

## Community Ecology of LACv Vectors – Katie Westby

- a) Trapping methods
  - 1) Ovitrap
  - 2) Larval collection
  - 3) BG Sentinel
  - 4) Aspiration
- b) Infection rates
  - 1) *Aedes albopictus*
    - (i) July and August
    - (ii) 19 positives pools overall
  - 2) *Aedes japonicus*
    - (i) Hard to collect
    - (ii) 1 pool overall
  - 3) *Aedes triseriatus*
    - (i) 34 positive pools overall
    - (ii) Timing??
- c) Species interactions
  - 1) Community level
    - (i) Competitive
    - (ii) Host-parasite
    - (iii) Predator-prey
  - 2) Larval habitats are crucial
    - (i) Immediate effects
    - (ii) Carry-over effects
      - (a) Longevity
      - (b) Vectorial competence
      - (c) Fecundity
    - (iii) Container habitats
      - (a) Disturbance
      - (b) Establishment/ageing
      - (c) Overlapping and non-overlapping cohorts
      - (d) Others
  - 3) Field studies
    - (i) Habitat size
      - (a) April – September
      - (b) Containers
        - (i) 140 L
        - (ii) 35 L
        - (iii) 3.5 L
        - (iv) 0.35 L
      - (c) Experimentally reduced and filled containers
        - (i) Did this to avoid complete drying out for entire research period
        - (ii) More controlled collections
      - (d) Results

- (i) *Aedes japonicus*
    - 1. Container size
      - a. Not found in small ovicup
      - b. Use a larger container
    - 2. Disturbance
      - a. Not in drying containers
      - b. Found in stable containers
  - (ii) *Aedes triseriatus*
    - 1. No significant effect with container size
    - 2. Not affected by drying and wetting cycles
- (ii) Habitat age
- (a) April – September
  - (b) Controlled for habitat age
    - (i) How many prior larvae used habitat
    - (ii) When other larvae used habitat
    - (iii) Excluded extra detritus addition
  - (c) Methods
    - (i) Placed and sealed containers at different time
      - 1. Add a cohort of larvae
      - 2. Remove larvae
      - 3. Add experimental group
    - (ii) Had one open bucket at each block
    - (iii) Sampled weekly
  - (d) Results
    - (i) Older habitats had higher female survival
    - (ii) Habitats with no prior use appeared to be better
    - (iii) Un-manipulated habitat
      - 1. Modeled data
      - 2. 3 species found
      - 3. *Aedes triseriatus* – week was important
      - 4. *Aedes japonicus*
        - a. Week was important
        - b. Presence of *Culex restuans* was also important
  - (e) Conclusion – it's complicated
- (iii) Disease ecology
- (a) Gregarine parasites (<http://pi.unl.edu/~jlogan1/PDFfiles/Rute2011paper.pdf>)
    - (i) Infectious oocysts in water
    - (ii) Ingested by larvae
    - (iii) Develop in larva
    - (iv) Kill adults??
  - (b) Methods
    - (i) 2 gallon buckets
      - 1. set 1 - remove *Aedes japonicus* every 3 days
      - 2. set 2 - left japonicus

(ii) Manipulated resources

(iii) Results

1. Varies by species
2. Interaction between *Aedes japonicus* and *Culex restuans*
3. Presence of *Aedes japonicus* has a negative effect on gregarine parasites