Emerald Ash Borer Invasion
Kennett Township
Potential Risks and Management Plans

Environmental Advisory Council
Version 1.0
April 15, 2015

Agenda

- Understanding the Emerald Ash Borer invasion
  - History
  - Why should we care?
- What has been done so far?
  - Township risk characterization
  - Identification of potential management plans
- Next steps
  - 2015 planning and actions
    - Use the USDA Playbook -- Establish the EAB task force
    - Planning, cost estimation, choosing best fit management scenario, funding identification, vendor qualification and selection
- Board of Supervisors and public feedback

Board of Supervisors Participation Today

- Approval to design and establish an EAB Taskforce as recommended by USDA guidelines
  - Organization including USDA and PA task force inclusion
  - Investigate possibility of regional taskforce
  - Role definitions (who does what with whom)
  - Identification of potential candidates to head EAB task force
    - Urban forest management background
    - Previous experience with EAB management
    - Project management experience
  - EAB Task Force to be operating by July 1, 2015
- Authorization for Township forester to stand up EAB buffer warning systems
  - Estimation of costs
  - Use of Township personnel to establish perimeter detection
  - Work to complete in May 2015 at the latest
- Provide the BOS with an understanding that the EAB invasion will require substantial funding and full-time attention to be successful

EAB Pheromone Trap

EAB Trap Trees

Understanding the Emerald Ash Borer Invasion History

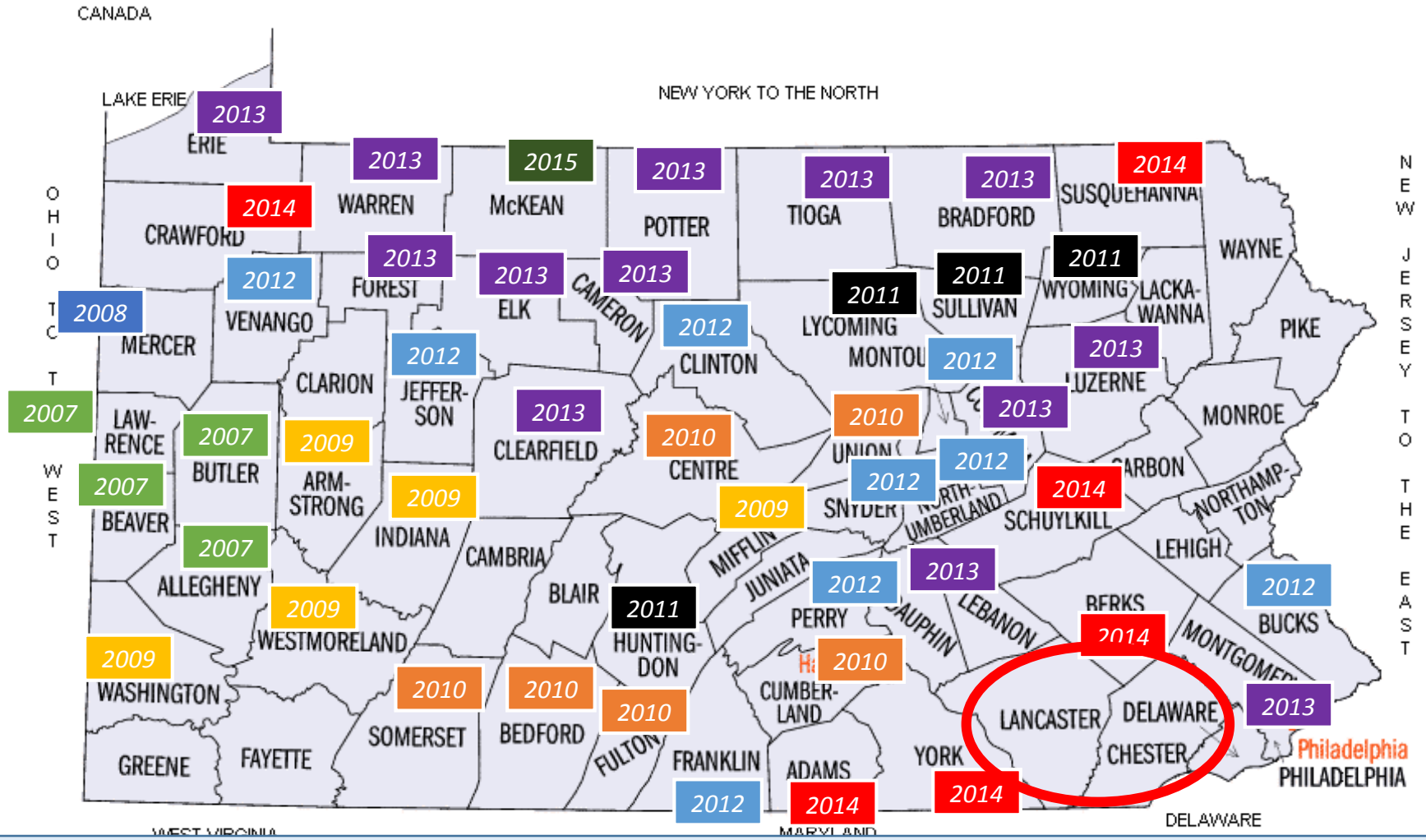
- EAB, an invasive beetle that destroys ash trees
- Emerald Ash Borer is widespread
  - The emerald ash borer has killed more than 40 million ash trees in Michigan, Ohio, Indiana, Illinois, Maryland, Virginia, Pennsylvania, West Virginia, Missouri, Wisconsin, Minnesota, Kentucky, New York, Tennessee, Iowa, Kansas, Connecticut, Massachusetts, New Hampshire, North Carolina, Georgia, and Colorado
- June 27, 2007, Emerald Ash Borer confirmed in Pennsylvania
- The federal quarantine on the EAB and external quarantine on firewood from outside Pennsylvania are still in effect.
  - This means it is legal to move firewood, ash, and the insect between counties inside the state, but it is not legal to move non-compliant items out of the state, nor is it legal to move non-compliant firewood into the state.
- Chester County and Kennett Township at risk

Emerald Ash Borer

Larval form destroys trees

EAB Invasion Has Demonstrated Its Destructive Path – It Is a Very Vicious Adversary

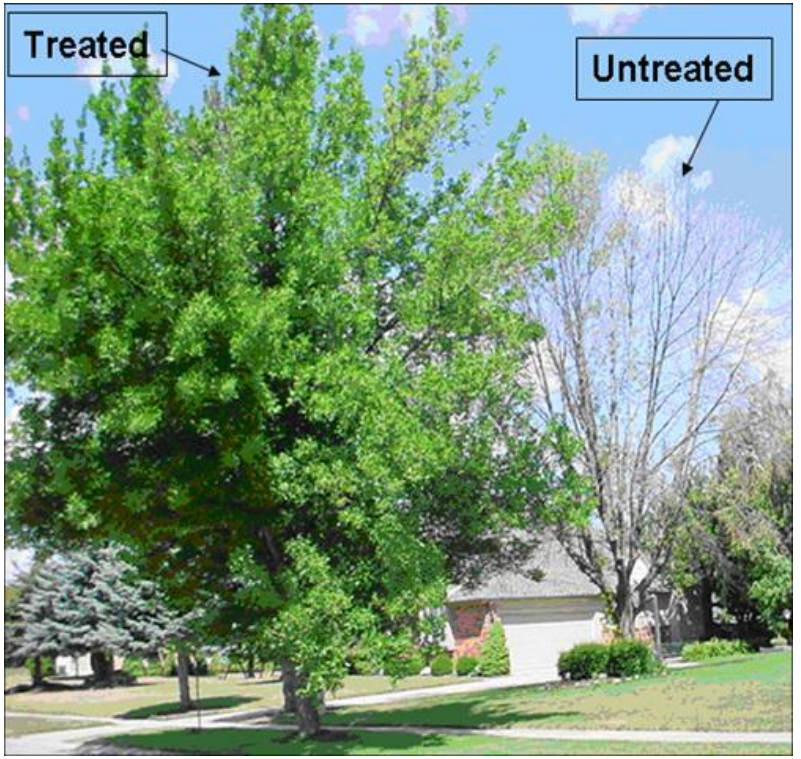
Progression of EAB Infection in Pennsylvania
56 of 67 Counties Confirmed Infections through 2/2015



Lancaster and Chester County Are in the destructive path of the EAB

Understanding the Emerald Ash Borer Invasion
Why Should We Care?

- Chester County and Kennett Township are next
- The EAB is 99% effective in destroying ash trees
- Environmental impact is substantial
  - Loss of canopy cover
  - Ground cover open to less desirable species
  - Increased water run-off
  - Increased flooding and water management issues
  - Air quality due to lack of trees scrubbing air and producing oxygen
- Township residence directly impacted
  - Potential impact to healthy living conditions
  - Dead trees are hazardous and require special handling; brittle tree remains
  - Chemical treatment of trees require professional (not a DIY option)



Untreated trees will not survive

Left Unchecked the EAB Invasion Will Negatively Alter the Township

Understanding the Emerald Ash Borer Invasion Why Should We Care?

- Good news – Problem is not new
  - 13 years prior history from other states – what works, what does not
  - Management models exist for adoption
  - Chemical treatment and biological controls (e.g., parasitic wasps)
  - USDA, Universities (e.g., Penn State, Purdue, Michigan), Federal grant programs,
- Management is a million dollar plus problem
  - Cost estimation models by management scenario
  - Return on Investment models – trade-offs for each scenario
  - Treatment options –
    - Chemical ground soaking, direct trunk injection
    - Let ash trees die over the next 7 years – expense of removal plus environment impacts
    - Replacement – tough long-term management issue and replacements will not replace the losses for 50 years at best
  - Not just a government issue, public needs to actively participate
  - Full-time management problem; volunteer and part-time not viable
  - Need to be ahead of the problem

Direct Chemical Injection

Biologics (Parasitic Wasps)

EAB Invasion Playbooks Have Been Developed Over the Last 13 Years
Addressing the EAB Invasion Will Be Time Consuming and Expensive

What Has Been Done So Far? Township Risk Characterization

- Ash tree study conducted March-April 2014 (Ebert and Holt)
- Included bike roads and 4 trails, approximately 40 miles travel
- Ash trees greater than 6 inches DBH (Diameter at Breast Height) included; trees 30 feet or more from road or trail were ignored
- Quality of trees was only noted in some instances
- Results
  - 759 ash trees along 32.6 miles of roads
  - 114 ash trees Anson Nixon along trails

Initial Study Conducted to Begin to Understand the Depth of the EAB Problem

Representative Cost Estimate and DBH Retained
This is an Expensive Problem

Scenario		Township Roads $				Anson B. Nixon Park $				Total $		
	1 Year	5 Years	10 Years	15 Years	1 Year	5 Years	10 Years	15 Years	1 Year	5 Years	10 Years	15 Years
Remove All	$0	$152,874	$283,638	$283,638	$0	$19,347	$37,220	$37,220	$0	$172,221	$320,858	$320,858
Replace All	$0	$309,398	$547,314	$547,314	$0	$43,985	$78,724	$78,724	$0	$353,383	$626,038	$626,038
URBAN SLAM	$0	$41,136	$87,451	$124,034	$0	$4,877	$11,028	$17,152	$0	$46,013	$98,479	$141,186
Treat All	$0	$200,626	$423,486	$627,216	$0	$22,918	$51,245	$79,289	$0	$223,544	$474,731	$706,505
Remove Unsafe Ash	$0	$19,456	$302,756	$302,756	$0	$1,845	$39,443	$39,443	$0	$21,301	$342,199	$342,199
Replace Unsafe Ash	$0	$39,693	$549,240	$549,240	$0	$5,042	$76,406	$76,406	$0	$44,735	$625,646	$625,646
Replace >12	$0	$290,714	$513,125	$522,016	$0	$38,606	$69,176	$70,334	$0	$329,320	$582,301	$592,350
Replace <12	$0	$223,483	$459,730	$640,788	$0	$27,971	$63,846	$91,976	$0	$251,454	$523,576	$732,764
Replace <24	$0	$274,452	$516,013	$597,608	$0	$41,702	$74,788	$80,876	$0	$316,154	$590,801	$678,484

Scenario	Township Roads DBH Retained				Anson B. Nixon Park DBH Retained				Total DBH Retained			
	0 Year	5 Years	10 Years	15 Years	0 Year	5 Years	10 Years	15 Years	0 Year	5 Years	10 Years	15 Years
Remove All	14808	4720	0	0	2005	574	0	0	16,813	5,294	0	0
Replace All	14808	5760	2489	3552	2005	752	489	626	16,813	6,512	2,979	4,178
URBAN SLAM	14808	15136	15437	15671	2005	2138	2289	2379	16,813	17,275	17,727	18,050
Treat All	14808	15366	15986	16405	2005	2264	2524	2783	16,813	17,631	18,509	19,188
Remove Unsafe Ash	14808	14233	0	0	2005	1992	0	0	16,813	16,225	0	0
Replace Unsafe Ash	14808	14417	1810	3024	2005	2016	279	492	16,813	16,433	2,089	3,516
Replace >12	14808	6475	3475	4596	2005	959	614	774	16,813	7,433	4,089	5,370
Replace <12	14808	14316	14182	14590	2005	2057	2066	2140	16,813	16,372	16,249	16,730
Replace <24	14808	9684	7958	8695	2005	1003	895	1070	16,813	10,687	8,853	9,766

Used Purdue Standard EAB Cost and DBH Impact Models developed for USDA
Estimates 9 different management scenarios; does not include personnel costs
Only shown as representative estimates of different management plans; not the full cost
Costs estimated to be approximately double of representative scenarios; 15 year outlook $1M
Does not include private lands expenses

Detailed Checklist of EAB Activities Recommendations from USDA

- Familiarize yourself and your staff with EAB—what the insect looks like, what signs & symptoms to watch for, what ash trees look like, why we're concerned.
- Form an EAB Readiness Team (EAB Task Force)
- Various team members can carry out the steps below as well as many other preparedness tasks.
- Inform your BOS and other local decision makers about the threat of EAB and the importance of thorough preparation.
- Review your tree ordinance.
- Make sure it includes authority to deal with infested trees on private property.
- Consider adding provisions to restrict firewood movement.
- If you don't have a tree ordinance, start this process as soon as possible.
- Determine your risk
- Start with current tree inventory and assess risk on private property with a quick drive-by survey
- Determine your management strategy & estimate costs
- Use your inventory data and cost/benefit analysis to make treatment, removal & replacement decisions.
- Communicate cost information to local elected officials and other decision makers.
- Assess your budget. If funds won't cover treatment, removal, replacement costs, begin seeking budget increases, alternative funding mechanisms and/or partnerships.
- Make a public awareness plan to include media contacts, messages, strategies.
- Survey public and private ash trees in the community for signs of EAB.
- EAB surveying can be coordinated with a tree inventory.
- Determine location of waste wood processing/staging site; make necessary arrangements.
- Become familiar with EAB regulations concerning ash residue.
- Investigate wood utilization options
- Pre-select qualified tree care companies; pre-arrange tree removal contracts.

2015 Next Steps -Time to Plan

Start	Finish	Task
Apr 2015	May 30, 2015	Establish warning / detection devices on the township borders forming buffer area
May 2015	Jul 1, 2015	Establish a task force with full-time urban forest leadership; Write job description (May); Develop staffing plan (Jun) Establish next 3 month budget and obtain funding approval from BOS (Jun) Establish 2015 Execution plan (June 2015)
Jun 2015	Dec 2015	Establish Communication Plan and Execute
Jun 2015	Dec 2015	Review, draft ordinance / final tree ordinance updates (disposal, transportation)
Jun 2015	Jul 2015	Identify funding sources and partners Qualify vendors (tree disposal, chemical treatment, others) Identify funding sources (USDA grants, PA grants, County funding)
Jun 2015	Aug 30, 2015	Size the township EAB problem Expand survey data to meet grant application requirements Localize Purdue assessment models (treatment costs, % ash tree coverage) Determine the population density of ash trees in Kennett Township
Aug 2015	Sep 30, 2015	Determine alternatives approaches Explore alternative scenarios of addressing the Emerald Ash Borer (EAB) Determine the impact of the EAB infection under different scenarios Using short list, what are the costs of implementation of different scenarios What is the timing of the expenditures Determine disposal process and designated areas
Jun 2015	Dec 2015	Provide the Board of Supervisors quarterly feedback reports on progress EAC & Task Force prioritized recommendations and impact summary Communication plan – public assistance and cooperation, internal Township

Board of Supervisor Discussion and Recommendations

- Approval to design and establish an EAB Task Force as recommended by USDA guidelines
  - Organization including USDA and PA task force inclusion;
  - Investigate possibility of regional taskforce
  - Role definitions (who does what with whom)
  - Identification of potential candidates to head EAB task force
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Is this our future?