

Maryland Invasive Species Council  
**Thursday, March 15, 2012**  
USDA/ARS Foreign Disease-Weed Science Research Unit  
Ft. Detrick, Maryland

Call to order 9:33 a.m. John Lydon, Facilitator

Introductions

Dick Bean, MDA

Carole Bergmann, MNCPPC

Bill Bruckart, USDA/ARS FDWSRU

Craig Cavin, USDA/ARS FDWSRU

Nevin Dawson, UME

Eric Duce, Straughan Environmental Service

Anne Goodman, Rockville Native Species

Network

Ann Hairston-Strang, MDNR Forest Service

Ruth Hannessian, Md. Assoc. Pet Industries

Carol Jelich, MNPS

Matt Kasson, Penn State U

Sylvan Kaufman, CCLC

Kerrie Kyde, MDNR Heritage

John Lydon, USDA ARS

Mary Kay Malinoski, UME

Matt Travis, USDA APHIS PPQ

Carolyn Puckett, Carroll County FCB

Al Tasker, USDA APHIS

John Peter Thompson, MNLA

Marek Topolski, MDNR Fisheries

Welcome to the FDWSRU - Bill Bruckart

The facilities at the ARS Foreign Disease-Weed Science Research Unit were built in 1954. In 1971 FDWSRU began plant research there. There are 2 labs: molecular study lab, where meeting was held, and pathogen containment greenhouse & lab. FDWSRU conducts research into threatening and emerging foreign plant diseases, including viral/insect vectored pathogens; bacterial; fungal; oomycete (SOD), as well as biocontrol of introduced weeds with plant pathogens. They engage in biosecurity research collaborations – threat characterization and prioritization; rapid diagnostics. One partner is the National Cancer institute. Dr. Bruckart described the staffing and operation at the facility and offered a limited tour of the containment area following the meeting.

Additions to the Agenda

Presentation by Craig Cavin, USDA ARS FDWSRU

Approval of minutes for January 19, 2012 meeting

Minutes not completed, will be available for approval at May meeting.

Membership

Attendees requesting membership: None.

Anne Goodman, Rockville Native Species Network, attended second meeting. *Motion to accept Anne for membership, seconded and passed.* Attendees should review their membership status at [www.mdinvasivesp.org/active\\_members.html](http://www.mdinvasivesp.org/active_members.html)

Presentation – Craig Cavin, USDA ARS FDWSRU

Craig presented "*Collectotrichum gloeosporioides*, cause of anthracnose of mile-a-minute in Turkey, is a potential biological control agent of this weed in the U.S." Authors of this study are DK Berner, CA Cavin, I Erper, and B Tunali.

Not many pathogens recorded on Mile-A-Minute Vine/*Persicaria perfoliata* (MaM). Since determined to be invasive in US, got permission to search in Turkey. Plant present but not widespread there, found in tea-producing area. MaM not native to Turkey, may have come in on tea seed stock from China.

*Collectotrichum gloeosporioides* is widely used pathogen for biocontrol of weeds. Different formae are specific to particular plants. Some have been released in wild. Spread by rain and wind.

Craig described inoculation process in the greenhouse. Investigated changes in temperatures, light. Promising -- plants developed anthracnose symptoms on leaves, seeds and flowers also. Experiments just concluded. If plant not killed, new flush of growth infected as organism still present. Disease present in 25 degrees and no light.

Host plant tests underway on genetically-related plants in Polygonaceae family. Further information: [www.ars.usda.gov/naa/fdwsru](http://www.ars.usda.gov/naa/fdwsru)

- Q.- 25 degrees C, no light, how will this happen in the wild? A. Plant native to wetland; overnight in a shady environment in riparian conditions, will be perfect. Birds take up spores on feet to spread.
- Q. Where does it live when not on host? A. Facultative saprophyte – leaf litter or other carbon-containing substance around it.
- Q. How well will it persist through winter cycle? A. Should make it through as it colonizes dead
- Is species widely present through US? A. Yes, it is cosmopolitan, but different forma have evolved to be host specific (rose, spinach) so making sure this one is host specific.
- How quickly does it evolve host specificity? A. Geological time span, not like pesticide.
- Q. Assume that pathogen in its original form also came from SE Asia? A. Theory, host pathogen interrelations evolve over time in region of origin of host, so could assume both came to Turkey together when introduced in tea stocks or tea seed.
- Q. Has it been found in host range? A. China not open to US researchers to look.
- Any other *Polygonaceae* in Turkey have the disease? A. Not researched.
- Q. Looking at phylogenetic relationships? A. Not yet. Mixed model developed for predictability values for possibly susceptible plants.

Contact Craig if you can supply propagative material from any native Polygonaceae to test on.

Learn more about his work at <http://www.ars.usda.gov/pandp/people/people.htm?personid=929>

Presentation - Matthew T. Kasson, Department of Plant Pathology, Penn State University

Kerrie introduced Matt. He is completing his work at Penn State and is planning post-doc work at Virginia Tech on 1000 canker disease.

Matt presented “*Ailanthus* - Its presence in the mid-Atlantic area and the potential of *Verticillium albo-atrum* for its biological control.” This work is first 2 chapters of his dissertation. PA as case study. Talk covered *Ailanthus altissima*/tree of heaven (Aa) history, growth, patterns of distribution, and a potential indigenous biocontrol.

Native region is China, parts of SE Asia. Now spread to Australia, S America, found in 42 states in US. First introduced in the US from England into Philadelphia in 1784 by William Hamilton. Didn't spread widely till later due to jealous guarding of plants, only limited sharing (Jefferson, Bartram) Second introduction was in Portsmouth, RI in 1804 from S America. Limited vegetative propagation. Dioecious, so most propagation was from cuttings. William Bartram started it in the trade in 1809 with seedlings. Commercially available in 1820; by 1828, being distributed by nurseries, including all state nurseries. Available > 1830 in many eastern states.

Aa is shade tolerant, early successional. Seed production research in PA found prolific seed production; e.g. 2" DBH, 6-year-old tree produced 108,000 seeds. Noted in one report, big trees can produce up to a million seeds a year. Aa has rapid growth, 2 m in first growing season; prolific root suckering, and strong allelopathic compounds.

Life span studies show an average historic 50-75 year life span. There is contradictory anecdotal evidence; e.g., a 117-year-old tree in England. Resources include state big tree registries. Controversy over whether to put invasive trees on the registry, but helpful for research. MD is one of few states that doesn't list Aa in the registry. Conducted direct research around Philadelphia, since it was first introduced there, to see long living trees. Got 17 intact trees  $\geq$  75 years. They get rot, hollow, hard to do cores. So sample size had good representatives from each diameter size to do regression. Had 3 intact trees > 100 years.

Why does age matter? Can develop spread map and get better understanding of how Aa spreads and how fast it spreads. Historically, to look at spread of species, look at herbarium species, but not always available. So trying to determine age of trees using age regression model on big trees.

Discussion of invasion – by 1855 showed up in western part of PA (connected to railroad expansion, allowed for fast introduction of weed species along railroad tracks). Also natural gas drilling – land clearing, road building, pipeline establishment – presents serious risks for future invasion of Aa. Spread to zone 5b now. Important to get current distribution map now, to see if bringing in gravel, building of roadways are conduits for invasive species spread. Important to consider future disturbances for spread of invasive species

Tree ring analysis in forests – asked foresters how long Aa had been there. Widespread invasion in forests in relatively recent (>1965) – stands of Aa followed harvesting of oaks subsequent to gypsy moth defoliation aftermath – Aa showed up in edges.

Investigating whether Aa spreading into 42 states from a single genotype. Are big trees second generation sprouts? In micro-satellite studies of Bartram's Garden, etc, couldn't find links. Inconclusive, another area for research.

## Part 2: controlling invasive Aa in PA

Noticed Aa dying, following gypsy moth salvage cutting. Looked like a wilt. Starts by thinning out crowns, eventually kills completely. Research showed *Verticillium albo-atrum* was causal agent. *V. dahliae* occasionally isolated in patches of diseased trees. They sequenced and confirmed 2 species. Retained isolates PSU154 of *V. dahliae* and PSU 140 of *V. albo-atrum*. With PSU140, trees died in a single season. PSU 154, still alive in 2<sup>nd</sup> season, though perhaps killed if otherwise weakened.

*V. albo-atrum* name change, now called *V. nonalfalfae*. 3 groups of *V.* – potato, alfalfa, and all others. PSU 140 name changed to VnAa40 – tells what fungus and what host.

Matt described study. Results: 65 canopy trees inoculated between 2006-2009; >7200 trees infected and are either dead or dying. As of August 2011, total killed > 21,000 stems.

Looked at native regeneration in understories: -- are roots killed or are there sprouts? Was fungus sterilizing sites for Aa? Long term effects of VnAa40 on future Aa establishment. Other invasives coming in. No difference in native regeneration inside / outside epicenter of dead trees in stand. On edge, sprouts were being killed by wilt. Effect of dieback on other invasive species – in center of plots, other invasives (MoM, stiltgrass) increased. Only Aa and striped maple showed natural susceptibility to wilt.

Extended host specificity studies for PSU 140. Tested on other native trees and invasive species. Also tested greenhouse plants. 64 species tested, 44 showed tolerance. 20 species exhibited some levels of wilt/mortality after artificial inoculation. Variability in reaction. Aa had the most wilt and mortality.

Exploring relationship between diameter and tree mortality – not coming out that it's just diameter, some other predisposing factors maybe.

Reason for host range testing is to quantify risk. Hazard assessment – if pathogen will damage tree if it is in the host; also, risk of it infecting non target host. Found natural spread in only 2 other species – striped maple and devil's walking stick. Whereas a number of species did exhibit mortality and wilt following artificial inoculations.

Genetic structure of Aa – are certain genotypes resistant to fungus? Does utility of fungus extend across the country? So testing genotypes from seed from across the country. 98 samples from 28 states, grew them, root inoculated them. 100 showing results; 11 showed partial putative resistance.

Conclusions: Aa has been present for a long time in US, but only recently invaded. Can live 100 years, and produce 100k seeds/year. Target large female trees for herbicide treatment to prevent future invasions. VnAa40 is highly virulent on Aa. 13 other species exhibited disease symptoms and mortality, but only 2 thru natural infections. Many wilted species recovered.

Matt distributed copies of two studies:

“*Ailanthus altissima* Wilt and Mortality: Etiology.” Mark J. Schall and Donald D. Davis. *Plant Disease*, 93(7), Jul. 2009, pp. 747-751.

“*Verticillium* Wilt of *Ailanthus altissima*: Susceptibility of Associated Tree Species.” Mark J. Schall and Donald D. Davis. *Plant Disease*, 93(11), Dec. 2009, pp. 1158-1162.

Invader of the Month Updates

List provided as reminder to authors. If there are any changes, notify Bud Reaves

Current listing - [http://www.mdinvasivesp.org/invader\\_of\\_the\\_month.html](http://www.mdinvasivesp.org/invader_of_the_month.html)

Month	2012 IOTM	Author
March	Control measures for invasive species	Marc Imlay, John Peter Thompson, Bill Klingelhofer
April	Fig buttercup	Wes Knapp
May	Kudzu weevil	Mary Kay Malinoski
June	Boxwood blight	Karen Rane
July	Clean your gear	Jay Kilian
August	Mile-a-minute weevil	Kelsey Branch/Bob Trumble
September	Destroy your science supplies	Ruth Hanessian
October	Chronic wasting disease	Brian Eyler
November	Groundnut ring spot virus	John Lydon
December	Japanese Cedar long horn beetle	Bob Trumbule

MISC brochure – Sylvan Kaufman

Brochure is done. Working on grant to CBT for small printing. Will be posted on web site. Format designed for easy printing on a color printer.

Agency Updates

Maryland Department of Natural Resources - Anne Hairston-Strang, Kerrie Kyde, Marek Topolski

- Anne H-S – The Draft Maryland Emerald Ash Borer Long-term Management Plan is posted on the DNR website and is available for comments through April 23, 2012. <http://dnr.maryland.gov/dnrnews/pdfs/mdeablongtermplan2012.pdf> Executive summary is on page 3. Plan is a multi-agency response to the increasing spread of EAB in the region. Still in

a position where planning ahead and taking preventative steps can moderate the potential damage, allow much more cost-effective response, and increase options in the future.

Proposed APHIS multi-state quarantine area is scheduled to take effect April 1, 2012 (see map in Appendix B), but Matt Travis suggested date or boundary could change due to some states' concerns. Stay tuned for APHIS response to comments.

Comments, additions, or corrections to the plan by April 23<sup>rd</sup> should go to Anne Hairston-Strang, MD DNR Forest Service, 580 Taylor Ave., E-1, Annapolis, MD 21401, 410-260-8509, FAX 410-260-8595, [astrang@dnr.state.md.us](mailto:astrang@dnr.state.md.us)

- Kerrie K – DNR Invasive Species Matrix Team, working in conjunction with Education and Outreach Team, have generated a letter that will be going to curriculum development staff at Maryland Department of Education, specifically addressing release of live species reared in classrooms. Letter is primarily explanatory since no law applies. Goal is to make K to 12 teachers aware of the issue and find options for safe disposal of species following classroom use.
- Mareck T – DNR Fisheries Service has been working on adoption statement for invasive catfish. Policy statement is available Chesapeake Bay Program web site at [http://www.chesapeakebay.net/publications/title/invasive\\_catfish\\_policy\\_adoption\\_statement](http://www.chesapeakebay.net/publications/title/invasive_catfish_policy_adoption_statement). A series of recommendations are under development for implementation of adoption statement.

#### MCE – Nevin Dawson & Mary Kay Malinoski

- Nevin and Mary Kay are working on outreach and education portion of EAB plan. Going to local stakeholders; working with Bugwood on an app.
- Mary Kay has updated invasive insect ID card sets. They want to print with internal funds; also applied for USDA grant for more printing. People who have a candidate insect can send photos to HGIC diagnostic web site. HGIC is public interface for MDA in fielding public inquiries. Calls about EAB usually turn out to be banded ash clearwing. Please provide feedback on their cards and distribution ideas. Carol J recommended that educational display on the cards be available the UME Master Gardener Advanced Training day on May 23, where over 800 MGs from throughout state will be present.

#### USDA – Al Tasker, Matt Travis

Al T

- During the open period from January 30 to March 4, PPQ received over 500 suggestions to implement Section 10201 of the 2008 Farm Bill. Further information: [http://www.aphis.usda.gov/plant\\_health/plant\\_pest\\_info/pest\\_detection/farm\\_bill.shtml](http://www.aphis.usda.gov/plant_health/plant_pest_info/pest_detection/farm_bill.shtml).
- On March 19, APHIS Plant Protection & Quarantine will participate in Thurmont Middle School's Investigating and Evaluating Environmental Issues and Actions program. Information: Kelsey Branch, PPQ-EDP, 301-851-2066; Matt Travis, PPQ-ER, 410-977-7214
- From February 28 to March 1 in Newark, Delaware, PPQ participated in the North American Plant Protection Organization's Biological Control Panel—comprised of the United States,

Canada, and Mexico—which met to discuss the risks associated with the importation of pollen, honeybees, and honeybee royal jelly. Information: Bob Tichenor 301-851-2198

- On February 28 and 29, PPQ was one of six panel members that participated in a five-year review of the ARS's national program of plant disease research. The other panel members who participated in the review were from academia, industry, and USDA.
- For the first time, PPQ recently certified an irradiation facility in Cape Town, South Africa for irradiation of grapes for export to the United States. The 2012 shipping season for South African grapes concludes in March. Next season South Africa estimates shipping one container per week.
- From February 26 to March 3 in Washington, D.C., APHIS, the District of Columbia–Urban Forestry (UF), the University of D.C. (UDC), other state and federal agencies, non-profit organizations and members of the public interested in stopping the spread of invasive species participated in National Invasive Species Awareness Week. A Kids Fun Day was held Sunday Feb 26 at the U.S. Botanic Gardens. Sheriff Al and Woodsy Owl were present to interact with the kids. The Botanic Garden estimated attendance as in excess of 800. Other events during the week included a Prevention Day discussion, and a state and private stakeholder Invasive Species control program discussion. MISC's own John Peter Thompson coordinated a session on Urban Pest management sponsored by Nat. Park Service. Further information: <http://NISAW.org>.
- On March 1 in Washington, D.C., the 2012 National Invasive Species Achievement Awards Ceremony took place during National Invasive Species Awareness Week. The Forest Pest Outreach and Survey Project, now in its third year of APHIS funding, received the Outstanding Invasive Species Outreach and Education Award for 2012. The project started in 2009 as a coordinated effort between APHIS, the U.S. Forest Service, and State Departments of Agriculture and Forestry to focus outreach and survey efforts on pathways that can allow the accidental movement of Asian longhorned beetle, the emerald ash borer, and other forest pests. The project includes fifteen states.
- Matt T – E-mailed pest updates from interceptions in Baltimore and Norfolk. One highlight – in passenger baggage, intercepted a hitchhiker, *Osmia rufa*, red mason bee. Doesn't occur in US, known to carry parasites and diseases for *Osmia* family. Jim Young ID'd it, and several mites were found on it that have not previously been found in the US. This was a great find to protect honey bee. Council members commended this significant interception and recommended a press release to publicize the good work done.

#### IPAC – Kerrie Kyde

- IPAC met yesterday for 3<sup>rd</sup> meeting; have quickly come down to 2 risk assessment protocols. Each member will run 2 plants through the 2 protocols; at April meeting, will decide which protocol to use. Recruited APHIS to help make its protocol more specific to Maryland. Other one being tested is NY State's, created by Marilyn Burden and her team.

#### Maryland Department of Agriculture – Dick Bean

- Purple traps for EAB going up, trying to get a jump on the weather. Only ¼ number of traps in previous years. Tracking development of beetle, maybe a couple weeks along. When trees are ready to feed the beetles, they will be out. Look for them when black locust blooms
- Some hellebores were sold in MD with a wilt and were tested. Keep an eye on hellebores and report any wilting. (Subsequent to meeting, Dick reported that the plant material results were

NEGATIVE for *Ralstonia solanacearum*. The plants in question are to have the stop sale removed.)

News and New Business

No reports.

Participants were offered a tour of the FDWSRU Containment Facility following the meeting.

Next meeting May 17 – volunteers needed for hosting and refreshments. Also need someone to volunteer to be Acting Facilitator for the meeting.

Adjourn 12 Noon

Respectfully submitted, Carol Jelich, Recording Secretary