

# NPDN News

Volume 9 Issue 2, February 2014

## TWO NPDN LABORATORIES SEEK STAR-D LABORATORY ACCREDITATION

*Karen Snover-Clift, Northeast Plant Diagnostic Network, Cornell University*

Two NPDN laboratories, the Plant Diagnostic Center at the University of Florida and the Plant Disease Diagnostic Clinic at Cornell University, have undergone an essential step in seeking STAR-D laboratory accreditation by receiving their external audits in February 2014. It's hard to believe that it was back in July of 2010 when Anne Vitoreli and I first visited our colleagues at USDA-APHIS-PPQ-CPHST in Raleigh, NC to learn about quality management systems (QMS) and to develop our National Plant Diagnostic Network (NPDN) STAR-D program. Using examples from the ISO-17025 accreditation system and the American Association of Veterinarian Laboratory Diagnosticians (AAVLD) network (a group that had experience modifying ISO-17025 to tailor a system for their laboratories), we were able to use their documents as a model to begin creating our very first STAR-D Laboratory Accreditation Program document, the STAR-D Quality Manual. Not only did CPHST provide us with extremely useful materials to begin this process, they also gave us access to their staff; Kathy Burch, Pat Shiel and in later months, Geoffrey Dennis. Kathy Burch, who serves as the CPHST Senior Quality Manager, has been very willing to share her QMS expertise throughout our development process. Simply put, the only reason we have reached this milestone of performing our first external audits, is because of the support, program direction, guidance and advice we received over the past three years

from the CPHST personnel. We really can't thank our colleagues at CPHST enough for believing in our vision of an NPDN STAR-D Laboratory Accreditation Program. We also could not have come this far in the



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External auditors determined these color-coded pipettors were recently calibrated and easily verified the dates on each with their equipment logs.

development of the STAR-D program without the support of the NPDN Executive Committee members. They made STAR-D one of the highest priority items within our strategic plan and they showed their support by dedicating resources to the project when continuation of the program was in jeopardy. The NPDN Executive Committee and a rotating STAR-D

## Issue Highlights

- Diag tip: chiffonade to improve accuracy for virus testing
- Powdery mildew on New Guinea impatiens
- NPDN/USDA-APHIS advanced diagnostic workshops
- STAR-D Quality Corner: Step 6 in the implementation booklet
- New Sample Submission app and ITP resources released
- Sentinel Plant Network workshop at UC Botanical Garden

External Auditor are serving as members of our NPDN STAR-D Board while we seek funding to develop and train a Board with a more diverse membership.

We also need to recognize the extraordinary efforts of the external auditors that participated in our first two audits. I was a member of the External Audit Team that went to the University of Florida, with Dawn Dailey O'Brien of Cornell University (NEPDN) serving as Lead External Auditor, Ron French of Texas A&M (GPDN), and Kathy Burch serving as a Consultant for the auditors. The Cornell University, External Audit

role in these audits by ensuring the auditors were comfortable in their roles, providing guidance and direction as each audit was conducted and working on document policies and being a resource for the national staff throughout the process and especially during the planning stages for these audits. The External Audit Team members dedicated a lot of time to ensure they conducted a very complete and comprehensive external audit. Each member reviewed documents ahead of time and participated in planning conference calls coordinated by the lead auditor to prepare a checklist to be used the day of the audit. They arrived on site one day prior to the audit in order to complete their preparations and then spent the entire next day talking with laboratory staff, reviewing additional documents, observing laboratory functions and collecting evidence of compliance to the STAR-D quality management system. They spent most of that evening and the following morning summarizing their findings and beginning to prepare their report. They conducted a closing meeting to inform the laboratory staff members (and other interested department members) of their findings. They finished the day working on their report for the Board which they completed after returning home.

So what's next? The NPDN STAR-D Board will meet on two occasions in mid-April to review the extensive External Audit Team reports. Kathy Burch will continue her role as a consultant, this time helping the board members with their questions about this process. When they meet in April, they will discuss the report, any nonconformances found and if what was found meets the requirements and standards of the STAR-D program. Stay tuned for more information on this process.

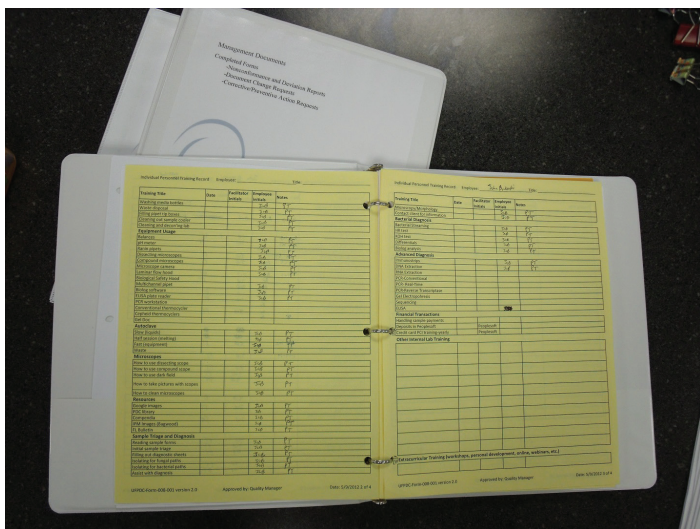
In the coming months we hope to update you on the results of the Board meetings, whether we have been successful in obtaining additional funding to continue expansion of the STAR-D project, and any trainings and workshops we will be offering to you. Again, thank you to all those listed in this article for your hard work and dedication and to our other STAR-D External Auditors in training and on-deck for future audits. We have also learned over the past few months that we have a number of laboratories beginning to use our templates and examples to get their laboratories going...our hats are off to you as well! 🍷

© Dawn Dailey O'Brien, Cornell University



Karen Snover-Cliff and Ron French review the UFPDC sample submission documents with Anne Vitorelli.

© Karen Snover-Cliff, Cornell University



Examples of how the UF lab organizes their documentation into notebooks and a staff member's training record.

Team consisted of Jason French of New Mexico State University (WPDN) serving as the Lead External Auditor, Shouhua Wang of the Nevada Department of Agriculture (WPDN) and Judy O'Mara of Kansas State University (GPDN) and again, Kathy Burch as Consultant for the auditors. Kathy played a huge

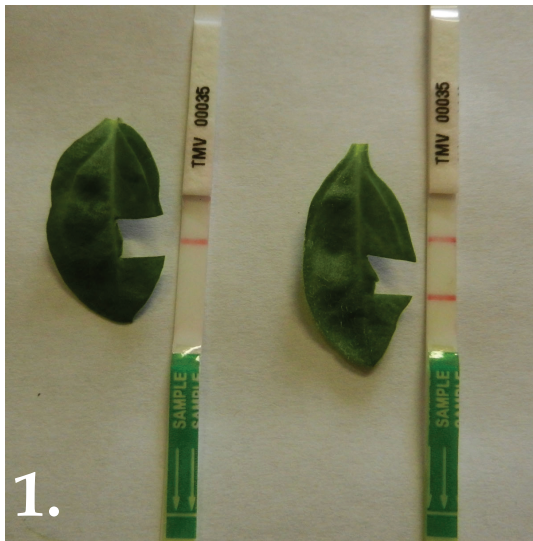


## TIP OF THE MONTH

### The Use of a French Cooking Technique, Chiffonade, To Improve Accuracy for Virus Testing

Gail Ruhl, Purdue Plant and Pest Diagnostic Lab, Purdue University and Nancy Taylor, C. Wayne Ellett Plant and Pest Diagnostic Clinic, The Ohio State University

Have you ever had an unexpected negative serological test result of tissue from a symptomatic leaf sample only to find that when you retested tissue collected from a different portion of the exact same symptomatic leaf or another leaf with similar looking symptoms (fig 1) the test was positive? Some of the procedures (serological 'dipsticks' and lateral flow units) used to test plant material for viruses require the use of a relatively small amount of tissue to avoid false positive test results. Ensuring that the test tissue is representative of the plant or plants in the sample can be a challenge. The sample may consist of multiple plants in a container or tray. Is a small amount of tissue from a single leaf sufficiently representative? Chance may lead the

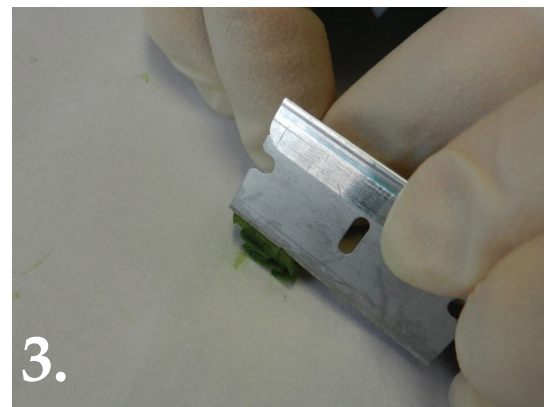


diagnostician to sample an area of the plant where the virus may be present in very low titer or not at all. The higher cost of multiple serological 'dipstick' tests or lateral flow units to ensure accuracy may not bode well with clientele. There is an easy solution!!

To maximize detection of the virus while increasing randomization in your sample try using a chiffonade. Cooks are probably familiar with

this term which means thin strips or shreds and is used when leafy vegetables or herbs are sliced to garnish a dish. Stack up 4-5 leaves, roll them tightly into a cylinder (cigar-shape) (fig 2) then slice across the cylinder, cutting the leaves into thin strips (figs 3-4). 'Voila' — the sample will now represent multiple leaves with symptoms instead of a single leaf while not exceeding the amount of tissue recommended for the test procedure (fig 5). 🌿

© photos courtesy of Purdue PPDL



## Powdery Mildew May Affect New Guinea Impatiens

Margery Daughtrey, Department of Plant Pathology and Plant-Microbe Biology, Cornell University

Now pretty much everyone knows about downy mildew on impatiens, but how about powdery mildew (PM)? PM has not been a problem on *Impatiens walleriana*, the common bedding plant so troubled by downy mildew, but PM tends to occur each year on *Impatiens balsamina* in the northeast and perhaps other areas. New Guinea impatiens, *Impatiens hawkeri*, have also shown PM occasionally over the past decade, in greenhouses or outdoor plantings. [See <http://e-gro.org/alerts.php> for photographs and an e-GRO Alert 3.10 by Nora Catlin regarding the appearance of powdery mildew on New Guinea impatiens this year]. Balsam impatiens and *I. walleriana* share the same downy mildew, *Plasmopara obducens*. Balsam impatiens and New Guinea impatiens share susceptibility to the powdery mildew *Podosphaera xanthii* (Farr and Rossman, 2014). Powdery mildew on New Guinea impatiens was also recently reported from Italy (Garibaldi et al, 2012: <http://sipav.org/main/jpp/index.php/jpp/article/view/2763>). *P. xanthii* is considered to be a species complex, including host-specific as well as non-host-specific pathogens (Braun and Cook, 2009). *P. xanthii* is reported from members of all of these families: Asteraceae, Balsaminaceae, Caricaceae, Cucurbitaceae, Fabaceae, Gesneriaceae, Malvaceae, Medusagynaceae, Polemoniaceae, Scrophulariaceae, Solanaceae, Verbenaceae, around the world. Growers



© Margery Daughtrey, Cornell University

should be careful to watch New Guinea impatiens for powdery mildew this season, because this is not a crop where they would ordinarily expect this disease.

Braun, U. and Cook, R. T. A. 2009. *Taxonomic Manual of the Erysiphales*. CBS-KNAW Fungal Biodiversity Centre. Utrecht, The Netherlands. 707 pp.

Farr, D.F., & Rossman, A.Y. *Fungal Databases, Systematic Mycology and Microbiology Laboratory, ARS, USDA*. Retrieved February 16, 2014, from <http://nt.ars-grin.gov/fungaldatabases/>

Garibaldi, A., Gilardi, G., Poli, A., and Gullino, M. L. 2012. First Report of Powdery mildew of impatiens New Guinea, caused by *Podosphaera* sp., in Italy. *Journal of Plant Pathology* 94 (4, supplement): S4.85-S4.105 🍃

## NPDN/USDA-APHIS; 2014 Advanced Diagnostic Workshops – Update #3 TIME IS RUNNING OUT BUT A COUPLE OPENINGS REMAIN!

Are you hoping to fit a diagnostic technique workshop into your schedule this spring? We still have 1–2 openings in most of the workshops being offered this spring. Please see below for trainings sessions and dates of the workshops being offered in March of 2014:

Week 1: Bioinformatics, March 4–6, 2014, 3 days—FULL!

Week 2: Phytophthora, March 11–14, 2014, 3.5 days—FULL!

Week 3 (first part of week): Potato Wart, March 17–18, 2014, 2 days

Week 3 (second part of week): Citrus Greening-HLB, March 19–21, 2014, 3 days

Week 4: Citrus pathogens, March 25–28, 2014, 4 days

If you are interested in any of these workshops, please contact Karen Snover-Cliff, [kls13@cornell.edu](mailto:kls13@cornell.edu), as soon as possible.



## Using the Get Started Implementation Booklet to Establish the STAR-D Laboratory Accreditation System in your Laboratory; Step 6

Karen Snover-Clift and Dawn Dailey O'Brien, Department of Plant Pathology and Plant-Microbe Biology, Cornell University



So far we have reviewed steps 1 through 5 of the "STAR-D: How to Get Started in Your Laboratory" booklet. Hopefully those articles were helpful and have given you a few ideas about planning for the implementation of the STAR-D laboratory accreditation quality management system in your laboratory. We understand that the idea of implementing such a complex system can be daunting. It is much easier to implement if it is broken down into manageable segments, therefore, we are continuing the review of each page within the booklet by providing this information in the NPDN News, under the STAR-D quality corner section.



### How to Get Started – Sample Handling

Step Six builds on the previous steps. Step Six guides you through an evaluation of your sample handling procedures to include how samples are received in your laboratory, your method of uniquely identifying each sample, how you deviate from procedures if necessary, your procedures to protect samples and sample information, how you store samples, your retention protocol regarding samples and associated documents or information, how you transport samples and cultures and how you dispose of all sample related materials.

Of course samples are the core of our laboratory function and documents such as procedures, logs and records regarding samples are an essential part of the quality management system as well as general laboratory management. Our labs use data management systems such as PDIS, DDDI or PCLINIC. Regardless of which program is used, the database management systems provide a means to organize samples, input findings, generate responses for clients and keep long term records. The systems often provide the means of sample identification and management to include document distribution, security, retention, and storage. The existing systems might be the ideal

place to start your sample handling section. After you are comfortable with putting that in place, you can add to this section by creating or moving existing sample processing and handling procedures into your system.

*NOTE: Remember it is not required that you have a written procedure for every laboratory function. Not everything needs to be written down! Written procedures are ideal and are of great help when training new employees and/or a great resource if the expert of a task leaves your laboratory. However, if you train a staff member to perform a function and they are capable of performing that function without a written protocol, there is no need to create a written protocol.*

To begin the process of incorporating sample handling procedures into your quality management system, you should set a goal for each activity in this section. When completed, post the date. Checking off each item provides a great sense of accomplishment!

#### Activities:

- ★ Evaluate any system(s) currently in place and ask yourself if it is an effective way of handling samples.
- ★ If non-existent or inadequate, select a method to be used. Consider using the templates available on the STAR-D web page regarding section 5.7 Sample Handling.
- ★ Outline how you are accomplishing sample receipt, identification, deviation, protection, storage, retention, transport, and disposal.
- ★ Use the outline to create your 5.7 Sample Handling QPs, WIs and Forms.

Step Six includes a Helpful Hints section. The hints are a collection of items gathered from a few of the diagnosticians that have started this process. They provided their most helpful messages for you. All you need to do here is review the hints, think about if any of the hints pertain to you or your laboratory and if you like one of the provided hints, discuss it with your laboratory members.

#### Helpful Hints:

- Although the sample handling section may seem indistinguishable from the test methods section, there are specific differences. Think of sample handling as how you move samples through the lab from receipt to disposal, and test methods as specific to test protocols.

article continues on page 6



## Upcoming Webinar

### Chlorination of recycled water in nursery production

Presenter: Dr. Chuan Hong, Professor of Plant Pathology, Virginia Tech & a panel of collaborating growers with substantial experience in chlorination technology

Tuesday, March 4, 2014, Noon to 1:00 pm (Eastern)

To participate in this webinar, please go to

<http://connect.extension.iastate.edu/irrigation-water/>

and dial 1-888-619-1583 then enter pass code: 491981

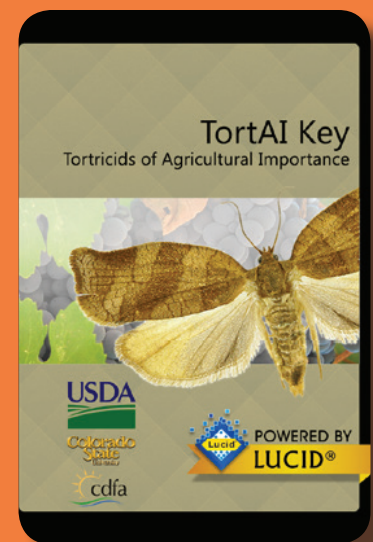
Visit the project site at [www.irrigation-pathogens.info](http://www.irrigation-pathogens.info) for recordings of past webinars and for other ongoing educational programs and exciting research activities. For more information about the webinar, or questions, contact Chuan Hong at [chong2@vt.edu](mailto:chong2@vt.edu).

Quality Corner article continued...

- In fact, the NPDN SOPs provide instructions for sample handling and test protocols in one document.
- Many labs simply show staff their sample handling process rather than providing them with written documents. This is acceptable if you can provide evidence that staff know all aspects of sample handling.
- Documents such as sample sign-in sheets, sample submission guidelines, sample submission forms, etc. are all part of sample handling.
- In this context, sample deviation refers to the situation when specimens depart from the specified conditions needed for the relevant test method.

Please contact us with any questions! Next month we will proceed to Step 7...How to Get Started-CARs and PARs! 🌱

ITP's Lucid Mobile apps now available at the iTunes Store\*



\* Desktop editions of key and original data source for the Lucid Mobile key apps can be found at <http://idtools.org>.



## Check Out Our New App!

Nancy J. Taylor, C. Wayne Ellett Plant and Pest Diagnostic Clinic, Ohio State University and Joan Allen, UConn Plant Diagnostic Laboratory, University of Connecticut

A Plant Diagnostic Sample Submission app has been developed and released by eight university-based diagnostic labs in partnership with a private company, IN3. The app allows clients to submit up to six images for diagnosis or identification along with relevant information about the plant or insect and its site (Figures 1 and 2). A benefit to diagnosticians is that

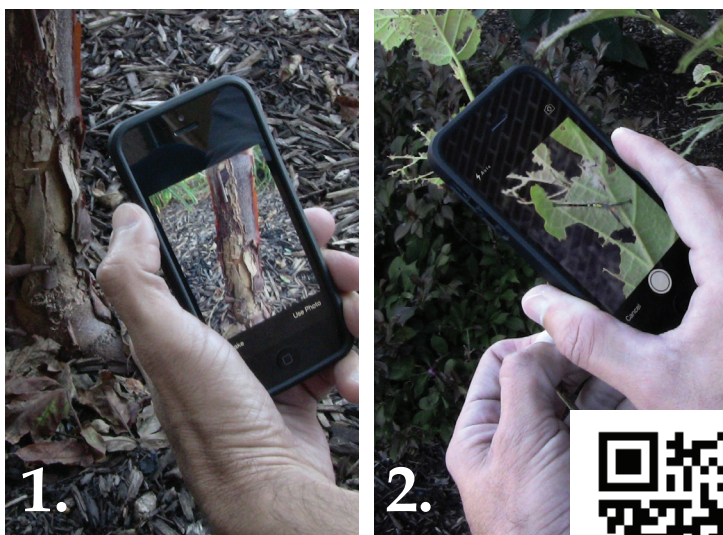


Figure 1 and 2. Capturing a diagnostic image.

the symptoms and their distribution can be seen as they appear in the field or other settings. The app, Plant Diagnostic Sample Submission, is currently available for iPhone, iPad and iPod touch and is a free download from the iTunes App store (Figure 3) or <https://itunes.apple.com/us/app/plant-diagnostic-sample-submission/id669269520?mt=8>.

Client feedback so far has been very positive. Growers, landscapers, educators, extension professionals and gardeners now have an easy way to submit digital images of plant problems or pests on the go. As of January 31, 2014, there have been 1,913 downloads; participating labs have reported as few as 1–2 and as many as 30+ samples submitted using the app since its launch on July 1, 2013. Some diagnostic labs accept sample submissions from anyone; others limit



Figure 4. Part of the tutorial on diagnostic photography. Figure 5. Partial list of sample types. Questions have been tailored for each sample type.

submissions to staff only. A password is required to submit a sample to one of the restricted labs; the password is available from the lab.

Following installation of the app the submitter is prompted upon first use to select which lab will receive the user's samples. That lab's contact information, logo and welcome screen will appear and that lab will become the client's default lab for future submissions although the app's settings can be changed if desired. There is a small initial tutorial on taking good digital images for diagnosis (Figure 4). The user is required to provide contact information and is guided with questions tailored to various crop situations such as agronomic, turf, ornamentals, fruit, vegetables, etc. (Figure 5). Some answers are required; others are optional.



Figure 3. QR code for Plant Diagnostic Sample Submission app

Diagnosticians benefit when clients use the app. There are required fields which give diagnosticians more submitter contact information than an email address thus making the geographic origin of the sample known. Required background information about the sample beyond "something is wrong with my plant" or "what is this bug" will supplement the images and aid in diagnosis or identification. The submitter is asked whether a physical sample is also being sent which will help diagnosticians connect images to a physical sample which may arrive some days after the electronic submission. The app should also help diagnosticians organize digital sample submission records; diagnosticians or labs may choose to transfer the sample submission data to their laboratory's computer record keeping system and use that system to respond

to the sample submission.

Partners in development of the Plant Diagnostic Sample Submission app are:

- IN3
- Alabama Cooperative Extension System
- University of Connecticut Plant Diagnostic Laboratory
- University of Illinois Extension
- University of Kentucky Plant Disease Diagnostic Laboratory (County ANR/HORT Agents only)
- Michigan State University Diagnostic Services

Laboratory

- University of New Hampshire Cooperative Extension Plant Diagnostic Lab (UNHCE Field & State Specialists only)
- Ohio State University, C. Wayne Ellett Plant and Pest Diagnostic Clinic
- Purdue University Plant and Pest Diagnostic Laboratory

If your institution or agency wishes to add the Plant Diagnostic Sample Submission app to its portfolio of offerings contact: IN3, attn. Dr. Bob McCullough, by email at [bob@in3applications.com](mailto:bob@in3applications.com) or by phone at (765) 404-7034 to negotiate a contract. 🍃

## New Resources from USDA-APHIS-ITP

Terrence Walters, USDA-APHIS-PPQ-S&T-FCL-ITP

USDA-APHIS's Identification Technology Program (ITP) is pleased to announce the release of edition 2 of *Longicorn ID*. Edition 2 adds a Lucid key and fact sheets for the 82 tribes of the subfamily Lamiinae (Cerambycidae) to *Longicorn ID*. The update also adds dorsal habitus photographs for 568 exemplar specimens representing the subfamily. Of these new images, 251 represent holotype specimens, 30 represent syntype specimens, and 4 represent lectotype specimens.

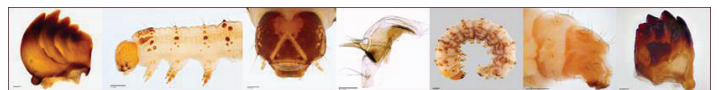


Cerambycid beetles include four families and are considered among the most serious wood-boring pest species in the world. Due to the large size of this group, the development of *Longicorn ID* has been broken into phases. When complete, *Longicorn ID* will provide identification support to the four families, 14 subfamilies, and 250 tribes of Cerambycid beetles. Edition 3 of *Longicorn ID*, due out in early 2015, will include keys and fact sheets for the tribes of the subfamilies Lepturinae and Cerambycinae.

*Longicorn ID* can be accessed at: <http://cerambycids.com/longicornid/>

## *LepIntercept: an identification resource for intercepted*

*Lepidoptera larvae* is a web-based tool specifically designed to be used by identifiers working at U.S. ports of entry, however, the information contained in the tool's fact sheets and keys will also be valuable to any lepidopterist working with larvae and/or exotic pests.



*LepIntercept* includes detailed fact sheets with information on taxonomy, host/origin, recorded distribution, and a comprehensive larval diagnosis and identification authority discussion. More than 300 high-quality photographs and setal map drawings illustrate diagnostic characters for every species. The tool also includes an interactive identification key covering frequently intercepted *Lepidoptera* larvae, the first complete dichotomous key treating all *Lepidoptera* larvae included in the National Identification Service authority database, and other dichotomous keys treating difficult to identify groups of major pests such as *Helicoverpa*, *Diatraea*, *Spodoptera* and *Tortricidae*.

*LepIntercept* can be accessed at: <http://idtools.org/id/leps/lepintercept> 🍃



# TRAINING & EDUCATION

## Sentinel Plant Network Workshop at UC Berkeley Botanical Garden

Rachel McCarthy, NEPDN, Cornell University

On February 25 and 26, the Sentinel Plant Network (SPN) held a professional development workshop for northwest SPN gardens at the University of California Botanical Garden at Berkeley. The UC Botanical Garden has a tremendously diverse collection of plants from around the world and proved to be a great venue for an early detection workshop. Chris Carmichael, Associate Director of Collections & Horticulture and the UC Botanical Garden horticulture staff were gracious hosts!

The northwest presentation team consisted of Cheryl Blomquist, senior plant pathologist with the California Department of Food and Agriculture (CDFA), Jason Leathers, CDFA state entomologist, Chuck Barger, Technology Director and Public Service Assistant, Center for Invasive Species & Ecosystem Health (Bugwood), Ronnie Eaton, Deputy Agricultural

If unsure about a plant problem or you see new or unusual symptoms, contact your diagnostician to see about sending in a sample for confirmation.

Commissioner for quarantine and pest exclusion, Alameda County Department of Agriculture, Dick Hoenisch, Training and Education Coordinator WPDN, as well as SPN managers Dan Stern from the American Public Gardens Association (APGA) and Rachel McCarthy (NEPDN).

This is SPN's third series of workshops and like the first, content is aimed to update frontline plant health care professionals on regionally significant plant pests and pathogens and give them new diagnostic tools to improve their monitoring efforts. Cheryl gave an update on significant tree pathogens and talked about exotic pathogens in restoration nurseries. Jason spoke about several new pests impacting California

including the worm slug, *Boettgerilla pallens*, and weeping ficus thrips, *Gynaikothrips uzeli*. Ronnie and Cheryl made a great team for the famed scouting walk and emphasized that when scouting one should never make assumptions. If unsure about a plant problem or you see new or unusual symptoms, contact your diagnostician to see about sending in a sample for confirmation. Great advice!



Chris Carmichael leads a tour through the garden so participants can practice taking photos for sample submission and Cheryl Blomquist talks to the group on the scouting walk.

Interested in tech savvy tools to improve monitoring? Chuck gave an incredibly informative overview on scouting and diagnostic apps available for smartphones and tablets including Bugwood's EDDMapS. He



© Rachel McCarthy, Cornell University



demonstrated how several of the apps work and how they can be used out in the field for reporting or to assist in ID. Learn more about Bugwood’s smartphone apps at <http://apps.bugwood.org/>

This workshop served about 30 individuals from 17 gardens in California, Alaska, Idaho, Washington, Oregon and Arizona. Special guests included Ellie Barham, Botanical Gardens Conservation International and Dominique Collins, senior entomologist with the Food and Environment Research Agency. Ellie and Dom came all the way from the United Kingdom to learn more about SPN as they look to grow a similar program abroad. Paul Kanninen, USDA-APHIS-PPQ officer with the San Francisco Bay Work Unit contributed to conversations throughout the workshop which provided perspective from a regulatory standpoint, “Thank you for the opportunity to attend the SPN workshop. It was a wonderful experience. I enjoyed meeting everyone and am impressed with all of the work that is being done.”

The Berkeley meeting was SPN’s final domestic workshop in this series. This summer SPN heads south of the US border for an international professional development workshop for SPN member gardens from the southern US, Hawaii, Puerto Rico, Mexico and Central America.



Dan Stern, SPN-APGA, Paul Kanninen, USDA-APHIS-PPQ and Rachel McCarthy, SPN-NPDN.

© R. McCarthy, Cornell University

¿Habla usted español? If you are interested to learn more about this unique opportunity please contact Rachel at [rachel.mccarthy@cornell.edu](mailto:rachel.mccarthy@cornell.edu). Priority will be given to diagnosticians from southern states and those who speak Spanish. Don’t be shy! 🌿

## REGIONAL NEWS



### GPDN 2014 Webinar Series

Linnea Skoglund, Schutter Diagnostic Lab, Montana State University

The Great Plains Diagnostic Network is offering a webinar series again in 2014. Webinars are open to anyone who would like to attend and begin at 10 CT/9 MT. You will need a computer with an internet connection and speakers. To join go to <http://connect.ksre.ksu.edu/gpdnseminars>.

If you have any questions regarding this seminar series or connecting, contact Linnea Skoglund ([linnea.skoglund@montana.edu](mailto:linnea.skoglund@montana.edu),

406-994-5150) or Sharon Dobesh ([sdobesh@ksu.edu](mailto:sdobesh@ksu.edu), 785-532-1340). All webinars are recorded and can be viewed later at [www.gpdn.org](http://www.gpdn.org) along with those from 2008 through 2013. 🌿

DATE	SPEAKER	TITLE
2/5/14	Alison Robertson	Tips and Tricks for Diagnosing Goss's Wilt
2/12/14	Jim Jasinski	An Introduction to the Brown Marmorated Stink Bug
2/19/14	Sally Miller	International Plant Diagnostic Network
2/26/14	Alma Laney	Association and Detection of Rose Rosette Virus with an Old Disease
3/5/14	Nancy Gregory	Toward Single Scientific Names for Fungi and Oomycetes in Database Applications
3/12/14	Febina Mathew	Identification and Characterization of <i>Diaporthe</i> Species Infecting Sunflowers



## UPCOMING EVENTS

### Training/Workshops

May 2014

Bark and Ambrosia Beetle Academy

University of Florida

Gainesville, FL



September 29–October 3, 2014

The 19<sup>th</sup> Ornamental Workshop on Diseases and Insects

Hendersonville, NC

## PHOTO OF THE MONTH

Asian gypsy moth female

*Lymantria dispar*

longer and stronger wings allow for flight – female European gypsy moth is flightless



USDA-APHIS-PPQ Archive  
USDA-APHIS-PPQ, Bugwood.org

[www.bugwood.org](http://www.bugwood.org)

## CONTRIBUTE

### Share Tips and News with Your Colleagues

Recently write an article for a trade journal? Do you have a tip, announcement, regional news or network update you would like to include in the *NPDN News*? Email Rachel McCarthy at [rachel.mccarthy@cornell.edu](mailto:rachel.mccarthy@cornell.edu)

Rachel McCarthy, Editor  
NEPDN, Training and Education Coordinator  
Cornell University



National Institute of  
Food and Agriculture