



**ILLINOIS
FIRST DETECTOR**

**SAFEGUARDING
AGRICULTURE AND
NATURAL RESOURCES;**
THE FRONT LINE OF DETECTION AND REGULATING.

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Why Do Plant Material and Pests Move?

- ❑ **Purposefully (legally and illegally)**
- ❑ Commodities/Trade (raw materials, finished products, food, landscaping, decorations, packing materials, etc.)
- ❑ Recreationally (firewood, RVs, boats and trailers)
- ❑ **Accidentally????**
- ❑ **Naturally**
- ❑ Animals
- ❑ Weather



Does it Really Need to Move?

- ❑ Of course it does, in *MANY* cases.
- ❑ The problem becomes limiting/regulating the unnecessary or risky movement of these commodities, making people aware of the risks, and eliminating, or at least mitigating, the risks.



Is Any Ecosystem Safe from Invasive Species?

- ❑ Venture a guess?
- ❑ None are 100% certain until fully studied...
- ❑ Most likely the harshest and remotest of places with highly specialized organisms...
- ❑ Deep sea vents and caves
- ❑ Hot springs
- ❑ Extreme deserts
- ❑ Pelagic zone
- ❑ Polar areas?



Agriculture is the largest industry and employer in the U.S., with more than \$1 trillion in annual economic activity. (USDA)



The Grim Reality

- ❑ In the history of the United States, approximately 50,000 non-indigenous (non-native) species are estimated to have been introduced into the United States.
- ❑ About 360 non-indigenous insect species have become established in American forests (Liebold et al. 1995), of which approximately 30% of these are now serious pests.
- ❑ In crop systems, including forage crops, an estimated 500 introduced plant species have become weed pests.



Depressed Yet?

- ❑ Over 100 million acres (an area roughly the size of California) suffer from invasive plant infestations.
- ❑ Over 50% of flora recognized as invasive or noxious weeds were deliberately introduced to the United States, by either government policy or individuals.
- ❑ 32 percent risk that a new borer would invade in the next 10 years, causing even more damage than previous borers (Aukema et al. 2011)



At What Cost?

- ❑ In the United States, the annual cost of invasive species (including plants and aquatic organisms) is estimated at more than \$138 billion (Pimental et al. 2000)
- ❑ The total costs of introduced weeds to the U.S. economy is about \$27 billion annually.
- ❑ Annual losses attributed to non-indigenous forest pest species is about \$2.1 billion per year.



Residents Feel It Too!

- ❑ Non-native, wood-boring insects such as the emerald ash borer and the Asian longhorned beetle exact an estimated \$1.7 billion in local government expenditures, and approximately \$830 million in lost residential property values each year.
- ❑ Foliage feeders and sap feeders cause an estimated \$410 million and \$260 million, respectively, in lost residential property value each year.
- ❑ Estimated \$1.3 billion spent annually on residential weed, insect, and disease pest control (Templeton et al. 1998)



National Laws

- ❑ Lacey Act (1900) – prohibits non-native species that have potential to become invasive.
- ❑ Alien Species Prevention and Enforcement Act (1992) – prohibits transport of plants or animals deemed injurious into US through mail.
- ❑ National Invasive Species Act (1996) – prevent introduction and spread of non-indigenous species into US waters.
- ❑ Executive Order 13112 (1999) – required creation of Council of Departments to prevent invasive species introduction and provide control to minimize their impacts.
- ❑ Plant Protection Act (2000) – consolidated and modernized all major statutes pertaining to plant protection and quarantine, authorized APHIS.



Illinois Laws

- Agriculture
 - Insect Pest and Plant Disease Act
 - Illinois Noxious Weed Law
 - Illinois Seed Law
- Natural Resources
 - Exotic Weed Act
 - Injurious Species Part 805
 - Wild Swine Ad Rule
 - Boater Safety and Registration Act



Why is this happening?!!

- Well, laws are broken, purposefully or accidentally.
- The world is getting smaller.
- More trade – intercontinental, intracontinental, interstate, intrastate, local.
- Global economic growth “chain reaction”...
- Poor management of pests and diseases on other continents – poor practices.
- Overwhelming volumes of imports and materials to inspect.
- What are we supposed to be looking for?
- Climate change??



It All Starts at the Front Lines...



How Much is Coming In??

- About 32,000 containers at US port DAILY.
- 11.6 million annually
- 90% enters at only 10 of the 300 ports
- Actually, as of 2009, approx. 80% of all containers were non-intrusively scanned.
- Goal of 100% by 2012 (abandoned for risk based approach)
- But, main focus is special nuclear materials, not necessarily agricultural products



Customs and Border Protection (CBP, DHS) Agriculture Specialists

- Mission; Prevent the entry of invasive pests, plants, and foreign animal diseases that may harm America's farms and food supply or cause bio- and agro-terrorism.
- Present at 167 sea, air, and land ports of entry.
- Over 2200 Ag specialists.
- Perform visual and physical inspections, and treatments, disinfections, decontaminations of commodities.
- Import Specialists determine which products may legally enter the country.



Customs and Border Protection



ISPM – SWPM treatment

Real



Fake



USDA APHIS PPQ

- APHIS-PPQ safeguards agriculture and natural resources from the entry, establishment, and spread of animal and plant pests and noxious weeds into the United States of America; and supports trade and exports of U.S. agricultural products.
- Priorities
 - Establish Effective Regulations and Policies
 - Protect Agriculture and Environment from Invasive Plant Pests and Diseases
 - Safeguard Through Science
 - Assist US Farmers and Exporters (PCIT, phytos)



CHPST

- The Center for Plant Health Science and Technology (CPHST) provides scientific support for PPQ regulatory decisions and operations.
- Provide technical support in Trade Issues and Risk Analysis, Treatment Technology, Pest Detection, ID of Arthropod Pests and Diagnosis of Plant Diseases, and Biological Controls.



Smuggling Interdiction and Trade Compliance (SITC, USDA APHIS)

- Mission; Detect and prevent unlawful entry and distribution of prohibited and/or non-compliant products that may harbor exotic plant and animal pests, disease, or invasive species.
- 158 staff at 58 field offices.
- Monitor smuggling of Ag products and pathways before and after they reach US markets
- Assist USDA and States with targeted pest surveys



National Plant Board

- The National Plant Board is a non-profit organization of the plant pest regulatory agencies of each of the states and Commonwealth of Puerto Rico.
- Formed an alliance with PPQ to work together to utilize federal and state authorities, assets, and expertise to safeguard plant health and enable safe trade.



The States Need PPQ for;

- International trade agreements
- Issuance of the federal export certificate based on state needs and inspections
- Obtaining the national perspective/input of industries and other national organizations
- Technical and scientific expertise
- Funding
- Emergency response
- Creating the national framework for interstate and international issues/commerce
- Import and interstate movement permits for federally regulated products



PPQ Needs the States for:

- Local knowledge and local relationships with industry, agriculture, other units of state and local government
- Consensus building among the states
- Perspective across the states/regions
- Authority to regulate within a state
- Rapid mobilization for pest response
- Efficiencies of operation often associated with local operations



Cooperative Agricultural Pest Survey (CAPS)

- PPQ ensures that new introductions of harmful plant pests and diseases are detected as soon as possible, before they have a chance to cause significant damage. To accomplish this, PPQ and its State cooperators carry out surveys for high-risk pests through a network of cooperators in the Cooperative Agricultural Pest Survey (CAPS) program.



Illinois Department of Agriculture

□ Mission Statement

- The Illinois Department of Agriculture will be an advocate for Illinois' agricultural industry and provide the necessary regulatory functions to benefit consumers, agricultural industry, and our natural resources. The agency will strive to promote agri-business in Illinois and throughout the world.

□ Vision Statement

- The Illinois Department of Agriculture's vision is to promote and regulate agriculture in a manner which encourages farming and agribusiness while protecting Illinois' consumers and our natural resources.



IDA/Environmental Programs

- The Insect Pest and Plant Disease Act [505 ILCS 90] provides the Department with the authority to regulate.
- Subpart B addresses quarantines
- **Section 240.250 Scope**
 - To prevent the spread of dangerous plants or dangerous plant pests or dangerous disease throughout the State, the Director shall implement a plant or plant pest quarantine when he/she has determined that a dangerous plant or dangerous plant insect or plant disease has been found within the State and presents a significant risk to the production of agricultural or horticultural crops or to other plants which are essential to maintaining the ecosystem and the aesthetic enjoyment thereof.
(Source: Amended at 6 Ill. Reg. 3041, effective March 5, 1982)



IDOA/EP Responsibilities

- ❑ Lead Agency on emergency programs
- ❑ Regulate invasive pest issues (EAB, EGM, TCD)
- ❑ Delegated authority for Noxious Weed Law
- ❑ Certify, inspect, and regulate plant material including nurseries, greenhouses, dealers, Christmas trees, etc.
- ❑ Phytosanitary/export certification of plant material

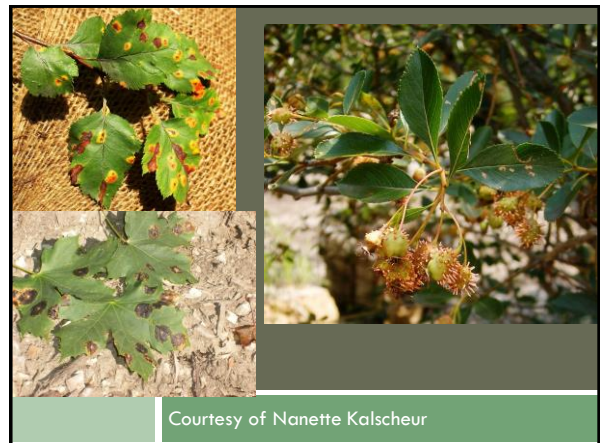


IDoA Nursery Staff

- ❑ 17 field staff
- ❑ Responsible for
 - Certification of nurseries and growers
 - Inspections of stock and facilities for pests
 - Phytosanitary inspections for export certification (inter- and intrastate)
- ❑ May inspect incoming material if warranted, or deemed necessary through pre-notification of shipment



Courtesy of Kent Bloom and Rick Davis





Problem is...

□ They still get in!

- In the last 2 decades;
- Sudden Oak Death (1995)
- Asian Longhorned Beetle (1996)*
- Brown Marmorated Stink Bug (1998)*
- Emerald Ash Borer (2002)*
- Thousand Cankers Disease (2010)
- Spotted Lantern Fly (2014)



What makes a species *INVASIVE*?

- Invasive species = "a species that is non-native to the ecosystem under consideration **AND** whose introduction causes or is likely to cause economic or environmental harm or harm to human health." (NISC 2006)
- Can be exotic (federal issue) or "domestic" (state(s) issue)



Who's Looking for Them?!

USDA APHIS
 USFS
 CAPS/INHS, UI extension, and plant clinics
 IDoA (and other state Departments of Agriculture)
 IDNR (and other state DNRs)
 Nursery inspectors
 Industry (arborists, PHC specialists, growers/sellers)
 Municipal arborists and forestry staffs
 Volunteers (1st Detectors, Citizen Scientists, etc.)
 Concerned citizens



We Gotta Know What We Can!

- Survey and Detection is a must in order make educated regulations.
- Regular (facility/nursery) inspections are also critical in this aspect.
- By knowing where pests are detected, introduced, established, or potentially present, regulators can determine appropriate regulatory actions.
- May be quarantine, additional or specialized inspection, treatment, testing, restricted, or banned.



Detection and Monitoring Surveys

- We conduct surveys for 2 primary reasons;
- Detection – to find pests early before they become established. Usually at calculated high risk sites such as warehouses, mills, firewood dealers, campsites, growing locations, etc.
- Monitoring – to “keep an eye on” the movement of known present/established pests and how they are spreading.
- Usually some overlap.



What Happens When They Make It In?

- Not all pests are regulated
- In the “severe” cases;
 - Multiple agencies get involved in response
 - USDA takes national lead on exotics, States take state lead in local detection and regulatory policy
 - States (Ag or DNR) take lead on domestic
 - Local (county, township, municipal) can create policy
- Cooperative effort



What is regulated in/by Agriculture?

- Pesticides
- Agricultural Products
- Animals/Livestock and Facilities
 - Apiculture/Bees
 - Meat and Poultry
- Gas Pumps (yes, check at your next fill-up)
 - ...etc...
- Plant Material
- Pests of Concern



Plant Material

- Trees
- Plants
- Flowers
- Seeds
- Fruit
- Nuts
- Grain
- Flour
- Plant parts
- Soil



Pests of Concern

- Any Pest that could have a significant [negative] impact on agricultural production, natural resources, or trade.
- Life stages of the pest are regulated
- Host plants, material, and vectors are regulated
- Means of conveyance are regulated
- Movement of articles is what is regulated.
- Can you see the “catch” here?



What's REALLY Being Regulated?

- Plants don't move on their own.
- Hostas don't buy plane tickets.
- Insects don't listen to regulations.
- EAB doesn't check our Q before it looks for a mate.
- Diseases don't know where they're not wanted.
- Oak wilt doesn't care if you're growing oak for timber.
- We're regulating PEOPLE and their behaviors.



Why Regulate/Quarantine?

□ Prevent spread/Contain

-ALB, PSB, GSOB, SOD, HWA
-EAB?

□ Slow spread

-EGM
-EAB?

□ Prevent introduction/Minimize potential introduction

-TCD, SOD



Plant Product Exporting

- Clearly these things get in, and nobody else wants them.
- Plus our natives are invasive elsewhere.

- Quarantine, compliance, inspection, and pre-notification are critical aspects in certifying plant material (phytosanitation) for importing/exporting.

- Ensures "safety" of material being moved.

- IL is #2 in corn, and #1 / 2 in soybean exporting.
- 2nd in the nation in AG commodity exports.
- 30,000+ acres of nursery production, 1200 nurseries, 40 shipping greenhouses, 3300 dealers.

- Multi-billion dollar per year industry (in IL) at stake.



What's Being Done?

- Monitoring survey – active and passive
- Detection survey
- Inspecting/Permitting
- Communicating, cooperating, working together
- Regulations—quarantines, treatment requirements, etc.
- Education and outreach
- Campaigns – "Don't Move Firewood"
- Enlisting volunteers – 1st Detectors, Citizen Scientists
- Researching [potential] pathways.
- Continual evaluation – threat, potential impact, significance, likeliness, proximity, frequency...



Questions or Concerns?

