

National Updates

Second National Meeting of the NPDN December 6-10, 2009

Join us in sunny Miami, Florida for the second national meeting of the National Plant Diagnostic Network. Find out what the future holds for NPDN while interacting with your colleagues from various states, regions, disciplines, and agencies! This year we are thrilled to offer exhibitions and posters, as well as off-site tours in the Miami area. Tours include: commercial nurseries, a tropical fruit winery, a citrus greening site, the Everglades, and the Fairchild

Botanical Garden. We hope you'll join us for this must-attend event!

On-line registration is now available at <http://www.apsnet.org/meetings/NPDN/registration.htm>. Early registration will close October 15, 2009.

Lodging is available at the Intercontinental Hotel <http://www.icmiamihotel.com/> at a conference rate from now until November 14, 2009. To reserve lodging call 1-866-577-3753



Collage of photo's taken by Averette around Miami

Issue Highlights:

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Diagnostic Updates

Japanese Apple Rust, *Gymnosporangium yamadae*

Joe Bischoff and Joel Floyd, USDA, APHIS,

PPQ and Nancy Gregory, University of Delaware

The occurrence of Japanese apple rust, *Gymnosporangium yamadae*, in the United States was first noticed in 2004 by a post-doctoral researcher visiting from Korea who worked with the USDA-ARS Systematic Mycology and Microbiology Laboratory in Beltsville, Maryland. It was documented in 2008 by collections made from leaves of crabapple, *Malus toringo*, in Wilmington, Delaware and published in *Plant Disease*. (2009, Yun, H Y, A M Minnis, and A Y Rossman, 93:4, 430). USDA-APHIS-PPQ National Mycologists Joe Bischoff and Mary Palm met with the ARS researchers to examine the

material and confirmed for PPQ the specimens from Delaware with the aecial stage of *G. yamadae* on crabapple leaves

in April 2009.

In the next month, the telial stage of *G. yamadae* was found on *Juniperus chinensis* by Nancy

Gregory of the University of Delaware Plant

Diagnostic Clinic in cooperation with the

Delaware Department of Agriculture. The collection was near the same commercial landscape location as the infected crabapple trees, and this was confirmed by USDA-APHIS-PPQ personnel, as well.

This pathogen is endemic to Asia. As of August 2009, in addition to Delaware, *G. yamadae* has now been also confirmed in Maryland, New Jersey, New York, and Pennsylvania. It has been detected on both crabapple and domestic apple in the US. It is likely this pathogen has gone undetected because it may have been confused with Cedar apple rust, *G. juniperi-virginianae*, or possibly other *Gymnosporangium* species known on *Malus* in the US which have similar symptoms. To read the complete article and view images go to:

<http://www.npdn.org/Library/ViewDocument.pdf?filetype=pdf&DocumentId=12990>



Early stage of aecial development of *G. yamadae* on underside of *Malus toringo* leaves. (Photo Nancy Gregory, University of Delaware)

Diagnosics Subcommittee Update

Karen L. Snover-Clift
Committee Chair
Cornell University
Department of Plant Pathology

Since the last newsletter, the Diagnosics Subcommittee held two conference calls on August 13, and September 10, 2009. During these meetings, a number of issues were addressed. Please refer to the website, www.npdn.org for complete minutes of this meeting (login and password are required).

- Update on potato wart workshop, Beltsville-NPDN Diagnostician Training.
- Basic technique workshop update.
- Web-based platform update and possible Adobe Connect session.
- IT/Diagnosticians meeting -review agenda.
- NPDN national meeting subcommittee poster.
- NPDN governance document.

The next conference call will be held on Thursday, October 22, 2009.

A Simple Diagnostic Technique For Identification of Three Wheat Rust Fungi

Dr. Yang Wang;
College of Plant Protection, Northwest A&F University, Yangling, P. R. China
Department of Botany and Plant Pathology, Purdue University, West Lafayette, IN

Wheat stripe rust, leaf rust, and stem rust are caused by *Puccinia striiformis* f. sp. *tritici*, *P. recondita* f. sp. *tritici*, and *P. graminis* var. *tritici*, respectively. Visual speciation of rust on wheat can be difficult prior to formation of diagnostic symptoms. In addition, the urediospores of these rust fungi, when mounted in water and viewed with a compound microscope, may also look similar to the untrained eyes. A simple technique involving the use of 36.5% HCl as a mounting medium for examining fresh urediospores with a compound microscope can help elucidate the difference between urediospores of rust fungi and assist in accurate speciation among these wheat rust fungi.

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Diagnostic Tip of the Month



Wheat stripe rust



Wheat leaf rust



Wheat stem rust

Diagnostic Tip of the Month

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Three types of rust on wheat:

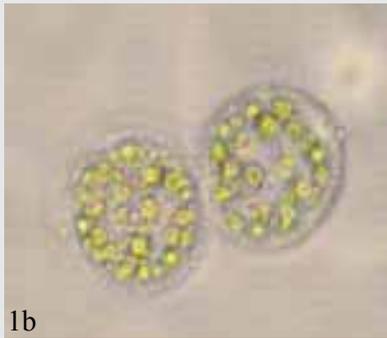
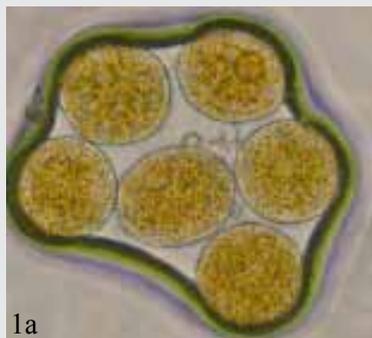
1. wheat stripe rust (*Puccinia striiformis* f.sp. *tritici*),
2. wheat leaf rust (*P. recondita* f.sp. *tritici*),
3. wheat stem rust (*P. graminis* var. *tritici*).

Below are images and description of the urediospores of these three rusts in water (left panels, a) and 36.5% HCl (right panels, b).

Protoplasm shrinking at high concentration of hydrochloric acid (36.5%) could be used to differentiate urediospores of the wheat stripe, leaf, and stem rust fungi. However, this procedure only works well with fresh urediospores and should be used in combination with disease symptoms for pathogen identification.

Reference

[1]Chen Wanquan, Liu Taiguo, Yu Xiumei. (2008)Morphological observation of wheat rust urediniospores with hydrochloric acid solutions. Plant Protection[J], Vol.34 No.6,70-73



P. striiformis f.sp. *tritici*

When mounted in 36.5% HCl, the globose urediospores of *Puccinia striiformis* f.sp. *tritici* are distinguished by the lack of large protoplasm aggregation and exhibit instead many small protoplasm particles.



P. recondita f.sp. *tritici*

When mounted in 36.5% HCl, the globose urediospores of *P. recondita* f.sp. *tritici*, exhibit one large protoplasm aggregation.



P. graminis var. *tritici*

Unlike those of the stripe and leaf rust fungi, the urediospores of *P. graminis* var. *tritici* are oval shaped. When mounted in 36.5% HCl, about 70% of urediospores are distinguished by the presence of a large protoplasm aggregation. The rest 30% urediospores have small protoplasm particles.

Education and Training

The NPDN Training and Education Subcommittee is pleased to announce the following award nominations in order to recognize outstanding or innovative First Detector Educators. The following awards are available:

- Outstanding First Detector Educator Training Award
- Outstanding First Detector Educator Team Training Award
- Outstanding Promotion of the Online Crop Biosecurity Course

Concept

To recognize outstanding first detector educators who have excelled at training first detectors. Since the inception of NPDN in 2002 it was recognized early on that quick detection of pests relies on quality training by qualified educators. These awards are designed to recognize hard work and quality training of first detectors which is, in turn, enhancing the quality and strength of the NPDN.

Eligibility

These awards are open to any extension/university educator or team which has excelled in conducting or promoting First Detector training excellence. To be considered, nominee(s) should have shown excellence in developing new programs, teaching methods, or innovation in working with novel groups to be first detectors. Training and some First Detector registrations must have been recorded on the NPDN First Detector training website.

Awards committee members are not eligible for nominations.

Plant Pest Diagnostics Makes a Splash at Tennessee Field Day

Frank Hale, Entomology and Plant Pathology, University of Tennessee Extension

Summer Celebration is the annual horticultural extravaganza at the University of Tennessee (UT), West Tennessee Research and Education Center in Jackson, Tennessee. Over 2000 people attended the field day on July 9 and were wowed by the creative use of landscape plants along with presentations such as “Roses to Rock Your World” (disease resistant roses), “Succulents Gone Wild”, “Twelve Steps for Herb-a-holics”, and “Layer Cake Gardens” to just name a few. Each year, UT faculty and staff from the Department of Entomology and Plant Pathology team up with their colleagues in the

Department of Plant Sciences to conduct plant pest diagnostics under the big tent. In 2008, an afternoon thunderstorm had everyone scrambling to protect microscopes and displays from the torrential wind and rain while wading through the standing water. This year, a perfect July day brought out a great crowd, many with diseased plants, insect specimens and weeds in hand. The experts worked hard all day identifying insect, mite, disease and weed samples with appropriate control

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University of Tennessee field day participants (Photo Frank Hale, University of Tennessee, Extension.)

Education and Training

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recommendations being given. While no new pests were brought in by these potential first detectors, I did find some two banded

Japanese weevils on a couple of the ornamental shrubs at the Center. The focal backdrop for our diagnostics tent was a new display made possible with SPDN support. This visually appealing and informative display when not on view at the Soil, Plant and Pest Center in Nashville is used at field days to promote Plant Pest Diagnostics in Tennessee. What a great way for a diagnostician to spend a summer day.

Thousand Cankers of Black Walnut National Conference

Collin Wamsley
State Entomologist, Missouri Department of Agriculture

A national conference is being planned by the Missouri Department of Agriculture and the Missouri Department of Conservation for November 3-4, 2009 in St. Louis, Missouri at which researchers, forest health professionals, regulatory officials and various other stakeholders will be invited to raise the awareness and understanding of thousand cankers disease of black walnut. Presentations will be given by professionals in walnut industries, forest pathology, forest entomology and state and federal regulatory agencies. A panel discussion will be held on the afternoon of November 4 to discuss future actions needed to protect our black walnut resource.

We hope that you or representatives of your organization will be able to attend and participate in this timely and critical

discussion at the Thousand Cankers of Black Walnut National Conference. Black walnut is a valuable economic and ecological resource to many states. It is our desire that this conference will begin a national dialogue and help protect black walnuts in the United States.

For more information or to register for the Thousand Cankers of Black Walnut National Conference, visit <http://mda.mo.gov/plants/pests/thousandcankers.php>. Some important deadlines to note are: meeting registration deadline (October 23) and hotel reservation deadline for group rate (October 13). We hope to see you in St. Louis!



Large trunk cankers of black walnut associated with *Fusarium solani*.



North Central News

NCPDN regional meeting is scheduled for April 6-7, 2010 in St. Paul MN and it will take place at the University of Minnesota, St. Paul campus. Please follow the link <http://www.radisson.com/plantdiseasediagnostic> for hotel arrangements. We have reserved 25 (including single and double) rooms at \$85. If you prefer to call please mention Plant Disease Diagnostic Meeting to receive the rate. Hotel arrangements must be made before March 15, 2010. After that date they do not guarantee the rate and room availability.



Northeast News

Success Story: Japanese Apple Rust Identified Due to Pest Alert Circulation

Karen L. Snover-Clift

Shortly after the APS meeting, our colleague, Joel Floyd, Domestic Diagnostics Coordinator, National Identification Services, USDA, APHIS, PPQ, RIPPS sent a pest alert for the Japanese apple rust pathogen, *Gymnosporangium yamadae*, to NPDN staff for distribution to the diagnosticians in the network. The pest alert is included in this publication. Nancy Gregory of the University of Delaware had submitted the first sample to the National mycologists for identification. The distribution to the network listservs and specifically the NEPDN listserv, resulted in the identification of the pathogen in two additional states. Coincidentally, two of our NEPDN diagnosticians, Heather Faubert of the University of Rhode Island and Joan Allen of the University

of Connecticut, each had samples in their laboratories that fit the descriptions provided in the pest alert.

Both immediately submitted samples for identification and both came back with an identification of *Gymnosporangium yamadae*. What a great example of how our communication network can work!



Southern News

Twenty Counties in Kentucky Added to the Quarantine Area for Emerald Ash Borer

The Animal and Plant Health Inspection Service (APHIS) confirmed the identification of Emerald Ash Borer (EAB), in 20 Counties in Kentucky. These detections resulted from numerous public reports of declining ash trees.

In response to this detection, APHIS is working closely with the State of Kentucky to carry-out regulatory and other response activities. The Federal Order establishing a quarantine area to prevent the further spread of EAB is attached. Effective immediately, all interstate movement of EAB-regulated articles from Boone, Bourbon, Campbell, Carroll, Fayette, Franklin, Gallatin, Grant, Harrison, Henry, Jefferson, Jessamine, Kenton, Oldham, Owen, Pendleton, Scott, Shelby, Trimble, and Woodford Counties in Kentucky must be handled in accordance with the Federal Order. Specifically, the interstate movement of EAB-host wood and wood products from these counties is regulated, including firewood of all hardwood species, nursery stock, green

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Regional Updates

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lumber, waste, compost, and chips of ash species. Due to a parallel quarantine area established by Kentucky, only these 20 counties will be added as a quarantine area and placed under phytosanitary controls. For more information read complete report at <http://www.pestalert.org/oprDetail.cfm?oprID=391>.

Partner News

Inventory-Pest Evaluation and Detection (I-PED)

Jessica Call, USDA
Forest Service

Urban areas are a gateway for exotic forest insects and diseases entering the United States. In fact, nearly all of the high profile invasive forest pests first occurred and are still concentrated the urban forest environment. Emerald ash borer (EAB), which has killed more than 50 million ash trees across the Midwest, first appeared in the Detroit metro area. Asian longhorned beetle (ALB), which has the potential to decimate native hardwoods, was first found in the New York City and Chicago areas.

Increased citizen monitoring and improved data collection and analysis through municipal tree inventories have the potential to improve early detection of urban forest pests, reducing their damage and providing more options for management. In an effort to bolster urban forest pest detection, the USDA Forest Service has spearheaded the development of IPED (Inventory, Pest, Evaluation and Detection). IPED is a protocol for detecting pest signs and symptoms more quickly and consistently in the urban forest environment. Ultimately, the data information collected through IPED will be compiled in a national database, known

as the Urban Forest Health Information Center (UFORHIC), to allow for analysis of pest signs and symptoms at multiple scales. Plans are underway to ensure that UFORHIC can share and exchange data with the NPDN National Repository, enabling broader use of both systems.

IPED is one of the latest tools available in the larger i-Tree software suite, which provides monitoring and analysis tools for assessing the health, costs, and benefits of the urban forest. The suite of i-Tree software tools was developed by a partnership of the Forest Service, Davey Institute, the International Society of Arboriculture, the Society of Municipal Arborists and the Arbor Day Foundation.

IPED is currently available for use in a beta-format within the i-Tree Streets software. IPED can also be used in conjunction with any other commercially available tree inventory program, independent of the i-Tree software suite. The IPED project team, which includes representatives from the Forest Service, Davey Institute, the Society of Municipal Arborists and the University of Georgia Bugwood Network, is conducting field tests on IPED this summer and will release a final version in the fall.

The Forest Service and its partners encourage First Detectors and NPDN members to learn more about IPED and other i-Tree tools to see if they could be useful for your municipality or citizen group.

For further information on IPED and i-Tree, or to download the software, visit: <http://www.itreetools.org/> and <http://wiki.bugwood.org/IPED>

National Database Subcommittee Update

Karen L. Snover-Clift
Committee Chair
Cornell University

Since the last newsletter, the National Database Subcommittee held two conference calls on August 12, 2009 and September 9, 2009. The subcommittee continues to work on reviewing the massive NPDN Pest and Host lists and revising guidelines for uploading documents that will clarify how sample diagnoses should be transmitted to the National Repository at Purdue University. During these meetings a number of issues were addressed. Please refer to the website, www.npdn.org, for complete minutes of this meeting (login and password is required).

- Discussion of change submission
- Discussion of adding another diagnostician to the group
- Operations committee meeting in Portland, OR
- NPDN governance document
- NPDN National Database subcommittee national meeting poster
- Discussion of fungi pest beginning with scientific names D, E, and F

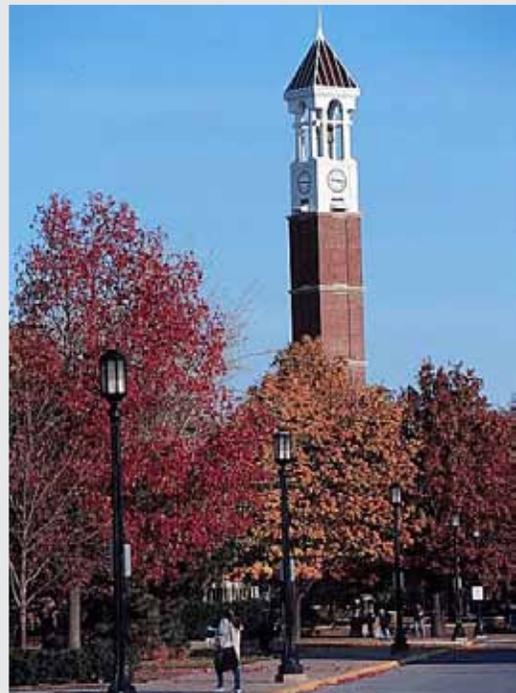
The next meeting will be held on November 11, 2009.

6th IT/Diagnosticians' Meeting

Michael Hill, CISSP
NPDN Project
Administrator/Programmer
Analyst
CERIS- Purdue University

This years IT/Diagnosticians' meeting is scheduled for two full days on October 14-15, 2009, and will be held at Purdue University in West Lafayette, IN. An agenda is currently being developed by the IT and Diagnostics subcommittees and will be posted on the NPDN portal once it is ready. Individuals who want to learn more about the meeting or are interested in attending may contact Mike Hill via phone at 765-494-9854 or by e-mail at mhill@ceris.purdue.edu.

National Database



Purdue University, West Lafayette, IN

Pest Update

Oak Wilt Management Update

George Hudler,
Department of Plant
Pathology & Plant-

Microbe Biology
Cornell University

Originally published in Branching Out, July 17, 2009

You may recall that discovery of oak wilt in a neighborhood in Scotia, NY known as Glen Oaks touched off quite a lot of concern last August. To their credit, a group of concerned homeowners were the first to suspect that something unusual was amiss with oaks in their neighborhood when approximately 12 trees died between 2006 and 2008. The speed with which individual trees went from healthy to dead was particularly alarming and with a third year of more losses (and more expensive tree removal) looming, they sought answers from staff at the Albany County Cooperative Extension office. That first communication eventually led to samples being submitted to the Plant Disease Diagnostic Laboratory at Cornell in August 2008 and within a week of receipt of the samples, Diagnostic Lab staff had the pathogen in culture and the diagnosis confirmed.

Origination & Movement of the Infection

One overarching question that remains unanswered to this day was “Where did the pathogen come from?” The two most likely answers were: (1) that it had become established in the region some unknown number of years ago and had simply gone unnoticed in forested areas until it finally caused enough damage in a residential site to attract attention and (2) that it was introduced on diseased logs, most likely oak firewood imported

from an infected site elsewhere in the U.S. State and federal surveys in September 2008 and beginning again in July 2009 (when the new year’s symptoms would be most likely to appear) have so far failed to locate any infected trees peripheral to the initial site of infestation. This suggests that the Glen Oaks episode was not the result of spill-over from a nearby infection center and lends further credence to the theory of introduction via contaminated firewood.

Oak Wilt Management Plan for Glen Oaks Site



The cutting plan around an infested area

In hopes that Glen Oaks did represent an isolated site for oak wilt in NY, staff with the NYS Department of Environmental Conservation, with advice from U.S. Forest Service pathologists devised what I believe to be an unprecedented plan for oak wilt management. That was total eradication of all known infected trees and all nearby trees that may have become infected via root grafts. The plan was unusual, in part, because underground septic systems and utilities prohibited widescale use of backhoes and vibratory plows to disrupt *Continued on page 11*

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potentially grafted roots. Complete removal was the only alternative except in the few cases where homeowners elected to have their currently healthy trees injected with Alamo® fungicide. All removal of existing trees was done at state expense but homeowners electing to try fungicide injection had to bear the cost of injection and also agreed to contract for immediate removal of their trees if they began to show symptoms.

The cutting plan was based on the creation of two concentric zones around each area of confirmed infestation; one was 100 feet away, the second 150 feet away. Within the 150 foot radius, every red oak was cut. White oaks, known to be resistant but not immune to the disease, were left as were other species of trees.

Follow Up

The management plan drastically changed the appearance of the neighborhood and all still remains under close scrutiny as the 2009 growing season unfolds. So far, no newly infected trees have been found either in this area or elsewhere in the state. July and August are the most likely months for acute symptoms to appear and we will continue to provide diagnostic services to state and federal officials and to the tree care community at large. So far we've seen no new cases anywhere and we're hopeful that this unusually drastic approach to tree disease management may have paid off.



National Events

October 6-8, 2009

Potato Wart Workshop
USDA-APHIS-PPQ-CPHST
National Plant Germplasm
and Biotechnology Laboratory
Beltsville, MD

October 14-15, 2009

6th IT/Diagnosticians' Meeting, Purdue
University, West Lafayette, IN

October 20-22, 2009

Potato Wart Workshop
USDA-APHIS-PPQ-CPHST
National Plant Germplasm and
Biotechnology Laboratory
Beltsville, MD

November 3-4, 2009

Thousand Canker of Black Walnut
National Conference
St. Louis, MO

December 6-10, 2009

NPDN National Meeting, Miami, FL

December 9-11, 2009

2009 National Soybean Rust Symposium,
New Orleans, LA

December 13-16, 2009

2009 Entomological Society of America
Annual Meeting, Indianapolis, IN

May 18-20, 2010

NPDN Diagnostician Basic Technique
Workshop
The Pennsylvania State University
State College, PA

Regional Events

April 6-7, 2010

NCPDN Regional Meeting
St. Paul, MN

Upcoming Events



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