

**COOPERATIVE AGRICULTURAL PEST SURVEY
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, Chris Maier, and Sharon Douglas)

A. State Survey Coordinator Donna Ellis
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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 July 1, 2005 through December 31, 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 CAPS State Survey Committee developed the following State Pest List of insects, mollusks, noxious weeds/invasive plants, and pathogens:

State Pest List – Pests of State Concern

Common Name	Scientific Name
<i>Insects</i>	
Apple Tortrix	<i>Archips fuscocupreanus</i>
Emerald Ash Borer	<i>Agrilus planipennis</i>
Fruit Tree Tortrix	<i>Archips podana</i>
Pine Shoot Beetle	<i>Tomicus piniperda</i>
Sirex Woodwasp	<i>Sirex noctilio</i>
Small Hive Beetle	<i>Aethina tumida</i>
Summer Fruit Tortrix	<i>Adoxophyes orana</i>
Viburnum Leaf Beetle	<i>Pyrrhalta viburnii</i>
<i>Mollusks</i>	
Giant African Snail	<i>Achatina fulica</i>

<i>Noxious Weeds/Invasive Plants</i>	
Giant Hogweed	<i>Heracleum mantegazzianum</i>
Giant Salvinia	<i>Salvinia molesta</i>
Hydrilla	<i>Hydrilla verticillata</i>
Mile-a-minute Vine	<i>Polygonum perfoliatum</i>
Purple Loosestrife	<i>Lythrum salicaria</i>
<i>Pathogens</i>	
Chrysanthemum White Rust	<i>Puccinia horiana</i>

The state CAPS committee continues to discuss and develop pest risk and pathway analysis. The Southern New England Pest Risk Assessment Committee was organized in 2005. The Committee has developed a charter and will continue to meet 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

1. Sharon M. Douglas (The Connecticut Agricultural Experiment Station)

RAMORUM BLIGHT OUTREACH ACTIVITIES FOR 2005

Presentations

- 20 January Presented “An Update on Sudden Oak Death in Connecticut” at the Connecticut Tree Protective Association (CTPA) Winter Meeting, in Southington
Approx. 700 attendees
- 23 February Discussed Ramorum Blight as part of a lecture on “Diseases of Shade and Ornamentals Trees”, part of Arboriculture 101, a course sponsored by the CTPA, in New Haven
Approx. 55 attendees
- 11 March Participated in the Forest Health Workshop at CAES and answered questions about *P. ramorum*, the trace forward surveys, and methods for detection, in New Haven
Approx. 50 attendees
- 16 March Discussed Ramorum Blight in the hands-on workshop session of Arboriculture 101, a course sponsored by the CTPA, in New Haven
Approx. 55 attendees
- 19 March Presented a talk entitled “The Top Three Disease Threats to Connecticut Trees” at the Connecticut Master Gardener Symposium, in Manchester
Approx. 75 attendees

- 8 April Presented “Ramorum Blight in Connecticut” to the Institute of Living in Retirement, in New Haven
Approx. 15 attendees
- 18 April Presented “Ramorum Blight (Sudden Oak Death) in Connecticut” at the CAES Plant Science Day in Spring, in New Haven
Approx. 125 attendees
- 21 April Participated in the symposium on tree health sponsored by the Litchfield Garden Club with a presentation entitled “Ramorum Blight (a.k.a. Sudden Oak Death) in Connecticut”, in Litchfield
Approx. 130 attendees
- 29 April Discusses Ramorum Blight as part of presentation about plant health issues to the Wilton Rotary Club, in Norwalk
Approx. 60 attendees
- 19 July Discussed Ramorum Blight with members of the Connecticut Christmas Tree Growers Association at their Twilight Meeting, in Windsor
Approx. 40 attendees
- 2 Nov Discussed Ramorum Blight in the hands-on workshop session of Arboriculture 101, a course sponsored by the CTPA, in New Haven
Approx. 55 attendees
- 10 Nov Presented “Ramorum Blight (a.k.a. Sudden Oak Death): Is Connecticut at Risk?” to members and guests of the Durham Garden Club, in Durham
Approx. 35 attendees

Exhibits

- 20 January Organized and participated in an exhibit booth with information on Ramorum Blight and distributed fact sheets and pest alerts at the Connecticut Tree Protective Association (CTPA) Winter Meeting, in Southington
Approx. 700 attendees
- 21 July Organized and participated in an exhibit booth with information on Ramorum Blight and distributed fact sheets and pest alerts at the Connecticut Tree Protective Association (CTPA) Summer Meeting, in Farmington
Approx. 800 attendees
- 3 Aug Co-authored a “barn” exhibit on “Ramorum Blight (Sudden Oak Death): Is Connecticut at Risk?” at CAES Plant Science Day, in Hamden
Approx. 800 attendees

Interviews

- 15 Mar Interviewed by Kathy Connolly of the CT Gardener about Ramorum Blight.

Publications and Articles

Douglas, S. M. Ramorum Blight (a.k.a. Sudden Oak Death) in Connecticut. CAES Fact Sheet, 6 p.

Douglas, S. M. Update on Sudden Oak Death in Connecticut. CT Woodlands Magazine, CT Forest and Park Association, Spring 2005.

Douglas, S. M. Sudden Oak Death in Connecticut. Newsletter of the Sleeping Giant Park Association. Winter 2005 Number 81.

Smith, V.L. and S. M. Douglas. Decision/Triage Key for Sampling for *Phytophthora ramorum* Triage Key. CAES Fact Sheet, 2p.

Marra, Robert E. and S. M. Douglas. *Phytophthora ramorum*: a new threat to Connecticut's forests and landscapes. Frontiers of Plant Science, Volume 55, Number 2, Spring 2005.

Questions and Samples: Plant Disease Information Office

During 2005, approximately 58 calls and/or samples were answered or tested by CAES.

CHRYSANTHEMUM WHITE RUST HT OUTREACH ACTIVITIES FOR 2005

Questions and Samples: Plant Disease Information Office

During 2005, approximately 14 calls and/or samples were answered or tested by CAES.

2. Donna Ellis, State Survey Coordinator (University of Connecticut)

Teaching

Master Gardener Training Program: March 28, 30, April 7, 12, and 17, 2006; taught five full-day classes on exotic invasive plants to the 2006 class of Master Gardeners at five Cooperative Extension System locations in Connecticut.

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 (In press)

Ellis, D.R. 2005. Beetle Farmers Control an Invasive Plant. Connecticut Journal of Science Education 43(1):9-11.

Curriculum Developed

The Connecticut Curriculum for Integrated Pest Management (IPM). Integrated Pest Management (IPM) Connecticut Curriculum. 2005. A new IPM curriculum was developed during 2005 for grades 2-3. Twenty-one lessons in 6 units with a wide range of supplemental materials were developed to teach children in the lower primary grades, 4-H members and other

youth about IPM, how to protect the environment, and how to reduce pesticide use. The curriculum was developed by R. Ashley, D. Ellis, D. Schimmel, and C. Kusmer (graphic design by S. Schadt and K. Noonan).

Ashley, R., D. Ellis, D. Schimmel and C. Kusmer. 2005. The Connecticut Curriculum for Integrated Pest Management (IPM) for Grades 4 and 5. (In Press)

Conference Abstracts

Ellis, D.R. and C. Kusmer. 2005. IPM Curriculum: Innovative, Practical Methods to Teach Challenging Concepts. National Science Teachers Association (NSTA) Eastern Area Convention, Hartford, Connecticut.

Newsletter Articles

Ellis, D.R. 2005. Brown Marmorated Stink Bug (*Halyomorpha halys*). Crop Talk 1(3):8.

Fact Sheets

Corrigan E. and D.R. Ellis. 2005. Mile-a-minute Vine Pest Alert. 1 page.

Ellis, D.R. 2005. Brown Marmorated Stink Bug (*Halyomorpha halys*). 1 page.

Other Publications

Ellis, D.R. Beetle Farmer Summary 2005. 2 pages.

Newspaper Articles

“Botanists Do Battle With Invasive Weed.” Article written by Eugene Driscoll for the News-Times on October 18, 2005. Based on a volunteer work party organized by E. Corrigan and K. Nelson to control mile-a-minute vine in Connecticut.

“A Sort of Summer School.” Article written for The Sound on July 14, 2005. Based on the purple loosestrife biological control Beetle Farmer program and a high school class that participated.

“Beetles Used to Control Loosestrife.” Article written by Peter Marteka for the Hartford Courant on July 12, 2005. Based on the purple loosestrife biological control Beetle Farmer program.

“Experiment Employs Natural Enemy.” Article written by Michael Gannon for the New Haven Register on July 10, 2005. Based on the purple loosestrife biological control Beetle Farmer program and a high school class that participated.

“Pest Alert: Mile-a-minute Vine Discovered in Westport.” Article written by Elizabeth Corrigan and edited by D. Ellis for the Westport News on July 8, 2005. Based on the recent occurrence of mile-a-minute vine, a new invasive plant in Fairfield County.

Technical Reports

Ellis, D.R. 2005. USDA APHIS PPQ Eastern Region: Connecticut, Biological Control and

Noxious Weeds Semi-Annual Accomplishment Report (reporting period 1/1/05-6/30/05). (Submitted 07/28/05). 10 pp.

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 2005 (reporting period 1/1/05-6/30/05). (Submitted 07/29/05). 17 pp.

Ellis, D.R. 2005. DEP 319 Project-2005/2006, Quinebaug Watershed IPM/ICM Summary Report: 12/01/05-2/28/06. (Submitted 3/12/06). 2 pp.

Ellis, D.R. 2005. DEP 319 Project-2005, Quinebaug Watershed IPM/ICM Summary Report: 9/01/05-11/30/05. (Submitted 12/01/05). 3 pp.

Ellis, D.R. 2005. DEP 319 Project-2005, Quinebaug Watershed IPM/ICM Summary Report: 6/01/05-8/31/05. (Submitted 9/01/05). 5 pp.

Presentations

Connecticut Invasive Plant Working Group semi-annual meeting, Windsor, CT, November 29, 2005 (D. Ellis, Co-Chairperson). Organized and conducted meeting for the general membership.

National Science Teachers Association (NSTA) Eastern Area Convention, Hartford, CT, October 21, 2005. Workshop presentation entitled, "IPM Curriculum: Innovative, Practical Methods to Teach Challenging Concepts."

Guest Lecturer, University of Connecticut course AGNR 198 (Plant Science Introductory Course), October 19, 2005. Presentation on Integrated Pest Management.

Workshop sponsored by Guilford Conservation Commission, Guilford, CT, October 15, 2005. Workshop entitled, "Invasive Plants – Identification and Management."

West Hartford Garden Club, West Hartford, CT, October 6, 2005. Presentation on invasive plant identification, management, and alternatives.

Guest Lecturer, University of Connecticut course SAPL 041, Plant Pest Control, October 5, 2005. Presentation on invasive plants and biological control.

Cornucopia-Fest 2005, Storrs, CT, October 2, 2005. Question-and-answer sessions on Integrated Pest Management, the new IPM curriculum, invasive plants, and purple loosestrife biological control.

New England Invasive Plant Summit, Framingham, MA, September 16-17, 2005. Presented short paper entitled "Beetle Farmers – The Latest Trend in Biocontrol," and a poster entitled "Giant Hogweed and Mile-a-minute Vine: Distribution and Management." Also led a discussion group on educational outreach and presented a display on invasive plants.

Chester Garden Club, Chester, CT, September 13, 2005. Presentation on invasive plant

identification and management.

Plant Science Day, The Connecticut Agricultural Experiment Station, New Haven, CT, August 3, 2005. Staffed exhibit on invasive plants and answered questions during day-long event.

Advanced AP Environmental Science teachers field demonstration, Storrs, CT, July 28, 2005. Led campus tour and field demonstration on invasive plants.

Connecticut Nursery and Landscape Association Summer Field Day, Clinton, CT, July 13, 2005. Staffed exhibit on invasive plants and answered questions during day-long event.

Master Gardener Summer Tour, Storrs, CT, July 7, 2005. Presentation and tour on invasive species.

Poster Displays

Informative poster displays on 1) the Beetle Farmer Program (developed by D. Ellis); 2) Giant Hogweed and Mile-a-minute Vine (developed by D. Ellis, E. Corrigan and T. Mervosh); and Phragmites (developed by D. Ellis, P. Capotosto, T. Mervosh and D. Roach) were presented at numerous exhibits, professional society meetings, and other public events during the reporting period.

3. Chris Maier (The Connecticut Agricultural Experiment Station)

Brown Marmorated Stink Bug

January 20: Spoke on 2005 survey for EAB and brown marmorated stink bug, distributed fact sheets, and presented a display on it at the Annual Meeting of the Connecticut Tree Protective Association in Southington.

February 18: Displayed exotic insects found in Connecticut or nearby at a monthly meeting of the Connecticut Entomological Society at CAES, New Haven.

March 11: Spoke on the “Emerald Ash Borer, Brown Marmorated Stink Bug, and Other Exotic Insects” during the Forest Health Monitoring Workshop at CAES, New Haven.

April 15: Displayed a European checkered beetle (Cleridae) recently trapped in New Haven at the Annual Dinner Meeting of the Connecticut Entomological Society.

April-December 2005: Distributed over 500 fact sheets on EAB to interested parties, such as foresters, pest control operators, water company personnel, tree wardens, and students.

June 21: Spoke about exotic fruit insects, including the brown marmorated stink bug, at a twilight meeting of the Connecticut Pomological Society at Bishop Orchards, Guilford.

August 3: Distributed fact sheets and spoke about EAB and other exotic insects to citizens of Connecticut during the Annual Plant Science Day of CAES at Lockwood Farm, Hamden.

November 15: Delivered a seminar titled “Invasive Insects In or Near Connecticut: Life Histories, Distributions, and Monitoring Techniques” at Trinity College, Hartford.

December 6: Displayed a poster on the exotic winter moth at the Annual Meeting of the Connecticut Pomological Society, Glastonbury.

December: Published an article titled “Invasion of Alien Insects” in *Frontiers of Plant Science*, which was mailed by CAES to state citizens.

4. Victoria Lynn Smith (The Connecticut Agricultural Experiment Station)

11 & 12 January 2005: participated in the CT Nursery and Landscape Association Meeting, with a display on non-native insects and diseases including Ramorum Blight; approximately 200 attendees.

18 January 2005: was interviewed by Wayne Norman of WILI (Willimantic) Radio on Ramorum Blight.

20 January 2005: participated in the CT Tree Protection Association meeting, with a display on invasive insects and Ramorum Blight; approximately 900 attendees.

24 January 2005: discussed the role of CAES in monitoring and detecting Ramorum Blight with Faith Campbell of the Nature Conservancy.

25 January 2005: participated in the New England Plant Conservation Workshop, held at CT Forest and Parks Association Headquarters, with a short presentation on Ramorum Blight; approximately 40 attendees.

10 February 2005: presented a talk titled “Sudden Oak Death: a Potential New Threat to CT Forests” at the meeting of the Nutmeg Chapter of the Society of American Foresters; approximately 150 attendees.

22 February 2005: participated in the Official Briefing for the Green Industry of CT on *Phytophthora ramorum*, held at the CAES Jones Auditorium; approximately 65 attendees.

23 February 2005: presented a talk titled “Sudden Oak Death: a New Threat to CT Trees” at the meeting of the CT Grounds Keepers Association; approximately 900 attendees.

5 March 2005: presented a talk titled “Exotic Pests of Importance to CT Christmas Trees and Forests” at the meeting of the CT Christmas Tree Growers Association meeting; approximately 120 attendees.

11 March 2005: presented a talk titled “Update on Ramorum Blight” at the Annual Forest Health Workshop, held at CAES; approximately 40 attendees.

22 March 2005: presented a talk titled “Ramorum Blight: a Potential Threat to CT Forests” to a meeting of the Shoreline Gardeners (Madison); approximately 25 attendees.

23 March 2005: hosted a table display at Agriculture and Forestry Day in the CT Capitol in Hartford.

4 April through 7 April 2005: participated in the annual meeting of the Eastern Plant Board, with numerous discussion on Ramorum Blight; approximately 100 attendees.

14 April 2005: organized a meeting of the CT P. ramorum Task Force, comprised of representatives from CT-DEP, UConn, USDA-APHIS-PPQ, and CAES; approximately 15 attendees.

21 June 2005: gave a brief presentation on winter moth at a meeting of the CT Pomological Society, held at Bishops Orchard in Guilford; approximately 30 attendees.

- 19 July 2005: participated in the Nursery and Landscape Research Tour, held at the Windsor Valley Lab, with a demonstration on nursery inspection for Ramorum blight and processing of samples for detection of Ramorum blight; approximately 60 attendees.
- 21-22 September 2005: participated in a steering committee meeting of the National Plant Pathogen Laboratory Accreditation Program, held in Raleigh, NC; approximately 40 attendees.
- 4-5-6 October 2005: represented the Experiment Station at a joint meeting of the Cooperators of the Durham Field Office and the Morgantown Field Office of the US Forest Service, with a presentation on Forest Health Monitoring and Surveys, held at West Point NY; approximately 60 attendees.
- 27 October 2005: presented a talk to the CT Urban Forestry Conference, titled "Ramorum Blight: a Potential Threat to CT Forests", held at Mountainside Resort in Wallingford, CT; approximately 120 attendees.
- 2 November 2005: presented a talk at the University of CT Department of Forestry and Natural Resources, titled "Ramorum Blight: a Potential Threat to CT Forests"; 35 attendees.

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

We met 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 occurred.

F. State CAPS Committee Narrative

No CAPS State Survey Committee meetings were held during the reporting period. The next State Survey Committee meeting is scheduled for April 11, 2006 in Windsor, CT. 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 and in the development of a Connecticut State Pest List, which includes pests of state concern (insects, mollusks, noxious weeds/invasive plants, and pathogens).

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

Please see Attachment 1, NAPIS data for pest occurrences from 1 January through 31 December 2005.

Target Pest (Common Name if Available)	Date of Submission
American grass mealybug	2/6/06
Asian longhorned beetle	7/28/05
Brown marmorated stink bug	12/2/05
Cereal leaf beetle	1/1/05
Exotic bark beetles: <i>Anoplophora glabripennis</i> <i>Tetropium fuscum</i> <i>T. castaneum</i> <i>Xylotrechus spp.</i> <i>Hesperophanes campestris</i> <i>Chlorophorus annularis</i>	7/28/05
Emerald ash borer	12/2/05
<i>Galerucella sp.</i>	10/27/05
Giant African snail	9/8/05
Giant hogweed	10/27/05-1/17/06
Gypsy moth	1/1/05
<i>Hydrilla verticillata</i>	9/8/05
Japanese beetle	1/1/05
Japanese cedar longhorned beetle	7/28/05
P ramorum (sudden oak death)	3/1/06
Pine shoot beetle	10/27/05
Q biotype whitefly	11/22/05
<i>Salvinia molesta</i>	9/8/05
<i>Thanisimus formicarius</i>	5/4/05
Viburnum leaf beetle	10/4-10/27/05
Winter moth	3/17/06

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

Wood Boring /Bark Beetle Warehouse Survey (Core)

This survey was completed in June 2005, prior to the reporting period, and was summarized in the previous accomplishment report.

Emerald Ash Borer (Core)

Background and Rationale: The emerald ash borer (EAB), *Agrilus planipennis*, is an eastern Asian beetle that is established in Michigan, Ohio, Indiana, and Ontario. In the central United States, it has killed green, white, and black ashes in forested and landscaped settings and is spreading to new areas. This species poses a significant threat to ash trees, which are an important component of many Connecticut forests. A recent study estimated that Connecticut

forests have nearly 25 million ash trees. Ash trees in Connecticut may be predisposed to attack because many already are stressed by one or more plant pathogens, such as ash yellows, ash decline (a disease complex), and ash rust. Ashes are valued highly for shade trees, furniture, and firewood. With interstate movement of wood and nursery stock and with international shipment of solid-wood packing material, continual intensive surveys for EAB are critical for protecting forests and ornamental shade trees in Connecticut.

Objectives: The main objective was to survey ash trees in urban areas, forests, nurseries, and yards of Connecticut for infestations of EAB. Critical targets were ash trees near the Connecticut coastline, especially near import businesses, warehouses with eastern Asian imports, and garden centers. In particular, ash trees with sparse foliage and/or dead limbs were targeted for inspection. A secondary objective was to raise public awareness of the EAB by distributing educational materials and by speaking at meetings. Both of these objectives were met.

Survey Methodology: With the cooperation of the regulatory staff of Connecticut Agricultural Experiment Station (CAES), the Connecticut Tree Protective Association (CTPA), state foresters, and others, mainly high-risk ash trees were inspected for infestations of EAB between May and October 2005. Surveyors (Mathew Wohlstrom, Shalyn Zappulla, and Chris Maier) used two methods of survey: (1) Ash trees were inspected visually, often with binoculars, to detect D-shaped emergence holes and other signs of infestation by EAB. In suspect trees, (if possible) bark was peeled to search for evidence of larval galleries. (2) 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.

Taxonomic Services: No taxonomic services were required.

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. In 2005, girdled trees in Connecticut were attractive to the full spectrum of wood-boring ash insects.

Survey Dates: The precise range of survey dates is shown in Table 1.

Benefits and Results of Survey: This survey has benefited 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 EAB has raised public awareness about this highly destructive pest. Public education and surveys are critical to improving chances of early detection of EAB. Early detection 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.

Survey personnel did not detect any larvae or adults of EAB in 2005. A total of 2,004 ash trees at 492 sites were inspected by visually searching trees for EAB damage or by examining sticky bands for adults (Table 1). At least one site was located in every one of the 169 Connecticut towns (municipalities). In all, the survey team examined 1,490 white ash (74.4% of total), 503 green ash (25.1%), and 11 unidentified ash trees (0.5%). The green ash trees were almost exclusively planted trees in urban areas or nurseries. Table 1 gives the survey statistics subdivided by county. Locations of sampling sites are shown in Fig. 1.

Table 2 lists the number of times each of the 29 types of sites (NAPIS categories) was inspected for infestation by EAB. Sites in the categories identified as roadside (30.7% of 492 sites inspected), forest (15.0), and broadleaved forest (10.2%) were most frequently inspected. In all, 8 nursery fields (1.6% of inspection sites) with large plantings of green and white ash were examined.

Finally, inspectors recorded the latitude and the longitude of all but one site with a GPS unit. The permanent record of coordinates will be useful for finding new sites or for relocating old sites that merit another inspection.

Data Submission: All required reports and associated data were submitted by the requested deadlines. The State Survey Coordinator, Donna Ellis, submitted the survey data to the NAPIS database by the requested date.

Conclusion: Although EAB was not detected in Connecticut during 2004 or 2005, it should remain a target for intensive surveys in the future. Only a small fraction of the many unhealthy ash trees in the landscape have been examined; thus, an infestation could exist in one of the many areas that were not inspected in Connecticut during the 2004 and 2005. The principal investigator strongly recommends that future surveys incorporate the use of trap-trees (girdled ash trees with sticky bands). Girdled trees attracted adults of most species of northeastern wood-boring insects, especially beetles, known to infest ash wood. Also, a series of permanent sampling sites, particularly in western Connecticut and near sites with imported ash wood, would be advisable.

Table 1. Survey statistics for the emerald ash borer in Connecticut in 2005. No larvae or adults were detected.

County	Total sites	First survey date	Last survey date	No. white ash trees	No. green ash trees	No. unidentified ash trees	Total trees inspected
Fairfield	79	23 May	28 October	230	59	0	289
Hartford	88	25 May	27 September	262	151	5	418
Litchfield	59	15 May	27 October	262	20	0	282
Middlesex	33	8 June	25 August	91	35	5	131
New Haven	97	15 May	27 October	190	173	1	364
New London	67	31 May	27 September	189	47	0	236
Tolland	35	31 May	27 September	145	10	0	155
Windham	34	31 May	27 September	121	8	0	129
All sites	492	15 May	28 October	1,490	503	11	2,004

Table 2. Number of inspection sites for emerald ash borer in each category in each county of Connecticut.

Location of inspected trees ^a	Fairfield	Hartford	Litchfield	Middlesex	New Haven	New	Tolland	Windham	Total for category	% Grand total
Home garden or yard (28102)	5	6	1	1	12	6	2		33	6.7
Forest (30000)	12	17	19	3	9	7	7		74	15.0
Forest; broadleaved, hardwood (30001)	10	8	17	3	1	1	9	1	50	10.2
State forest/park (30020)			1	4		1	2		8	1.6
Woodlot (30076)					1	1	1		3	0.6
Urban forest (30079)	1					4			5	1.0
Urban; street trees, downtown areas (30080)	2	3			28				33	6.7
Ornamental/shade tree (35000)	6	7		1	11	6		1	32	6.5
Nursery; general (61030)		5	2	1					8	1.6
Low risk, other (61067)		1			1			1	3	0.6
Sawmill/finishing operations (64004)	1	1			1				3	0.6
Municipal park (67002)	6	4	1		4	2			17	3.5
Roadside (67004)	27	21	16	16	16	2	10	23	151	30.7
Public parking lot (67005)	1	1		1				1	4	0.8
Fence row (67015)	2		2			1		2	7	1.4
Golf course (67018)					1	1			2	0.4
Cemetery (67019)		1				1		2	4	0.8
School; secondary/elementary (68200)	1	1				2	1		5	1.0
Church/church grounds (70110)	1	2			3	7		1	14	2.8
Industrial property/perimeter (77000)	1	4		1	4	1		2	13	2.6
Commercial location (77002)		1			1		1		3	0.6
Shopping plaza (77006)		2			1	1			4	0.8
Hotel/motel/resort (77030)		1				1			2	0.4
Business/office park (77040)	2	2		1	2	2			9	1.8
Others ^b	1			1	1		2		5	1.0

^a Categories used for NAPIS data entry; numbers in parentheses are the codes.

^b Sum of all categories that had a total of 1 for all counties; these categories are wildlife refuge (28148), construction site (68004), tree disposal/green waste recycling (68008), commercial storage (77004), and retail outlet (77005).

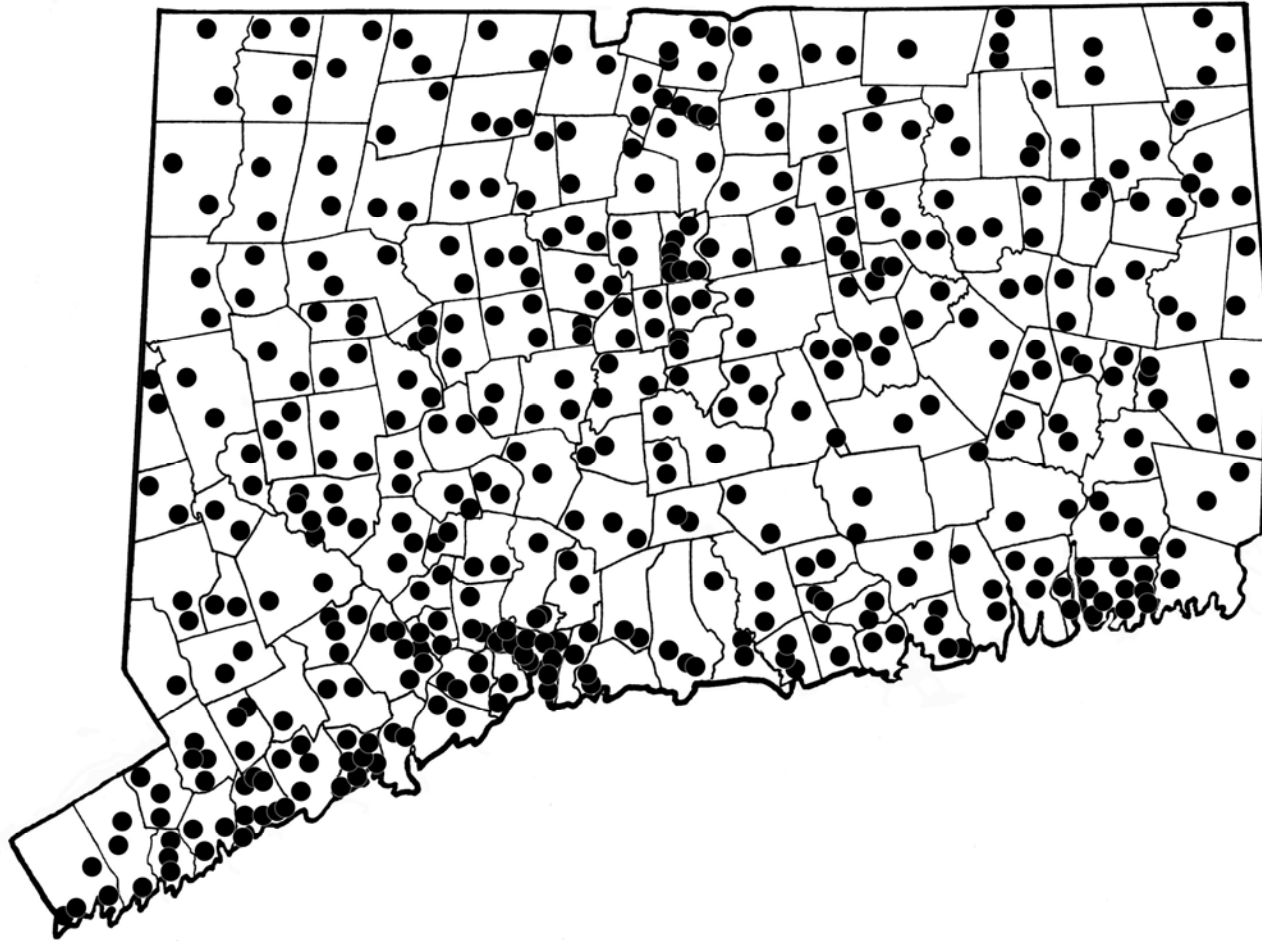


Fig. 1. Sites where ash trees were surveyed for the emerald ash borer in 2005. Sites within 1 kilometer of each other are represented with a single solid circle. The lines within the state boundary delimit the towns of Connecticut.

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

Survey Methodology and Educational Outreach Approach: Educational materials (Pest Alerts, handouts, pamphlets, Connecticut invasive plant list, Internet materials) compiled during the spring of 2005 were distributed by University of Connecticut and Connecticut Agricultural Experiment Station staff to garden center managers, water garden suppliers, nurseries, pet shops, and the general public during the survey period. A visual survey for giant African snails, giant salvinia (*Salvinia molesta*), and hydrilla (*Hydrilla verticillata*) was conducted from May through September 2005 by University of Connecticut staff. Robert Evans, an undergraduate student at the University of Connecticut, was hired as a summer research technician to assist with survey and educational outreach activities.

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 was 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 was conducted 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.

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 was conducted by University of Connecticut staff during the spring and summer.

Taxonomic Services: No suspect organisms were collected during the survey.

Benefits and Results of the Survey: Twenty-nine sites, consisting of garden centers, water gardens, nurseries, and pet shops were visited during the survey period. The survey focused primarily on the 4 northern Connecticut counties (Hartford, Litchfield, Tolland, and Windham Counties), and several sites were added from Middlesex and New Haven Counties. Educational materials were disseminated to owners, managers, or other staff at each business. Aquatic plants were inspected for target species, and snails in pet shops were also inspected. In addition to the target aquatic plants listed in the CAPS survey, inspections occurred during each site visit for

aquatic plants that were listed on the official Connecticut state list of invasive plants, and the invasive plant list was included in the educational materials packet given to each business. No suspect plants or snails were found during the site visits. Negative survey data were submitted to the NAPIS database by the requested deadlines.

The survey results provide needed information on the potential introduction and spread of giant African snails, giant salvinia, and hydrilla in Connecticut. Educational outreach was 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. The negative survey data will provide relevant information to stakeholders in learning about the range of these exotic pests in Connecticut. 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.

Viburnum Leaf Beetle Exotic Survey (Part II)

Survey Methodology: A visual survey for viburnum leaf beetle (*Pyrrhalta viburni*) in ornamental and native viburnum species was conducted during 2005. Donna Ellis, the Project Coordinator and Robert Evans, an undergraduate student summer research technician, inspected 38 nurseries, garden centers, private properties, and state parks in four central Connecticut counties (Hartford, Middlesex, New Haven, and Tolland) between May and September where viburnums were grown, sold, or planted. The four counties included 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 were inspected for evidence of adult or larval beetle feeding damage or egg caps deposited by female viburnum leaf beetles on plant stems. Educational information was compiled and distributed to nursery growers, garden center staff, Integrated Pest Management (IPM) nursery crop personnel, nursery inspectors, property owners, and the general public during the survey period.

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 was 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.

Survey Dates: Educational materials on viburnum leaf beetle were compiled between January and April 2005 and were disseminated throughout the project, primarily during the survey period during site visits to nurseries, garden centers, and other locations. Visual surveys began in May and continued through the summer.

Taxonomic services: Under the supervision of the Project Coordinator, target suspects were collected and screened at the University of Connecticut by the summer research technician. Specimens identified as viburnum leaf beetle were confirmed by the Project Coordinator at the University of Connecticut prior to submitting positive and negative data into NAPIS.

Benefits and Results of the Survey: Visual surveys occurred at 38 nurseries, garden centers, private properties, and state parks in four central Connecticut counties (Hartford, Middlesex, New Haven, and Tolland) between May and September where viburnums were grown, sold, or planted. Approximately 33,400 viburnums were inspected at the 38 locations. An educational information packet, including fact sheets and control recommendations for viburnum leaf beetle was disseminated at each site where the survey occurred. The educational outreach materials were 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.

Viburnum leaf beetle adults and larvae were found at the same two locations where this exotic pest was first confirmed in 2004. Feeding damage by the beetles was apparent on several blocks of viburnum plants at each nursery, and on several varieties. Suspect larvae and adults were collected during the survey period and confirmed by the Project Coordinator as they were found. Digital photos were taken of damaged plants and the viburnum leaf beetles. Survey results were negative for the other 36 sites that were visited during the survey period.

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 provides information on viburnum leaf beetle identification, biology, and management options if control is needed. A rapid response network of cooperators, including the Green Industry, Integrated Pest Management staff at the University of Connecticut, and The Connecticut Agricultural Experiment Station staff has been in place since viburnum leaf beetles were found in 2004, and these cooperators were notified of the continuation of this pest being present in the two counties.

Presence/absence survey data were submitted to the NAPIS database by the requested deadlines.

Brown Marmorated Stink Bug Survey (Part II)

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 were made available to orchardists, homeowners, Integrated Pest Management (IPM) personnel, Extension Educators, and researchers during the survey period. Surveys were 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 were surveyed. Visual surveys to inspect fruit (apples, crabapples, grapes, pears, peaches, plums, and blueberries) for the presence of stink bugs or their feeding damage were conducted by University of Connecticut staff during each site visit. Sites in Fairfield and Litchfield Counties were surveyed by CAES staff and those in Hartford and New Haven Counties were surveyed by UConn staff. Suspect adults were collected by Donna Ellis and UConn staff, and Chris Maier and CAES staff. Suspects were screened at UConn and CAES laboratories.

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 were 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 was 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.

Survey Dates: Educational materials on the brown marmorated stink bug were procured and compiled between January and May 2005 and were disseminated throughout the project period. Visual surveys for brown marmorated stink bug conducted by UConn staff occurred at each site visit during the summer months. Surveys using the limb-jarring technique were conducted by CAES and UConn in late summer.

Taxonomic services: Suspect insects (adults or nymphs) were collected and stored in ethanol-filled vials. Suspect insect specimens were screened at UConn by Donna Ellis and identified by Jane O'Donnell at UConn. Chris Maier screened and identified the specimens that he and his staff collected. The specimens were identified as non-targets and all were common species,

including:

- *Brochymena quadripustulata*
- *Brochymena* sp.
- *Cosmopepla bimaculata*
- *Euschistus tristigmus*
- *Podisus* sp.
- *Tricoepepla semivittata*

Surveys were negative for brown marmorated stink bug. Presence/absence survey data were submitted to the NAPIS database by the requested deadlines.

Benefits and Results of the Survey: Packets containing educational outreach information on the brown marmorated stink bug were provided to orchard producers, other growers, homeowners, Integrated Pest Management personnel, Cooperative Extension Specialists, researchers, and other educators to increase their level of knowledge about this insect pest. Donna Ellis developed a Pest Alert for Brown Marmorated Stink Bug that was distributed to fruit growers via an electronic mailing list. The Pest Alert was also published in the UConn *Crop Talk* newsletter. 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.

The brown marmorated stink bug survey was conducted at ten sites in Fairfield and Litchfield Counties and 13 sites in Hartford and New Haven Counties. Host crops included apples, crabapples, grapes, pears, peaches, plums, and blueberries. Many sites included multiple crops that were visually inspected for brown marmorated stink bug or where limb jarring occurred. The survey was conducted for a total of 2,680 site/host combinations. Surveys continue during the summer months, through September 2005. All surveys were negative for brown marmorated stink bug.

Presence/absence data and distribution information obtained from the survey is critical in learning about the range of this fruit pest in Connecticut. A communication network was established to exchange pertinent and timely information on brown marmorated stink bug occurrences. The educational resources provide useful information and allow people to be able to identify this pest if it moves into Connecticut, as well as 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.

PEST ALERT
Brown Marmorated Stink Bug (*Halyomorpha halys*)



David R. Lance, USDA APHIS PPQ, www.forestryimages.org

Surveys are currently underway in Connecticut to look for the brown marmorated stink bug, a non-native insect with the potential to impact agricultural production. This project is being conducted by Donna Ellis (University of Connecticut) and Chris Maier (Connecticut Agricultural Experiment Station) in Fairfield, Hartford, Litchfield, and New Haven Counties to determine the range of this potential new pest. Brown marmorated stink bugs originated in Asia where they cause serious damage to agricultural crops, attacking many types of fruits such as apples, pears, and peaches. A recent study in Pennsylvania generated an extensive host plant list for this insect pest, including other fruits such as raspberries and grapes as well as many ornamental crops that are a vital component of Connecticut agriculture.

Although not yet reported from Connecticut, the brown marmorated stink bug was recently found 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 well in Pennsylvania. In apple and peach trees, brown marmorated stink bugs attack the fruit and cause ‘cat-facing’, a condition that makes the crop unmarketable. This insect may also 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.

The following websites have information on brown marmorated stink bugs:

Penn State Entomological Notes

<http://www.ento.psu.edu/extension/factsheets/brownMarmoratedstinkbug.htm>

Rutgers Cooperative Extension

<http://www.rce.rutgers.edu/stinkbug/default.asp>

Oregon Department of Agriculture (comparison photos of brown marmorated stink bug and the native rough stink bug (*Brochymena quadripustula*))

http://egov.oregon.gov/ODA/PLANT/docs/pdf/ippm_halyomorpha.pdf

For more information or to report a potential sighting for brown marmorated stink bug, please contact Donna Ellis [phone (860) 486-6448; email donna.ellis@uconn.edu] or Lorraine Los [phone (860) 486-6449; email lorraine.los@uconn.edu] at the University of Connecticut.
(end of Pest Alert)

Chrysanthemum White Rust (Part III)

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.

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.

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.

Taxonomic services: Dr. Sharon Douglas of the CT Agricultural Experiment Station Plant Disease and Information Office will examine the specimens.

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 July 1, 2005 until December 31, 2005, 364 dealers and 1,147,018 plants were inspected for CWR. Plants were free of CWR. No chrysanthemums were examined by the PDIO.

Small Hive Beetle (Part III)

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.

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.

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

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

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 July 1, 2005 until December 31, 2005, 676 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)

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 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.

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.

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.

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

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.

Other Survey Activities

Winter Moth

The winter moth (*Operophtera brumata*) is a new pest of concern in New England that had not yet been found in Connecticut prior to 2005 but is of great concern in our state due to its propensity for significant feeding damage to a number of fruit crops, trees, shrubs, and perennials. Since 2003, winter moth has moved from coastal areas of Massachusetts to several inland towns and has also been found causing extensive damage in 4 out of 5 counties of Rhode Island. This exotic moth has the potential to impact agricultural production, plant resources, and our Nation's overall health and environment. Surveys were conducted in December 2005 and January 2006 to determine if winter moth is present in Connecticut. Pheromone wing traps were placed on deciduous trees in state parks, town properties, and roadsides. The traps contained a chemical pheromone to attract male winter moths, and the lure also included an inhibitor for Bruce spanworm. Traps were placed for approximately one month, with trap bottoms replaced after two weeks. Trap bottoms were collected and forwarded to Joe Elkinton and Jeff Boettner at the University of Massachusetts for screening and examination of captured specimens in the laboratory. Winter moth was confirmed at two sites in New London County; negative results were reported from five other counties (Hartford, Middlesex, New Haven, Tolland, and Windham Counties). The New London County occurrence represents a new state record for Connecticut. Information was disseminated to fruit growers, the Green Industry, Extension Educators, other scientists, and the general public following confirmation of the specimens.

Ramorum Blight (Sudden Oak Death) National Nursery Survey

Survey Method: Connecticut surveys for Ramorum blight are adapted from the national survey protocol designed to gather information on the distribution of the disease caused by *Phytophthora ramorum* (*Pr*) in production nurseries. This disease occurs in the forest environment of the US West Coast (California and Oregon) and has been reported to occur in nurseries in California, Florida, Georgia, Maryland, Oregon, Washington, and British Columbia Canada. Ramorum Blight has been reported to occur in the European Union as well. Infested plants were shipped through the nursery trade to many states throughout the Northeast during 2004, and a disappointing number were found during trace-forward activity. National survey efforts will be concentrated in two areas, forested nursery perimeter areas (coordinated by the USFS) and interior production nurseries (coordinated by APHIS-PPQ). In addition, an educational outreach component of the project will disseminate pertinent information to commercial nursery growers and hobbyist gardeners through presentations at meetings and workshops.

Rationale underlying survey methodology: Visual surveys were conducted for this disease according to survey protocol and in conjunction with regular nursery inspections. Inspectors have been trained to recognize the signs and symptoms of Ramorum blight, and in the proper handling of potentially-infested plant material. 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.

Survey Dates: The survey took place when regular nursery inspections occur and when symptoms would be likely on infected plants, beginning in mid-June 2005. Inspections continued until completed, usually within 4 to 6 weeks. Samples were taken to the Plant Disease and Information Office for preliminary diagnosis.

Taxonomic Services: Dr. Sharon Douglas of the CT Agricultural Experiment Station Plant Disease and Information Office examined the samples, conducted ELISA testing, and cultured suspicious plant material. When warranted, she also processed the samples and paperwork for submission to the lab at Beltsville.

Benefits and Results of the Survey: The survey results will contribute to presence/absence data of the non-native disease of nursery and landscape plants, and in the case of presence, provide information for trace-forward and trace-back activities. In 2005, 185 samples were collected from 58 nurseries. None tested positive for *P. ramorum*. For the USFS perimeter survey, we completed 3 nursery perimeters, 1 forest area perimeter, and 3 positive garden center follow-ups. No samples were collected.

New State Records

In addition to the new state record for winter moth, new state records occurred for the American grass mealybug (*Trionymus americanus*) in Litchfield County and the Q biotype whitefly

(Bemisia tabaci) in New Haven County.

Respectfully submitted,

Donna Ellis
State Survey Coordinator

Victoria Lynn Smith
Deputy State Entomologist

31 March 2006

Attachment 1. NAPIS Occurrence data submitted during the period 1 January 2005 through 31 December 2005.

Plant Board Report

Date of Search: 04/26/06

Time of Search: 01:15 PM EST

Date Range: 01-01-2005 thru 12-31-2005

State: CONNECTICUT

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

Target Pest	Counties	Sites* Plants	Traps	Positives	Negatives
SUDDEN OAK DEATH VISUAL PHYTOPHTHORA RAMORUM P RAMORUM NATIONAL NURSERY SURVEY		8	182743		0 182743
GIANT AFRICAN SNAIL (GAS) GEN. PEST OBSER. ACHATINA FULICA GENERAL PEST OBSERVATION; LAB CONFIRMED		6	29		0 29
EMERALD ASH BORER GEN. PEST OBSER. AGRILUS PLANIPENNIS GENERAL PEST OBSERVATION; LAB CONFIRMED		8	1998		0 1998
BAMBOO BORER LONGHORNED BEETLE TRAPPING CHLOROPHORUS ANNULARIS NATIONAL EXOTIC WOODBORER/BARK BEETLE		5	22		0 22
ASIAN CERAMBYCID (LH.) BEETLE GEN. PEST OBSER. ANOPLOPHORA GLABRIPENNIS (LONGHORNED) GENERAL PEST OBSERVATION; LAB CONFIRMED		1	219		0 219
ASIAN CERAMBYCID (LH.) BEETLE TRAPPING ANOPLOPHORA GLABRIPENNIS (LONGHORNED) NATIONAL EXOTIC WOODBORER/BARK BEETLE		5	22		0 22

JAPANESE CEDAR LONGHORN BEETLE CONSENSUS CALLIDIELLUM (PALAEOCALLIDIUM) RUFIPENNE SCIENTIFIC CONSENSUS/GENERAL AGREEMENT	4	4		4	0
LONGHORNED BEETLE; A TRAPPING HESPEROPHANES (TRICHOFERUS) CAMPESTRIS NATIONAL EXOTIC WOODBORER/BARK BEETLE	5	22		0	22
BROWN SPRUCE LONGHORNED BEETLE TRAPPING TETROPIUM FUSCUM NATIONAL EXOTIC WOODBORER/BARK BEETLE	5	22		0	22
LONGHORNED BEETLE; A TRAPPING TETROPIUM CASTANEUM NATIONAL EXOTIC WOODBORER/BARK BEETLE	5	22		0	22
LONGHORNED BEETLE; A TRAPPING XYLOTRECHUS HIRCUS NATIONAL EXOTIC WOODBORER/BARK BEETLE	5	22		0	22
CEREAL LEAF BEETLE (CLB) CONSENSUS OULEMA MELANOPUS SCIENTIFIC CONSENSUS/GENERAL AGREEMENT	1	1		1	0
VIBURNUM LEAF BEETLE GEN. PEST OBSER. PYRRHALTA VIBURNI GENERAL PEST OBSERVATION; LAB CONFIRMED	4	34361		1884	32477
WEED CONTROL CHRYSOMELID; A RELEASE GALERUCELLA SP. RELEASE BENEFICIALS-OPEN FIELD-NO CAGE	6	24		24	0
CLERID PINE BARK BORER PRED'TR TRAP THANASIMUS FORMICARIUS TRAP;LINDGREN	1		1	1	0
JAPANESE BEETLE (JB) CONSENSUS	8	8		8	0

POPILLIA JAPONICA					
SCIENTIFIC CONSENSUS/GENERAL AGREEMENT					
PINE SHOOT BEETLE (PSB)	8		41	0	41
TRAP					
TOMICUS PINIPERDA					
TRAP;LINDGREN					
BROWN MARMORATED STINK BUG	2	2040		0	2040
GEN. PEST OBSER.					
HALYOMORPHA HALYS					
GENERAL PEST OBSERVATION; LAB CONFIRMED					
BROWN MARMORATED STINK BUG	2	130		0	130
SWEEP					
HALYOMORPHA HALYS					
SWEEP;100 TOTAL;VAR.SITES;NC MAN					
BROWN MARMORATED STINK BUG	4	510		0	510
DROP CLOTH					
HALYOMORPHA HALYS					
DROP CLOTH;VISUAL CNT; FIELD AND ORCHARD					
WHITEFLY; A	1	2		2	0
GEN. PEST OBSER.					
BEMISIA TABACI BIOTYPE Q					
GENERAL PEST OBSERVATION; LAB CONFIRMED					
AMERICAN GRASS MEALYBUG	1	1		1	0
GEN. PEST OBSER.					
TRIONYMUS AMERICANUS					
GENERAL PEST OBSERVATION; LAB CONFIRMED					
WINTER MOTH	6		35	2	33
TRAP					
OPEROPHTHERA BRUMATA					
TRAP;WING PHEROMONE;PHEROCON 1C					
GYPSY MOTH (EUROPEAN)(GM)	8	8		8	0
CONSENSUS					
LYMANTRIA DISPAR					
SCIENTIFIC CONSENSUS/GENERAL AGREEMENT					
HYDRILLA	6	29		0	29
GEN. PEST OBSER.					
HYDRILLA VERTICILLATA					
GENERAL PEST OBSERVATION; LAB CONFIRMED					

SALVINIA; A GIANT (KARIBAWEED)	6	29		0	29
GEN. PEST OBSER.					
SALVINIA MOLESTA (S. AURICULATA COMPLEX)					
GENERAL PEST OBSERVATION; LAB CONFIRMED					
GIANT HOGWEED	8	210		3	207
GEN. PEST OBSER.					
HERACLEUM MANTEGAZZIANUM					
GENERAL PEST OBSERVATION; LAB CONFIRMED					

This report includes data which have been entered into the National Agricultural Pest Information System (NAPIS) by members of the Cooperative Agricultural Pest Survey (CAPS). Best efforts are made to enter accurate and complete data, however, neither the USDA nor Purdue University certify as to the accuracy or completeness of the data.

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