Pest Detection / CAPS Survey Work Plan - Fiscal Year 2020

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		
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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 42% of agricultural product sales (Economic Impact of Connecticut's Agricultural Industry, UConn, 2015). According to the CT Nursery and Landscape Association, the industry grosses more than $800 million annually.

Exotic moths, scolytid beetles, ceryambicid beetles, and the pathogens they vector threaten Connecticut's nursery industry. 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 pear leaf blister moth (PLBM), *Leucoptera mallifoliella* is a leafmining Lyonetiid found within temperate climates throughout Europe and Asia. It feeds on pear and apple, as well as on a wide variety of *Prunus*, including peach, cherry, plum, *Rosa, Sorbus, Betula,* and *Alnus*. Larval leafmining causes premature leaf drop, leading to a reduction in quality to ornamental trees and lower amount of fruit in production trees. Trees weakened by defoliation are also more susceptible to secondary pest infestation.

Platypus quercivorus, the oak ambrosia beetle (OAB), attacks oaks in the white oak group. It is also a vector for Japanese oak wilt (JOW), *Raffaelea quercivora.*

Tricoferus campestris, the velvet longhorned beetle (VLB) attacks a wide range of woody plant hosts, including apple, mulberry, birch, willow, and at least 40 other genera. Larval VLB's bure underneath the bark, creating large galleries and causing bark destruction and the yellowing of leaves. As this beetle can develop in dry wood, the primary pathway for introduction is in imported wood packaging and dunnage.

Anoplophora chinensis, the citrus longhorned beetle (CLB) is a close relative of the Asian longhorned beetle. It shares many of the same hosts as ALB, including maple, apple, poplar, willow, as well as citrus. The damage CLB causes is also very similar to ALB, where larval galleries damage bark and conducting tissue, but CLB additionally will also damage the lower trunk and roots of its host.

Lycorma delicatula, spotted lanternfly(SLF) was first found in North America in Pennsylvania in late 2014. It has since spread to multiple states, and interceptions of single adults have occurred throughout the northeast, including CT in October 2018. Its primary reproductive host tree-of-heaven is highly advantageous and is abundant along highways, in urban areas, and along the edges of agricultural and industrial areas, meaning that SLF could easily become established. Due to a large host range, SLF also has the potential to have a major impact on many of Connecticut's agricultural industries, as well as a nuisance pest in landscapes.

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

A. Determining whether OPM, PLBM, OAB, JOW, VLB, CLB, or SLF are present in Connecticut nurseries or forests.

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
Survey 1 - -Nursery Pest Survey				
Thaumetopoea processionea	oak processionary moth	Trap	Wing Trap Kit, Paper	*Thaumetopoea processionea* Lure

Leucoptera mallifoliella	pear leaf blister moth	Trap	Plastic Delta Trap, Red	*Leucoptera mallifoliella* Lure
Platypus quercivorus	oak ambrosia beetle	Trap	Multi-funnel Trap, 8 Funnel, Wet	*Platypus quercivorus* Lure
Raffaelea quercivora	Japanese oak wilt	Visual	Visual	Visual
Tricoferus campestris	velvet longhorned beetle	Trap	Cross Vane Panel Trap, Black	Ethanol Lure and *Tricoferus campestris* Lure
Anoplophora chinensis	citrus longhorned beetle	Visual	Visual	Visual
Lycorma delicatula	Spotted lanternfly	Visual	Visual	Visual

Survey 1:
A <u>Nursery Pest 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, as well as forested areas in close proximity to nursery activities), that sell, grow, cut, or contain in their surrounding periphery pest host hardwoods, especially oak, maple, apple, pear, cherry, poplar, willow, birch, and beech.
A Lindgren 8-funnel trap following national protocols developed by APHIS; baited with a lure for oak ambrosia beetle(OAB) will be installed at 50 high-risk sites; from June through August. Traps will be serviced every two weeks and lures replaced as needed, according to National Exotic Wood Borer/Bark Beetle Survey guidelines. Additionally, a visual survey for Japanese oak wilt(JOW), a fungal pathogen associated with OAB, will also be conducted. Paper wing traps and plastic delta traps following national protocols developed by APHIS for oak processionary moth (OPM) and pear leaf blister moth (PLBM) will also be installed at the same fifty high risk sites beginning the first week of June through August. The traps will be serviced every two weeks, and lures replaced as needed according to National Oak and Orchard Commodity survey guidelines.
A cross vane panel trap will be installed at the same fifty high risk sites for velvet longhorned beetle (VLB), from June through August. The traps will be serviced every two weeks, and lures replaced as needed according to National Oak and Orchard Commodity survey guidelines.
Finally, visual surveys will take place for the citrus longhorned beetle (CLB) and spotted lanternfly(SLF) at the same fifty high risk nursery sites. Host species (including Aceraceae, Betulaceae, Fagaceae, Rosaceae, Ulmaceae) will be inspected for potential CLB infestation. SLF visual survey will follow general detection survey protocol as outlined in the 2019 PPQ Spotted Lanternfly Program Operations Manual, and the periphery of nursery sites will also be inspected for the presence SLF's primary host tree tree-of-heaven, *Ailanthus altissima*. The surveys will take place beginning in July and will continue through October, the time period when CLB and SLF adults are active.

The CAPS SSC and assistants will conduct surveys, sort moth trap samples and send sorted samples containing suspect Lepidoptera to the Oregon Department of Agriculture Insect Pest Prevention and Management (IPPM) Lab for identification and screening. Additionally, all raw samples from lindgren and cross vane panel traps will be collected and sent to the Carnegie Museum of Natural History for sorting, screening, and identification. SSC and assistants will also conduct visual surveys. 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 *Thaumetopoea processionea* (OPM) and *Leucoptera mallifolella* (PLBM)using wing and delta traps for each insect in each of 50 high risk sites from June through August.
        - Cooperator will conduct trap surveys for *Platypus quercivorus*(OAB) using lindgren funnel traps in each of 50 high risk sites from June through August.
        - Cooperator will conduct trap surveys for *Trichoferus campestris*(VLB) using cross-vane panel traps in each of 50 high risk sites from June through August.
        - Cooperator will conduct visual surveys for *Raffaelea quercivora*(JOW) and *Anoplophora chinensis*(CLB) in each of 50 high risk sites in July and August.
        - Cooperator will conduct visual surveys for *Lycorma delicatula* in each of 50 high-risk sites in late July through October.
        - 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, Oak Commodity Survey, and Orchard 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 June 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 target pest hosts during January through April.
        - Surveys will be undertaken when pest symptoms are expressed and/or adult stages are flying: OPM and PLBM June - August; OAB and JOW June – August; VLB and CLB July – August; SLF July - October. Lindgren funnel traps, cross-vane panel traps, moth wing traps, and plastic delta traps will be checked every two weeks as per survey guidelines.

- Samples will be sent to appropriate identifiers throughout the survey period from June through August 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 and visual surveys, in sorting and sending samples for identification, and how recognize symptoms of infestation of exotic moths, beetles, diseases, and planthoppers. The workers will be supervised by the State Survey Coordinator (SSC) and will assist with trap and visual 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 printers 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 printers will be used for producing outreach materials; state vehicle will be used to conduct survey and for travel to meeting 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.**

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?**

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 distributing grower information packets.

Moth and beetle surveys: Paint strainers, sample bags, mailers, postage, antifreeze, trap installation hardware, and ethanol.

d. *How will the supplies be used?*

Supplies will be used to conduct surveys, conduct initial sorting, and shipping specimens to identifiers for screening and identification.

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)?**

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?* Local travel to survey sites for moth and beetle site establishment and trapping will occur biweekly from May through August. Cooperator will provide vehicle for local travel as state allows.

b. *What extended or overnight travel will be performed (number of trips, their purpose, and approximate dates)?* No extended or overnight travel is anticipated for this project. Dr. Theodore Andreadis and Mr. Michael Last approve all travel.

9. **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.

10. 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 nursery land, 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. In addition:

- 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 notify the ADODR and the National Operations Manager for Pest Detection.

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

VI) TAXONOMIC SUPPORT

Choose A or B.

- *If you do not need additional 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.

Scolytids and Cerymbicids: Bob Androw, Carnegie Museum of Natural History, To Target
440 Forbes Avenue
Pittsburgh, PA 15213

Moths: Richard Worth, Oregon Department of Agriculture, To Target
635 Capitol St. NE

Salem, OR 97301
(503) 986 6461

Japanese oak wilt: Yonghao Li, the Connecticut Agricultural Experiment Station, To Target
123 Huntington Street
New Haven, CT 06511-1106

OR

B. ☐ Request for taxonomic support. Provide the type of support needed in the Survey Summary Form.

VII) SURVEY SUMMARY FORM

A Survey Summary Form must be completed to summarize all Pest Detection/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 20Aug19
ROAR **Date**

ADODR **Date**

FY2020 Financial Plan – Survey

COOPERATOR NAME: **The Connecticut Agricultural Experiment Station**

TIME PERIOD (Cooperative Agreement Year): **January 1, 2020 – December 31, 2020**

ITEM	APHIS FUNDS		COOPERATOR FUNDS (Show even if zero)
PERSONNEL:			
State Survey Coordinator, 565 hrs. @ $24.36/hr	$14,372		
Seasonal Assistant, 575 hrs. @ $12/hr	$6,900		
Seasonal Assistant, 575 hrs. @ $12/hr	$6,900		
Subtotal	$28,172		$0
FRINGE BENEFITS:			
85% of salary for permanent employees	$12,216		
48% of salary for durational employees	$6,624		
Subtotal	$18,840		$0
TRAVEL:			
State Vehicle Rental, 4 months @ $400/month	$1,600		
Subtotal	$1,600		
EQUIPMENT			
Subtotal	$0		$0
SUPPLIES			
Printing supplies and postage for sending grower info packets	$200		
Paint strainers for scolytid trap collections, 1000	$70		
Sample bags for scolytid sample collections	$270		
Insulated mailers for specimens sent to identifiers 3 packs @ $78/pack	$240		
Postage for specimens sent to identifiers	$750		
Antifreeze, 24 gallons @ $120/6 gallons	$480		
Trap hanging equipment (rope, twist ties, PVC etc.)	$113		
Ethanol, 4 gallons @ $150/4 gallons	$150		
Subtotal	$2,273		$0
CONTRACTUAL			
Subtotal	$0		$0
OTHER			
Subtotal	$0		$0
TOTAL DIRECT COSTS	$50,885		$0
INDIRECT COSTS (45% of Salary)	$12,678		$0
TOTAL	$ 63,563		$0

Last Updated 5/13/19