Survey Work Plan - Fiscal Year 2017

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	17-8209-0327			
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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 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

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?

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. *Mamestra*

brassicae, the cabbage moth, is a highly polyphagus foliage feeder. It infests over 22 plant families, including oak, beech, birch, willow, and many brassicaceous plants.

Four cerymbicids two scolytids and one weevil 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 urussovii*, 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. *Trypodendron domesticum,* the European hardwood ambrosia beetle, is a cambial borer in maple, birch, *Prunus*, oak and other hardwoods and is present in Prince Edward Island, Canada. *Platypus quercivorus*, the oak ambrosia beetle, vectors an oak wilt fungus and attacks oaks in the white oak group. *Hylobius abietis*, the large pine weevil,is a significant pest of conifer plantations in Europe and Asia. Young plants are especially vulnerable to damage, and attacked trees may also be infected with secondary fungal pathogens. Although it will also attack deciduous trees, its preferred hosts are *Pinus* and *Picea.*

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:
What results or benefits will be derived from the cooperative effort? Use of bulleted Statements is acceptable.

A. Determining whether the GOTM, VGTM, OPM, CM, EHAB, OAB, BFS, JPS, BSB, LPW or BSLB are present in Connecticut nurseries, Christmas tree farms, sawmills, 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 (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?

- Moth trapping survey: We will conduct surveys for *Tortrix viridana* (GOTM), *Archips xylosteanus* (VGTM), *Thaumetopoea processionea* (OPM), and *Mamestra brassicae* (CM)using wing traps (and plastic bucket traps for CM) 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.
- Ambrosia beetle survey: We will conduct surveys for *Trypodendron domesticum* (EHAB) and *Platypus quercivorus* (OAB) using lindgren funnel traps 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), *Hylobius abietis*, (LPW), *Tetropium castaneum* (BSB), and *Tetropium fuscum* (BSLB) using Lindgren and 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*. Traps will be checked every two weeks according to the National Survey Guidelines.
- 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: EHAB April-June; OAB June-August; GOTM May-July; OPM June-September; CM May-September; VGTM June-August; BFS, JPB, BSB, LPW and BSLB

May-September. Cross-vane panel traps, lindgren funnel traps, and moth wing traps will be checked every two weeks as per survey guidelines.

- Identifications will be done throughout the survey period from April 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?**
    - A seasonal worker will be trained to run trap surveys and recognize symptoms of infestation of exotic moths and beetles. The worker will be supervised by the State Survey Coordinator (SSC) and will assist with trap surveys. The summer worker will need to be hired. All positions are paid positions.
    - Dr. Gale Ridge will be the level II identifier for the moth and beetle 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.
    - Donna Ellis of UConn will collaborate with the SSC to conduct moth and beetle surveys at 20 sites in northeastern CT, including Hartford, Tolland, New London, and Windham counties.

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?
   Site selection and outreach: Printing supplies/postage for printing and sending grower information packets
   Moth and beetle surveys: Vials, ethanol, antifreeze, trap hanging hardware, fiberoptic light sources, mailers and postage

   d. How will the supplies be used?
   Supplies will be used to conduct surveys, conduct initial screenings, and to ship 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

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 and beetle trapping will occur biweekly from April through 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 <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: Donna Ellis, UConn
   b. Describe the nature of their effort: Donna will coordinate and run moth and beetle surveys in northeastern CT, handling all traps 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 confirming identification of suspect GOTM, VGTM, OPM, CM, EHAB, OAB, BFS, JPB, BSB, LPW 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) and level of screening/identification.

Dr. Gale. E. Ridge, Level II screening, *Tortrix viridana, Archips xylosteanus, Thaumetopoea processionea, Mamestra brassicae, Platypus quercivorus, Trypodendron domesticum, Tetropium castaneum, Tetropium fuscum, Monochamus urussovii, Monochamus alternatus, Hylobius abietis,*
The Connecticut Agricultural Experiment Station
203-974-8478

OR

B. ☒ Request for taxonomic support.

i. Request for confirmation for:

a. *Tortrix viridana*
b. *Archips xylosteanus*
c. *Thaumetopoea processionea*
d. *Mamestra brassicae Trypodendron domesticum*
e. *Platypus quercivorus*
f. *Tetropium castaneum*
g. *Tetropium fuscum*
h. *Monochamus urussovii*
i. *Monochamus alternatus*
j. *Hylobius abietis*

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**.

If surveys are combined into one work plan, each individual survey still needs to be entered separately into the Survey Summary Form. This is important for CAPS and Pest Detection reporting purposes, as well as for populating My Surveys in NAPIS and the CAPS Accountability Report.

VIII) SIGNATURES

Victoria Lynn Smith 27 Sept 16
ROAR **Date**

KATE AITKENHEAD
Digitally signed by KATE AITKENHEAD
DN: c=US, o=U.S. Government, ou=Department of Agriculture, cn=KATE AITKENHEAD, 0.9.2342.19200300.100.1.1=12001000184542
Date: 2016.09.30 15:53:27 -04'00'

ADODR **Date**

CAPS Survey Financial Plan - Forest Pest Survey

COOPERATOR NAME: The Connecticut Agricultural Experiment Station
TIME PERIOD: January 1, 2017 – December 31, 2017

ITEM	APHIS FUNDS	COOPERATOR FUNDS (Show even if zero)
PERSONNEL:		
SSC @ $22.85/hour for 475 hours	$10,855	$0
1 Summer Worker @ 393 hours @$11/hour	$4,324	$0
Scientist Gale Ridge @ 70 hours @ 45.85/hour	$0	$3,210
Subtotal	$15,179	$3,210
FRINGE BENEFITS:		
85% of salary for permanent employees	$9,227	$2,729
48% of salary for durational employees	$2,075	$0
Subtotal	$11,302	$2,729
TRAVEL:		
State car rental for 1.5 mos @ $400/mo.	$820	$0
Subtotal	$820	$0
EQUIPMENT	$0	$0
Subtotal	$0	$0
SUPPLIES		
Printing supplies and postage for sending grower information packets	$171	$0
2 Fiberoptic Light Sources	$615	$0
Vials for Scolytid and Cerymbicid collections	$171	
Mailers	$118	$0
Postage	$224	$0
Antifreeze, 120 gallons @5$/gallon	$615	$0
Hanging hardware for beetle traps	$58	$0
Ethanol, 3 gallons @ 150$/4 gallons	$106	
Subtotal	$2,078	$0
CONTRACTUAL		
Donna Ellis, UConn	$6,152	$0
Subtotal	$6,152	$0
OTHER	$0	$0
Subtotal	$0	$0
TOTAL DIRECT COSTS	$35,531	$5,939
TOTAL	$35,531	$5,939
Cost Share Information	86%	14%