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ENGINEERING & PROPERTY MANAGEMENT

Fall Cankerworm: A Blight on Charlotte's Trees

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Outline

- What is it?
- How know if have it?
- What's the big deal?
- What do about it?

Cankerworms

- **Spring and fall**
- **Wingless females**
- **Caterpillars active at same time of year**
- **Cause same damage**

Cankerworms

Spring

- 2 sets of prolegs
- Adults emerge late Feb-Mar
- Eggs laid in bark crevices, Feb-Apr

Fall

- 2 ½ sets of prolegs
- Adults emerge Dec-Jan
- Eggs laid on twigs Dec-Mar

*** Caterpillars hatch early spring***

Fall Cankerworm Biology

- Native insect: Canada-GA
- 1 generation per year

Fall Cankerworm Biology

- Egg ~3-4 months
- Caterpillar ~ 5-6 weeks
- Pupa ~ 7 months
- Adult ~ 1+ month

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Fall Cankerworm

- Female moth is wingless
- Climbs trees to lay eggs
- Eggs are laid in early winter (Dec – Jan)
- Cold snap triggers emergence

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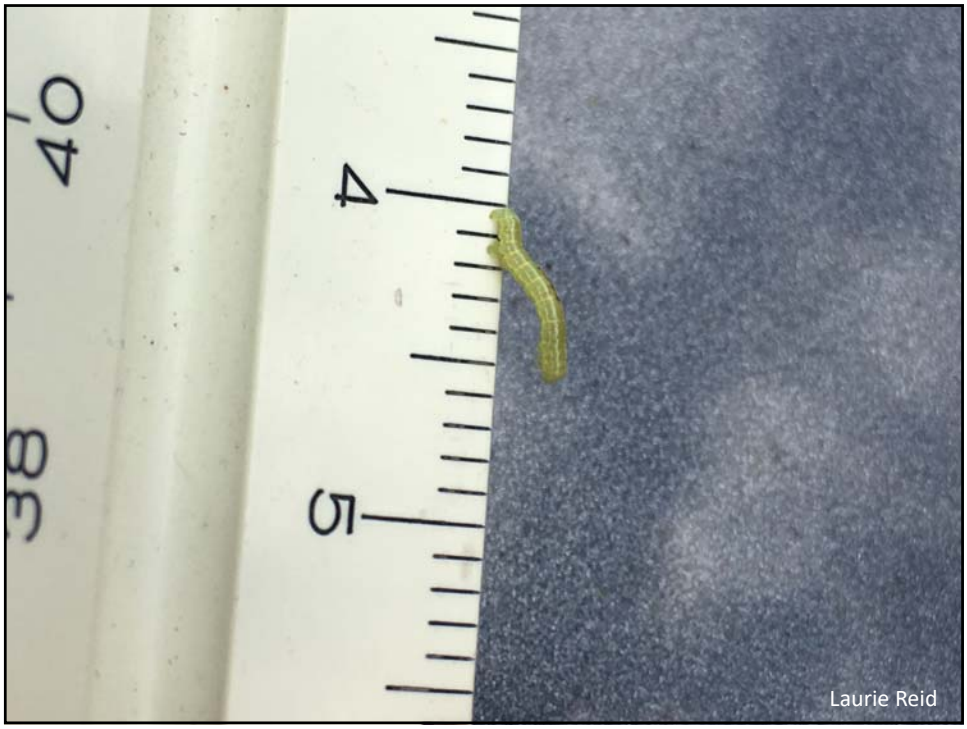
- Can lay 100-200 eggs
- Laid in masses on twigs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Laurie Reid


UGA5019072

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Caterpillars

- Hatch in early spring as buds swell
- Can "balloon" to other trees
- Messy / annoying

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Caterpillars

- **Feed on <u>oaks</u>, maple, cherry, apple, ash, dogwood…**
- **Feeding occurs for 5-6 weeks**
- **1 inch long**
- **Drop to ground: pupal stage**

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Pupa

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The Problem

- Active in Charlotte since 1987
- Natural enemies not causing population decline
  - Why??
  - Willow oak canopy
  - Low urban habitat complexity

Control

- Natural enemies
- Aerial spraying
- Banding program

Natural Controls

- *Telenomus alsophilae* wasp (egg parasitoid)
- Caterpillar hunter / Fiery searcher beetle (*Calasoma,* Carabidae)
- Late spring frost kill foliage

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Natural Controls

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Aerial Spraying

- ***B.t.* (*Bacillus thuringiensis* var. *kurstaki*)- Dipel, Thuricide**
- **Specific to caterpillars and does not harm beneficial insects, wildlife, or humans**

Aerial Spraying

- ***B.t.***
- **Specific to caterpillars**
- **Apply second week of feeding**
  - **caterpillars small (less than 1/2 inch)**
  - **damage minor**
  - **leaves have fully expanded**

Charlotte: Aerial Spraying

- **1992**
  - **1,300 acres, $50,000**
- **1998**
  - **5,580 acres (x2), $200,000**
- **2008**
  - **65,000 acres, $1.18 million**

Cankerworm Banding

- Traps female
- No insecticides
- Effective when widely used and maintained
- > 91 females/trap = high infestation

Banding

- Tanglefoot
- Bug Barrier

Tanglefoot Band

- More material
- Component system
- Vulnerable to leaves
- Least expensive

Tanglefoot Band

- Tanglefoot: $15.00 for 1 lb tub
- Plastic wrap: $17.00/ 1,000 feet
- or Tarpaper: $25.00 for 144 feet
- Cotton batting/insulation

Stik-n-Stop Band

Midwood Tree Banding

Stik-n-Stop Band

- **Midwood Tree Banding Prices:**
- **Small (0-6 in) $15**
- **Medium (6-15 in).....$25**
- **Large (15in - 2.5 ft).....$35**
- **Extra Large (>2.5 ft).....$45**

Bug Barrier Band

- All-In-One system
- Less Vulnerable to Leaves
- More Expensive
- Squirrel Damage

Banding: Issues

- Timing
  - After trees defoliate…
    …but before females emerge

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Banding: Issues

- Timing
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- Maintenance
  - Bands with debris

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Cankerworm Banding

Cankerworm Banding

Banding: Issues

- Timing
  - After trees defoliate…
    …but before females emerge
- Maintenance
  - Bands with debris
- Tanglefoot availability

A Community Effort

- 1990's
  - City bands 5,000+ street trees
  - Community support
- Tree Banding Neighborhood Matching Grant
  - up to $3,000


Why Control a Native Insect?
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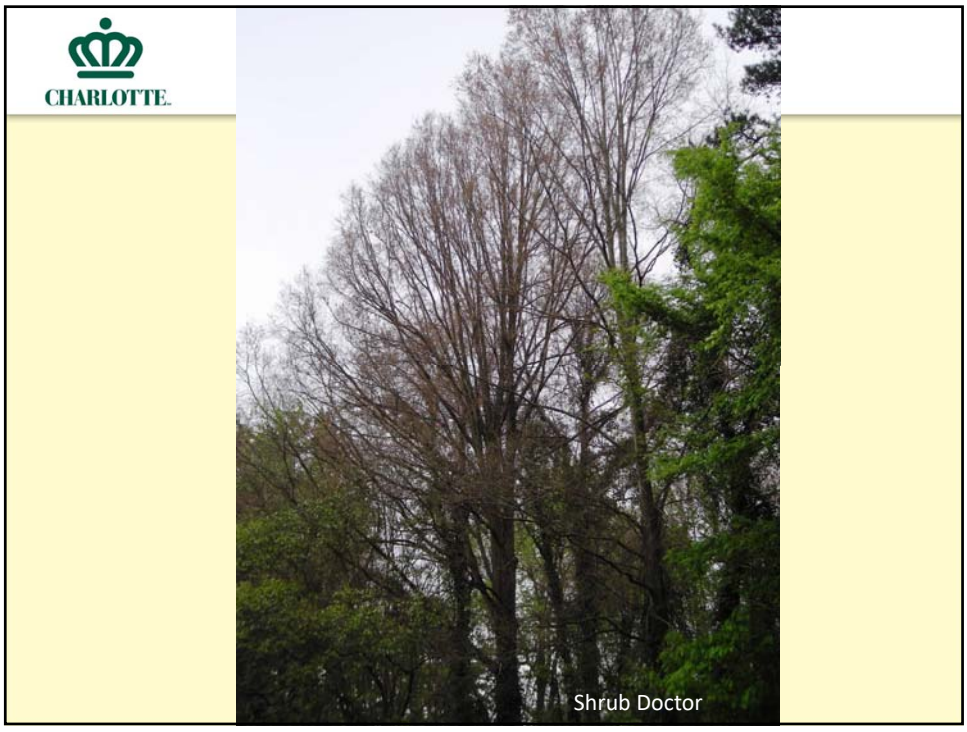
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Shrub Doctor

Why Control?

- Repeated (2-3 yrs) defoliation impacts tree health
  - Young, newly transplanted, or weakened trees susceptible to injury from defoliation

Why Control?

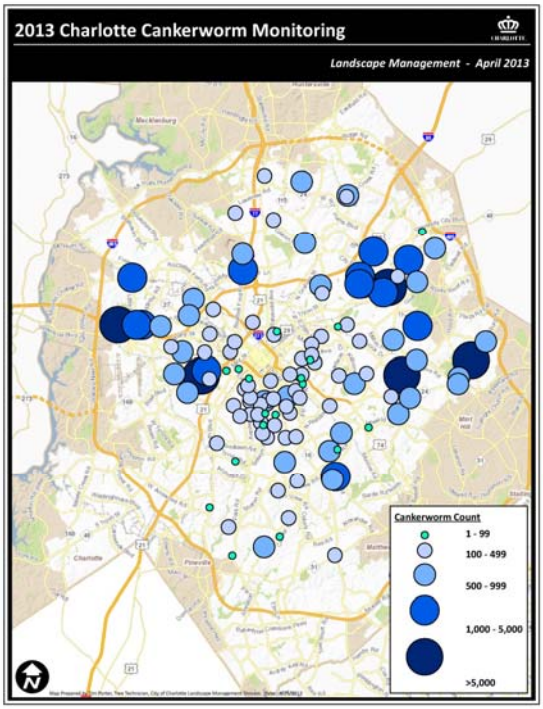
- Repeated (2-3 yrs) defoliation impacts tree health
  - Young, newly transplanted, or weakened trees susceptible to injury from defoliation
  - Branch dieback, reduced growth, tree death
  - Add stress (drought, site conditions, age, other I&D issues)

Why Control?

- Repeated defoliation impacts tree health
- $$ to removal dying trees
- Loss of tree canopy
- Ecosystem services, heat island effect, reduced energy savings

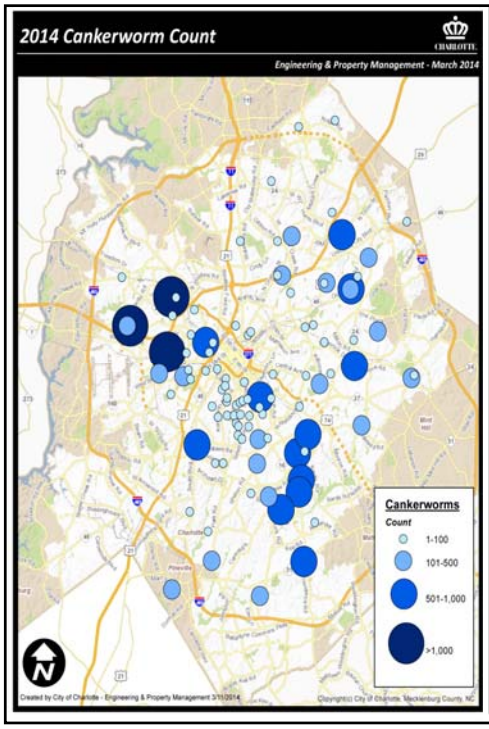
Control in Forest?

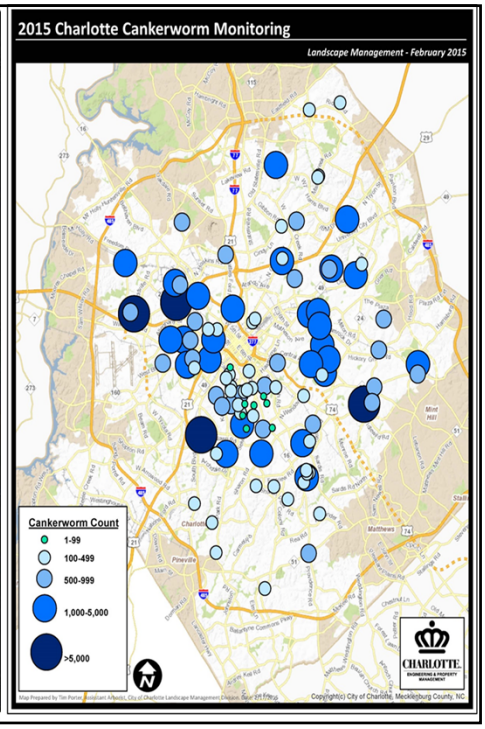
- No control needed
  - Tend to be short lived
  - Natural controls within few years
  - Species diversity
    - North Carolina State University: lack of plant diversity = outbreak



Monitoring

- ~135 traps
- Count # females trapped





Conclusion

- Natural controls not reducing outbreak
- Can't predict areas with outbreak
- Banding program
  - Private owners cooperation
- Aerial application
  - $$
  - Citizen concerns

Thank You!

- Don McSween
- Tim Porter
- Landscape Management

Questions

Laurie Reid
Assistant City Arborist
City of Charlotte

Ldukes@charlottenc.gov
(980) 259-2771