



# STATION NEWS

THE CONNECTICUT AGRICULTURAL EXPERIMENT STATION



# CAES

The Connecticut Agricultural Experiment Station

*Putting Science to Work for Society since 1875*

The mission of The Connecticut Agricultural Experiment Station is to develop, advance, and disseminate scientific knowledge, improve agricultural productivity and environmental quality, protect plants, and enhance human health and well-being through research for the benefit of Connecticut residents and the nation. Seeking solutions across a variety of disciplines for the benefit of urban, suburban, and rural communities, Station scientists remain committed to "Putting Science to Work for Society", a motto as relevant today as it was at our founding in 1875.



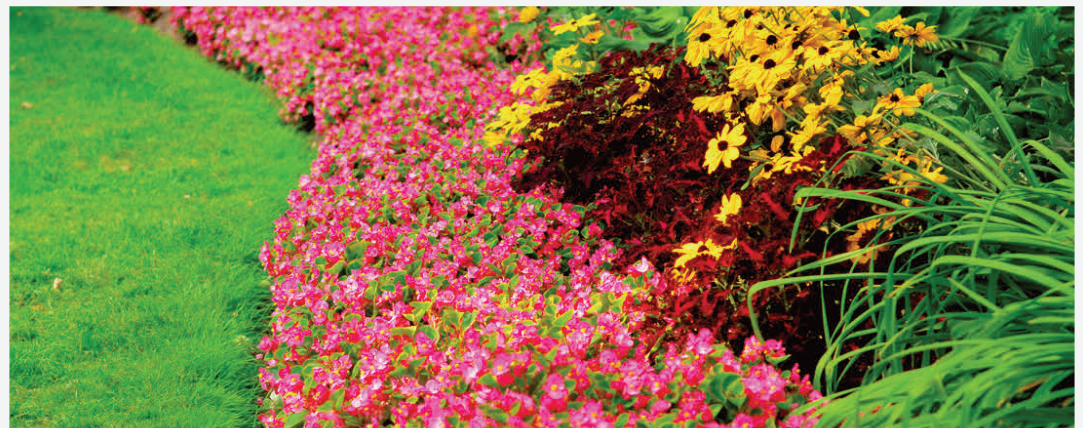
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## DEPARTMENTAL NEWS

### ADMINISTRATION

**DR. THEODORE ANDREADIS**, presented an invited seminar entitled *Global Climate Change and Mosquito-Borne Diseases* to clinical fellows from the Yale Occupational and Environmental Medicine Program at Yale University (15 attendees) (May 6).

### ANALYTICAL CHEMISTRY

**DR. JASON C. WHITE**, along with **MR. JOSEPH HAWTHORNE**, hosted undergraduate student Nicole Cammisa from Muhlenberg College and assisted with the chemical analysis of samples from jointly executed experiments (May 2); attended the monthly Laboratory Preparedness Advisory Group Meeting at the CT Department of Public Health Laboratory in Rocky Hill CT (May 5); along with **MR. JOSEPH HAWTHORNE**, **DR. ROBERTO DE LA TORRE-ROCHE**, and **DR. ALIA SERVIN**, met with representatives from Hitachi Instruments to discuss a new scanning/transmission electron microscope (May 7); along with **MS. KITTY PRAPAYOTIN-RIVEROS**, **MS. TERRI ARSENAULT**, **DR. BRIAN EITZER**, **MR. CRAIG MUSANTE**, **MR. MICHAEL CAVADINI**, **DR. CHRISTINA ROBB**, **MR. JOSEPH HAWTHORNE**, **MR. JOHN RANCIATO**, and **DR. WALTER KROL** participated in the monthly FDA FERN chemistry cooperative agreement program (cCAP) teleconference call (May 8); participated in the FDA FERN Northeastern Region bi-monthly teleconference call (May 13); along with **MR. JOSEPH HAWTHORNE**, participated in a Skype call with three students from Wesleyan University to discuss a field phytoremediation project on the University campus (May 14); hosted undergraduate student Angela Catalano of Albertus Magnus College for a laboratory/program tour and discussion of a possible internship (May 16); participated in the Association of Public Health Laboratories (APHL) Data Acceptance Workgroup teleconference calls (May 16, 30); participated in a teleconference call with Professor Elizabeth Nichols from North Carolina State University and Dr. Clayton Rugh from Xero Flor America on their possible hosting of the 16<sup>th</sup> Annual International Phytotechnologies Conference (May 16); along with **MS. KITTY PRAPAYOTIN-RIVEROS**, **MR. MICHAEL CAVADINI** and **DR. BRIAN EITZER** attended the FDA ISO/IEC 17025:2005 Accreditation for State Food Testing Laboratories Cooperative Agreement 2014 Face-to-Face Meeting in Irvine, CA and gave a platform presentation entitled "A Completely Paperless/Electronic Laboratory Management System" (70 attendees) (May 20-22); and met with Dr. Adriana Arango-Velez of the University of Alberta and discussed Department programs/resources (May 23).

**DR. BRIAN EITZER** was a participant in the monthly teleconference call of the organizing committee of the North American Chemical Residue Workshop (May 8).

**DR. CHRISTINA ROBB** attended a board meeting and program planning meeting for the Eastern Analytical Symposium (EAS) 2014, in Somerset, NJ (May 17).

**MR. MICHAEL J. CAVADINI** presented information about the Station and its analytical chemistry department at a North Branford High School science fair (May 23<sup>rd</sup>).



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### ENTOMOLOGY

**DR. KIRBY C. STAFFORD III**, with **DR. SCOTT C. WILLIAMS**, met with Dr. Trevor N. Petney of the Karlsruhe Institute of Technology, Zoological Institute, Germany, and author and director Berndt Welz of Germany to discuss some filming for a Lyme disease documentary (May 6); with **DR. SCOTT WILLIAMS**, met with Dr. Petney and Berndt Welz for the film interview in Lyme (May 7); with **DR. LAURA E. HAYES**, held a conference call with Steve Zatechka of U.S. Biologic to discuss the rodent Lyme disease vaccine study (May 8); was interviewed about the upcoming tick season by Debra Bogstie, WVIT NBC CT (May 12); was interviewed by John Charlton about ticks and the upcoming tick season (May 13); spoke about the relationship between deer and ticks at a meeting of the Shelton Deer Committee in Shelton (9 attendees) (May 13); with **DR. PHILIP M. ARMSTRONG** on mosquitoes, was interviewed by Sam Gingerella, WTIC-AM radio in Farmington, about ticks (May 14); was interviewed by Judy Benson, The Day (New London), about tick activity and Lyme disease prevention (May 28); and participated in a Cooperative Agricultural Pest Survey (CAPS) meeting in Wallingford (10 attendees) (May 30).

**MS. ELIZABETH E. ALVES** met with Linda Kapitan of Stamford Hospital to explain the basics of tick identification (May 2).

**MR. MARK H. CREIGHTON** spoke about honey bees and pollination to students at the Middlesex YMCA; also brought his observation hive and honey bee puppet for the students to view (22 students attendees) (May 13); provided a PowerPoint presentation on the history of beekeeping past and present in Connecticut at the Beardsley Library in Winsted, and displayed live honey bees in the observation hive—this event was covered by The Winsted Journal and was published in the May 23 edition (40 attendees) (May 17); and also provided a PowerPoint presentation on the history of beekeeping past and present in Connecticut at Stone Ridge Senior Complex in Mystic (25 attendees) (May 22).

**MS. KATHERINE DUGAS** spoke about the Emerald ash borer and its impending impact on Connecticut's ash trees to students of UConn's Eco House (10 attendees) (May 1); with Joe Elkinton of UMass, released 2,000 *Cyzenis albicans* flies as biocontrol for winter moth at Beebe Pond Park in Groton (May 5); spoke about winter moths with Judy Benson, a journalist for The Day (New London) newspaper, and brought her to Beebe Pond Park to show her the presence of feeding caterpillars. An article on winter moths was published in The Day on May 16 (May 13). She staffed a table with Station and forest pest information at the Connecticut Tree Festival held at Cranbury Park in Norwalk (May 17); was interviewed about winter moths and forest pests on the 1400 WILI morning radio show with DEEP Forester Chris Martin (May 29); and organized and ran the Statewide CAPS committee meeting at the USDA-APHIS-PPQ office in Wallingford (12 attendees) (May 30).

**DR. CHRIS MAIER** presented a display and answered questions about exotic fruit and forest insects at the science fair at North Branford High School in North Branford (May 23).

**DR. GALE E. RIDGE** spoke about bed bug biology, cultural response to the insect, and its management at a conference sponsored by the EPA in North Chelmsford, MA for the Northeastern Indian Tribes. Tribes that attended were Mashantucket Pequot Tribe, CT; Maliseet Tribe, ME; St. Regis Mohawk Tribe, NY; Mashpee Wampanoag Tribe, MA; Micmac Tribe, ME; Passamaquoddy Pleasant Point Tribe, ME; Shinnecock Tribe, NY; Coe d'Alene Tribe, ID (60 attendees) (May 1); spoke about bed bug behavior and how this can affect management of the insect in schools to the South Central Connecticut Regional School Nurse Supervisory Group at ACES in Hamden (40 attendees) (May 21); delivered a major speech to the Commissioner's Semiannual Directors of Local Health Meeting held at Central Connecticut State University in New Britain. She talked about the historic relationship between capitalism and the insect; how it has inadvertently been influenced by commerce, which has contributed to, amongst other things, hybrid vigor. Additionally, she discussed how the current economic downward pressure on the American middle class puts greater pressure on the services of state and local health departments in regard to bed bug management (100+ attendees) (May 28).



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**DR. CLAIRE E. RUTLEDGE**, with **DR. CHARLES VOSSBRINCK**, judged the New Haven Public Schools Science Fair in New Haven (May 12-13).

**DR. VICTORIA L. SMITH** participated in a meeting of the Yale Biosafety Committee in New Haven (15 participants) (May 15); participated in a meeting of the National Plant Board Board of Directors, as a representative of the Eastern Plant Board, held at the USDA-APHIS Plant Inspection Station in Los Angeles, CA (15 participants) (May 19-22); and participated in the spring Cooperative Agricultural Pest Survey Committee held at USDA-APHIS-PPQ offices in Wallingford (10 participants) (May 30).

**DR. KIMBERLY A. STONER** gave two presentations titled "Common Bees on Alternative Flowering Plants on Vegetable Farms" and "How Bees are Exposed to Pesticides" at a Pollinator Conservation Course, run by the Natural Resources Conservation Service and the Xerces Society, held at the Cornell Cooperative Extension Agroforestry Center in Acra, NY (65 attendees) (May 22); co-led a New Haven Land Trust workshop on bees with beekeeper Ben Gardner at the Liberty Springside Community Garden in New Haven (15 attendees) (May 25); and spoke to the Orchard Valley Garden Club on "Saving our Bees, One Garden at a Time" at the Southington Public Library (45 attendees) (May 28).

### ENVIRONMENTAL SCIENCES

**DR. JOSEPH PIGNATELLO** presided over the annual Multistate Research Project annual meeting in Minneapolis and gave the Experiment Station report on bioaccessibility of polycyclic aromatic hydrocarbon contaminants in in vitro human gastrointestinal model systems (May 11).

**MR. GREGORY BUGBEE** participated in the PA-12-155 Nonpoint Source Phosphorus Subcommittee meeting at CT DEEP in Hartford (May 6); gave a talk on "Soil Testing" to the Whitneyville Civic Association in Hamden (25 attendees) (May 8) gave a talk on "Lawn Care" to the Bethany Garden Club at the Bethany Community Center (20 attendees) (May 12); spoke at a meeting of the Fence Rock Lake Association in Guilford on "CAES IAPP Research to Control Brazilian Waterweed in Fence Rock Lake" at the Guilford Community Center (25 attendees) (May 13) gave a talk entitled "Improving Soil in the Home Garden- An Organic Approach" to the Institute of Learning in Retirement at Albertus Magnus College (12 attendees) (May 14); and, with **MS. JORDAN GIBBONS**, presented a display and answered questions on "Connecticut Soils and Soil Testing" at the North Branford High School Career Fair (200 attendees) (May 24).

**DR. GOUDARZ MOLAEI** attended the Northeastern Eastern Equine Encephalitis Conference on in Concord, NH, discussed regional collaborations, and presented an invited talk entitled, "Dynamics of Vector-Host Interactions in Eastern Equine Encephalitis Virus Foci in Northeastern USA" (May 9); and met with Dr. Gregory Kelly of the Simon Fraser University to discuss a coordinate multi-state, multi-partner study on West Nile virus (May 15).

**MS. JORDAN GIBBONS** presented a talk titled, "Using GIS in the Surveillance and Management of Invasive Aquatic Plants" at the Spring Northeast Arc Users Conference at the University of Massachusetts, Amherst, MA. (20 attendees) (May 13).

**DR. PHILIP ARMSTRONG** gave a radio interview for WTIC in West Hartford on mosquitoes and mosquito-borne illnesses (May 14).

**DR. CHARLES VOSSBRINCK** judged exhibits at the Connecticut State FFA Agri-science Fair held at Southington Agriculture Center (May 8); and was a judge for the CAES Special Awards at the New Haven Science Fair (May 12 and 13).



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**MR. JOHN SHEPARD** presented a display on the Mosquito Trapping and Testing Program, West Nile Virus, Eastern Equine Encephalitis, and mosquito biology at "Bitten! Bloodsuckers & Climate" at the Yale Peabody Museum of Natural History (2,077 museum visitors) (April 17); and with **MR. MICHAEL MISENCIK**, and Ms. Tanya Petruff, met with Dr. Alicia Bray of Central Connecticut State University to discuss potential research opportunities and sampling of mosquitos in state forests (May 14).

## FORESTRY AND HORTICULTURE

**DR. JEFFREY WARD** hosted a visit by USDA Forest Service scientists Gary Miller and Patrick Brose to discuss forest management (May 1); spoke on forest management at a "Forests are for the Birds" field workshop in Salisbury (12 attendees) (May 3); met with Bruce Lindsay (Westport Tree Warden) and Tony McDowell (Earthplace) to discuss roadside forest management (May 7); participated in an executive committee meeting of the Connecticut Urban Forest Council in Middlefield (May 10); spoke on "Barberry, deer, and ticks" to the West Haven Land Trust (17 attendees) (May 14); spoke on "Barberry, deer, and ticks" to the Southbury Land Trust (37 attendees) (May 27); discussed tree maintenance with students Common Ground High School and TNC staff members (3 students, 4 adults) (May 28); and met with Emery Gluck, CT DEEP Forestry to discuss use of fire to promote oak regeneration (May 29).

**DR. ABIGAIL MAYNARD** spoke about Station activities at a meeting of the State Technical Committee in Tolland (26 attendees) (May 1); and gave a talk on "Unusual Garden Vegetables" at the Branford Garden Club (42 attendees) (May 12).

**DR. SCOTT WILLIAMS** participated in a the Conference Planning subcommittee meeting of the Connecticut Urban Forest Council in Middlefield (May 8); with **MR. MICHAEL R. SHORT**, met with staff from Bobbex, Inc. to discuss a rabbit repellent trial (May 16); gave an invited lecture about blacklegged ticks, Lyme disease, and small mammal trapping to the Department of Ecology and Evolutionary Biology's Wildlife Techniques class at the University of Connecticut, Storrs (8 students, 1 professor) (May 27); and with **MR. MICHAEL R. SHORT**, demonstrated small mammal trapping, handling, and bloodletting to the Department of Ecology and Evolutionary Biology's Wildlife Techniques class at the University of Connecticut, Storrs (8 students, 1 professor) (May 28).

**MR. JOSEPH P. BARSKY** participated in Adult First Aid/CPR/AED training conducted by The American Red Cross in New Haven (April 1); participated in an Environmental Science Career Forum at Cheshire High School (60 students) (April 8); staffed a Station booth featuring the Roadside Forest Management Project at the Hamden Earth Day event (3000 attendees) (April 12); participated in an inter-agency planning meeting for the "Foresters are for the Birds" research project at the Salisbury Town Hall (April 24); participated in a "Forests are for the Birds" field workshop in Salisbury (May 3); served as a panel judge at the Future Farmers of America Agri-science Fair at Southington High School (May 8); staffed a CAES exhibit at the Connecticut Tree Festival at Cranbury Park in Wilton (1000 attendees) (May 17); spoke on "Invasive Plant Issues" to residents of the Whitney Center in Hamden (35 attendees) (May 22); and staffed an exhibit highlighting careers in Environmental Sciences to students at North Branford High School (25 students) (May 23).

**MS. JOAN L. BRAVO** spoke with a visiting Rhode Island viticulturist about trellising and pruning techniques at Lockwood farms (April 16).

**MR. MICHAEL R. SHORT** successfully completed requirements for Adult First Aid/CPR/AED training conducted by The American Red Cross in New Haven (April 1); attended the 70th Annual Northeast Fish & Wildlife Conference in Portland, ME (April 13-15); and presented a poster "Evaluation of Eight Repellents in Detering Eastern Cottontail Herbivory in Connecticut" at the 70th Annual Northeast Fish & Wildlife Conference in Portland, ME (40 attendees) (April 14).



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## PLANT PATHOLOGY AND ECOLOGY



**DR. SANDRA L. ANAGNOSTAKIS** was given the Zone Horticultural Commendation at the annual meeting of the Garden Club of America in Providence, Rhode Island, for her work with chestnut trees (May 21) (See photo left).

**DR. SHARON M. DOUGLAS** gave a presentation titled "Eco-friendly Management of Diseases of Perennials" for the Cheshire Garden Club (32 attendees) (May 5); organized and moderated the 2014 International Boxwood Blight Summit and led a breakout session on the biology and epidemiology of the boxwood blight pathogen. The summit was held at the USDA National Agricultural Library on the USDA campus in Beltsville, MD (85 attendees) (May 13). She was interviewed about winter and weather issues with woody plants in Connecticut by Jan Spiegel of the Connecticut Mirror (May 20); and participated in the spring CAPS meeting held at USDA-APHIS-PPQ headquarters in Wallingford (10 attendees) (May 30).



**DR. WADE H. ELMER** attended a presentation by a ninth-grade high school class from East Haven on the use of biochar in remediating salt marshes affected by Sudden Vegetation Dieback (May 7). Their ninth-grade proposal titled "Salt Marsh Salvation" (see photo above, left) was entered into the statewide competition at the Connecticut State Armory in Hartford on May 17. Dr. Elmer served as a judge for the 2014 Connecticut State Agriscience Fair held at the Southington High School Agriculture Center (May 8); met with Hammonasset Beach State Park Superintendent, Henry Alwes, in Madison to discuss remediation strategies for Sudden Vegetation Dieback (May 8); and attended the senior presentation of Jake Cavalope at the Sound School in New Haven (May 21).



**DR. ROBERT E. MARRA** presented a talk titled "Diagnostics and Detection" at the International Boxwood Blight Summit held at the USDA National Agricultural Library in Beltsville, MD (85 adult attendees) (May 13); demonstrated the use of Sonic and Electrical Resistance Tomography at the Connecticut Tree Festival, in Norwalk, CT. The tree used for the demonstration is a 200+ year-old copper beech (see photo above, right). As part of this demonstration, he was also interviewed for the television program, "It's Relevant." The festival had record breaking attendance this year with over 2,000 attendees (May 17). Dr. Marra also attended the Northeastern Forest Pathology Workshop in Plymouth, MA. In addition to the discussions on current issues in forest pathology the group toured sites in Miles Standish State Forest and in Yarmouth, on Cape Cod (May 28-30).



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## VALLEY LABORATORY

**DR. RICHARD COWLES** was interviewed by Jon Entine of Forbes Magazine on the subject of neonicotinoids and their risks to bees (May 20).

**DR. JAMES LAMONDIA** welcomed participants in the USDA Farm Services Agency Loss Adjuster Training Program and spoke about research and services available at the Station and Valley Lab (30 attendees) (May 13); and conducted a tour of the Valley Laboratory Farm for the same group to explain ongoing research projects (30 attendees) (May 14).

**DR. TODD L. MERVOSH** participated in a symposium planning meeting for the Connecticut Invasive Plant Working Group at the Valley Laboratory (May 5); and was interviewed by Pamela Weil about the worst garden weeds for her "Eye on Horticulture for June" article on the Federated Garden Clubs of Connecticut website (<http://www.ctgardenclubs.org/snips.html>) (May 15).

## DEPARTMENTAL RESEARCH UPDATES MAY 2014

**Bugbee, G.J., J.A. Gibbons, M Wells and J Fanzutti.** 2013. Invasive aquatic plants in Lakes Candlewood, and Zoar. Monitoring Report 2012. CAES Station Bulletin 1039; <http://www.ct.gov/caes/lib/caes/documents/publications/bulletins/b1039.pdf>.

Eurasian watermilfoil dominates the plant communities in Lakes Candlewood, Lillinonah and Zoar. The coverage of Eurasian watermilfoil in Candlewood Lake decreased from 505 acres in 2012 to 259 acres in 2013. This represented the smallest coverage since 2007 and is likely due to the efficacy of the previous winter's deep drawdown. Sensors measuring air and sediment confirmed a cold period, with daily low temperatures between -10 and -17 °C occurring just as the lake was reaching the drawdowns lowest elevation in late January. Sensors with remote data access capability could help determine optimal times to start Candlewood Lake's refilling process. The amount of Eurasian watermilfoil in Candlewood Lake appears inversely related to the depth and duration of the previous winter's drawdown. Minor naiad inhabited 24 acres of Candlewood Lake in 2013 compared to 32 acres in 2012 suggesting the drawdowns efficacy on this seed borne annual is less effective than on Eurasian watermilfoil. Curlyleaf pondweed was not found in our spring and summer surveys of Lake Candlewood indicating this plant is likely to remain a minimal problem in the near future. Our 2013 invasive plant survey of Lake Lillinonah found Eurasian watermilfoil, minor naiad, curlyleaf pondweed and water chestnut. We found no new invasive plant species in Lake Lillinonah in 2013. Eurasian watermilfoil coverage rose from 36 acres in 2011 to 90 acres in 2013 which more than double that found in any of our previous survey years. Minor naiad coverage, however, decreased slightly from 11 acres in 2011 to 8 acres in 2013. As in our previous surveys of Lake Lillinonah curlyleaf pondweed was nearly nonexistent. Water chestnut remained localized to small areas in the northern part of the Lake Lillinonah but has spread further south than in 2011.

**Bugbee, G. J and J. Gibbons.** 2013. Moodus Reservoir – East Haddam CT: Aquatic vegetation survey, water chemistry, plant management options. CAES Station Bulletin 1040. <http://www.ct.gov/caes/lib/caes/documents/publications/bulletins/b1040.pdf>.

The shallow nature of both Lower and Upper Moodus Reservoir make it prime habitat for aquatic vegetation. Over thirty plant species occur in both basins with four being invasive in Lower Moodus and three being invasive in Upper Moodus. Moodus Reservoir has a unique combination of large shallow areas with emergent vegetation and large areas of open water suitable for boating, fishing, swimming and other recreational opportunities. Extensive growth of aquatic vegetation has been part of the lake since records began in the 1930's. The shallows are often adjacent to large areas of wooded undeveloped shoreline that make excellent wildlife habitat. The brown water coloration caused by organic compounds has been a part of the lake since the first water tests



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in the 1930's and is not a sign of pollution. Of greatest concern is the nearly complete coverage of the bottom with the non-native aquatic plant called fanwort that appears to be expanding. Fortunately, the fanwort does not reach the surface in most of the lake and recreational uses are usually not impaired lakewide. This may be because the water color limits light penetration. If conditions change and the fanwort begins to reach the surface, the lake will be seriously impacted. A new infestation of Brazilian waterweed poses a threat for the future. Temporary control of fanwort or other nuisance plant species can be accomplished by harvesting, spot applications of herbicides, localized dredging or bottom barriers. Winter drawdown may temporarily control nuisance vegetation on the exposed bottom areas but will probably not result in significant changes in the plant community. Yearly monitoring for new invasive vegetation could result in its removal before it becomes a problem. Citizen lake watchers or hired lake professionals could help accomplish this activity.

**LaMondia, J. A., D. W. Li, A. M. Madeiras and R. L. Wick.** 2014. First report of Forsythia shoot blight caused by *Phytophthora nicotianae* in Connecticut. Plant Disease 98: <http://apsjournals.apsnet.org/doi/abs/10.1094/PDIS-03-14-0297-PDN>

Blighting of *Forsythia* × *intermedia* 'Showoff' was observed affecting several hundred plants in a commercial nursery in Connecticut in September 2012. Symptoms included wilting, leaf and stem blight, and dieback progressing to plant death. A *Phytophthora* sp. was isolated from symptomatic tissues and the pathogen was identified as *Phytophthora nicotianae* by morphological characters and BLAST analysis of ITS, Cox II and beta tubulin gene sequences. Pathogenicity tests were conducted and typical symptoms developed within one week of inoculation; the pathogen was re-isolated from diseased tissue. To our knowledge, this is the first report of *P. nicotianae* causing shoot blight on *Forsythia* in the Northeastern United States

**Mervosh, Todd L.** 2014. Management options for five tough weeds in Christmas tree fields. The Real Tree Line (magazine of the Conn. Christmas Tree Growers Assoc.) 54(2). p. 13, 17, 24.

## GRANTS AWARDED

### **Gregory Bugbee**

Received a renewal grant for \$44,135.25 from FirstLight Hydro Generating Company for research on Invasive Aquatic plant in Lakes Candlewood, Lillinonah and Zoar.

### **Dr. Goudarz Molaei**

Received the Dr. Louis A. Magnarelli Post-Doctoral Fellowship. "Population Genetics of *Culiseta melanura*, the Principal Mosquito Vector of Eastern Equine Encephalitis Virus"; Approximately \$150,000 from CAES Board of Control to support salary and fringe benefits for a postdoctoral scientist for two years;

**Executive Summary:** Eastern equine encephalitis virus (EEEV) is a highly pathogenic mosquito-borne zoonosis that is responsible for outbreaks of severe disease in humans and equines. Since 2003 we have witnessed a resurgence of EEEV activity throughout northeastern U.S. and southeastern Canada with expansion into new regions. The underlying conditions responsible for this sustained resurgence are unknown. In the northeastern U.S., EEEV is maintained in an enzootic cycle involving *Culiseta melanura* and wild passerine birds in freshwater swamp habitats. However, the role that this species play in epidemic/epizootic transmission to humans and horses is not entirely understood. Our vector-host interaction studies in Connecticut and other regions indicate that heterogeneity exists in blood feeding of *Cs. melanura*, and that populations of this mosquito species acquire a small percentage of blood meals from mammalian hosts including





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humans. This behavioral characteristic suggests that *Cs. melanura* may function as a “bridge vector” of EEEV from enzootic to epidemic/epizootic transmissions cycle, and contribute to human and equine infections. Emerging empirical evidence suggests that variations in population genetic structure of mosquitoes influence their behavioral characteristics including host choice. Despite the extraordinary importance of *Cs. melanura* in transmission of EEEV, little is understood about the population genetic structure of this species across its range of distribution. Differences in population genetic structure of *Cs. melanura* could profoundly influence the role of this species in transmission of EEEV to humans and pose serious public health concern. By taking a cutting-edge next-generation genotyping approach and using high throughput genomic tools, we propose to examine population structure of *Cs. melanura* in several hundred individual mosquitoes in active EE-EV foci with differing levels of human and equine involvements in the northeastern U.S. and southeastern Canada. Genetic variation within and between these mosquito populations will subsequently be used to identify distinct populations and estimate gene flow among populations. The proposed research will elucidate previously uncharacterized yet fundamental features of the population genetic structure of *Cs. melanura*, and reveal how it might impact vectorial capacity. Information obtained from this research project will also prove helpful in better understanding of the ecology of EEEV transmission, enable mosquito control agencies to more precisely target interventions at the most epidemiologically important populations, and serve as a valuable reference for other similar vector-borne zoonoses.

**Dr. James LaMondia**

Received a grant from the from New England Vegetable and Berry Growers Association for \$2,000 to assist with research on ‘Rotation and cover crops for management of lesion and root knot nematodes’.



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## JOURNAL ARTICLES APPROVED MAY 2014

- Cao, X., Charisma Lattao, **Joseph J. Pignatello**, J. Mao, and K. Schmidt-Rohr. Sorption Selectivity in Natural Organic Matter Studied with Carbonyl-<sup>13</sup>C-Labeled Benzophenone-d<sub>10</sub> and <sup>1</sup>H-<sup>13</sup>C NMR Spectroscopy. *Environmental Science and Technology*
- Douglas, Sharon M.** Suggested Best Management Practices for Boxwood Blight for Connecticut – For Landscapers and Residential, Public, and Commercial Plantings – Version 2.0. *CAES Fact Sheet*
- Estep, Laura K.**, J. A. Scott, and **Kirby C. Stafford, III.** *Ixodes scapularis* nymphal density during annual peaks of human *Borrelia burgdorferi* exposures in Connecticut correlates positively with preceding winter precipitation. *Parasites and Vectors*
- Hayes, Laura E.**, **Kirby C. Stafford, III**, **Scott C. Williams**, and **Goudarz Molaei**. Integrated control of the principal vector of Lyme disease, *Ixodes scapularis*, using the entomopathogenic fungus, *Metarhizium anisopliae*, and fipronil-based rodent bait boxes. *Medical and Veterinary Entomology*
- Gent, Martin P. N.**, I. Seginer. Dynamic carbohydrate supply and demand model of vegetative growth: Response to light, temperature, and carbon dioxide. *Plant Cell Environment*
- LaMondia, James A.** Connecticut River Valley Blue Mold Web Page. 2014
- LaMondia, James A.** and **Brian D. Eitzer**. Strategies to control blue mold and reduce fungicide residues in cigar wrapper tobaccos. *Proceedings of the 46<sup>th</sup> Tobacco Workers Conference*
- Miller, A. C., K. E. Woeste, **Sandra L. Anagnostakis**, and D. F. Jacobs. Naturalized offspring from an introduced 85-year-old Chinese chestnut (*Castanea mollissima*) planting: Stand dynamics and genetic relationships. *Annals of Botany*
- Peterson, Richard B.**, V. Oja, H. Eichelmann, I. Bichele, L. Dall'Osto, A. Laisk. Fluorescence Fo of photosystems II and I in developing C3 and C4 leaves, and implications on regulation of excitation balance. *Photosynthesis Research*
- Stafford, Kirby C., III.** An Entomologist Tackles Ticks and Lyme Disease. Hartford Courant's News in Education
- Ward, Jeffrey S.** Improving competitive status of oak regeneration using stand management and prescribed fires. *Journal of Sustainable Forestry*
- Zhao, J., Z. Wang, **Jason C. White**, B. Xing. Graphene in the Aquatic Environment: Adsorption Dispersion, Toxicity, and Transformation. *Environmental Science and Technology*

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Griswold, CT 06351-3627  
Phone: 860-376-0365

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Entrance to The Connecticut Agricultural Experiment Station in New Haven on Huntington Street



Main Laboratories, New Haven



Lockwood Farm, Hamden



Griswold Research Center, Griswold



Valley Laboratory, Windsor

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