

Survey Work Plan - Fiscal Year 2016

Cooperator:	The Connecticut Agricultural Experiment Station		
State:	Connecticut		
Project:	Cooperative Agricultural Pest Survey (CAPS) Survey		
Project funding source:	CAPS- Pest Detection Survey		
Project Coordinator:	Katherine Dugas		
Agreement Number	16-8209-0327		
Contact Information:	Address:	123 Huntington Street, P.O. Box 1106	
	Phone:	203-974-8483	Fax: 203-974-8502
	Email Address:	Katherine.Dugas@ct.gov	

This Work Plan reflects a cooperative relationship between The Connecticut Agricultural Experiment Station (the Cooperator) and the United States Department of Agriculture (USDA), Animal and Plant Health Inspection Service (APHIS), Plant Protection and Quarantine (PPQ). It outlines the mission-related goals, objectives, and anticipated accomplishments as well as the approach for conducting a Forest Pest Survey and the related roles and responsibilities of the parties [e.g., APHIS role(s) and Cooperator role(s)] as negotiated.

I) OBJECTIVES AND NEED FOR ASSISTANCE

Four exotic moths threaten Connecticut's oak and maple trees. The green oak tortrix moth (GOTM), *Tortrix viridana*, is a polyphagous pest whose larvae feed primarily on oak but can also feed on a wide range of other hardwood hosts including maple, beech, poplar, ash, willow, and rhododendron, as well as on crop producers such as blueberry, apple, pear, cherry and raspberry. Caterpillar infestations can result in defoliation of a host tree. The variegated golden tortrix moth (VGTM), *Archips xylosteanus*, is a leafroller native to Eurasia that also has a wide host range, including oak, maple, ash, elm, apple, pear, rhododendron, rose, and solanum. It was discovered in Newfoundland in 2005, and there are concerns that it might become established in the northeastern United States due to suitable climate and heavy presence of hosts, including fruit crops. The oak processionary moth (OPM), *Thaumetopoea processionea*, is a major defoliator of oaks, and is native to central to southern Europe, though populations are beginning to expand northwards in response to climate shift. The moth also poses a public health risk, as late instar caterpillars have stinging hairs that cause irritation to the skin and can cause respiratory distress if inhaled. The false codling moth (FCM), *Thaumatotibia leucotreta*, is a major pest of economic crops such as citrus, corn, and cotton in its native range, but also feeds on oak. The first domestic detection in North America was in California in 2005. Increased trade and tourism between the US and

African and Mediterranean countries have also increased risk of FCM introduction, which is most often transported on produce and in nursery stock.

Four *Agrilus* beetles threaten Connecticut's urban and forest hardwood trees. The emerald ash borer (EAB) *A. planipennis*, is present in New Haven, Hartford, Litchfield, Fairfield, and Middlesex counties. Its range in CT continues to spread and major mortality of ash trees in infested areas is currently being observed. The oak splendor beetle (OSB), *A. biguttatus*, targets oak, chestnut and beech which are a major component of Connecticut's forests. The goldspotted oak borer (GOB), *A. auroguttaus*, has been found in Southern California and threatens oak trees. The jewel beetle (JB), *A. sulcicolis*, can attack oaks, chestnuts, and beeches.

Four cerymbicids threaten Connecticut's Christmas tree industry. *Tetropium fuscum*, the brown spruce longhorn beetle (BSLB) larvae bore into tips of fir, spruce and larch. Feeding damage leads to heavy resin flow, dieback of branches, and possibly tree death. It is native to Europe and Siberia, but has been introduced to North America in Nova Scotia and New Brunswick. *Tetropium castaneum*, the black spruce beetle (BSB) attacks the lower trunk of fir, spruce, larch and pine. *Monochamus urussovi*, the black fir sawyer (BFS), attacks fir, spruce, larch, and pine. Adult maturation feeding can destroy stems and reduce foliage area, and larvae can cause significant wood damage leading to loss of commercial quality. *Monochamus alternatus*, the Japanese pine sawyer (JPS) primarily attacks pines, but can also attack fir, spruce, and even some deciduous trees. Furthermore, cerymbicids can be vectors for fungal pathogens such as blue stain.

The purpose of these surveys is to determine if any of these invasive pests have been introduced or spread from known populations and will determine whether or not Connecticut is free of these pests. Demonstrating area freedom is an important phytosanitary measure that will allow the US to continue to export at-risk stock from regions of the country that are determined to be pest free.

II) RESULTS OR BENEFITS EXPECTED

The Cooperator seeks to conduct a program which is expected to result in:

- A. Determining whether EAB has spread and other exotic *Agrilus* species are present in Connecticut through *Cerceris* biosurveillance activities.
- B. Determining whether the GOTM, VGTM, OPM, FCM, BFS, JPS, BSB, or BSLB are present in Connecticut nurseries, Christmas tree farms, sawmills, or forests
- C. Increased outreach and awareness to Connecticut stakeholders and industries about the pests of concern.
- D. Knowledge regarding the presence or absence of these pests that will assist decision making regarding management of these pests.

III) APPROACH

What is the plan of action or approach to the work (for bundled survey work plans please include a separate paragraph for each survey detailing survey type, targets, and number of locations)?

A. The Cooperator will:

1. By function, what work is to be accomplished?

- Biosurveillance *Agrilus* beetle survey: We will conduct a survey for *A. planipennis* (EAB), *A. auroguttaeus* (GOB), *A. sulcicolis* (JB), and *A. biguttatus* (OSB) using the native ground nesting wasp *Cerceris fumipennis*. Dr. Claire Rutledge and a summer worker will organize a network of volunteers to survey a minimum of 50 sites. The survey will take place when *Cerceris* is active in June, July and August.
- Moth trapping survey: We will conduct surveys for *Tortrix viridana* (GOTM), *Archips xylosteanus* (VGTM), *Thaumetopoea processionea* (OPM), and *Thaumatotibia leucotreta* (FCM) using wing traps for each insect in each of 25 high risk sites from May through August. High risk sites include areas adjacent to or at nurseries, sawmills, and state forests. Traps will be checked every two weeks according to the National Survey Guidelines.
- Christmas tree survey: We will conduct surveys for *Monochamus urussovii* (BFS), *Monochamus alternatus* (JPS), *Tetropium castaneum* (BSB), and *Tetropium fuscum* (BSLB) using cross-vane panel traps for each insect in each of 25 high risk sites from May through September. High risk sites are Christmas tree farms and growing yards, specifically those that grow *Abies*, *Picea*, and *Pinus*.
- Outreach to the nursery growers, arborists, and stakeholders will occur at their annual meetings and as we arrange survey sites with them. Nursery and sawmill employees will be educated about pest management so as to minimize any possible negative impact on their business.

2. What is the quantitative projection of accomplishments to be achieved?

- a. By activity or function, what are the anticipated accomplishments by month, quarter, or other specified intervals?
 - Data management and reporting will occur throughout the survey season into an approved APHIS database from May through December.
 - Pest risk and pathway analysis will be used to select survey sites in nurseries, state forests, sawmills, Christmas tree farms, and other high-risk areas containing prominent oak, maple, fir, spruce, and pine, populations during January through April.
 - Surveys will be undertaken when pest symptoms are expressed and/or adult stages are flying: *Cerceris* is active from mid-June through August; GOTM May-July; OPM June-September; FCM April-September; VGTM June-August; BFS, JPB, BSB and BSLB May-September. Cross-vane panel traps and moth wing traps will be checked every two weeks as per survey guidelines.
 - Identifications will be done throughout the survey period from May through August and completed as needed in the fall.
 - Cooperator outreach and risk communication will occur throughout the season at survey locations and grower meetings.
 - Work plans, survey results and pest information will be submitted to the CAES webmaster on an ongoing basis throughout the year.

A semi-annual report will be submitted in July, and an annual report will be submitted in January.

b. What criteria will be used to evaluate the project? What are the anticipated results and successes?

- Pest detection surveys and outreach are completed in the manner and time frame outlined in Section III.A.1 above.
- All data collected from the pest detection surveys will be entered into an APHIS PPQ approved database (NAPIS) as outlined in Section V below.
- Data will be supplied to PPQ for map making purposes upon request; CAES does not have the resources needed to produce maps.

3. What numbers and types of personnel will be needed and what will they be doing?

- Two seasonal workers will be trained to run trap surveys and recognize symptoms of infestation of exotic moths and beetles. One worker will be supervised by the State Survey Coordinator (SSC) and help with trap surveys and one summer worker will work under Dr. Claire Rutledge to help with the biosurveillance survey. The summer workers will need to be hired. All positions are paid positions.
- Dr. Claire Rutledge will run the biosurveillance survey and be the local identifier for the *Cerceris* survey.
- Dr. Gale Ridge will be the level I identifier for the moth and Christmas tree surveys.
- Katherine Dugas, the SSC, will coordinate the surveys, ensuring all necessary supplies are obtained and the objectives are met. She will also assist in survey and outreach activities.

4. What equipment will be needed to perform the work? Include major items of equipment with a value of \$5,000 or more.

- a. What equipment will be provided by the cooperator?
 - Cooperator will provide large format printer and state vehicle.
- b. What equipment will be requested from APHIS on loan?
 - None.
- c. What equipment will be purchased in whole or in part with APHIS funds?
 - None.
- d. How will the equipment be used?
 - Large format printer will be used for producing outreach materials; state vehicle will be used to conduct survey and for travel to meetings and outreach events.
- e. What is the proposed method of disposition of the equipment upon termination of the agreement/project?
 - N/A

5. Identify information technology equipment, e.g., computers, and their ancillary components. All information technology supplies (e.g., small items of equipment, connectivity through air cards or high speed internet access, GPS units, radios for emergency operations etc.) should be specifically identified.

- IT equipment currently used by SSC:
 - Laptop – purchased with APHIS funds from previous agreement
 - LCD Projector– purchased with APHIS funds from previous agreement
 - GPS Unit – purchased with APHIS funds from previous agreement
- IT equipment currently used by all personnel:
 - Access to CAES computers, access to Internet through CAES and CAES computer network.

6. What supplies will be needed to perform the work? Identify individual supplies with a cumulative (e.g. 4 microscopes at \$1500 each) value of \$5,000 or more as a separate item.

a. What supplies will be provided by the Cooperator?

- Office Supplies

b. What supplies will be requested from APHIS (list supplies)?

- Traps and lures for moth and beetle surveys prior to start of survey as requested by the SSC through the PPQ Survey and Supply database.

c. What supplies will be purchased in whole or in part with APHIS funds?

- Moth and Christmas tree surveys:
 - Ziploc bags
 - Mailers and postage
 - Antifreeze for cross-vane panel traps
 - Rope and twine for hanging traps
- *Cerceris* biosurveillance:
 - Ziploc bags
 - Insect shipper boxes and postage

d. How will the supplies be used?

- Supplies will be used to conduct surveys and to ship suspected pests to Level 2 identifier

e. What is the proposed method of disposition of the supplies with a cumulative value over \$5,000 upon termination of the agreement/project?

- N/A

7. What procurements will be made in support of the funded project and what is the method of procurement (e.g., lease, purchase)?

(Cooperator procurements shall be in accordance with OMB Circulars A-102 or A110, as applicable.)

- Materials are purchased through the approved system of state contract vendors. Purchases are made with a credit card billed directly to the appropriate account at CAES.

8. What are the travel needs for the project?

- a. Is there any local travel to daily work sites? Indicate rates and total costs in the Financial Plan.
 - Local travel to survey sites for moth trapping will occur biweekly from April through August. Local travel to survey sites for *Cerceris* biosurveillance will occur weekly throughout the months of July and August. Cooperator will provide a vehicle for local travel as state allows.
- b. What extended or overnight travel will be performed (number of trips, their purpose, and approximate dates)? Indicate rates and total cost in the Financial Plan.
 - No extended or overnight travel is anticipated for this project. Dr. Theodore Andreadis and Mr. Michael Last approve all travel.

9. Reports:

Submit all reports to the APHIS Authorized Department Officer's Designated Representative (ADODR). Reports include:

- a. Narrative accomplishment reports in the frequency and time frame specified in the Notice of Award, Article 4.
- b. Federal Financial Reports, SF-425 in the frequency and time frame specified in the Notice of Award, Article 4.

10. Are there any other contributing parties who will be working on the project?

- a. If so, list other participating institutions/agencies who will work on the project: Donna Ellis, UConn
- b. Describe the nature of their effort: Donna will run part of the Oak/Maple and Christmas tree surveys in northeastern CT at 20 high risk sites.

B. APHIS Will:

1. Outline the Agency's (USDA APHIS PPQ) substantial involvement.

- a. Include any significant Agency collaboration and participation
 - Providing any new information that becomes available on survey pests, provide appropriate forms and review data.
 - Providing the following resources: funds to the Cooperator to cover costs outlined in the financial plan. In addition, specific appropriated funding, in the level authorized by APHIS Field Operations, will be dedicated to the delivery of CAPS objectives listed above.
 - Making arrangements for level II taxonomic support in confirming identification of suspect EAB, GOB, OSB, JB, GOTM, VGTM, OPM, FCM, BFS, JPB, BSB, and BSLB samples.

- Producing maps of the survey activities with the location data (latitude and longitude) provided by the Cooperator.
- b. Project oversight and performance management
 - The State Plant Health Director, USDA APHIS, will provide informational support, review performance and federal guidance.
 - The Pest Survey Specialist, USDA APHIS will assist in developing CAPS pest survey protocols, pest risk analysis, IPHIS training, work plan and budget development and other related activities.
- c. Provide the equipment requested by the cooperator in 4.b. & c.
- d. Provide the supplies requested by the cooperator in 6.b. & c.

IV) GEOGRAPHIC LOCATION OF PROJECT

- A. Is the project statewide or in specific counties? [List the names of ALL counties and tribal areas that apply (denote counties for each separate survey if this is a bundled survey work plan)].
- All Connecticut counties where high risk sites are identified, including Fairfield, Litchfield, New Haven, Hartford, Middlesex, Tolland, New London, and Windham counties.
- B. What type of terrain (e.g., cropland, rangeland, woodland) will be involved in the project?
- Nurseries, Christmas tree farms, sawmills, land conservancy and conservation commission lands, state parks, and woodlands.
- C. Are there any unusual geographic features which may have an impact on the project? (list all that apply)
- None.

V) DATA COLLECTION AND MAINTENANCE

Each State is responsible for entering complete, accurate, and timely pest survey data using approved protocol and methodology. All survey data from Pest Detection funded CAPS surveys will be entered into the National Agricultural Pest Information System (NAPIS). NAPIS is the final repository for all Pest Detection survey data.

- First record for the State and/or County will be entered within **48 hours** of confirmation of identification by a qualified identifier.
- All other required records, both positive and negative survey data, must be entered **within two weeks** of confirmation.
- All records are to be entered into the NAPIS database by **December 31st** of the year of survey so these data can be included in the yearly Plant Board Report.

VI) TAXONOMIC SUPPORT

- A. Person or Institution that will screen targets (Name & Contact Information)
- Dr. Claire Rutledge, Level I screening, *Agrilus planipennis*, *A. biguttatus*, *A. auroguttaus*, *A. sulcicolis*

The Connecticut Agricultural Experiment Station
203-974-8484

- Dr. Gale. E. Ridge, Level I screening, *Tortrix viridana*, *Archips xylosteanus*, *Thaumetopoea processionea*, *Thaumatotibia leucotreta*, *Tetropium castaneum*, *Tetropium fuscum*, *Monochamus urussovii*, *Monochamus alternatus*

The Connecticut Agricultural Experiment Station
203-974-8478

- B. Request for taxonomic support.
- Request for confirmation of suspects for:
 - Agrilus planipennis*
 - A. biguttatus*
 - A. auroguttaus*
 - A. sulcicolis*
 - Request for Level II taxonomic support for:
 - Tortrix viridana*
 - Archips xylosteanus*
 - Thaumetopoea processionea*
 - Thaumatotibia leucotreta*.
 - Tetropium castaneum*
 - Tetropium fuscum*
 - Monochamus urussovii*
 - Monochamus alternatus*

If you request taxonomic support, the Program managers and PPQ's National Identification Services will use the information you provide in Survey Summary Form to assign your survey samples to the appropriate taxonomic personnel.

VII) SURVEY SUMMARY FORM

A Survey Summary Form must be completed to summarize all CAPS surveys **funded by the Pest Detection line item.**

VIII) SIGNATURES

Victoria Lynn Smith 17 Aug 2015
ROAR Date

ADODR Date