Pest Detection / CAPS Survey Work Plan - Fiscal Year 2019

Cooperator:	**The Connecticut Agricultural Experiment Station**			
State:	Connecticut			
Project:	Combined Surveys			
Project funding source:	Pest Detection / CAPS Survey			
Project Coordinator:	Katherine Dugas			
Agreement Number				
Contact Information:	**Address:**	123 Huntington Street		
	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 Nursery 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

What relevant need or problem within the cooperator's mission area requires a solution in carrying out a public purpose of support or stimulation authorized by a law of the United States? How does the need or problem align with the mission area and strategic goals of APHIS?

The greenhouse and nursery industry in Connecticut is the largest agricultural production sector in the state, accounting for 49% of agricultural product sales (Economic Impact of Connecticut's Agricultural Industry, UConn, 2010). According to the CT Nursery and Landscape Association, the industry grosses more than $800 million annually. Christmas trees represented around $6 million dollars in sales in 2012(National Ag Statistic Service NASS).

Exotic moths and scolytid beetles threaten Connecticut's nursery industry. 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 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. *Thaumetopoea pini*, the pine processionary moth is a destructive pine defoliator in Asia, northern Africa, and southern Europe. It poses a similar threat of

northward expansion as its relative the oak processionary moth, including the possession of harmful stinging hairs.

Three species of *Dendrolimus* moths are included due to their status as economically important defoliators of pine and conifers in Eurasia. Populations of these moths can build up over several years and reach outbreak conditions, causing widespread damage to conifers, which are highly susceptible to defoliation damage.

The sixtoothed bark beetle (*Ips sexdentatus*) and the European spruce bark beetle (*Ips typographus*) are conifer-feeding scolytids that cause direct tree damage typical of most bark beetles such as pitch tubes, faded foliage and needles, boring dust on bark surface, exit holes, and galleries underneath the bark, but they are also vectors of a number of pathogens such as blue stain fungus. The European pine shoot beetle (*Tomicus destruens*) is a widely distributed pest from Europe and Asia that feeds on pine, fir, and spruce. Both adults and larvae feed on and destroy cambium, girdling tree boles, and shoots.

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 SBB, ESBB, PPM, GOTM, OPM, LPW, MPSB, or *Dendrolimus* moths are present in Connecticut nurseries.

B. Increased outreach and awareness to Connecticut stakeholders and industries about the pests of concern.

C. 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?

Scientific Name	Common Name	Survey Method	Trap	Lure
Nursery Pest Survey				
Ips sexdentatus	Sixtoothed bark beetle	Trap	Multi-funnel Trap, 8 Funnel, Wet	*3 Ips* Lure
Ips typographus	European spruce bark beetle	Trap	Multi-funnel Trap, 8 Funnel, Wet	3 Ips Lure
Hylobius abeitus	Large pine weevil	Trap	Multi-funnel Trap, 8 Funnel, Wet	Ethanol Lure with Alpha Pinene
Tomicus destruens	Mediterranean pine shoot beetle	Trap	Multi-funnel Trap, 8 Funnel, Wet	Ethanol Lure with Alpha Pinene
Tortrix viridana	green oak tortrix moth	Trap	Wing Trap Kit, Paper	*Tortrix viridana* Lure

Thaumetopoea processionea	oak processionary moth	Trap	Wing Trap Kit, Paper	*Thaumetopoea processionea* Lure
Thaumetopoea pityocampa	pine processionary moth	Trap	Large Plastic Delta Trap Kits, Red	*Thaumetopoea pityocampa* Lure
Dendrolimus pini	Siberian silk moth	Trap	Milk Carton Trap	*Dendrolimus pini* – *Dendrolimus sibiricus* Lure
Dendrolimus sibricus	pine tree lappet	Trap	Milk Carton Trap	*Dendrolimus pini* – *Dendrolimus sibiricus* Lure
Dendrolimus punctatus	Masson pine moth	Trap	Wing Trap	*Dendrolimus punctatus* Lure

A <u>Nursery Survey</u> will consist of seasonal trap/lure monitoring at fifty high-risk sites for priority insects. High-risk sites include nurseries (wholesale, retail, and growing yards), that sell, grow, cut, or contain pest host hardwoods and conifers, especially oak, maple, pine, fir, and spruce.

There will be two Lindgren 8-funnel traps following national protocols developed by APHIS; the first for sixtoothed bark beetle (*Ips sexdentatus*) and European spruce bark beetle (*Ips typographus*) and the second for *Hylobius abeitus* and *Tomicus destruens.* One of each will be installed at 50 high-risk sites; from April-September. Traps will be serviced every two weeks and lures replaced as needed, according to National Pine Commodity Survey guidelines.

Paper wing traps following national protocols developed by APHIS for oak processionary moth (OPM) and green oak tortrix moth (GOTM) will also be installed at the same fifty high risk sites beginning the first week of May through September. The traps will be serviced every two weeks, and lures replaced as needed according to National Oak Commodity survey guidelines.

Two paper wing traps following national protocols developed by APHIS for pine processionary moth (*Thaumetopoea pityocampa*) and Masson pine moth (*Dendrolimus punctatus*) will also be installed at the same fifty high risk sites beginning the first week of May through September. The traps will be serviced every two weeks, and lures replaced as needed according to National Pine Commodity survey guidelines.

Finally, one milk carton trap following national protocols developed by APHIS for Siberian silk moth and pine tree lappet (*Dendrolimus pini and D. sibricus*) will be installed at these fifty high risk sites beginning the first week of May through September. The traps will be serviced every two weeks, and lures replaced as needed according to National Pine Commodity survey guidelines.

The CAPS SSC and assistants will screen moths and bark beetles and PPQ identifiers will verify suspects if identified. Results will be uploaded to NAPIS.

A. **The Cooperator Will:**

1. **By function, what work is to be accomplished?**
    a. Nursery survey: cooperator will conduct trap surveys for *Ips sexdentanus* (SBB), *Ips typographus* (ESBB), *Hylobius abeitus* (LPW), and *Tomicus destruens* (EPSB) using lindgren funnel traps in

each of 50 high risk sites from April through September. Traps will be checked every two weeks according to the National Survey Guidelines. Cooperator will also conduct surveys for *Tortrix viridana* (GOTM), and *Thaumetopoea processionea* (OPM) using wing traps for each insect in each of 50 high risk sites from May through September. High risk sites include areas adjacent to or at retail nurseries, wholesale nurseries, or nursery growing yards. Traps will be checked every two weeks according to the National Exotic Wood Borer/Bark Beetle and Oak Commodity Survey Guidelines. Cooperator will also conduct surveys for *Dendrolimus pini and D. sibricus* using a milk carton trap, *Dendrolimus punctatus* and *Thaumetopoea pityocampa* using wing traps for each insect in each of the 50 high risk sites from May through September. Traps will be checked every two weeks according to the National Pine Commodity survey guidelines.

b. Cooperator will also conduct outreach to the nursery growers, arborists, and stakeholders at their annual meetings and as survey sites are arranged 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, after taxonomic evaluations.
- Pest risk and pathway analysis will be used to select survey sites in nurseries and other high-risk areas containing prominent oak/maple or fir, spruce, and pine populations during January through April.
- Surveys will be undertaken when pest symptoms are expressed and/or adult stages are flying: SBB, ESBB, LPW, MPSB April-September; GOTM May-July; OPM June-September; PPM, SSM, PTL, BFS, JPB, BSB, LPW and BSLB May-September. Lindgren funnel traps, moth wing, and milk carton traps will be checked every two weeks as per survey guidelines.
- Identifications will be conducted throughout the survey period from April through September and completed as needed in the fall.
- Cooperator outreach and risk communication will occur throughout the season at survey locations and at 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.
- PPQ site visits conducted at least once a year of planned survey activities.

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, screening, and to recognize symptoms of infestation of exotic moths and beetles. The workers will be supervised by the State Survey Coordinator (SSC) and will assist with trap surveys. The summer workers will need to be hired. All positions are paid positions.
- 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, screening and outreach activities.

4. **What equipment will be needed to perform the work?**

a. *What equipment will be provided by the cooperator?*
Cooperator will provide large format printer and state vehicles.

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 vehicles 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

Identify information technology equipment, e.g., computers, and their ancillary components.

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.

5. **What supplies will be needed to perform the work?**
   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?*
   Site selection and outreach: Printing supplies/postage for printing and sending grower information packets
   Moth and beetle surveys: Vials, ethanol, specimen containers, antifreeze, trap hanging hardware, mailers and postage
   d. *How will the supplies be used?*
   Supplies will be used to conduct surveys, conduct initial screenings, and ship any suspect specimens for confirmation.
   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*

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

7. **What are the travel needs for the project?**
   a. *Is there any local travel to daily work sites?*
   .Local travel to survey sites for moth and beetle trapping will occur biweekly from April through September. Cooperator will provide vehicles for local travel as state allows.
   b. *What extended or overnight travel will be performed (number of trips, their purpose, and approximate*
   No extended or overnight travel is anticipated for this project. Dr. Theodore Andreadis and Mr. Michael Last approve all travel.

8. **Reports**:

   All Reports will be completed in ezFedGrants. Reports include:

   a. Narrative accomplishment reports in the frequency and time frame specified on the Agreement Award Face Sheet.

   b. Federal Financial Reports, SF-425, in the frequency and time frame specified on the Agreement Award Face Sheet.

9. **Are there any <u>other</u> contributing parties who will be working on the project?**
   a. *If so, list other participating institutions/agencies who will work on the project.*

N/A

b. *Describe the nature of their effort.*
N/A.

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 confirming identification of suspect moth and beetle 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?*
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 will be involved in the project?*
Wholesale and Retail nurseries, including growing yards.

C. *Are there any unusual geographic features which may have an impact on the project?*
None.

V) DATA COLLECTION AND MAINTENANCE

Each State is responsible for entering complete, accurate, and timely pest survey data that was obtained using the Approved Methods for Pest Surveillance. The National Agricultural Pest Information System (NAPIS) is the final repository for all Pest Detection and Cooperative Agricultural Pest Survey (CAPS) survey results. As such, all data generated from all Pest Detection/CAPS surveys will be entered into NAPIS at https://napis.ceris.purdue.edu

- 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 no later than the date that the final Accomplishment Report is due, otherwise a justification must be provided in the Accomplishment Report. If results have not been returned from an identifier or diagnostic lab by the time the Accomplishment Report is due, please also notify the National Operations Manager for Pest Detection.

All survey data performed by federal personnel in conjunction with this agreement should be provided to the State Survey Coordinator for entry into NAPIS.

VI) TAXONOMIC SUPPORT

- *If you do not need additional assistance taxonomic assistance, list the person(s) or institution who will perform the identification/diagnostics, and do not check B.*

- *If you need assistance, check B.*

A. Person(s) or Institution that will screen targets (Name & Contact Information) and level of screening/identification.
Sorting, Level I: *Tortrix viridana, Thaumetopoea processionea, Thaumetopoea pityocampa, Dendrolimus pini, Dendrolimus sibricus, Dendolimus punctatus, Ips sexdentatus, Ips typographus, Hylobius abeitus*, and *Tomicus destruens*
Katherine Dugas, The Connecticut Agricultural Experiment Station
123 Huntington Street
New Haven, CT 06504
Katherine.dugas@ct.gov

OR

B. ☐ Request for taxonomic support.

VII) SURVEY SUMMARY FORM

A Survey Summary Form must be completed to summarize all CAPS surveys **funded by the Pest Detection line item.** If surveys are combined into one work plan, each individual survey still needs to be entered separately into the Survey Summary Form.

VIII) SIGNATURES

Victoria Lynn Smith 6 Dec 18

ROAR **Date**

KATE AITKENHEAD

Digitally signed by KATE AITKENHEAD
Date: 2018.12.06 14:11:54 -05'00'

ADODR **Date**

CAPS Survey Financial Plan - Survey

COOPERATOR NAME: The Connecticut Agricultural Experiment Station
TIME PERIOD: January 1, 2019 – December 31, 2019

ITEM	APHIS FUNDS	COOPERATOR FUNDS (Show even if zero)
PERSONNEL:		
SSC @ $23.54/hour for 625 hours	$14,713	$0
1 Summer Worker @ 575 hours @$11/hour	$6,325	$0
1 Summer Worker @ 575 hours @$11/hour	$6,325	$0
Subtotal	$27,363	$0
FRINGE BENEFITS:		
85% of salary for permanent employees	$12,506	$0
48% of salary for durational employees	$6,072	$0
Subtotal	$18,578	$0
TRAVEL:		
2 State car rentals for 4 mos @ $400/mo.	$3,200	$0
Subtotal	$3,200	$0
EQUIPMENT		
Subtotal	$0	$0
SUPPLIES		
Printing supplies and postage for sending grower information packets	$200	$0
Paint strainers for scolytid trap collections	$25	$0
Vials, bags, and filters for scolytid collections	$204	$0
Mailers for sending suspect specimens	$200	$0
Postage for sending suspect specimens	$200	$0
Antifreeze,24 gallons @ 35$/gallon	$900	$0
Trap hanging equipment (rope, twist ties, PVC etc.)	$230	$0
Ethanol, 4 gallons @ 150/4 gallons	$150	$0
Subtotal	$2,109	$0
CONTRACTUAL		
Subtotal	$0	$0
OTHER		
Subtotal	$0	$0
TOTAL DIRECT COSTS	$51,250	$0
INDIRECT COSTS (45% of Salary)	$12,313	$0
TOTAL	$63,563	$0
Cost Share Information	100%	0%