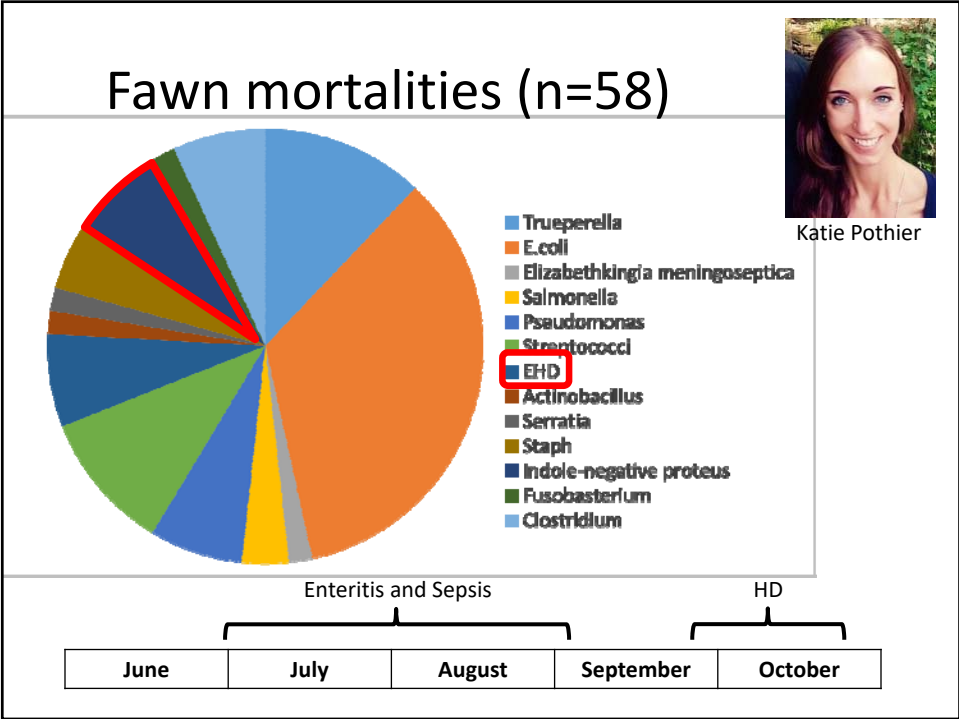
- Free Diagnostics on Live and Dead Animals
- Educational Material
- Wildlife Extension Veterinarian
- On 5 farms, research herds



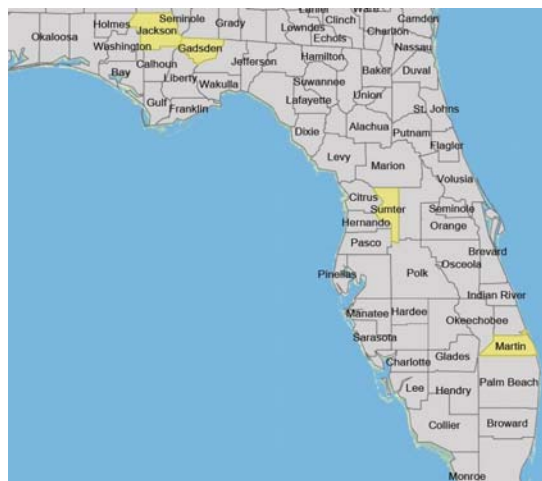
Dr. Katherine Saylor



Dr. Juan Campos



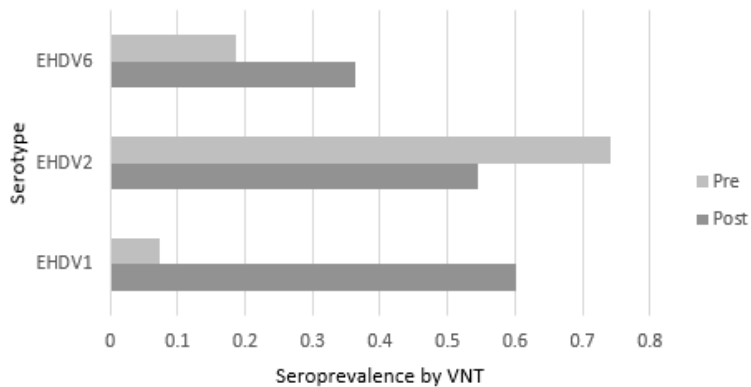
Counties with EHD mortalities in captive herds, 2015



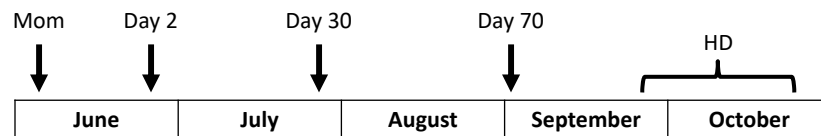
Antibody response to EHDV

March & September 2015, n = 81

Seroprevalence of EHDV Pre- and Post-HD Season

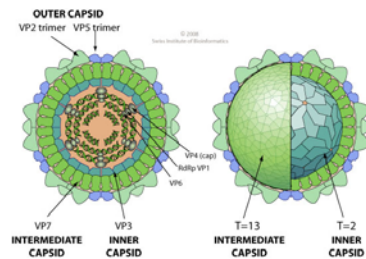


Maternal antibodies and HD, n = 60



Next Steps Towards Vaccine Development

- 25 isolates of EHDV's
- Whole genome sequence HDV's
- Define variability in epitopes
- Working towards a virus-vectored vaccine



Culicoides (no-see-um) ecology

1. Bloodmeal analysis of *Culicoides* (B. McGregor)
2. Larval habitat of *Culicoides* (E. Blosser)
3. Statewide *Culicoides* communities (K. Sloyer)



Dr. Nathan
Burkett-Cadena

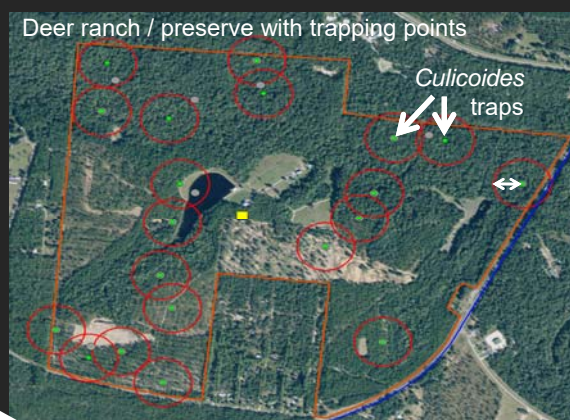
UF IFAS

1. Bloodmeal analysis: Methods

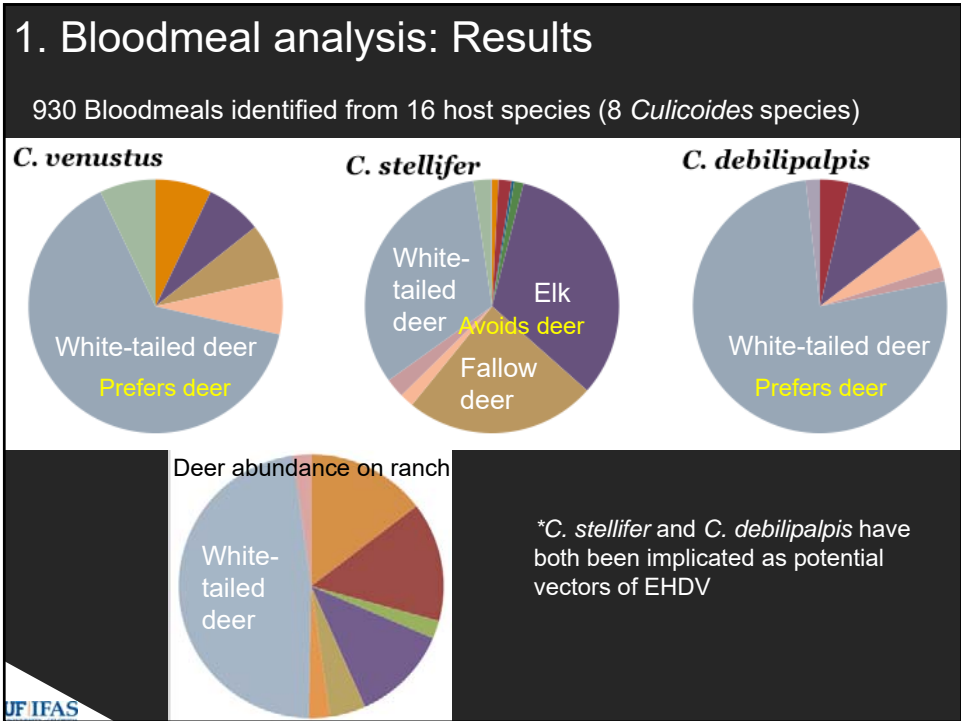
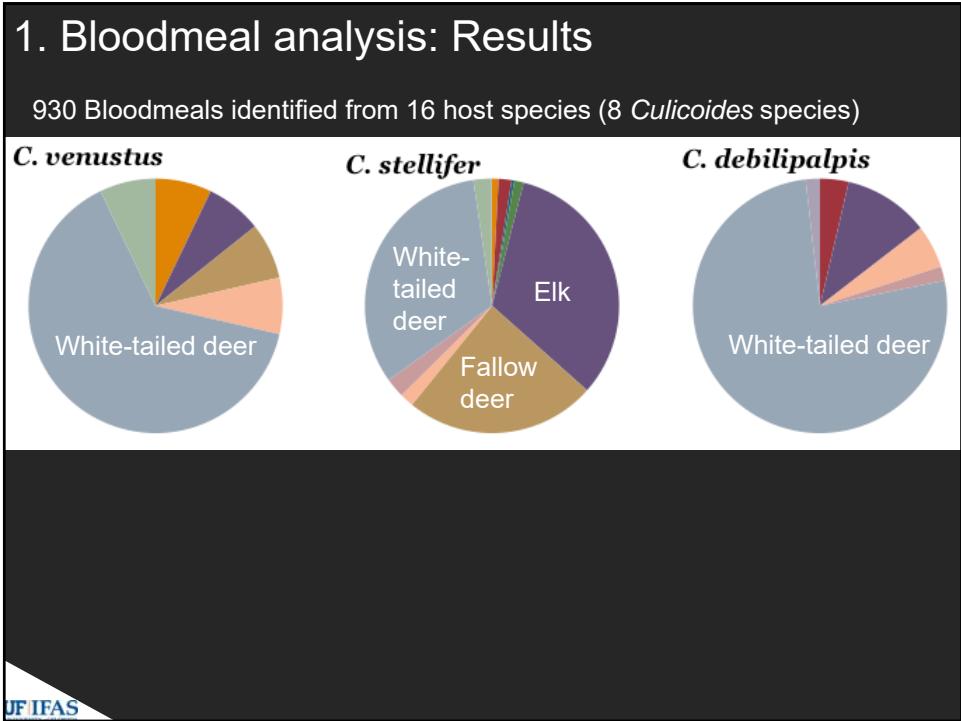
CDC miniature blacklight traps, twice weekly at 20 points (June – Oct. 2016)

No-see-ums identified to species

Bloodmeal genetically analyzed



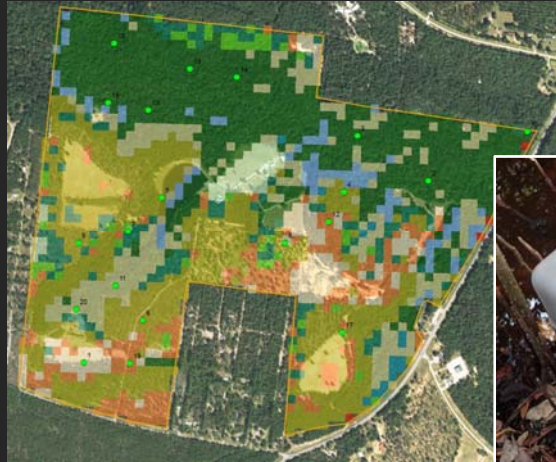
UF IFAS



2. Larval habitat of *Culicoides*: Methods

Select 20 sampling sites, representing different habitats at the ranch

Operate emergence traps weekly to determine larval habitat, by species



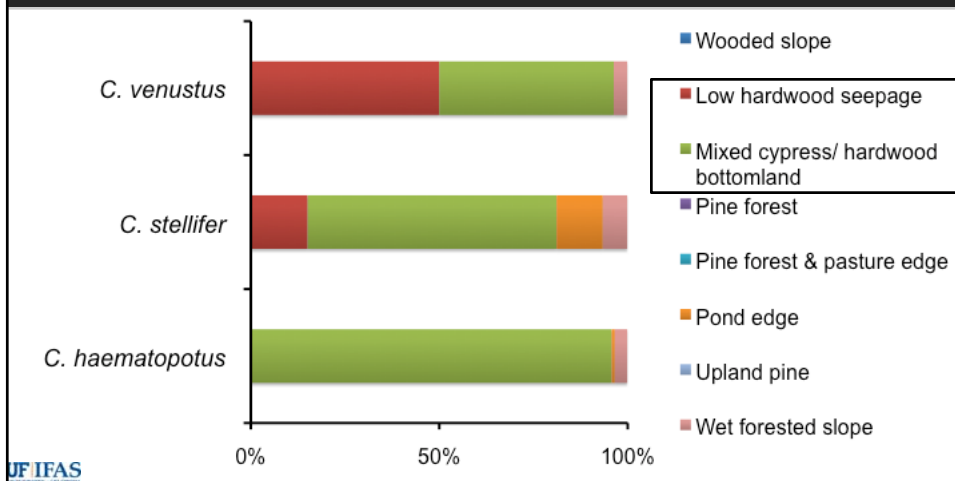
UF IFAS

2. Larval habitat of *Culicoides*: Results

8 habitats sampled, only 2 habitats yielded >90% of *Culicoides*

Some habitat segregation observed, by species.

Lowland hardwood seepage and mixed bottomland produce most *Culicoides*



UF IFAS

3. Statewide differences in *Culicoides* communities: Methods

Compare trap attractants (lights and carbon dioxide) for sampling *Culicoides*

Sample *Culicoides* at deer farms and reference sites throughout Florida

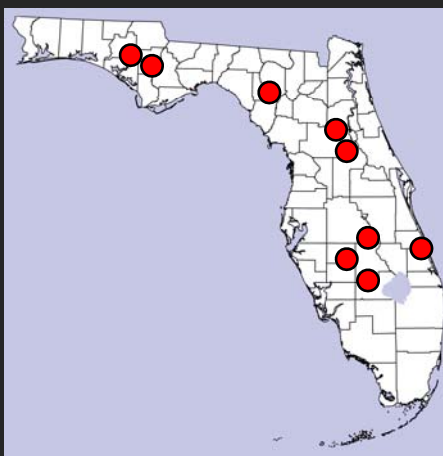


Blacklight trap



Incandescent light trap

with and without CO₂



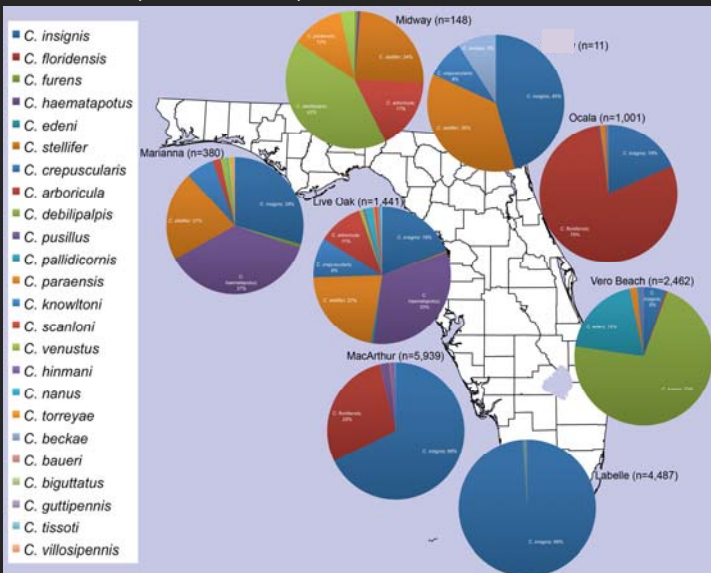
UF IFAS

3. Statewide differences in *Culicoides* communities: Results

23 *Culicoides* spp. collected (50 total in FL), more than 30,000 identified

C. stellifer and *C. debilipalpis* common in north FL

C. insignis and *C. floridensis* common in south FL



UF IFAS

Integrated pest management:



Goals:

- ***Identify competent vectors of HD in Florida***
- ***Work with pesticide companies on targeted delivery systems***
- ***Map distribution of *Culicoides* spp. and create predictive map of emergence based on climate variables***



**CERVIDAE HEALTH
RESEARCH INITIATIVE**

Questions? Comments? Suggestions? Collaborations?
Please contact Dr. Samantha Wisely, wisely@ufl.edu
<http://www.wec.ufl.edu/cheri/>

UF | IFAS
UNIVERSITY of FLORIDA