The Northeast Plant Diagnostic Network (NEPDN): Highlights

Karen Snover-Clift[1], Rachel McCarthy[1], Dawn Dailey O'Brien[1], Sandra Jensen[1], Tricia Allen[1], Emma Rosenthal[1] and Marc Fuchs[2]

[1]Section of Plant Pathology and Plant-Microbe Biology, School of Integrative Plant Science, Cornell University, Ithaca, NY
[2]Section of Plant Pathology and Plant-Microbe Biology, School of Integrative Plant Science, Cornell University, Geneva, NY

Abstract

The Northeast Plant Diagnostic Network (NEPDN), part of the National Plant Diagnostic Network was established in 2002 and is comprised of 15 diagnostic laboratories from 12 northeastern states. The NEPDN members are committed to communicating information with each other, improving diagnostic skills through professional development workshops and preparing for surge capacity events as they may arise in the northeast and nationally. The NEPDN regional staff and membership have made significant contributions to the national network and to their local agriculture and green industries. This poster highlights some of the significant activities and contributions made by each of our member states since NPDN's national meeting in November 2011.

NEPDN Highlights

Since the creation of the NPDN, the members of the NEPDN Region have...
- processed 283,030 samples in our laboratories,
- attended 1,243 professional development conferences to hone our diagnostic capacity,
- participated in 2,573 NPDN activities such as preparedness exercises, CAPS activities, committee meetings, first detector interactions and meeting planning events,
- given 4,627 presentations on plant pathology and pest topics, NPDN network structure and programs and plant biosecurity to 190,994 participants, and
- held leadership and membership roles in numerous Program Area Committees and working groups.

NEPDN Individual Laboratory Accomplishments

NEPDN Regional Center at Cornell University
Ithaca, NY

Karen Snover-Clift,
NEPDN Associate Director,
STAR-D National Quality Manager,
Director, Cornell PDDC

Marc Fuchs,
NEPDN Director,
Associate Professor,
PPPMB

Dawn Dailey O'Brien,
STAR-D National Quality Coordinator

Rachel McCarthy,
NEPDN Training and Education Coordinator

The NEPDN Regional Center Staff have made significant contributions to the national effort:
-Lead the development, training, and implementation of STAR-D, NPDN's laboratory accreditation program,
-The Regional Center and Cornell PDDC became STAR-D accredited in 2014, the 2nd laboratory nationally to do so and two staff became NPPLAP certified for *Phytophthora ramorum* and do so annually,
-Coordinate the Beltsville Significant Pathogen Workshops since 2003; 63 sessions for 436 participants,
-Created the *NPDN News* and continue to edit and publish this newsletter monthly,
-Manage the NPDN-Sentinel Plant Network (SPN) activities, and
-Serve as Program Area Managers for numerous NPDN PACs.

University of Vermont
Burlington, VT
Ann Hazelrigg, Diagnostician
Gabriella Maia, Diagnostician

-98% of the clients surveyed indicated the pest or disease diagnosis information from the UVM PDC helped them use IPM strategies to manage their issue.

-93% of the clients surveyed were able to reduce the use of pesticides as a result of the diagnosis and management information they received from the UVM PDC.

University of Maine
Orono, ME
Dave Lambert, Diagnostician
-Photos of pathogens seen in the diagnostic laboratory;

Saron Huntley's image of European wild ginger with *Rhizoctonia* aerial blight; foliar symptoms (1) and sclerotia (2).

Faye Russell's images of Purple aster with downy mildew; foliar symptoms (3) and Basidiophora (4).

Cornell University-PDDC
Ithaca, NY
Sandra Jensen, Diagnostician
Tricia Allen, Technician
Emma Rosenthal, Technician
-The Clinic staff identifies significant diseases, recent finds include rose rosette, boxwood blight, impatiens downy mildew, and bacterial wilt [*Ralstonia solanacearum*].

-Tested 73 samples for *Phytophthora kernoviae* using the 2014 *Phytophthora ramorum* survey samples; all tested NEGATIVE using both ITS1 and ITS2 PCR protocols!

-Identified *Ceratocystis fagacearum*, the fungus that causes oak wilt, for the first time in 2008 and again at the same site in 2013 which prompted the development of a PCR and survey project.

University of New Hampshire
Durham, NH
Cheryl Smith, Diagnostician
Deb Schneider, Diagnostician

-Cheryl Smith has completed QMS training, ISO-17025 external auditor training, and two gap audits which completes her STAR-D External Auditor Training; Deb Schneider completed QMS training.

-Cheryl Smith collaborated with other universities to develop an iOS based plant sample submission app for iPad and iPhone (the Android version is in process).

Cornell University Insect Diagnostic Lab
Ithaca, NY

Jason Dombroskie, Diagnostician

-Completed first documentation of *Lepidosaphes pini* (invasive scale from Asia on *Pinus*) in NYS.

-Documented the spread of Emerald Ash Borer and Hemlock Woolly Adelgid in NYS.

-Educated Master Gardeners across NYS about entomology and beneficial insects.

University of Massachusetts
Amherst, MA
Tawny Simisky, Diagnostician
Nick Brazee, Diagnostician
Angela Madeiras, Diagnostician

-Continuing to process approximately 1,200 samples per year.

-Nick Brazee completed an Integrated Research and Extension Project (IREP) that focused on the incidence of *Phytophthora* species from the Connecticut River valley and the population dynamics of *P. capsici* from farms in Massachusetts.

-With colleagues Bob Marra and Shawn Fraver, Nick is conducting a study on the use of tomography for accurate and non-destructive analysis of wood decay in trees.

Pennsylvania State University
State College, PA

Sara May, Diagnostician

-Developed a free *Pythium* online training resource to aid in identification and isolation of plant pathogenic Pythium species found in North America: http://plantpath.psu.edu/Pythium.

-In collaboration with the PA Dept. of Agriculture, held joint First Detector and High Consequence Pest/Pathogen Workshops, which helped to provide training on important pests and pathogens threatening PA's agricultural resources.

West Virginia University
Morgantown, WV

Mahfuz Rahman, Diagnostician

-State-wide diagnostics based IPM programming was recognized during the 2014 annual extension service meeting.

-Acquired the capability of detecting almost all major pathogens by molecular method that are otherwise difficult to diagnose.

-Completed a mid-Atlantic tree fruit integrated pest information platform for extension and education (iPiPE) project.

University of Maryland
College Park, MD
Karen Rane, Diagnostician
David Clement, Diagnostician

-Working with the MD Dept. of Ag., confirmed the first MD case of boxwood blight in a landscaper's holding area in 2011, and in 2012 confirmed the disease in a MD landscape. In 2014, confirmed the first report of sweet box as a host for boxwood blight.

-In partnership with a number of scientists, hosted a postdoctoral intern as part of a 2013 Farm Bill project entitled "The Integrated Clinical, Extension, Research, and Regulatory Internships in Systematics and Diagnostics."

University of Rhode Island
Kingston, RI
Heather Faubert, Diagnostician

-Working with the University of MA, released *Cyzenis albicans* as a biocontrol for winter moth, which has invaded all of Rhode Island and caused widespread defoliation.

-Participated in a survey for southern pine beetle. Found southern pine beetle and surveyed for damage on pitch pines and eastern white pines.

Cornell University - LIHREC
Riverhead, NY
Paulina Rychlik, Diagnostician
Margery Daughtrey, Diagnostician
Lynn Hyatt, Diagnostician
-Provided over 100 diagnoses of downy mildew caused by *Plasmopara obducens* on bedding plant impatiens and *Impatiens walleriana*. Identified the balsam impatiens as a common host of the downy mildew that may help to provide pathogen inoculum in the landscape.

-Identified Helleborus net necrosis virus HeNNV in a NYC landscape with the help of the University of Minnesota diagnostic lab, highlighting the importance of virus-free stock in large landscape plantings.

University of Delaware
Newark, DE
Nancy Gregory, Diagnostician

-From 2012-2015 there were over 20 new first reports.

-From the 2014-2015 Farm Bill Directed Nursey Survey for *P. ramorum*, 222 samples were tested and all were negative.

-Participated in the One Standard Name for Fungi Project – over 7,000 names were verified and updated, including those in the NPDN repository. Nancy presented a GPDN webinar on the project in 2014.

Rutgers University
New Brunswick, NJ
Rich Buckley, Diagnostician
Sabrina Tirpak, Diagnostician

-First detection of boxwood blight in NJ (2013) and, along with the NJ Dept. of Ag., screened 2,058 CAPS Program commodity survey insect traps for various species. No suspects have been found.

-Presented lectures and pest walks at two Sentinel Plant Network regional workshops (2013 and 2015) and, since 2012, have signed up 332 Rutgers Professional Golf Turf Management School students as First Detectors through the online FD training program.

University of Connecticut
Storrs, CT
Joan Allen, Diagnostician

-Working with the University of MA, released *Cyzenis albicans* as a biocontrol for winter moth, which has invaded all of Rhode Island and caused widespread defoliation.

-Participated in a survey for southern pine beetle. Found southern pine beetle and surveyed for damage on pitch pines and eastern white pines.

Connecticut Ag. Station
New Haven, CT
Lindsay Patrick, Diagnostician
Pamela Sletten, Diagnostician
Yonghao Li, Diagnostician

-Recent first ID completed by the lab: boxwood blight caused by *Calonectria pseudonaviculata* (2011), *C. pseudonaviculata* on pachysandra (2012), rose rosette disease (2014), and others.

-Published the Boxwood Blight Identification Guide and Suggested Best Management Practices for Boxwood Blight online at http://www.ct.gov/caes/boxwoodblight for the benefit of nurseries, landcapers, garden centers, and home gardens.