

**COOPERATIVE AGRICULTURAL PEST SURVEY  
SEMI-ANNUAL ACCOMPLISHMENT REPORT  
Cooperative Agreement Number 05-8209-0327**

Year            2005  
State            Connecticut  
Agency        The Connecticut Agricultural Experiment Station (CAES)

**I. Core Level Funding Activities (Contributed by Victoria Smith, Donna Ellis, and Chris Maier)**

A.     State Survey Coordinator    Donna Ellis  
       Agency                        The University of Connecticut (UConn)  
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B.     **Member name, if applicable, of National CAPS Committee:**    N/A

C.     **Compare actual accomplishments to objectives established for the period:**  
Progress made toward accomplishment of Calendar Year 2005 work plan objectives during the period January 1, 2005 through June 30, 2005. Individual surveys will be addressed in the next section.

**Priority Pest List and Pest Risk and Pathway Analysis**

Progress is being made on all objectives. The state CAPS committee has met on two occasions to discuss and develop the state priority pest list and pest risk and pathway analysis. In the future, we hope to develop a separate multi-agency committee, Pest Risk Committee, to address specific high risk sites and pathways for new pest introduction into the state and to facilitate the sharing of information regarding these sites.

**Educational Outreach Activities**

**Chris Maier (CAES)**

Feb. 8—spoke about the emerald ash borer and the small Japanese cedar longhorned beetle, displayed a synoptic collection of exotic insects, and presented a poster on “Alien Insects Recently Discovered in Connecticut” at a meeting of the State Survey Committee for the Cooperative Agricultural Pest Survey (CAPS) Program at the CAES Valley Laboratory, Windsor, CT.

April 18—spoke on “Invasion of Alien Insects” during Spring Plant Science Day in Jones Auditorium, New Haven, CT.

May 25—spoke about the brown marmorated stink bug at a twilight meeting of the Connecticut Pomological Society at Buell's Orchard in Eastford, CT.

May 26—spoke about progress with surveys for exotic pests at a meeting of the State Survey Committee of the Cooperative Agricultural Pest Survey (CAPS) Program at the CAES Valley Laboratory in Windsor. CT.

### **State Survey Coordinator Activities (Donna Ellis; UConn)**

(Note: Materials presented included information on giant salvinia, hydrilla, and other exotic pests.)

#### **Teaching**

Master Gardener Training Program: March 24, 29, 30, April 4, and 8, 2005; taught five full-day classes on exotic invasive plants to the 2005 class of Master Gardeners at five Cooperative Extension System locations in Connecticut. 221 students.

Guest Lecturer, PLSC 290W, Environmental Planning, University of Connecticut, February 11, 2005. Lecture topic entitled, “Invasive Plants.” 30 students.

Middlesex Adult Learning Center, Middlesex Community College, Middletown, CT, Open House presentation January 7, 2005 (80 attendees) and Course presentation January 24 (40 attendees). Course presentation entitled, “Invasive Plant Identification and Introduction.”

#### **Websites**

Additional information continues to be added to the CAPS website, launched in 2003, which provides exotic pest survey information, educational outreach materials, and updates on the USDA Animal and Plant Health Inspection Service (APHIS) Cooperative Agricultural Pest Survey (CAPS) program. Current work plans for CAPS surveys and accomplishment reports are also posted and available for viewing. Access to the site is via the following Connecticut Agricultural Experiment Station web address (Vickie Bomba-Lewandoski, webmaster): <http://www.caes.state.ct.us/CAPS/CAPS.htm>

#### **Refereed Publications**

Li Y, Z. Cheng, RW. Smith, D. Ellis, Y. Chen, X. Zheng, Y. Pei, K. Luo, R. McAvoy, H. Duan, C. Thammina and D. Zhao. 2005. Gene transfer approaches to neutralize invasiveness of exotic ornamental plants. *Journal of Crop Improvement* (Invited and peer-reviewed, in press).

#### **Curriculum Developed**

*The Connecticut Curriculum for Integrated Pest Management (IPM)*. Development continues on a new science-based curriculum on IPM. The curriculum for students in kindergarten, first grade and 4-H youth was printed in early 2005. The K/1 curriculum includes 5 units, 22 lessons, and supplemental activities. Five curriculum workshops for teachers and other educators were presented by Donna Ellis and Cheryl Kusmer between March and May at Regional Education Service Centers throughout Connecticut and at several area-wide educational conferences. The workshops included a presentation at the Northeast Region Urban and Community IPM Conference in New Hampshire. Additionally, an original show on the IPM curriculum developed by performing artist Chris Rowlands was presented at 12 primary and secondary schools statewide in April and May 2005. The curriculum was developed by Richard Ashley, Donna Ellis, Dale Schimmel and Cheryl Kusmer through a grant awarded to Richard Ashley from the Bingham Trust. The curriculum for grades 2&3 is almost ready to be printed and should be available beginning in the fall 2005, and the curriculum for grades 3&4 is currently under development. Note: each curriculum developed includes information on invasive plants.

### **Magazine Articles**

“College of Agriculture and Natural Resources: Having Fun Learning about the Environment.” UConn Traditions, Spring 2005, page 16. Article written by UConn Traditions staff showcasing the Integrated Pest Management curriculum, including invasive plant topics.

### **Newspaper Articles**

“All-Garden Alert! Aliens Have Landed!” Article written by Tovah Martin for The New York Times on March 20, 2005. Based on interviews with L. Mehrhoff, D. Ellis, and others regarding exotic invasive plants.

### **Technical Reports**

Ellis, D.R. and V.L. Smith. 2005. USDA APHIS Eastern Region Homeland Security/Cooperative Agricultural Pest Survey (CAPS): Connecticut. Semi-Annual Narrative Progress Report for Calendar Year 2004 (reporting period 7/1/04-12/31/04). (Submitted 03/30/05). 24 pp.

Ellis, D.R. 2005. DEP 319 Project-2004-2005, Quinebaug Watershed IPM/ICM Summary Report: 12/01/04-02/28/05. (Submitted 03/04/05). 3 pp.

### **Radio Interviews**

WPKN radio, FM, Bridgeport, CT. Live interview with D. Ellis on May 6, 2005 to discuss aquatic and terrestrial invasive plants and answer questions from the public.

### **Presentations**

Nature Day, June 2, 2005, Southington, CT. Conducted six interactive workshops for students and teachers on purple loosestrife biological control and invasive plants. 150 students..

East Haddam Garden Club, East Haddam, CT, May 18, 2005. Invited speaker for garden club meeting. Presentation entitled, “Invasive Plants.” 30 attendees.

Middletown Garden Club, Middletown, CT, April 21, 2005. Invited speaker for garden club meeting. Presentation entitled, “Invasive Plants.” 40 attendees.

Shoreline Gardening Today Series, Bauer Park, Madison, CT, April 14, 2005. Invited speaker for gardening series; the topic was invasive plant identification and management. 25 attendees.

Charlton Garden Club, Charlton, MA, April 11, 2005. Invited speaker for garden club meeting. Presentation entitled, “Invasive Plants.” 50 attendees

Northeast Regional Community and Urban Integrated Pest Management Conference, Manchester, CT, March 15-16, 2005. Invited speaker (with C. Kusmer) to participate in a Curriculum Development and Implementation session on the new Integrated Pest Management (IPM) curriculum. Also presented an interactive educational exhibit on the IPM curriculum.

United Congregational Church of Tolland, Willington, CT, March 7, 2005. Invited speaker

for presentation on invasive plants.

Connecticut Flower and Garden Show, Hartford, CT, February 24, 2005. Invited speaker for seminar on invasive plants. Also displayed new invasive plant exhibit for 4-day event attended by 35,000 people.

4-H Leaders meeting, Vernon, CT, February 15, 2005. Invited speaker for presentation on IPM Curriculum for grades K/1 and 7/8 to statewide 4-H leaders. 15 attendees.

Connecticut Invasive Plant Working Group (CIPWG) Steering Committee meeting, Storrs, CT, February 9, 2005. Organized and conducted meeting of the CIPWG Steering Committee to discuss relevant invasive plant issues in the region and plan for the upcoming year's activities. 15 attendees.

Connecticut River Watershed Council Annual Meeting, Springfield, MA, January 14, 2005. Invited speaker for regional meeting. Presentation entitled, "Aquatic Invasive Plants." 50 attendees.

#### **Conferences and Symposia Planned**

Connecticut Nursery & Landscape Association Winter Meeting, Stamford, CT, January 11-12, 2005. Served on Winter Education Committee to plan and assist with meeting. Presented an exhibit on invasive plants at the trade show. Approximately 1,000 attendees.

**D. If appropriate, explain why objectives were not met.**

We are on our way to meeting all objectives for the Core activities. Individual surveys will be addressed separately in the next section.

**E. Where appropriate, explain any cost overruns.**

No cost overruns expected.

**F. State CAPS Committee Narrative**

Two CAPS State Survey Committee meetings were held in Windsor, CT on 8 February and 26 May 2005 (please see Attachments 1 and 2: CAPS agendas from both meetings). The following CAPS State Survey Committee members attended the February meeting: Kate Aitkenhead, Jude Boucher, Nichole Campbell, Chris Donnelly, Sharon Douglas, Patty Douglass, Rob Durgy, Donna Ellis, Kevin Grady, Jim LaMondia, Chris Maier, Les Mehrhoff, Jane O'Donnell, Tom Rathier, Claire Rutledge, Ralph Scarpino, Victoria Smith, and Kim Stoner. Summaries of 2004 surveys and educational outreach activities were presented at the meeting, and upcoming surveys and educational outreach programs for calendar year 2005 were discussed. Information on NAPIS data entry, implementation of the Hot Zone concept, establishment of a Pathway Risk Committee in Connecticut, and an update on *P. ramorum* (sudden oak death) was also provided to State Survey Committee members.

Attending the May 26 meeting were Tim Abbey, Jude Boucher, Nichole Campbell, Chris Donnelly, Patty Douglass, Rob Durgy, Donna Ellis, Kevin Grady, Jim LaMondia, Chris Maier, Les Mehrhoff, Jane O'Donnell, Tom Rathier, Victoria Smith, and Kirby Stafford. Agenda items discussed at the CAPS State Survey Committee meeting included an update on current CAPS surveys for 2005, plans for 2006 surveys and educational outreach programs, specifics on NAPIS data entry, and continued discussion on *P. ramorum*.

The Connecticut CAPS State Survey Committee continues to grow in its membership. Committee members play a vital role in recommending which exotic pest surveys should be conducted in Connecticut each year.

**G. NAPIS Database Submissions: CAPS program pest and date of submission**

Please see Attachment 3, NAPIS Occurrence Data submitted during the period 1 January 2005 through 30 June 2005.

<b>Pest</b>	<b>Date(s) of Submission</b>
Pine Shoot Beetle	7/1/05 PPQ; 7/15/05 CAES
Asian Longhorned Beetle, <i>Anoplophora glabripennis</i> (WBBBWS)	7/28/05
Bamboo Borer Longhorned Beetle, <i>Chlorophorus annularis</i> (WBBBWS)	7/28/05
Longhorned Beetle, <i>Hesperophanes campestris</i> (WBBBWS)	7/28/05
Brown Spruce Longhorned Beetle, <i>Tetropium fuscum</i> (WBBBWS)	7/28/05
Longhorned Beetle, <i>Tetropium castaneum</i> (WBBBWS)	7/28/05
Longhorned Beetle, <i>Xylotrechus hircus</i> (WBBBWS)	7/28/05
Clerid Pine Bark Borer Predator, <i>Thanasimus formicarius</i>	5/4/05

**II. CAPS Survey Activities (Contributed by Victoria Smith, Donna Ellis, and Chris Maier)**

**Wood Boring /Bark Beetle Warehouse Survey (Core)**

**A. Survey Methodology (trapping protocol):** Station personnel placed 20 Lindgren funnel traps baited with alpha-pinene UHR and ethanol UHR combination lures at 14 warehouses or dunnage storage and disposal areas. These traps were monitored every two weeks from late March through early June 2005. The traps were set late due to lack of personnel and other state-mandated responsibilities, in addition to trace-forward/destruction activities. Attractants were replaced as necessary, and all beetles were sorted and identified. Any unknown species were shipped to an expert for identification. Solid wood packing material (SWP), crated commodities, dunnage, and dunnage storage areas were visually inspected for signs of Asian or other longhorned or bark beetles. Crates with tunneling, frass, sawdust, or other signs of insect infestation were disassembled and examined more closely. Positive and negative occurrence data were compiled and entered into the NAPIS database by the State Survey Coordinator.

**B. Rationale Underlying Survey Methodology:** The lures used in the survey were selected based on the survey protocol. The objectives are to evaluate and survey those warehouses in the state of CT that pose the greatest risk of introduction of longhorned and bark beetles based on the origin and types of cargo they are storing. Connecticut has three major ports and numerous import businesses, as well as large franchises, which may store foreign merchandise brought into the country.

In cooperation with PPQ, warehouses have been identified, based on the origin and type of stored commodities, and those most likely to have commodities shipped and packed in SWP have received highest priority. Connecticut Agricultural Experiment Station personnel have conducted surveys, collected and compiled results, forwarded the data to be submitted to the NAPIS

database, and have submitted summary results. This work is planned to continue into the future, since the volume of overseas commerce, and the corresponding SWP, continues to increase. Threats from introduced wood boring insects increase at a proportional rate.

**C. Survey Dates:** 28 March through 1 June 2005.

**D. Taxonomic services:** Gale Ridge of the CT Agricultural Experiment Station identified most of the insects. Robert Tracy of the USDA Systematic Entomology Lab confirmed identification of the checkered beetle.

**E. Benefits and Results of the Survey:** The survey results contributed presence/absence data of potentially-invasive Bostrichid, Heterobostrichid, and Cerambycid insect pests that may arrive through trade goods.

A bark beetle predator, *Thanasimus formicarius*, was found for the first time in CT at a New Haven County lumber storage yard in April 2005. A single adult beetle was captured in a Lindgren funnel trap at the warehouse during a survey for exotic bark beetles and longhorned beetles. The beetle was collected by Erin Amezzane (Sturgis) and identification was confirmed by Dr. Chris Maier and Gale Ridge, all from the CT Agricultural Experiment Station. Results from 2004 wood boring /bark beetle warehouse survey were received from the CT Agricultural Experiment Station and submitted by the State Survey Coordinator in June 2005.

### **Emerald Ash Borer (Core)**

**A. Survey Methodology (trapping protocol):** To search for infestations of emerald ash borer (EAB) (*Agrilus planipennis*), surveyors inspected (1) sticky bands placed around the trunks of girdled (dying) white ash trees and (2) visually examined live ash trees. In May, white ash trees in Fairfield (2 trees), Hartford (2 trees), Litchfield (5 trees), New Haven (5 trees), New London (2 trees), Tolland (2 trees), and Windham (2 trees) Counties were girdled at chest height, and a 30-centimeter wide reinforced plastic band was stapled around the trunk above the girdled area. The plastic was coated with Tangletrap Insect Trap Coating, and the coated bands were inspected for EAB adults every 1-2 weeks. In the second method, inspectors visually examined ash trees with binoculars to detect D-shaped emergence holes of EAB adults and other signs of infestation. All required reports and associated data will be submitted by the requested deadlines.

**B. Rationale Underlying Survey Methodology:** Both survey methods discussed herein have been used successfully by surveyors in EAB-infested states, such as Michigan. The USDA forest service strongly endorsed the method of girdling trees, but this method is labor intensive. Last year, girdled trees in Connecticut were attractive to the full spectrum of wood-boring ash insects.

**C. Survey Dates:** The EAB survey for 2005 will be conducted continuously between mid-May and September.

**D. Taxonomic Services:** The survey cooperator has a reference collection of EAB adults from Michigan; no other North American buprestid strongly resembles the EAB. Nonetheless, if a probable EAB is found, it will be submitted to a USDA taxonomist at the Smithsonian Institution for confirmation.

- E. Benefits and Results of the Survey:** This survey will benefit many grower groups and citizens of Connecticut by providing current information on the status of the EAB. Distribution of fact sheets at various meetings and open houses and oral presentations on the EAB will raise public awareness about this highly destructive pest. The survey will assist the State of Connecticut in detecting early infestations of EAB and in establishing eradication or control programs. These actions would reduce costs of coping with EAB and would help to protect ashes in forests, yards, and elsewhere. Eradication or control of the EAB would lessen the negative impact on the furniture trade, the landscaping industry, and possibly tourism. To date, no EAB infestations have been found in Connecticut. All negative and positive data will be submitted by the required deadlines

### **Giant African Snail/Giant Salvinia/Hydrilla Survey and Educational Outreach (Core)**

- A. Survey Methodology and Educational Outreach Approach:** Educational materials (Pest Alerts, handouts, pamphlets, Internet materials) were researched and compiled during the spring of 2005 for distribution by University of Connecticut and Connecticut Agricultural Experiment Station staff to garden center managers, water garden suppliers, pet shops, and the general public during the survey period. For giant African snail (*Achatina fulica*) educational outreach, a mailing was compiled consisting of two informational letters from The Connecticut Agricultural Experiment Station and USDA APHIS as well as a USDA APHIS Pest Alert. This information was mailed in May to approximately 500 public, private, parochial, and home schools in Connecticut. A visual survey for giant African snails, giant salvinia (*Salvinia molesta*) and hydrilla (*Hydrilla verticillata*) is being conducted from May through September 2005. The Project Coordinator and/or a research technician are visiting and inspecting a minimum of 24 garden centers, water gardens, and pet shops in the 4 northern Connecticut counties (Hartford, Litchfield, Tolland, and Windham Counties; approximately 6 sites per county). Suspect plants or snails will be collected if found during the site visits. All required reports and associated data will be submitted by the requested deadlines.
- B. Rationale Underlying Survey Methodology:** The giant African snail was recommended as a national CAPS target and high priority survey pest for calendar year 2005. The Eastern Pest Survey Committee recommended that giant salvinia and hydrilla be surveyed for during 2005. A combined pest detection survey is being conducted for giant African snail, giant salvinia, and hydrilla. Giant African snails, although illegal in the U.S., are being increasingly used for science lessons by school teachers and subsequently released into the environment. The snails not only cause severe damage to many agricultural crops but also pose human health risks. Giant salvinia and hydrilla are Federal Noxious Weeds that are serious threats to water bodies in several southern states. Hydrilla has been found in several ponds in Connecticut and elsewhere in New England. These invasive aquatic plants may be spreading to new locations via the aquarium and water garden trades. A visual detection survey and educational outreach project is underway to determine the presence or absence of and disseminate information to increase awareness of the three non-native pests in Connecticut. This project is a collaboration between the University of Connecticut and The Connecticut Agricultural Experiment Station.
- C. Survey Dates:** Donna Ellis and Victoria Smith investigated sources of aquatic plants and snails in Connecticut during the winter and spring of 2005, prior to conducting the survey. A mailing list was compiled prior to sending out the materials on giant African snail in May. Educational materials were also compiled between January and April. The survey is underway and will be completed by September. Any plant or snail suspects that are collected during the survey will be

tentatively identified by October. Robert Evans was hired as a UConn summer research technician to assist with the snail and aquatic plant surveys.

- D. Taxonomic Services:** Suspect organisms will be collected and screened by Donna Ellis and/or the research technician. Confirmation of positive records will be made by appropriate specialists.
- E. Benefits and Results of the Survey:** Survey results will provide needed information on the potential introduction and spread of giant African snails, giant salvinia, and hydrilla in Connecticut. Educational outreach will be provided to aquatic plant nurseries, suppliers of water garden plants, pet shops, teachers and superintendents, and the general public to alert them to these potential new problems in the state. Presence/absence data from the proposed survey will provide relevant information to stakeholders in learning about the range of these exotic pests in Connecticut. Management options will be provided in the event that the target organisms are found. A communication network will be established to exchange timely information on any occurrences of the three exotic pests. Results of the proposed survey and educational outreach project will help prevent new water bodies in Connecticut from becoming invaded, thereby minimizing subsequent impacts of an invasion (reduction of oxygen levels, destroying fish habitat, clogging waterways, impeding irrigation and navigation, and preventing recreational water use). Educational outreach for giant African snails to teachers and other educators will disseminate important information on this environmental and human health threat and alert the targeted groups and the public to the consequences of releasing this organism into the wild. To date, none of the exotic pests listed in this work plan have been found in Connecticut at the targeted survey sites. All negative and positive data will be submitted by the required deadlines specified in the CAPS work plan.

### **Viburnum Leaf Beetle Exotic Survey (Part II)**

- A. Survey Methodology:** A visual survey for viburnum leaf beetle (*Pyrrhalta viburni*) in ornamental and native viburnum species is being conducted during 2005. Donna Ellis, the Project Coordinator and an undergraduate student research technician are inspecting a minimum of 24 nurseries and/or private or public properties in four central Connecticut counties between May and September where viburnum is grown, sold, or planted. The four counties will include Middlesex and New Haven Counties, the two south central counties where viburnum leaf beetle was confirmed in 2004, and Hartford and Tolland Counties, two north central counties that are adjacent to the counties where this exotic pest was detected the previous year. Plants are being inspected for evidence of adult or larval beetle feeding damage or egg caps deposited by female viburnum leaf beetles on plant stems. Educational information will be compiled and distributed to nursery growers, Integrated Pest Management (IPM) nursery crop personnel, nursery inspectors, property owners, and the general public during the survey period.
- B. Rationale underlying survey methodology:** The Eastern Pest Survey Committee recommended viburnum leaf beetle as a high priority pest for survey in the eastern U.S. for calendar year 2005. This exotic insect has been a high priority pest since 2001. Although previous surveys conducted in Connecticut in 2001 and 2002 were negative, viburnum leaf beetles were recently confirmed in western Massachusetts in 2003 (new Massachusetts state record) and at two nurseries in central Connecticut in 2004, representing new state and county records, respectively. Based on the new occurrence records for viburnum leaf beetle that were just confirmed in Connecticut in 2004 and the importance of viburnum to both the green

industry and as an important native plant in natural areas, a visual detection and delimiting survey is being conducted during 2005 to determine the range of this potential new pest of ornamental and native viburnum species. A visual survey method was selected for viburnum leaf beetle because pheromones and/or trapping protocols are not currently available.

- C. Survey Dates:** Educational materials on viburnum leaf beetle were compiled between January and April 2005 and are being disseminated throughout the project period, primarily during the survey period during site visits to nurseries and garden centers. Visual surveys began in May and will continue through September. Suspect larvae and adults will be collected during the survey period and identified by the Project Coordinator as they are found.
- D. Taxonomic services:** Under the supervision of the Project Coordinator, target suspects will be collected and screened at the University of Connecticut. Specimens identified as viburnum leaf beetle will be confirmed by the Collections Manager at the University of Connecticut prior to submitting data into NAPIS.
- E. Benefits and Results of the Survey:** To date, viburnum leaf beetle has only been found in 2005 at the same two locations where it was confirmed during 2004. With the value of viburnum to the nursery industry as a landscape shrub and also because of its significance to wildlife in natural landscapes in Connecticut and the eastern region, results from the survey and accompanying educational outreach will provide relevant information to target groups and the public to determine the range of this potentially damaging pest in Connecticut. Further, educational outreach will provide information on viburnum leaf beetle identification, biology, and management options if control is needed. A rapid response network of cooperators and stakeholders will be established and implemented to provide locality data of pest occurrences and to recommend management options. The network includes communication with the Green Industry and Integrated Pest Management staff at the University of Connecticut and The Connecticut Agricultural Experiment Station.

Educational outreach materials, including fact sheets, reports, and/or email notifications, are being provided to nursery growers, garden center managers, educators and researchers, and the general public to increase their level of knowledge about viburnum leaf beetle, to enable them to identify this exotic pest if it is found in new locations, and to provide management recommendations for any positive occurrences. Presence/absence data and distribution information for any positive records obtained from the survey will be extremely valuable in learning about the range of this potential new exotic pest in Connecticut. Robert Evans was hired as a UConn summer research technician to assist with viburnum leaf beetle surveys.

### **Brown Marmorated Stink Bug Survey (Part II)**

- A. Survey Methodology:** This project is being conducted as a collaboration between Donna Ellis at the University of Connecticut (UConn) and Chris Maier at The Connecticut Agricultural Experiment Station (CAES). Internet research was conducted and other references examined between January and May 2005 to compile educational materials on brown marmorated stink bug (*Halyomorpha halys*). These materials are being made available to orchardists, homeowners, Integrated Pest Management (IPM) personnel, Extension Educators, and researchers during the survey period. Surveys will be conducted using a limb jarring technique (200 times per site) in unsprayed apple and crabapple trees in abandoned or low-spray orchards, along roadsides, parks, or other sites in late summer. A minimum of 24 sites in four counties (Fairfield, Hartford, Litchfield, and New Haven Counties) where host

fruit trees are produced will be surveyed. Visual surveys to inspect fruit for the presence of stink bugs or their feeding damage may also occur. Sites in Fairfield and Litchfield Counties are being surveyed by CAES staff and those in Hartford and New Haven Counties are being surveyed by UConn staff. Suspect adults will be collected by Donna Ellis, Chris Maier, UConn staff, and/or CAES staff. Suspects will be screened at UConn and CAES laboratories and forwarded to a USDA APHIS specialist for confirmation.

- B. Rationale underlying survey methodology:** The brown marmorated stink bug is ranked by the Eastern Pest Survey Committee as a high priority pest for survey in the Eastern U.S. during 2005. This exotic pest has the potential to impact agricultural production, plant resources, and our Nation's overall health and environment. Surveys for brown marmorated stink bug are underway to best accomplish Homeland Security. Visual surveys and limb jarring are being conducted to determine the range of this potential new pest to Connecticut. The visual surveys will be conducted to inspect fruit directly on trees for visible signs of feeding damage and to search for brown marmorated stink bug in host plants. Limb jarring will also be conducted to physically dislodge the target pests from host plants if they are present. In Asia, the brown marmorated stink bug is regarded as a major pest of agricultural crops, attacking many types of fruit trees, including apples, pears and peaches, as well as other crops that are a vital component of Connecticut agriculture. This exotic insect pest was recently found in the U.S. in Pennsylvania and New Jersey and was estimated to have been accidentally introduced in the 1990s. It is well suited to conditions in the Northeast and has adapted alarmingly well in Pennsylvania. Based on a rapid rate of establishment there, it is likely to produce high numbers of offspring. In apple trees, for example, the brown marmorated stink bug attacks the fruit and causes 'cat-facing', a condition that makes the crop unmarketable. It is likely that this insect species may vector diseases and become a potential threat to human health. Adult stink bugs seek shelter in large numbers in and on homes, becoming a nuisance pest.
- C. Survey Dates:** Educational materials on the brown marmorated stink bug were procured and compiled between January and May 2005 and are being disseminated throughout the project period. Visual surveys for brown marmorated stink bug conducted by UConn staff will begin in July. Surveys using the limb-jarring technique will be conducted by CAES and UConn in late summer 2005.
- D. Taxonomic services:** Taxonomic recognition is ranked as medium to high, as these insects are relatively easy to identify from other stink bugs found in the region. Suspect insects (adults or nymphs) will be collected and stored in ethanol-filled vials. Suspect insect specimens will be screened at UConn by Donna Ellis and at CAES by Chris Maier. Positive identification of brown marmorated stink bugs will be confirmed by UConn staff, CAES staff, Richard Hoebeke at Cornell University and/or other USDA national specialist. A rapid response plan for new state and new county records for the brown marmorated stink bug will be implemented by CAES staff, with assistance by UConn staff.
- E. Benefits and Results of the Survey:** Library sources and the Internet were used to search for and compile literature by end of May 2005. Outreach information provided to orchard producers, homeowners, Integrated Pest Management personnel, Cooperative Extension Specialists, researchers, and other educators will increase their level of knowledge about these insect pests. Matt Wohlstrom was hired as a summer assistant in May to help with survey work at CAES. Robert Evans was hired as a summer research technician to assist with the UConn survey sites. In May and early June, ten potential sampling sites were located in

Fairfield and Litchfield Counties. Approximately 12 sampling sites were located in Hartford and New Haven Counties.

in Presence/absence data and distribution information obtained from the survey will be critical learning about the range of this fruit pest in Connecticut. A communication network will be established to exchange pertinent and timely information on brown marmorated stink bug occurrences. The educational resources will provide useful information and enable people to be able to identify this pest if it moves into Connecticut and learn about control options. Distribution data obtained from the survey will provide APHIS and agricultural producers in the state with relevant information about the range of this potential new exotic pest in Connecticut, with a goal of preventing or limiting its movement and establishment. These results may help APHIS in any decision-making processes regarding regulation of this exotic pest. Surveys will continue through September 2005. Surveys have been negative to date for brown marmorated stink bug.

### **Chrysanthemum White Rust (Part III)**

- A. Survey Methodology (trapping protocol):** Each year, during the course of regular nursery inspections, registered nurseries and nursery dealers are inspected for presence of pests and diseases on the stock on hand and in production. Plants are examined visually by trained inspectors, and signs and symptoms of infection are noted. When warranted, samples are transported to the Plant Disease and Information Office (PDIO) for further examination by a trained and experienced plant pathologist. If necessary, plant samples will be incubated to encourage growth and sporulation of diseases, to aid in identification of the causal agent. In addition, plants are delivered to the PDIO by hobbyist gardeners. These plant samples are examined as above, and, when warranted, incubated to encourage growth and sporulation.
- B. Rationale underlying survey methodology:** Visual surveys were conducted for this pest according to survey protocol and in conjunction with regular nursery inspections; specific traps or pheromones are not available for chrysanthemum white rust. Surveys for regulated non-native diseases are necessary to obtain data on the potentially threatening species so that regulatory agencies can implement eradication programs early before a more extensive, and more damaging, infestation occurs.
- C. Survey Dates:** The survey took place when regular nursery inspections occur, usually beginning in mid summer 2005. Inspections will continue until completed, usually in October of each year. Submission of samples from hobbyist gardeners to the PDIO occurs throughout the year.
- D. Taxonomic services:** Dr. Sharon Douglas of the CT Agricultural Experiment Station Plant Disease and Information Office will examine the specimens.
- E. Benefits and Results of the Survey:** The survey results will contribute presence/absence data of this non-native disease of chrysanthemum, and in the case of presence, provide information for use in eradication programs. From the period January 1, 2005 until July 1, 2005, 115 inspections were conducted on 26,290 plants. Plants were free of CWR. No chrysanthemums were examined by the PDIO.

### **Small Hive Beetle (Part III)**

**A. Survey Methodology (trapping protocol):** Each year, during the course of regular apiary inspections, selected hives in CT are examined for presence of American foulbrood, European foulbrood, varroa mites, and tracheal mites. Hives are opened by an experienced apiarist and inspector, and examined visually for signs of these pests and diseases. At this time, the bottom board of the hives will be examined for presence of adult small hive beetle (SHB). Suspected SHB adults will be placed in bottles of alcohol, and their identity confirmed by a trained entomologist.

In addition, combs will be examined for presence of burrowing by larvae of the SHB, which is manifested by damaged combs, contaminated honey, and honey running out of the combs due to damaged caps. As stated above, suspected SHB larvae will be captured, placed in bottles of alcohol, and their identity confirmed by a trained entomologist.

**B. Rationale underlying survey methodology:** Visual surveys were conducted for this pest according to survey protocol; specific traps or pheromones are not available. Surveys for regulated non-native pests are necessary to obtain data on the potentially threatening species so that regulatory agencies can implement eradication programs early before a more extensive infestation occurs.

**C. Survey dates:** The survey occurred when regular apiary inspections occur, beginning in March 2005. Inspections continue through October of each year.

**D. Taxonomic services:** Gale Ridge of the CT Agricultural Experiment Station provided taxonomic support.

**E. Benefits and results of the survey:** The survey results will contribute presence/absence data of this non-native pest of honey bees, and in the case of presence, provide information for use in eradication programs. In CT in 2005, no SHB were found. From the period January 1, 2005 until July 1, 2005, 420 hives were opened and inspected for SHB. The annual beekeepers meetings are held in the winter, and results of the surveys will be presented to the memberships at that time.

### **Pine Shoot Beetle (Part III)**

**A. Survey Methodology (trapping protocol):** Each year, during the course of regular nursery inspections, registered nurseries and nursery dealers are inspected for presence of pests and diseases on the stock on hand and in production. Plants are examined visually by trained inspectors, and signs of infestation are noted. When warranted, samples will be transported to the Connecticut Agricultural Experiment Station for further examination by a trained and experienced diagnostic entomologist.

Shipments of Christmas trees arriving from out-of-state will be inspected for presence of PSB, by examination of a sample of at least 10 % of the trees in the shipment. Experienced inspectors will visually examine the trees, and if warranted, take samples for further examination.

Lindgren funnel traps baited with alpha-pinene lures were located in all counties of the state, at a rate of 5 traps per county. Since the geographic area is small, 5 traps are sufficient to cover the state. Traps were monitored bi-weekly and insects identified to species. Experiment station personnel monitored traps in 5 counties, 25 traps, and PPQ personnel monitored traps

in the remaining 3 counties, 15 traps. The traps were placed in preferred host stands, Scots and Red pine.

- B. Rationale underlying survey methodology:** Pine shoot beetles are visually and chemically attracted to Lindgren funnel traps baited with alpha-pinene. The funnel traps resemble trees and alpha-pinene is a volatile that decaying trees emit. Pine shoot beetles are primarily attracted to stressed trees. Christmas trees are examined to check for signs of infestation on the trees themselves. Surveys for regulated non-native insect pests are necessary to obtain data on the potentially threatening species so that regulatory agencies can implement eradication programs early before a more extensive, and more damaging, infestation occurs.
- C. Survey dates:** Examination of Christmas trees will occur when trees begin arriving in Connecticut, usually the second week of November, and continue until the Christmas tree season concludes. Trapping occurred when adult beetles are active and likely to be flying, April through June. Traps were placed late due to other obligations, such as state-mandated responsibilities and trace forward activities and destruction of plants at *P. ramorum* positive sites.
- D. Taxonomic services:** Gale Ridge of the CT Agricultural Experiment Station provided taxonomic support.
- E. Benefits and results of the survey:** The survey results will contribute presence/absence data of this non-native pest of pines and Christmas trees, and in the case of presence, provide information for use in tracking and eradication programs. Summary records from pine shoot beetle surveys conducted by The Connecticut Agricultural Experiment Station and USDA APHIS PPQ were submitted in July 2005. No pine shoot beetles have been found to date.

Respectfully submitted,

Donna Ellis  
State Survey Coordinator

Victoria Lynn Smith  
Deputy State Entomologist

*29 July 2005*

**CAPS STATE SURVEY COMMITTEE MEETING  
FEBRUARY 8, 2005  
AGENDA**

1. **Welcome and Introductions**
2. **Survey Results from 2004**
  - a. Surveys for emerald ash borer, wood boring/bark beetles, exotic wireworms, *Inula*
  - b. Educational outreach on invasive insects and diseases of trees
  - c. New state records
3. **Calendar Year 2005 Surveys and Outreach Programs**
  - a. Wood boring/bark beetle warehouse survey
  - b. Emerald ash borer
  - c. Giant African snail/Hydrilla/giant Salvinia
  - d. Brown marmorated stink bug
  - e. Viburnum leaf beetle
  - f. Chrysanthemum white rust
  - g. Small hive beetle
  - h. Pine shoot beetle
  - i. Noxious weeds
  - j. Biological control
4. **NAPIS Data Entry**
5. **Implementation of the Hot Zone Concept**
6. **Establishment of a Pathway Risk Committee in Connecticut**
7. **Sudden Oak Death (*Phytophthora ramorum*) Update**
8. **CAPS Web Page**
9. **New Positions**
  - a. USDA APHIS PPQ Pest Survey Specialist
  - b. Connecticut Agricultural Experiment Station
  - c. University of Connecticut
10. **Other Old or New Business**
11. **Meetings**
  - a. Northeast Region CAPS / Eastern Plant Board meeting April 5-7
  - b. Northeast Regional Community and Urban Integrated Pest Management Conference March 15-16

**CAPS STATE SURVEY COMMITTEE MEETING**  
**May 26, 2005**  
**AGENDA**

12. Welcome and Introductions
13. Status of current 2005 CAPS surveys
14. Calendar year 2006 surveys and outreach programs
15. NAPIS data entry
  - a. Survey data
  - b. Other new state and county records
16. Develop state list and ranking of Connecticut pests of concern
17. *P. ramorum* (Sudden Oak Death) update
18. CAPS web page
19. Other old or new business
20. Meetings
  - National CAPS meeting December 6-8, 2005

Attachment 3. NAPIS Occurrence Data submitted during the period 1 January 2005 through 30 June 2005.

Plant Board Report

Date Range: 01-01-2005 thru 06-30-2005

State: CONNECTICUT

\* For nursery records, plant counts may have been recorded in lieu of sites.

Target Pest	Counties	Sites* Plants	Traps	Positives	Negatives
BAMBOO BORER LONGHORNED BEETLE TRAPPING	5	20		0	20
CHLOROPHORUS ANNULARIS NATIONAL EXOTIC WOODBORER/BARK BEETLE					
ASIAN CERAMBYCID (LH.) BEETLE GEN. PEST OBSER.	1	119		0	119
ANOPLOPHORA GLABRIPENNIS (LONGHORNED) GENERAL PEST OBSERVATION; LAB CONFIRMED					
ASIAN CERAMBYCID (LH.) BEETLE TRAPPING	5	20		0	20
ANOPLOPHORA GLABRIPENNIS (LONGHORNED) NATIONAL EXOTIC WOODBORER/BARK BEETLE					
JAPANESE CEDAR LONGHORN BEETLE CONSENSUS	4	4		4	0
CALLIDIELLUM (PALAEOCALLIDIUM) RUFIPENNE SCIENTIFIC CONSENSUS/GENERAL AGREEMENT					
LONGHORNED BEETLE; A TRAPPING	5	20		0	20
HESPEROPHANES (TRICHOFERUS) CAMPESTRIS NATIONAL EXOTIC WOODBORER/BARK BEETLE					
BROWN SPRUCE LONGHORNED BEETLE TRAPPING	5	20		0	20
TETROPIUM FUSCUM NATIONAL EXOTIC WOODBORER/BARK BEETLE					
LONGHORNED BEETLE; A TRAPPING	5	20		0	20
TETROPIUM CASTANEUM NATIONAL EXOTIC WOODBORER/BARK BEETLE					
LONGHORNED BEETLE; A TRAPPING	5	20		0	20
XYLOTRECHUS HIRCUS NATIONAL EXOTIC WOODBORER/BARK BEETLE					
CEREAL LEAF BEETLE (CLB)	1	1		1	0

CONSENSUS				
OULEMA MELANOPUS				
SCIENTIFIC CONSENSUS/GENERAL AGREEMENT				
CLERID PINE BARK BORER PRED'TR	1	1	1	0
TRAP				
THANASIMUS FORMICARIUS				
TRAP;LINDGREN				
PINE SHOOT BEETLE (PSB)	5	26	0	26
TRAP				
TOMICUS PINIPERDA				
TRAP;LINDGREN				