

Mid Atlantic Mosquito Control Association

2013 Conference Notes

LAC in North Carolina - Brian Byrd

- a) Hot spots
 - i) Eastern TN
 - ii) MI
 - iii) OH
 - iv) Western NC
 - (1) 6 counties in LAC "belt"
 - (2) 2005 peak year
 - (3) Increasing trend since 1988
 - (4) Potentially an emerging infectious disease
- b) LAC cycle
 - i) Beaty & Marquardt (1996)
 - ii) Small mammal amplifying system
 - (1) 3-4 day viremia
 - (2) *Oc triseriatus*
 - iii) Humans are dead end hosts
 - (1) Primarily a disease of children
 - (2) Low mortality rate
 - iv) Transovarial transmission
 - (1) Overwintering mechanism
 - (2) Adds mosquitoes into the cycle at a younger age
 - v) Venereal transmission
 - vi) Other species potentially involved
 - (1) *Aedes albopictus*
 - (2) *Aedes japonicus*
- c) Lab study
 - i) TAP - transmission amplification transmission
 - (1) Dissemination of virus within the mosquito
 - (2) Transovarial transmission
 - ii) *Oc triseriatus* is 7x more successful in spreading the virus
 - iii) Probably not that straightforward
- d) What drives LAC risk?
 - i) Risk factors
 - (1) Human behaviors
 - (a) Protective
 - (b) Risky
 - (2) Location
 - (a) Regional
 - (b) Microscale/microhabitat
 - (3) Vector ecology
 - (a) Temporal risk
 - (b) Native vs invasive species
 - ii) Study design

- (1) Peridomestic sites
 - (a) 6 historical LAC case residences
 - (b) Comparable forested area
- (2) Sampling
 - (a) One week twice a month
 - (i) Ovitrap
 - (ii) May-Sept
 - (b) Nasci aspirator
- (3) Eggs
 - (a) 93000 collected
 - (b) 11700 identified
 - (c) Ovitrap - peridomestic
 - (i) Primarily triseriatus
 - (ii) Also albopictus and japonicus
 - (d) Nasci aspirator - forested area
 - (i) Similar results
 - (ii) Fewer triseriatus
 - (e) Looked at number of wet containers in area
 - (i) More artificial containers - highly disturbed
 - 1. Increased proportion of triseriatus in peridomestic area
 - 2. Increased japonicus in peridomestic area
 - 3. Saw more gravid mosquitoes in peridomestic area
 - (ii) Low disturbed sites had more natural containers
 - 1. More triseriatus found in forested area
 - 2. No difference seen between forest and peridomestic
 - (iii) Also affected egg production
- e) Bottom line - source reduction
- f) Other studies are underway