

Austin-Travis County Health & Human Services Department



Environmental Health Services Division VECTOR PROGRAM



Photo from: Google Images

Goal



- Reduce human exposure to organisms that transmit pathogens (vectors).

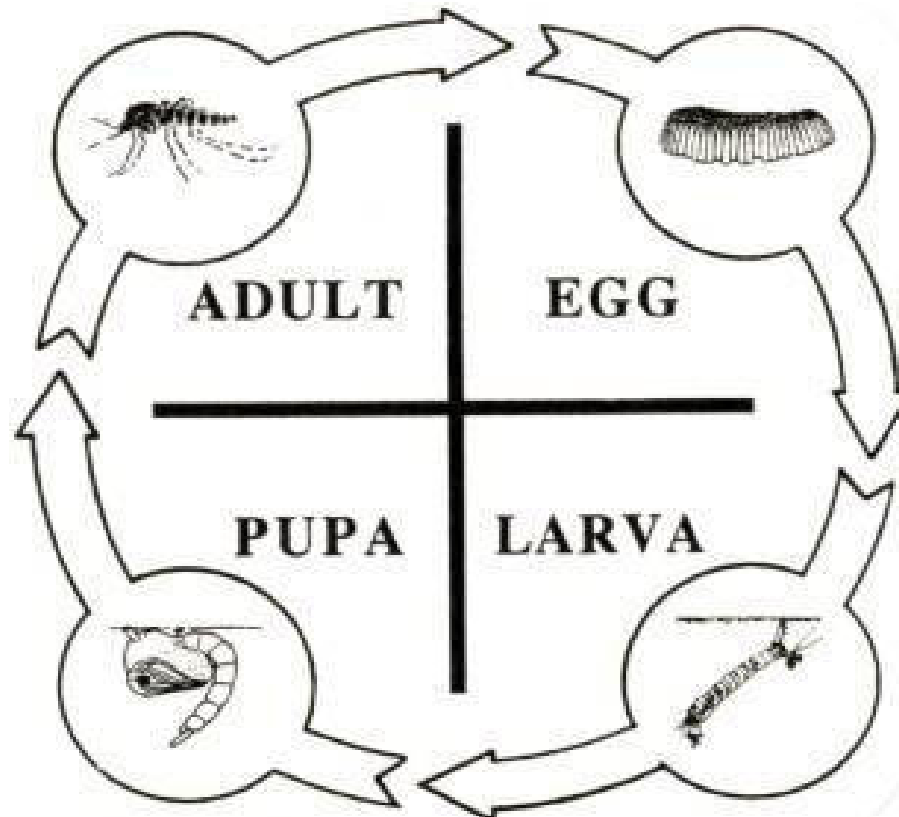


Integrated Mosquito Management (IMM)

- Site assessments
- Surveillance
- Public Education
- Application of control measures
- Evaluation of effectiveness
- Changes in tactics/execution



Life Cycle



DEFEND YOURSELF!



- Clean rain gutters and downspouts.
 - Cover or discard old tires.
 - Eliminate all standing stagnant water.
 - Clean birdbaths and wading pools weekly.
 - Keep grass and vegetation trimmed.
 - Store containers so they don't hold water.
 - Repair leaky faucets.
- Follow the 4 D's
 - Dawn
 - Dusk
 - Dress
 - DEET

Site Assessments



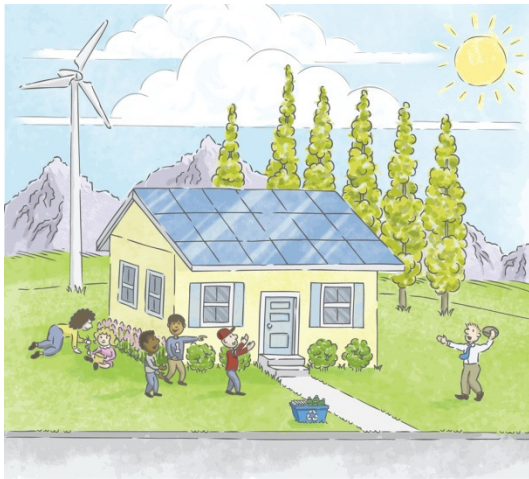
- Standing/stagnant water
- Dense vegetation
- Adult mosquitoes/larvae



Surveillance



- Adult mosquito collection
- Larvae collection



Surveillance (cont'd)

Mosquito Sampling Techniques



- Larvae
 - Dipper
- Adults
 - CDC Gravid trap
 - Submitted to DSHS lab



Surveillance (cont'd)



- Larvae

- Identify species
- GPS locations for GIS mapping
- Tailor larviciding to reduce dependence on adult mosquito control
- Historical records of seasonal mosquito activity

- Adult

- Use data to assess disease presence
- ID geographic risk areas
- Assess need for and timing of controls measures
- Monitor control measure effectiveness to improve prevention
- Better understand transmission cycles and vector species

Surveillance (cont'd)

- Mosquito's in Austin/Travis County of Public Health Importance
 - Transmit arboviruses that can cause illness to humans
 - Examples: West Nile Virus, Dengue, Chikungunya, Saint Louise Encephalitis
 - Culex sp.
 - Aedes sp.

Surveillance (cont'd)

- **Culex quinquefasciatus**
(aka) Southern house mosquito
 - **Female**
 - Dusk to dawn feeder
 - Prefers an avian blood meal but will also feed on other mammals
 - Lays eggs in rafts in stagnant, organic-rich water



Surveillance (cont'd)

- *Aedes albopictus* (Asian tiger mosquito)
- *Aedes aegypti* (Yellow fever mosquito)
 - **Female**
 - Day feeder
 - Prefers a human blood meal but will also feed on other mammals
 - Lays eggs singly in sides of water holding containers
 - Examples: flowerpots, spare tires

Biological Controls

(Source Reduction)

- *Gambusia affinis*
(Mosquito fish)



- B.t.i. (*Bacillus thuringiensis*)
 - Larvacide that kills mosquitoes during the larval stage or development. It is made from a naturally occurring bacterium in the soil. The product kills larvae by damaging their digestive system.



Biological Controls

(Source Reduction)

- FourStar (Briquets & Granular)
 - *Bacillus sphaericus* & *Bacillus thuringiensis* subspecies *israelensis*
 - Larvicide that kills mosquitoes during the larval stage or development
- Terminix ALLCLEAR ATSB® Mosquito Bait Concentrate
 - The special combination of fruit extracts in the formula acts as a bait to attract mosquitoes searching for a sugar meal, and the encapsulated garlic is a gut toxin

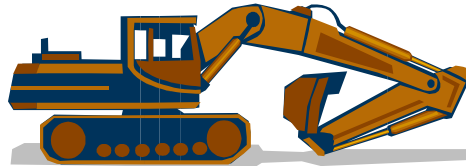
Cultural/Physical Controls

(Source Reduction)

- Stormwater Ponds
 - Retention/detention
 - Water quality



- Drainage
 - Land grading
 - Barrier placement



- Waste Disposal
 - Landfills
 - Sanitary sewer



- Maintenance
 - Lighting
 - Structural repairs



Chemical Controls

Adulticides

Applied with truck mounted ultra-low volume (ULV) cold fogging unit (limited basis)

- **Scourge**
 - Resmethrin
(synthetic pyrethroid)*
- **Bio-Mist**
 - Permethrin
(synthetic pyrethroid)*

* man-made version of the chemical found in chrysanthemum flowers

Larvicides

Applied at specific locations by a licensed applicator

- **Altosid** (pellets/briquettes)
 - Methoprene*

* insect growth regulator

Mosquito Misting Systems

- According to the EPA in November 25, 2014
 - “Outdoor residential misting systems have not yet been studied sufficiently to document their effectiveness in controlling mosquitoes or other yard and garden pests, nor have they been scientifically proven to control or prevent the spread of West Nile Virus or other diseases.”
- The American Mosquito Control Association discourages mosquito misting systems due to:
 - Unnecessary insecticide use
 - Lack of efficacy data
 - Non-target impacts (bees, dragon flies)
 - Promotion of insecticide resistance (when using Pyrethrins or other chemical control)
 - Risk of pesticide exposure
 - Incompatible with integrated pest management practices

Thermal Fogger



ULV Cold Fogger



Plants to Consider

- In planning your garden consider planting these plants
 - Marigolds
 - Basil
 - Lemon Balm or Horse Mint (Is invasive, consider planting in pots)
 - Catnip (Is invasive, consider planting in pots)
 - Lavender
 - Floss Flower

Helpful Sites

- American Mosquito Control Association
 - <http://www.mosquito.org>
- Texas A&M Agrilife Extension
 - <http://citybugs.tamu.edu>
- EPA Mosquito Control
 - <http://www2.epa.gov/mosquitocontrol>
- National Pesticide Information Center
 - <http://npic.orst.edu/index.html>

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Environmental Health Services Division Rodent & Vector Program



Questions



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Program website:<http://www.austintexas.gov/department/rodent-and-vector-control>