

# Utilizing New Technology for Mosquito Surveillance:

## The BG Counter Trap- A Game Changer

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# Biogents Counter Trap

- Solar panel charges battery
- Standard BG Sentinel trap w/ CO<sub>2</sub>
- Records data every 15 minutes
- Wirelessly transmits the data
- Remotely change programmable features (on/off, CO<sub>2</sub> flow, etc...)
- Differentiates mosquito sized insects from other insects



# Total Trap Cost

|                |               |
|----------------|---------------|
| ■ BG Sentinel  | \$190         |
| ■ Counter unit | \$1475        |
| ■ Web Service  | \$434         |
| ■ Solar System | \$400         |
| ■ Battery      | \$30          |
| ■ CO2 Tank     | \$100         |
| <b>Total</b>   | <b>\$2629</b> |

(Cage Optional for Security)



## Past rice adult surveillance program

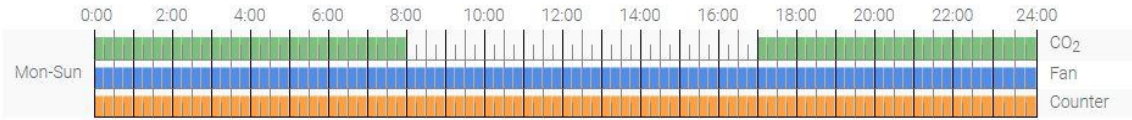
- MMT traps or dry ice can traps used
- 4-5 days/week
- One FTE for 6 hrs/day (low end \$7,392 over 22 weeks)
- Treatment plans decided after noon

## New rice adult surveillance program

- BG Counter traps used
- 7 days per week data – 1 day per week maintenance
- One FTE for 6hrs/week (only \$1,848 over 22 weeks)
- Data for treatment decisions as soon as work day begins



## Trap Schedule



## Chart Settings

Insect Type

Date:

2018-08-17@12:00

Mosquito Sum:

On

y-Axis Range:

0 - 100

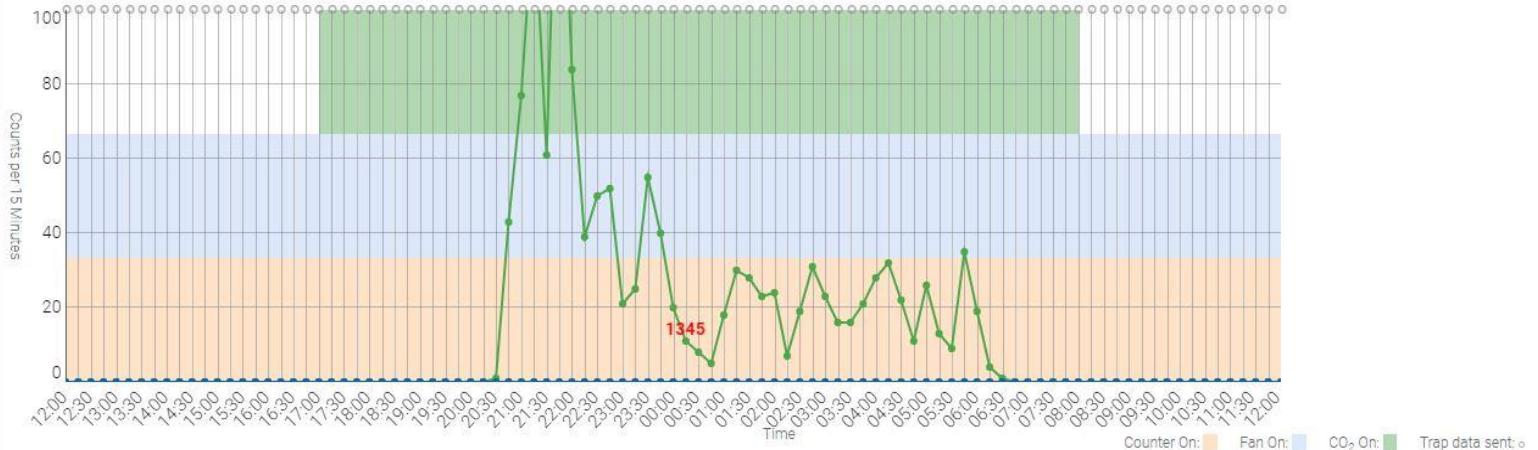
## BG-Counter-2-(Natomas Rice)

List

Export

< Previous Day

Next Day >



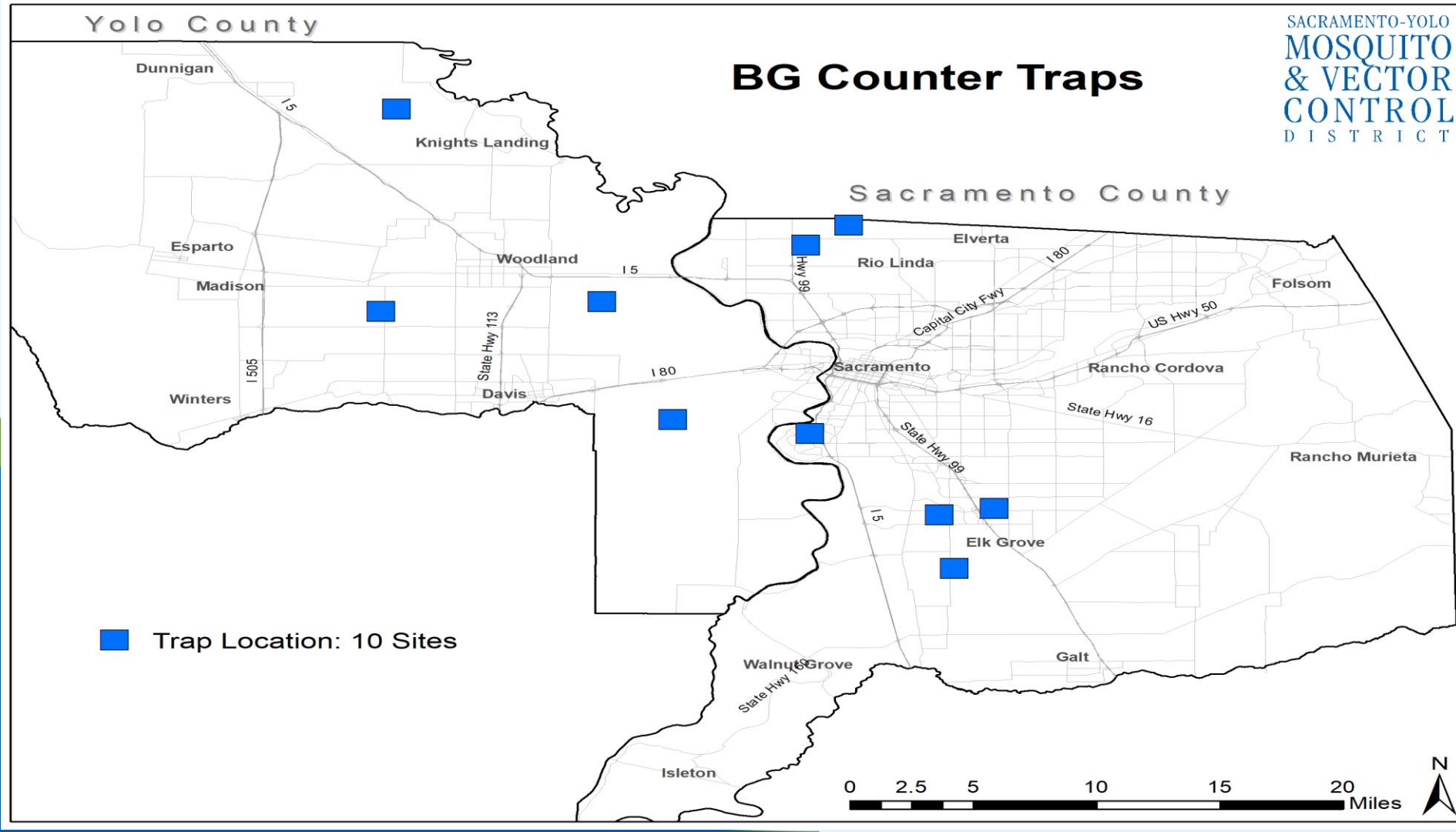


# BG Counter Traps

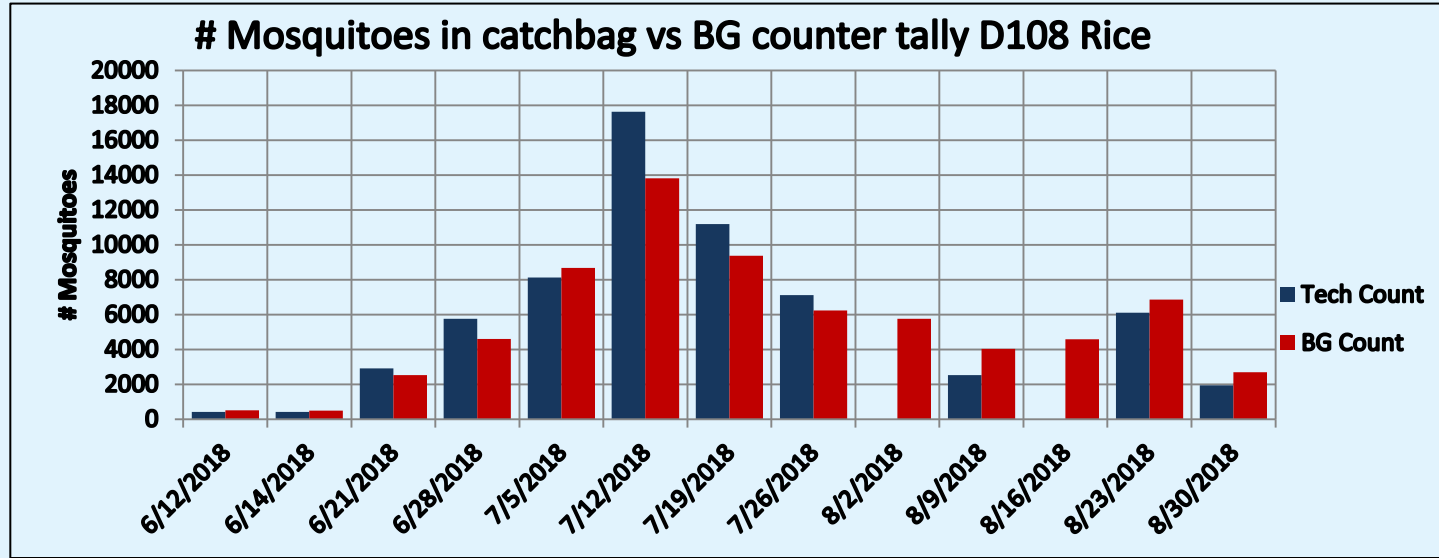
Sacramento County

■ Trap Location: 10 Sites

0 2.5 5 10 15 20 Miles



# How accurate ?



- Weekly collections
- Actual count vs trap recording
- Average about 19% difference
- 11% difference if large insects included



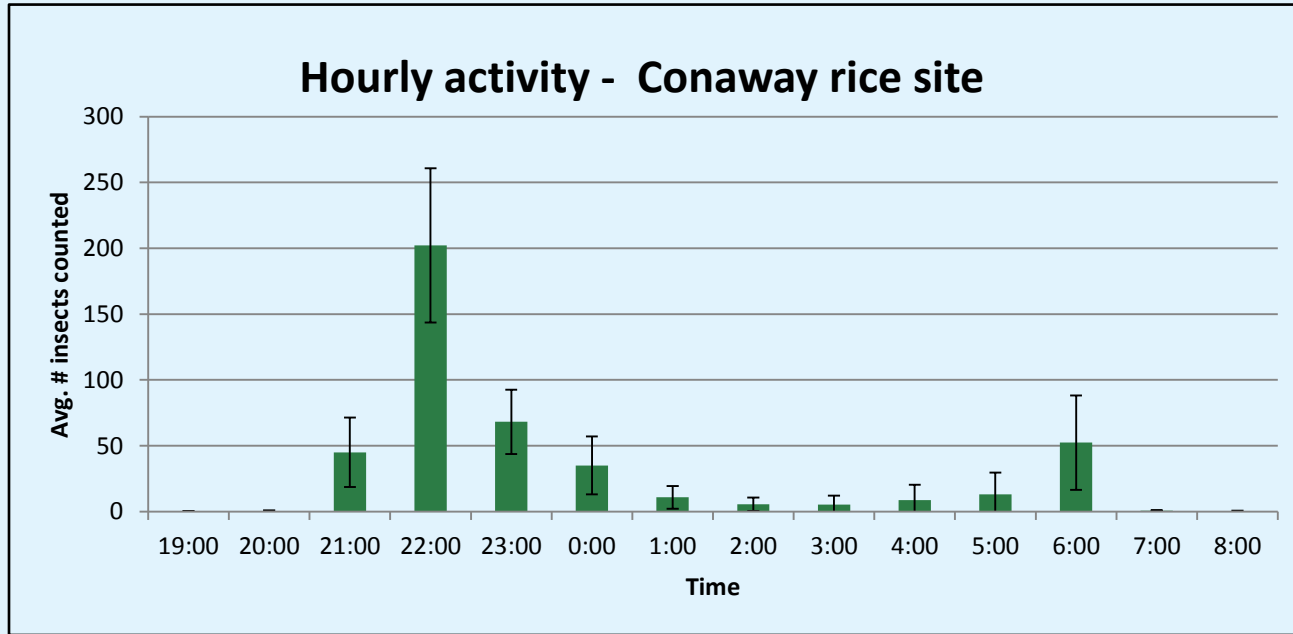
# *Culex tarsalis*

- Rice habitat
- Continuous monitoring of populations over the season
- Minimal labor to maintain trap





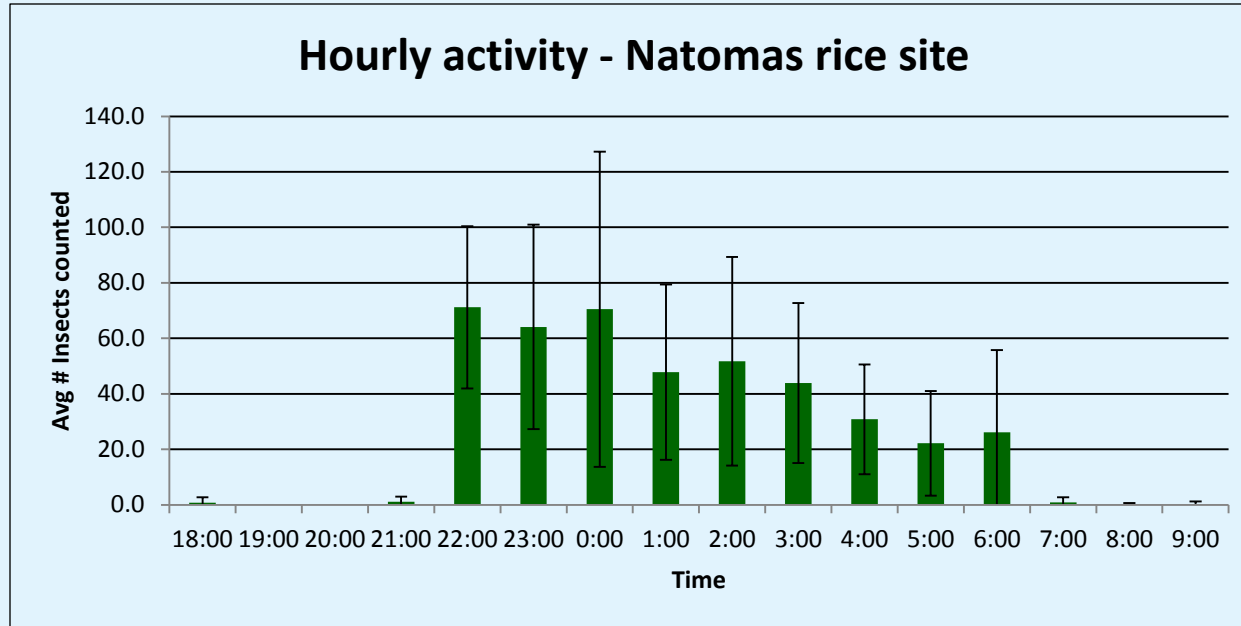
# Some sites show the expected activity



- Usual start time of activity – shortly after sunset



# Other sites show different activity



- Extended activity time – std dev bars show variability of trapping nights

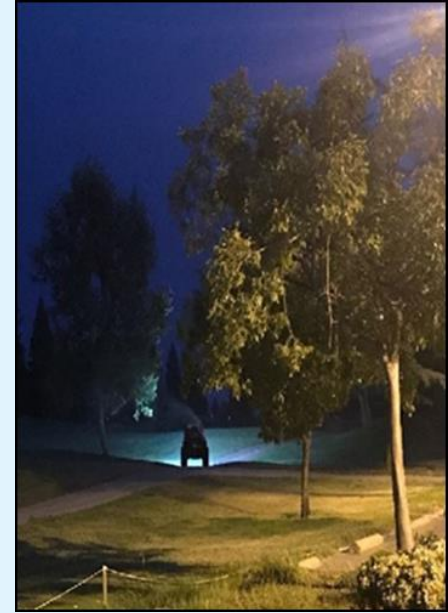


# *What about urban mosquitoes?*

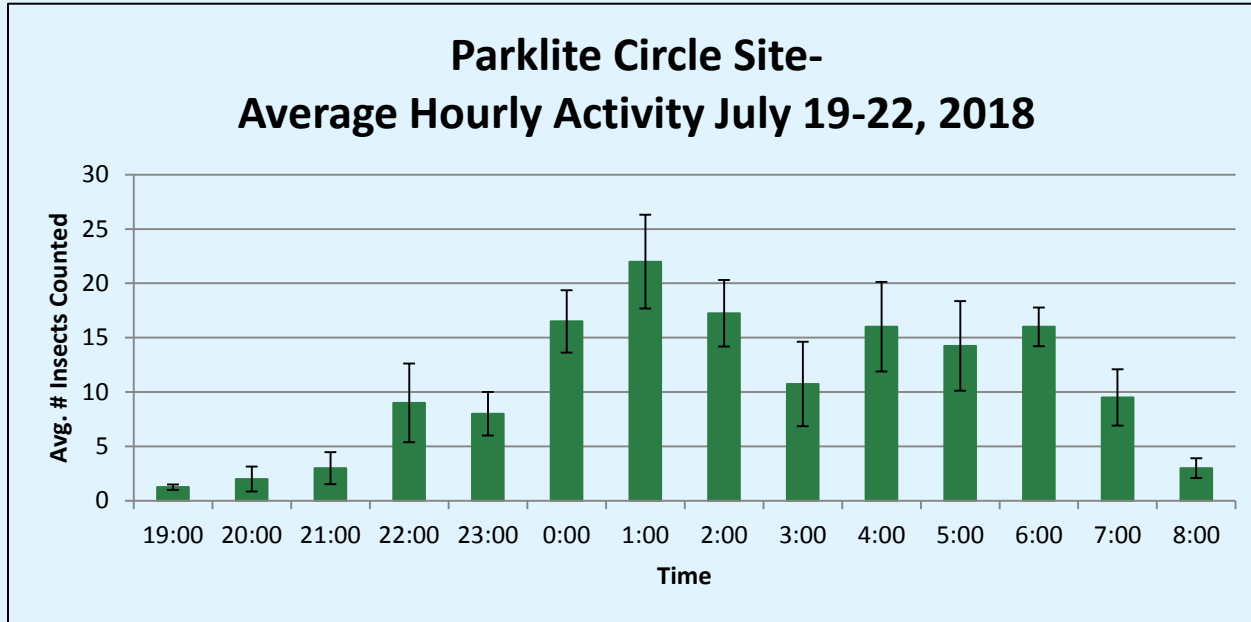


# *Cx pipiens* specifically:

- One of two main West Nile Virus vectors
- 214 positive pools in 2018 (55% of our “+” pools)
- Green belts, parks, urban creeks habitats are the areas of ground based control responses
  - Last year - over 30,000 acres ULV applications done here
  - Far majority done at the usual “peak” post sunset time frame



# What we found with the BG Counter:

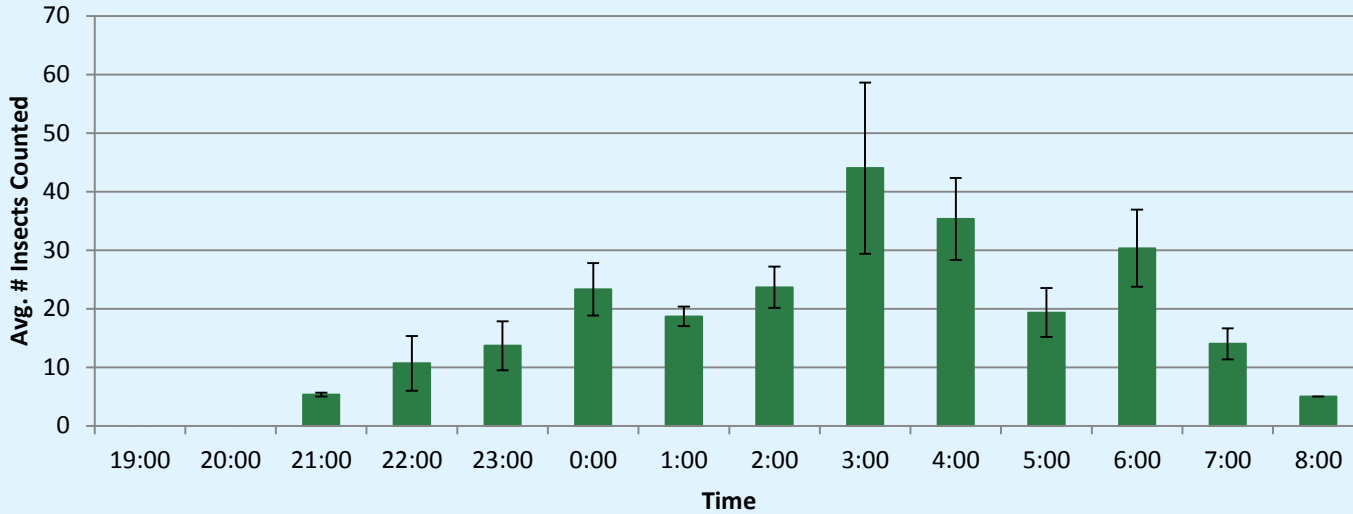


- Urban/suburban site
- Backyard of a house adjacent to a park
- Frequently treated via backpack and quad ULV





### Bond Rd Elk Grove Site - Average Hourly Activity Aug 10-12, 2018

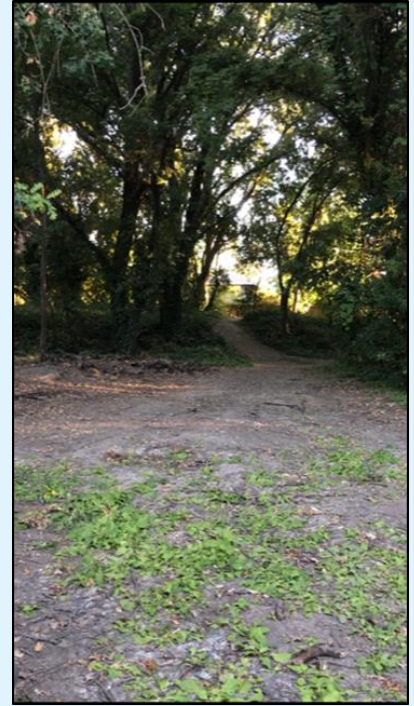


- Another Urban/suburban site
- Again shows activity much later in evening than expected
- Peak activity actually in the early morning

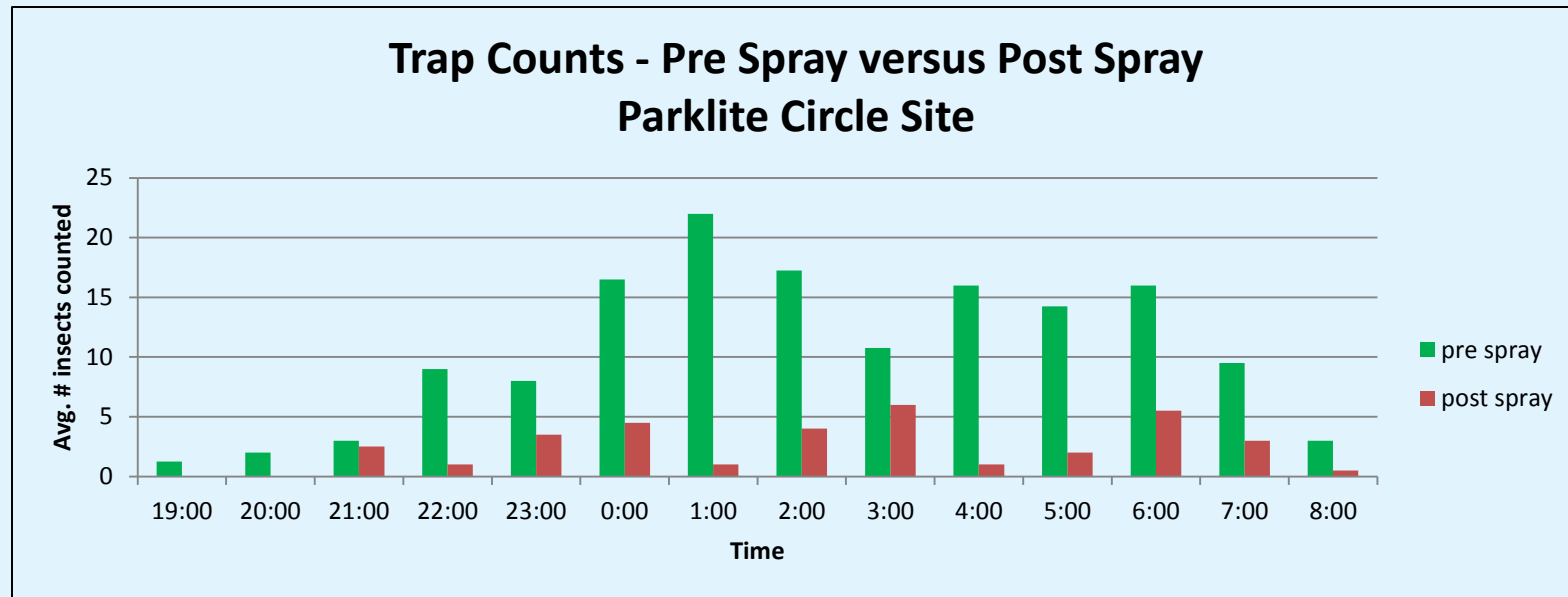


# What this means:

- Larger treatment window of mosquito activity is thus indicated
- Backpack, quad and truck ULV applications
  - Temperature inversions not as critical
  - Spraying under/into canopy commonly
- Can perform applications when fewer people present in parks/greenbelts



# More data from BG Counter:



- Urban aerial ULV treatment pre and post trap data
- Four days of pre-spray data and two days of post-spray
- Visible decrease in mosquito activity



# Conclusions:

- BG Counter trap provides very useful data
- Multiple people can review the data from their computers
- Will utilize data to optimize treatments

## Next Steps:

- Integrate weather data
- More data at more sites
  - *Cx pipiens* & *Cx tarsalis*
  - *An freeborni* & pasture *Aedes*



# Acknowledgments

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# Thank You



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