

NPDN News Rewind – Pest Highlights from 2010

Rachel McCarthy, Cornell University,
Department of Plant Pathology and
Plant-Microbe Biology

In looking back, 2010 proved to be a memorable year for many of us working with insects and diseases. Some significant pests found and reported during 2010 were new to the U.S., others may have been here but made big moves geographically within the U.S. The following highlights some of the finds, and similar news, reported here during the past year.



Photo courtesy of Plant Pest Diagnostics Center, CDFA.

The Florida Department of Agriculture & Consumer Services, Division of Plant Industry reported a new mealybug in south Florida. *Nipaecoccus viridis*, an Asia native, was collected on November 13, 2009. A polyphagous pest, *N. viridis* attacks food, forage, fiber crops, and ornamental crops in its native Asia. It is also a pest of stored potatoes. The potential for invasiveness appears high. (January 2010)

On December 28, 2009, William Haines, University of Hawaii, notified HDOA of a new **fruit-piercing moth**, *Oraesia excavata* in Hawaii. The first known specimen was observed in a student's collection for an entomology class. It was collected at Kula, Maui, on November 24, 2009. The moth is orange colored and is very distinctive – like a dead leaf. The

worldwide distribution includes Japan, Korea, China, Thailand, and Taiwan. (February 2010)

The **European Grapevine Moth (EGVM)**, *Lobesia botrana*, was found for the first time in North America in September, 2009, in the heart of California's Napa Valley at Oakville and Rutherford. The *NPDN News* highlighted the article which appeared in *Practical Winery and Vineyard* magazine and co-authored by Dick Hoenisch. (March 2010)

APHIS released a Federal Order on February 22, 2010, which identified **10 additional plants for the *Phytophthora ramorum* regulated plant list**. Added to the list were: *Choisya ternate*, *Cornus kousa*, *Daphniphyllum glaucescens*, *Ilex aquifolium*, *Lithocarpus glaber*, *Magnolia cavaleri*, *Magnolia foveolata*, *Ribes laurifolium*, *Vaccinium myrtillus*, *Vaccinium vitis-idaea*. The regulated list now includes 127 hosts. (March 2010)

Issue Highlights:

- Level of confidence terms
- Peppers for bacterial soft rot bioassay
- How to upload images in Bugwood
- SOD publication released
- Regional websites move to NPDN portal
- SOS confirmed in MS



National Institute of
Food and Agriculture

On April 8, 2010, the U.S. Department of Agriculture's Animal and Plant Health Inspection Service (APHIS) confirmed the presence of *Guignardia citricarpa*, or **citrus black spot, in Florida**. (April 2010)

The **green alder sawfly (*Monsoma pulveratum*)** was positively identified from **Alaska**, a new U.S. record, in 2009. The first North American records were from Newfoundland, Canada in the early-mid 1990s. Green alder sawfly is

native to Europe, North Africa and the Near East, where its preferred host is European black alder. (April 2010)



Cercidiphyllum japonicum leaves. Photo courtesy of Molly Swartwood, Cornell University.

The list of regulated articles for Asian longhorned beetle has been updated to include *Cercidiphyllum* (katsura tree).
June 2010

In July the **Asian longhorned beetle (ALB)** was found on six red maple trees in **Jamaica Plain, MA** (across the street from the Arnold Arboretum) and the **emerald ash borer (EAB)** was found in two new counties in **NY** (over 100 miles from the first find in the state, and in the Catskills), as well as in a truck stop in **Knox County, TN**. (July 2010)

On July 23, APHIS-PPQ confirmed the identification of the fungal pathogen, *Elsinoë australis*, causal agent of **sweet orange scab (SOS)**, on residential lemon and tangerine trees in Harris County, **TX**. This was the first confirmation of SOS in the U.S. On August 20, 2010, APHIS confirmed the presence of SOS in **Orleans Parish, LA** as part of the CHRP citrus greening sentinel site survey. (August 2010)

On August 5, the Tennessee Department of Agriculture announced the discovery of **thousand cankers disease of black walnut in Tennessee**. This was the first find of this disease in the native range of black walnut. (August 2010)



Branch showing cankers caused by thousand cankers disease on black walnut. Photo courtesy of Karen L. Snover-Clift, Cornell University.

The **coffee berry borer, *Hypothenemus hampei***, was found in several coffee farms in **Kona, Hawaii** and confirmed by USDA-APHIS on September 8. The beetle is native to Central Africa and

found in many coffee-growing regions of the world, including Central and South America. It was first reported in the U.S. from Puerto Rico in August 2007 and it is not known how it was introduced to Hawaii. (September 2010)

On November 12, APHIS-PPQ announced the confirmed detection of a dead **red palm weevil (RPW), *Rhynchophorus ferrugineus***, on October 15, 2010. The exotic beetle was found in palm trees in the Laguna Beach area of **Orange County, California**. This was the first detection of RPW in the United States. (October/November 2010)

Florida Agriculture and Consumer Services Commissioner announced on November 16, that a **peach fruit fly, *Bactrocera zonata***, has been found in a trap in a guava tree in **Miami-Dade County, Florida**. This was the first find for this species in Florida and the the third exotic fruit fly find in Florida this year. (November 2010) 🍃

Emerging Serious Pest: Brown Marmorated Stink Bug (BMSB)

Dick Hoenisch, University of California at Davis, Department of Plant Pathology

Halyomorpha halys Stål, order Hemiptera, family Pentatomidae

Brown marmorated stink bug (BMSB) is native to China, Japan, Korea and Taiwan. It may have been introduced to the U.S. by way of cargo shipments from Asia. It is considered a major economic pest in Asia attacking a variety of high value crops, including tree fruit. This insect has made its presence known by causing losses in eastern stone fruit and apples and by becoming a late season pest in urban areas. The first identification of BMSB in the U.S. was in Allentown, PA, in 2001, where it quickly spread to other Mid-Atlantic states. It is now found in 29 states across the US. BMSB appears to now be resident in northwest OR. It was also intercepted by the California Department of Food and Agriculture (CDFA) in Vallejo, CA in March 2005.


In regions where BMSB is present, mass migrations of adults flood into urban areas, including homes, looking for a warm place to overwinter. Although harmless to people, they can emit an unpleasant odor if disturbed. When BMSBs feed on apple they cause cat facing as well as deformation and internal brown spotting of peaches rendering all of the fruit unmarketable for fresh market. It also has been found feeding on sweet and field corn (where there is no kernel development), tomato (where there is fruit distortion and cloudy spot), and pepper (fruit distortion and cloudy spot). The damage from BMSB feeding is especially bad on some vegetables where it can deform

the fruit more severely than other stink bug species. BMSB can be a pest and contaminate in winegrapes. If the BMSB are in the grape clusters at harvest and crush, they can impart their odor to the wine. The “stink” compound is trans-2-decenal and trans-2-octenal, bitter-sweet aldehyde compounds.

See the Penn State website: <http://ento.psu.edu/extension/factsheets/brown-marmorated-stink-bug#section-6> (see especially the section about BMSB in buildings and homes). The Oregon pest alert with contact information is: www.oregon.gov/ODA/PLANT/docs/pdf/ippm_halyomorpha_alert_09.pdf?ga=t and the Northeastern IPM Center alert is: www.hgic.umd.edu/content/documents/Stink_Bug_Pest_Alert.pdf.



Photo courtesy of David R. Lance, USDA APHIS PPQ, Bugwood.org

Click here to read the full article in the *WPDN First Detector News*. 



Did you know that

Ralstonia solanacearum
race 3 biovar 2
(RS r3/b2) has been
reclassified?

It is now identified as
Ralstonia solanacearum
phylotype II sequevar 1
(RS Phyll/Seq1)

Visit the NPDN homepage at www.npdn.org for more information on specific Program Area Committees.
Login and password required

DIAGNOSTICS
COMMITTEE

Diagnostics Committee

Anne Vitoreli, Committee Chair, University of Florida, Department of Plant Pathology

The Diagnostics Committee held a conference call on December 9, 2010 and the following agenda items were discussed:

- IT-Diagnosticians Meeting
- Trainings and Workshops
- SOP updates

- Surge Capacity
- Level of Confidence

Please refer to the website, www.npdn.org/diagnostics, for complete minutes of this meeting. The next conference call will be held on Thursday, January 6, 2010.

EXERCISE
COMMITTEE

Exercise Committee

Sharon Dobesh, Program Area Manager/Committee Chair, Kansas State University, Department of Plant Pathology

The Exercise Committee conducted a conference call on December 21, 2010 and the following agenda items were discussed:

- APHIS PPQ table top exercises
- Website updates

- Exercise-poster / NPDN review information
- Regional updates
- Next conference call

The next conference call is scheduled for Monday, January 10, 2010.

NATIONAL
DATABASE

National Database Committee

Nancy Gregory, Committee Chair, University of Delaware, Department of Plant and Soil Sciences

Following the last newsletter, the National Database Subcommittee held a conference call on December 15, 2010. The subcommittee continues to work on reviewing the extensive NPDN pest lists. The agenda included:

- Discussion of change submissions
- Follow up on the enhancements to the pest

- grouping/synonym software
- Future discussion of insect pest lists and entomologists to assist
- Discussion of the Phytoplasma pest list

The next conference call will be held on January 12, 2010.

TRAINING
EDUCATION

Training and Education Committee

Dick Hoenisch, Committee Chair, University of California at Davis, Department of Plant Pathology

The Training and Education Committee held a conference call on December 20, 2010 and the following agenda items were discussed on the call:

- Discussion of ways to connect/partner with APHIS and CAPS programs.

- Module Review Policy
- Other

The next conference call is scheduled for Monday, January 24, 2010.

A Review of the Level of Confidence Terms

Karen L. Snover-Clift, Cornell University, Department of Plant Pathology and Plant-Microbe Biology

The confidence level terms should be used to describe the level of confidence of the diagnoses in each of the Genus, Species and Subspecies fields. In some programs, the Species and Subspecies fields do not require an entry when the pest code selected is an abiotic disorder or a pest or pathogen that was only identified to the Genus level. These programs will automatically send “Inconclusive” in the appropriate field(s) as these fields do not have an appropriate entry. For example, it does not make sense to require a species level confidence level for an entry of “Excessive Water” which only fills the Genus field or all the options that contain a “sp./spp.” in the Species field. Additionally, if no entry is selected for Abiotic Disorders and Identification Analysis codes, some programs send “Inconclusive” as the default option.

Recently, members of the PDIS Change Management Team and the IT Program Area Committee discussed this issue as it was brought up at the 7th IT-Diagnosticians Meeting in Phoenix, AZ. After these initial discussions, it was decided to add another term – Not Applicable. Adding this term would have impact in how the reports and maps work, but the consensus was that there should not be any issues. If this confidence level is opened up for every entry, it could create some problems. Therefore the usage of this confidence level will be restricted to a standardized list of appropriate entries. The next step is to define the standardized list and share it with the diagnosticians and epidemiologists. This item will be addressed at upcoming conference calls and finalized updates will be sent to the diagnosticians.

Current Terms and Definitions:

CONFIRMED – The diagnosis was derived using approved molecular technologies, serological testing and/or morphological observations which allowed for the confirmation of the organism to Genus species and/or race or pathovar level.

NOT DETECTED – The sample was submitted as a suspect sample or as part of survey project. The pathogen was not detected on this sample at this time using approved molecular technologies, serological testing and/or morphological observations.

SUSPECTED – Diagnostic symptoms of the pathogen were present but evidence of the pathogen could not be confirmed at this time. This term may also be used at the species level if confirmations cannot be made. This term may also be used with abiotic entries.

INCONCLUSIVE – Although a suitable sample was received, a reliable result could not be achieved. For example, the test kit may have not worked correctly and there was no sample material remaining to perform the test again. Or, no DNA was detected in a PCR analysis. Inhibitors may have been present in the sample. A second attempt may have been made with the same results. The only conclusion is to label the sample as inconclusive.

Pending Terms and Definitions:

NOT APPLICABLE – The diagnosis indicated a result that does not require a level of confidence term. For example, the processing could not be completed without more sample material so the code of “Additional Sample Requested” should be selected as the diagnosis and “Not Applicable” should be used in the Genus field. 🌱

Diagnostic Updates



Peppers as an Alternative to Potato Slices for Bacterial Soft Rot Bioassay

Michael J. Munster, North Carolina State University
Plant Disease and Insect Clinic

A very useful tip I picked up from bacteriologist and pepper pathologist Dr. David Ritchie was to use pepper fruit to screen for soft rot activity in bacteria. This test is easier to set up and to read than the traditional potato slice test. I can vouch for its effectiveness with *Pectobacterium (Erwinia) carotovora*. It should work for *Dickeya (Erwinia) chrysanthemi* as well, but I don't know how other less pectolytic bacteria such as *Pseudomonas viridiflava* would behave.

- 1) Obtain ripe pepper fruit. I use bell pepper but suspect that other types will work as well. Peppers can be store-bought; surface traces of fungicides should not interfere with the test.
- 2) Wash the fruit by hand in mild dish detergent.
- 3) If you are concerned about ambient bacterial contamination, spray the fruit to runoff with 70% ethanol and allow it to dry. After this point, handle the fruit only from the ends.
- 4) Set the fruit on its flattest side, so it is unlikely to roll. It will try to, anyway, so be careful.
- 5) Using a permanent marker, draw 1- to 2-cm circles on the upper side of the fruit to mark the inoculation points. Make duplicate inoculations for each bacterium you want to test plus one for the negative control and one for a positive control, if you have one. Label each circle to indicate what culture or control will be inoculated there.



Fig. 1. A "modified" dissection needle useful for inoculating bacteria into pepper fruit. Small tick marks are millimeters.



Fig. 2. Positive (left) and negative (right) results of the bacterial soft rot test on pepper. Photo taken about 30 hours after inoculation.

6) Use a dissecting needle to pick a lock, or else mistreat it in some other way so that it acquires a small hook at the tip (Fig. 1). This instrument is better at breaking through the pepper skin than a toothpick, and it can pick up more bacteria than a straight needle.

7) Use the flamed and cooled needle to lift a visible amount of material from a log-phase bacterial colony, and puncture-inoculate the fruit at the center of the corresponding circle. Try not to break through into the locule of the fruit. If you did not introduce many bacteria in the process, you can pick up a few additional cells and place them in the hole.

8) Use sterile water to inoculate the negative control circle in the same way. You could also use a nonpectolytic bacterium like *Pseudomonas syringae*.

9) Place the fruit on the bottom (or overturned lid) of a disposable Petri dish, within a moist chamber. Close the chamber and incubate at room temperature for 18 to 24 hours.

10) A darkened, flattened area at the point of inoculation (Fig 2) indicates soft-rot activity. The darkened area will be extremely soft when probed. If nothing has occurred by 24 h, the result should probably be read as negative, though I've been known to give it a little longer.

11) Dispose of the pepper/bacteria cocktail appropriately. 🌱

New Way to Upload Images in Bugwood

Joseph LaForest, University of Georgia, Center for Invasive Species and Ecosystem Health

The Bugwood Image System contains many high quality images that can be used by diagnosticians to identify problem causing organisms and educate people about what is causing their problems. About nine million unique users use the system every year and we receive a steady flow of new images on a variety of topics. As you can imagine, we are always receiving feedback from users about new features they would like to see in the Bugwood Image System. In response to those requests, we have several new tools that we think you will like, the first of which is included here.

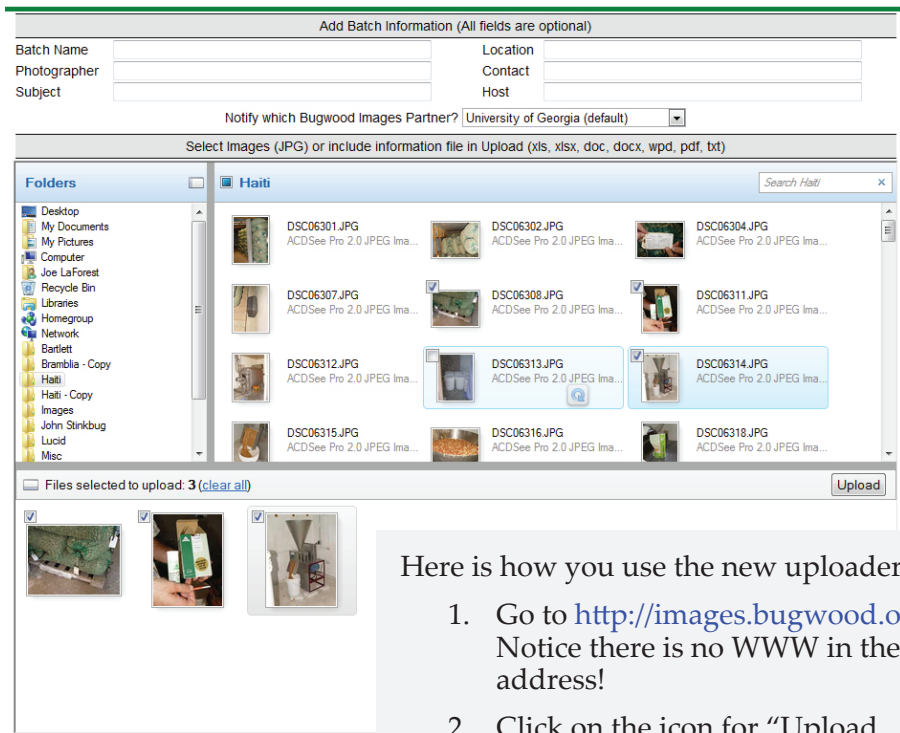
Image Uploader

In the past, sending images and the related information to Bugwood has been difficult for some. We've used a wide assortment of methods including spreadsheets, portable hard drives, DVDs, EXIF information and word documents to help photographers post images on the system. To make this easier, we have a new image uploader available at <http://images.bugwood.org>.

The most difficult part of using the new system is loading it on your browser the first time! Here's why - web browsers are not designed to send more than one file at a time. That kind of functionality requires a user to install an add-on or plugin that tells the browser how to do it. When a user visits a page that requires features to be installed, the web browser looks at its security settings. If you do not have permission to install features, nothing shows up...so the page will not

work for you. If permission is granted, it will provide you with prompts or other messages asking you to confirm that you want install the additional features. This requires you to evaluate what kind of risk installing the features poses...in other words... do you trust the creator of the website to not send you nasty programs. By allowing the web browser to install either the ActiveX control (Internet Explorer only) or the Java Application (all other browsers), you

BUGWOOD Image Database System images.bugwood.org



Here is how you use the new uploader:

1. Go to <http://images.bugwood.org>. Notice there is no WWW in the address!
2. Click on the icon for "Upload Images". This is the first icon in the "Tools" section.
3. Sign in. The same username and password that you use on any of the image sites will work here. If you do not have one, the links to create one are listed on the right. If you do not remember what yours is, the link to reset your information is directly below the username and password blanks.
4. Click the link for "Upload Digital Images". There are instructions on the page if you need a reminder.

will then be able to send batches of images from your computer to the servers at Bugwood. After you have installed the new features, your browser will always have them available unless you uninstall them.

5. Select the folder on the left that contains the images you want to upload. The top pane will show the contents of the folder.
6. Drag file icons from the top pane to the bottom pane. There is no limit to the number or the size of the images that you can send. We do limit users to only uploading JPGs and files that would contain additional information for the images such as Excel and Word documents.
7. Use the form at the top of the page to add information. None of these fields are required but all can be helpful.
 - **Subject** – what the image was taken to show.
 - **Host** – what (if any) is the food source that the subject is feeding on in the images. Where possible, scientific names are strongly preferred for both the Subject and Host.
 - **Photographer** – the person who took the image
 - **Contact** – The person who should be contacted about image requests or questions about the image. Typically, the Contact is the person who owns the image. If no Photographer or Contact is entered, we will assume the person uploading the images is the Photographer.
 - **Location** – Where the image was taken
 - **Batch Name** – Whatever name you'd like to enter to remind you of what the batch contained
 - **Node** – Bugwood Images has several partners that process the images that are uploaded. University of Georgia is the default since we handle the vast majority of images that are entered into the system. The other organizations (Colorado State University and International Society of Arboriculture) usually receive images from specific image recruitment projects.
8. Press the "Upload" button. After the upload completes, you will receive e-mail notification to verify that the upload was received. You are also redirected to a page to show you what you just sent with the information you entered in the form.
9. Edit any of the information for the individual images. The page you are directed to will let you edit the information for individual images. This is an optional step. You will have plenty of opportunities to edit this information through the rest of the process.

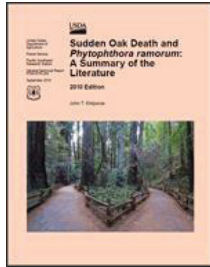
So what happens after you upload images? The Bugwood staff will look at what has been uploaded and judge the quality of the images. You will be notified by e-mail as to how many images were approved for posting. Bugwood staff will then process the images and enter any data that you provided into the Bugwood Images database. When the images and data have been entered, you will receive a final e-mail to let you know that you

may make your final review before the submission is made publicly available. Although you can always return to re-edit the information, this is a final quality control step to make sure that the information is entered as you had intended it. 🌿

Look for more *how to* articles from Bugwood in the *NPDN News* in the new year... including, **Image Usage Statistics** and **Image RSS Feed Slideshow**

Sudden Oak Death Publication Released

The USDA Forest Service, Pacific Southwest Research Station is pleased to announce the release of:



Sudden oak death and *Phytophthora ramorum*: a summary of the literature

The publication is available as a CD, book or downloadable file at www.fs.fed.us/psw/publications/documents/psw_gtr234/

There is NO charge for this publication and to order single or multiple copies:

Request by email: Email Richard Schneider, rschneider@fs.fed.us and include your full mailing address

FAX: (970) 498-1122
Phone: (970) 498-1392

Or by mail: Send your name and address in block format (as if you are addressing an envelope) to:

Publishing Services
Rocky Mountain Research Station
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Fort Collins, CO 80526-2098 USA

Indicate if you would like a copy of the CD or the book (or both)!! 🌿

Three Regional Websites Move to the NPDN Portal

Karen Scott, Cornell University, Department of Plant Pathology and Plant-Microbe Biology

Three more regional centers have moved their websites to the NPDN portal which is housed at Purdue University. [North Central \(NCPDN\)](#), [Northeast \(NEPDN\)](#), and [Southern \(SPDN\)](#) officially launched their new web sites in mid-December.

Users of these regional sites will now have the advantage of one account to access both their regional information and information located on the national site (NPDN). Now that the move is completed efforts

of the Web committee and regional IT support staff will focus on adding new features to the sites. A couple of the modules being considered for future improvements include a search option feature and a centralized calendar. 🌿

Web Update

Regional News



Sweet Orange Scab Confirmed in Mississippi

On December 1, 2010, the USDA-APHIS-PPQ announced the confirmation of sweet orange scab (SOS) on fruit collected from residential areas in southern Mississippi.

On October 22, 2010, the APHIS Molecular Diagnostics Laboratory received eight sets of *Citrus* spp. fruit collected in Pearl River, Hancock, and Harrison counties. These samples were confirmed positive for the fungal pathogen, *Elsinoë australis*, causal agent of Sweet Orange Scab (SOS).

On July 23, 2010, APHIS confirmed the identification of SOS on residential lemon and tangerine trees in Harris County, Texas. This was the first confirmation of SOS in the United States. Currently, 11 counties in Texas have been confirmed with SOS. On August 20, 2010, APHIS also confirmed the presence of SOS in Orleans Parish, Louisiana. The detection was located on a single residential lime tree. Subsequent detection survey activities have resulted

in 14 additional parishes confirmed positive for the fungal pathogen.

[Click here](#) to read the official announcement.

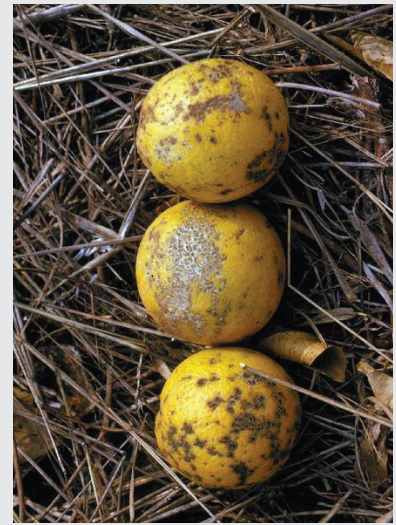


Photo courtesy of Florida Division of Plant Industry Archive, Florida Department of Agriculture and Consumer Services, Bugwood.org

Visit the APHIS website at www.aphis.usda.gov/plant_health/plant_pest_info/citrus/sweet_orange.shtml for more information including a field identification guide and pest assessment on SOS. 🌿

Job Opportunities

The Florida Department of Agriculture, Division of Plant Industry has reopened the Fruit Fly Identification Laboratory Manager position in Palmetto, Florida.

[Click here](#) to read the full job announcement.

Questions can be directed to:

Dr. Greg Hodges, Chief
Bureau of Entomology, Nematology, & Plant Pathology-DACS
p: (352) 372-3505, Ext 118
e: hodgesg@doacs.state.fl.us

National Events

January 25-28, 2011

Nucleic Acid-Based Pathogen Workshop
Lexington, KY

November 6-9, 2011

NPDN National Meeting
Berkeley, CA

Regional Events

February 22-24, 2011

NEPDN Meeting
New Haven, CT

March 21-23, 2011

Soilborne Plant Pathogens and California
Nematology Workshop
Davis, CA

Upcoming Events

Rachel McCarthy, Editor
NEPDN
Cornell University