

BOXWOOD BLIGHT – A NEW DISEASE FOR CONNECTICUT AND THE U.S.

Sharon M. Douglas, Department of Plant Pathology and Ecology, the Connecticut Agricultural Experiment Station

to national mycologists at the United States Department of Agriculture-

In October 2011, samples of boxwoods with unusual symptoms were submitted to the Plant Disease Information Office of the Experiment Station for diagnosis. Symptoms included leaf spots and blights, rapid defoliation, distinctive black cankers on stems and severe dieback (photo left).

After extensive microscopic examination and a search of the literature, the disease was tentatively identified as boxwood blight, caused by the fungus *Cylindrocladium buxicola* (syn. *C. pseudonaviculatum*). Since this fungus had not been reported in the U.S., samples of infected plants were sent



Symptoms of boxwood blight on a boxwood from a landscape planting. Photo courtesy of Sharon Douglas, CAES.

APHIS Confirms Boxwood Blight in U.S.

On December 5, 2011, APHIS announced the confirmation of boxwood blight, in Surry County, North Carolina. The pathogen, *Cylindrocladium pseudonaviculatum*, was confirmed on October 26. Subsequent detections were confirmed in Connecticut and Virginia.

Boxwood blight can impact the appearance and aesthetic appeal of several species and cultivars of *Buxus*. The pathogen is known to occur in several European countries and New Zealand.

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

Issue Highlights

- Boxwood blight webinar on January 5, 2012
- Diagnostic tip—deep well projection slides
- NPDN/USDA-APHIS advanced diagnostic workshops
- Sentinel Plant Network hosts western workshop
- IT update—NPDN portals
- *Regional News*: biocontrol of strawberry guava in HI



National Institute of Food and Agriculture

Animal Plant Health Inspection Service-Plant Protection and Quarantine (USDA-APHIS-PPQ) for identification. They confirmed the fungus as *C. pseudonaviculatum*.

HISTORY

Boxwood blight, also called box blight and boxwood leaf drop, was first described in the United Kingdom (UK)

in the mid-1990s, although the fungus was not formally identified at that time.

However, in 2002, boxwood blight was found in New Zealand and the causal agent was described and formally named as a new species, *Cylindrocladium pseudonaviculatum*.

Later that same year, the

boxwood fungus from the UK was named *Cylindrocladium buxicola*. They are now known to be synonyms for the same fungus. Since those first reports, boxwood blight has been reported throughout Europe. This disease was included in the European Plant Protection Organization (EPPO) Alert List from 2004–2008, but was removed, since no international action was requested during that period. Boxwood blight is widespread throughout the UK and, although not regulated, is considered a disease of great concern.

The geographic origin of the fungus is not known, nor is it known how the pathogen was introduced into the U.S. Boxwood blight has also been confirmed from North Carolina and Virginia. At the time of this writing, boxwood blight has been found in some Connecticut landscapes, garden centers, and nurseries in Fairfield, Hartford, Middlesex and New London Counties.

HOSTS

Boxwood blight has been reported to occur on all *Buxus* species to date, although some species and cultivars appear to be more susceptible than others. *Buxus sempervirens* 'Suffruticosa' (English boxwood) and *B. sempervirens* (American or common boxwood) appear to be highly susceptible. Other species of boxwood grown in Connecticut that have been found to be infected include many cultivars of *Buxus sinica* var. *insularis* (Korean boxwood), *Buxus microphylla* (little leaf boxwood), *Buxus microphylla* var. *japonica* (Japanese boxwood), and *Buxus sinica* var. *insularis* X *B. sempervirens* hybrids. Experimental inoculations have revealed that *Sarcococca*, another member of the boxwood family (Buxaceae), is also susceptible. The complete host range of this pathogen is not known. However, published reports have not shown evidence of substantial resistance, since no boxwood species challenged with *C. pseudonaviculatum* have demonstrated any immunity.

[Click here](#) to read the complete fact sheet on boxwood blight from the Connecticut Agricultural Experiment Station and visit their website at www.ct.gov/caes, for more information.



Established planting of boxwood with symptoms of boxwood blight. Photo courtesy of Sharon Douglas, CAES.

Boxwood Blight Webinar

Hosted by NC State University

Thursday January 5, 2012

11:00 am ET

Boxwood blight—a new disease to the U.S. recently found on boxwood in North Carolina, Virginia and Connecticut.

http://go.ncsu.edu/box_blight_webinar

The session will open January 5, at 10:00 am ET (for trouble shooting). The actual webinar will start at 11:00 am ET.

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 8, 2011, and the following agenda items were discussed:

- SOP updates
- Surge capacity update

- Lab accreditation update
- NPDN National Meeting update

The January Diagnostics Subcommittee conference call is scheduled for January 12, 2012.

**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 13, 2011 and the following agenda items were discussed:

- APHIS PPQ exercise update
- ETKnet update

- Communications SOP
- NPDN National Meeting
- Wisconsin SPRO position opening

The next Exercise Committee conference call is scheduled for January 10, 2012.

**NATIONAL
DATABASE**

National Database Committee

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

The NPDN Database PAC held a conference call on December 14, 2011. Agenda items included change submissions, pest grouping, insect lists out for review, and the virus pest list. The committee continues to work on reviewing NPDN Pest lists and on improving data entry guidelines.

Please refer to the website, www.npdn.org/national_database for complete minutes (login and password is required).

The next meeting will be held on February 8, 2012.

**TRAINING
EDUCATION**

Training and Education Committee

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

The Training and Education Committee conducted a conference call on December 12, 2011, and the following agenda items were discussed:

- Review and update of training modules

- Protect U.S. update
- Sentinel Plant Network (SPN) update

The next Training and Education meeting will be held on January 23, 2012.

Diagnostic Updates

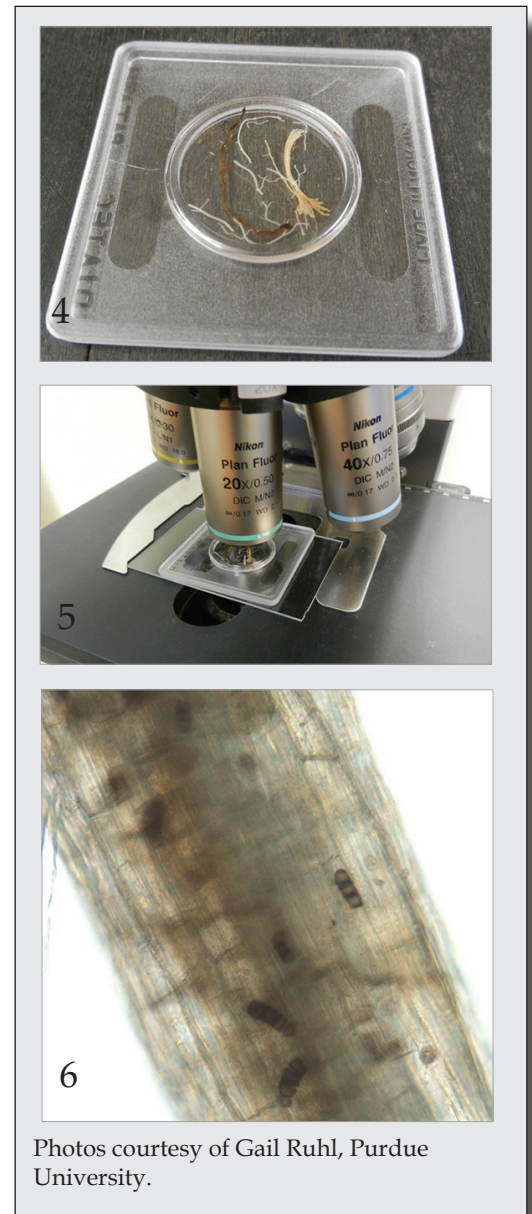
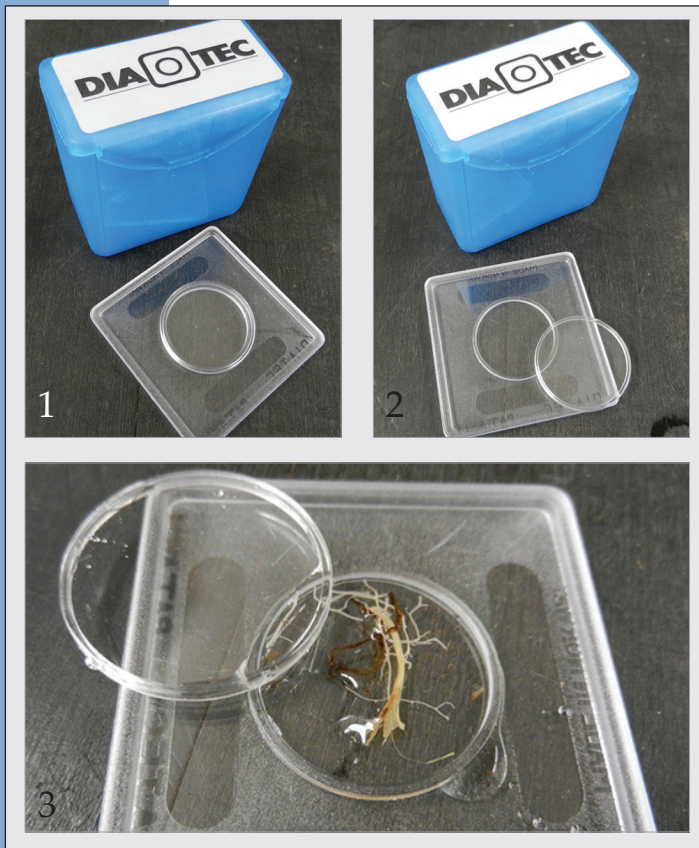
Deep Well Projection Slides – A Useful Tool for Microscope Work

Gail Ruhl, Plant and Pest Diagnostic Lab, Purdue University



If you have been using single depression microscope slides with coverslips you may be pleasantly surprised with the ease of using self-contained deep well projection slides

(Fig. 1-3). These 'slides' have secure



Photos courtesy of Gail Ruhl, Purdue University.

covers (Fig. 4) and allow for 'spill-free' transport and use. They are excellent to use for picture taking as well as in workshops and class settings where wet mounts have a tendency to dry out or spill. We have used these deep well projection slides in a class setting with compound scopes (Fig. 5) to demo *Phytophthora* sporangia as well as other fungal structures such as *Thielaviopsis* spores (Fig. 6) causing black root rot. You may also project the sample by means of a micro-video-system, 35mm or overhead projector. 🌿

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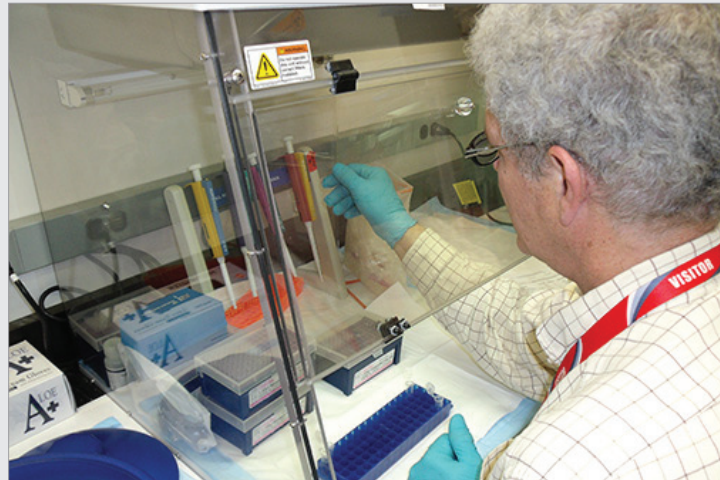
Sign
up soon!
Classes are
filling up...

NPDN/USDA- APHIS 2012 Advanced Diagnostic Workshops

Karen L. Snover-Clift,
Cornell University and Mark Nakhla,
USDA-APHIS-PPQ-CHPST-NPGBL

The NPDN Diagnostics Program Area Committee and members of USDA-APHIS-PPQ-CHPST-National Plant Germplasm and Biotechnology Laboratory (NPGBL) are pleased to announce the 2012 advanced diagnostic workshops. During the spring of 2012, we will offer advanced trainings on a number of topics. One of the most important sessions offered is on citrus leprosis (CiLV) to include sweet orange scab (SOS) and citrus black spot (CBS). We are hoping diagnosticians from all the states where citrus is grown will attend this 4½ day session. The training will cover disease symptoms and methods of detection and identification of CiLV, CBS and SOS. The molecular diagnostics will include PCR, real-time PCR, RT-PCR and RT-real-time PCR. Some diagnosticians are in need of the previously offered HLB-citrus greening training so this has been added to the line-up. Another topic offered will be bioinformatics, part one (1½ day session), which has been offered previously and will cover analysis of obtained sequences from both plus and minus strands, editing sequences, blasting sequences, understanding blast results based on size and gene target, when to directly sequence PCR products or clones, which genes are used for sequence analysis for fungi, bacteria, and viruses, what sequence analysis programs are available commercially or as freeware, and hands-on use of sequence analysis programs using sequences from case studies for different pathogen types. Bioinformatics part two (1½ day session) is a new addition to the line-up and will allow the participants

to work with their own sequences. Due to continued interest, we have scheduled three *Phytophthora* training sessions. The sessions are 4 ½ days long and cover ELISA, DNA extraction, conventional PCR (nested and multiplex), real-time PCR (ITS and Elicitin), and interpretation of results. The last topic for the spring will be potato wart with a three day workshop.



Bruce Watt prepares a master mix for pcr analysis at the potato wart workshop. Photo courtesy of Karen Snover-Clift, Cornell University.

2012 Workshops

Bioinformatics-Part One, February 21–22
(1.5 days)

Bioinformatics-Part Two, February 22–23
(1.5 days)

HLB-Citrus Greening, February 28–
March 1 (2.5 days)

**Citrus Leprosis with Sweet Orange Scab
and Citrus Black Spot**, March 6–8 (4.5
days)

NEW

**Citrus Leprosis with Sweet Orange
Scab and Citrus Black Spot**, March
12–16 (4.5 days)

Bioinformatics-Part One, March 20–21
(1.5 days)

Bioinformatics-Part Two, March 21–22
(1.5 days)

Phytophthora Basics with focus on *P. ramorum* and *P. kernoviae*, March 26–30 (4.5 days)

Phytophthora Basics with focus on *P. ramorum* and *P. kernoviae*, April 16–20 (4.5 days)

Phytophthora Basics with focus on *P. ramorum* and *P. kernoviae*, May 7–11 (ONLY IF NEEDED) (4.5 days)

Potato Wart, May 15–17 (3 days)

Expenses for travel, lodging and meals will be covered from a supplemental grant for diagnostician training. All expenses will be processed through Cornell University. There is no

registration charge for the meeting or for meeting materials; these expenses are covered by our colleagues at USDA-APHIS-PPQ-CPHST-NGBTL. Funds for reimbursement of travel expenses are limited. Priority will be given to those attending the citrus leprosis workshop followed by a first come, first served basis in order by requests received until funds are exhausted. Please sign-up as soon as possible to ensure your spot in the workshop and expense coverage! If you are interested in participating in any of these workshops please refer to the information provided below and contact Karen Snover-Clift at kls13@cornell.edu. 🌿

Education and Training

Sentinel Plant Network Hosts Western Regional Workshop

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

Earlier this month the Sentinel Plant Network (SPN) hosted another well-attended workshop for public garden professionals in the western part of the U.S. The workshop was held at the Rancho Santa Ana Botanic Garden in Claremont, CA on December 5–6. The SPN team assembled for this workshop included Dan Stern and Casey Sclar from the American Public Gardens Association (APGA) and Rachel McCarthy (NEPDN) and Dick Hoenisch (WPDN) from the NPDN.

The SPN workshops aim to teach public garden professionals about regionally specific high-consequence pests and pathogens and the importance

of early detection. Workshop participants include horticulture, IPM, education and outreach professionals from participating gardens. The two day schedule is chocked full with presentations and activities including sample packaging and a role playing chain of custody scenario.



Cheryl Blomquist, CDFA, talks to the group on the pest walk. Photo courtesy of Rachel McCarthy, Cornell University.

One part of the workshop features the presentation of several Train-the-Trainer modules designed especially

for the Sentinel Plant Network. The SPN modules are a series of scripted presentations which focus on the mission of the SPN, the importance of early detection and the proper procedures for submitting samples to an NPDN lab.

Participants also learn tips and tricks for improving their digital photography so it can be used for diagnosis. By participating in the workshop, participants gain access to the modules and presentations so they can teach the concepts to fellow staff at their gardens as well as incorporate them into their education and outreach programs.

The workshop was attended by 34 public garden professionals from seven states; California, Alaska, Hawaii, Arizona, Wyoming, Colorado and Washington. Surely, this one was the most challenging to plan for because of the tremendous geographic diversity of the region. Despite this challenge, Dick Hoenisch arranged for exceptional local talent to lead the invasive pest/pathogen walk — a 3 ½ hour walking tour including parts of the Claremont Colleges' campuses and adjacent neighborhoods.

John Kabashima, Nick Nisson and Gevork Arakelian, three entomologists from the LA/Orange County areas, highlighted some examples of invasive pathogens and pests along the walk while underscoring the general concepts of invasive species making the time spent not only interesting but relevant for all participants. Cheryl Blomquist, plant pathologist from the California Department of Food and Agriculture, shared her expert diagnostic perspective during both the walk and the hands on activities and exercises.

Feedback gathered from the post survey has been very positive and samples have already begun coming into NPDN labs through the Sentinel Plant Network. Additionally some members of the SPN

who have participated in the previous workshops are already scheduling First Detector training at their gardens.

The next scheduled SPN workshop is set for the southern region on March 28–29,



John Kabashima, University of California Cooperative Extension, pointing out some pests on the walk. Photo courtesy of Rachel McCarthy, Cornell University.

2012. The host garden is Bartlett Tree Research Laboratories. In the meantime, our colleagues at APGA are working to secure a date and location for a fifth workshop. There may be funds available for NPDN diagnosticians and entomologists to attend these workshops; those interested should contact Rachel McCarthy at rachel.mccarthy@cornell.edu. 🌿

“I just want to say ‘thank you’ for this workshop. It helped us get motivated to do something we should have been doing all along: scouting for pests and pathogens and educating the public and staff.” — SPN Midwestern workshop attendee

“What an informative and well executed workshop! I learned so much and met many great people. I now feel inspired to be as involved as I can—and to help others become involved—so that we can combat the pests and diseases threatening our natural areas.” — SPN Western workshop attendee

IT News

NPDN Portals

Mike Hill, Eileen Luke,
Purdue University and
Karen Scott, Cornell
University

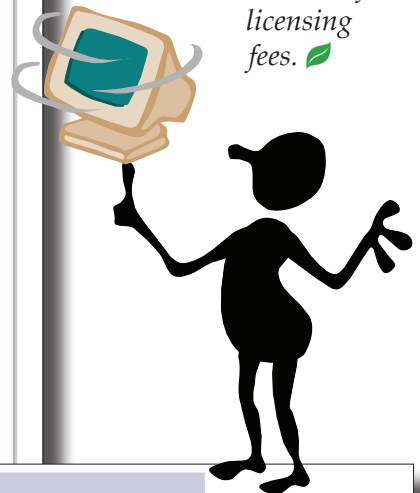
You have all heard the old cliché — ‘do more with less.’ An area that the IT Committee has been doing this with is the NPDN portals. The portals are an important means to exchange and

of the national portal in December 2009.

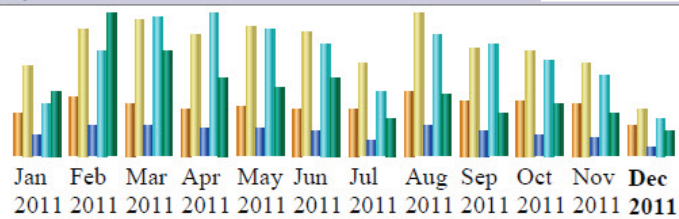
The goal for the IT activity was to be as seamless as possible so that the focus and effort was on the information and its access. With the national portal now in place for about two years with the open source content management system, how do we determine if we have met the goal? We examine the usage statistics for the past two years to assess impact. From the information below the

average number of unique visitors per month in 2011 (as of 12/16/11) is 1,948 vs. 1,577 in 2010 representing a 23% increase.

**Open source means available to the public domain and no involvement of licensing fees. 🌿*

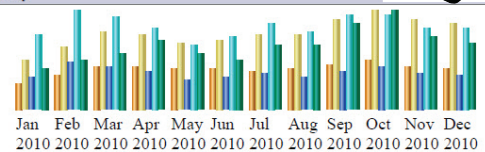


Monthly history



Month	Unique visitors	Number of visits	Pages	Hits	Bandwidth
Jan 2011	1642	3534	12434	34982	8.19 GB
Feb 2011	2243	5021	19662	69448	17.82 GB
Mar 2011	2050	5308	18782	91418	13.09 GB
Apr 2011	1804	4694	16718	93228	9.87 GB
May 2011	1875	5061	16618	83722	8.49 GB
Jun 2011	1804	4856	15196	73796	9.87 GB
Jul 2011	1824	3585	9240	41641	4.65 GB
Aug 2011	2551	5554	19252	78891	7.54 GB
Sep 2011	2178	4260	15769	73486	5.18 GB
Oct 2011	2198	4170	13102	63283	6.40 GB
Nov 2011	2076	3664	11190	52499	5.26 GB
Dec 2011	1133	1746	4713	24053	5.26 GB
Total	23378	51453	172676	78044	

Monthly history



Month	Unique visitors	Number of visits	Pages	Hits	Bandwidth
Jan 2010	1017	1887	11630	28502	5.52 GB
Feb 2010	1347	2453	17530	37266	6.67 GB
Mar 2010	1677	3015	15934	34928	7.63 GB
Apr 2010	1694	2958	14460	31232	9.22 GB
May 2010	1589	2601	11156	24570	7.48 GB
Jun 2010	1566	2718	11782	27930	6.69 GB
Jul 2010	1519	2933	13390	33030	8.68 GB
Aug 2010	1588	2988	11716	29340	8.87 GB
Sep 2010	1739	3529	14770	35878	11.62 GB
Oct 2010	1890	3855	16474	35676	13.31 GB
Nov 2010	1700	3562	14058	31018	9.78 GB
Dec 2010	1602	3390	12934	31330	8.95 GB
Total	18928	35889	165834	380700	104.42 GB

communicate meeting minutes and documents to stakeholders and provide a public outreach. The original portal was a custom built system which became very resource intensive. The challenges for the NPDN IT staff were to reduce the resources required and provide the necessary functionality for the content managers. After gathering user and system requirements, an open source* content management system was chosen and implemented with the first release



Boxwood Blight in Maryland

Karen Rane, UMD Plant Diagnostic Laboratory, University of Maryland

We had our first confirmed case of boxwood blight caused by *Cylindrocladium pseudonaviculatum* in

Maryland, on a sample taken from a landscaper's holding nursery. The Maryland Department of Agriculture announced the find on Friday, December 16, and put a stop sale on the nursery while delimiting surveys are conducted. This case was part of a trace forward survey being conducted by the Maryland Department of Agriculture. 🌿

Regional News



Biocontrol for Strawberry Guava in Hawaii

Fred Brooks, Plant and Environmental Protection Sciences, University of Hawaii, Manoa

After many years, the Hawaii Department of Agriculture has headed an effort to introduce a new biological control agent. The target is strawberry guava, enjoyed by some people for its ornamental and fruit-producing qualities. It is a hearty invasive, however, outcompeting all other plant species and endangering native ecosystems. The final Environmental Assessment recently received a "finding of no significant impact", clearing the way for introduction of the scale insect, *Tectococcus ovatus*, from Brazil. The

December 2011 issue of the *Pacific Pest Detector News* features an article on this new biocontrol for strawberry guava. [Click here](#) to read this article. All *Pacific Pest Detector News* issues are available from the WPDN website at www.wpdn.org/newsletters. 🌿



Fruit of strawberry guava, *Psidium cattleianum*. Photo courtesy of Amy Ferriter, State of Idaho, Bugwood.org.

Rachel McCarthy, Editor
NEPDN
Cornell University