Chicken sentinels and Eastern Equine Encephalitis Surveillance at Chatham County Mosquito Control

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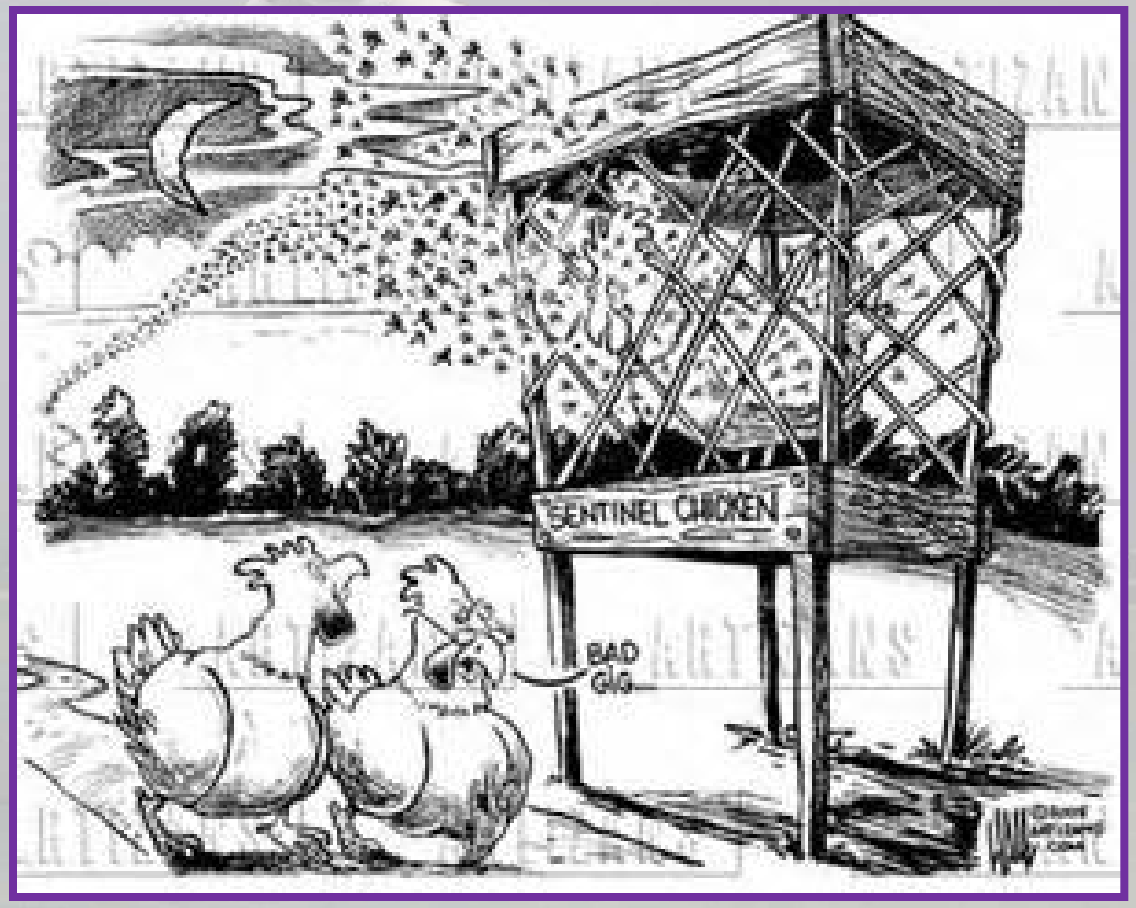
Chatham County Mosquito Control

Chicken sentinels are deployed in areas likely for exposure to various arbovirus vectors



Chicken sentinels have been used across the country for early detection of various arboviruses

Sentinel chicken coop (West Umatilla Mosquito Control District (Oregon), used in detection of SLE, WEE, and WNV since 1998 (4 sites).

Sentinel chicken coop (Sarasota County Mosquito Control District (Florida), used in detection of SLE, EEE, HJ, and WNV (13 sites).

Sentinels sites generally consist of outdoor pens or coops that require minimal upkeep by staff

At South Walton County Mosquito Control District (Florida) 17 sentinel sites are maintained through the mosquito season (often the entire year). These are equipped with self-watering devices, allowing staff 4-5 days between visits. Each coop houses 4 individually caged chickens.

Chatham County chicken sentinels are housed within a modern, mosquito-free facility

The coop is equipped with a heater and heavy vinyl curtains that are easily lowered during colder weather

Chickens are purchased at the beginning of each year as new-born hatchlings

Chicks are reared in a heated brooder until large enough to be transferred to individual cages

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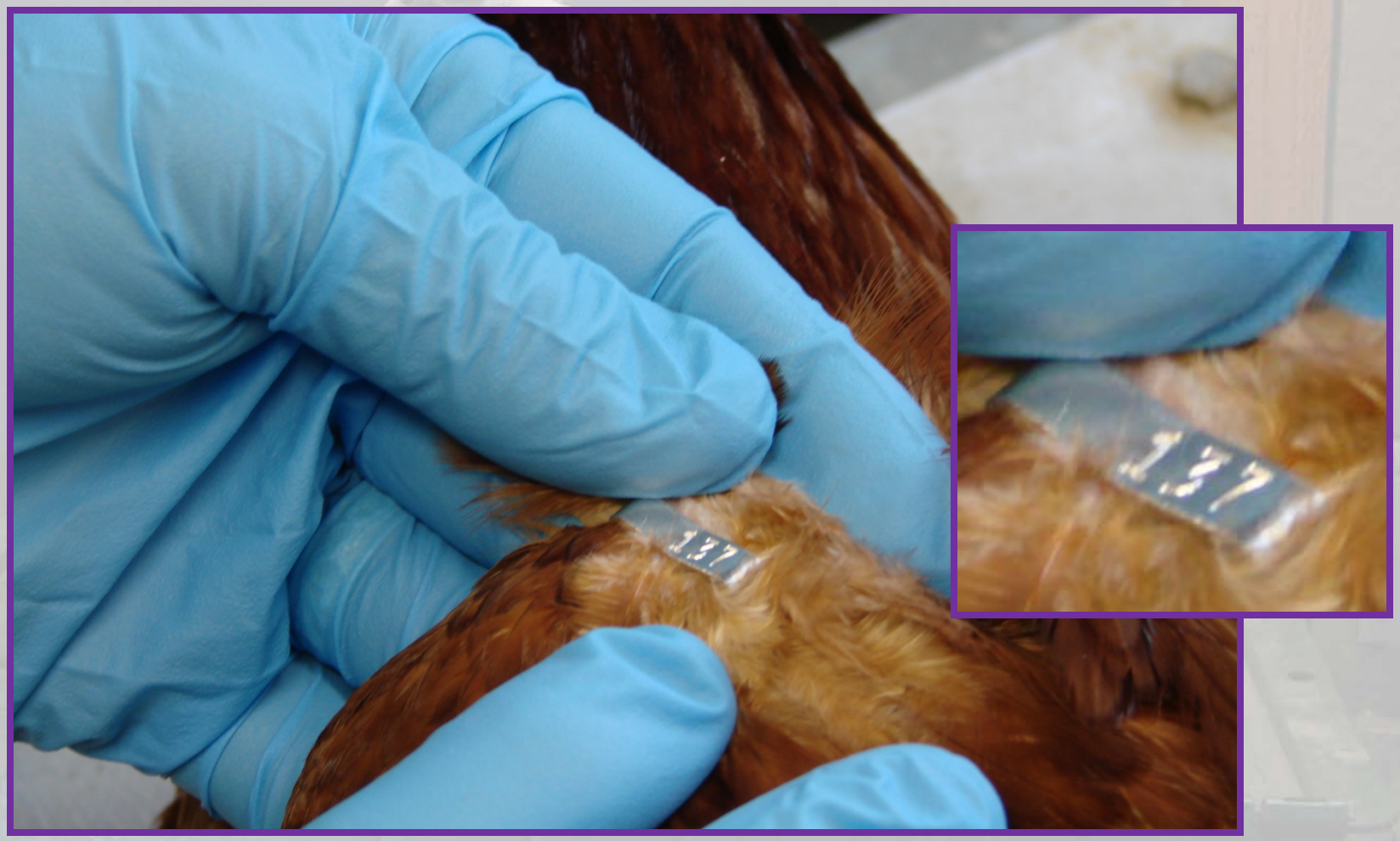
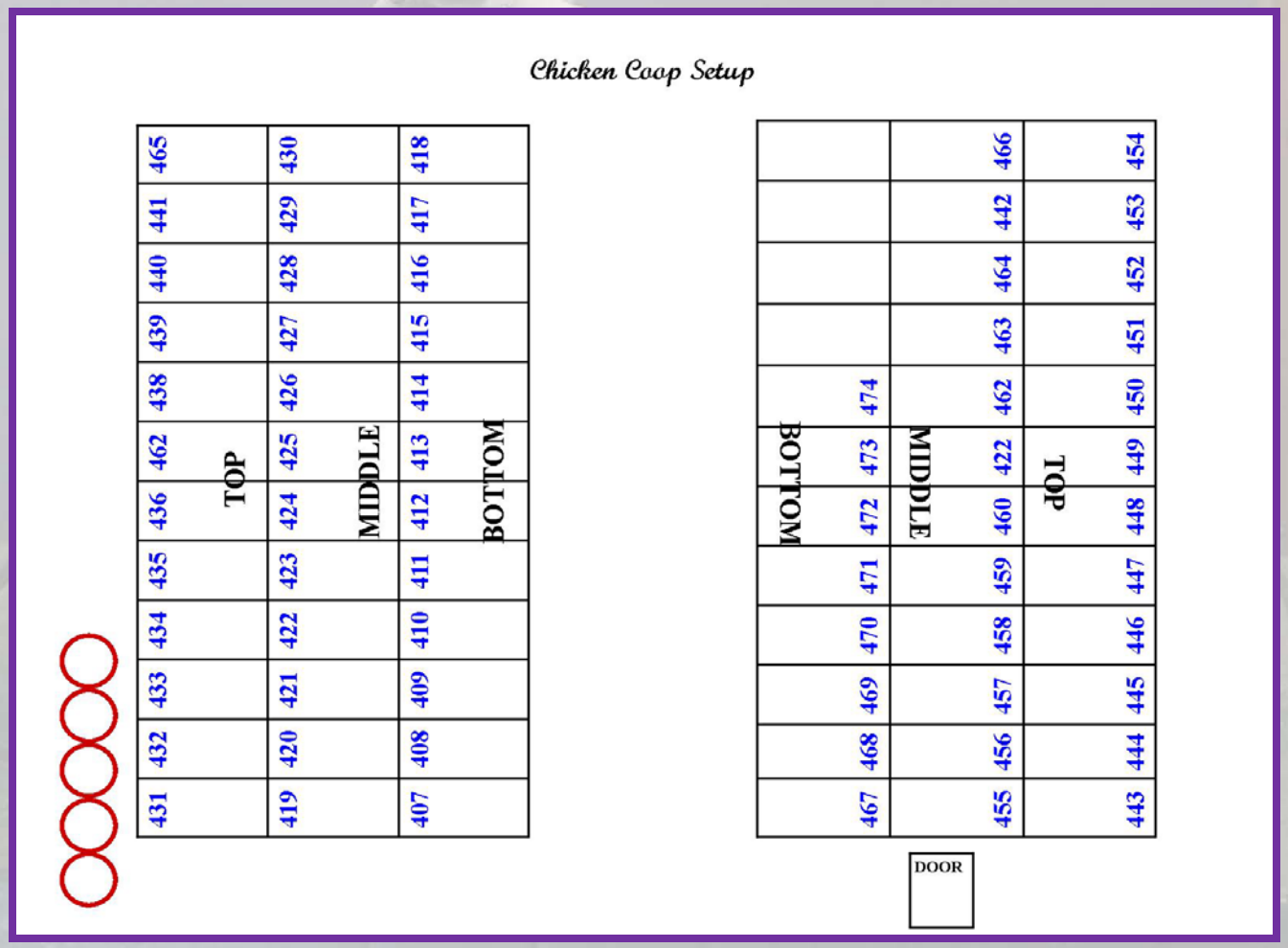
Only hens are used in our Chicken sentinel program

Each sentinel chicken is individually tagged with a unique number



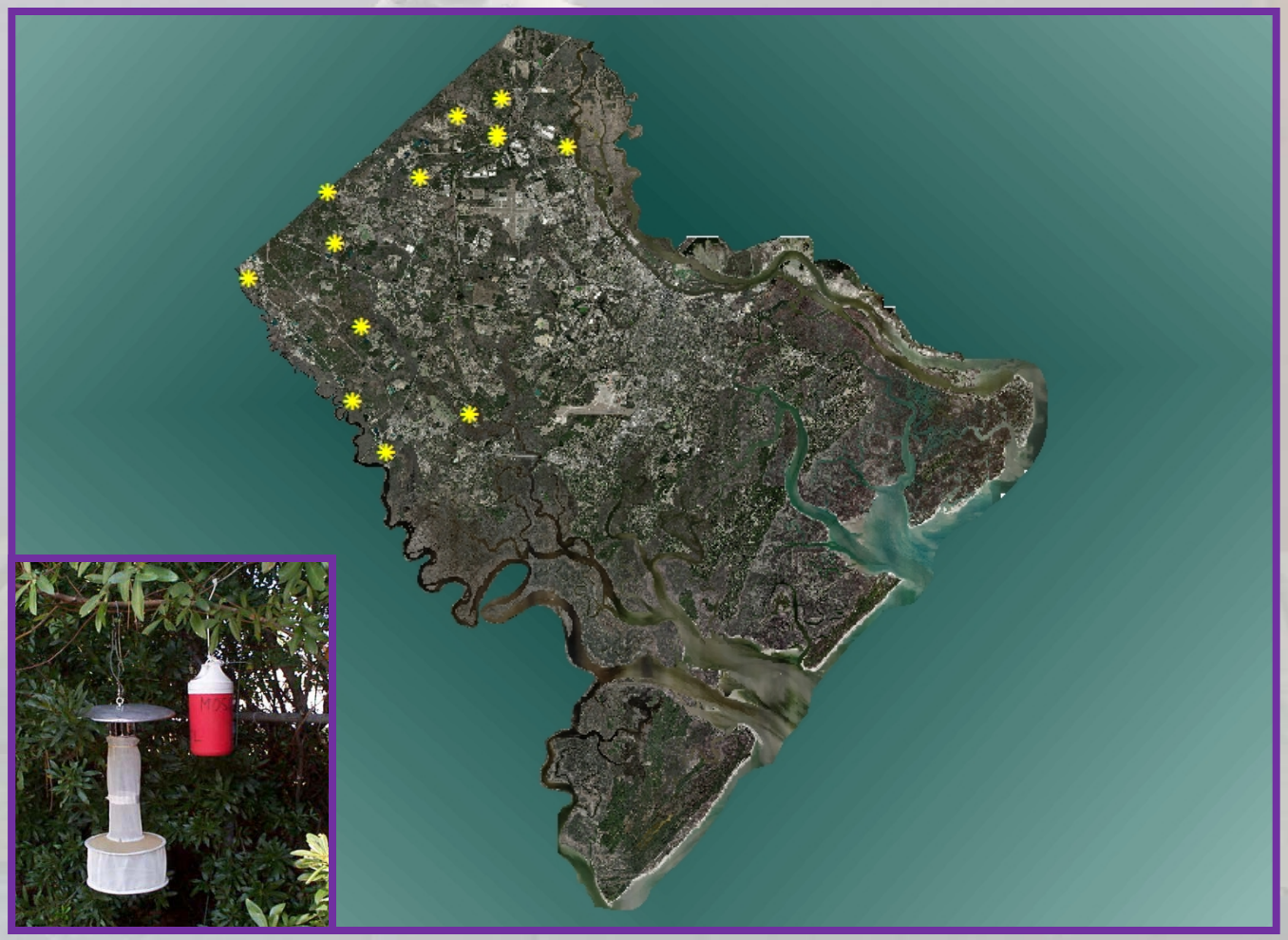
Locality, tag number, and color of bucket trap are indicated on each cage

Schematic of cages and marked birds avoids confusion over sentinel deployment



Chicken sentinels have been established at six sites in the rural sections of Chatham County

CDC light traps supplement sentinel data



In all 30 CDC light traps are deployed on a regular basis within the county

Combined with regularly run gravid traps well over 50 traps are deployed each week

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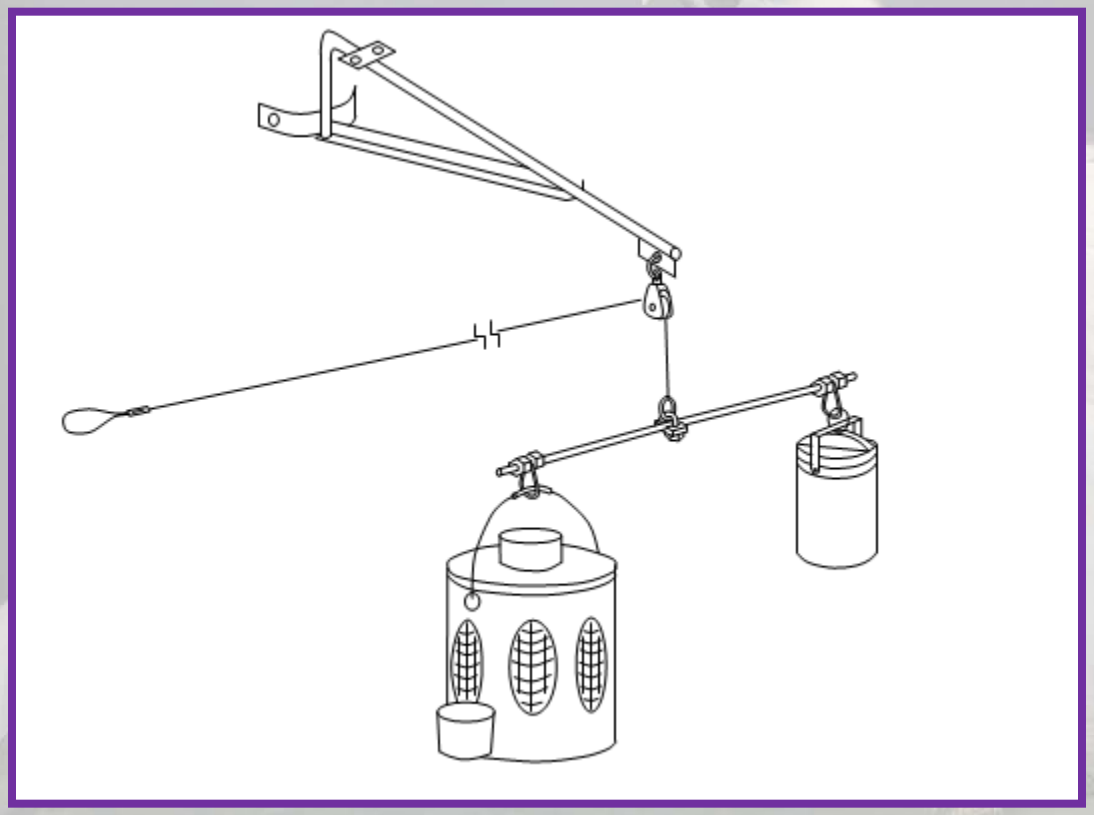
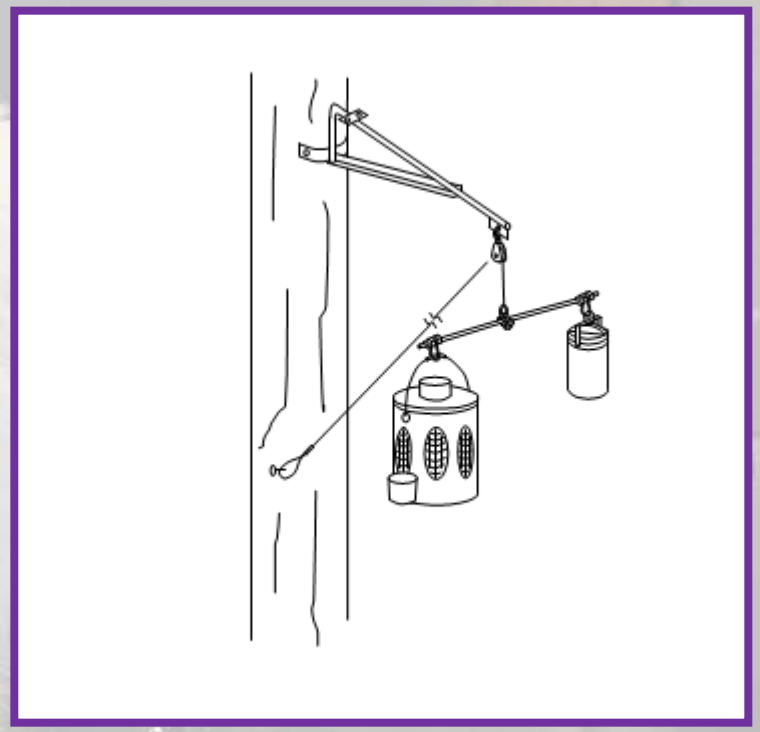
Chicken sentinel sites are generally located in wooded areas associated with river swamps

An anti-predator device is installed 12 feet from the ground to simulate a roosting bird

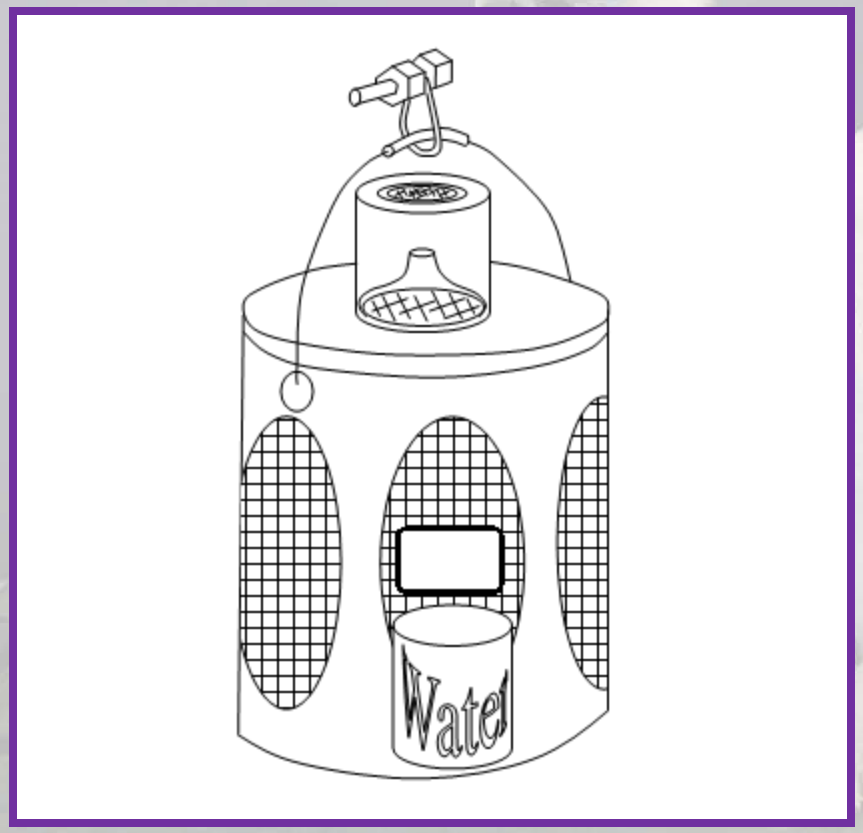




The chicken hanger's pulley system allows easy set-up/retrieval of sentinels

Each sentinel site is cleaned during the winter months prior to mosquito season

Sentinel cages are constructed from 5 gallon size plastic buckets equipped with “exit” traps



More recently CCMC began alternating sentinel cages between black buckets and white buckets

Signs were placed at sentinel sites to deter vandalism

Blood samples are taken from sentinels 2-weeks after deployment in the field

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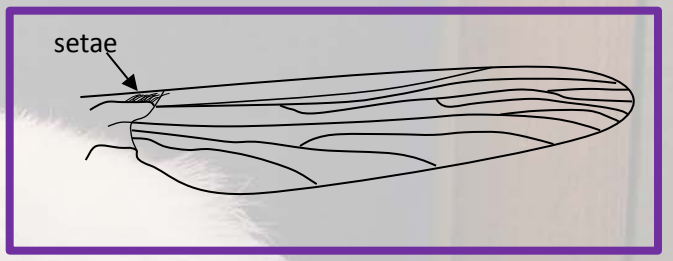
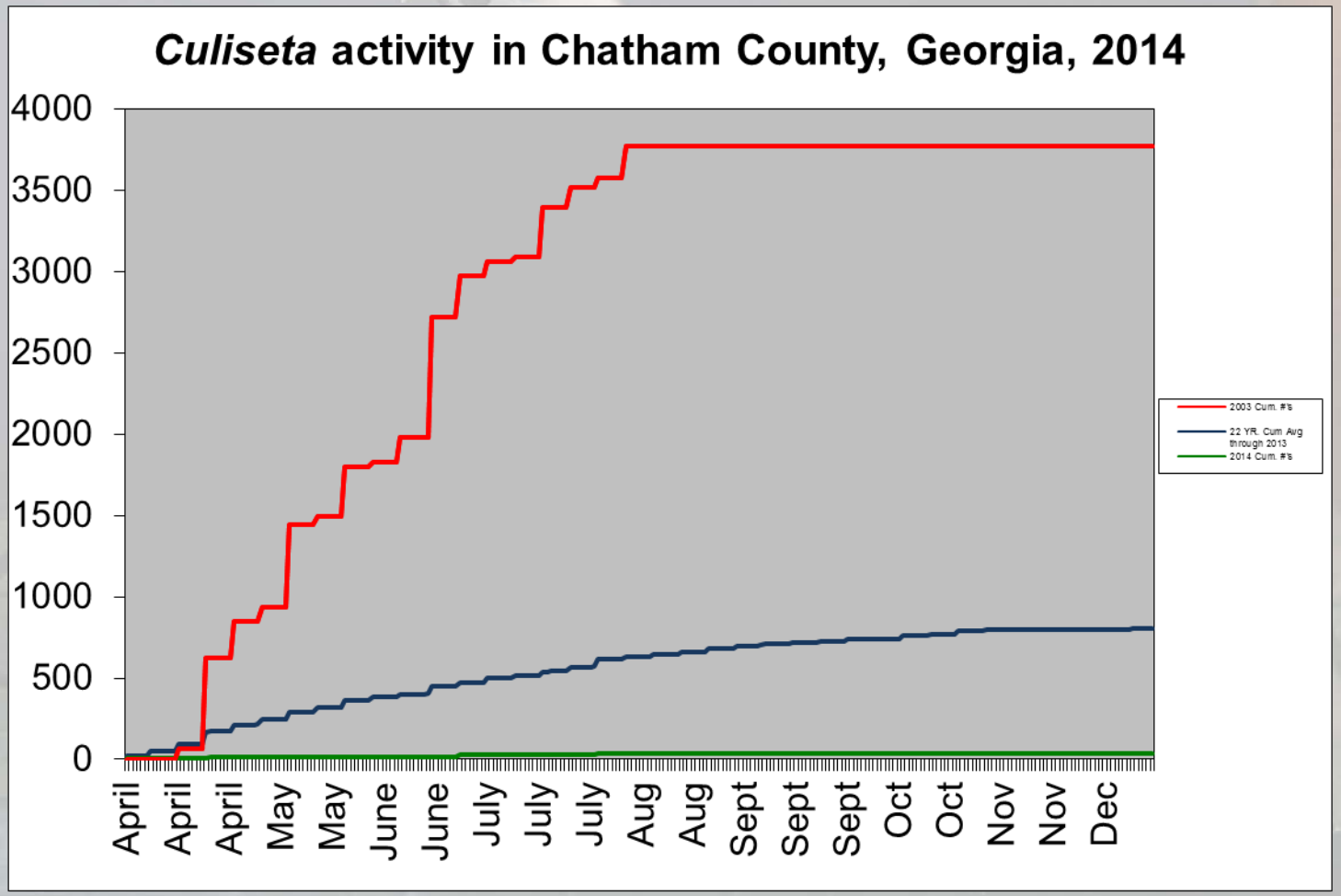
Blood samples are centrifuged and sent to lab for analysis

Sentinel samples initially designated as positive for EEE are re-bled and retested immediately

Culiseta melanura collected from CDC light traps throughout the county are submitted for testing



Chicken sentinels have been used by Chatham County Mosquito Control since the mid 1980's

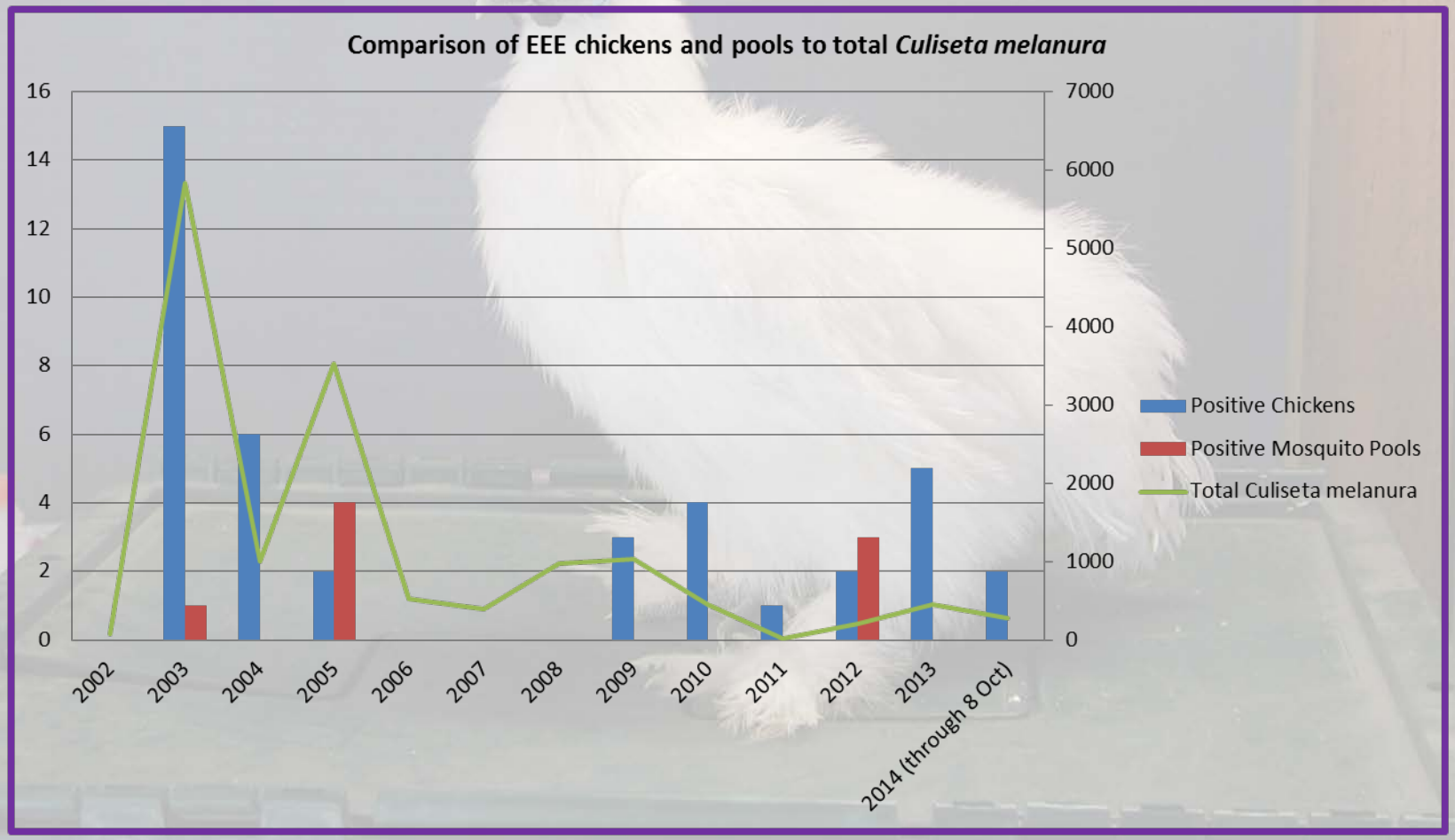


Since 2002 CCMC has generally seen some EEE activity on a yearly basis

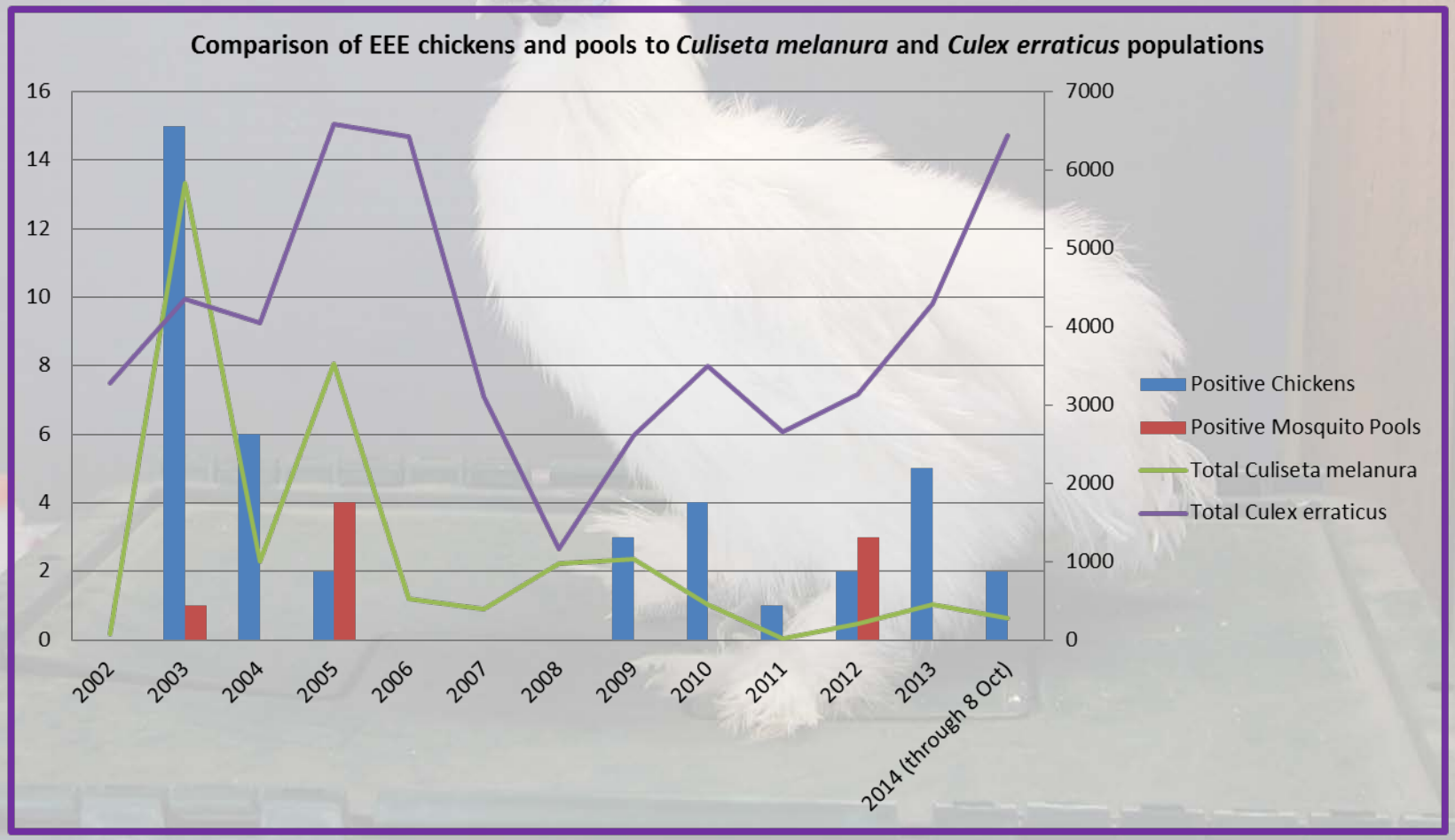
Summary of EEE activity in Chatham County, 2002-2013			
Year	Positive Chickens*	Positive Mosquito Pools	Total Culiseta melanura
2002	0	0	73
2003	**15**	**1**	**5829**
2004	6	0	1005
2005	2	4	3521
2006	0	0	526
2007	0	0	393
2008	0	0	966
2009	3	0	1036
2010	4	0	444
2011	1	0	18
2012	2	3	198
2013	5	0	444
2014 (through 8 October)	2	0	263

*Sentinel chickens deemed positive after 2 positive blood samples have been recorded.

Much of the EEE activity is attributed to *Culiseta melanura* populations…but not always

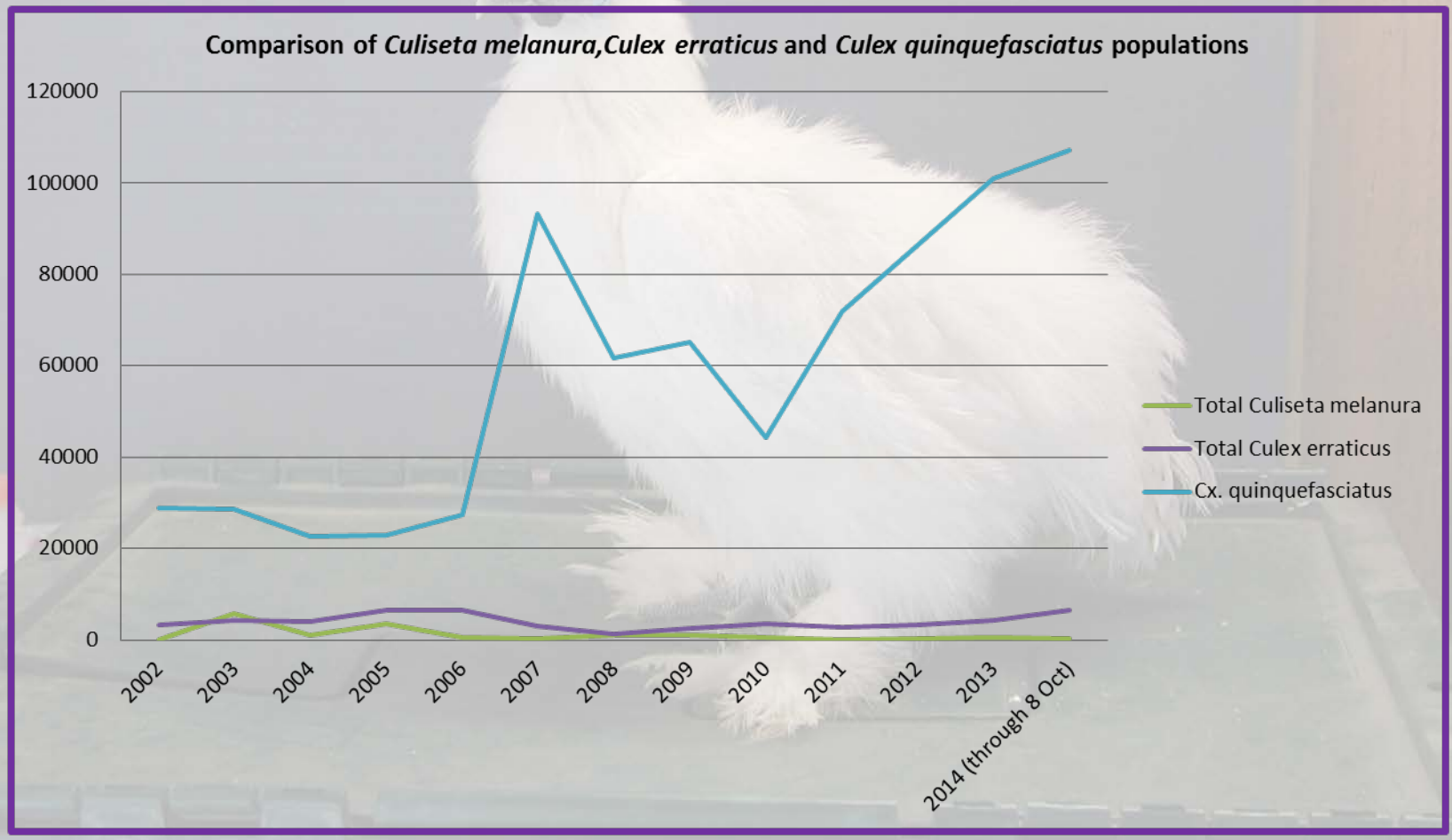


It may be that some EEE activity is reliant on another mosquito species



Culiseta melanura may need the help of other mosquitoes, like *Culex erraticus,* in EEE cycles

Unlike our primary West Nile virus vector, vectors of EEE are collected much less frequently



There are fringe benefits to a sentinel program

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I am no cook. But I can follow the directions. Which said to let the bird chill in the sink for a few hours.


Thanks
Any
Questions?
CHATHAM COUNTY
GEORGIA
1777
GEORGIA MOSQUITO
CONTROL ASSOCIATION
DIDEEBYCHA