2013 West Nile Virus Season

Epidemiology – Dr. Peggy Wittie

Environmental – Misty Brown

Areas of Responsibility

- The County is directly responsible only specifically for the unincorporated areas of the County
- The cities must adopt their own plans and fund their own programs
- Emergency Declaration from the County Judge is required when seeking reimbursement from the State/Federal Government

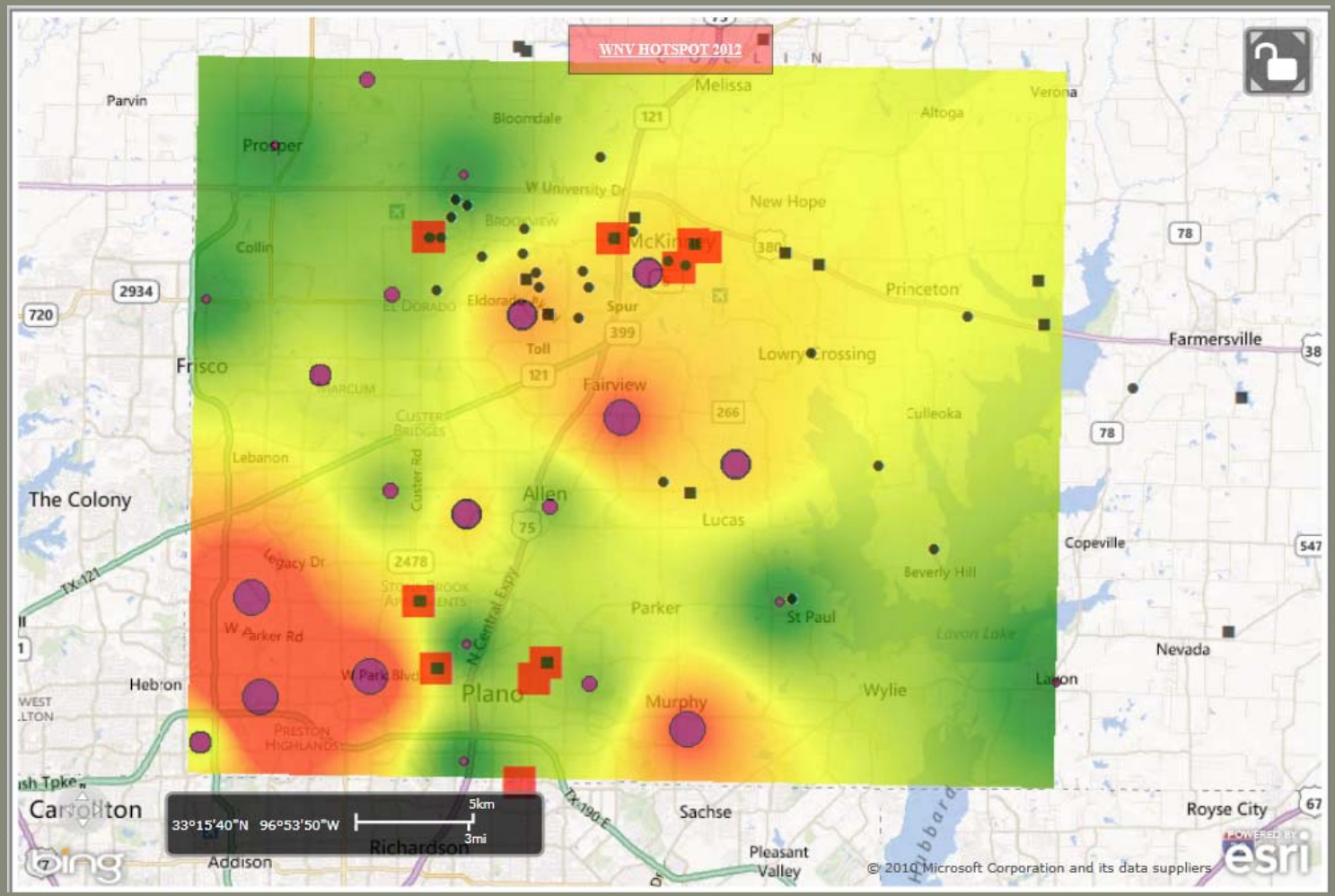
Anticipated costs for aerial spraying

- No money will be available from DSHS for emergency declaration spraying – the money used was leftover money from years of preparedness money

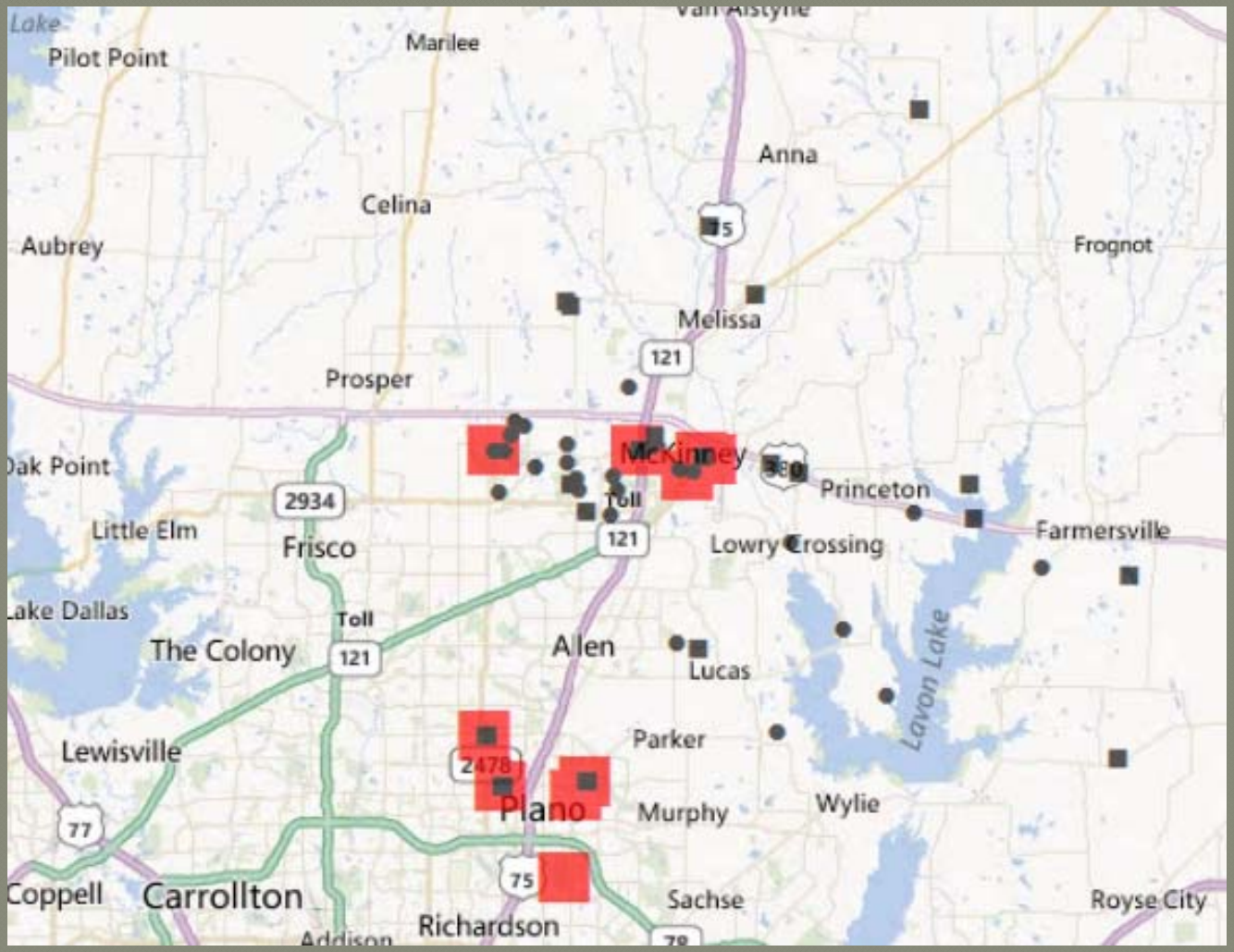
Culex quinquefasciatus

- Commonly known as "Southern House Mosquito"
- Primary vector of SLE and WNV in Texas
- Breeds profusely in dirty water collections (stagnant drains, leaking septic tanks, etc., and almost all organic polluted water collections)
- Optimum temperature range 72˚-100˚ and humidity ~70%
- Active dusk to early morning with peak bite time around midnight
- Typical maximum flight range is ½ mile
- Thought of as an "urban" mosquito due to its tendency to reside and overwinter *in storm drains*

2012 WNV Season - Overview



2012 WNV Trapping Locations



2012 WNV Season – Overview (continued)

- 904 cases in Dallas, Tarrant, Denton and Collin
- 76 cases in Collin, and 4 deaths
- Collin County DS and many cities in the County increased routine, seasonal trapping of mosquitoes
- Identified multiple positive mosquito pools around "hot zones"
- Several Collin County cities performed targeted larviciding and ground spraying (most in "hot zones")

Recommendations from CDC (Final Report – 2012)

- Integrated Vector Management (IVM)
  - Understanding transmission system biology
  - Surveillance of mosquito populations and WNV activity
    - Determine type, location, intervention timing --- to keep numbers low, and potentially human illness low, if numbers exceeded - respond appropriately
- Accomplished through:
  - Surveillance activities – surveillance of larvae, adults, transmission, dead birds, and viremia levels in pools Control activities – source reduction, larval control, adult control (includes aerial spraying), public education

Effective Control Methods

Mosquito testing and surveillance
Larvae eradication
Use of mosquito repellants by residents

Collin County - City Plans

- Cities submitting mosquitoes to DSHS: Celina, Frisco, Lowry Crossing (through Collin County Development Services), McKinney, Plano, Wylie
- Cities increasing their mosquito programs in 2013: Celina, Frisco, Plano, McKinney

DSHS WNV Plan

- May 1st earliest date for submitting mosquitoes, no money to do otherwise
- DSHS will be testing, based on 2012 levels, to identify mosquito species circulation
- DSHS deems vector control programs as local responsibilities
- DSHS paid $ 2,694,074 in 2012 for aerial spraying in Dallas and Denton Counties, and Vector Disease Control International was paid $ 243,481

Aerial Spraying Event in Worst Case Scenario

- **If aerial spraying is deemed necessary, it will need to be over a consecutive, 3-night period**
- If positive mosquito pools continue to be found, aerial spraying would be recommended every two weeks (consecutive, 3-night periods) for continued benefit - even though this is not considered the best method.

Collin County Acreage in Cities

- Allen – 17,344 acres
- Celina – 9,088 acres
- Fairview – 5,632 acres
- Frisco – 39,936 acres
- Lowry Crossing – 1,792 acres
- Melissa – 2,944 acres
- McKinney – 37,440 acres
- Plano – 45,824 acres
- Princeton – 2,752 acres
- Prosper – 3,200 acres
- Sachse – 6,336 acres

- Total 172,288 acres for the above cities

- Unincorporated – 311,777 acres

- **Total Collin County – 566,566 acres**

Cost of Aerial Spraying – Unincorporated (based on recommended method)

- $1.87 per acre
- 311,777 acres unincorporated
- $583,023 - Total for one night of spraying

- **$1,749,069 – Total Cost for one consecutive, 3-night round of spraying**

Proposed Collin County Guidelines for Phased Response

- Risk Category 1 (Low)
  - Normal mosquito activity with little or no evidence of viral activity
    - Surveillance - Routine monitoring of public health threats by CCHC Epidemiology; routine monitoring of larval and adult mosquito bionomics (20 gravid traps – 17 fixed and 3 dynamic); monitor DSHS test results for species and viremia
    - Information/Education - Public education/outreach programs focused on risk potential, personal protections and residential source reduction
    - Control Measures - citizen contact/notification; requiring source reduction through physical and environmental measures
- Risk Category 2 (Moderate)
  - Virus detected in mosquito samples
    - Surveillance - Increase mosquito surveillance in areas with positive traps
    - Information/Education - Release public health advisory; Emphasize source reduction, personal protection and disease symptoms
    - Control Measures - Larviciding of breeding sites around positive trap sites; Immediate abatement notices issued for source reduction/elimination; Seek further guidance from Commissioners' Court (CDC recommendation is to begin ground-based spraying around infected area at this time)

Proposed Collin County Guidelines for Phased Response (Contintued)

- Risk Category 3 (High)
  - Virus detected in multiple mosquito samples from different trapping sites OR confirmed human case(s)
    - Surveillance - Increase surveillance activities in adjacent areas where spread of virus is likely
    - Information/Education - Release public health warning; Warn the general public of probability of disease and provide guidance; Publicize any vector control measures within the target area
    - Control Measures - Seek funds to provide dunks and repellent to citizens at no cost in the target area; Seek further guidance from Commissioners' Court (CDC recommendation is to perform ground-based spraying around human cases, positive traps and expanded areas around those sites. They also recommend spraying at the maximum label rate. CDC recommends consideration of aerial spraying at this time)
- Risk Category 4 (Outbreak in Progress)
  - Multiple human cases AND increased/continued virus present in mosquito pools
    - Surveillance - Continue mosquito surveillance in areas of confirmed human cases
    - Information/Education - Public health emergency considered; Declaration of public health emergency/distribution of emergency alerts
    - Control Measures - Seek further guidance from Commissioners' Court (CDC recommendation is to perform ground-based spraying around clusters of human cases and aerial application in targeted zones)

CDC's Educational Message - 2013

THREE WAYS TO REDUCE YOUR WEST NILE VIRUS RISK

AVOID MOSQUITO BITES!

- Cover Up! Wearing long sleeve shirts, long pants and socks sprayed with repellent while outdoors can further help prevent mosquito bites. Avoid Mosquitoes! Many mosquitoes bite between dusk and dawn. Limit time outdoors during these hours, or be especially sure to use repellents and protective clothing.
- Spray! Spray insect repellent containing DEET (Look for N, N-diethyl-m-toluamide) on exposed skin when you go outdoors. Spray clothing with repellents containing DEET or permethrin. Products with a higher percentage of DEET (up to 50%) give longer protection. Don't spray repellent on skin under clothing. Don't use permethrin on skin.
- Use Repellent Carefully! Repellents containing DEET are very safe for adults and children when used according to directions. Don't put repellent on kid's hands because it may get in their mouth or eyes.

MOSQUITO-PROOF YOUR HOME!

Screens: Keep mosquitoes outside by fixing or installing window and door screens.
Drain Standing Water: Don't give mosquitoes a place to breed. A small amount of standing water can be enough for a mosquito to lay her eggs. Look around every week for possible mosquito breeding places.

Empty water from buckets, cans, pool covers, flower pots and other items. throw away or cover up stored tires and other items that aren't being used. Clean pet water bowls weekly. Check if rain gutters are clogged. If you store water outside or have a well, make sure it's covered up. Encourage your neighbors to do the same.

HELP YOUR COMMUNITY!

Dead birds help health departments track West Nile virus.
Check with local or state health department to find out their policy for reporting dead birds.

Questions?