New Jersey

State Forestry Services

Rosa Yoo

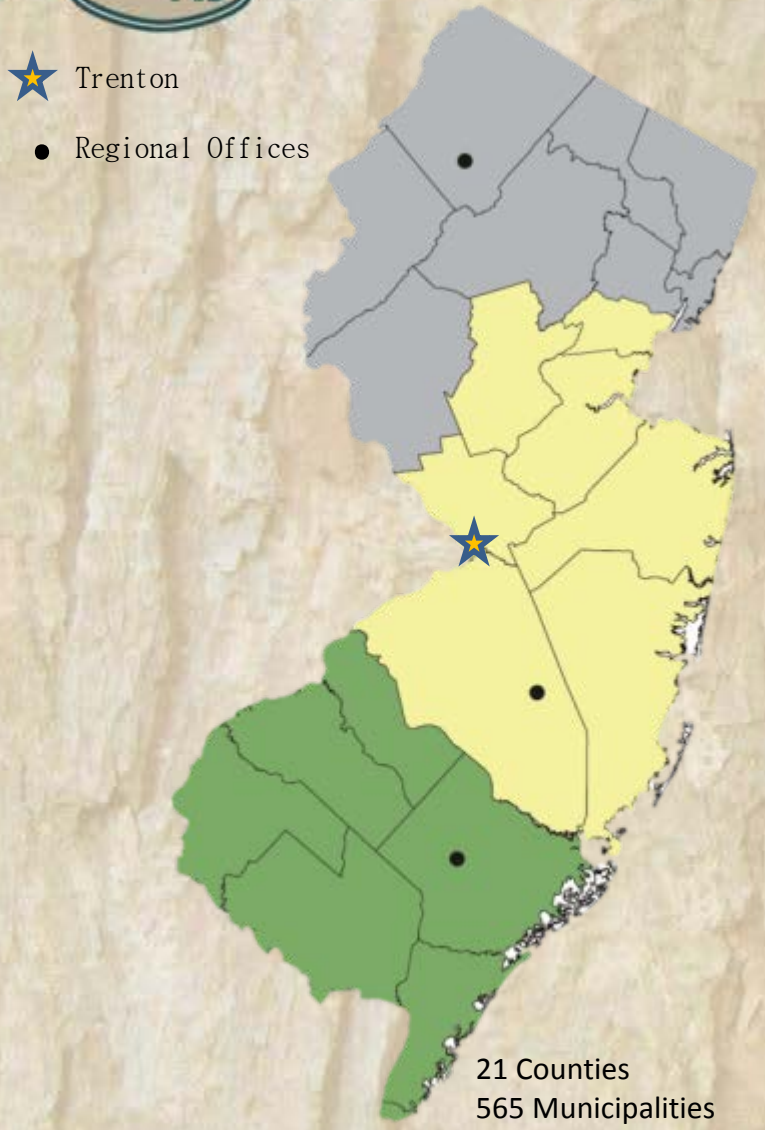
Forest Health Program

609-984-3861

Rosa.yoo@dep.nj.gov

NJ Invasive Species Strike Team April 1, 2015 Duke Farms, Hillsborough, NJ

Forest Health Program in New Jersey

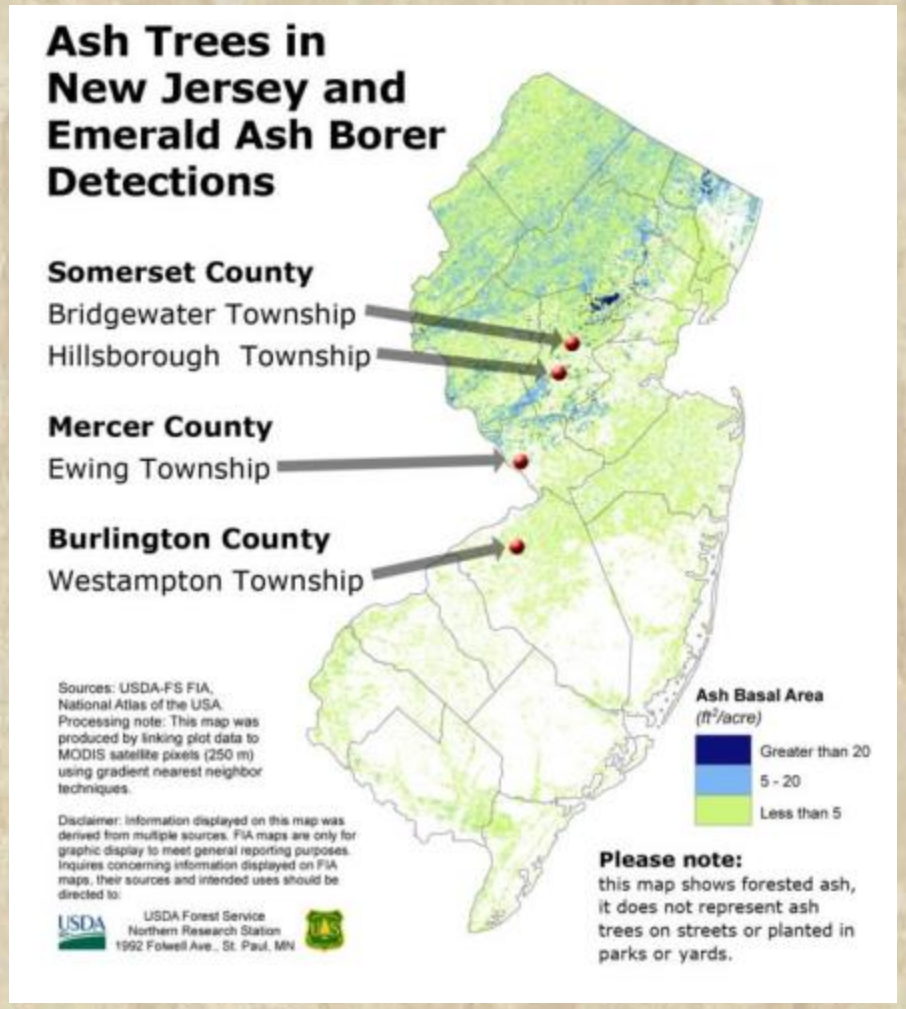


- Emerald ash borer
- Beech bark disease
- Hemlock woolly adelgid
- Southern pine beetle
- Gypsy moth
- Thousand cankers disease
- Spotted lanternfly
- Sirex woodwasp
- Asian longhorned beetle
- Winter moth
- Asian gypsy moth
- Oak wilt

Emerald ash borer in NJ

Detected in four municipalities

- Infested trees in Somerset County
- Purple panel trap in Burlington and Mercer Counties



www.emeraldashborer.nj.gov

Emerald Ash Borer (*Agrilus planipennis*)

- Develop an EAB Task Force
- Establish 3 detection/trap trees
  girdled May 2014, peeled January 2015
- Over 400 purple panel traps deployed in 2014
- Write a statewide EAB Response Plan
- Continue monitoring and outreach
- Delimiting Survey
  - Create NJ specific brochures and handouts

www.emeraldashborer.nj.gov

Emerald Ash Borer (*Agrilus planipennis*)

Crown dieback

Woodpecker damage

www.emeraldashborer.nj.gov

Emerald Ash Borer (*Agrilus planipennis*)

S-shaped gallery under the bark

S-shaped galleries under bark crack

Emerald Ash Borer (*Agrilus planipennis*)

Here are the facts:

- EAB will kill 99% of ash trees
- NJ has over 24 million ash trees
- Spreading costs over multiple years is easier to manage than paying all at once
- Areas within 10-15 miles of a known EAB find are at high risk for EAB infestation
- White fringetree is a host to EAB

w w w . e m e r a l d a s h b o r e r . n j . g o v

Emerald Ash Borer (*Agrilus planipennis*)

Management Options

Under SLAM (SLow Ash Mortality), suppression activities are combined and integrated. Such activities may include:

- Systemic insecticides
- Removal of infested ash trees before EAB adults emerge;
- Use of trap trees (girdle then cut down);
- Harvesting/thinning ash trees to reduce ash phloem (EAB food)

Emerald Ash Borer (*Agrilus planipennis*)

Management Options

EAB Response Plan
- Inventory
- Prioritize removal of already declining/dead ash trees
- Select high value ash trees to save using chemical treatments
- Budget
- Wood utilization/disposal
- Restoration

Beech Bark Disease

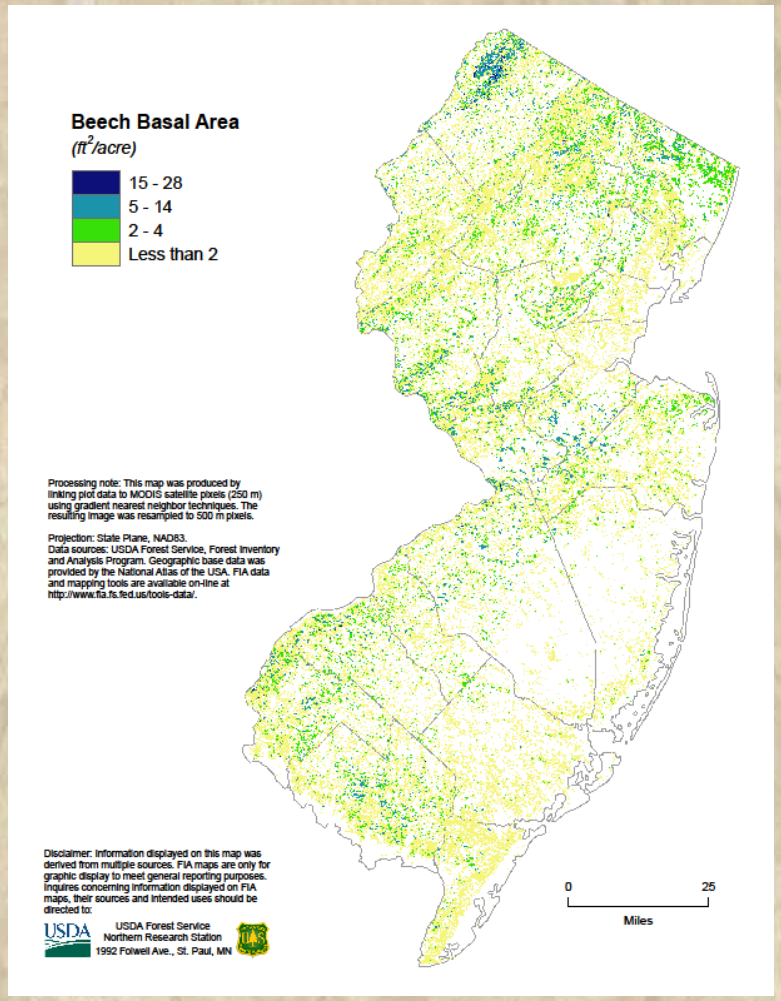
Cryptococcus fagisuga Lind. (scale),
Nectria coccinea var. *faginata* (fungus)

Host: American Beech
Found: Northern NJ
Origin: Europe

Beech Bark Disease

Cryptococcus fagisuga Lind. (scale), *Nectria coccinea* var. *faginata* (fungus)

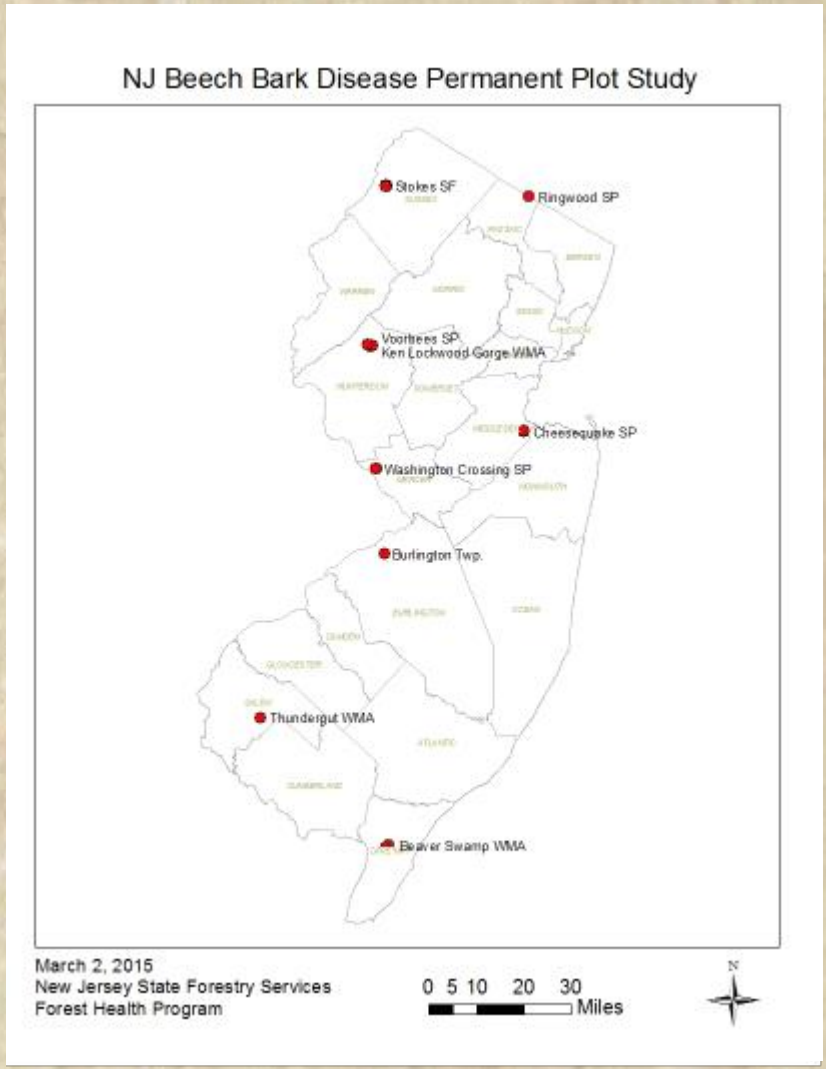
- American beech provides value:
  - Wildlife
  - Landscape
  - Timber
- Populations concentrated in northern and western NJ
- NJ has over 2.8 million beech trees
- Currently no effective treatments against BBD
- BBD resistant beech seed orchard in West Virginia



Beech Bark Disease

Cryptococcus fagisuga Lind. (scale),
Nectria coccinea var. *faginata* (fungus)

- Establish 9 permanent plots
  - –4 North, 3 Central, 2 South
- Continue investigation of resistant American beech
- Delineate BBD range and resistance in NJ
- Most southerly BBD find was in Hunterdon County



Hemlock Woolly Adelgid (HWA)

(Adelges tsugae Annand)

Host: Eastern and Carolina Hemlock
Found: Statewide
Origin: Asia

Photos courtesy of insectimages.org

Hemlock Woolly Adelgid (HWA)

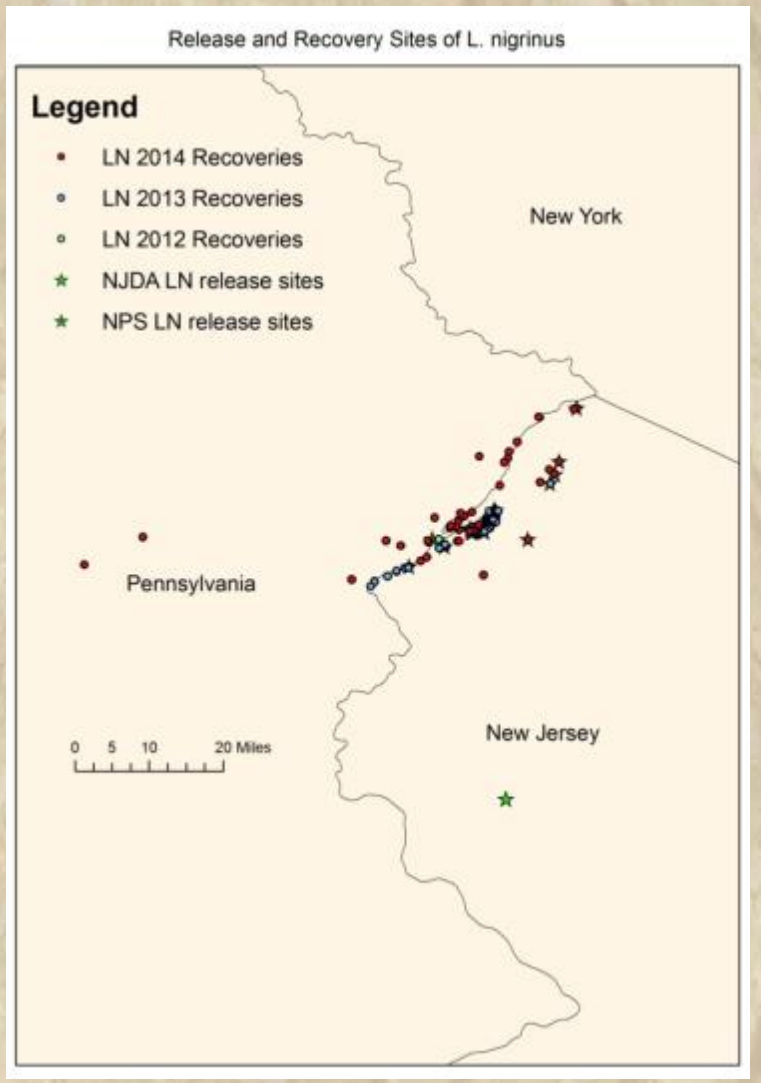
(Adelges tsugae Annand)

- 2014 chemical treatment on State lands
- Signs of “resistant” trees in NW NJ

Biotic Control:

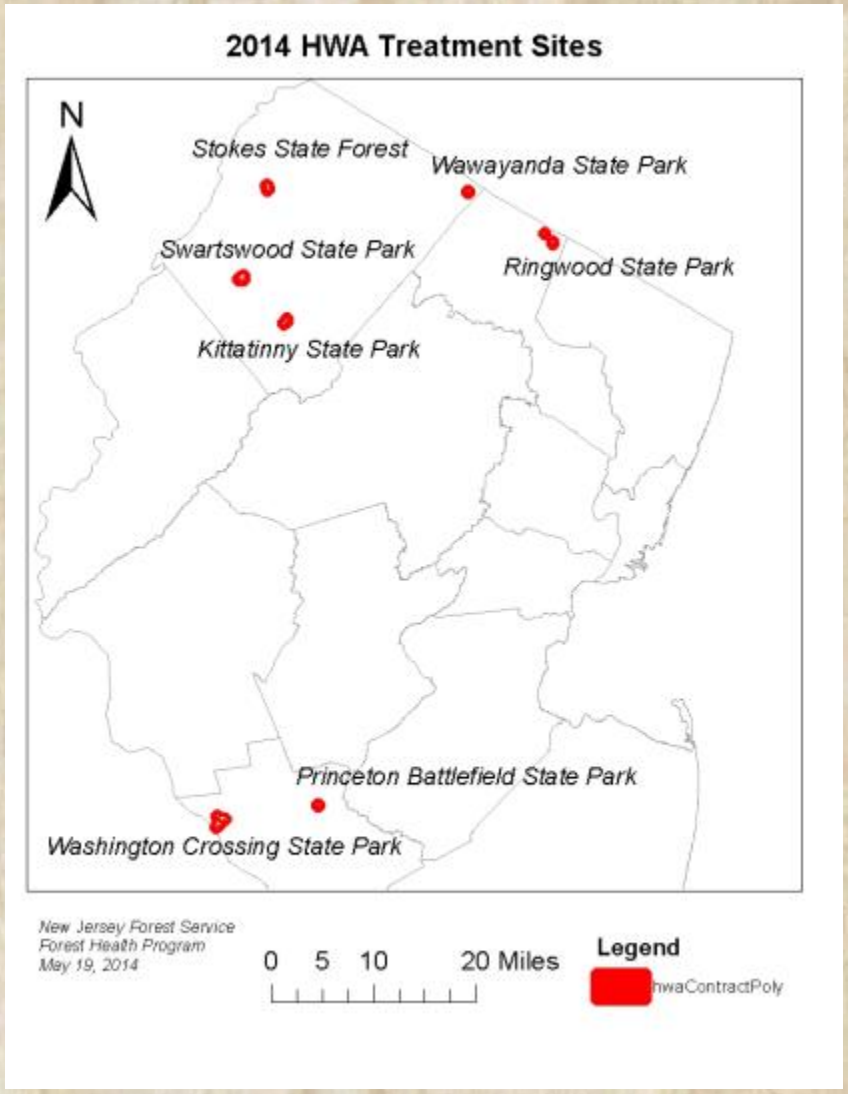
- *Laricobius nigrinus* released
- Successful in NW NJ

Photos courtesy of insectimages.org



Hemlock Woolly Adelgid (HWA)

(Adelges tsugae Annand)



2014 HWA Treatment Summary

Parcel Name	# Trees	Treatment Type
Kittatinny	22	Soil Injection
Princeton	13	Soil Injection
Ringwood	8	Soil Injection
Ringwood	4	Tables
Stokes	42	Tablets
Stokes	76	Trunk Injection
Swartswood	45	Soil Injection
Washington Crossing	27	Soil Injection
Wawayanda	0	----
Total	237	

Hemlock Woolly Adelgid Treatment

(Adelges tsugae Annand)

- Soil Injection (1-two Root Injector)
- Bark spray
- Soil drench
- Trunk injection
- CoreTect tablets

imidacloprid and dinotefuron products

Hemlock Woolly Adelgid (HWA)

(Adelges tsugae Annand)

2013-2014 Winter Mortality Study:

- Cooperate with NJ Dept. of Agriculture
- Feb/March 2014 – observed sisten morality
- June 2014 – observed progredien mortality
  Results submitted to Virginia Tech
    - 5 trees; 10 branches from each tree
      maximum of 20 HWA per branch counted

    - 5 sites – Stokes SF Stony Lake, Stokes SF Lake Oquittunk, Flatbrook WMA, DEWA Peter's Canoe Camp Access Rd, DEWA Van Campens Glen

    - 91-98% sisten mortality

- Write a Hemlock Resource Recovery Plan

Southern Pine Beetle

(Dendroctonus frontalis)

Host: Pines

Found: Southern NJ

Origin: Southern US

www.southernpinebeetle.nj.gov

Southern Pine Beetle

(Dendroctonus frontalis)

- Poses a significant threat to ecological habitat, aesthetic value and recreational opportunities
- SPB continues to damage globally rare plant communities in the Pinelands
- Increases wildfire risk by intensifying fuel loads and restricting access

www.southernpinebeetle.nj.gov

Southern Pine Beetle

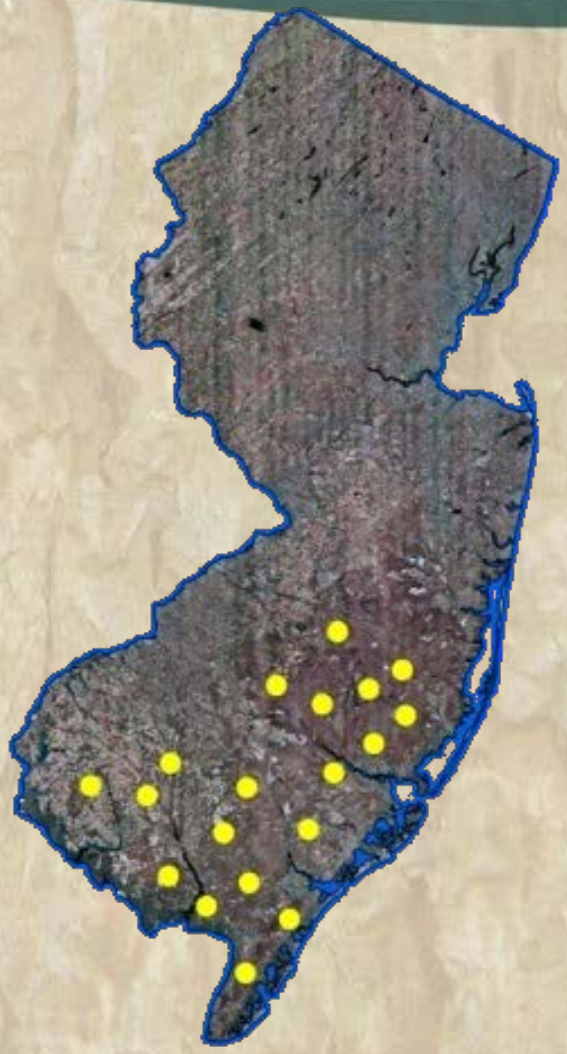
(Dendroctonus frontalis)

- Monitoring:

  SPB traps (18) are placed in six -(6) southern NJ counties

  – 6 weeks in April/May

  – count SPB and Clerids
- Aerial Survey – weekly during the summer
- Ground crews identify suppression sites



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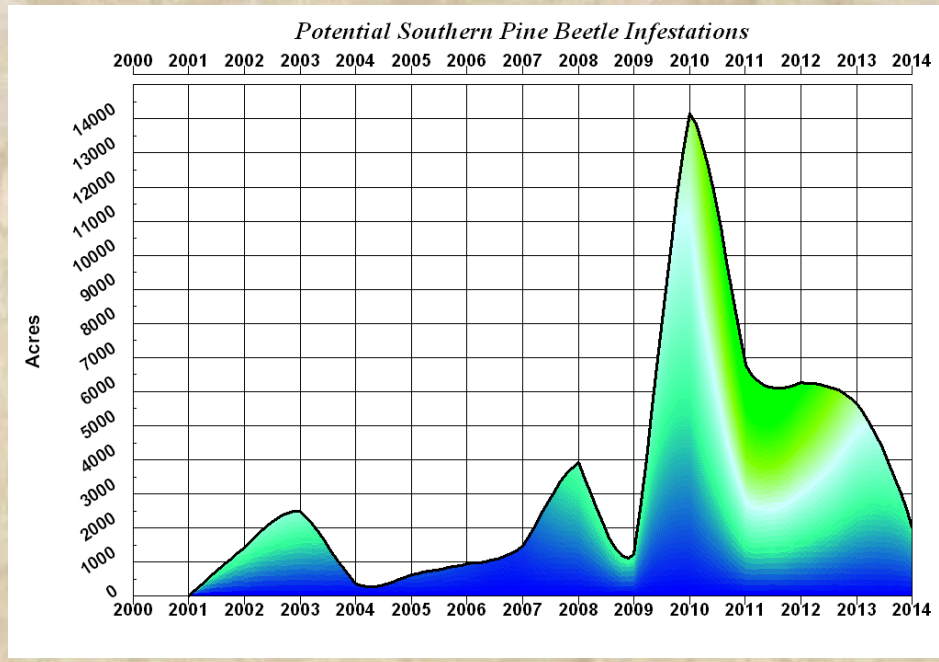
Southern Pine Beetle

(Dendroctonus frontalis)

SPB Program:

- Establish an SPB science advisory panel
- Cooperate with Natural Lands, Forest Fire, Division of Parks and Forestry, Division of Fish and Wildlife, USDA Forest Service
- Suppress SPB hot spots
- Monitor SPB spot growth
- Develop a cost share program to assist private landowners
- Implement preventative forestry measures such as thinning and prescribed burns



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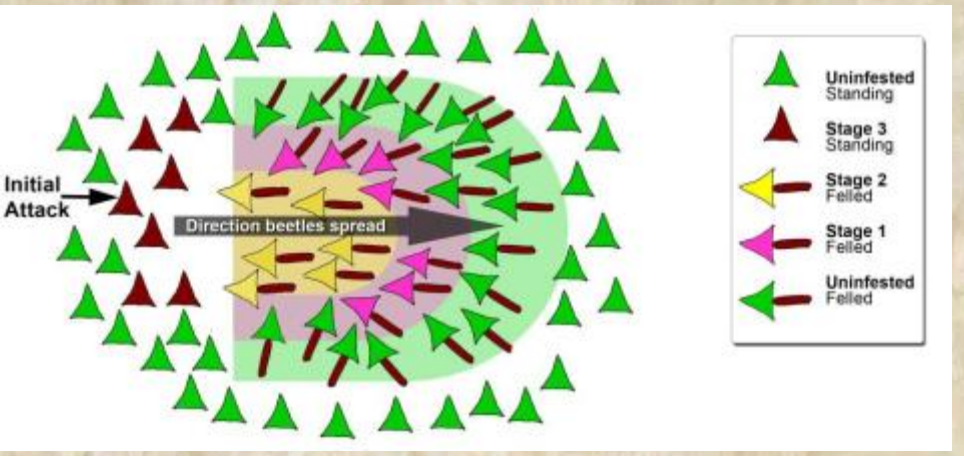
Southern Pine Beetle

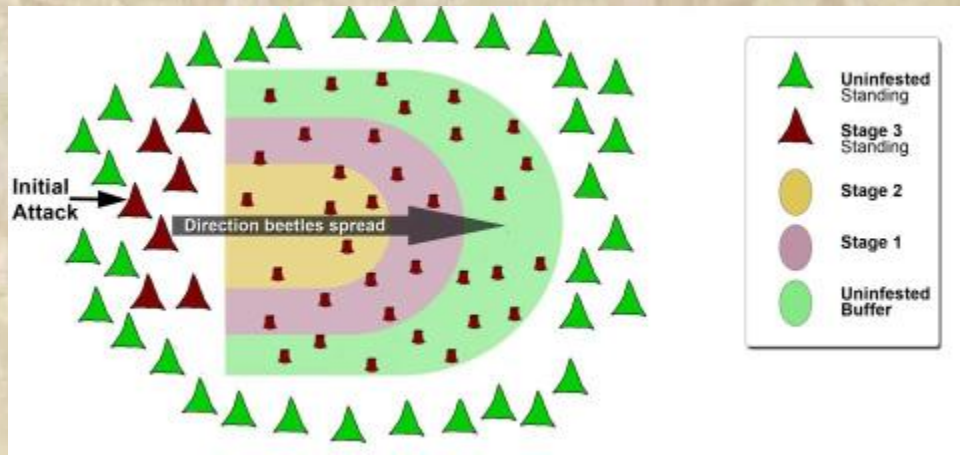
(Dendroctonus frontalis)

Cut-and-Leave Suppression



- Disorients beetles and disrupts population growth
- Found successful in prior suppression efforts across the US and Central America

Cut-and-Salvage Suppression



- Decreases fire hazard
- Disrupts all life stages
- Preferred method

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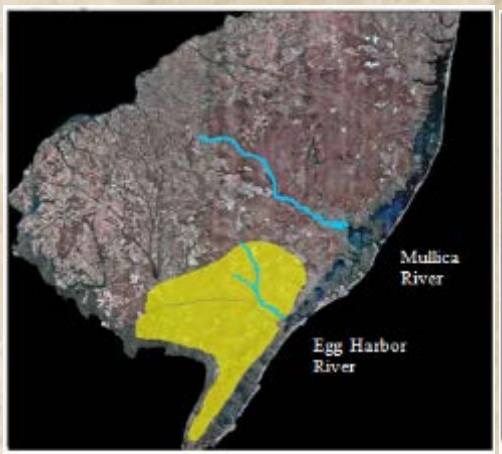
Southern Pine Beetle

(Dendroctonus frontalis)

2002-2007 SPB Growth



2009 SPB Growth

2010 SPB Growth

2015 SPB Growth

- The polar vortex slowed the movement of SPB, but did not stop it
  - The polar vortex caused greater SPB mortality inland but exhibited significantly reduced effects on coastal areas
- SPB was discovered in New York on Long Island in late September 2014

www.southernpinebeetle.nj.gov

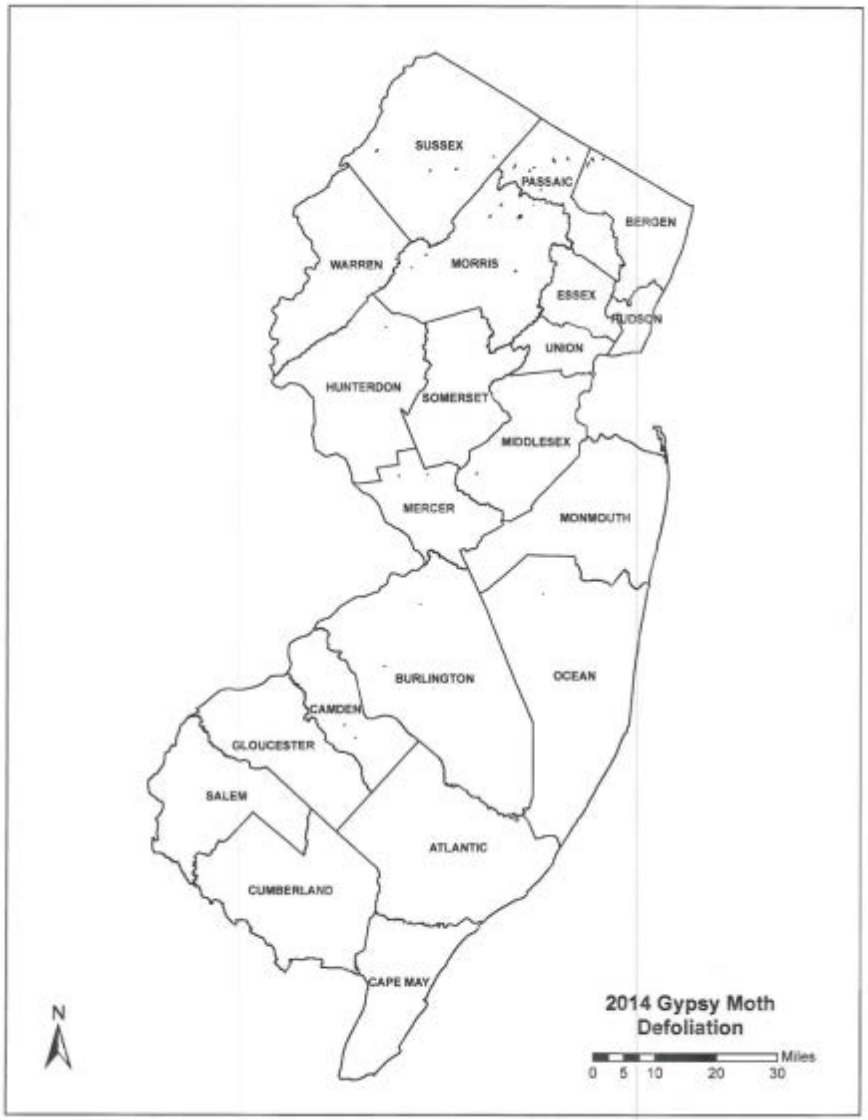
Gypsy Moth *(Lymantria dispar)*

Host: 100's of species –
Oaks, aspen
Found: Statewide
Origin: Europe and Asia

Photos courtesy of insectimages.org

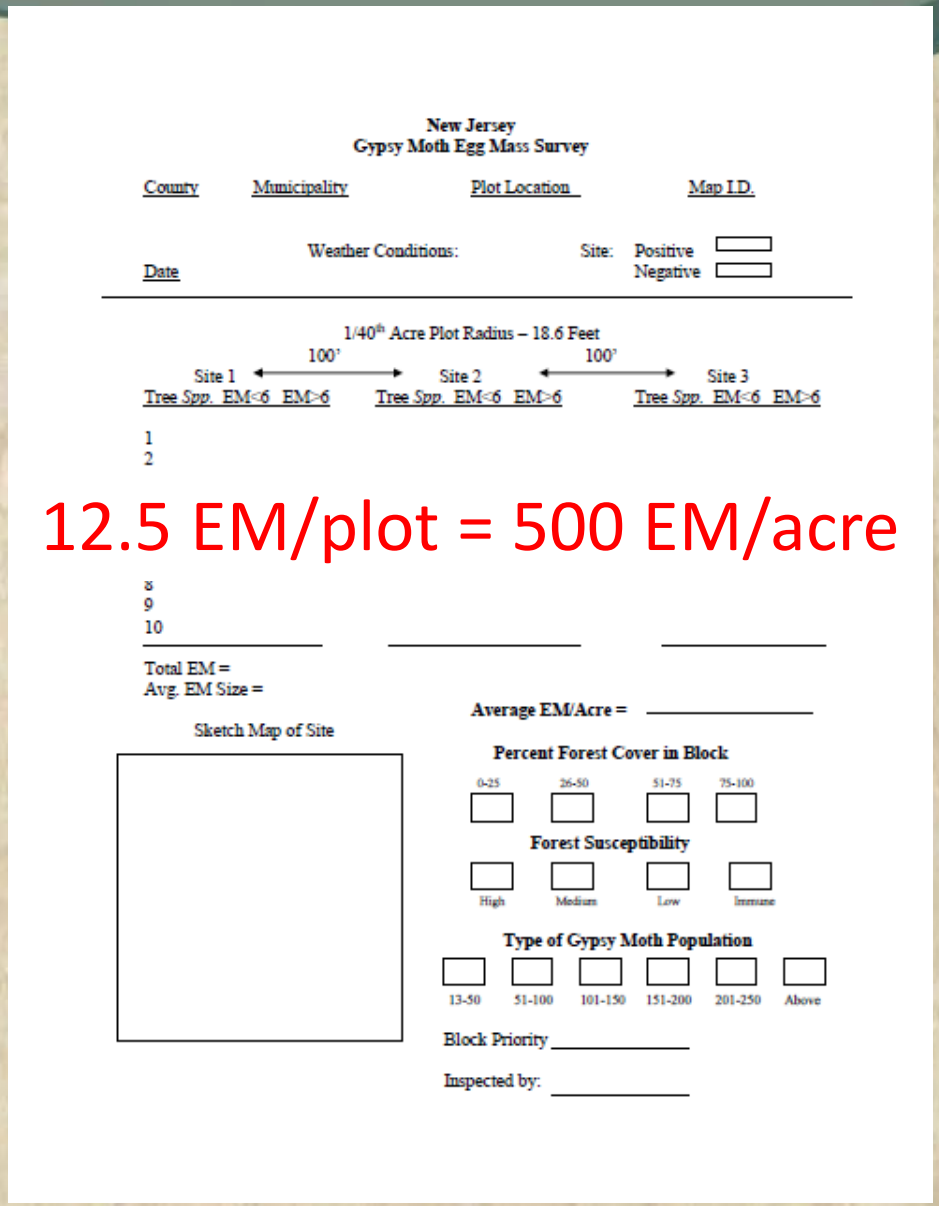
Gypsy Moth *(Lymantria dispar)*

- 1,330 acres defoliated in 2014
- No suppression program for 2015 on state lands
- NJ Department of Agriculture proposed approximately 500 acres for suppression
  - Aerial application of BtK
- Bio-Control: Virus, fungus, parasitic wasp and fly



Gypsy Moth *(Lymantria dispar)*

- Gypsy moth egg mass survey conducted in Sept/October
- High-use areas
- >500 egg masses per acre threshold to propose suppression action (>5 acre area)
- Submit proposal through internal review
- NJDA offers a voluntary program for municipalities and counties



New Jersey
Gypsy Moth Egg Mass Survey

County Municipality Plot Location Map I.D.

Date Weather Conditions: Site: Positive ☐ Negative ☐

1/40th Acre Plot Radius – 18.6 Feet

100' 100'

Site 1 Site 2 Site 3

Tree Spp. EM<6 EM>6 Tree Spp. EM<6 EM>6 Tree Spp. EM<6 EM>6

1
2

12.5 EM/plot = 500 EM/acre

8
9
10

Total EM =
Avg. EM Size =

Average EM/Acre = _____

Sketch Map of Site

Percent Forest Cover in Block

0-25 26-50 51-75 75-100

Forest Susceptibility

High Medium Low Immune

Type of Gypsy Moth Population

13-50 51-100 101-150 151-200 201-250 Above

Block Priority _____

Inspected by: _____

LURKING AROUND THE CORNER…

Thousand Cankers Disease

Pityophthorous juglandis (walnut twig beetle)
Geosmithia morbida (fungus)

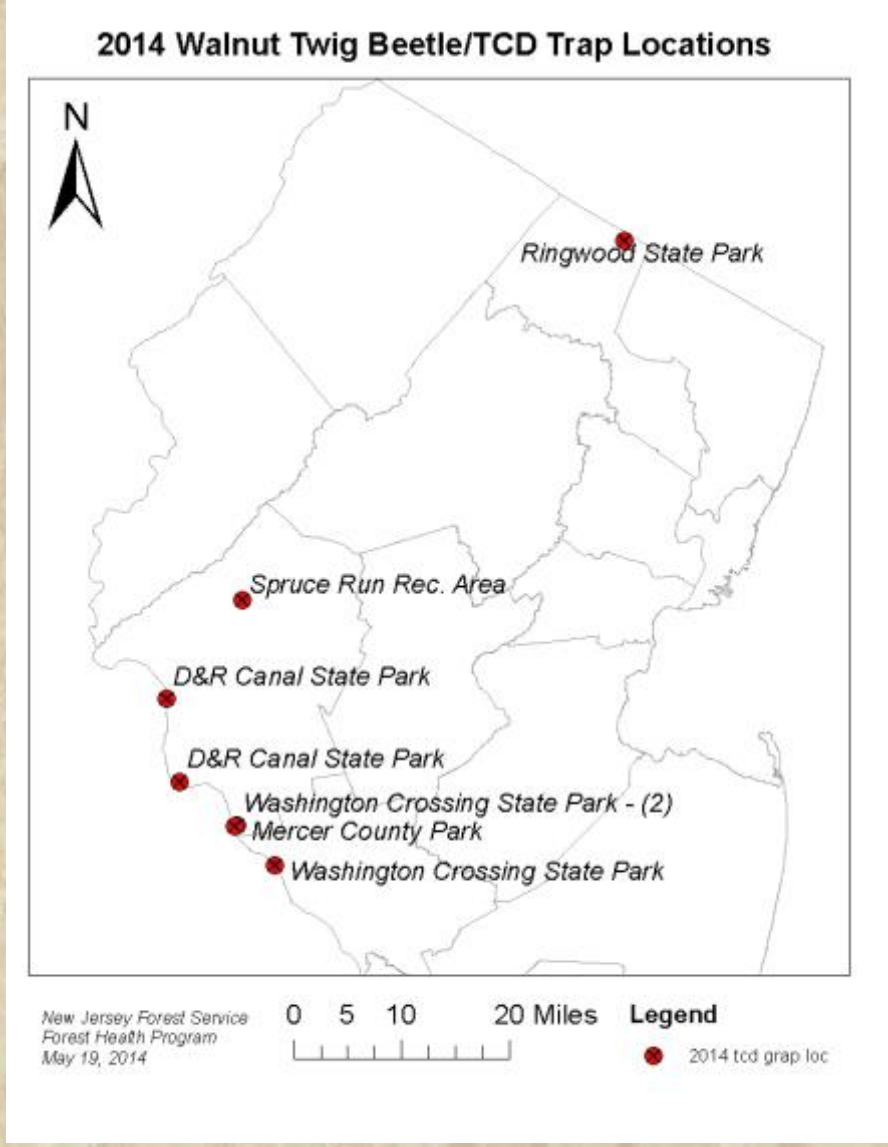
Host: Walnut
Closest Find: PA-Bucks (2011), Chester (2014), and Lancaster (2014) County
MD – Cecil County (2014)
Origin: Western US
Monitor and Trapping

Photos courtesy of insectimages.org

Thousand Cankers Disease

Pityophthorous juglandis (walnut twig beetle)
Geosmithia morbida (fungus)

- 8 traps in NJ (NJDA) – 2 in Mercer County, 5 in Hunterdon County, and 1 in Passaic County
- Concentrated traps along the Delaware River
- Deploy in April, Take down in June. Check every 2 weeks
- No WTB found



Spotted lanternfly (*Lycorma delicatula*)

Host: over 70 species – grape, stonefruit, apple, ailanthus, pines
Closest Find: PA - Berks County (2014)
Origin: Asia
Monitor and possible trapping

Photos courtesy of insectimages.org

Sirex woodwasp (*Sirex noctilio)*

Host: Pine
Closest Find: Established in Northern PA and Western NY
Origin: Eurasia
Monitor/Visual surveys

Photos courtesy of insectimages.org

Asian Longhorned Beetle
(*Anoplophora glabripennis)*

Host: Maple, Willow, Ash, Poplar, Sycamore, Birch
Closest Find: NY – LI, Brooklyn, Queens
(Eradicated from NJ in 2013)
Origin: Asia
Monitor/Visual surveys

Photos courtesy of insectimages.org

Winter moth
(*Operophtera brumata)*

Host: Oaks, maples, Birch, Apple, Blueberry
Closest Find: NY – SI, LI, Rockland County
Origin: Europe
Monitor/Visual surveys

Photos courtesy of insectimages.org

Winter moth look-alikes

Bruce spanworm

Fall Cankerworm

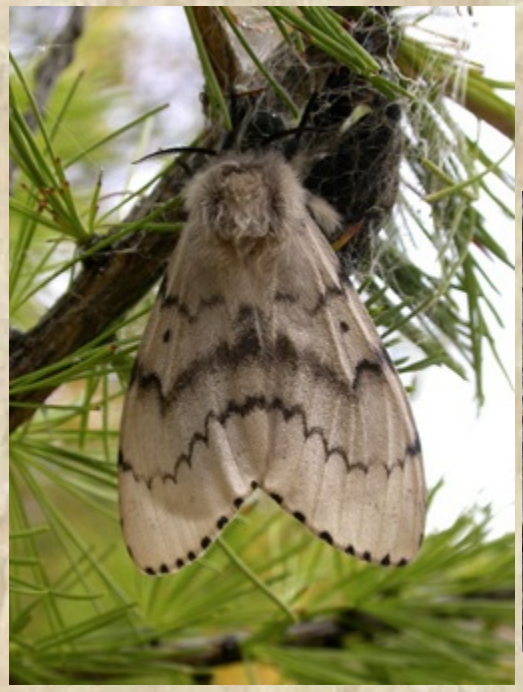
Winter Moth

- Adult moths are all active around the same time November – January/February
- Bruce spanworm and winter moth can hybridize

Photos courtesy of insectimages.org

Asian gypsy moth (*Lymantria dispar asiatica)*

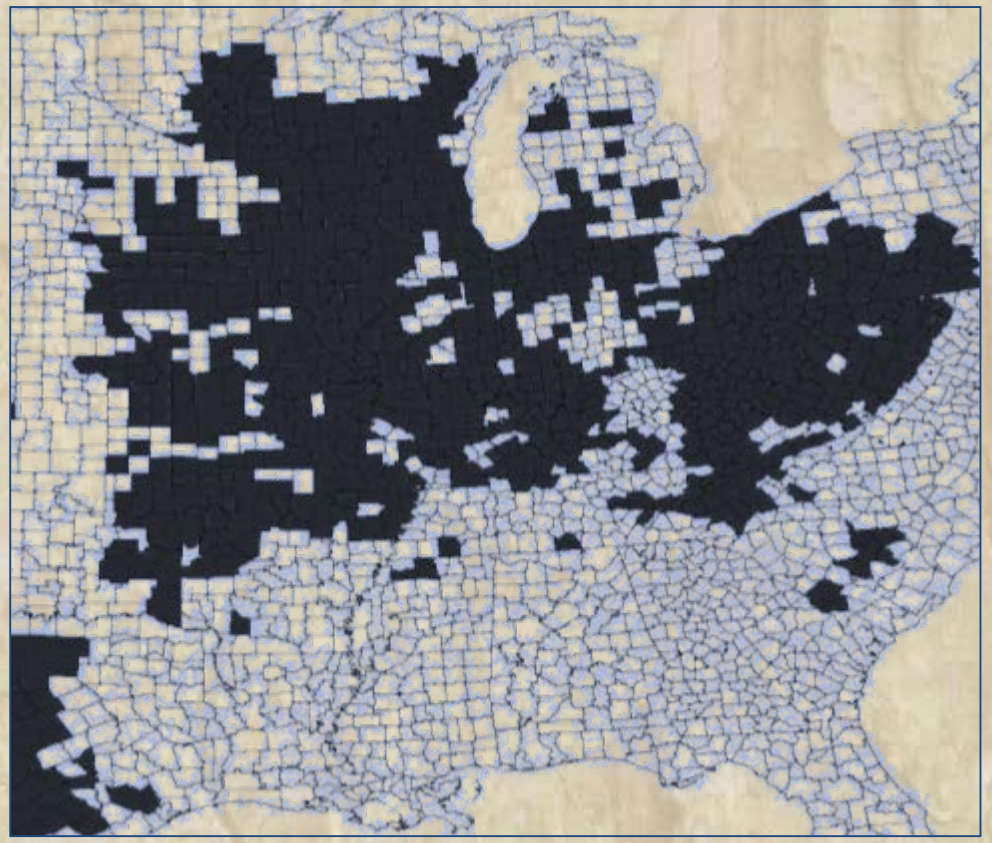
Host: over 600 species – oak, willow, larch, poplar, alder, evergreens
Closest Find: Washington State and Oklahoma
Origin: Asia
Monitor and Trapping



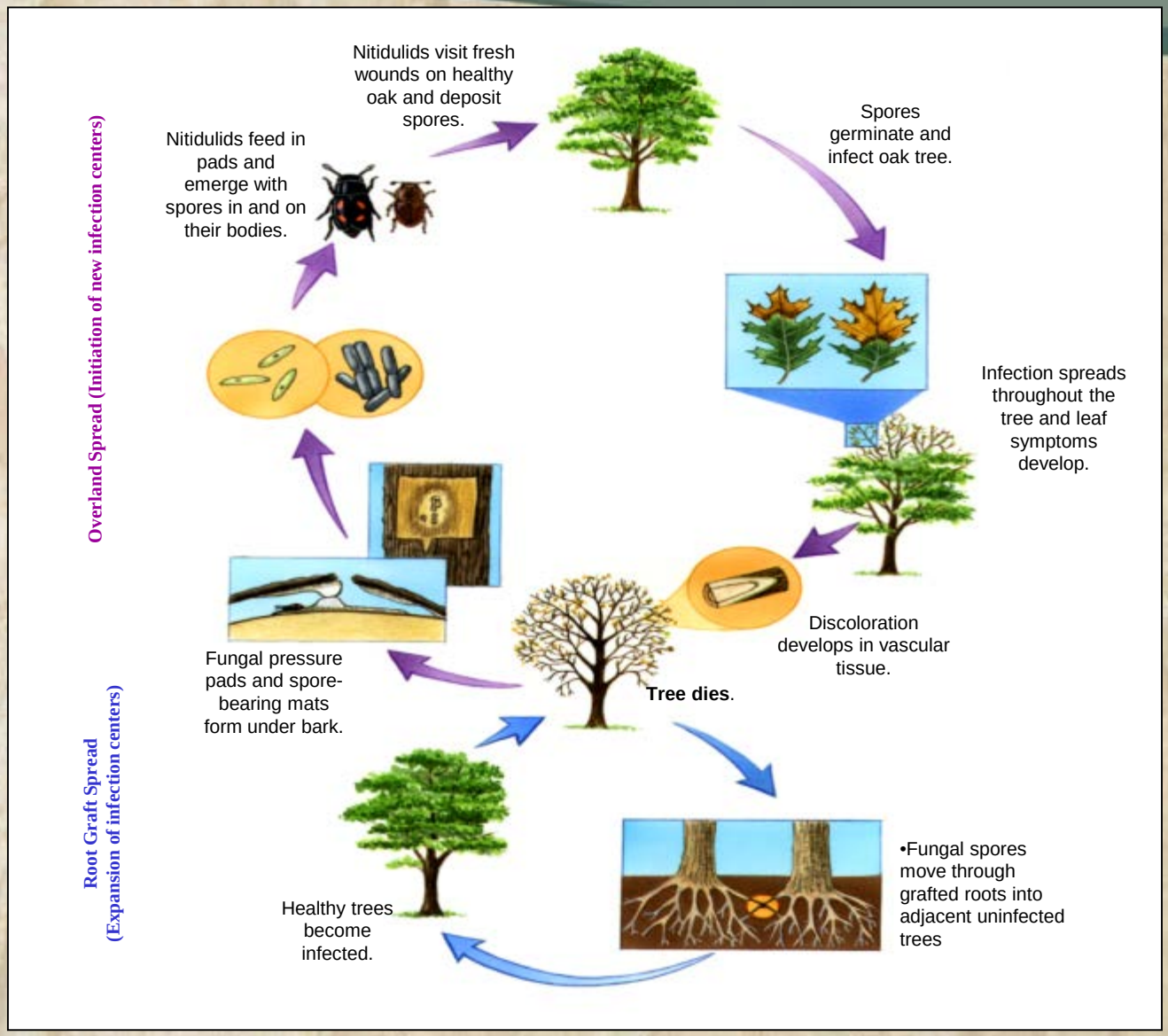
Photos courtesy of insectimages.org

Oak wilt (*Ceratocystis fagacearum*)

Host: Oak
Closest Find: Western PA
Origin: Unknown
Monitor/Visual surveys



Oak wilt (*Ceratocystis fagacearum*)



Questions?

Rosa Yoo
Assistant Regional Forester
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